

Inter-market Trading of Operating Reserve

Market Pricing Working Group
6th March, 2008



This presentation is an overview and update of the inter-jurisdictional operating reserve trade study currently undertaken by the IESO.

TYPES OF INTER-JURISDICTIONAL TRADING IN ONTARIO

There are three types of inter-jurisdictional (IJT) transactions currently permitted in the IESO administered market:

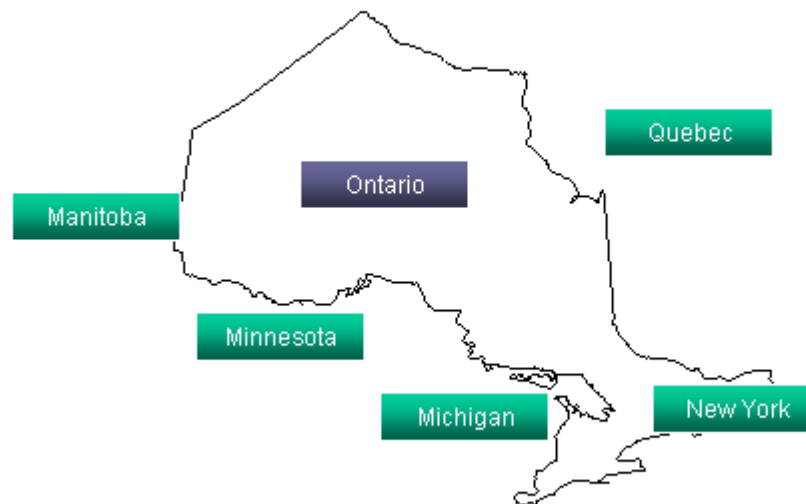
- Import energy or operating reserve from another jurisdiction into Ontario.
- Export energy from Ontario to another jurisdiction.
- Move energy from one jurisdiction, through Ontario, to a different jurisdiction, i.e. a linked wheel.

The IESO-administered markets do not permit the commercial exporting of operating reserve from Ontario to neighbouring jurisdiction.

The scope of this study is commercial inter-jurisdictional operating reserve trade, which includes the possibility, viability, efficiency and net benefit of commercially importing and exporting operating reserve to and from Ontario.

The IESO does participate in reliability based regional operating reserve programs within the Northeast Power Coordination Council (NPCC) such as shared activation of reserve (SAR) and regional reserve sharing (RRS). These programs are not within the scope of this study.

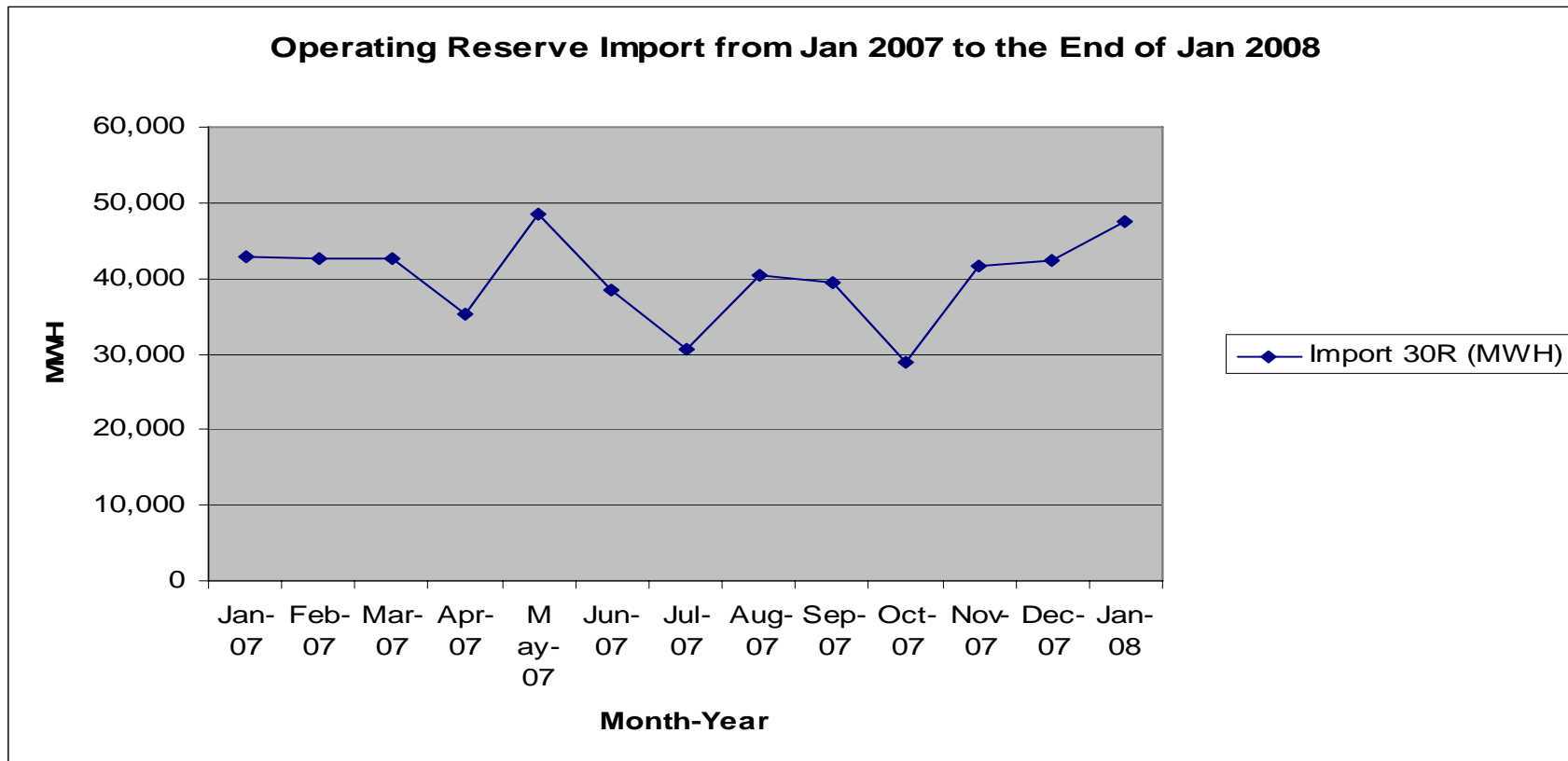
Interties



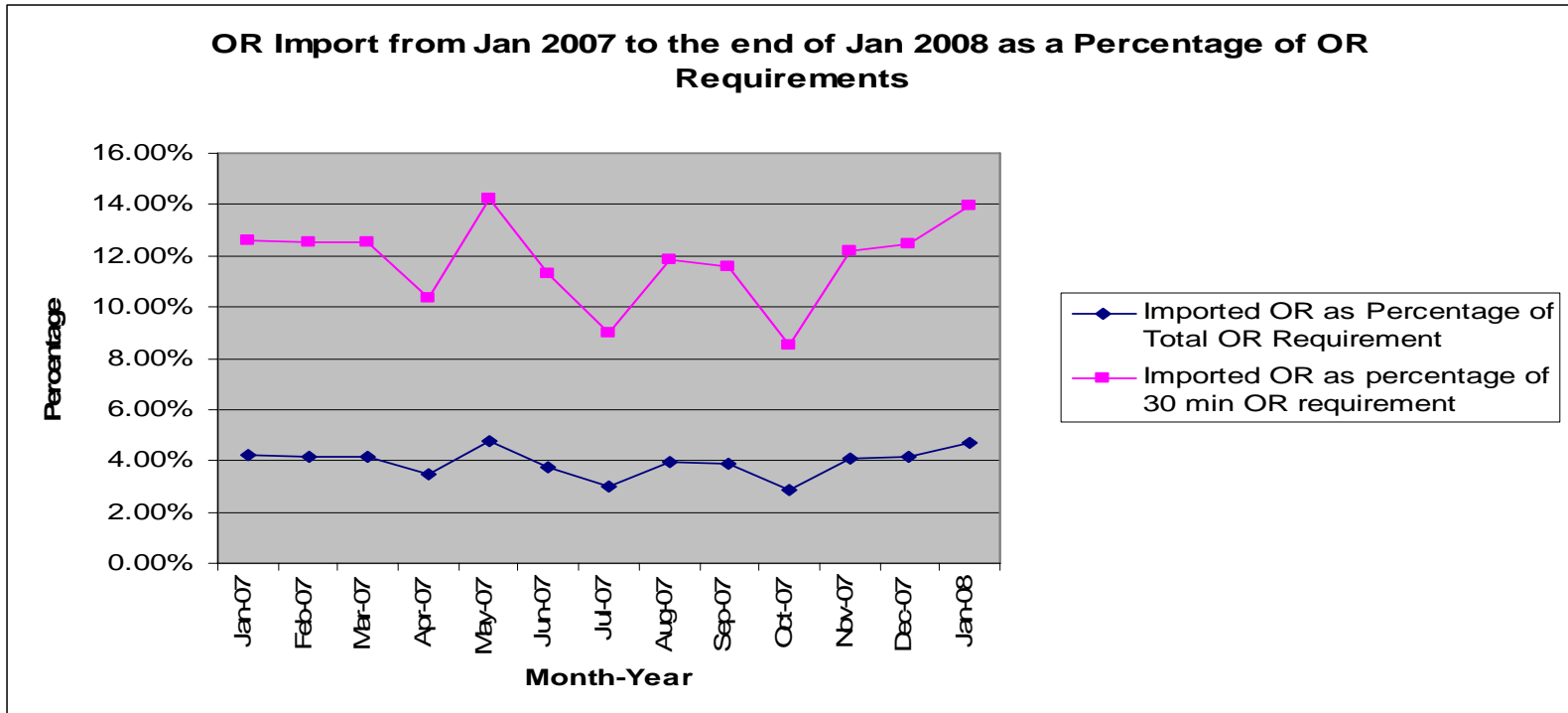
Market participants can import 10 minute non-spinning and 30 minute operating reserve. In order to offer operating reserve a participant must:

- Be able to provide the energy when called upon within the time frame specified by the class of operating reserve involved (either 10 minutes or 30 minutes).
- Be able to supply the energy for up to one hour (the neighbouring jurisdiction must allow this to occur).
- Each offer to provide operating reserve must be accompanied by a corresponding energy offer or energy bid that covers the same megawatt (MW) range.

The importing of operating reserve witnessed since market commencement consists of 30-minute operating reserve import from Quebec and MISO interfaces.



- The average level of OR imports per month is 40,127MWH (Jan 2007-2008).
- Over this period,
 - the maximum monthly OR import level is 48,415MWH in May 2007.
 - the minimum monthly OR import level is 28,929MWH in October 2007.



- Total Hourly operating reserve requirement is 1418MW.
- Hourly 30-min operating reserve requirement is 473MW, which is one-half of the second largest contingency on the grid.

From January 1, 2007 to January 31, 2008:

- 560,215 MWH of 30-minute operating reserve has been imported.

During this period, on average, imported operating reserve is:

- 3.93% of Total OR requirement and
- 11.78% of the 30-min OR requirement.

A broad and in-depth review of inter-market trade of operating reserve in North America followed by analysis and recommendation.

Review publicly available literature/documents and conduct interviews with North American (including Ontario) electricity market/system operators and participants to identify the nature and extent of commercial inter-market trading of operating reserve within North American electricity markets

- Is there inter-market operating reserve trading?
 - if yes, to what extent and how it is done.
 - if no, why not.
- Economic efficiency and reliability impacts of inter-market operating reserve trade.

Current Situation of the OR Market in Neighbouring Jurisdictions

- Midwest Independent System Operator (MISO)
- New York Independent System Operator (NYISO)
- Quebec

These jurisdictions would be the main trading jurisdictions for commercial operating reserve trade with Ontario.

Current Situation of the OR Market in Other Jurisdictions in North America

- California ISO
- Electric Reliability Council of Texas (ERCOT)
- ISO-New England
- PJM

Learn from the experience of these jurisdictions concerning operating reserve trade.

Regulatory Bodies

- Federal Energy Regulatory Commission (FERC)
- North American Electric Reliability Corporation (NERC).
- North East Power Co-ordinating Council (NPCC)
- National Energy Board (NEB).
- Ontario Energy Board (OEB).

Identify institutional, regulatory or other barriers to commercial importing and exporting of operating reserve to and from Ontario.

Inputs and Opinions of Market Participants

- Ontario
- Others

Identify barriers and opportunities (existing and potential) to increase importing and exporting of operating reserve.

-VOLUNTEERS?

ISOs

All the mentioned ISOs have been contacted for documentations/information. Some have responded by providing document/information and others are also expected to respond. Based on these, a detailed study would be conducted.

- Markets which permit commercial importing and exporting of operating reserve, the mechanism of doing so and relevant data.
- Markets that do not permit commercial inter-market operating reserve trade and why.

Regulatory Bodies

FERC and NERC has also been contacted and FERC has provided information/documents, which is now under study.

Incorporate and analyze the results and findings to identify/assess, qualitatively:

- a) The potential impact of commercial imports and exports of operating reserve on the economic efficiencies of the IESO-administered markets.
-Are there efficiency improvements?
- b) The potential impact of commercial imports and exports of operating reserve on the reliability of the IESO-controlled grid and the northern region.
-Is reliability maintained?
- c) Barriers to commercial inter-market trade of operating reserve to/from Ontario.

Based on the analysis and survey, recommend:

- a) Whether the commercial importing and exporting of operating reserve to/from Ontario should be further evaluated, i.e., detailed cost-benefit analysis.
- b) The best steps, if applicable, to be taken to remove or overcome the identified barriers.

Stakeholder Engagement Plan	
Activity	Schedule
Presentation of the findings-to-date to the MPWG. Incorporate the discussion/feedback in the analysis/review	March - June 2008
Presentation of IESO recommendation to the MPWG for feedback	July – August 2008
IESO recommendation and MPWG feedback to IESO Board	September 2008

Thank You.