

## Market Pricing Working Group

-- DRAFT TRACKING DOCUMENT OF PRICING ISSUES AND INITIATIVES --

Version: August 20, 2004\*

ID	ISSUE/ INITIATIVE	DATE RAISED & DESCRIPTION	STATUS	NEXT STEPS	RELATED ISSUES/ INITIATIVES	ADDITIONAL REFERENCES
001	<b>Pre-Dispatch Price Bandwidths Uncertainty</b>	Noted in May 2003 Pricing Team Report. "Price bands" published on IMO web site to indicate sensitivity of pre-dispatch prices to changes in demand: would help participants anticipate the. <a href="#">Many participants (importers/exporters, participants in TDRP and HADL) use pre-dispatch prices in both making business decisions and managing their actions in the market. However, the IMO currently publishes no information on pre-dispatch price uncertainty.</a>	[open] "2-pager" issue document being developed by Market Pricing Working Group for August 20, 2004 (new name and major re-write)		009; 012; 013; 014; 015	<a href="http://www.theimo.com/imo/moweb/pubs/consult/mktOps/mo_paper_PricingIssues_20030528.pdf">http://www.theimo.com/imo/moweb/pubs/consult/mktOps/mo_paper_PricingIssues_20030528.pdf</a>
002	<b>Publishing Nodal Price Data</b>	Noted in December 2003 as part of Day-Ahead Market working group historical nodal pricing analysis.	[CLOSED] Representative nodal prices for 10 Ontario zones and generator weighted average prices are now available on "Market Summaries" section of IMO Web "2-pager" issue document being developed by Market Pricing Working Group for August 20, 2004	N/A	004; 016; 018; 020; 022; 023; 27;	<a href="http://www.theimo.com/imo/moweb/marketdata/marketSummary.asp">http://www.theimo.com/imo/moweb/marketdata/marketSummary.asp</a>
003	<b>Information to Explain Dispatch Optimization Process</b>	Noted in May 2004 at 1 <sup>st</sup> Market Pricing working group stakeholder meeting.	[open]	IMO "Quick Take" is under development	004; 005; 013; 017; 024;	
004	<b>Use of 12-times Ramp Rate in the Dispatch Unconstrained Algorithm</b>	12-times ramp rate introduced in April 2002 to address periods of large demand change.  When determining the real-time uniform market clearing price, it is assumed that dispatchable facilities have an energy ramping capability that is 12 times higher than their actual ramping capability (i.e. 60 minutes of ramping capability in a 5-minute period).	[open] No changes to this feature have been made. Some analysis has been performed by the internal pricing team and presented at MOSC on December 3, 2003.  "2-pager" issue document developed by Market Pricing Working Group in June 2004.		002; 004; 005; 012; 016; 022; 025; 27;	<a href="http://www.theimo.com/imo/moweb/pubs/consult/mktOps/mo_pres_PricingIssuesUpdate_2003Dec03.ppt">http://www.theimo.com/imo/moweb/pubs/consult/mktOps/mo_pres_PricingIssuesUpdate_2003Dec03.ppt</a>
005	<b>Simultaneous Use of Ramping Generation Units for Energy and Operating Reserve</b>	Noted by Day-Ahead Market working group. Current algorithm will not simultaneously schedule a generating unit at its maximum ramp capability for energy and reserve. The simultaneous use of ramping and reserve would be allowed under the proposed Day-Ahead Market design.	[open] "2-pager" issue document being developed by Market Pricing Working Group for August 20, 2004		003; 004; 013; 022; 025;	

\*Note: Priority levels for individual issues in this document have not yet been identified; priorities will be determined during the Working Group's deliberations and will be reflected in each issue's "status" section. Changes since August 06, 2004 have been highlighted.

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006	<b>Effects of Emergency Purchases on the Market</b>	Noted in May 2004 at 1 <sup>st</sup> Market Pricing working group meeting.	[open] "2-pager" issue document developed by Market Pricing Working Group in July, 2004.		001; 003; 005; 009; 013; 014; 015; 024; 027;	
007	<b>Imports and Exports Setting Price</b>	Noted <u>early in the operation if the IMO-administered markets and raised again</u> by Day-Ahead Market working group <u>in early 2004</u> .  <u>Issue relates to the different treatment of import offers and export bids in pre-dispatch as compared to real-time and related implications.</u> <u>Imports, exports and quick start units (that have a minimum run-time of an hour) would be able to set price in the proposed Day-Ahead Market. The resulting issue relates to considering those specific conditions and mechanisms under which such imports, exports, and quick start units might be able to set the Market Clearing Price in the Real Time Market.</u>	[open] "2-pager" issue document <u>being developed by Market Pricing Working Group for August 20, 2004 (new name and major re-write)</u> .		008; 012; 013; 014; 024;	
008	<b>Multi-Part Bids/Offers</b>	Noted by Day-Ahead Market working group. Bids and offers in the proposed Day-Ahead Market design could be submitted in multiple parts, consisting of "start-up", minimum generation", & "incremental energy" components. Current real-time market does not provide for such multi-part bids and offers.	[open]		007; 005; 012;	
009	<b>Use of Peak Demand Load Forecast in Pre-Dispatch</b>	Noted by Market Surveillance Panel Results in an overestimation of pre-dispatch prices relative to the real-time HOEP	[open] "2-pager" issue document developed by Market Pricing Working Group in July, 2004.		001; 010; 013; 014; 015;	

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010	<b>Over -Forecasting of Demand in Hours 23, 24.</b>	Noted in Market Surveillance Panel report #2	[open] "2-pager" issue document developed by Market Pricing Working Group in July, 2004.		001; 009; 013; 014; 015;	<a href="http://www.theimo.com/imoeb/pubs/marketSurv/ms_mspReport_20030331.pdf">http://www.theimo.com/imoeb/pubs/marketSurv/ms_mspReport_20030331.pdf</a>
011	<b>Comparing Treatment of Self-Scheduling Resources in Pre-Dispatch and Real-Time</b>	Noted by Market Surveillance Panel  Issue relates to implications of differences in assumptions concerning Self Scheduling Generator (SSG) output due to inconsistencies between the schedules provided by the SSG units (used in pre-dispatch) and the forecasted output (used in the real time constrained sequence).	[open] "2-pager" issue document developed by Market Pricing Working Group for August 20, 2004.			
012	<b>Under-commitment of Available Generation</b>	Noted in May 2003 Pricing Team Report as Spare Generation On-Line. Insufficient amounts of available generation was being committed by participant, to address disturbances or changes in system conditions close to real-time, thereby requiring IMO to rely on out of market resources. Arises from risk of not recovering start-up and min generation costs.	[CLOSED] Implemented Generation Cost Guarantee provisions in market in August 2003. Arrangement entails guaranteed "start-up", "speed no-load", and "minimum generation" costs to eligible resources.	N/A	001; 008; 009; 010; 013; 014; 015; 027;	<a href="http://www.theimo.com/imoeb/pubs/consult/mktOps/mo_paper_PricingIssues_20030528.pdf">http://www.theimo.com/imoeb/pubs/consult/mktOps/mo_paper_PricingIssues_20030528.pdf</a>
013	<b>Impact of Out of Market Sources of Operating Reserve on the Market</b>	Noted in May 2003 Pricing Team Report:	[open] Use of out-of-market resources integrated into pre-dispatch sequence by applying a price to each of those resources and inserting them in the market as operating reserve offers. Currently, 400MW of Control Action Operating Reserve (CAOR) is offered in the market representing load reduction that would be realized if a 3% voltage reduction was implemented. Relates to the predictable and transparent. integration of out-of-market resources into the marketplace.  "2-pager" issue document developed by Market Pricing Working Group in July 2004.	Dynamic scheduling of Voltage Reduction CAOR based on Primary Demand forecast;  Including additional Control Actions as CAOR (i.e. not meeting 30 min. reserve requirement, emergency purchases)	001; 003; 005; 006; 009; 010; 012; 014; 015; 024; 027;	

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014	<b>Hour(s)-Ahead Price Signal Uncertainty</b>	Noted in May 2003 Pricing Team Report. Hour-Ahead Dispatchable load initiative raised as a way to increase the amount of price-responsive load within the IMO-administered markets, particularly in view of the limited extent to which certain loads are able to respond to five-minute dispatch instructions due to physical limitations.	[CLOSED] Hour-Ahead Dispatchable Load Offer Guarantee that would compensate load for reducing its consumption on the basis of pre-dispatch when real-time price was such that the load would not have reduced its consumption. Allows to submit offers to reduce consumption and indicate the amount of consumption reduction that would occur at a specific price if dispatched. Implemented in May 2003. Current participation consists of ~235MW.	N/A	001; 003; 004; 006; 007; 009; 010; 012; 013; 015; 023; 024;	
015	<b>Restriction on Changes to Dispatch Data between 4 and 2 hours ahead of Dispatch Hour</b>	Noted in May 2003 Pricing Team Report. Relates to increasing the ability of Market Participants to react to market or system changes occurring prior to the dispatch hour.	[CLOSED] Unrestricted changes to dispatch data up to 2 hours ahead of dispatch hour allowed Introduced on trial basis in 2002, implemented in <u>June September 2003</u> . "2-pager" issue document developed by Market Pricing Working Group for August 20, 2004.	N/A	001; 006; 007; 009; 010; 012; 013; 014; 024;	
016	<b>Historical Analysis of Nodal Prices</b>	Entails: (a) total pricing comparison - to consistently compare uniform and nodal prices and show how these prices have varied over time; (b) Spatial analysis - to show how nodal prices have varied across Ontario	[open] Historical nodal pricing analysis performed as a part of the Day-Ahead Market Working Group in late 2003 – study spanned period of October 04 2002 to December 31 2003. Analysis undertaken to help assess what might have been the impact of nodal pricing.  Results presented at various stakeholder forums and posted on IMO web. "2-pager" issue document developed by Market Pricing Working Group for August 20, 2004.		002; 004; 010; 017; 018; 019; 020; 022; 023; 027;	<a href="http://www.theimo.com/imo/web/pubs/consult/mep/DAM_WG_2003Dec11-NodalAnalysis.pdf">http://www.theimo.com/imo/web/pubs/consult/mep/DAM_WG_2003Dec11-NodalAnalysis.pdf</a>
017	<b>Comparison of Operating Reserve Prices in Congestion Pricing and Uniform Pricing Regimes</b>		[open]		002; 004; 005; 013; 016; 022; 027;	

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018	<b>Pricing and Allocating Line Losses</b>	Noted during historical analysis of nodal prices. Under the current uniform pricing system, losses are allocated on an Ontario-wide average basis and are recovered as uplift. Under a nodal system, line loss costs are allocated to each node in a manner that recognizes each node's individual contribution to/impact on those costs.	[open] "2-pager" issue document developed by Market Pricing Working Group in July 2004.		002; 016; 019; 022; 027;	
019	<b>Line Loss Factors</b>	Noted during historical analysis of nodal prices. Relates to whether static rather than dynamic penalty factors are used	[open] "2-pager" issue document developed by Market Pricing Working Group in July, 2004.		018; 022;	
020	<b>Treatment of Imports in a Congestion Pricing Regime</b>	Noted during historical analysis of nodal prices.	[open]		002; 007; 016; 017; 022; 027;	
021	<b>Time Lag Associated with Contingency Detection</b>		[open]			
022	<b>Pricing Physical Constraints</b>	Prices are currently computed in an unconstrained market sequence, whereas dispatch instructions are issued according to a security constrained sequence. Additional costs are incurred in Ontario's "uniform pricing" system when the actual security constrained dispatch of resources required to satisfy load at a given interval differs from the purely economic solution produced by the unconstrained algorithm. These additional side-payments pose implications for efficient market signalling.	[open] "2-pager" issue document developed by Market Pricing Working Group in July, 2004.		002; 004; 016; 018; 023; 027;	

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023	<b>Elimination of Constrained-off Payments Uncertainty with respect to Constraint Payments</b>	Prompted by October 2002 review of the IMO Market Surveillance Panel and raised in August 2004 by the IMO Market Pricing Working Group. Issue relates to general concerns expressed by market participants over the future prospect and impact of changes to Ontario's constraint payment regime.	[open] Following consultation on the issue, the Market Surveillance Panel concluded in 2003 that "elimination of all constrained off CMSC payments at this point in the evolution of the market would be premature". The Panel asserted that it "will revisit the issue of CMSC payments towards the end of 2004, in light of conditions at that time". Proposed Ontario Day-Ahead Market would feature uniform pricing with CMSC. "2-pager" issue document developed by Market Pricing Working Group for August 20, 2004 (new name and major rewrite).		004; 014; 016; 022;	<a href="http://www.theimo.com/imoweb/pubs/consult/cmssc/cmssc_paper_2003_0218.pdf">http://www.theimo.com/imoweb/pubs/consult/cmssc/cmssc_paper_2003_0218.pdf</a>
024	<b>Reducing Frequency of Failed Intertie Transactions</b>	Noted in May 2003 Pricing Team Report. Three avenues to reduce failed intertie transactions: 1. continued enforcement of compliance with Market Rules 2. discussing measures to better align interjurisdictional trading with neighbouring systems 3. investigating potential improvements to the bidding/offering process for exports and import	[open] 1. Market monitoring and assessment ongoing 2. Enhancements to protocol with NYISO being developed; work is ongoing with MISO to increase transmission availability and reassignment; work ongoing with PJM to address PJM ramp rate limitations 3. IMO reviewing offer/bid process and other ISO checkout processes to simplify the import/export process. "2-pager" issue document developed by Market Pricing Working Group for August 20, 2004		001; 006; 012; 013; 014; 015;	
025	<b>Temporal Optimization in the Real-Time Constrained Sequence but Not in the Real-Time Unconstrained Sequence</b>	Noted in January 2003 IMO MEP discussion paper. The IMO's Dispatch Scheduling Optimizer derives dispatch instructions for dispatchable facilities every five minutes. Currently, the results for each five-minute interval are calculated independently – the requirements of future intervals are not considered. Consequences include: Fast-loading resources tend to be cycled more frequently than is desirable; Loading fast-loading resources based on the economics of one interval can drive the system into reserve shortfalls when more expensive, slow-loading resources are all that is available in subsequent intervals; CMSC payments arise.	[open] The Multi-Interval Optimization (MIO) project is underway to address the resulting issues.  MIO went live on June 23, 2004.  "2-pager" issue document developed by Market Pricing Working Group in July 2004.		003; 004; 005; 009; 012; 027; 31;	<a href="http://www.theimo.com/imoweb/pubs/consult/mep/mep_MIOProposal_20030131.pdf">http://www.theimo.com/imoweb/pubs/consult/mep/mep_MIOProposal_20030131.pdf</a>

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026	<b>Relationship between Competitive and Regulated Wholesale Prices</b>	Raised in April 2004. The Ontario Ministry of Energy's "new vision" for Ontario electricity sector would entail a combination of a regulated and a competitive electricity generation sector whereby part of the supply would be price-regulated by the Ontario Energy Board, and part would be paid the competitive market price.	[open] New legislation pending. Passage expected in Autumn 2004.  Preliminary "2-pager" issue document developed by Market Pricing Working Group for August 20, 2004.			<a href="http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&amp;back=yes&amp;news_id=59&amp;backgrounder_id=44">http://www.energy.gov.on.ca/index.cfm?fuseaction=english.news&amp;back=yes&amp;news_id=59&amp;backgrounder_id=44</a>
027	<b>Timing Differences Between Unconstrained And Constrained Real-Time Sequences</b>	In December 2003, the IMO's Day Ahead Market Working Group developed an analysis comparing "uniform" and nodal prices for a given study period and addressing the causes of the differences between those prices. It was found that differences between uniform and nodal prices were partly attributable to demand differences between the real-time unconstrained and constrained sequences.	[open] "2-pager" issue document developed by Market Pricing Working Group in June 2004.	As suggested at the June 25 Market Pricing Working Group meeting, further analysis could entail analyzing, among other things, the magnitude, frequency, timing, and distribution of over- and under-forecasts of demand.	002; 004; 010; 012; 013; 016; 018; 020; 022;	
028	<b>Compensation under Administered Pricing when Incorrect Prices have been Posted.</b>	Noted in January 2004, Identified as Participant Issue #924.  Load customers that respond to high prices that are determined to be incorrect lose significant production and income and become hesitant to respond to price signals. To increase their confidence in the price signals they would like to be compensated for losses in the event that prices are corrected.	[open] "2-pager" issue document developed by Market Pricing Working Group for August 20, 2004.			<a href="http://www.theimo.com/imoweb/implementation/issues_log.asp">http://www.theimo.com/imoweb/implementation/issues_log.asp</a>

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029	<b>5-Minute Resolution of Price One-Hour Ahead</b>	<p>Noted in June 2004 at 3<sup>rd</sup> Market Pricing Working Group stakeholder meeting. Pre-Dispatch Prices entail an hourly resolution, whereas Real-Time prices entail a 5-minute resolution.</p> <p>5-minute resolution one-hour ahead might offer greater price discovery ahead of Real-Time.</p>	[open]		004; 006; 009; 010; 012; 013; 014;	
030	<b>Forecast of Real-Time Price</b>	<p>Noted in Appendix C of the Market Surveillance Panel report for September 2002 – January 2003.</p> <p>This issue relates to providing market participants with price information - in pre-dispatch - that is a more accurate forecast or indication of what the HOEP is likely to be. Such forecasts might assist participants in the price discovery process.</p> <p>Currently, the IMO does not forecast the real-time price.</p>	[open]	<p>Market Surveillance Panel Report # 2 (March 24, 2003) outlined a possible approach whereby forecasts of market prices could be formally produced based on factors such as primary demand forecast, expected supply capability, and expected intertie transactions. A probability distribution could then be assigned around each factor and, using a Monte Carlo technique, a distribution of resulting market prices could be developed.</p> <p><b>"2-pager" issue document developed by Market Pricing Working Group for August 20, 2004.</b></p>	001; 006; 009; 010; 012; 013; 014; 015; 024;	<a href="http://www.theimo.com/imoweb/pubs/marketSurv/ms_mspReport_20030331.pdf">http://www.theimo.com/imoweb/pubs/marketSurv/ms_mspReport_20030331.pdf</a>
031	<b>Multi-Interval Optimization Pricing Methodology</b>	<p>Noted in January 2003 IMO MEP discussion paper.</p>	[open]	<p>Multi Interval Optimization went live on June 23, 2004.</p> <p>"2-pager" issue document developed by Market Pricing Working Group in July 2004.</p>	003; 004; 005; 009; 012; 025; 027;	<a href="http://www.theimo.com/imoweb/news/newsItem.asp?newsItemID=1127">http://www.theimo.com/imoweb/news/newsItem.asp?newsItemID=1127</a>

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032	<b>Role of Import Offer Guarantee in Certain Hours</b>	Noted in Market Surveillance Panel Report, June 14, 2004. Issue relates to the question of whether the Import Offer Guarantee is appropriate in certain hours such as 23:00 and 24:00. Namely, whether the premiums paid in such hours are worth the benefits.	[open] "2-pager" issue document being developed by Market Pricing Working Group for August 20, 2004.			<a href="http://www.theimo.com/imoweb/pubs/marketSurv/ms_mspReport-20040614.pdf">http://www.theimo.com/imoweb/pubs/marketSurv/ms_mspReport-20040614.pdf</a>
033	<b>Rules for Determining Prices in Times of Shortage</b>	Noted in Market Surveillance Panel Report, June 14, 2004. Issue relates to the shortage-pricing algorithm provided for in Chapter 7, s. 8.2.2.2. of the IMO Market Rules.	[open] "2-pager" issue document being developed by Market Pricing Working Group, August 2004.			
034	<b>Rules Concerning the Breaker Status of "Quick Start Facilities"</b>	Noted in Market Surveillance Panel Report, June 14, 2004.  Issue relates to consideration of the appropriateness of existing rules concerning the breaker status of quick start facilities.	[open] "2-pager" issue document being developed by Market Pricing Working Group, August 2004.			
035	<b>Impact of "Other" Out Of Market Control Actions on the Market</b>	Noted in May 2003 Pricing Team Report:  Issue relates to market impacts of control actions other than emergency imports or use of out of market operating reserve.	[open] "2-pager" issue document being developed by Market Pricing Working Group, August 2004.		001; 003; 005; 006; 009; 010; 012; 014; 015; 024; 027;	<a href="http://www.theimo.com/imoweb/pubs/systemOps/so_GridOpPolicies.pdf">http://www.theimo.com/imoweb/pubs/systemOps/so_GridOpPolicies.pdf</a>
036	<b>Pricing In-Market Control Action Operating Reserve</b>	Noted at July 09 Market Pricing Working Group session.  Issue relates to addressing the rationale, market implications, and overall appropriateness of the current prices for in-market CAOR.	[open] "2-pager" issue document being developed by Market Pricing Working Group, August 2004.			001; 003; 005; 006; 009; 010; 012; 013; 014; 015; 024; 027;

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