

Market Renewal Program

MRP Energy Detailed Design | Engagement Days

June 26, 2020

Today's Objective

- Support stakeholders in their review of four MRP Energy draft detailed design documents that are currently open for feedback:
 - Offers, Bids and Data Inputs
 - Market Power Mitigation
 - Grid and Market Operations Integration
 - Market Settlement

Today's Objective (cont'd)

- Review specific areas of stakeholder interest contained in the design documents that may require further clarification or explanation from the IESO
 - With the intention to better inform written stakeholder feedback on the detailed design documents
- Discussion on design topics (i.e. how input from the technical sessions and the HLD phase guided the design)

Market Renewal Program Background

- Market enhancements to create significant cost-efficiencies for Ontario's energy consumers. The renewed electricity markets will resolve current inefficiencies and further promote competitive outcomes
- The **Market Renewal Program (MRP)** energy stream was initially comprised of three project initiatives – the **single schedule market (SSM)**, **day-ahead market (DAM)** and **enhanced real-time unit commitment (ERUC)**

Engagement Process

MRP Detailed Design

Detailed Design Release Schedule

Date	Design Document Topics
November 28, 2019	<ul style="list-style-type: none">• Overview• Authorization and Participation• Prudential Security• Facility Registration• Revenue Meter Registration• Market Billing and Funds Administration
March 26, 2020	<ul style="list-style-type: none">• Publishing and Reporting Market Information
May 5, 2020	<ul style="list-style-type: none">• Grid and Market Operations Integration• Offers, Bids and Data Inputs• Market Power Mitigation
May 11, 2020	<ul style="list-style-type: none">• Market Settlement
July 27, 2020	<ul style="list-style-type: none">• Day-Ahead Market Calculation Engine• Pre-Dispatch Calculation Engine• Real-Time Calculation Engine

Draft Design Documents (13)

- Stakeholders continue to review draft detailed design documents and have provided feedback on six detailed design documents already
- Input is important as these documents provide a more detailed understanding of the energy market redesign and focus on specific processes of participating in the IESO Administered Markets
- The detailed design is critical in setting the stage for the draft rules and manuals phase of engagement prior to the Technical Panel and IESO Board approval process in 2021

Engagement Process: Detailed Design

The following process will guide both stakeholders and the IESO through the detailed design phase of MRP



Detailed Design Engagement

- The IESO hosted 14 productive engagement sessions on the Energy detailed design since September 2019
 - 9 were Technical Sessions on specific design topics
 - Recognizing the value of stakeholder input to produce a draft design, the objective of the technical sessions was to inform the detailed design by ensuring the IESO was aware of viewpoints or concerns in advance of publishing draft design documents
- The IESO benefited from stakeholder input received through the technical sessions while drafting the detailed design documents

Offers, Bids, and Data Inputs

Offers, Bids, and Data Inputs

Highlights:

- Dispatch data for new DAM participants:
 - Price Responsive Loads
 - Virtual Transaction Energy Traders
- New dispatch data parameters for dispatchable resources
 - Wind and solar resources (forecast option)
 - Hydroelectric resources
 - Combined cycle resources

Offers, Bids, and Data Inputs

Highlights Cont'd:

- Existing participation obligations retained
 - ADE for dispatchable resources
 - Expected production and consumption for non-dispatchable resources
- Constraint violation penalty curves
- IESO demand forecast
 - Producing the province wide forecast as the sum of four demand forecast areas

Offers, Bids, and Data Inputs

Technical Session Output:

Stakeholders requested two additional thermal operating states for lead time, along with information on how lead time will be used in the DAM

Detailed Design:

- The calculation engines can accommodate up to three thermal states (hot, warm, cold) while still producing a timely result
- The DAM calculation engine will not use the lead time parameter

Document Sections:

3.4.2 Generation Facility Dispatch Data to Supply Energy

3.4.6 Dispatch Data to Supply Operating Reserve

Offers, Bids, and Data Inputs

Technical Session Output:

Stakeholders requested improvements to how dispatchable hydroelectric resources are scheduled to better respect their unique operating characteristics

Detailed Design:

- Six new dispatch data parameters to better reflect the operating characteristics of dispatchable hydroelectric resources
- The new parameters have been refined based on stakeholder feedback

Document Sections:

3.4.2 Generation Facility Dispatch Data to Supply Energy

Offers, Bids, and Data Inputs

Technical Session Output:

Stakeholders stated a preference for greater flexibility in pricing the import and export legs of linked wheel transactions

Detailed Design:

- Market participants will no longer be required to submit the export bid at MMCP and the import offer between -\$50 and negative MMCP
- NERC Tag IDs will link the import and export legs of wheel-through transactions

Document Sections:

3.4.5 Boundary Entity Dispatch Data to Import and Export Energy

Offers, Bids, and Data Inputs

Technical Session Output:

Stakeholders requested improvements to the feasibility of operating reserve schedules for pseudo units

Detailed Design:

- New parameter for steam turbine 10-min operating reserve contribution. This parameter represents the percentage of 10S that can be allocated to the steam turbine
- The DAM, PD and RT calculation engines will use the new parameter to allocate operating reserve schedules to the combustion turbine and steam turbine

Document Sections:

3.4.6 Dispatch Data to Supply Operating Reserve

Questions?

Offers, Bids, and Data Inputs

Market Power Mitigation

Market Power Mitigation

Highlights:

- New ex-ante processes in the day-ahead, pre-dispatch, and real-time calculation engines to address situations where market power impacts:
 - Dispatch schedules
 - Energy prices
 - Operating reserve prices
 - Make-whole payments

Market Power Mitigation

Highlights Cont'd:

- Constrained area designations to reflect when and where competition is restricted
- Conduct and impact testing methodology

Market Power Mitigation

Highlights Cont'd:

- New ex-post processes to alleviate the effects of physical withholding
- New ex-post processes to address situations where economic withholding impacts prices or make-whole payments on uncompetitive interties

Market Power Mitigation

Technical Session Output:

Stakeholders wanted to know more about conduct and impact testing for economic and physical withholding in the operating reserve market

Detailed Design:

- The design includes conduct and impact test thresholds for operating reserve

Document Sections:

3.6.2 Ex-ante Mitigation for Operating Reserve Price Impact

3.9.3 Mitigation for Physical Withholding in the Operating Reserve Market

Market Power Mitigation

Technical Session Output:

Getting the reference levels right is a priority for stakeholders.

Detailed Design:

- The design describes the methodology and process that will be used to establish reference levels
 - Includes information for additional resource types, such as dual-fuel resources and pseudo units

Document Sections:

3.13 Reference Levels

Implementation:

- The IESO will engage with stakeholders specifically on establishing reference levels starting in September
- Engagement will include methodologies for cost components used in the financial reference level equations

Market Power Mitigation

Technical Session Output:

Stakeholders asked the IESO to consider implementing a must-offer requirement instead of a physical withholding framework

Detailed Design:

- Physical withholding framework proposal retained as it is a more transparent, consistent approach than a must-offer requirement

Document Sections:

3.9 Ex-post Mitigation for Physical Withholding

Market Power Mitigation

Technical Session Output:

Stakeholders had concerns about setting the reference quantity as a function of installed capacity less outages and de-rates

Detailed Design:

- The methodology for determining reference quantities was updated to be consistent with what is currently used to assess resource contributions to reliability in the Reliability Outlook

Document Sections:

3.14 Reference Quantities

Questions?

Market Power Mitigation

Grid and Market Operations Integration

Grid and Market Operations Integration

Highlights:

- New day-ahead market will produce financially-binding schedules and day-ahead market prices for all 24 hours of the next dispatch day
 - DAM calculation engine will evaluate six new dispatch data parameters for dispatchable hydro
 - NQS operational commitments will continue to be passed to PD
 - DAM import/export schedules will be given specific treatment in PD

Grid and Market Operations Integration

Highlights Cont'd:

- New pre-dispatch scheduling process will optimize resource schedules for the balance of the pre-dispatch day and the next dispatch day
 - PD calculation engine will be capable of determining schedules and commitments for pseudo units
 - Three types of PD commitments for NQS resources:
 - Advancement of a DAM operational commitment
 - Stand-alone PD operational commitment
 - Extension to an existing DAM or PD operational commitment

Grid and Market Operations Integration

Highlights Cont'd:

- New pre-dispatch scheduling process cont'd:
 - PD calculation engine will determine advisory schedules for dispatchable hydro resources with respect to all dispatch data parameters
 - PD will continue to determine intertie transactions for the next dispatch hour, plus apply specific treatment for certain types of intertie transactions

Grid and Market Operations Integration

Highlights Cont'd:

- Real-time dispatch scheduling process will produce constrained schedules and locational marginal prices.
 - DAM and PD operational commitments for NQS resources will continue to be respected in RT
 - Enhancements to enable:
 - New dispatch data parameters for hydroelectric generation facilities;
 - Pseudo-unit scheduling and dispatch
 - Coordinated de-commitment of NQS generation facilities
 - Expansion of administered pricing framework to accommodate LMPs and DAM

Grid and Market Operations Integration

Technical Session Output:

Stakeholders requested improvements to the feasibility of day-ahead schedules for dispatchable hydroelectric resources

Detailed Design:

- The day-ahead calculation engine will consider six new parameters for dispatchable hydroelectric resources, plus the existing max daily energy limit parameter

Document Sections:

3.5.4.2 Determination of Hydroelectric Generation Facility Schedules

3.6.2.3 Determination of Hydroelectric Generation Facility Schedules in Pre-Dispatch

3.7.2.2 Determination of Hydroelectric Generation Facility Real-Time Dispatch Instructions

Grid and Market Operations Integration

Technical Session Output:

Stakeholders asked for more flexibility in the pseudo unit model

Detailed Design:

- A pseudo unit operating in combined cycle can switch to single cycle operations if:
 - They do not have a DAM or PD commitment for the remaining hours of the current dispatch day; or
 - They have a DAM or PD commitment for the remaining hours of the current dispatch day and experience a forced outage on the ST (and submit an outage slip)

Document Sections:

3.3.7.6 Real-Time Market Restricted Window for Daily Dispatch Data

3.7.2.3 Variations to NQS Generation Facility Real-Time Dispatch for Pseudo-Units (PSU)

Questions?

Grid and Markets Operation Integration

Market Settlement

Market Settlement

Highlights:

- New two-settlement system for all facilities operating in the day-ahead and real-time markets
 - Calculation for non-dispatchable load settlement
- DAM make-whole payment for all dispatchable facilities with a financially-binding schedule
- Changes to settlement processes as a result of the new market power mitigation framework

Market Settlement

Highlights Cont'd:

- Elimination of CMSC payments and associated uplifts
 - Make-whole payments will still apply in situations where the market participant would otherwise incur an implied loss
- Retirement of the DA-PCG and RT-GCG programs
 - New DAM Generator Offer Guarantee for eligible NQS resources committed by the DAM calculation engine
 - New RT Generator Offer Guarantee for eligible NQS resources committed during the pre-dispatch scheduling process
 - New Generator Failure Charge will occur when a resource fails to deliver energy as committed by the PD scheduling process

Market Settlement

Technical Session Output:

Stakeholders had questions about generator failure charges for pseudo units

Detailed Design:

- The generator failure charge will be assessed on the physical unit

Document Section:

3.7.11 Generator Failure Charge (GFC)

Questions?

Market Settlement

Next Steps

- July 24: deadline for stakeholder feedback on these four design documents
- July 27: Release the Calculation Engine design documents (3) for stakeholder review
 - A session to support the stakeholder review of these documents will take place between August 26-28
- For more information, or to register for upcoming MRP engagement sessions, please contact engagement@ieso.ca or visit the [MRP Energy webpage](#)

Thank you

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