

DECEMBER 11, 2023

Market Renewal Program Impact on Phase II Energy Storage Facility Agreements (ESFAs)

Presented to: Phase II ESFA Suppliers

Presented by: IESO's Contract Management Team

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Purpose

- To provide an overview of the impacts of MRP on Phase II ESFA contracts and a summary of the contract amendment term sheet that the IESO is proposing to address these impacts.

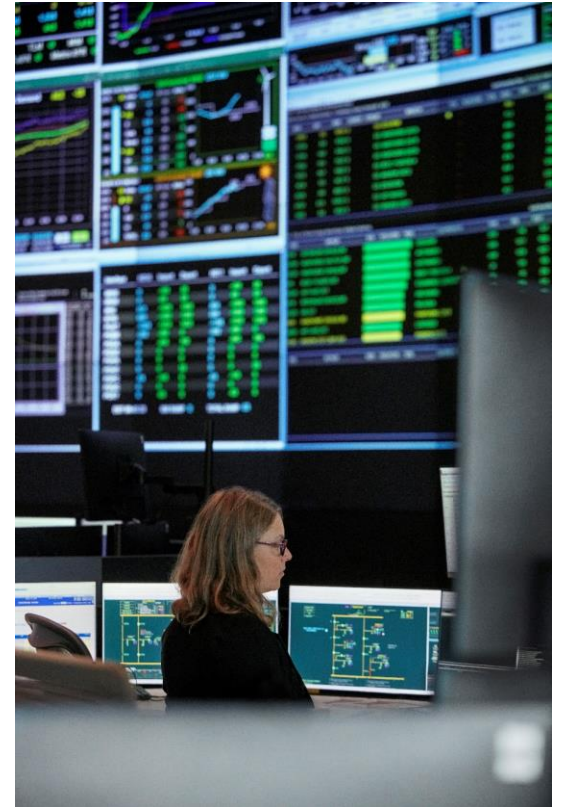
Agenda

Through this presentation the IESO plans to discuss:

- MRP Background
- IESO's Approach to Amending Contracts for MRP
- Impact of MRP on ESFA Contracts
- IESO's Approach for ESFA Contracts
- Next Steps

MRP Background

- MRP is on schedule to 'go live' in May 2025 with a new design of Ontario's wholesale electricity market.
- Provisionally approved amendments to the [Market Rules and Market Manuals](#) have been published throughout 2023.
- MRP implementation resources such as training modules, webinar recordings, design documentation and implementation plans are available on the MRP webpage.
- Any questions related to MRP in general can be directed to customer.relations@ieso.ca



IESO's Approach to Amending Contracts for MRP

Principles



1. Contractual implications are addressed in a manner consistent with the terms of the applicable contracts to maximize consistency, administrative simplicity, and transparency by treating similar contracts in a similar manner.
2. Contract incentives should be aligned with market incentives to not impede efficient market operations and to benefit all parties.
3. Ensure timely contract amendments ahead of the MRP implementation date.

Supplier Engagement



The IESO's Contract Management team is engaging Suppliers in parallel with the MRP engagement to focus specifically on contractual implications. The IESO is proposing solutions to achieve the principle considerations for amending contracts and expects Suppliers to familiarize themselves with MRP in order to provide feedback.

In addition to written feedback and webinars, the IESO is open to smaller group meetings or individual meetings to collaboratively work through the process of finalizing amending agreements.

Impact of MRP on Market Participant Contracts

- The IESO has identified impacts that require to be addressed in IESO contracts with Market Participants, including:

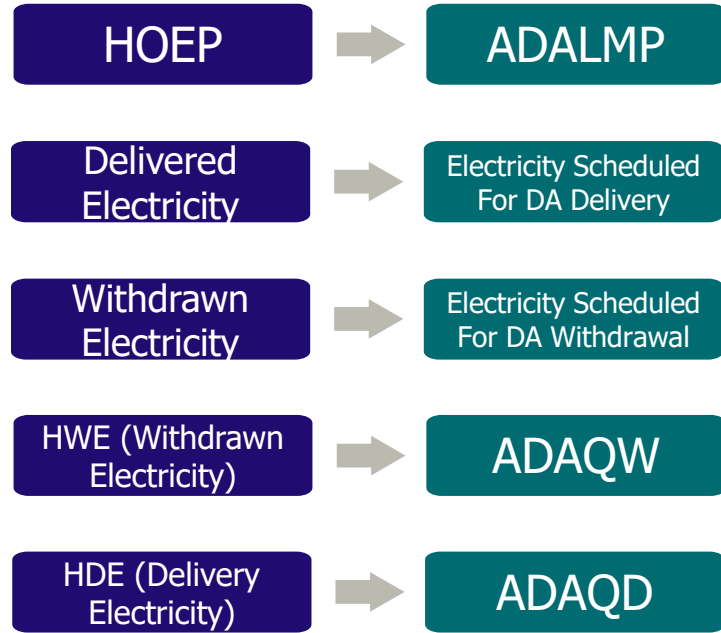
The Hourly Ontario Energy Price “HOEP” will be replaced by day ahead and real time locational marginal pricing “LMP”

A financially binding day-ahead-market “DAM” will be introduced to provide greater operational and financial certainty in the market

IESO's Approach for ESFA Contracts

- While this is the first time that EFSA Suppliers have been engaged on MRP contract implications, the IESO has applied lessons learned from engaging other Suppliers in its proposed approach.
- Given the new market rules, the IESO expects that the majority of withdrawn or delivered electricity will be scheduled and priced in the day ahead market. Under contract section 1.7(b), the ADALMP therefore becomes the replacement for the HOEP.
- Based on this approach, the variables change to reflect the MRP, but the formula structures remain the same.

Variable Updates



Amendment (Day-Ahead Market)	
ADALMP	Applicable Day-Ahead Locational Marginal Price - DAM locational marginal price for energy (in \$/MWh)
ARTLMP	Applicable Real-Time Locational Marginal Price - the real-time locational marginal price for energy (in \$/MWh)
DAM	The IESO-Administered Market known as the "Day-Ahead Market"
Electricity Scheduled For DA Delivery	Quantity of Electricity (in MWh) scheduled in the DAM for injection by the Supplier
Electricity Scheduled For DA Withdrawal	Quantity of Electricity (in MWh) scheduled for Withdrawal in the DAM by the Supplier
ADAQW_{OCH}	Actual Day-Ahead Quantity Withdrawn and is calculated as the Electricity Scheduled For DA Withdrawal applicable to each Overall Charge Hour
ADAQD_{DH}	Actual Day-Ahead Quantity Delivered is calculated as the Electricity Scheduled For DA Delivery applicable to each Discharge Hour

Term Sheet Approach – Settlement Impact

- The Regulatory Energy Charges remain as a real time concept. This means that there are no changes to the variables and formula for these charges (Exhibit E).
- This presentation focusses on dispatchable facilities. Any differences required for self-scheduling facilities will be considered after this general discussion.
- The following slides describe how the updated variables from the term sheets impact different formulas in the ESFA contracts.

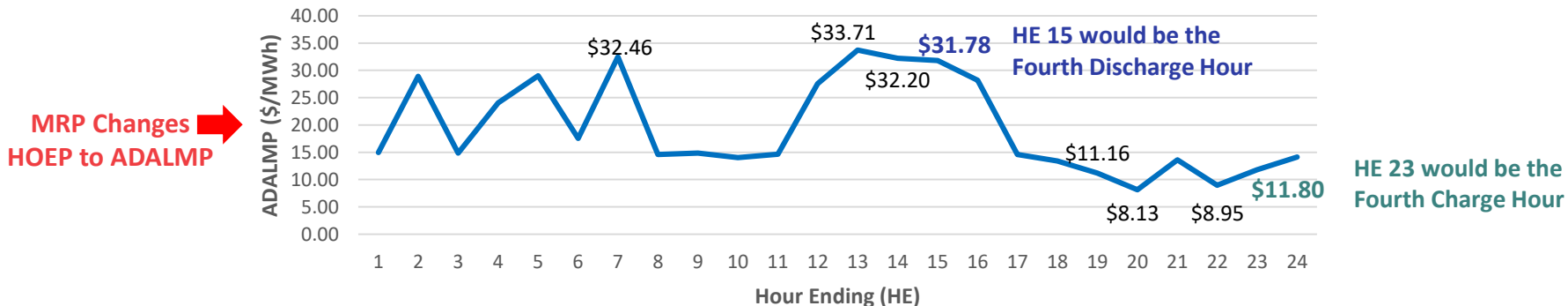
Term Sheet Approach – Settlement Impact

- The IESO has prepared draft term sheets to address the impacts of MRP with focus on achieving the following outcomes:

- 1 Determination of arbitrage opportunities and the calculation of Imputed Cycling Days with the ADALMP
- 2 Calculation of the Net Market Revenue Sharing Amount with the ADALMP
- 3 Calculation of the Sponsor Scheduled Operation Payment with the amended terms

Imputed Cycling Day

- Below is an example Calculation for the determination of an Imputed Cycling Day based on the draft term sheet:
 - The **Fourth Charge Hour** will be equal to the fourth lowest ADALMP
 - The **Fourth Discharge Hour** shall be equal to the fourth highest ADALMP



- Imputed Cycling Day: Any Storage Day where the Fourth Charge Hour is less than or equal to the Fourth Discharge Hour multiplied by 0.70:

$$\mathbf{\$31.78} \times 70\% - \mathbf{\$11.80} = \$22.25 - \$11.80 = \mathbf{\$10.45}$$

Net Market Revenue Sharing Amount

- The draft term sheet replaces HOEP with ADALMP
- It also replaces the Withdrawn Electricity and Delivered Electricity with Actual Day-Ahead Quantity Withdrawn and Actual Day-Ahead Quantity Delivered, respectively

$$NMRSA = [ONR - (TNR \times CC)] \times SSP$$

ONR

Operating Net Revenue = (ADAQD x ADALMP – ADAQW x ADALMP) + Sponsor Scheduled Operations Payments (SSOP) + Net Revenue from any Future Contract Related Products (RFCRP)

TNR

Threshold Net Revenue = \$48,000/MW-year, after which revenue would start to be shared

SSP

Sponsor Sharing Percentage = 50%

Sponsor Scheduled Operation Payment (SSOP)

- If a net loss, then the SSOP is added to the Monthly Payment as demonstrated in the formulas below

Current Formula:

$$\text{If } \left[\sum_{OCH=1}^{OCHn} HOEP_{OCH} \times HWE_{OCH} \right] \geq \left[\sum_{DH=1}^{DHn} HOEP_{DH} \times HDE_{DH} \right],$$

$$SSOP_m = \sum_{OCH=1}^{OCHn} HOEP_{OCH} \times HWE_{OCH} - \left[\sum_{DH=1}^{DHn} HOEP_{DH} \times HDE_{DH} \right]$$

Draft Term Sheet Formula:

$$\text{If } \left[\sum_{OCH=1}^{OCHn} ADALMP_{OCH} \times ADAQW_{OCH} \right] \geq \left[\sum_{DH=1}^{DHn} ADALMP_{DH} \times ADAQD_{DH} \right],$$

$$SSOP_m = \sum_{OCH=1}^{OCHn} ADALMP_{OCH} \times ADAQW_{OCH} - \left[\sum_{DH=1}^{DHn} ADALMP_{DH} \times ADAQD_{DH} \right]$$

- If a net profit, then no SSOP applies as demonstrated in the formulas below

Current Formula:

$$\text{If } \left[\sum_{OCH=1}^{OCHn} HOEP_{OCH} \times HWE_{OCH} \right] < \left[\sum_{DH=1}^{DHn} HOEP_{DH} \times HDE_{DH} \right],$$

$$SSOP_m = 0$$

Draft Term Sheet Formula:

$$\text{If } \left[\sum_{OCH=1}^{OCHn} ADALMP_{OCH} \times ADAQW_{OCH} \right] < \left[\sum_{DH=1}^{DHn} ADALMP_{DH} \times ADAQD_{DH} \right],$$

$$SSOP_m = 0$$

Next Steps

- The IESO invites further feedback on the updated draft term sheets to be submitted to mr.contractmanagement@ieso.ca by January 5, 2024.
- The IESO will post responses to feedback received and determine appropriate next steps to engage Suppliers in further discussion.

Thank You

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