FEBRUARY 5, 2026

ERP Storage and Co-located Integration Project

Batch 2 Market Design

Independent Electricity System Operator (IESO)

ieso
Connecting Today. Powering Tomorrow.

Territory Acknowledgement

The IESO acknowledges the land we are delivering today's webinar from is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples. We also acknowledge that Toronto is covered by Treaty 13 with the Mississaugas of the Credit First Nation.

As we have attendees from across Ontario, the IESO would also like to acknowledge all of the traditional territories across the province, which includes those of the Algonquin, Anishnawbe, Cree, Oji-Cree, Huron-Wendat, Haudenosaunee and Métis peoples.

Engagement Principles and Process

- This initiative will be conducted according to the **IESO Engagement Principles**
- Today's session will be **recorded** and available for viewing online
- **Meeting materials** are posted on the Make-Whole Payments engagement webpage

ieso
Connecting Today. Powering Tomorrow.

Meeting Logistics and Participation

- For questions and comments, click on the "**raise hand**" icon (hand symbol) at the top of the application window. This will indicate to the host you would like to speak
- To **unmute** audio, click on the microphone icon at the top of the application window
- Audio should be **muted** when not speaking
- **Connection issues** contact engagement@ieso.ca or Microsoft Office Support directly

Agenda

- Review Phase 1 Batch 2 Design Memos:
    - Connection and Registration
    - Dispatch Data and Other Inputs
    - Market Power Mitigation
    - Settlements
- Next Steps and Feedback

ieso
Connecting Today. Powering Tomorrow.

Enabling Resources Program Scope

The Enabling Resources Program is a set of projects that will further enable key emerging resources, specifically electricity storage ("storage"), hybrid generation-storage pairings ("hybrids") and aggregations of Distributed Energy Resources ("DERs") into the IESO-administered markets, tools, and processes to provide required system services and contribute to the safe and reliable operation of the bulk power system in Ontario.

Enabling Resources Program Scope

The IESO will be implementing storage design through a phased approach. The intention of Phase 1 is to implement a fundamental design and look to enhance the design in subsequent phases.

Outcomes of Optimization Phase 1 Design

- Single resource model
- State of Charge (SoC) modelling
- Participation in Energy and OR from both the injection and withdrawal ranges

ERP Phase 2

The IESO is currently determining the scope of phase 2 which is expected to be completed by Q2 2026. Currently, the IESO intends to enable regulation service from the single model storage resource, remove uplifts from storage, and update capacity auction rules to account for storage changes.

Market Participants can expect future engagements to discuss:

- Planning and timelines
- Scope
- Collect feedback

The IESO will assess additional needs to be included in the scope as part of our discussions.

Connection & Registration Design

ieso
Connecting Today. Powering Tomorrow.

Connection Assessment

The "Connection" Process will encompass all processes and elements included in:

- Prepare Application
- Obtain Conditional Approval to Connect
- Design and Build

Since storage resources are already connecting to the ICG, no changes are required stemming from optimization design.

ieso
Connecting Today. Powering Tomorrow.

Register Organization and Authorize Participation

ieso
Connecting Today. Powering Tomorrow.

Register Organization and Authorize Participation

Prospective MPs initiate the Register Organization process by submitting information through the Register Organization webpage. Once the organization is registered, they can authorize participation via Online IESO.

Once registered, an organization must be authorized to participate in the IESO-administered markets or programs. This includes providing an operating license from the (OEB).

No changes are expected in the Register Organization or AMP processes.

ieso
Connecting Today. Powering Tomorrow.

Prudential Support

Prudential support is required in the IESO market to protect the IESO from consumers of electricity not being able to pay for the electricity they have consumed. The IESO has 2 processes related to Prudential support:

- Set Prudential Support
- Monitor Prudential Support

There are some changes expected to interfaces, but limited changes to the "Maximum Net Exposure" calculation. Modifications exposure calculations will be evaluated to properly account for negative generation as well as any State of Charge implications

Register Facilities, Resources, and Equipment

ieso
Connecting Today. Powering Tomorrow.

Register Facilities, Resources, and Equipment

The information collected in this stage is necessary to ensure the reliability of the IESO-controlled grid. A market participant will initially register equipment, resources and facilities to participate in the energy market.

For the purposes of this design, the IESO will refer to resources participating under the new model as “Single Model Storage Resource”. Resources participating under the old model will be referred to as “Dual Model storage Resources”.

ieso
Connecting Today. Powering Tomorrow.

Record Equipment

- The Record Equipment process will continue to start when market participants submit registration requests.
- The existing equipment type will need to be enhanced, extended, or replaced for Single model storage resources to manage new inputs.
- Information from the Generating Unit and Equipment are rolled up to form a resource that can participate in the market. New fields will need to be created for these resources.
- Two resource parameters have been updated from Optimization Design, see the next slide.

ieso
Connecting Today. Powering Tomorrow.

Updated Registration Parameters

Parameter	Units of Measure (if applicable)	Description	Edited / Proposed New Storage-specific Parameter	Value Range	Note
Maximum Generator Resource Active Power Injection Permitted (max injection) "Upper Power Operating Limit"	MW	Maximum positive active power capability of the resource to validate the submission of offers for energy or operating reserve as dispatch data (derived from the list of registration parameters required for dispatchable generation)	Existing (Updated parameter name)	0-999	This is the maximum injection capability. concept of "Upper Power Operating Limit" exists
Minimum Generator Resource Active Power Capability (max withdrawal) "Lower Power Operating Limit"	MW	Maximum negative active power capability of the resource to validate the submission of offers for energy or operating reserve as dispatch data	Existing (Value Range Updated)	-999 – 999	Value range will need to be updated to include negative range.

Prepare for Operations

- After the IESO verifies the facility registration information submitted by the market participant, the IESO will complete a series of internal activities required to consider the facility, resources, and equipment as registered.
- Dispatch testing in Sandbox will continue to be required while the resource is being commissioned

Wholesale Metering

Metering data is the basis for producing settlement ready delivery point data for determination of the settlement amounts for all resources settled in IESO administered market.

- Some existing registered storage facilities will transition from a dual model storage resource to a single model storage resource. This transition will require de-registration and re-registration of the existing metering installations to consider the new storage resource

ieso
Connecting Today. Powering Tomorrow.

Build Online Model

- Online Model Build (OMB) process consists of Network Model Build (NMB) and Commercial Model Build (CMB)
- The single storage resource for battery storage will be modelled as generators in the network model.
- To model a single storage resource in the online model technical data must be collected and provided to the NMB.
- Station service load and auxiliary loads are not treated as NDL and will not be put in commercial model.

Commission Equipment

- Commission Equipment implements all requests requiring commissioning tests to bring equipment into service.
- The resource will still operate under a single storage resource model meaning that the online model requirements will apply, although they will participate as a self-scheduler during this time.
- LMP pricing will apply during all time frames. SoC will not be modelled when entering self-schedules, resource must submit self-schedules that respect SoC limitations.
- Additional commissioning information will be developed for future presentations

Transitioning Resources

Discussions on how to transition resources participant as Dual Model Storage Resources to Single Model Storage Resources is ongoing and a procedure will be developed and presented to stakeholders.

ieso
Connecting Today. Powering Tomorrow.

Dispatch Data & Other Inputs Design

ieso
Connecting Today. Powering Tomorrow.

Introduction

This design element relates to inputs required by the IESO optimization engines, either from Market Participants (MPs) or from other IESO systems.

- **Daily dispatch parameters** – Data that is applicable for the entire dispatch day but can be updated through the course of the day if required
- **Hourly dispatch parameters** – Data that can vary from one dispatch hour such as energy or Operating Reserve bidirectional offers
- **Other MP inputs** – Information submitted in power outages or derates
- **IESO inputs** – Demand forecasts, Market Power Mitigation (MPM) inputs, penalty pricing inputs, fundamental sets and location identifiers, resource min and max constraints entered by the IESO

ieso
Connecting Today. Powering Tomorrow.

Daily Dispatch Parameters

ieso
Connecting Today. Powering Tomorrow.

Daily Dispatch Parameters

- Dispatch data unique to single model storage resource submitted by MPs daily in DAM

Attribute	Unit of Measure	Description
ISoC *Initial State of Charge*	MWh (to one decimal place)	• Value should exclude all losses associated with withdrawal and injection • **Mandatory submission used by DAM only. IESO will not populate this value on your behalf**
RTE^ *Cycle/Round-trip Efficiency*	Decimal value (to two decimal places)	• Value should be independent of any losses associated with ISL • **Mandatory submission with a value between 0 and 1**
ISL* *Internal Service Load*	MW (to one decimal place)	• Value is between zero and the maximum ISL submitted during registration • Optional submission, currently this applies to DAM and PD
CycleDEL* *Cycling Daily Energy Limit*	MWh (to one decimal place)	• Assist MP to avoid over-cycling battery if deemed necessary to avoid degradation • Optional submission used by DAM and PD

^Additional MPM validation against Non-financial reference level (NFRL)

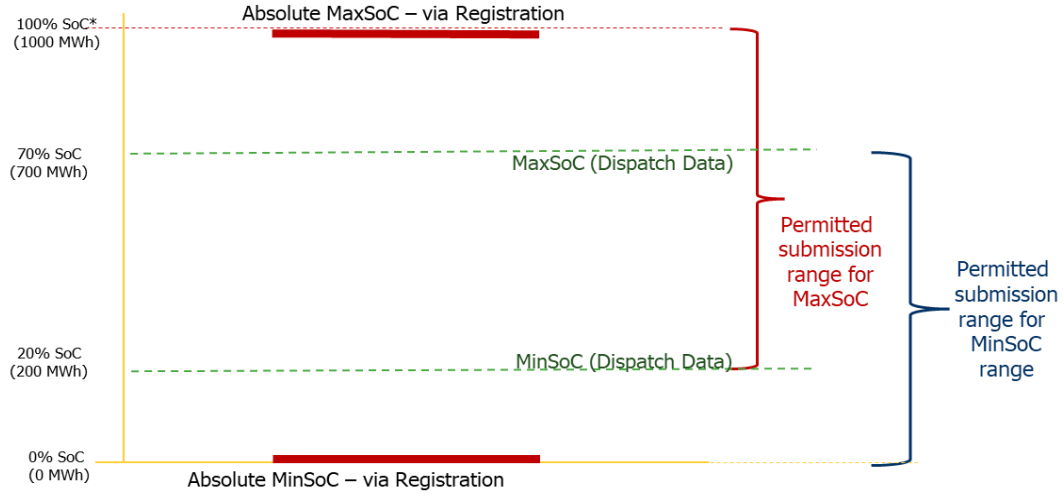
**Potential updates discussed in future sections*

Hourly Dispatch Parameters

ieso
Connecting Today. Powering Tomorrow.

State of Charge Limits

Attribute	Unit of Measure
MaxSoC *Maximum State of Charge or Upper Energy Limit*	MWh (to one decimal place)
MinSoC *Minimum State of Charge or Lower Energy Limit*	MWh (to one decimal place)



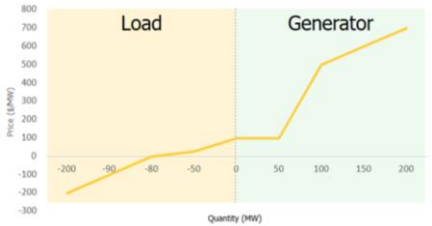
*Note: Percentages and numbers used are examples and for demonstration only. Values are expected to be submitted in MWh.

- Mandatory hourly submissions, validated against registered SoC limits
- Parameters will go through additional MPM validation against NFRLs
- Potential updates for these parameters discussed in future sections

ieso
Connecting Today. Powering Tomorrow.

Bidirectional Energy Offer [1/3]

Example #1: P-Q pairs include both injection and withdrawal MWs



Example: Capacity 200 MW, Energy Limit 800MWh

The first injection P-Q pair price must be the same as submitted price for 0 MW.

P/Q Pair	Price ($/MW)	Quantity (MW)	Price to Schedule ($/MW)	MW that could be scheduled
Pair 1	-200	-200	-200 or less (more negative)	Withdrawal 90.1 to 200
Pair 2	-100	-90	-199.99 to -100	Withdrawal 80.1 to 90
Pair 3	0	-80	-99.99 to 0	Withdrawal 50.1 to 80
Pair 4	25	-50	0.01 to 25	Withdrawal 0.1 to 50
Pair 5	100	0	25.01 to 99.99	Idle
Pair 6	100	50	100 to 499.99	Inject 0.1 to 50
Pair 7	500	100	500 to 599.99	Inject 50.1 to 100
Pair 8	600	150	600 to 699.99	Inject 100.1 to 150
Pair 9	700	200	700	Inject 150.1 to 200

ieso
Connecting Today. Powering Tomorrow.

Bidirectional Energy Offer [2/3]

Example #2: P-Q pairs include both injection MWs only

PQ Pair	Price ($/MW)	Quantity (MW)	Price to Schedule ($/MW)	MW that could be scheduled
1	35	0	0.01 to 35	Idle
2	35	50	35 to 99.99	Inject 0.1 to 50
3	100	100	100 to 129.99	Inject 50.1 to 100
4	130	150	130 to 299.99	Inject 100.1 to 150
5	300	200	300	Inject 150.1 to 200

The first injection P-Q pair price must be the same as submitted price for 0 MW.

Starts at 0 MW

- Positive prices in this example denote that the participant will be paid that amount.

ieso
Connecting Today. Powering Tomorrow.

Bidirectional Energy Offer [3/3]

Example #3: P-Q pairs include both withdrawal MWs only

PQ Pair	Price ($/MW)	Quantity (MW)	Price to Schedule ($/MW)	MW that could be scheduled
1	5	-200	Less than or equal to 5	Withdraw 75.1 to 200
2	30	-75	5.01 to 30	Withdraw 60.1 to 75
3	65	-60	30.01 t0 65	Withdraw 25.1 to 60
4	100	-25	65.01 to 100	Withdraw 0.1 to 25
5	110	0	N/A	Idle

This could be any value ≥ 100 (in this e.g.) and less than the Maximum Market Clearing Price (MMCP).

Ends at 0 MW

- Positive prices in this example denote that the participant will be paying that amount.

ieso
Connecting Today. Powering Tomorrow.

Energy Ramp Rate

- Participants will be allowed to submit maximum up to 2 values for ramp rates and must submit at least 1 ramp rate, which should be less than or equal to the registered Maximum Energy Storage Ramp rate.
- Each ramp rate is submitted as a set of 3 values: breakpoint (MW), ramp rate up and ramp rate down (both MW/min).
- *Potential updates for these parameters discussed in future sections*

+/- 200 MW BESS Resource

	MP Submits				
	1	**2**	**3**	**4**	**5**
Break Point	25	200	N/A	N/A	N/A
Ramp Up Rate	100	50	N/A	N/A	N/A
Ramp Down Rate	45	60	N/A	N/A	N/A

Interpretation in IESO Tools			
1	**2**	**3**	**4**
-200	-25	25	200
50	100		50
60	45		60

ieso
Connecting Today. Powering Tomorrow.

Hourly Operating Reserves Dispatch Data

- This refers to hourly dispatch data expected from MPs participating in providing Operating Reserves (OR), namely:
  - OR offer
  - OR ramp rate
  - Reserve Loading Point
- Design for these parameters remain unchanged since the previous engagement session on Oct 16, 2025.

ieso
Connecting Today. Powering Tomorrow.

Dispatch Data Validations

ieso
Connecting Today. Powering Tomorrow.

Dispatch Data Validations for Single Model Storage Resource

- Existing NFRL validation rules for energy ramp rate and OR ramp rate apply to the single model storage resource
- Additional MPM validation rules are being introduced for new storage parameters

Dispatch Data	Data Submission	Threshold
Minimum State of Charge	Hourly - *proposed*	Submitted MinSOC is less than or equal to the registered MinSOC plus 30% of the registered MaxSOC
Maximum State of Charge	Hourly - *proposed*	Submitted MaxSOC is greater than or equal to 70% of the registered MaxSOC parameter
Round-Trip Efficiency	Daily	Submitted round-trip efficiency is greater than or equal to 50% of the registered round-trip efficiency value

Potential Design Modifications and Questions for Dispatch Data

ieso
Connecting Today. Powering Tomorrow.

Potential Design Updates

The IESO is working through approaches and feasibility of implementing the following design changes that is different than what was presented in the optimization design:

- SoC Max/Min Entries
- CycleDEL in PD
- Energy Ramp Rate – Facility requirement derived down to resource level

MPs may see different designs in the final drafts related to these items

ieso
Connecting Today. Powering Tomorrow.

Potential Design Updates

SoC Max/Min Entries – transition from daily to hourly dispatch data submission. Hours 1 – 24 the MP will have the ability to submit different SoC Max/Min values*.

- Allows the MP to plan outages and updates
- Within the hour changes are expected to be done through power derates.
- Implementation challenges: ensuring that MP changes do not trigger scheduling or violation pricing

*Certain validations will be required; i.e. ensure overlap between hours.

Potential Design Updates

CycleDEL in PD – remove CycleDEL application in PD to give MPs a better sense of when they will be scheduled by the Real-time engine. CycleDEL will only apply in DAM.

- There are no commitments for storage in PD and therefore no financial impacts.
- Creates better alignment between PD and RT
  - Allows the MP to better understand RT scheduling as CycleDEL is not applied to therefore adjust offers as required.
  - Gives the IESO more accurate foresight into how scheduling will occur to better plan the system.

Potential Design Updates

Energy Ramp Rate – The IESO is exploring methods to support the facility 100 MW/Min ramp rate requirement to a resource submission

- Issue is isolated to real time where ramp is impactful to storage
- Ramp submissions are resource specific and therefore disconnected from the facility requirement
- Implementation challenges: considering RT's prompt solve time it limits dynamic methods to accommodate different dispatches between resources that maximize ramp.

ieso
Connecting Today. Powering Tomorrow.

Design Questions [1/2]

Internal Service Load (ISL) in RT – ISL is not applied in RT due to RT telemetry snapshots received by the IESO. The IESO is determining if this will be beneficial for RT scheduling considering additional complexity required to implement.

- Allows more granular SoC estimates and therefore more accurate scheduling
- Question: Do MPs view their internal service load to be substantial enough that it warrants inclusion in RT calculations? Would the ISL averaged over each of the next 11 intervals be accurate?

ieso
Connecting Today. Powering Tomorrow.

Design Questions [2/2]

ISL at SoC Min – MPs noted that there could be a constant subtraction from the SoC due to service loads. When reaching the SoC Min the ISL could force a schedule in DAM. At SoC Min the ISL essentially will act like an NDL requirement for the resource as it wants to respect both the constraint and the need to draw from the battery to support MP's facility.

Questions:

- What happens at the storage facility to internal service load when getting close to SoC Min?
  - Will MPs continue to have this subtract from the SoC, will the MP schedule the resource to ensure this continued subtraction will not occur, or will the ISL stop or be drawn some other way (through ?

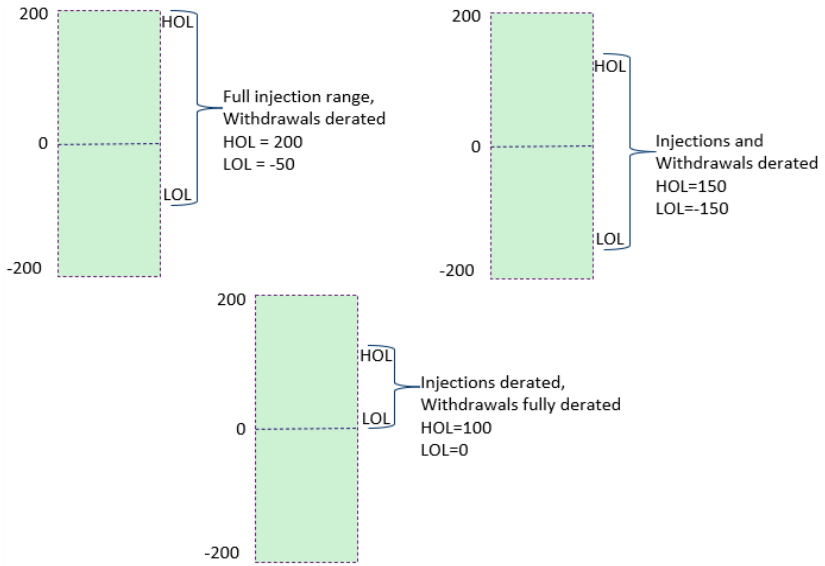
ieso
Connecting Today. Powering Tomorrow.

Other Inputs

ieso
Connecting Today. Powering Tomorrow.

MP Submitted - Outage Information

- MPs must provide outage or derate information which will be used by the IESO engines to determine their updated Lower Operating Limits (LOLs) and Higher Operating Limits (HOLs).
- MPs could independently update their HOL and LOL. The HOL & LOL in case of storage could be either negative or positive.



ieso
Connecting Today. Powering Tomorrow.

IESO Inputs [1/3]

- **Demand Forecasts:** New Ontario demand calculations that excludes single model storage charging will be created by the IESO. This will also impact similar day load forecasting and existing resources transitioning to the single model storage will require historical data correction.
- **Market Power Mitigation (MPM):** Financial Reference Levels (FRLs) and Non-Financial Reference Levels (NFRLs) used to support the ex-ante, settlement and ex-post MPM processes in the energy and operating reserve markets will require updates/additions.

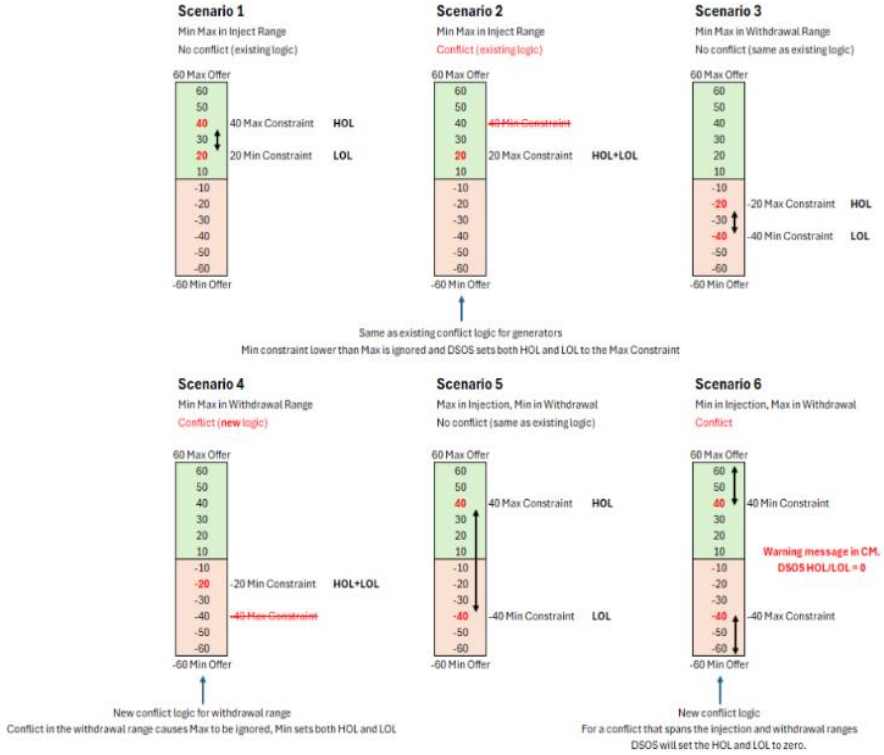
ieso
Connecting Today. Powering Tomorrow.

IESO Inputs [2/3]

- **Penalty Pricing Inputs:** Certain constraints can be bypassed based on certain prices to ensure reliability and can be reflected in market prices. Penalty pricing in the pricing pass of the optimization engines will be determined by the IESO internally. For the scheduling pass, violation prices are proposed for CycleDEL and MaxSoC, MinSoC.
- **Pricing Locations:** The IESO will model an energy storage resource at a single delivery point and bus. The IESO can utilize a generator bus to support this design where both the injection and withdrawal will be denoted from the same location.

IESO Inputs [3/3]

- **Resource Constraints:** Constraints manually entered by the IESO in IESO systems must allow negative and positive ranges of the resource to be constrained by the optimization engine. Overlapping constraint rules in the engine remain unchanged with a few exceptions.



ieso
Connecting Today. Powering Tomorrow.

Potential Design Updates

- Constraint Violation Pricing (CVP) - is utilized to support ability of the engines to solve, by permitting constraints to be violated at certain prices per MW. There will be CVPs applied to SoC Min/Max and CycleDEL.

- The IESO is analyzing the CVPs and will determine what price to be utilized for scheduling and pricing passes.

ieso
Connecting Today. Powering Tomorrow.

Market Power Mitigation Design

ieso
Connecting Today. Powering Tomorrow.

Introduction

- MPM will validate non-financial dispatch data submissions against registered parameters in the ex-ante timeframe to prevent exercise of market power through operational parameters.
- **Ex-ante mitigation** will enable before-the-fact mitigation for the single model storage resources and address changes due to the bidirectional offer curve.
- **Settlement processes** will utilize a mitigated offer curve that reflects the updated energy offer structure. Existing settlement mitigation process will apply to operating reserve offers.
- After-the-fact **physical withholding** assessment may be triggered when submitted offer quantities are less than the applicable reference quantities.
- The IESO is exploring **FRL design** to be included in phase 1, is actively engaging with stakeholders and will inform MPs of updates on this topic as we have more details.

Ex-Ante Validation and Mitigation

ieso
Connecting Today. Powering Tomorrow.

Ex-Ante Validation of Non-Financial Dispatch Data Parameters

- Refer to the 'Dispatch Data and Other Inputs' section above for details on new dispatch data parameters applicable to:
    1. Minimum State of Charge
    2. Maximum State of Charge
    3. Round-Trip Efficiency
- No new non-financial reference levels are introduced. Validation will be performed using predefined thresholds against specific registered parameters.

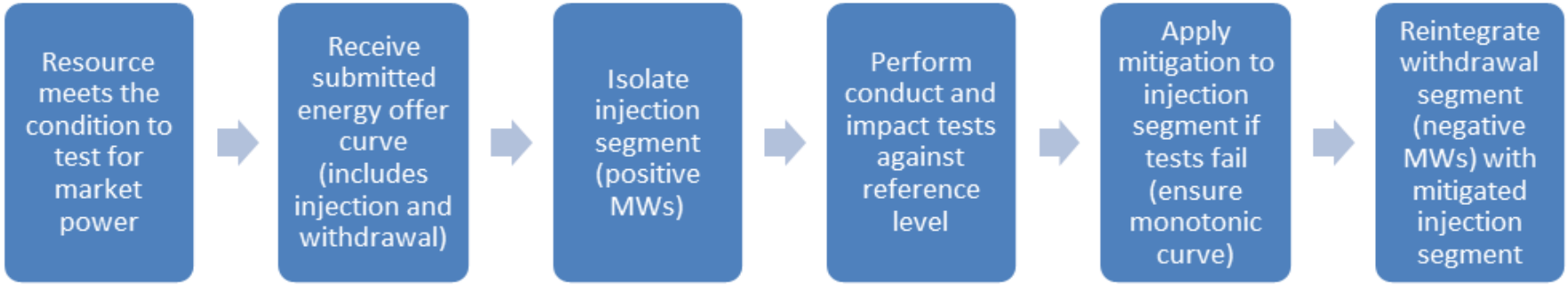
ieso
Connecting Today. Powering Tomorrow.

Ex-Ante Mitigation for Economic Withholding

- Similar to existing generating resources, when market power conditions are met for a single model storage resource's offer, the resource will undergo a conduct test. If the conduct test fails, an impact test will be performed. Failure of the impact test results in replacing a portion or the entirety of the financial dispatch data parameter with the applicable reference level value. This testing occurs in DAM and PD timeframes.
- Existing market power conditions, conduct test thresholds and impact test thresholds will continue to apply to single model storage resources in the **energy** and the **operating reserve** markets.

Ex-Ante Mitigation of Energy Offer [1/2]

- If the market participant offers only withdrawal laminations, no mitigation is required.
- If the participant offers only injection laminations, mitigation is required.
- If both withdrawal and injection laminations are offered, mitigation applies to the injection portion, and adjustments may be required on the withdrawal side as applicable.

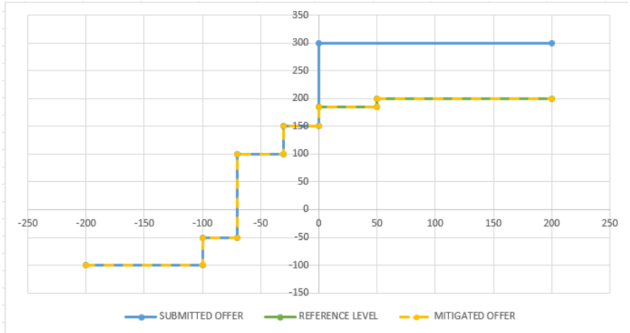


ieso
Connecting Today. Powering Tomorrow.

Ex-Ante Mitigation of Energy Offer [2/2]

Example 1: Mitigation scenario of energy offer under normal conditions

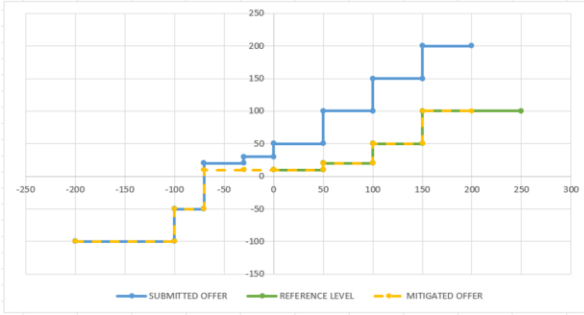
SUBMITTED OFFER		REFERENCE LEVEL		MITIGATED OFFER	
MW	$	MW	$	MW	$
-200	-100			-200	-100
-100	-50			-100	-50
-70	100			-70	100
-30	150			-30	150
0	300	0	185	0	185
200	300	50	185	50	185
		200	200	200	200



- The withdrawal portion of the bidirectional energy offer structure will not be subjected to ex-ante mitigation, unless an adjustment is needed to maintain monotonicity.

Example 2: Price adjustment of the charging laminations required to maintain monotonicity

SUBMITTED OFFER		REFERENCE LEVEL		MITIGATED OFFER	
MW	$	MW	$	MW	$
-200	-100			-200	-100
-100	-50			-100	-50
-70	20			-70	9.98
-30	30			-30	9.99
0	50	0	10	0	10
50	50	50	10	50	10
100	100	100	20	100	20
150	150	150	50	150	50
200	200	250	100	200	100



ieso
Connecting Today. Powering Tomorrow.

Operating Reserve Offer Reference Level (10S, 10N, 30R)

- The OR offer does not explicitly indicate which laminations correspond to charging or discharging, making a single-mode reference level necessary for simplicity and consistency.
- OR reference levels will be represented using the discharging mode across the full range, as this reflects the higher cost of providing operating reserve compared to charging mode.

ieso
Connecting Today. Powering Tomorrow.

Ex-Ante Mitigation of Operating Reserve Offer

- The IESO will continue to test for both local market power and global market power across all three classes of operating reserve offers.
- However, the range of the operating reserve offer and the corresponding reference level, will now span from zero MW up to the sum of absolute maximum charge and maximum discharge capability of the resource.

ieso
Connecting Today. Powering Tomorrow.

Application of Price Impact Test

- When price impact test fails, the mitigated energy and/or operating reserve offers will be used by the DA and PD scheduling engines to produce final schedules and prices.

ieso
Connecting Today. Powering Tomorrow.

Ex-Post Mitigation

ieso
Connecting Today. Powering Tomorrow.

Energy Offer Reference Quantities

- The energy offer RQ will be the resource's maximum potential injection capability only, adjusted for any outages or derates for each hour of the dispatch day.
- For dispatch hours between 23:00 and 07:00 EST of each calendar day, the energy offer reference quantity will be set to zero (impacts the injection range only). The resource will likely charge during these hours (based on MP feedback) and can submit MWs on the withdrawal energy offers without risk of being flagged for physical withholding.

Operating Reserve Reference Quantities

OR Offer Reference Quantity =
(Maximum Generating Active Power Capability – Injection Outages) + ABS (Minimum Generating Active Power Capability) – ABS (Withdrawal Outages)

- For dispatch hours between 23:00 and 07:00 EST of each calendar day, the OR offer RQ applies only to the charging capability.

ieso
Connecting Today. Powering Tomorrow.

Ex-Post Mitigation for Physical Withholding

- Market power can be exercised when MWs or MWhs are withheld, resulting in increased LMPs. Physical withholding testing will remain an ex-post process, applied to both DA and RT offers.

ieso
Connecting Today. Powering Tomorrow.

Settlements Mitigation

ieso
Connecting Today. Powering Tomorrow.

Settlement Mitigation of Make-Whole Payments

- The IESO will continue to apply settlement mitigation for make-whole payments related to local and global market power conditions for the new single model storage resources.
- Similar to ex-ante mitigation, settlement mitigation of the energy offer curve will apply to only the injection portion of the offer curve. The settlement mitigation of operating reserve will apply to the full range of the operating reserve offer.

Settlement Design

ieso
Connecting Today. Powering Tomorrow.

Settlement Design Topics

The Settlement design topics for today's discussion are:

- Two-settlement for Energy and Operating Reserves
- Operating Reserve Non-Accessibility Charge

Make-whole payments and Economic Operating Profit (EOP) designs will be available in Q2-2026.

ieso
Connecting Today. Powering Tomorrow.

Two-Settlement for Energy and Operating Reserves

- The two-settlement process for energy and OR is designed to settle the day-ahead market, while the real-time market functions as a balancing market.
- Any deviations between DAM and RT schedules are settled through the RT market, which may result in a financial "buy-back" or "sell-back" of their day-ahead position.
- Single model storage resources will be subjected to two-settlement process.
- Two new settlement charge codes for energy will be introduced to settle Day-ahead and Real-time market energy.
- No changes are required for two-settlement of operating reserves.

Operating Reserve Non-Accessibility Charge

- The inaccessible Operating Reserve charges ensures that, if a resource is unable to deliver the MWs it is scheduled for in operating reserve, the unattainable operating reserve will be clawed back.
- While single model resources can both inject and withdraw energy to provide OR, if the resource deviates from dispatch, it may not be able to achieve potential OR activation.

ieso
Connecting Today. Powering Tomorrow.

Operating Reserve Non-Accessibility Charge

- Consistent with other conventional resources, battery storage resources will be subjected to inaccessible operating reserves incentives unless it is activated for operating reserves.
- The calculation of the inaccessible OR MWs will be modified as follows to account for single model storage resource unique characteristics:

$$\text{Total Inaccessible OR } (TAOR) = AQEW + (MaxCap - AQEI)$$

where: *MaxCap* is the maximum limit to generate as indicated in bi-directional energy price curve

Note on Contract Implications

ieso
Connecting Today. Powering Tomorrow.

Contracts Review

The IESO is engaging internally to determine potential contractual impacts to counterparties as a result of the design.

The IESO will reach out to counterparties with any material impacts.

ieso
Connecting Today. Powering Tomorrow.

Next Steps and Feedback

ieso
Connecting Today. Powering Tomorrow.

Next Steps and Feedback

- Feedback is an important IESO engagement principal to ensure that sector input and perspectives are considered
- The IESO is requesting written feedback via the **IESO's Feedback Form** (available on the ERP Storage engagement webpage)
  - Feedback is being requested by **February 19, 2026**
- Please submit to IESO Engagement engagement@ieso.ca
- The IESO will target Q2 for the next engagement session to present on final design memos

Thank You

ieso.ca

1.888.448.7777

customer.relations@ieso.ca

engagement@ieso.ca

@IESO_Tweets

facebook.com/OntarioIESO

linkedin.com/company/IESO

ieso
Connecting Today. Powering Tomorrow.