Market Rule Amendment Proposal Form

Part 1 - Market Rule Information

Identification No.:	MR-00495-R00
Subject:	Adding De-Rates to the Real-Time Lost Cost Economic Operating Point
Title:	Adding De-Rates to the Real-Time Lost Cost Economic Operating Point
Nature of Proposal:	☐ Alteration ☐ Deletion ☒ Addition
Chapter:	7
Appendix:	7.8 – Economic Operating Point
Sections:	3.4
Sub-sections proposed for amending:	
Current Market Rules Baseline:	55.1

Part 2 - Proposal History

Version	Reason for Issuing	Version Date
1.0	Draft for Stakeholder review	August 19, 2026
2.0	Draft for Technical Panel review	October 7, 2026
3.0	Posted for Stakeholder review and comment	October 15, 2026
4.0	Submitted for Technical Panel vote	November 3, 2026

Approved Amendment Publication Date:

Approved Amendment Effective Date:

Part 3 - Explanation for Proposed Amendment

Provide a brief description that includes some or all of the following points:

- The reason for the proposed amendment and the impact on the *IESO-administered markets* if the amendment is not made.
- Alternative solutions considered.
- The proposed amendment, how the amendment addresses the above reason and impact of the proposed amendment on the *IESO-administered markets*.

Summary

The IESO proposes to amend the market rules to add de-rates to the calculation of the Real-Time Lost Cost Economic Operating Point (RT LC EOP).

Ongoing monitoring of the renewed market identified scenarios where de-rates are appropriately reflected in dispatch scheduling and pricing calculations but are not reflected in the RT LC EOP calculation. This inconsistency can understate RT LC EOP values and result in inappropriate Real-Time Make-Whole Payments (RT MWPs), particularly for steam turbines associated with combined-cycle generation facilities represented as pseudo-units (PSUs). The proposed change would align RT LC EOP calculations with dispatch optimization logic and the physical capabilities of the resource, ensuring more accurate settlement outcomes.

Further information can be found on the Adding De-Rates to the Real-Time Lost Cost Economic Operating Point stakeholder engagement webpage.

Background

Make-Whole Payments (MWPs) in the Renewed Market are intended to compensate resources when dispatch schedules do not align with market prices due to manual out-of-market actions taken for reliability, and differences between the scheduling and pricing runs. Principles for calculating RT MWPs are that compensation must represent what is physically achievable for the resource and must be calculated considering co-optimization of energy and operating reserve, consistent with the real-time dispatch scheduling optimizer (DSO) engine.

The issue identified by the IESO relates to the treatment of de-rates submitted on physical generating units associated with a PSU. While the DSO appropriately incorporates de-rates when producing real-time schedules, the RT LC EOP calculation does not currently account for them. In a combined-cycle configuration, this can create a mismatch where the steam turbine's schedule increases to compensate for reduced combustion turbine capability, while the steam turbine EOP remains unchanged. As a result, the settlement system incorrectly identifies lost cost and generates unwarranted RT MWPs. The issue is limited to the RT lost cost EOP calculation. The day-ahead lost cost EOP and real-time lost opportunity cost EOP calculations already model de-rates correctly.

Discussion

The proposed amendment would add de-rate modelling to the RT LC EOP calculation contained in **Chapter 7, Appendix 7.8 (Economic Operating Point)** of the market rules. The objective is to ensure that EOP calculations remain consistent with dispatch optimization outcomes and accurately reflect the operational capability of the resource after de-rates are applied.

Part 4 - Proposed Amendment

Appendix 7.8 – Economic Operating Point

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3. Real-Time Market Lost Cost Economic Operating Point

3.4 Constraints

3.4.1 The constraints described in this section 3.4 shall apply to the objective functions used for the RT LC EOP calculation.

Scheduling Variable Bounds

3.4.2 No RT LC EOP shall be negative, nor shall any RT LC EOP exceed the *offer* or *bid* quantity for *energy* or the *offer* quantity for *operating reserve.* For all intervals $i \in I$:

$$0 \leq ESDL_{i,b,j} \leq QDL_{i,b,j} \quad \text{for all } b \in B^{DL}, j \in J^{E}_{i,b};$$
$$0 \leq ES10SDL_{i,b,j} \leq Q10SDL_{i,b,j} \quad \text{for all } b \in B^{DL}, j \in J^{10S}_{i,b};$$
$$0 \leq ES10NDL_{i,b,j} \leq Q10NDL_{i,b,j} \quad \text{for all } b \in B^{DL}, j \in J^{10N}_{i,b};$$
$$0 \leq ES30RDL_{i,b,j} \leq Q30RDL_{i,b,j} \quad \text{for all } b \in B^{DL}, j \in J^{30R}_{i,b};$$
$$0 \leq ESDG_{i,b,k} \leq QDG_{i,b,k} \quad \text{for all } b \in B^{DG}, k \in K^{E}_{i,b};$$
$$0 \leq ES10SDG_{i,b,k} \leq Q10SDG_{i,b,k} \quad \text{for all } b \in B^{DG}, k \in K^{10S}_{i,b};$$
$$0 \leq ES10NDG_{i,b,k} \leq Q10NDG_{i,b,k} \quad \text{for all } b \in B^{DG}, k \in K^{10N}_{i,b};$$
$$0 \leq ES30RDG_{i,b,k} \leq Q30RDG_{i,b,k} \quad \text{for all } b \in B^{DG}, k \in K^{30R}_{i,b};$$
$$0 \leq ESDX_{i,d,j} \leq QXL_{t,d,j} \quad \text{for all } d \in DX, j \in J^{E}_{t,d};$$
$$0 \leq ES10NXL_{i,d,j} \leq Q10NXL_{t,d,j} \quad \text{for all } d \in DX, j \in J^{10N}_{t,d};$$
$$0 \leq ES30RXL_{i,d,j} \leq Q30RXL_{t,d,j} \quad \text{for all } d \in DX, j \in J^{30R}_{t,d};$$
$$0 \leq ESIG_{i,d,k} \leq QIG_{t,d,k} \quad \text{for all } d \in DI, k \in K^{E}_{t,d};$$
$$0 \leq ES10NIG_{i,d,k} \leq Q10NIG_{t,d,k} \quad \text{for all } d \in DI, k \in K^{10N}_{t,d};$$
$$0 \leq ES30RIG_{i,d,k} \leq Q30RIG_{t,d,k} \quad \text{for all } d \in DI, k \in K^{30R}_{t,d};$$

3.4.3 Subject to section 3.4.4, the RT LC EOP for a *non-quick start resource* shall be greater than or equal to its *minimum loading point* for interval i ∈ I and bus $b \in B^{NQS}$:

$$\sum_{k \in K^{E}_{i,b}} ESDG_{i,b,k} \geq MinQDG_{b}$$

3.4.4 The RT LC EOP for a *non-quick start resource* shall be equal to its *real-time schedule* when it is scheduled below its *minimum loading point* for interval *i* ∈ *I* and bus $b \in B^{NQS}$:

If $\sum_{k \in K^{E}_{i,b}} ASDG_{i,b,k} < MinQDG_{b}$ for $b \in B^{NQS}$ then:

$$\sum_{k \in K^{E}_{i,b}} ESDG_{i,b,k} = ASDG_{i,b}$$

3.4.4A For a *dispatchable generation resource*, its RT LC EOP shall not exceed the maximum available capacity for the *resource* for the interval *i* ∈ *I* and bus *b* ∈ B^{DG}:

$$AdjMaxDG_{i,b} = min\left(\sum_{k \in K^{E}_{i,b}} QDG_{i,b,k}, Derate_{i,b}\right)$$

$$AdjMaxDG_{i,b} = \begin{cases} \min\left(\sum_{k \in K_{i,b}^{E}} QDG_{i,b,k}, Derate_{i,b}\right) & if\ b \in B^{VG} \\ \min\left(\sum_{k \in K_{i,b}^{E}} QDG_{i,b,k}, Derate_{i,b}\right) & otherwise \end{cases}$$

$$\sum_{k \in K_{i,b}^{E}} ESDG_{i,b,k} + \sum_{k \in K_{i,b}^{10S}} ES10SDG_{i,b,k} + \sum_{k \in K_{i,b}^{10N}} ES10NDG_{i,b,k} + \sum_{k \in K_{i,b}^{30R}} ES30RDG_{i,b,k} \leq AdjMaxDG_{i,b}$$