

Stakeholder Feedback and IESO Response

Market Renewal – Energy Project Implementation Market Power Mitigation – December 15, 2023

The IESO published draft amendments to the Market Rules and Market Manuals relating to Market Power Mitigation on December 1, 2023 and presented these amendments during the December 15, 2023 webinar along with updates to the Market Renewal reports and settlement design updates. The IESO received written feedback from:

Evolugen by Brookfield Renewable

Ontario Power Generation

Related presentation materials and recorded sessions have been posted on the IESO [stakeholder engagement webpage](#). If interested, please visit the webpage to reference the feedback submissions directly as the below uses excerpts and/or a summary of the stakeholder feedback for the purposes of providing an IESO response.

Please contact IESO Engagement at engagement@ieso.ca if you have any questions.

Evolugen by Brookfield Renewable

Table 1 | Evolgen by Brookfield Feedback and IESO Responses

Feedback	IESO Response
<p data-bbox="181 304 487 346"><u>Market Manual 14.2</u></p> <p data-bbox="181 357 649 399">On Forebay Refill Opportunity Cost:</p> <ul data-bbox="181 420 876 1386" style="list-style-type: none"><li data-bbox="181 420 876 525">• As proposed, Market Participants will be unnecessarily required to manually submit data in the online IESO Portal.<li data-bbox="181 535 876 1260">• This new requirement is redundant and inefficient, as the same data would already have been submitted as part of the daily energy offer parameters to the DAM DSO. In addition, the FROC Adder’s submission schedule requires Market Participants to devote staff time on a daily basis, including holidays and weekends when staffing is limited and costly, to meet the daily 930EPT submission obligation. Similarly, this obligation would take away valuable time already allocated to preparing accurate DA Energy, OR, and Ancillary Service offers for the IESO. Moreover, the manual submission requirement in the Online IESO Portal would create an administrative burden for both the IESO and Market Participants to enter and review data daily. In sum, this obligation would a) be redundant and inefficient, b) cannibalize staff time already devoted to meet other IESO requirements, c) increase staffing cost, and d) increase regulatory redtape and obligations for both parties without clear benefits.<li data-bbox="181 1270 876 1386">• We recommend that the IESO establish IT solutions to automate the retrieval of data already submitted in preparation of the DAM DSO instead.	<p data-bbox="876 304 1477 1050">As stated in Market Manual 14.2, supporting documentation for a request to use the Forebay Refill Opportunity Cost includes, but is not limited to: (i) documentation that shows headwater levels and a curve of headwater level versus storage, as well as information regarding flow rates; or (ii) submitted maximum daily energy limit, submitted minimum daily energy limit and the efficiency rating of the units at the resource. The IESO does not have access to data regarding headwater levels, flow or storage data or efficiency ratings of the units in a resource as part of submitted dispatch data. Supporting a request to use the Forebay Refill Opportunity Cost requires the full set of data associated with either option (i) or (ii) to be provided.</p> <p data-bbox="876 1071 1477 1848">In addition, the structure of temporary reference level requests fundamentally requires that the market participant indicate (i) when the conditions are met to submit such a request for such a resource and (ii) for which particular dispatch hours and market time frame. These requests are market participant driven by design, as the information driving the requests, benefit, and any risk associated with a request all reside with the market participant. Having IESO systems automatically create complete requests on behalf of market participants would not be implementable due to the informational requirements. It would also be inappropriate for the IESO to do so, as it would result in the IESO being the initiating party of these requests.</p>

In regards to the timing-related concerns associated with submitting temporary reference level requests, temporary reference level change requests can be submitted between 06:00 and 09:30 per section 5.1 of Market Manual 14.2. If market participants need more than 30 minutes to update their offers, they are able to accomplish this by submitting temporary reference level change requests earlier than the 09:30 deadline.

In regards to the concern regarding the perceived obligation on market participants, submitting temporary reference level change requests is not an obligation on market participants under the market rules. This process is afforded to market participants on an optional basis to provide an additional mechanism to support alignment of reference level values for their resources for a particular dispatch day and timeframe. Market participants are free to determine the appropriate level of effort that they apply to these requests, including creating their own in-house solutions to save time and effort when interacting with the IESO solutions and processes. A key consideration in the design of the process and solution to enable temporary reference level requests was to allow flexibility to ensure they were able to be used in myriad circumstances. The current solution and process provide the flexibility that will allow market participants of any technology type to appropriately manage their reference level data.

Market Manual 14.2

On Start/Stop:

The approach proposed by the Ontario Waterpower Association is to allow market participants to establish a reference level

- Hydro resources are unique and may not have the specific documentation that details the limitations of their equipment regarding the daily start/stop parameters. To clarify, Ontario's hydro resources are generally legacy facilities that do not possess such documentation due to asset age. In addition, hydro resources' long asset life often led to specific plant configurations and engineering solutions created in collaboration with the IESO's operational team. Market Participants therefore do not possess such supporting documentation from their original manufacturers. Finally, hydro resources are legally bound by their water management plans and other environmental and safety obligations—all of which affect the start/stop equivalent hours and other parameters sought by Market Manual 14.2. As such, the proposal is not practical nor is it realistic to meet.

- Instead, we recommend a simplified and general approach that respects the level of documentation that currently exists for hydro resources. Please refer to the solutions proposed by the Ontario Waterpower Association in this regard.

for the maximum number of starts per day based on market participant discretion.

The IESO communicated a response to the Ontario Waterpower Association declining to adopt this design change and provided the reasons discussed below.

The maximum number of starts per day reference level represents the maximum number of times a resource can be physically started within a dispatch day. The maximum number of starts per day dispatch data parameter is used to reflect actual physical restrictions to operations of a hydro resource. It is not intended to be used to prevent wear and tear on hydro resources, as these costs can be reflected in O&M cost submissions for financial reference level values. In addition, the IESO has identified several types of supporting documents that can be used when requesting this reference level. If there are other sources of information that should be added to this list, the IESO is open to considering them should they be proposed.

Regarding the proposed resolution, allowing market participants to set the reference level based on discretion is contrary to the intent of the dispatch data parameter and to the definition of non-financial reference levels, which are based on the physical operational characteristics of a resource. Allowing market participants to determine this reference level at their discretion is equivalent to removing the validation of the submitted dispatch data parameter against a reference level altogether, given that market participants would be free to set the reference level at a point that could not fail the validation.

Market Manual 14.2

On O&M Energy and OR:

- Similar to our comment above, the proposed documentation request regarding O&M Energy and OR costs is too specific and does not take hydro resources' particularities into account. Again, the requirement is not practical nor is it realistic.
- We recommend the IESO adopt a more simplified and general approach that respects hydro resources' existing accounting framework. Please refer to the solutions proposed by the Ontario Waterpower Association in this regard.

The IESO will not change the high-level design decision, reached in consultation with stakeholders, that reference levels be based on actual eligible costs incurred by a resource. Reference levels are determined based on resource-specific costs, not based on accounting frameworks of individual market participants.

The approach proposed by the Ontario Waterpower Association in this regard was to use a generalized formula that was based on the capacity of a resource and included some estimate of the per MW O&M contribution. However, this approach did not identify the particular O&M costs that were included in the per MW O&M contribution and as such, the IESO would not be able to verify that a) the costs included were eligible O&M costs or b) the resource incurred those costs. As such, the IESO rejected use of this general formula.

The IESO will update section 3.2 of Market Manual 14.2 to provide more clarity regarding how market participants can include operating and maintenance costs in reference levels in different scenarios under the existing process to determine reference levels.

The updated content will provide more clarity about the following scenarios: (i) a market participant has supporting documents for a particular eligible cost, but those documents are not at the resource level; (ii) how the IESO will evaluate market participant-created supporting documents when a market participant does not have supporting documents for a particular cost.

Ontario Power Generation

Table 2 | Ontario Power Generation Feedback and IESO Responses

Feedback	IESO Response
<p><u>Market Rules, Chapter 7</u></p> <p>Sections 22.5.9, 22.5.10.2 and 22.5.11</p> <p>OPG recommends that the IESO include references to the applicable Market Rules Chapter 9 section(s) that outlines the settlement charge assessment for ease of reference.</p>	<p>The IESO will add references to the relevant sections in Chapter 9 to sections 22.5.9, 22.5.10.2, and 22.5.11.</p>
<p><u>Market Rules, Chapter 7</u></p> <p>Section 22.8</p> <ol style="list-style-type: none">1. When would be the first instance where market participants (MPs) are able to trigger the independent review process? Would this process be available to MPs prior to the Market Renewal Go-Live?2. OPG recommends the IESO to include the time requirement for MPs to trigger an independent review after receiving the preliminary view report, and that this time requirement is in alignment with the Market Renewal registration requirement.	<ol style="list-style-type: none">1. Market participants will receive a preliminary view report after Registration Launch in November 2024, at which point they will be able to request use of the independent review process in Online IESO.2. Chapter 7, section 22.8.1.1 contains the details regarding the time that market participants have to request use of the independent review process after receiving a preliminary value report (11 days). The time between Registration Launch and MRP Go Live affords market participants sufficient time to request use of the independent review process prior to MRP Go Live. The duration of completing the independent review process however, is not fully in the control of the IESO given that matters for independent review will vary in complexity.
<p><u>Market Rules, Chapter 7</u></p> <p>Sections 22.8.1.1</p> <p>From the Summary of Change document, this change was due to the content move from Market Manual 14.2, however, there are new and additional content that was added that was not previously in Market Manual 14.2, such as the requirement to register the reference levels and reference quantities contained in the preliminary view on the 11th business day after the issuance</p>	<ol style="list-style-type: none">1. The requirement to register reference levels and reference quantities on the 11th business day after the issuance of the preliminary view mirrors the obligation described in section 3.3.4 of Market Manual 14.2. The other changes to section 22.8.1.1 were added to enable the content being moved to the rules.2. In regards to the question regarding which entity is responsible for registering reference levels, the IESO bears the obligation to register

of the preliminary view. Please clarify which entity will be responsible to ensure the reference levels and reference quantities are registered by the 11th business day after preliminary view issues and which entity will bear the penalty for noncompliance to this requirement. Note that MPs may have the ability to submit data for registration, but ultimately the IESO has the oversight and control on the progression and approval of the registration process.

For point iii), how early can an MP request the IESO to register the preliminary view reference levels and reference quantities?

reference levels as per chapter 7, section 22.8.1.1 that states that “the IESO shall register”.

3. In regards to the question regarding the 3rd sub-bullet in Chapter 7, section 22.8.1.1, the market participant may request that the reference levels be registered directly after receiving the preliminary view report and the IESO has until the 11th business day after that date to register the reference levels.

Market Rules, Chapter 7

Section 22.8.1.2

Do MPs lose the ability to trigger the independent review process once the reference levels and reference quantities are registered? If so, if there is a need to change the reference levels and/or reference quantities, should MPs follow the process outlined in Section 22.7?

1. Chapter 7, section 22.8.1.2 restricts market participants from requesting use of the independent review process after reference levels have been registered.

2. Chapter 7, section 22.5.4 provides market participants the ability to request that the IESO review a reference level. Under this process, the market participant can request that the IESO update the reference level as needed in accordance with that provision.

Market Rules, Chapter 7

Section 22.8.2

Please outline the exceptions to registration indicated in the following: “The IESO shall not register a reference level or reference quantity that is the subject of an expert determination except in accordance with this section 22.8.”

Chapter 7, section 22.8.2 prevents the IESO from registering a reference level or reference quantity in the case that the market participant has requested use of the independent review process, except for the reference levels or reference quantities that are consistent with the output from the independent review process.

This restriction ensures that the IESO does not register reference levels or reference quantities until the independent review process is concluded.

Market Rules, Chapter 7

Section 22.8.10

The last "s" in "15 business days" in this section is not italicized.

The IESO will update the identified section to add italicization in response to the feedback.

Market Rules, Chapter 7

Section 22.16.1.2

The period of time between a dispatch day and when IESO determines the intertie reference level for that dispatch day has been revised to 14 business days. Previously this was six business days.

Please clarify, should there be a financial settlement resultant from this ex post mitigation process, where will the settlement charges appear: in the Final Settlement Statement, the Recalculated Settlement Statement or in a separate invoice?

It is expected that intertie withholding settlement amounts will be communicated after the Final Settlement Statement for a dispatch day due to the time required to carry out the assessment of intertie economic withholding.

The timing in section 22.16.1.2 relates to when intertie reference level values are calculated, which is an input to the assessment of intertie economic withholding. Intertie reference level values allow the IESO to carry out the assessment of conditions for intertie economic withholding and to perform the conduct test and impact test for intertie economic withholding.

However, the timing of the calculation of intertie reference level values is not directly related to when settlement charges for intertie economic withholding will be determined.

The process of determining intertie economic withholding settlement amounts involves significant analysis, consultation with the relevant market participant and issuance of both a first notice of intertie economic withholding and a second notice of intertie economic withholding per Chapter 7, sections 22.17-22.19 and Market Manual 14.1, section 6.

Market Rules, Chapter 11

Maximum number of starts per day reference level; minimum generation block down-time reference level; minimum generation block run-time reference level; minimum loading point

The definition sentences for these defined terms are italicized in their entirety.

The IESO will update the identified definitions so that only defined terms are italicized in response to the feedback. The IESO will review the market rules in advance of final publication to ensure consistent term usage across Chapters and manuals.

Market Rules, Chapter 11**Real-time generation offer guarantee**

1. The term used in Market Rules Chapter 9 is "real-time generator offer guarantee".
2. Propose to include the relevant Market Rules Chapter 9 (Section 4.5) in this definition for ease of reference.

The IESO will review the market rules in advance of final publication to ensure consistent term usage across Chapters and manuals.

Market Manual 14.1**Section 2.1.1**

The "s" in "...identified potential constrained areas;" from the fourth bullet point should be italicized.

The IESO will update the identified section to add italicization in response to the feedback.

Market Manual 14.1**Section 2.2.3**

Changes made to the Narrow Constrained Area pursuant to Market Rules

Chapter 7 Section 22.10.2.3 will come into effect no sooner than two days following the update.

1. Please specify if the two days are calendar days or business days. MPs may have difficulties in addressing the changes if the changes go into effect during weekends and long weekends.
2. The two-day period (regardless of calendar or business days) does not provide sufficient time for MPs to assess the change in constraint designated area on resource operations. Please consider a longer timeframe for implementation for this revision to the NCA designation.

The durations referred to in section 2.2.3 are calendar days.

The changes to narrow constrained areas contemplated under section 22.10.2.3 only include removing a resource from an NCA if that resource no longer needs reference levels pursuant to Chapter 7, s.22.10.2.3 or updating the name of any system element used in existing narrow constrained areas.

The first category of changes relates to resources ceasing to be dispatchable, which is a change dictated by the relevant market participant. The effective date of updating the resource registration information to make it cease to be dispatchable will be driven in large part by the market participant and will be known in advance to the market participant. In addition, it is not clear to the IESO what changes would be necessary in relation to narrow constrained areas, given that resources that are not dispatchable are not subject to market power mitigation.

The second category of changes only involves changing element names for existing narrow constrained areas, which does not drive any

change needed on the market participant side, given that the narrow constrained areas already exist and the change is limited to nomenclature for the system elements of a narrow constrained area.

As there are no known changes to resource operations resulting from these changes, the IESO's view is that the two-day period continues to be appropriate.

Market Manual 14.1

Section 5.2

Suggest revising "...used to assess *physical withholding* in by that *resource* the *day-ahead market...*" to "...used to assess *physical withholding* by that *resource* in the *day-ahead market...*"

The IESO will update the identified section in the suggested manner in response to the feedback.

Market Manual 14.1

Sections 5.4 and 5.6.3

The constrained area conditions, such as NCA, DCA, BCA and GMP, have been replaced by market rule references. It was helpful to have the constrained area conditions outlined in Market Manual 14.1, which providing straightforward tie-in with the Market Power Mitigation Detailed Design V2.0 document. OPG proposes to retain both designations (constrained area designations and market rule sections) in these sections to provide ease of reference and understanding for market participants.

The updated references to market rule sections direct the reader to the appropriate, related sections of the market rules. As the market rules and the market manuals are the governing documents in the renewed markets and the detailed design documents are not, the IESO is of the view that retaining the market rule references as currently drafted provides more useful information than reverting back to references to material only found in the detailed design documents. Moreover, the IESO has made effort to avoid redundancy between the market rules and market manuals, and to allocate content between the documents as appropriate.

Market Manual 14.1

Section 5.6.3

For Step (2), please clarify which highest LMP dispatch hour(s) is being referenced: the resource's highest LMP dispatch hour(s) or highest LMP

The IESO will update the identified section in the suggested manner and add "for the *resource*" in response to the feedback.

dispatch hour(s) for all resources within the Day-Ahead (DA) Market?

Market Manual 14.1

Section 5.7.1

Would the IESO revisit the persistence multiplier if an ex-post mitigation for physical withholding settlement amount is reversed as the result of a notice of disagreement after the incremental persistence multiplier has been applied in subsequent physical withholding notices?

For example, Resource A has a persistence multiplier of 2 applied, however, a prior instance in Second Notice was reversed, meaning that only one Instance in Second Notice remains within the 18 months period, would the multiplier be reduced from 2 to 1?

As stated in section 5.7.1, the persistence multiplier is calculated based on the information that is current as of the calculation date of the persistence multiplier.

If an ex-post mitigation for physical withholding settlement amount has been entirely reversed as the result of a notice of disagreement at the time of calculation, that reversed settlement amount would not increment the persistence multiplier.

Market Manual 14.1

List of Acronyms

There is a blank row in the List of Acronyms table.

The IESO will update the identified section to remove the extra blank row in response to this comment.

Market Manual 14.1

References

1. There are blank rows in the References table.
2. There is an extra "-" before "- End of Document -".

The IESO will update the identified section to remove the extra blank rows and dash in response to this comment.

Market Manual 14.2

General

There are instances where defined term acronyms are italicized and other instances they are not, e.g. MGBRT vs MLP, and MLP vs MLP. Suggest adhering to one format to ensure consistency.

The IESO has reviewed use of italicized terms to help ensure that they are used as intended in response to this comment.

Market Manual 14.2**Sections 1.2 and 3.2**

The references to Market Rules Chapter 7 Section 22.15.21.1 and 22.15.24.2 requires update as these sections do not appear in the current revision of Chapter 7.

The reference to section 22.15.21.1 will be updated to 22.15.20.1. The reference to 22.15.24.2 will be updated to 22.15.23.2. Section references in the manuals will be reviewed and updated as needed in response to this comment.

Market Manual 14.2**Section 1.2.3**

1. The references to Market Rules Chapter 7 App.7.1.A and App.7.2A requires update as these sections do not appear in the current revision of Chapter 7 Appendices from the Consolidated Batch and the Market and Systems Operations Batch.

The IESO will update the posted versions so that they align with the most recent versions of each document.

2. Propose to update the title for Market Manual 5.5 to align with the current market manual title.

Market Manual 14.2**Section 3**

There are instances where references to market manuals are in different format than the Market Manual Conventions format, such as "Market Manual 1, Part 1.5: Market Registration Procedures". Suggest revising to align to the Market Manual Conventions format.

Section 3

All references to market manuals will be corrected to use the MM X.X s.x.x' format. This change will be incorporated in the Final Alignment batch.

Section 3.5.2 -- This restriction is already present in the market rules and does not need to be duplicated in the manual.

Market Manual 14.2**Section 3.5.2**

Market Rules Chapter 7 Section 22.8.1.2 indicates that market participant cannot initiate an independent review process once the reference levels and reference quantities have been registered by the IESO. Suggest revising this section to include this new restriction on the initiation of an independent review process.

Market Manual 14.2

Section 3.5.3.1

Suggest revising "...it wishes withdraw all or a proportion of its review request." to "...it wishes to withdraw all or a proportion of its review request."

The IESO will update the market manual to include the missing "to".

Market Manual 14.2**Section 4.0**

This section makes references to:

- Reference Level Values for Financial Dispatch Data Parameters Day-Ahead Market Report;
- Reference Level Values for Financial Dispatch Data Parameters Real-Time Market Report;
- Reference Quantity Values Day-Ahead Market Report;
- Reference Quantity Values Real-Time Market Report;

which OPG interprets as being the same as the respective following reports listed in the List of external reports impacted by MRP, released by the IESO on Jun 22, 2023:

- Day-Ahead Financial Reference Level Report;
- Real-time Financial Reference Level Report;
- Day-Ahead Reference Quantity Report;
- Real-time Reference Quantity Report.

Please confirm if this interpretation is correct.

OPG strongly recommends consistency in the use of report names across all Market Renewal Program documentation to avoid potential confusion, as there are no reference IDs used for the market reports and some market reports can have similar report names but contain different content.

The IESO will update Market Manual 14.2, section 4 to use the following report names:

Reference level value reports:

- Day-Ahead Market Financial Reference Level Values Report
- Real-Time Market Financial Reference Level Values Report

Reference quantity value reports:

- Day-Ahead Market Reference Quantity Values Report
- Real-Time Market Reference Quantity Values report

Market Manual 14.2**Section 4.2**

The timing of the reference quantity value report has been updated such that version 2 of the Day-Ahead report and version 1 of Real-Time report are published on the 14th calendar days following dispatch day. Previously the publication timing was the day following the dispatch day.

Please clarify, should there be a financial settlement resultant from this ex post mitigation process, where will the settlement charges appear: in the Final Settlement Statement, the Recalculated Settlement Statement or in a separate invoice?

The settlement statement that reflects an ex-post mitigation for physical withholding settlement amount will depend on the timing around the relevant steps in the process.

Market participants will receive both a first and second notice of physical withholding prior to the IESO issuing an ex-post mitigation for physical withholding settlement amount.

Following receipt of a first notice of physical withholding, market participants have up to 45 days to submit supporting documents when requesting an alternate reference quantity value (Ch 7. s. 22.15.20).

The IESO then has up to 90 days to issue a second notice of physical withholding that sets out the settlement charge that will be issued, if any (Ch 7. 22.15.25).

As such, it is not possible to make definitive statements about timing of issuance of an ex-post mitigation for physical withholding settlement amount due to the timing of the steps of the process, including those that relate to market participant interaction with the IESO.

Market Manual 14.2**Section 6.4.3.1**

"A maximum daily energy limit submitted for forebays that is less than the summation of all dispatchable hydroelectric resources capacity across the dispatch day meet the criterion to use the intraday opportunity cost."

Does "the summation of all the dispatchable hydroelectric resources capacity" above refer to all the resources under the forebays referenced earlier in the sentence, or is it in reference to the summation of all offered dispatchable hydroelectric resources capacity by a market participant across the dispatch day?

The former, the IESO has updated the market manual by adding "of the forebay" to make this clear.

Market Manual 14.2

Section 6.4.4.3

1. Should the following sentences be one sentence:

"The IESO will adjust the Approach 1 forecast LMPs by an efficiency factor. When determining the Approach 1 selected value."

2. There are extra spaces in "The greater of \$0/MWh and the value which is..."

3. The passage

"= Day of Week of day *d* in *SP* "

is in a different font from the main text.

4. What is the significance of "two days" in the newly added sentence

"For clarity, the 28-day reference period ends on the day before the *dispatch day* or two days before the day-ahead *dispatch day*."

1. Yes, the IESO will update the identified section to merge the two sentences in this comment in response to this comment.

2. The IESO will update the identified section to remove the extra spaces in this section in response to this comment.

3. The IESO will update the identified section to align the relevant fonts in response to this comment.

4. The intent of this language is to clarify the 28-day reference period that is used to determine the storage horizon opportunity cost. The calculation is completed by 6AM EPT for DAM-scheduling for the following dispatch day. This calculation uses the 28-day reference period ending on the day prior to the date the calculation is carried out (two days before the day-ahead dispatch day).

Market Manual 14.2

Section 6.4.5

There should be additional considerations in the calculation of the Forebay Refill Opportunity Cost (FROC) Trigger Condition for an individual resource, resources within a forebay

and resources within a cascade:

1. Which timeframe does the FROC Cost Trigger condition apply to: DA or Pre-Dispatch (PD)?

In PD, the Maximum Daily Energy Limit

(Max DEL) is expected to remain constant throughout the dispatch day, but if the resource has a dispatch schedule that results in generation, the remaining water in the forebay will decrease.

If this formula is used, the FROC condition can never be triggered in PD.

For example:

1. The forebay refill opportunity cost ('FROC') can be requested by a market participant as a temporary reference level change request per Market Manual 14.2, s. 5, in a resource's day-ahead market ('DAM') reference levels or real-time market ('RTM') reference levels, depending on when the conditions are met.

In both cases, the conditions for the request must be met at the time that the request is submitted.

The IESO will update Market Manual 14.2, s. 6.4.5 to adjust the conditions to request use of the FROC in the RTM by adding scheduled energy in the RTM to the criteria shown there. This update will allow market participants to include real-time energy schedules at the resource at the time the request is submitted when assessing if the eligibility condition is met.

2. Market participants are free to submit temporary reference level change requests to

At PD HE1, Max DEL = 600 MWh, Min DEL = 0, Best Efficiency = 100 MW. Then the resource generates for four hours from HE7 to HE10.

Starting from HE11 there is only 200 MWh remaining (i.e. two hours of fuel remains). However Max DEL remains at 600 MWh, therefore the FROC Trigger Condition is not satisfied from HE11 onward based on the calculation, even though there is less than three hours of water left in the forebay.

2. Based on the proposed equations for the FROC trigger condition, FROC can also never be triggered in the DA (as it is not a physical market) unless the resource is already limited by its registered storage horizon value.

This could result in DA commitment schedules that a resource may not be able to meet in the Real-Time due to the resource being dispatched beyond the three-hour fuel limit, as this constraint is not physically realized in the DA timeframe. See the example provided above for bullet #1.

Considering the above, OPG proposes that the FROC Trigger Condition be modified to the following:

FROC Trigger Condition = Max DEL – Energy Generated from Max DEL Tracking Report – Minimum DEL ≤ Sum of Best Efficiency Rating of ...

This modification will recognize the impact of fuel consumption on the fuel availability for a hydroelectric resource throughout the dispatch day (whether in DA or in RT), by incorporating this impact in the assessment of FROC eligibility.

include FROC in DAM reference levels when the conditions are met. Submitted maximum daily energy limit, minimum daily energy limit and efficiency ratings of the relevant units are all known to the market participant in the timeframe of the day-ahead submission window. Market participants can submit temporary reference level change requests to update DAM reference levels (including to request use of FROC in DAM reference levels) between 06:00 and 09:30 EPT for the DAM.

Day-ahead schedules are financially binding for hydroelectric resources, they are not 'commitment schedules'. Market participants are free to determine which dispatch data to submit into the DAM. Hydroelectric resources can submit many different dispatch data parameters that are intended to allow them to achieve feasible schedules. Reference level values do not directly drive day-ahead schedules.

Market Manual 14.2**Section 6.4.5.2**

Should the term "Resource" in "Assume that all six Resources have registered the forebay refill opportunity cost." be in lower case?

The IESO will update the identified section to adjust the case in the manner proposed in response to this comment.

Market Manual 14.2**Section 6.6**

OPG suggest expanding the define term for "GOG-eligible resources" to "Generator Offer Guarantee eligible resources" as the GOG acronym has been removed from the List of Acronyms and GOG is only used once in the market manual.

"GOG eligible resource" is a defined term and so the acronym "GOG" does not need to be expanded.

Market Manual 14.2**Sections 7.1.3.1, 7.1.3.2, 7.1.9, 7.1.9.2**

The format of "Speed No-Load" used in the equations are not consistent with those of the main text, i.e. "Speed No Load" vs "Speed-No-Load" vs "Speed No-Load".

The IESO will update the identified sections to align the format of the term speed-no-load in equations with the format used in the body text in response to this comment.

Market Manual 14.2**Sections 7.1.3.2, 7.1.9.2**

Should the "No Load Heat Consumption" term in the equations within these sections be "Speed No-Load Heat Consumption"?

The IESO will update the identified sections in the manner proposed in response to this comment.

Market Manual 14.2**Section 7.1.10.1**

Suggest inserting a space between the section numbering and the section title in the section heading.

The IESO will update the identified section to insert a space in the manner proposed in response to this comment.

Market Manual 14.2**Section 7.2.1.2**

1. The change in this notation was to accurately reflect the fact that this calculation relies on

1. Please clarify the rationale for replacing 168 by 2016 in the sigma symbol for both the numerator and denominator.

2. The first paragraph on page 90 (clean version) indicates that pumping power cost will include a fixed \$/MWh adder and this adder will be included in the total fuel related costs. However, the Pumping Power Cost equation on page 98 does not include this adder. Please clarify where this adder will be included in the calculation of the Pumping Power Cost.

interval pricing and there are 2016 intervals in a 7-day period.

2. The fixed regulatory adder will appear in the total fuel related costs that are registered with the IESO, per the current language in the market manual. The fixed regulatory adder is not part of the dynamic calculation of the Pumping Power Cost and so is not shown in the equation for Pumping Power Cost.

Market Manual 14.2

Section 7.2.4

The section numberings of this section are different between the clean and red-lined versions of Market Manual 14.2.

The section numbering in the clean versions is correct. The IESO will not update the redline at this time.

Market Manual 14.2

Section 7.2.4.1

Suggest making the "h" in "Scheduled MWh is the schedule synchronized *ten-minute operating reserve* MWhs..." to be in the normal font size instead of a subscript.

The IESO will update the identified sections in response to this comment to clarify that the intended meaning is MWs per hour rather than MWhs.

Market Manual 14.2

Section 7.2.4.4

1. Is the first sentence in this section intended to be a section heading?

2. Step 1, point ii, should the "plus" in this sentence be italicized?

3. OPG interprets that the Point X in the HORFEC calculation is selected by MPs and it is a fixed value in determining the input for the HORFEC reference level.

1. The IESO will update the identified section to use the correct text formatting in the first sentence of the section in response to this comment.

2. The IESO will update the identified section to remove the italicization from the "plus" in response to this comment.

3.
a. Step 1, subsections i. and ii. Detail the requirements associated with choice of Point X by market participants. There are no current restrictions on choice of Point X related to forbidden regions. Market participants can

a. Please outline the requirements and/or restrictions in how MPs

should proceed in determining Point X. Within the current revision of Market Manual 14.2, there is no guidance on how to select a suitable Point X for calculating the H-ORFEC. For example, Point X should not fall within a forbidden region of a hydro resource.

b. Point X is held to be a constant in the H-ORFEC calculation, however, Point X can be dynamic in dispatch calculations. For example, it is possible that during a dispatch calculation, the hydro resource can be dispatched to a different MW output than the efficiency point and from Point X, which could potentially lead to discrepancy between the H-ORFC value and actual operation condition of the hydro resource.

avoid setting Point X in a forbidden region through their choice of Point X for a resource.

b. The H-ORFEC is a registered cost that relies on a single, market participant-determined Point X. Allowing market participants to select Point X at the point they choose (subject to the two restrictions discussed above) affords market participants to determine their optimal value for Point X.

Market Manual 14.2

Section 7.2.5.2

OPG suggests revising "...repeat step 3 for *resources* at each subsequent *forebay*..." to "...repeat step 2 for *resources* at each subsequent *forebay*..."

The IESO will update the identified section in the manner recommended in response to this comment.

Market Manual 14.2

Section 9.2.1

Please confirm if there is an extra spacing in "Eff (%)" in the last line of the section.

The IESO will update the identified section to remove the extra spaces in response to this comment.

Market Manual 14.2

Section 9.6.2

OPG suggest to not underline the term "electricity storage".

The IESO will update the identified section to remove the underline format in the manner recommended in response to this comment.

Market Manual 14.2**List of Acronyms**

1. There is an extra space in front of "GRC".
2. Suggest to not italicize "MLP".
3. Suggest adding the acronyms "H-ORFEC" and "T-ORFEC" to the List of Acronyms.

The IESO will update the identified section to adjust the text formatting to address these comments.

Market Manual 14.2**References**

1. There is a blank row in the References table.
2. There is an extra "-" before "- End of Document -".

The IESO will update the identified section to remove the blank row and extra hyphen identified in these comments.

General Comments/Feedback

Under the Market Power Mitigation (Update December 2023) posting from the Market Renewal Implementation Phase Documents webpage (<https://www.ieso.ca/en/Market-Renewal/Energy-Stream-Designs/Implementation-phase-documents>), Market Manuals 1.3 and 1.5 are both posted under the Conforming Changes section. The linked versions for these two market manuals are dated August 12, 2021 and December 17, 2021, respectively. These versions are not aligned with the latest available versions of the market manuals (September 15, 2021 for Market Manual 1.3 and April 21, 2023 for Market Manual 1.5). OPG recommends the IESO to update the linked PDF files for these two market manuals under the Market Power Mitigation (Update December 2023) posting, as market participants may inadvertently reference the older

General

The IESO will update the posted versions so that they align with the most recent versions of each document.

Market Settlement

1. Acknowledged.

2. The change to the non-dispatchable generator formula does not impact resource registration or any other market rules.

Reports

1. Yes, the reports with listed with revised content will be posted in either a Q1 or Q2 2024 batch. Reports that were identified as retired, descoped, or revised for timing only will not be posted since there is no format change.

versions of the market manuals when reviewing the latest Market Power Mitigation Batch.

The following feedback relates to the settlement and reports portion of the December 15, 2023 engagement webinar.

Market Settlement

1. The step-through examples of the DA Market and Real-Time Intertie failure charges were helpful for MPs to understand on how the new charge codes will work.
2. Regarding the changes to Non-Dispatchable Generator resource equation, in addition to the update of Market Manual 5.5, OPG would like to know if this change will impact other processes such as for resource registration and related market rule changes?

Updates on Market Facing Reports

1. Would the list of revised reports presented on presentation slides 4 and 5 be published in one of the upcoming report batches so that MPs can see and access the updated formats?

OPG thanks the IESO for the opportunity to provide feedback for the Market Power Mitigation Batch update, as well as the providing feedback to the December 15th stakeholder engagement webinar.

The intent of the H-ORFEC is to account for the inefficient use of water when a hydro resource is dispatched below its efficiency gate operating point to support operating reserve (OR). However, the H-ORFEC does not take into account

situations where the resource's forebay is full and is not able to store the unused water due to the change in dispatch schedule, i.e. when the hydro resource is dispatched below the efficiency point, not only is the water not being used efficiently,

As stated in Market Manual 14.2, section 7.2.4.4, "the Hydroelectric – Operating Reserve Fuel Efficiency Cost (H-ORFEC) is the cost of extra fuel use associated with inefficient energy production".

The H-ORFEC accounts for the cost of inefficient energy production, not for foregone energy revenues associated with energy that is not produced in the scenario described in the comment.

Feedback**IESO Response**

any amount of water that is not used due to the dispatch schedule being constrained down may have to be spilled and be lost to the resource forever.

For example, hydro resource A has 100 MW capacity with efficiency gate output at 90 MW.

The resource's forebay has three hours' worth of storage. For HE10, Resource A has an energy schedule of 90 MW and OR schedule of 10 MW.

For HE11 to HE16, resource A's schedule has been joint optimized to 0 MW for energy and 100 MW

for OR. Due to the constrained down to 0 MW for energy, starting from HE14, the resource must initiate spill for water management, as additional inflow cannot be stored in the forebay and cannot be used by the resource. This water is lost forever to the resource, and the cost of this water is beyond what would be covered by the H-ORFEC.

It does not account for inefficient use of water anytime a hydroelectric resource is dispatched below its efficiency rating, as the comment states.

Hydroelectric resources are eligible to receive the real-time lost opportunity make whole payment. The IESO discussed this matter in the August 25, 2022 stakeholder presentation titled "Day-Ahead and Real-Time Make-Whole Payments for Hydroelectric Generation Facilities".

Foregone revenues for energy generation where a resource is scheduled for operating reserve are already addressed through the real-time lost opportunity make whole payment design and are not eligible to be an additional cost in the resource's operating reserve reference levels.
