

# MRP Implementation Batch 2: Market Manual and Market Rule Changes

In order to facilitate the implementation of the market renewal program (MRP), changes are required to both *market rules* and *market manuals*. Due to the volume and complexity of changes anticipated in MRP, the IESO is releasing changes by 'batches'. This document describes the changes in the Market Power Mitigation batch.

## Market Power Mitigation Changes

### Changes to Market Rules

A series of new definitions were added to chapter 11 of the *market rules* to facilitate the new procedures related to market power mitigation. Some existing definitions were modified to align with market design under the Market Renewal Program. Some existing definitions were deleted as they were associated with procedures that are being superseded by the new market power mitigation procedures.

Appendix 7.6 of Chapter 7 of the *market rules* was removed as the related procedures are being superseded by the new market power mitigation procedures.

A new section, containing provisions related to the new market power mitigation procedures, was added to Chapter 7 of the *market rules*.

A new section, containing a provision related to disputes related *reference levels* and *reference quantities* was added to Chapter 3 of the *market rules*.

## Summary of Market Rule Changes: August 2021

Chapter	Section	Topic	Type of Change	Description
Chapter 11	n/a	All	New, Modified	Various – introduction of new definitions and edits to existing defined terms to support market power mitigation.
Appendix 7.6	All	Local Market Power	Deleted	Existing provisions in Appendix 7.6 – Local Market Power will be deleted in its entirety and replaced with the new market power mitigation construct in section 22 NEW of Chapter 7.
Chapter 7	3.3.9.1A	Standing Dispatch Data	Modified	Added a specification that standing <i>dispatch data</i> shall be deemed to be initial <i>dispatch data</i> for purposes of the Chapter 7 <i>market rules</i> related to market power mitigation.
Chapter 7	22.1	Reference Levels -General	New	Specify general provisions and obligations on both the <i>IESO</i> and <i>market participants</i> related to <i>reference levels</i> .
Chapter 7	22.2	Reference Levels for Financial Dispatch Data Parameters	New	Specify the <i>reference levels</i> for <i>financial dispatch data parameters</i> that the <i>IESO</i> shall determine and other conditions related to the determination of financial <i>reference levels</i> .
Chapter 7	22.3	Reference Levels for Non-Financial Dispatch Data Parameters	New	Specify the <i>reference levels</i> for <i>non-financial dispatch data parameters</i> that the <i>IESO</i> shall determine and other conditions related to the determination of non-financial <i>reference levels</i> .

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.4	Resources with Multiple Sets of Reference Levels	New	Specify details and conditions for the determination of multiple sets of <i>reference levels</i> for specific <i>resource</i> types.
Chapter 7	22.5	Changes to Reference Levels	New	Specify the conditions where the <i>IESO</i> may change a <i>resource's reference levels</i> , as well as conditions when a <i>market participant</i> may request a review or temporary revision to a <i>reference level</i> .
Chapter 7	22.6	Reference Quantities	New	Specify general provisions and obligations on both the <i>IESO</i> and <i>market participants</i> related to the determination of <i>reference quantities</i> .
Chapter 7	22.7	Changes to Reference Quantities	New	Specify the conditions where the <i>IESO</i> may change a <i>resource's reference quantities</i> .
Chapter 7	22.8	Independent Review	New	Specify the conditions and process for the <i>market participant</i> initiated independent review of <i>reference levels</i> and <i>reference quantities</i> .
Chapter 7	22.9	Market Control Entities	New	Specify <i>market participant</i> obligations related to the disclosure of <i>market control entities</i> .
Chapter 7	22.10	Designation of Constrained Areas – PCAs, NCAs, and DCAs	New	Specify the conditions and process whereby the <i>IESO</i> shall designate an area as a <i>potential constrained area</i> , <i>narrow constrained area</i> , or <i>dynamic constrained area</i> .
Chapter 7	22.11	Global Market Power Reference Interties Zones	New	Specify the conditions and process whereby the <i>IESO</i> may designate an

Chapter	Section	Topic	Type of Change	Description
				<i>intertie zone as a global market power reference intertie zone.</i>
Chapter 7	22.12	Uncompetitive Intertie Zones	New	Specify the conditions and process whereby the <i>IESO</i> may designate an <i>intertie zone</i> as uncompetitive.
Chapter 7	22.13	Ex-Ante Validation of Non-Financial Dispatch Data Parameters	New	Specify the conditions and thresholds whereby the <i>IESO</i> shall validate a <i>dispatchable resource's non-financial dispatch data parameters</i> against its corresponding <i>reference level values</i> .
Chapter 7	22.14	Ex-Ante Mitigation of Economic Withholding	New	Specify that the <i>IESO</i> shall, <i>for dispatchable resources</i> , apply a conduct and impact test for <i>economic withholding</i> in the day-ahead scheduling process and pre-dispatch scheduling process, as codified in Appendix 7.1A – The Day-Ahead Market Calculation Engine and Appendix 7.2A – The Pre-Dispatch Calculation Engine.
Chapter 7	22.15	Ex-Post Mitigation of Physical Withholding	New	Specify the conditions, process and thresholds for the <i>IESO's</i> application of the conduct and impact tests to assess <i>physical withholding of energy and operating reserve</i> .
Chapter 7	22.16, 22.17	Intertie Reference Levels, Intertie Economic Withholding on an Uncompetitive Intertie Zone	New	Specify the conditions, process and thresholds for the <i>IESO's</i> application of the conduct and impact tests to assess <i>intertie economic withholding of energy and operating reserve</i> .
Chapter 7	22.18	Mitigation for Make-Whole Payment Impact	New	Specify the conditions, process and thresholds for the <i>IESO's</i> application of the conduct and impact tests to assess

Chapter	Section	Topic	Type of Change	Description
		on Uncompetitive Interties		make-whole payment impact on an uncompetitive <i>intertie zone</i> .
Chapter 7	22.19	Intertie Economic Withholding – Procedural Steps and Timelines	New	Specify the procedural steps and timelines for <i>intertie economic withholding</i> .
Chapter 3	2.5.1A.6	Notice of Dispute related to Independent Review Process	New	Specify the window of time that <i>market participants</i> have available to initiate a dispute related to an independent review of <i>reference levels</i> and <i>reference quantities</i> .

### Summary of Market Rule Changes: December 2021

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.1.3, 22.6.3	Documentation	Modification	<p>Added the word “reasonably” to reference the information and supporting documentation that the <i>IESO</i> may “<b>reasonably</b> require.”</p> <p>This content was updated in response to stakeholder feedback from Capital Power (comment id 66).</p>
Chapter 7	22.2.3, 22.3.2	Default Reference Levels	Modification	<p>Replaced references to “the <i>IESO</i> shall” to “the <i>IESO</i> may”: in cases where a <i>market participant</i> fails to provide the information or supporting documentation that the <i>IESO</i> may reasonably require, the <i>IESO</i> may (discretionary power on</p>

Chapter	Section	Topic	Type of Change	Description
				<p>the <i>IESO</i>) register default reference levels as specified in these sections.</p> <p>This content was updated in response to stakeholder feedback from Capital Power (comment id 69).</p>
Chapters 7 and 11	22.3.1.1, 22.3.1.2, 22.3.2.1, 22.3.2.2	Energy ramp rate reference level; operating reserve ramp rate reference level	Addition /Modification	<p>New defined terms in chapter 11 of the <i>market rules</i> have been added for "<i>energy ramp rate reference level</i>" and "<i>operating reserve ramp rate reference level</i>." The specified sections in Chapter 7 have been updated with these new defined terms.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 78).</p>
Chapter 7	22.3.2.10	Default Reference Levels	Modification	<p>This section on the default <i>reference level</i> for the maximum <i>energy per ramp hour reference levels</i> for each <i>thermal state</i> has been amended to specify a value of 1 MWh - replace the reference to "MWh" with "1 MWh."</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 80).</p>

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.4.2	Resources with Multiple Sets of Reference Levels	Modification	<p>This section has been amended to be applicable to a <i>resource</i> that has registered a primary fuel type of gas, oil, steam or biomass which is not eligible to submit <i>start-up offers</i> and <i>speed-no-load offers</i> as hourly <i>dispatch data</i> into the <i>day-ahead market</i> and <i>real-time market</i>.</p> <p>This change was made in response to internal feedback received as part of solution development.</p>
Chapter 7	22.5.1, 22.5.1.3	Changes to Reference Levels	Addition	<p>Added a new condition to the list whereby the <i>IESO</i> may change a registered <i>reference level</i> for a <i>resource</i>:</p> <p>22.5.1.3 – the <i>IESO</i> registered that <i>reference level</i> pursuant to section 22.2.3 or 22.3.2 (<i>IESO</i> discretion to register default <i>reference levels</i> if a <i>market participant</i> fails to provide information or supporting documentation).</p> <p>This content was updated in response to stakeholder feedback received during reference level consultations.</p>

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.5.3	Changes to Reference Levels	Modification	<p>For the inclusion of <i>energy</i> and <i>speed no-load</i> costs in a <i>resource's start-up offer reference level</i> in circumstances where the <i>resource's minimum generation block run-time</i> extends into the next <i>dispatch day</i>, this section has been amended to be applicable to a <i>resource</i> that is eligible to submit <i>start-up offers</i> and <i>speed-no-load offers</i> as hourly <i>dispatch data</i> into the <i>day-ahead market</i> and <i>real-time market</i>.</p> <p>This change was made in response to internal feedback received as part of solution development.</p>
Chapter 7	22.5.6, 22.5.11	Changes to Reference Levels – Form and content of documentation	Modification	<p>Modified the sections to clarify that the form and content of documentation required to support the use of a higher-cost profile <i>reference level</i> is not limited to the time a <i>resource's reference levels</i> are initially determined, but may be amended with the agreement of the <i>IESO</i> and the <i>market participant</i>.</p> <p>This content was updated in response to stakeholder feedback from Capital Power (comment id 86).</p>



Chapter	Section	Topic	Type of Change	Description
Chapter 7	Throughout	Use of Acronyms	Modification	<p>The use of acronyms such as "DAM, RTM, DCA, etc" have been replaced with the full, defined terms "<i>day-ahead market, real-time market, dynamic constrained areas,</i>" etc.</p> <p>This content was updated in response to stakeholder feedback from Power Advisory - references to "RTM" (comment id 34).</p>
Chapter 7	22.5.7.2	Temporary Revisions to Reference Levels	Modification	<p>For the <i>real-time market</i>, modified the timing of requests for temporary revisions to <i>reference levels</i> from "no later than 130 minutes before the first <i>dispatch hour</i> in the request" to "no later than 150 minutes before the first <i>dispatch hour</i> in the request."</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 127).</p>
Chapter 7	22.5.10.3, 22.5.10.4	Changes to Reference Levels	Modification	<p>Clarified that the rejection of subsequent requests for temporary revisions to <i>reference levels</i> made outside of the window of 8:00 to 16:00 EDT for 30 days, is for the applicable <i>resource</i>.</p>

Chapter	Section	Topic	Type of Change	Description
				This content was updated in response to stakeholder feedback from OPG (comment id 87).
Chapter 7	22.5.12	Changes to Reference Levels	Addition	<p>Added section 22.5.12 to clarify that the requirement to provide a <i>preliminary view</i> generally applies, except in certain circumstances as specified in section 22.5.1.4 or 22.5.1.6.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 83).</p>
Chapter 7	22.6.5	Reference Quantities	Modification	<p>Replaced the reference to “a methodology used to calculate <i>reference quantities</i>” with “a <i>reference quantity</i>.”</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 89).</p>
Chapter 7	22.6.7.2, 22.3.2.4	Reference Quantities	Modification /Addition	<p>Modified this section to replace “maximum installed capacity” with “the sum of the maximum active power capability of all <i>generation units</i> associated with the <i>resource</i>”.</p> <p>This content was updated in response to stakeholder</p>

Chapter	Section	Topic	Type of Change	Description
				feedback from OPG (comment id 90).
Chapter 7	22.7.1.4	Changes to Reference Quantities	Modification	<p>Added the language “whichever is later” to be consistent with the language in section 22.5.1.7.</p> <p>22.7.1.4 more than two years have passed since the <i>reference quantity</i> was established or last updated, whichever is later.</p> <p>This change was made in response to internal feedback.</p>
Chapter 7	22.7.2	Changes to Reference Quantities	Modification	<p>The following provision, which was previously section 22.8.1 has been relocated at the end of section 22.7.2:</p> <p>Prior to registering a reference level or reference quantity for a resource, the IESO shall communicate a preliminary review to the relevant market participant.</p> <p>This change was made in response to internal feedback.</p>
Chapter 7	22.8.1	Independent Review	Modification	<p>Modified this section to specify that the consultant must be independent of the <i>IESO</i> and the <i>market participant</i> requesting the review.</p>

Chapter	Section	Topic	Type of Change	Description
				This content was updated in response to stakeholder feedback from OPG (comment id 91).
Chapter 7	22.8.2, 22.8.4	Independent Review	Modification	<p>Replaced “despite the time limit in section 22.8.2” with “despite any time limit to do so specified in the applicable <i>market manual</i>.”</p> <p>The time limits are specified in the applicable <i>market manual</i>, and not explicitly in section 22.8.2.</p> <p>Consequential with this change, a cross reference to section 22.8.2 has been added to section 22.8.4.</p> <p>This change was made in response to internal feedback.</p>
Chapter 7	22.8.4	Independent Review	Modification /Addition	<p>Replaced the reference to “all information” in section 22.8.4.2 and created a new section 22.8.4.3 to include “any information or documentation that the <i>IESO</i> determines the consultant may require.”</p> <p>This change was made in response to internal feedback.</p>

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.8.10	Independent Review	Modification	<p>Clarified that the <i>IESO</i> may not apply a <i>settlement charge</i> for <b>subsequent</b> reviews conducted as a result of the <i>IESO</i> rejecting a finding pursuant to section 22.8.6.</p> <p>This change was made in response to internal feedback.</p>
Chapter 7	22.9.3	Market Control Entities	Editorial	<p>Unitalicized the word "the."</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 95).</p>
Chapter 7	22.10.2.3	Designation of Constrained Areas	Modification	<p>Specified the <i>IESO</i> may update the list or <i>resources</i> <b>or the name of any system element</b> in a <i>narrow constrained area, in accordance with the applicable market manual</i>. Further details are specified in Market Manual 14.1.</p> <p>This content was updated in response to stakeholder feedback from Capital Power (comment id 74).</p>

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.13.1, 22.13.1.3, 22.13.1.4	Ex-Ante Validation of Non-Financial Dispatch Data Parameters	Addition	<p>Added sections 22.13.1.3 and 22.13.1.4 to include conduct thresholds for <i>minimum generation block down-time</i> for warm and cold <i>thermal states</i>.</p> <p>This change was made in response to internal feedback.</p>
Chapter 7	22.15.3.3, 22.15.3.4, 22.15.3.5, 22.15.3.6, 22.15.4.1.2, 22.15.4.2.2, 22.15.10.3, 22.15.10.4, 22.15.12.1.2, 22.15.12.2.2	Ex-Post Mitigation of Physical Withholding: Conditions – Energy/Operating Reserve, Conduct Test – Energy/Operating Reserve	Modification	<p>Modified various sections to clarify:</p> <ul style="list-style-type: none"> <li>that <i>resources</i> that submit <i>offer</i> quantities of <i>energy</i> or <i>operating reserve</i> at least equal to the relevant reference quantity value will not meet the condition to test for physical withholding; and</li> <li>the specific manner that the <i>IESO</i> will use to carry out the MCE conduct test for assessing physical withholding of <i>energy</i> and <i>operating reserve</i>.</li> </ul> <p>These changes were made in response to stakeholder feedback during reference level consultations and also in response to internal feedback received as part of solution development.</p>

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.15.3, 22.15.10	Ex-Post Mitigation of Physical Withholding: Conditions – Energy/Operating Reserve	Modification	<p>Replaced references to “two-hour ahead pre-dispatch run” to “one-hour ahead pre-dispatch run.”</p> <p>This change was made in response to internal feedback received as part of solution development.</p>
Chapter 7	22.15.4	Ex-Post Mitigation of Physical Withholding: Conduct Test – Energy/Operating Reserve	Modification /Editorial	<p>Sections 22.15.4.1.2 and 22.15.4.2.2:</p> <p>Inserted “that energy offer was below the resource’s reference quantity values and”</p> <p>Sections 22.15.12.1.2 and 22.15.12.2.2:</p> <p>Inserted “that offer for operating reserve was below the resource’s reference quantity values and”</p> <p>Corrected various minor grammatical errors.</p> <p>This change was made in response to external feedback received during reference level consultations.</p>
Chapter 7	22.16.2	Intertie Reference LEvels	Modification	<p>Added: “The <i>IESO</i> shall consider only the <i>dispatch hours</i> within each period when determining <i>intertie reference levels</i> for that period.”</p>

Chapter	Section	Topic	Type of Change	Description
				This content was updated in response to stakeholder feedback from OPG (comment id 105).
Chapter 7	22.16.9.3, 22.16.12.3	Intertie Reference Levels – Energy Bids	Modification	<p>Replaced “below or equal to” to “above”:</p> <p>The market participant’s energy bid for the boundary entity resource was priced <b>above</b> the intertie border price.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 109).</p>
Chapter 7	22.16.11	Intertie Reference Levels – Energy Bids	Modification	<p>Correction of error - changed references to “offers” to “bids.”</p> <p>This change was made in response to internal feedback.</p>
Chapter 7	22.17.6	Intertie Economic Withholding on an Uncompetitive Intertie Zone – Impact Test - Energy	Editorial	<p>Italicized “<i>intertie zone.</i>”</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 110).</p>
Chapter 7	22.17.7, 22.17.13	Intertie Economic Withholding on an Uncompetitive Intertie Zone – Impact Test –	Modification	<p>Correction of errors:</p> <p>22.17.7 <i>Energy</i>: replaced “or 100% or \$50/MW” with “the lesser of 100% or \$50/MW.”</p>



Chapter	Section	Topic	Type of Change	Description
		Energy/Operating Reserve		<p>22.17.13 <i>Operating Reserve</i>: replaced "or 50% or \$25/MW" with "the lesser of 50% or \$25/MW."</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 111).</p>
Chapter 7	22.17.15, 22.18.6	Intertie Economic Withholding on an Uncompetitive Intertie Zone – Impact Test – Operating Reserve / Intertie Economic Withholding on an Uncompetitive Intertie Zone – Make-Whole Payment Impact Test	Removal	<p>Updated content to remove redundancy given Chapter 7, section 22.19.7.</p> <p>This change was made in response to internal feedback.</p>
Chapter 3	2.5.1A.6	Notice of Dispute	Modification	<p>Modified the section to clarify that a <i>notice of dispute</i> relating to an independent review must be filed no later than 22 days following the <i>IESO</i> registering the <i>reference levels</i> or <i>reference quantities</i> for the <i>resource</i>.</p> <p>This content was updated in response to stakeholder feedback from Capital Power (comment id 76).</p>

Chapter	Section	Topic	Type of Change	Description
11	Definitions	Various	Modification	<p>Modified the following defined terms:</p> <ul style="list-style-type: none"> <li>• energy ramp rate reference level OPG 78</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 78)</p> <ul style="list-style-type: none"> <li>• Global market power reference inertia</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 113)</p> <ul style="list-style-type: none"> <li>• Market control entity OPG 114</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 114)</p> <ul style="list-style-type: none"> <li>• Market control entity for physical withholding OPG 114</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 114)</p> <ul style="list-style-type: none"> <li>• Operating reserve ramp rate reference level OPG 78</li> </ul> <p>This content was updated in response to stakeholder</p>

Chapter	Section	Topic	Type of Change	Description
				<p>feedback from OPG (comment id 78)</p> <ul style="list-style-type: none"> <li>Ramp hours to minimum loading point reference level OPG 78</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 78)</p> <ul style="list-style-type: none"> <li>Simuated as-offered energy locational marginal price OPG 116</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 116)</p> <ul style="list-style-type: none"> <li>Simulated reference quantity energy locational marginal price</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 116)</p>

**Summary of Market Rule Changes: March 2022**

Chapter	Section	Topic	Type of Change	Description
Chapter 7	Various	N/A	Editorial	Cross-references in various sections have been updated to account for the changes discussed below.

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.1.1	Reference Levels	Modification	<p>Modified the section to clarify that the <i>IESO</i> needs to determine <i>reference levels</i> for <i>dispatchable resources</i> registered to submit <i>offers</i> or <i>bids</i>, rather than just <i>offers</i>, as was previously the case. This change aligns this section with the content already found in section 22.1.2.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 1).</p> <p>Modified the section to clarify that <i>reference levels</i> are required in order to submit <i>offers</i> for <i>operating reserve</i> as well as <i>energy offers</i> or <i>energy bids</i>.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.1.4	Reference Levels	Modification	<p>Modified the section to clarify that the <i>IESO</i> shall make available to each <i>market participant</i> the <i>reference levels</i> that are registered and the <i>reference level values</i> that are calculated for that <i>market participant's resources</i>.</p> <p>This content was updated in response to stakeholder</p>

Chapter	Section	Topic	Type of Change	Description
				feedback from OPG (comment id 2).
Chapter 7	22.1.5	Reference Levels	Modification	<p>Updated this section to clarify that the <i>IESO</i> is prevented from registering <i>reference levels</i> where the relevant <i>reference level</i> values do not monotonically increase.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 3).</p>
Chapter s 7	22.1.6, 22.1.7,	Reference Levels	Modification	<p>Updated these sections to clarify that the sections refer to <i>reference level values</i>.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 4).</p>
Chapter 7	22.2.1.2	Reference Levels	Modification	<p>Removed the reference to thermal states for the speed no load offer reference level.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 21B).</p>
Chapter 7	22.2.3	Reference Levels	Deletion	<p>Removed the language that was previously in this section allowing the <i>IESO</i> to determine <i>reference levels</i> of particular dollar values in the</p>

Chapter	Section	Topic	Type of Change	Description
				<p>absence of required information or supporting documentation. This language was removed as it is redundant given other content in the <i>reference level</i> sections of chapter 7 and the relevant content in Market Manual 14.2.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.2.2, 22.2.3	Reference Levels	Modification	<p>Language that was previously in section 22.2.2 regarding the <i>IESO's</i> ability to register a <i>reference level</i> that produces <i>reference level values</i> below a <i>resource's short-run marginal costs</i> at the request of a <i>market participant</i> was moved from section 22.2.2 and placed in section 22.2.3.</p> <p>The new content in section 22.2.3 is now the only topic of section 22.2.3, due to the removal of the content previously found in section 22.2.3, discussed above.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.3.1, 22.5.4	Reference Levels	Modification	<p>Added "in accordance with the applicable <i>market manual'</i> to this section.</p>

Chapter	Section	Topic	Type of Change	Description
				This content was updated in response to stakeholder feedback from OPG (comment ids 23 and 28).
Chapter 7	22.4.1	Reference Levels	Modification	<p>Updated the language in these sections so that resources that are pseudo units determine one set of reference levels for combined cycle mode and one set of reference levels for single cycle mode, where applicable.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.4.3, 22.4.4, 22.5.6, 22.5.9, 22.5.10, 22.5.11	Reference Levels	Modification	<p>Updated the language in these sections so that the sets of <i>reference levels</i> are no longer referred to as the "higher-cost set" and the "lower-cost set".</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 25A).</p>
Chapter 7	22.4.4	Reference Levels	Modification	<p>Added content to this section to clarify that the <i>IESO</i> can determine two sets of <i>reference levels</i>, including all relevant financial <i>reference levels</i>, for <i>resources</i> that have two distinct cost profiles.</p>

Chapter	Section	Topic	Type of Change	Description
				This content was updated in response to stakeholder feedback from OPG (comment id 25B).
Chapter 7	22.5.1.5	Reference Levels	Editorial	<p>The language in this section was updated for alignment with the language in section 22.5.1.6, where the term "pursuant to" is used in place of the previous language "in accordance with".</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.5.4	Reference Levels	Addition	<p>Added content in this section to clarify when market participants can request updates to a resource's reference levels. Conforming changes were also made to Market Manual 14.2, sections 3.3.1 and 3.3.2.</p> <p>This content was updated in response to internal stakeholder feedback.</p>
Chapter 7	22.6.2	Reference Quantities	Editorial	<p>Updated the cross reference in this section to refer to section 22.6.1.</p> <p>This content was updated in response to internal feedback.</p>



Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.7.1.3	Reference Quantities	Editorial	<p>Added a cross reference to section 22.7.3 to this section.</p> <p>This content was updated in response to feedback received during the January Technical Panel meeting.</p>
Chapter 7	22.7.3	Reference Quantities	Editorial	<p>Added content in this section to clarify when <i>market participants</i> can request updates to <i>a resource's reference quantity</i>. Conforming changes were also made to Market Manual 14.2, sections 3.3.1 and 3.3.2.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.8.1	Independent Review Process	Editorial	<p>Moved content that had previously resided in section 22.7.2 into the new section 22.8.1, as had been the intent.</p>
Chapter 7	22.8.5, 22.8.7, 22.8.8, 22.8.9,	Independent Review Process	Modification	<p>The content in these sections have been updated to provide more clarity on the independent review process.</p> <p>This content was updated in response to feedback received during the January and February Technical</p>

Chapter	Section	Topic	Type of Change	Description
				Panel meetings as well as internal feedback.
Chapter 7	22.8.5.1	Independent Review Process	Modification	<p>The content in this section has been amended to provide more clarity regarding the independent review process. The new language states that the <i>IESO</i> shall provide a consultant engaged on an independent review with a statement of the applicable <i>reference levels</i> and <i>reference quantities</i> to be reviewed and the nature of such review.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 87A).</p>
Chapter 7	22.8.7, 22.8.8	Independent Review Process	Modification	<p>Split the previous section 22.8.7 into two sections.</p> <p>This change was made in response to internal feedback.</p>
Chapter 7	22.8.9	Independent Review Process	Modification	<p>The content in this section was modified to provide more clarity around the steps involved when the <i>IESO</i> rejects a finding in an independent review report.</p> <p>This change was made in response to internal feedback.</p>

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.8.13	Independent Review Process	Modification	<p>Updated content to specify that the <i>IESO</i> shall not apply a settlement charge for subsequent reviews following rejection of a review.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 12).</p>
Chapter 7	22.10.2	Narrow Constrained Areas	Addition/Modification	<p>The content in this sections and its subsections was modified to provide more clarity around the cadence of the <i>narrow constrained area</i> analysis and reporting, as well as to add cross-references to the applicable <i>market manual</i>.</p> <p>This content was updated in response to feedback received during the January and February Technical Panel meetings as well as internal feedback.</p>
Chapter 7	22.12.1.1	Uncompetitive Intertie Zones	Editorial	<p>This content was updated to remove "in the <i>day-ahead market</i>" to avoid redundancy.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 44C).</p>

Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.12.2	Uncompetitive Intertie Zones	Addition	<p>Added content to clarify that the <i>IESO</i> shall designate uncompetitive <i>intertie zones</i> in accordance with the applicable <i>market manual</i>.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 45A).</p>
Chapter 7	22.12.4	Uncompetitive Intertie Zones	Editorial	<p>This content was updated to remove the word "calendar".</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 14).</p>
Chapter 7	22.14.1	Ex-Ante Mitigation of Economic Withholding	Modification	<p>This content was updated to align it with the content related to <i>physical withholding</i> by making it explicit that the <i>IESO</i> shall assess <i>dispatchable resources</i> for <i>economic withholding of energy</i> and <i>operating reserve</i>.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 49).</p>
Chapter 7	22.15.3, 22.15.14	Ex-Post Mitigation of Physical Withholding	Addition	<p>Added content to section 22.15.3 to clarify that when comparing an <i>offer</i> to the relevant <i>reference quantity value</i> to carry out the conduct test, the <i>IESO</i> will</p>

Chapter	Section	Topic	Type of Change	Description
				<p>use the highest MW quantity from that <i>offer</i>.</p> <p>Added a cross-reference to section 22.15.3 in section 22.15.14.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 50A).</p>
Chapter 7	22.15.4.1, 22.15.4.2, 22.15.11.1, 22.15.11.2	Ex-Post Mitigation of Physical Withholding	Modification	<p>The content in these sections was updated to clarify the basis for the assessment of <i>resources</i> that can supply 10 MW when the <i>IESO</i> assesses <i>physical withholding</i>.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 52B).</p>
Chapter 7	22.15.4	Ex-Post Mitigation of Physical Withholding	Editorial	<p>This section was updated to replace “a” with “the” when referring to a <i>registered market participant</i>.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.15.4.2, 22.15.11.2	Ex-Post Mitigation of Physical Withholding	Modification	<p>The content in these sections was updated to more clearly communicate the intended association between the relevant <i>resource</i> and its <i>market control entity for physical withholding</i>.</p>

Chapter	Section	Topic	Type of Change	Description
				This content was updated in response to stakeholder feedback from OPG (comment id 52C).
Chapter 7	22.15.10, 22.15.18	Ex-Post Mitigation of Physical Withholding	Modification	<p>The content in these sections was updated to align the language in the section with the design. Calculating the relevant <i>simulated reference quantity energy locational market price</i> does not require replacing the submitted <i>offer</i> with the <i>reference level</i>, rather it involves using both the submitted <i>offer</i> and the <i>reference level</i> as inputs.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 58B).</p>
Chapter 7	22.15.12	Ex-Post Mitigation of Physical Withholding	Modification	<p>This content was updated to align the language in the section so that it refers to a particular class of <i>operating reserve</i> in both relevant places in the section.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.15.19-22.15.26, 22.19	Ex-Post Mitigation of Physical Withholding, Ex-Post Mitigation of	Editorial	This content was updated with conforming changes to improve alignment.

Chapter	Section	Topic	Type of Change	Description
		Intertie Withholding		This content was updated in response to internal feedback.
Chapter 7	22.15.19.1	Ex-Post Mitigation of Physical Withholding	Modification	<p>This content was updated to clarify the timelines around issuance of a first notice of <i>physical withholding</i>.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 61A).</p>
Chapter 7	22.15.22	Ex-Post Mitigation of Physical Withholding	Modification	<p>This content was updated to clarify that the assessment of <i>physical withholding</i> relies on comparing available supply to <i>reference quantity values</i> rather than to reference quantities.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 63A).</p> <p>This content was updated to clarify that in order to make a determination in regards to a request for an alternate <i>reference quantity value</i>, it is necessary that the <i>IESO</i> has reviewed the supporting materials provided by the <i>market participant</i>.</p> <p>This content was updated in response to stakeholder</p>

Chapter	Section	Topic	Type of Change	Description
				feedback from OPG (comment id 89A).
Chapter 7	22.15.24.2	Ex-Post Mitigation of Physical Withholding	Addition	<p>This section was added to add clarity to the conditions that need to be met for the <i>IESO</i> to issue a second notice of <i>physical withholding</i>. The added language is required to ensure the <i>IESO</i> is not inadvertently prevented from issuing a second notice when the initial <i>reference quantity</i> is found to have been appropriate, after reviewing a request for an <i>alternate reference quantity value</i>.</p> <p>This content was updated in response to internal feedback.</p> <p>This content was updated to clarify that in order to make a determination in regards to a request for an <i>alternate reference quantity value</i>, it is necessary that the <i>IESO</i> has reviewed the supporting materials provided by the <i>market participant</i>.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 89A).</p>



Chapter	Section	Topic	Type of Change	Description
Chapter 7	22.16.5, 22.16.11, 22.16.17	Intertie Withholding	Modification	<p>This content was updated to clarify how historical <i>offers</i> are used to determine <i>intertie reference levels</i>.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 68A).</p>
Chapter 7	22.17.3	Intertie Withholding	Modification	<p>This content was modified to clarify that <i>intertie economic withholding</i> assessments require that an <i>intertie</i> transaction was scheduled.</p> <p>This content was updated in response to internal feedback.</p>
Chapter 7	22.17.7	Intertie Withholding	Editorial	<p>This content was updated to add "as applicable".</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 71).</p>
Chapter 11	Definitions	Various	Modification	<p>Modified the following defined terms:</p> <ul style="list-style-type: none"> <li>• Maximum number of starts per day</li> </ul> <p>This definition was erroneously shown as a new definition in error. The term is an existing term that is being amended.</p>

Chapter	Section	Topic	Type of Change	Description
				<ul style="list-style-type: none"> <li>• Ramp hours to minimum loading point reference level</li> </ul> <p>This content was updated in response to stakeholder feedback from OPG (comment id 74)</p> <ul style="list-style-type: none"> <li>• Simulated reference quantity energy locational marginal price (LMP)</li> </ul> <p>This content was updated in response to internal feedback</p> <ul style="list-style-type: none"> <li>• Simulated reference quantity operating reserve locational marginal price (LMP)</li> </ul> <p>This content was updated in response to internal feedback</p> <ul style="list-style-type: none"> <li>• Variable generation</li> </ul> <p>This definition was erroneously shown as a new definition in error. The term is an existing term that is being amended.</p>

## Summary of Market Rule Changes: March 2023

Chapter	Section	Topic	Type of Change	Description
7	22	Market Power Mitigation	Editorial	Made editorial changes to section 22 related to correcting typographical errors, updating section numbers and references, and aligning the rules with drafting conventions used in subsequent batches of market rule amendments.
7	22.1.2	Reference Levels – General	Editorial	Changed “market participant” to “registered market participant” for accuracy.
7	22.1.5	Reference Levels – General	Organizational	Moved section 22.1.5 to section 22.2.3.1 to keep like content together.
7	22.2.2	Reference Levels for Financial Dispatch Data Parameters	Clarification	Added to address limited situations where certain related resources require reference levels that do not reflect their short-run marginal costs in order to be dispatched in the proper order, such as hydroelectric resources in a cascade system and steam turbines at thermal facilities where the facility does not use pseudo-unit modeling.
7	22.2.3	Reference Levels for Financial Dispatch Data Parameters	Organizational	Reorganized to accommodate moving content from section 22.1.5.

Chapter	Section	Topic	Type of Change	Description
7	22.3.2	Reference Levels for Non-Financial Dispatch Data Parameters	Clarification	Added to address limited situations where certain related resources require reference levels that do not reflect their operational characteristics in order to be dispatched in the proper order.
7	22.3.3.4	Reference Levels for Non-Financial Dispatch Data Parameters	Clarification	Changed to reflect design intent.
7	22.4.5	Resources with Multiple Sets of Reference Levels	Addition	This section was added to implement storage integration by specifying that the IESO may determine one operating reserve reference level for use when an energy storage resource proposes to inject and one when it proposes to withdraw.
7	22.5.1.1	Changes to Reference Levels	Clarification	Changed for clarity to reflect design intent.
7	22.5.10	Changes to Reference Levels	Correction	Changed an incorrect section reference to the correct reference.
7	22.5.10.3	Changes to Reference Levels	Clarification	Updated to specify that rejections would be made for 20 business days, rather than 30 calendar days, in response to internal stakeholder feedback.

Chapter	Section	Topic	Type of Change	Description
7	22.6.2	Reference Quantities	Clarification	Changed "market participant" to "registered market participant" for accuracy.
7	22.6.7.1, 22.6.7.2	Reference Quantities	--	These changes were previously published as part of Market Rule Amendment Proposal <a href="#">MR457-R02</a> .
7	22.7.1.1	Changes to Reference Quantities	Clarification	Changed for clarity to reflect design intent.
7	22.7.1.2	Changes to Reference Quantities	Correction	Changed to correct section reference
7	22.7.3	Changes to Reference Quantities	Correction	This change corrects a typographical error.
7	22.8	Independent Review Process	Response to Stakeholder Feedback	The IESO has made changes to section 22.8 in response to stakeholder feedback. The IESO must now only reject a review if: (a) it contains a manifest error, or (b) implementing it would require the IESO to breach the <i>market rules</i> . A right to request that a reviewer correct errors and omissions was also added. Other small changes were also added to add further details on procedure and clarify obligations.

Chapter	Section	Topic	Type of Change	Description
7	22.9.1	Market Control Entities	Clarification	Previously, section 22.9.1 applied to all market participants. It has been rewritten to narrow the scope of the obligations within section 22.9 in line with the design.
7	22.9.3	Market Control Entities	Clarification	Clarifying that the market participants must designate a market control entity for physical withholding for dispatchable resources for which the market participant is registered as the owner, including dispatchable electricity storage resources.
7	22.10.3.1, 22.10.3.4	Dynamic Constrained Areas	Reorganization	Moved the content from former section 22.10.3.2 to section 22.10.3.1 and 22.10.3.4 to improve flow. Changed in response to internal stakeholder feedback.
7	22.13, 22.15-22.19	Ex-Ante Validation of Non-Financial Dispatch Data Parameters, Ex-Post Mitigation of Physical Withholding, Intertie Reference Levels, Intertie Economic Withholding on an Uncompetitive Intertie Zone,	Clarification / Correction / Conforming	<p>Certain global changes have been made in these sections to bring them into alignment with each other:</p> <ul style="list-style-type: none"> <li>• References to “more than” or “above” have been replaced with “greater than”;</li> <li>• References to “below” or “lower than” have been replaced with “less than”;</li> </ul>

Chapter	Section	Topic	Type of Change	Description
		Mitigation for Make-Whole Payment Impact on Uncompetitive Intertie Zones, Intertie Economic Withholding – Procedural Steps and Timelines		<ul style="list-style-type: none"> <li>Changes to fix grammatical and typographical errors or inconsistencies; and</li> <li>Specifying instances where only a particular class of operating reserve is considered (for greater clarity).</li> </ul> <p>These changes will not be specifically set out in this document.</p>
7	22.14.1	Ex-Ante Mitigation of Economic Withholding	Update	Updated the section references to point to the correct appendices for the day-ahead market and pre-dispatch calculation engines, respectively.
7	22.15.4	Ex-Post Mitigation of Physical Withholding	Clarification	Clarifying that the resource had to meet the conditions in the day-ahead market calculation engine, not just the day-ahead market.
7	22.15.4.6	Ex-Post Mitigation of Physical Withholding	Correction	Changed to reflect the actual Calculation Engine appendix numbers.
7	22.15.5.1.2	Ex-Post Mitigation of Physical Withholding	Modification	<p>This section has been amended in response to feedback from OPG on the MRP Consolidated Draft to read as follows:</p> <p>that resource and every other resource: (i) that</p>

Chapter	Section	Topic	Type of Change	Description
				shares a market control entity for physical withholding that met the same condition in section 22.15.4.3 or 22.15.4.4, but (ii) that did not meet the condition in section 22.15.5.1.1, submitted energy offers that were, in the aggregate, greater than 5 MW less than those resources' aggregate reference quantity values [...].
7	22.15.5.2.2	Ex-Post Mitigation of Physical Withholding	Modification	<p>This section has been amended in response to feedback from OPG on the MRP Consolidated Draft to read as follows:</p> <p>that resource and every other resource: (i) that shares a market control entity for physical withholding that met the same condition in section 22.15.4.5 or 22.15.4.6, but (ii) that did not meet the condition in section 22.15.5.2.1, submitted energy offers that were, in the aggregate, less than those resources' aggregate reference quantity values by greater than the lesser of 5% or 200 MW [...].</p>
7	22.15.11.1, 22.15.11.2	Ex-Post Mitigation of	--	These changes were previously published as part



Chapter	Section	Topic	Type of Change	Description
		Physical Withholding		of Market Rule Amendment Proposal <a href="#">MR-0457-R00</a> .
7	22.15.12.1.2	Ex-Post Mitigation of Physical Withholding	Modification	<p>This section has been amended in response to feedback from OPG on the MRP Consolidated Draft to read as follows:</p> <p>That resource and every other resource: (i) that shares a market control entity for physical withholding that met the same condition in section 22.15.11.3, but (ii) that did not meet the condition in section 22.15.12.1.1, submitted offers for operating reserve that were, in the aggregate, less than those resources' aggregate reference quantity values by greater than the lesser of 5% of 200 MW [...].</p>
7	22.15.12.2.2	Ex-Post Mitigation of Physical Withholding	Modification	<p>This section has been amended in response to feedback from OPG on the MRP Consolidated Draft to read as follows:</p> <p>that resource and every other resource: (i) that shares a market control entity for physical withholding that met the same condition in section 22.15.11.4, but (ii) that did not meet the conditions in section 22.15.12.2.1,</p>

Chapter	Section	Topic	Type of Change	Description
				submitted offers for operating reserve that were, in the aggregate, lower than 5 MW less than those resources' aggregate reference quantity values.
7	Former section 22.15.12	Ex-Post Mitigation of Physical Withholding	Deletion	Deleted in response to internal stakeholder feedback. Retaining the language in this section would have exempted market participants from testing when they could have been able to exercise market power via physical withholding.
7	22.16.1.1, 22.16.1.2	Intertie Reference Levels	Addition	Added to clarify the scope of the obligation in 22.16.1.
7	22.16.8	Intertie Reference Levels	Conforming	Amended for consistency with other sections.
7	22.16.14	Intertie Reference Levels	Conforming	Amended for consistency with other sections.
7	22.16.20	Intertie Reference Levels	Conforming	Amended for consistency with other sections.
7	22.17.4	Intertie Economic Withholding on an Uncompetitive Intertie Zone	Clarification	Changed in response to internal feedback regarding the outcome of the conduct test when prices were negative.
7	22.17.9	Intertie Economic Withholding on	Conforming	Amended for consistency with the approach on determining when to apply

Chapter	Section	Topic	Type of Change	Description
		an Uncompetitive Intertie Zone		<p>the conduct test for intertie economic withholding to an energy offer in section 22.17.3. This added condition ensures that only offers for operating reserve that were scheduled are subject to the conduct test for intertie economic withholding.</p> <p>This change was made in response to internal feedback received during solution development.</p>
7	22.17.5, 22.17.11	Intertie Economic Withholding on an Uncompetitive Intertie Zone	Modification	<p>Updated content to reflect that offers less than or equal to the relevant no-look threshold are deemed to have not failed the relevant conduct test.</p> <p>This change was made in response to internal feedback received during solution development and aligns the content with the design intent.</p>
11	--	Defined terms	Addition / Editorial	<p>Added definitions for the following terms in response to stakeholder feedback:</p> <ul style="list-style-type: none"> <li>• lead time reference level;</li> <li>• maximum number of starts per day reference level;</li> </ul>

Chapter	Section	Topic	Type of Change	Description
				<ul style="list-style-type: none"> <li>• minimum generation block down-time reference level;</li> <li>• minimum generation block run-time reference level; and</li> <li>• minimum loading point reference level.</li> </ul> <p>Corrected italicization errors for:</p> <ul style="list-style-type: none"> <li>• ramp hours to minimum loading point;</li> <li>• operating reserve ramp rate reference level.</li> </ul>

### Summary of Market Rule Changes: December 2023

Chapter	Section	Topic	Type of Change	Description
7	22.1.1	Reference Levels - General	Modification	This section has been amended in response to internal stakeholder feedback to specify that the trigger for the <i>IESO</i> determining a <i>resource's reference levels</i> is the <i>resource's</i> owner requesting that the <i>IESO</i> do so.
7	22.2.1.4	Reference Levels for Financial	Editorial	This section has been amended to clarify that <i>reference levels</i> are determined for each class of

Chapter	Section	Topic	Type of Change	Description
		Dispatch Data Parameters		<p><i>operating reserve</i> that a <i>resource</i> is registered to provide.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7	22.4.5	Resources with Multiple Sets of Reference Levels	Editorial	<p>This section previously used the term "<i>energy storage resource</i>" when it should have used "<i>electricity storage resource</i>". It has been updated to use the correct term.</p> <p>This change was made in response to external feedback (OPG 1) from March 2023.</p>
7	22.5.1.1	Changes to Reference Levels	Modification	<p>This section has been amended by adding text to specify that the <i>IESO</i> shall not change <i>reference levels</i> unless the <i>IESO</i> has modified the "<i>market rules</i> or the" applicable <i>market manual</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7	22.5.1.3	Changes to Reference Levels	Deletion	<p>The reference to section 22.1.1 was deleted in response to external feedback (OPG 3) from March 2023.</p>

Chapter	Section	Topic	Type of Change	Description
7	22.5.1.5	Changes to Reference Levels	Modification	This rule has been amended in response to internal stakeholder feedback to remove the restrictions on when a <i>market participant</i> may request the <i>IESO</i> review a <i>resource's</i> reference levels.
7	22.5.2	Changes to Reference Levels	Modification	This section has been amended to incorporate content that was previously in section 3.4.1.1 of Market Manual 14.2.  This change was made in response to internal stakeholder feedback.
7	22.5.10.3	Changes to Reference Levels	Modification	This section has been amended to correct an erroneous reference to "EDT" and replaces it with "EPT".  This change was made in response to internal stakeholder feedback.
7	22.6.1	Reference Quantities	Modification	This section has been amended to specify that the trigger for the <i>IESO</i> determining a <i>resource's</i> reference quantities is the <i>resource's</i> owner requesting that the <i>IESO</i> do so.  This change was made in response to internal stakeholder feedback.

Chapter	Section	Topic	Type of Change	Description
7	22.7.1.1	Changes to Reference Quantities	Modification	<p>This section has been amended by adding text to specify that the <i>IESO</i> shall not change <i>reference quantities</i> unless the <i>IESO</i> has modified "the <i>market rules</i> or" the applicable <i>market manual</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7	22.8.1.1, 22.8.1.2	Independent Review	Addition	<p>This content was moved from the <i>market manual</i> to the <i>market rules</i> in response to external stakeholder feedback (OPG 8) from March 2023.</p>
7	22.8.7	Independent Review	Editorial	<p>The defined term "<i>IESO</i>" has been italicized.</p> <p>This section was amended in response to internal stakeholder feedback.</p>
7	22.8.8.1	Independent Review	Editorial	<p>The word "or" was previously erroneously omitted from this section.</p> <p>This section was updated in response to internal stakeholder feedback.</p>
7	22.8.7	Independent Review	Editorial	<p>Italicized use of "<i>IESO</i>".</p> <p>This change was made in response to internal stakeholder feedback.</p>

Chapter	Section	Topic	Type of Change	Description
7	22.8.8.1, 22.8.8.2	Independent Review	Editorial	Changes were made to this section to correct typographical errors.  These changes was made in response to internal stakeholder feedback.
7	22.8.10	Independent Review	Editorial	Changes were made to this section to correct typographical errors.  This change was made in response to internal stakeholder feedback.
7	22.8.10.2	Independent Review	Editorial	Changes were made to this section to italicize use of " <i>IESO</i> ".  This change was made in response to internal stakeholder feedback.
7	22.8.11	Independent Review	Editorial	Changes were made to this section to correct typographical errors.  This change was made in response to internal stakeholder feedback.
7	22.8.11.1	Independent Review	Addition	This section was added in response to external stakeholder feedback (OPG 10) from March 2023.
7	22.9.1.1.3	Market Control Entities	Clarification	Additional language has been added in response to internal stakeholder



Chapter	Section	Topic	Type of Change	Description
				<p>feedback to clarify that "<i>price-responsive load</i>" is a participation type for <i>load resources</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7	22.10.1.2	Designation of Constrained Areas	Editorial	<p>This section has been amended to clarify that <i>potential constrained area</i> designations shall be assessed by the <i>IESO</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7	22.10.3.2	Dynamic Constrained Areas	Editorial	<p>Changes were made to this section to correct typographical errors and amended the numbering style used.</p> <p>These changes was made in response to internal stakeholder feedback.</p>
7	22.13.1.1, 22.13.1.2, 22.13.1.8, 22.13.1.9, 22.13.1.10	Ex-Ante Validation of Non-Financial Dispatch Data Parameters	Editorial	<p>This section was updated in response to external stakeholder feedback (OPG 14) from March 2023.</p>
7	22.13.1.11.1	Ex-Ante Validation of Non-Financial	Editorial	<p>This section was updated to have section 22.13.1.11.1 follow the same wording as</p>

Chapter	Section	Topic	Type of Change	Description
		Dispatch Data Parameters		section 22.13.1.11.2. This section was updated in response to external stakeholder feedback (OPG 14) from March 2023.
7	22.15.2	Ex-Post Mitigation of Physical Withholding	Clarification	This section was amended to clarify that the assessment of <i>physical withholding</i> only applies to <i>dispatchable resources</i> in response to external stakeholder feedback (OPG 12) from March 2023.
7	22.15.4.2, 22.15.11.2	Ex-Post Mitigation of Physical Withholding	Editorial	For consistency of phrasing in Chapter 7 and Appendix 7 of the <i>market rules</i> , "one-hour ahead run of the <i>pre-dispatch calculation engine</i> " has been replaced with "hour-ahead run of the <i>pre-dispatch calculation engine</i> ".  This section was amended in response to internal feedback.
7	22.16.1.2	Intertie Reference Levels	Modification	This section was updated in response to internal stakeholder feedback to account for increased processing/ calculation times. Previously, the <i>IESO</i> was required to determine <i>intertie reference levels</i> using the information available on the day that was six <i>business days</i> following the relevant <i>dispatch day</i> . That time

Chapter	Section	Topic	Type of Change	Description
				period has been increased to 14 days to ensure that all data is final when these calculations are carried out.
7	22.17.1.1	Intertie Economic Withholding on an Uncompetitive Intertie Zone	Design Change	This section was added in response to external stakeholder feedback (HQEM 3) from March 2023.
7	22.17.13	Intertie Economic Withholding on an Uncompetitive Intertie Zone	Editorial	Changes were made to this section to correct a typographical error. The correction was to remove the word "the" before "greater than".  This change was made in response to internal stakeholder feedback.
11	Definitions	N/A	Editorial	All <i>market rule</i> cross references within defined terms have been updated to the new cross-referencing convention.
11	Economic withholding	N/A	Clarification	This definition was changed to remove "exercising market power by" in response to internal stakeholder feedback.
11	Instance of intertie economic withholding,	N/A	Editorial	The phrase " <i>dispatch day</i> on which" has been replaced with " <i>dispatch day</i> for which".

Chapter	Section	Topic	Type of Change	Description
	Instance of physical withholding			This section was amended in response to internal stakeholder feedback.
11	Intertie economic withholding	N/A	Clarification	This definition was changed to remove “exercising market power by” in response to internal stakeholder feedback.
11	Physical withholding	N/A	Clarification	This definition was changed to remove “exercising market power by” in response to internal stakeholder feedback.
11	Short-run marginal benefit	N/A	Clarification	This definition was changed to change “offtakes <i>energy</i> ” to “exports <i>energy</i> ” in response to internal stakeholder feedback.

**Changes to Market Manual 14: Market Power Mitigation. Part 14.2 – Reference Level and Reference Quantity Procedures**

This is a new market manual that was added.

This *market manual* describes how the IESO determines *reference levels* and *reference quantities* for *dispatchable resources*. Determining *reference levels* and *reference quantities* for a *resource* is a prerequisite for *dispatchable generation resources*, *dispatchable loads*, and *dispatchable energy storage resources* to participate in the *energy* and *operating reserve markets*.

**Summary of changes to Market Manual 14.1: August 2021**

Market Manual Section	Type of Change	Description
N/A	New	<p>New <i>market manual</i> that outlines the Market Power Mitigation framework and the processes by which the <i>IESO</i> shall assess the exercise of global market power and local market power, specifically the:</p> <ul style="list-style-type: none"> <li>• designation of constrained areas;</li> <li>• designation of uncompetitive <i>intertie zones</i>;</li> <li>• determination of global market power reference <i>intertie zones</i>;</li> <li>• ex-post mitigation for <i>physical withholding</i>; and</li> <li>• ex-post mitigation of <i>intertie economic withholding</i> on an uncompetitive <i>intertie zone</i>.</li> </ul>
1 Introduction	New	<p>This section contains:</p> <ul style="list-style-type: none"> <li>• a description of the ex-ante and ex-post mitigation processes;</li> <li>• the purpose of the <i>market manual</i>;</li> <li>• the scope of the <i>market manual</i>;</li> <li>• the relevant roles and responsibilities of <i>market participants</i> and the <i>IESO</i>; and</li> <li>• <i>IESO</i> contact information.</li> </ul>
2 Designation of Constrained Areas	New	<p>This section describes the processes that the <i>IESO</i> follows to designate <i>potential constrained areas</i>, <i>narrow constrained areas</i> and <i>dynamic constrained areas</i>. These constrained areas</p>

Market Manual Section	Type of Change	Description
		impact the application of ex-ante mitigation, ex-post mitigation for <i>physical withholding</i> and <i>settlement</i> mitigation.
3 Designation of Uncompetitive Intertie Zone Status	New	This section describes the processes that the <i>IESO</i> follows to designate <i>intertie zones</i> as uncompetitive. Designation of uncompetitive <i>intertie</i> status impacts the application of ex-post mitigation for <i>economic withholding</i> on uncompetitive <i>intertie zones</i> .
4 Determination of Global Market Power Reference Intertie Zones	New	This section describes the processes that the <i>IESO</i> follows to designate <i>intertie zones</i> as <i>global market power reference intertie zones</i> . Designation of <i>global market power reference intertie zones</i> impacts the application of ex-ante mitigation, ex-post mitigation for <i>physical withholding</i> and <i>settlement</i> mitigation.
5 Ex-Post Mitigation for Physical Withholding	New	This section describes the processes that the <i>IESO</i> follows to test <i>market participants</i> for <i>physical withholding</i> . It describes the inputs, analysis and potential outcomes of tests for <i>physical withholding</i> . It also identifies the timelines associated with the procedural steps.
6 Ex-Post Mitigation for Economic Withholding on an Uncompetitive Intertie Zone	New	This section describes the processes that the <i>IESO</i> follows to test <i>market participants</i> for <i>economic withholding</i> on an <i>uncompetitive intertie zone</i> . It describes the inputs, analysis and potential outcomes of tests for <i>economic withholding</i> on an uncompetitive <i>intertie zone</i> . It also identifies the timelines associated with the procedural steps.
List of Acronyms	New	This section contains a list of acronyms that are used in this <i>market manual</i> .

## Summary of changes to Market Manual 14.1: December 2021

Market Manual Section	Type of Change	Description
2.1	Editorial	Added content as some words in this section were missing and as a result, the opening sentence did not make sense as written.
2.1.2	Addition	Added content explaining how the <i>IESO</i> will designate <i>potential constrained areas</i> in response to various stakeholder feedback comments.
2.2.1	Addition	<p>Added content describing how assessment of whether a <i>potential constrained area</i> is import constrained will be done for the <i>day-ahead market</i>.</p> <p>This content was added in response to stakeholder feedback from OPG (comment id 117).</p>
2.2.2	Modification	Updated content for clarification regarding the conditions to update an NCA report by removing a resource from an NCA in response to stakeholder feedback from Capital Power (comment id 74).
4.2	Addition	<p>Added content to reflect that the <i>IESO</i> will <i>publish</i> the criteria that resulted in a change to a designation of an <i>global market power reference intertie zone</i>.</p> <p>This content was added in response to stakeholder feedback received from OPG (comment id 119).</p>
5.3	Modification	Updated content to clarify that the additional condition for physical withholding for GOG-eligible resources only applies when that

Market Manual Section	Type of Change	Description
		<p>potential physical withholding could impact a commitment decision.</p> <p>This content was updated in response to internal feedback related to solution development.</p>
5.4	Modification	<p>Updated content to accurately reflect the relevant conduct thresholds and methodology for carrying out conduct tests for physical withholding.</p> <p>This content was updated in response to stakeholder feedback and also to internal feedback related to solution development.</p>
5.7.1, 5.7.2	Addition	<p>Added content to clarify the definition of the term "MWhs Failed" used to determine a settlement amount for physical withholding in response to stakeholder feedback.</p>

**Summary of changes to Market Manual 14.1: March 2022**

Market Manual Section	Type of Change	Description
Various	Editorial	<p>Updated cross-references to the relevant market rule sections.</p> <p>This content was updated as a conforming change in response to the market rule updates discussed above.</p>



Market Manual Section	Type of Change	Description
3.1	Addition	<p>Added content related to the factors that the IESO would consider when assessing to remove the designation of an uncompetitive intertie zone.</p> <p>This content was added in response to OPG 46.</p>
5.6	Addition	<p>Added content that explains the methodology that the IESO will use to combine submitted offers, reference quantity values and reference level values to determine the offer curve that will be used to calculate the relevant simulated reference quantity locational marginal prices required for the impact test for assessing physical withholding.</p> <p>This content was added in response to OPG 58B.</p>
2.2.1, 2.3.1	Addition	<p>Added content to explain that a transmission constraint is assessed to be binding if the shadow price of that constraint is non-zero.</p> <p>This content was added in response to OPG 53.</p>
3.1	Addition	<p>Added content that explained the look ahead period that would be used for assessing expected restrictions to competition that would warrant designation of an uncompetitive intertie zone.</p> <p>This content was added in response to OPG 45B.</p>
4.1	Addition	<p>Added content that that explains how the IESO will assess whether a particular intertie zone can provide effective competitive discipline and thus is a candidate for designation as a global market power reference intertie.</p>

Market Manual Section	Type of Change	Description
		This content was added in response to OPG 15.
2.2.2	Modification	<p>Updated this content so that the delay between publication and effective date for annual NCA reports and ad-hoc updates are both found in the Market Manual.</p> <p>This content was modified in response to OPG 41.</p>

**Summary of changes to Market Manual 14.1: July 2022**

Market Manual Section	Type of Change	Description
Cover and Document Change History	Editorial	Updated issue number and date. This content was updated in response to internal feedback.
Conventions	Addition	Added some standard conventions in response to internal feedback.
Various	Editorial	Updated cross-references to relevant market rules and market manuals based on other updates to those documents. This content was updated in response to internal feedback.
Various	Editorial	Added various expanded forms for acronyms that were present in the previous draft. This content was updated in response to internal feedback.

Market Manual Section	Type of Change	Description
Various	Editorial	Made various editorial updates related to grammatical improvements. This content was updated in response to internal feedback.
Various	Editorial	Updated the layout of various diagrams to improve accessibility. This content was updated in response to internal feedback.
2.2.1	Addition	Added an explanatory note next to figure 2-1. This content was added in response to internal feedback.
5.1	Addition	Added a sentence noting that only one first notice for physical withholding will be issued per dispatch day per resource. This content was added in response to internal feedback.
5.6	Addition	Added content that explains how the IESO will carry out the impact test for physical withholding. This content was added in response to stakeholder feedback.
5.10	Modification	Replaced information regarding when settlement charges for physical are issued with a cross reference to the relevant market rule. This content was updated in response to internal feedback.
6.1	Addition	Added content that explains how the IESO will carry out the impact test for inertia withholding. This content was added in response to stakeholder feedback.

## Summary of changes to Market Manual 14.1: March 2023

Market Manual Section	Type of Change	Description
Cover and Document Change History	Editorial	Updated issue number and date. This content was updated in response to internal feedback.
Global	Editorial	Made corrections to the notation used for market rules references to ensure a consistent format across the market manual.
Global	Editorial	Made various editorial updates related to grammatical improvements such as expanding acronyms, adding hyphens and more. These changes were made in response to internal feedback.
1.1, 1.2, 1.4, 1.5	Modification	<p>Updated the Introduction section and its subsections to align the presentation of information with the format used in the Settlements batch.</p> <p>This content was updated in response to internal feedback received as part of an ongoing alignment exercise.</p>
2.1, 2.2, 2.3	Modification	<p>Updated these constrained area sections to account for the use of branch groups and their relationships with OSLs.</p> <p>This content was updated in response to internal feedback received during solution development.</p>

Market Manual Section	Type of Change	Description
2.2	Removal	<p>Removed the requirement to include the number of binding hours for each transmission facility when publishing the NCA report as the NCA report is created on an annual basis with the analysis relying on the aggregate congestion frequency, rather than relying on the congestion for single elements.</p> <p>Removed the requirement to provide a description of the geographical boundaries of each NCA and the transmission lines connected to it as this information is not implementable in XML format that IESO uses for reports. This information is also provided in the fact that the IESO is identifying branch groups, which communicate information about the location of the NCA.</p> <p>This content was updated in response to internal feedback received during solution development.</p>
2.2	Modification	<p>Updated the requirement related to publishing NCA reports following an ad-hoc update to a designated NCA. The updated approach ensures that market participants will have sufficient time to integrate the information in an ad-hoc update to an NCA into their offer strategy prior to such an update taking effect.</p> <p>This content was updated in response to internal feedback received during solution design.</p>

Market Manual Section	Type of Change	Description
2.3.2	Removal	<p>Removed content related to publication of the DCA report due to redundancy with the market rules.</p> <p>This content was updated in response to internal feedback received during solution development.</p>
2.3.2	Removal	<p>Removed the requirement to provide an indication if a PCA that was previously designated as a DCA has that designation removed. The DCA report will stop showing DCAs that are no longer designated and thus this content was inconsistent with the report design.</p> <p>This content was updated in response to internal feedback received during solution development.</p>
5, 6	Addition	<p>Added content regarding how the IESO will determine physical withholding settlement amounts and intertie economic withholding settlement amounts. This new content clarifies that the IESO may select a single market (day-ahead market or real-time market) for which to assess physical withholding or intertie economic withholding for a particular dispatch day.</p> <p>This content was updated in response to internal feedback received during solution development.</p>

Market Manual Section	Type of Change	Description
5, 6	Editorial	<p>Updated content to align the terminology used to identify settlement charges for ex-post mitigation with the same terms that are found for those settlement amounts in the Market Settlements batch.</p> <p>Updated content to use the term “settlement hour” to align with the terminology found in the Market Settlements batch where appropriate.</p> <p>This content was updated in response to internal feedback.</p>
5.6.3	Addition	<p>Added content regarding how the IESO will select the relevant dispatch hour to carry out the impact test for electricity storage resources that fail the conduct test for physical withholding for a dispatch day.</p> <p>This content was updated in response to internal feedback received during solution development.</p>
5.7, 6.3	Removal	<p>Removed content regarding determination of the settlement charges for physical withholding and intertie economic withholding as these topics are now addressed by content in Chapter 9, s, 5.4 and 5.5 of the market rules.</p> <p>This content was updated in response to internal feedback.</p>
5.7.1	Addition	<p>Added language that clarified that the persistence multiplier for physical withholding was specific to assessments of physical withholding rather than a generic persistence multiplier.</p>

Market Manual Section	Type of Change	Description
		This content was updated in response to internal feedback.
5.7.1	Editorial	<p>Updated language to add clarity in the description of the 3<sup>rd</sup> scenario regarding determination of the persistence multiplier for physical withholding.</p> <p>This content was updated in response to internal feedback.</p>
5.8	Addition	<p>Added a new type of eligible supporting documentation for alternative reference quantity value requests for occasions when the installed capacity of the relevant facilities does not match the registered capacity of the relevant resources.</p> <p>This content was updated in response to external feedback received during reference level consultations.</p>
5.11, 6.6	Modification	<p>Updated the content outlining the data published by the IESO in regards to physical withholding and inertia economic withholding.</p> <p>These updates were made in response to internal feedback received during solution design of the relevant reports.</p>
6.5	Modification	Updated content regarding the issuance of settlement charges related to inertia economic withholding to align with the approach for issuing settlement charges for physical withholding. These settlement charges are applied after the IESO issues the second notice to the market participant.



Market Manual Section	Type of Change	Description
		This content was updated in response to internal feedback.

### Summary of changes to Market Manual 14.1: December 2023

Market Manual Section	Type of Change	Description
Cover and Document Change History	Editorial	Updated issue number and date. This content was updated in response to internal feedback.
Global	Editorial	Updated and added various <i>market rules</i> references across the <i>market manual</i> .
Global	Editorial	Made various editorial updates related to grammatical improvements such as expanding acronyms, adding hyphens and more.  These changes were made in response to internal feedback.
2.2, 2.2.1, 2.3, 2,3,1	Modification	Moved narrative content discussing <i>narrow constrained area</i> designation by the <i>IESO</i> from section 2.2 to section 2.2.1.  Moved narrative content discussing <i>dynamic constrained area</i> designation by the <i>IESO</i> from section 2.3 to section 2.3.1.  These changes were made in response to internal feedback.

Market Manual Section	Type of Change	Description
2.2.2	Modification	<p>Updated content regarding publication as the <i>IESO</i> will publish a daily report that communicates annual <i>NCA</i> designations. There are no changes to the restrictions around when the <i>IESO</i> may designate <i>NCA</i>s. This modification only updates the frequency of the reporting cadence to align with the <i>IESO</i> reporting solution.</p> <p>This change was made in response to internal feedback received during solution development.</p>
2.2.2, 2.2.3	Modification	<p>Content regarding the fact that <i>NCA</i> designations come into effect no sooner than 30 <i>business days</i> following the publication of the relevant report was moved from section 2.2.2 to a new section 2.2.3 titled "Effective Date" to provide more clarity.</p> <p>Content regarding the fact that updates to <i>NCA</i>s to remove <i>resources</i> from existing <i>NCA</i>s or update names of system elements can come into effect no sooner than two days following such an update was also moved into section 2.2.3.</p> <p>These changes were made in response to internal stakeholder feedback.</p>
2.2.2	Editorial	<p>In the content related to the <i>IESO</i>'s ability to update the <i>NCA</i> report to remove <i>resources</i> from an existing <i>NCA</i> or update the name of system elements in an existing <i>NCA</i>, the term "on an ad hoc basis" was replaced with the phrase "at any time" for clarity. The second reference to changes made on an ad hoc basis was updated to refer to changes made pursuant to the relevant <i>market rule</i> section.</p>

Market Manual Section	Type of Change	Description
		<p>In the same content, the term “no longer covered by” was replaced with the term “no longer requires <i>reference levels</i> in accordance with” for clarity.</p> <p>This change was made in response to internal stakeholder feedback.</p>
2.2.2	Editorial	<p>Updated content to clarify that <i>dispatchable electricity storage resources</i> that are in a designated <i>NCA</i> will appear on the <i>NCA</i> report.</p> <p>This change was made in response to internal stakeholder feedback.</p>
2.3	Editorial	<p>Updated the language to provide clarity regarding the content found in Table 2-1.</p> <p>This change was made in response to internal feedback.</p>
2.3.1	Removal	<p>Removed content that discussed when the <i>IESO</i> will remove designations of a <i>DCA</i> as that content was redundant of Chapter 7, section 22.10.3.2 of the <i>market rules</i>.</p> <p>This change was made in response to internal feedback.</p>
3.2	Removal	<p>Removed the reference to including <i>boundary entity resources</i> associated with a particular designated uncompetitive <i>intertie zone</i> in the report as this information is redundant of the list of <i>boundary entity resources</i> found in Market Manual 4.2, Appendix E.2.</p> <p>This change was made in response to internal stakeholder feedback.</p>

Market Manual Section	Type of Change	Description
4	Removal	<p>Removed narrative content in the opening of the section on the determination of <i>global market power reference interties</i>. This content was redundant of the content in the following subsections.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5	Removal	<p>Removed narrative content in the opening of the section on when the <i>IESO assesses physical withholding</i>. This content was redundant of the content in the following subsections and the relevant <i>market rules</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.2	Editorial	<p>Content regarding how <i>reference quantities</i> are used was updated to provide clarity that <i>reference quantity values</i> for a <i>resource</i> are used to assess <i>physical withholding</i> by that <i>resource</i>.</p> <p>This update was made in response to internal stakeholder feedback.</p>
5.3	Editorial	<p>Content regarding the data source from the <i>day-ahead market</i> that is used to assess <i>physical withholding</i> was updated to provide more clarity.</p> <p>This change was made in response to internal feedback.</p>
5.6.1	Addition	<p>Added content to the beginning of this section to provide more context regarding when <i>resource</i> grouping is used in the process of assessing <i>physical withholding</i>.</p>

Market Manual Section	Type of Change	Description
		This content was added in response to internal stakeholder feedback.
5.6.3	Editorial	<p>Updated the sub-bullets to remove the leading constrained area condition that began each sub-bullet in the prior version. This content was not needed given the existing market rule references for each sub-bullet.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.6.3	Editorial	<p>Updated the sub-bullets regarding offers for <i>operating reserve</i> so the second sub-bullet in that section correctly showed the numeral "ii".</p> <p>This change was made in response to external feedback (OPG 22) from the March 2023 stakeholder feedback.</p>
5.6.3	Modification	<p>The data that will inform the selection of a <i>dispatch hour</i> for the <i>electricity storage resource</i> impact test for <i>physical withholding</i> in this section was updated to provide additional clarity.</p> <p>This change was made in response to internal stakeholder feedback received during solution development.</p>
5.7.1	Addition	<p>Added content that clarifies that the <i>physical withholding</i> multiplier is used not only when determining a <i>settlement</i> charge in a first and second notice of <i>physical withholding</i>, but also when determining the <i>settlement amount</i> as laid out in Chapter 9, section 5.4.1 of the <i>market rules</i>.</p>

Market Manual Section	Type of Change	Description
		<p>The previous version of this section only made reference to the use of the <i>physical withholding</i> multiplier in determining the <i>settlement amount</i> in the first and second notice of <i>physical withholding</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.7.1	Removal	<p>Removed the word “additional” to align the content with the design, ensuring that each second notice issued results in incrementing the <i>physical withholding</i> persistence multiplier correctly.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.7.1	Addition	<p>Added language in this section to clarify that the exclusion of a <i>physical withholding settlement</i> charge that has been reversed as a result of a notice of disagreement is based on the information that is available at the time that the persistence multiplier is calculated.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.8	Modification	<p>Language in this section that referred to “reliability and safety operations of the facility” was updated to provide further clarity.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.8	Addition	<p>Added a new bullet in this section stating that an acceptable form of supporting documentation for an alternate <i>reference quantity value</i> request is an <i>IESO</i> staff request</p>

Market Manual Section	Type of Change	Description
		<p>that a <i>resource</i> reduce <i>offer</i> quantities or removes <i>offers</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
6.3	Addition	<p>Content was added in this section that provides information regarding how the <i>IESO</i> determines a <i>settlement amount</i> for ex-post mitigation for <i>economic withholding</i> on an <i>uncompetitive intertie</i>.</p> <p>This new content is consistent with the content in subsection 5.7 that discusses determination of <i>settlement charges</i> for <i>physical withholding</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
List of Acronyms	Addition Removal	<p>Added the acronyms "DAM", "RTM" and "OR" to the list.</p> <p>Removed the acronym "SF" from the list.</p> <p>These changes were made in response to external feedback (OPG 25) from the March 2023 stakeholder feedback.</p>

**Changes to Market Manual 14: Market Power Mitigation, Part 14.2 – Market Power Mitigation Procedures**

This is a new *market manual* that was added.

This *market manual* describes the market power mitigation framework and the processes by which the *IESO* shall assess the exercise of global market power and local market power, and specifically the:

- designation of constrained areas;
- designation of uncompetitive *intertie zones*;

- determination of global market power reference intertie zones;
- ex-post mitigation for *physical withholding*; and
- ex-post mitigation of *intertie economic withholding* on an uncompetitive *intertie zone*.

**Summary of changes to Market Manual 14.2: August 2021**

Market Manual Section	Type of Change	Description
N/A	New	<p>New <i>market manual</i> that describes the processes for determining <i>reference levels</i> and <i>reference quantities</i> and details the procedures that apply to the submission, review, and registration of these <i>reference levels</i> and <i>reference quantities</i>. It also describes the procedures related to requesting updates to <i>reference levels</i> prior to the close of the submission window of the <i>day-ahead market</i> and the <i>mandatory window</i> of the <i>real-time market</i>.</p> <p>In support of these aspects, this manual provides additional details regarding the criteria, actions and timelines that apply to both the <i>market participants</i> and the <i>IESO</i>.</p>
1 Introduction	New	<p>This section contains:</p> <ul style="list-style-type: none"> <li>• a description of the topics addressed in the <i>market manual</i>;</li> <li>• the purpose of the <i>market manual</i>;</li> <li>• the scope of the <i>market manual</i>;</li> <li>• the relevant roles and responsibilities of <i>market participants</i> and the <i>IESO</i>; and</li> <li>• <i>IESO</i> contact information.</li> </ul>



Market Manual Section	Type of Change	Description
2 Overview of Reference Levels and Reference Quantities	New	This section provides an overview of reference levels and reference quantities. This section contains summaries of reference levels for financial dispatch data parameters, resources with two sets of reference levels, reference levels for non-financial dispatch data parameters and reference quantities. Reference levels and reference quantities impact the application of ex-ante mitigation, settlement mitigation and ex-post mitigation for physical withholding.
3 Determine and Update Reference Levels and Reference Quantities	New	This section defines the procedures used to determine a <i>resource's reference levels</i> and <i>reference quantities</i> and, if required, to update them. <i>Reference levels</i> and <i>reference quantities</i> impact the application of ex-ante mitigation, <i>settlement</i> mitigation and ex-post mitigation for <i>physical withholding</i> .
4 Reference Level and Reference Quantity Reports	New	This section describes the reports that the <i>IESO</i> will publish related to <i>reference levels</i> and <i>reference quantities</i> . <i>Reference levels</i> and <i>reference quantities</i> impact the application of ex-ante mitigation, <i>settlement</i> mitigation and ex-post mitigation for <i>physical withholding</i> .
5 Temporary Reference Level Change Requests	New	This section describes the processes that the <i>market participants</i> use to request that the <i>IESO</i> temporarily use a higher fuel cost component in a <i>resource's reference levels</i> or use its higher-cost profile <i>reference levels</i> for particular <i>dispatch hours</i> . It also identifies the timelines associated with the procedural steps. <i>Reference levels</i> impact the application of ex-ante mitigation and <i>settlement</i> mitigation.
6 Cost Components of Financial	New	This section describes the cost components that are eligible to be included in a <i>resource's reference levels</i> for <i>financial dispatch data</i>

Market Manual Section	Type of Change	Description
Dispatch Data Parameters		<i>parameters. Reference levels for financial dispatch data parameters</i> impact the application of ex-ante mitigation and <i>settlement</i> mitigation.
7 Reference Levels for Financial Dispatch Data Parameters	New	This section describes technology-specific <i>reference level</i> formulas, cost components calculations and supporting documentation requirements to determine <i>reference levels for financial dispatch data parameters. Reference levels for financial dispatch data parameters</i> impact the application of ex-ante mitigation and <i>settlement</i> mitigation.
8 Reference Levels for Non-Financial Dispatch Data Parameters	New	This section describes technology-specific requirements, including supporting documentation requirements to determine <i>reference levels for non-financial dispatch data parameters. Reference levels for non-financial dispatch data parameters</i> impact the application of ex-ante mitigation.
9 Reference Quantities		This section describes the technology-specific methodology that the <i>IESO</i> uses to determine <i>reference quantities. Reference quantities</i> impact the application of ex-post mitigation for <i>physical withholding</i> .
List of Acronyms	New	This section contains a list of acronyms that are used in this <i>market manual</i> .

**Summary of changes to Market Manual 14.2: December 2021**

Market Manual Section	Type of Change	Description
Various	Editorial	Updated links in document to various tables.

Market Manual Section	Type of Change	Description
3.3, 3.4	Addition	<p>Added content to clarify that the process to determine <i>reference levels</i> and <i>reference quantities</i> is available for changes to reference levels for <i>financial dispatch data</i> and <i>non-financial dispatch data</i> and also for <i>reference quantities</i>. Prior to these clarifications, certain subsections did not contain references to changes to <i>reference quantities</i>.</p> <p>This change was made in response to stakeholder feedback received during <i>reference level</i> consultations.</p>
3.5.1	Removal	<p>Updated content to remove text that was duplicated in Chapter 7, section 22.8.5.</p> <p>This content was removed in response to internal feedback.</p>
6.4.3.1	Addition	<p>Added content that clarifies that the intraday opportunity cost is calculated by the <i>IESO</i> for <i>electricity storage resources</i> by default and that the intraday opportunity cost is calculated by the <i>IESO</i> for hydroelectric <i>resources</i> when they submit a <i>maximum daily energy limit</i> that meets the relevant criteria.</p> <p>This content was added in response to internal feedback received related to solution development.</p>
6.4.3.1	Modification	<p>Modified this section to replace “maximum <i>installed capacity</i>” with “the sum of the maximum active power capability of all <i>generation units</i> associated with the <i>resource</i>”.</p> <p>This content was updated in response to stakeholder feedback from OPG (comment id 90).</p>

Market Manual Section	Type of Change	Description
6.4.4.2	Removal	Removed 4 bullets from the information required to determine the storage horizon opportunity cost for a <i>resource</i> in response to stakeholder feedback received during <i>reference level</i> consultations. The information previously required in this section is not required due to related updates to Section 6.4.4.3.
6.4.4.3	Modification	Replaced content describing the efficiency adjustment used to determine the storage horizon opportunity cost with updated content in response to stakeholder feedback received during <i>reference level</i> consultations.
6.4.4.3	Addition	Added content related to <i>market participants'</i> ability to request an efficiency adjustment greater than 1.07 when appropriate for a specific <i>resource</i> . This content was added in response to stakeholder feedback received during <i>reference level</i> consultations.
6.4.4.3	Modification	Replaced the percentile used to determine the storage horizon opportunity cost under Option 1. The percentile value used under Option 1 was previously the 95 <sup>th</sup> percentile. This was updated to be the 98 <sup>th</sup> percentile. This change was made in response to stakeholder feedback received during <i>reference level</i> consultations.
6.4.5	Addition	Added content related to the <i>forebay</i> refill opportunity cost to provide further clarity regarding when <i>market participants</i> are eligible to request that this opportunity cost be accounted for in the <i>reference level value</i> for a <i>resource</i> . This content was added in response to stakeholder feedback received during <i>reference level</i> consultations.

Market Manual Section	Type of Change	Description
6.4.5.3	Modification	<p>Replaced content related to the <i>forebay</i> refill opportunity cost describing how the time required to fill the <i>forebay</i> is calculated. This content was updated in response to stakeholder feedback received during <i>reference level</i> consultations.</p>
6.6	Modification	<p>Replaced content related to costs related to speed no-load costs to clarify that speed no-load cost of fuel is a function of fuel consumed and total fuel-related costs.</p> <p>This content was updated in response to stakeholder feedback received during <i>reference level</i> consultations.</p>
7.1	Addition	<p>Added content to provide more clarity to <i>market participants</i> regarding:</p> <ul style="list-style-type: none"> <li>• How thermal <i>resources</i> are categorized into variants based on their registered characteristics; and</li> <li>• How to determine the financial <i>reference levels</i> that are required for a thermal <i>resource</i> based on its registered characteristics.</li> </ul> <p>This content was updated in response to stakeholder feedback received during <i>reference level</i> consultations.</p>
7.1.1, 7.1.4, 8.2.1, 8.2.2	Modification	<p>Replaced content regarding <i>pseudo-unit reference levels</i>. The updated content states that <i>resources</i> that use the <i>pseudo-unit</i> modeling are required to establish a single <i>reference level</i> for:</p>

Market Manual Section	Type of Change	Description
		<ul style="list-style-type: none"> <li>• combined cycle operation, based on a 1x1 configuration; and</li> <li>• simple cycle operation, based on a 1x0 configuration where the <i>facility</i> has the ability to operate when the steam turbine is out of service.</li> </ul> <p>This content was updated in response to a design change.</p>
7.1.1.1, 7.1.1.2	Removal	<p>Removed content regarding <i>pseudo-unit reference levels</i> that referred to configurations other than 1x1 or 1x0. This update is related to the above-mentioned update to section 7.1.1 and was updated in response to a design change.</p>
7.1.3.1, 7.1.3.2	Addition	<p>Added content that outlines the laminations in the <i>energy offer reference level</i> that must be established for thermal <i>resources</i>.</p> <p>This content was added in response to stakeholder feedback received during <i>reference level</i> consultations.</p>
7.1.1.4, 7.1.3, 7.1.3.1, 7.1.3.2, 8.2, 9.1	Modification	<p>This content was replaced in order to align with the categorization of thermal <i>resources</i> according to registration data.</p> <p>This update is related to the above-mentioned update to section 7.1 and was updated in response to stakeholder feedback received during <i>reference level</i> consultations.</p>
7.1.3.2	Editorial	<p>The start up cost parameter was moved from the Secondary Energy Offer Reference Level</p>

Market Manual Section	Type of Change	Description
		equation to the Primary Energy Offer Reference Level to align the <i>market manual</i> with the detailed design.
7.1.8.3	Editorial	<p>Added a new section heading to separate content related to determination of the Station Service Rate from the determination of the Station Service Quantity for a thermal <i>resource</i>.</p> <p>This update was made in response to stakeholder feedback received during <i>reference level</i> consultations.</p>
7.1.8.7	Addition	<p>Added content to explain how <i>reference levels</i> would account for commitment costs when a <i>resource</i> is committed late in a <i>dispatch day</i>.</p> <p>This update was made to align the <i>market manual</i> with the detailed design.</p>
7.2.1.2	Addition	<p>Added content to provide clarity that will allow <i>market participants</i> to appropriately determine <i>reference levels</i> on the basis of whether they have registered their pumped storage <i>facility</i> as an <i>electricity storage facility</i> or not.</p> <p>This content was added in order to align this <i>market manual</i> with recent updates regarding participation of <i>electricity storage facilities</i>.</p>
7.2.1.2	Editorial	Replaced “ <i>energy price</i> ” with “ <i>real-time LMP</i> ” to provide additional clarity to <i>market participants</i> regarding how to establish <i>reference levels</i> for pumped storage <i>resources</i> .
7.2.4.2	Modification	The way that <i>energy offer reference level</i> value calculation for hydroelectric <i>resources</i> that are part of a <i>cascade group</i> is described was

Market Manual Section	Type of Change	Description
		<p>updated to more accurately reflect the approach that the <i>IESO</i> will take.</p> <p>The update provided more details regarding the determination of the adder that will be used in this process.</p> <p>This update was made in response to internal input during solution development.</p>
7.6, 7.6.1.1, 7.6.1.2, 7.6.1.3, 7.6.1.4	Editorial	Updated content to provide clarity regarding whether or not <i>reference level</i> content is relevant for the <i>generation resource</i> or <i>load resource</i> at an <i>electricity storage facility</i> .
7.6.1.1	Editorial	Updated equation to move the term " <i>IESO</i> annual escalation" from inside the parentheses to outside the parentheses. This update was made in order to provide additional clarity to <i>market participants</i> regarding what information they are required to provide to determine <i>reference levels</i> for <i>resources</i> at <i>electricity storage facilities</i> .
7.6.1.4	Editorial	Updated the content in this section to provide additional clarity to <i>market participants</i> which <i>generation resources</i> at <i>electricity storage facilities</i> need to determine <i>reference levels</i> for <i>operating reserve</i> .
7.6.1.5	Addition	Added this section to provide additional clarity to <i>market participants</i> which <i>load resources</i> at <i>electricity storage facilities</i> need to determine <i>reference levels</i> for <i>operating reserve</i> .



Market Manual Section	Type of Change	Description
7.10	Addition	<p>Added this section to explain occasions when the <i>IESO</i> may have to rely on alternate input data to calculate <i>reference level values</i>. These occasions include:</p> <ul style="list-style-type: none"> <li>• Historical data is not available for a new <i>resource</i>;</li> <li>• Historical data is not available as the data type is new and there is not historical data of that type available to the <i>IESO</i> (e.g. <i>LMPs</i>).</li> <li>• External data is not available to the <i>IESO</i> (e.g. natural gas price index report).</li> </ul> <p>This new content describes these scenarios and states the alternate data that the <i>IESO</i> will use instead.</p> <p>This content was added in response to internal input received during solution development.</p>
8.1.6, 8.2.6	Addition	<p>Content was added to reflect that <i>market participants</i> are required to register <i>MGBDT reference levels</i> for each <i>thermal state</i> (hot, warm and cold).</p> <p>This content was added to align the <i>market manual</i> with the detailed design.</p>
9.1.2	Editorial	<p>Updated language to remove a double negative.</p>
9.2.1	Addition	<p>Content was added to provide clarity on what data <i>market participants</i> need to provide to the <i>IESO</i> to establish the minimum head-based capability for hydroelectric <i>resources</i>.</p>

Market Manual Section	Type of Change	Description
		This change was made in response to stakeholder input received during <i>reference level</i> consultations.
9.3.1, 9.4.1	Addition	<p>This content was added to provide clarity that if <i>market participants</i> for solar or wind <i>resources</i> provide a generation forecast to the <i>IESO</i>, that forecast value is adjusted for <i>outages</i> to determine the <i>reference quantity</i> in an after the fact process.</p> <p>This content was added in response to internal input during solution development.</p>
9.6.1	Editorial	<p>The term "nameplate capacity" was replaced with "maximum potential output of the resource" in order to ensure that the <i>reference quantity</i> for <i>electricity storage facilities</i> more accurately estimates available <i>energy</i> supply.</p> <p>This update was made in response to internal input during solution development.</p>

**Summary of changes to Market Manual 14.2: March 2022**

Market Manual Section	Type of Change	Description
Various	Editorial	<p>Updated cross-references to the relevant market rule sections.</p> <p>This content was updated as a conforming change in response to the market rule updates discussed above.</p>
3.3.1, 3.3.2	Modification	Updated content to clarify that market participants can initiate updates to reference levels or reference quantities when they reasonably expect the currently registered

Market Manual Section	Type of Change	Description
		<p>reference levels or refereneec quantities to no longer match the resource’s operational characteristics or short-run marginal costs in the future.</p> <p>This content was updated in response to internal feedback.</p>
4.1.1, 4.1.2	Addition	<p>Added language to clarify that for thermal resources that are pseudo unit resources, or are resources with primary and secondary energy reference levels, the reference level value report will provide information about all reference level values.</p> <p>This content was updated in response to internal feedback.</p>
4, 5, 6.4.5	Editorial	<p>Replaced terminology “higher-cost profile” and “lower-cost profile” with “alternate cost profile”.</p> <p>This change was made in response to OPG 25A.</p>
5.3	Editorial	<p>Updated content to align the language used to describe the occasions when the IESO may reject a request to use a higher fuel cost component or alternate cost profile with the relevant section of the market rules.</p> <p>This content was updated in response to internal feedback.</p>
6.4.5	Editorial	<p>Added language to make it clear that use of the forebay refill opportunity cost involves determining alternate cost profile reference levels and requesting use of the forebay refill opportunity cost involves requesting that the IESO use the alternate cost profile reference levels for a particular dispatch day.</p>

Market Manual Section	Type of Change	Description
		This change was made in response to OPG 25C.
7.6	Addition	<p>Added language to make it clear that the opportunity cost referred to in this section is the intraday opportunity cost.</p> <p>This content was added in response to internal feedback.</p>

**Summary of changes to Market Manual 14.2: March 2023**

Market Manual Section	Type of Change	Description
Cover and Document Change History	Editorial	Updated issue number and date. This content was updated in response to internal feedback.
Global	Editorial	Made corrections to the notation used for market rules references to ensure a consistent format across the manual.
Global	Editorial	Made various editorial updates related to grammatical improvements such as expanding acronyms, adding hyphens and more. These changes were made in response to internal feedback.

Market Manual Section	Type of Change	Description
1.1, 1.2, 1.3, 1.4	Modification	<p>Updated the Introduction section and its subsections to align the presentation of information with the format used in the Settlements batch.</p> <p>This content was updated in response to internal feedback received as part of an ongoing alignment exercise.</p>
2.1.2	Removal	<p>Removed content that states how non-financial reference levels are determined. This content was removed as it is redundant of chapter 7, section 22.3.2.</p> <p>This content was removed in response to internal feedback.</p>
3.2	Addition	<p>Added content that explains how market participants can account for inflation when submitting invoices as supporting documents for a reference level consultation.</p> <p>This content was updated in response to external feedback received during reference level consultations.</p>
3.2.1	Editorial	<p>Updated content so that the term “producing” was not used in reference to provision of operating reserve. Updated content relies on the concept of supplying operating reserve.</p> <p>This content was updated in response to external feedback received during reference level consultations.</p>
3.5.3	Editorial	<p>Inserted a new sub-section heading 3.5.3.1 titled “Procurement Process”.</p>

Market Manual Section	Type of Change	Description
		This content was updated in response to internal feedback.
3.5	Editorial	<p>Replaced the term “reviewer” with “expert” in regards to the independent review process.</p> <p>This content was updated in response to internal feedback.</p>
3.5.4.1	Addition	<p>Added content regarding requests for reconsideration for experts.</p> <p>This content was updated in response to stakeholder feedback.</p>
3.5.4.2	Modification	<p>Updated the amount of time that the IESO has to notify market participants of a need to reject a report from 5 business days to 15 business days. This additional time is required to accommodate the newly added ability to request reconsideration.</p> <p>This content was updated in response to stakeholder feedback.</p>

Market Manual Section	Type of Change	Description
3.5.4.3	Addition	<p>Added content that clarifies when the IESO will register reference levels and reference quantities following completion of a consultation.</p> <p>Extended the period of time within which the IESO is obligated to register reference levels and reference quantities that are consistent with the findings of an IRP report from 10 business days to 20 business days. This extension was necessary given the addition of the ability to request reconsideration.</p> <p>This content was updated in response to stakeholder feedback.</p>
4.1.1	Modification	<p>Updated content to add clarity regarding the timing requirements associated with temporary reference level requests for both the day-ahead market and the real-time market.</p> <p>Added content that explains that if a temporary reference level change request is rejected, the IESO will not recalculate reference level values. This feature is already found in the market rules and the added market rule cross-references ensure that this section of the market manual is consistent with the relevant market rules.</p> <p>Content was updated to correctly specify that the relevant report was the real-time market report. The previous version incorrectly stated that the relevant market report was the day-ahead market report.</p> <p>This content was updated in response to internal feedback received during solution development.</p>

Market Manual Section	Type of Change	Description
5.3	Addition	<p>Added content that explains that the IESO will reject a temporary reference level change request for use of a fuel cost component that is of a lower value than the value used to calculate the reference level value.</p> <p>The IESO is prevented from making fuel index data used to calculate reference level values available to market participants under its contractual obligations. As a result, this addition will prevent market participants from inadvertently requesting a lower reference level value.</p> <p>This updated content also makes clear the fact that when the IESO rejects a request in this circumstance, this rejection cannot result in a reference level settlement charge or require future requests to be manually reviewed.</p> <p>This content was updated in response to internal feedback received during solution development.</p>
6.4.5, 6.4.5.1, 6.4.5.2	Modification	<p>Updated content to outline how the forebay refill opportunity cost is used for resources with a storage horizon less than or equal to 3 hours.</p> <p>If a resource has a storage horizon less than or equal to 3 hours then the forebay refill opportunity cost is integrated into the energy offer reference level for the resource without requiring use of an alternate cost profile. This opportunity cost forms a component of the normal reference level used by the resource.</p> <p>If a resource has a storage horizon greater than 3 hours that the forebay refill opportunity cost requires market participants to register an alternate cost profile and that use of the</p>



Market Manual Section	Type of Change	Description
		<p>forebay refill opportunity cost for a particular dispatch day requires use of the temporary reference level change request process.</p> <p>This content was updated in response to external feedback received during reference level consultations.</p>
6.6, 7	Editorial	<p>Updated the manner in which we describe costs related to speed-no-load offers in this section. Previously the body content referred to 'speed-no-load costs' rather than 'costs related to speed no-load offers'. Updated language is consistent with the new defined term 'speed no-load offers'.</p> <p>Updated the manner in which we refer to resources that are eligible to receive the GOG.</p> <p>This content was updated in response to internal feedback.</p>
7.1.1.1, 7.1.4, 7.7.2.1	Editorial	<p>Updated text to avoid referring to 'physical units' and to instead refer to 'generation unit' and 'electricity storage unit' where appropriate.</p> <p>This content was updated in response to internal feedback.</p>
7.1.3.1	Addition	<p>Added content that explains how financial reference levels should be requested for combined cycle natural gas facilities that have modeled their combustion turbines and steam turbines as separate resources.</p> <p>This content was updated in response to external stakeholder feedback received during reference level consultations.</p>

Market Manual Section	Type of Change	Description
7.1.3.2	Modification	<p>Updated content to correctly indicate that this section was relevant for resources that have registered a start up cost and speed no load eligibility flag value of "N". The previous version incorrectly stated that this section applied to those resources with relevant registered data equal to "Y".</p> <p>This change was made in response to internal feedback received during solution development.</p>
7.1.3.2	Editorial	<p>Updated the variable names in the equations for primary energy offer reference level to remove the word "offers" from the speed no load variables as the text should have properly read as "MLP-Energy".</p> <p>This change was made in response to internal feedback.</p>
7.1.4	Editorial	<p>Updated this section to clarify how market participants provide heat rate data to determine energy offer reference levels for pseudo-unit resources.</p> <p>This change was made in response to internal feedback.</p>
7.1.6	Editorial	<p>Updated this section by replacing the word "a" with the word "are" so that the relevant sentence reads "Resources that <b>are</b> part of a".</p> <p>Updated the equations in this section by inserting a missing bracket in one case and changing the variable name on the left side of the equation from "Emissions Charge" to be "Emissions Cost" where needed.</p>

Market Manual Section	Type of Change	Description
		<p>The missing bracket was added for correctness while the variable names were changed for consistency.</p> <p>These changes were made in response to internal feedback.</p>
7.1.8.4	Editorial	<p>Updated the equation in this section by changing the variable name on the left side of the equation from "Emissions Charge" to be "Emissions Cost" and by changing the variable name "output based standard" to "emission performance standard".</p> <p>The variable names were changed for consistency.</p> <p>These changes were made in response to internal feedback.</p>
7.1.8.7	Editorial	<p>Updated the equation to be drafted in the equation functionality Word.</p> <p>This change was made in response to internal feedback.</p>
7.1.9.2	Editorial	<p>The variable name "fuel carbon content" was updated to be "emission factor". The variable name was changed for consistency.</p> <p>This change was made in response to internal feedback.</p>
7.2.2	Editorial	<p>Updated content to make clear that this section was discussing physical dams, rather than the day-ahead market (DAM).</p> <p>This change was made in response to internal feedback.</p>

Market Manual Section	Type of Change	Description
7.2.5.1	Modification	<p>Updated content to clarify how market participants can provide registration information to the IESO regarding hydroelectric resources that are part of cascade groups.</p> <p>This change was made in response to internal feedback.</p>
7.6.3	Modification	<p>Updated content to clarify that electricity storage resources that are Class B loads must not be exempt from paying global adjustment costs to be eligible to include global adjustment costs in their relevant reference level.</p> <p>This content was updated in response to internal feedback.</p>
7.7.2	Modification	<p>Updated content to clarify that the relevant section applied in regards to either generation units or electricity storage units. The previous lanugage did not specify the type of unit that was meant.</p> <p>This content was updated in response to internal feedback.</p>
7.10.3	Addition	<p>Added content to outline the actions that the IESO will take in the event that it fails to calculate reference level values in the intended manner for a particular dispatch day. In this case, the IESO will use the most recently calculated reference level values.</p> <p>This content was added in response to internal feedback received during solution development.</p>
8.1.1, 8.1.2,	Editorial	<p>Updated the language used to describe electricity storage resources to align with the updates in the interim alignment batch.</p>

Market Manual Section	Type of Change	Description
		This content was updated in response to internal feedback.
8.1.1	Modification	<p>Updated content by replacing the word “dispatchable” with “output” to clarify that energy ramp rate reference levels are required for the range of output from 0 MW to a resource’s maximum output.</p> <p>This content was updated in response to external stakeholder feedback received during reference level consultations.</p>
8.1.8	Modification	<p>Updated content by replacing the word “each” with “any” to clarify that the energy per ramp hour upper bound reference level is a single number, rather multiple numbers with one for each ramp hour.</p> <p>This content was updated in response to external stakeholder feedback received during reference level consultations.</p>
8.2	Modification	<p>Updated content to clarify the non-financial reference levels that are required for variant D thermal resources. The updated content indicates which non-financial reference levels are required for variant D thermal resources that are pseudo unit resources as compared to those that are not pseudo unit resources.</p> <p>This content was updated in response to external stakeholder feedback received during reference level consultations.</p>
8.2.1	Modification	Updated content to clarify the approach that market participants can take when submitting

Market Manual Section	Type of Change	Description
		<p>energy ramp rate reference levels for resources that are pseudo unit resources.</p> <p>This content was updated in response to external stakeholder feedback received during reference level consultations.</p>
9.6.1	Modification	<p>Updated content to clarify that energy reference quantities account for all outages, rather than just planned outages. The approach of accounting for all outages is consistent with that found for other technology types.</p> <p>This content was updated in response to internal feedback.</p>
9.7.1	Addition	<p>Added content to clarify the manner in which the operating reserve reference quantity values are determined for dispatchable loads that rely behind the meter storage or generation to displace load.</p> <p>This content was made in response to internal feedback received during solution development.</p>
9.8	Addition	<p>Added content to outline the actions that the IESO will take in the event that it fails to calculate reference quantity values in the intended manner for a particular dispatch day. In this case, the IESO will use the most recently calculated reference quantity values.</p> <p>This content was added in response to internal feedback received during solution development.</p>

## Summary of changes to Market Manual 14.2: December 2023

Market Manual Section	Type of Change	Description
Cover and Document Change History	Editorial	Updated issue number and date. This content was updated in response to internal feedback.
Global	Editorial	Updated and added various <i>market rules</i> references across the <i>market manual</i> .
Global	Editorial	Made various editorial updates related to grammatical improvements such as expanding acronyms, adding hyphens and more.  These changes were made in response to internal stakeholder feedback.
2.1.2	Editorial	The <i>IESO</i> updated the phrasing in the language leading to Table 2-1 to align with the relevant <i>market rules</i> , replacing “applicable to” with “determine” in the sentence. This change was made in response to internal stakeholder feedback.
2.1.2	Editorial	Added the acronym “MLP” in parentheses in table 2-1 as this was the first time that the term minimum loading point occurred in the manual. As a result of this change, the <i>IESO</i> also removed “(MLP)” in section 3.2.1.  This change was made in response to external feedback (OPG 29) from the March 2023 stakeholder feedback.
2.1.3	Addition	Updated the explanation of the variable meanings to provide more clarity regarding the formulation with respect to either <i>resources</i> that do not have <i>start-up offer reference levels</i> ,

Market Manual Section	Type of Change	Description
		<p><i>speed no-load offer reference levels or minimum generation block run time reference levels.</i></p> <p>This change was made in response to internal stakeholder feedback received during solution development.</p>
2.2	Removal	<p>Content regarding the nature and use of <i>reference quantity values</i> was removed as it was redundant of the content further below.</p> <p>This change was made in response to internal stakeholder feedback.</p>
3.1	Editorial	<p>This section was updated to provide more clarity regarding historical study periods and their use in determining reference levels.</p> <p>This change was made in response to internal stakeholder feedback.</p>
3.2	Addition	<p>Inserted the equation in this section that described how inflation adjustments are made that was missing in the previous version of the manual.</p> <p>This change was made in response to external feedback (OPG 30) from the March 2023 stakeholder feedback.</p>
3.2	Editorial	<p>Updated the indentation of the sub-bullets in this section following the word "Where:".</p> <p>This change was made in response to external feedback (OPG 30) from the March 2023 stakeholder feedback.</p>



Market Manual Section	Type of Change	Description
3.3	Removal	<p>Content regarding initiation of the process to determine <i>reference levels</i> was removed as it was redundant of the content further below and the relevant <i>market rules</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
3.3.2, 3.3.3	Modification	<p>Updated these sections to move text regarding when the <i>IESO</i> will contact a <i>market participant</i> if additional information is required to complete a <i>reference level</i> consultation from section 3.3.2 to section 3.3.3 as the content was more relevant to section 3.3.2.</p> <p>This change was made in response to internal stakeholder feedback.</p>
3.4	Modification	<p>Updated this section to provide more clarity. <i>Market rule</i> references were added in various subsections.</p> <p>Information about the <i>IESO's</i> ability to initiate the <i>reference level</i> determination in response to changes in registered parameters and also in response to discovering that the <i>reference level</i> or <i>reference quantity</i> was not accurate was grouped into a single section.</p> <p>This text was collected into a single sub-section and was not substantively changed.</p> <p>These changes were made in response to internal stakeholder feedback.</p>

Market Manual Section	Type of Change	Description
3.4.1.1	Removal	<p>Updated this section to remove content regarding the <i>IESO's</i> ability to initiate the process to determine <i>reference levels</i> and <i>reference quantities</i> that was redundant of the <i>market rule</i> content that was already referenced in this section of the <i>market manual</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
4.1.2	Modification	<p>The publication time of the Reference Level Values for Financial Dispatch Data Parameters Real-Time Market Report publication was changed from 14:00 to 17:00. This publication time was updated in response to further information available regarding other solution processing time and other process timing.</p> <p>This modification was made in response to internal stakeholder feedback received during solution development.</p>
4.2	Modification	<p>This section was updated in order to ensure that this content correctly communicated the information that will make up v1 of the DA report. The <i>IESO</i> publication times for the RTM report and v2 of the DA report allow for all ex-post updates to be made prior to publication.</p> <p>Under the previous timing, it would have been possible that ex-post updates would have rendered the published information inaccurate.</p> <p>These changes were made in response to internal stakeholder feedback received during solution development.</p>

Market Manual Section	Type of Change	Description
4.2	Removal	<p>Content regarding how <i>reference quantity values</i> are used in assessing <i>physical withholding</i> were removed as it was redundant of the content further below that describes how the reports are used in this process.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.2	Removal	<p>Content regarding the relationship of supporting documentation and <i>reference level</i> change requests was removed as it was redundant of the content further below.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.2.1	Modification	<p>This section was modified to state that certain documentation can be submitted to support fuel cost component changes. This change aligns the content with the intended design, rather than committing the <i>IESO</i> to approve requests that contain certain materials per the previous version.</p> <p>The previous language obligated the <i>IESO</i> to accept requests if the type of documentation matched the bulleted list, rather than allowing the <i>IESO</i> to assess the content of the submitted documentation, as was the intent.</p> <p>This change was made in response to internal stakeholder feedback.</p>
5.2.1	Addition	<p>Added content to clarify what supporting documentation can be provided by a <i>market participant</i> submitting a fuel-cost change request for an <i>electricity storage resource</i>.</p>

Market Manual Section	Type of Change	Description
		<p>This change was made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
5.2.2	Addition	<p>Added content to the beginning of this section to provide further context regarding when a <i>market participant</i> may request to temporarily use a <i>resource's</i> higher cost set of <i>reference levels</i>, including adding <i>market rule</i> references.</p> <p>This content was added in response to internal stakeholder feedback.</p>
5.3	Modification	<p>Updated the content in this section to provide more clarity regarding when the <i>IESO</i> will notify the <i>market participant</i> when a request is rejected.</p> <p>The structure of the content was also updated to introduce the use of a bulleted list.</p> <p>These changes were made in response to internal stakeholder feedback resulting from solution development.</p>
5.4	Removal	<p>This section was updated by removing content that was redundant of the information found in the market rules.</p> <p>This change was made in response to internal stakeholder feedback.</p>
6.3	Editorial	<p>Existing content in this section was moved to improve clarity and flow.</p> <p>This change was made in response to internal stakeholder feedback.</p>

Market Manual Section	Type of Change	Description
6.3	Removal	<p>The text "(O&amp;M)" was removed in this section as it is already defined in earlier content.</p> <p>This change was made in response to external feedback (OPG 36) from the March 2023 stakeholder feedback.</p>
6.3	Addition	<p>Added content clarifying that costs submitted to the <i>IESO</i> for <i>reference levels</i> should not include HST, but that non-HST costs may be eligible.</p> <p>This change was made in response to internal stakeholder feedback.</p>
6.3.1	Removal	<p>Removed the work "generation" to clarify that the relevant text could apply for any <i>facility</i> when determining <i>reference levels</i>. The previous language, specifying "generation facility" was unintentionally narrow.</p> <p>This change was made in response to internal feedback.</p>
6.4.3.1	Addition	<p>Content was added to clarify that where <i>resources</i> share a <i>forebay</i>, a single Max DEL submission for the <i>forebay</i> will be used to assess whether the intraday opportunity cost will be used for resources at that shared <i>forebay</i>.</p> <p>Absent this addition, <i>resources</i> with shared <i>forebays</i> could never qualify to have the intraday opportunity cost included in their <i>reference level</i> values. This outcome would have been inconsistent with the intent of the opportunity cost design.</p>

Market Manual Section	Type of Change	Description
		<p>This change was made in response to internal stakeholder feedback received during solution development.</p>
6.4.4	Modification	<p>The storage horizon opportunity cost was updated to use the value that is the maximum calculated under option 1 or option 2 for each relevant <i>resource</i>.</p> <p>This change was made to ensure that opportunity cost values calculated by the storage horizon opportunity cost kept <i>reference level values</i> consistent for identical <i>resources</i>.</p> <p>This change was made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
6.4.4.2	Modification	<p>Content in this section was updated to allow any <i>resource</i> in a <i>cascade group</i> to request use of the storage horizon opportunity cost. In the previous version, only <i>resources</i> at the top <i>forebay</i> of a <i>cascade group</i> could use the <i>forebay</i> refill opportunity cost.</p> <p>The methodology to determine the storage horizon for a <i>resource</i> on a <i>cascade group</i> was updated so that only storage at or downstream of the relevant <i>resource</i> contributed to the calculation.</p> <p>Content was also added to the example to provide clarity on a hypothetical storage horizon calculation for downstream <i>resource</i> in a <i>cascade group</i>.</p> <p>This change was made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>

Market Manual Section	Type of Change	Description
6.4.4.2	Addition	<p>Added the text “Intercontinental Exchange (ICE)” to replace the previous text “ICE” to define this acronym at its first mention in the market manual.</p> <p>This change was made in response to external feedback (OPG 37) from the March 2023 stakeholder feedback.</p>
6.4.4.3	Modification	<p>Changes were made in this section, including removing the example shown in Table 6-2, related to the selection of the reference period dates for the storage horizon opportunity cost. The need to shift the dates for day-of-week alignment was removed in response to feasibility issues. The example was no longer needed given the simplification of the approach.</p> <p>This change was made in response to internal stakeholder feedback received during solution development.</p> <p>Added content to clarify the choice of the 28 day study period for Approach 2 of the storage horizon opportunity cost. This added content provided added clarity of the study period related to the day-ahead <i>dispatch day</i>. The previously existing content only spoke to the study period related to the <i>dispatch day</i>.</p> <p>This change was made in response to internal stakeholder feedback received during solution development.</p>
6.4.5	Modification	<p>Content in this section was updated to allow any <i>resource</i> in a <i>cascade group</i> to request use of the <i>forebay</i> refill opportunity cost. In the previous version, only <i>resources</i> at the top</p>

Market Manual Section	Type of Change	Description
		<p><i>forebay</i> of a <i>cascade group</i> could use the <i>forebay</i> refill opportunity cost.</p> <p>These changes include updating the content regarding which <i>resources</i> can request use of the <i>forebay</i> refill opportunity cost and when they can request it be used for a particular <i>dispatch day</i>.</p> <p>This change was made in response to external feedback received during <i>reference level</i> consultations.</p>
6.4.5	Addition	<p>Added content to this section that describes a specific form of supporting documentation that can be submitted with a request to use an alternate cost profile for a hydroelectric <i>resource</i> that has registered the <i>forebay</i> refill opportunity cost in its alternate cost profile.</p> <p>The added content explains how Max DEL data combined with efficiency rating information for a <i>resource</i> can be submitted for such a request.</p> <p>This change was made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
6.4.5	Addition	<p>Added content to this section to clarify that when a <i>resource</i> has no more than 3 hours of water remaining in its <i>forebay</i> it can request use of the <i>forebay</i> refill opportunity cost. The previous language (which excluded “no more than”) may have lead to the incorrect interpretation that only when a <i>resource</i> has exactly 3 hours of water remaining in its <i>forebay</i> can the relevant <i>market participant</i> request use of the <i>forebay</i> refill opportunity cost.</p>



Market Manual Section	Type of Change	Description
		<p>This change was made in response to internal stakeholder feedback.</p>
6.4.5.2	Modification	<p>This modification was made to generalize the approach for determining the <i>forebay</i> refill opportunity cost so that it is applicable to any <i>resource</i>, regardless of whether that <i>resource</i> is in a <i>cascade group</i>. In the previous version, this opportunity cost was only applicable to <i>resources</i> at the top <i>forebay</i> of a <i>cascade group</i> or <i>resources</i> that are not part of a <i>cascade group</i>.</p> <p>Content explaining how the <i>forebay</i> refill opportunity cost applies to <i>resources</i> with very short storage horizons was also updated to be consistent with similar content in the above section.</p> <p>The example of requesting the <i>forebay</i> refill opportunity cost in this section was also modified to align with this update.</p> <p>These changes were made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
6.4.5.3	Modification	<p>This modification was made to generalize the approach for determining the <i>forebay</i> refill opportunity cost so that it is applicable to any <i>resource</i>, regardless of whether that <i>resource</i> is in a <i>cascade group</i>. In the previous version, this opportunity cost was only applicable to <i>resources</i> at the top <i>forebay</i> of a <i>cascade group</i> or <i>resources</i> that are not part of a <i>cascade group</i>.</p> <p>Content explaining how the <i>forebay</i> refill time should be calculated for <i>resources</i> that are</p>

Market Manual Section	Type of Change	Description
		<p>registered as part of a <i>cascade group</i> was updated so that <i>resources</i> that are not at the top <i>forebay</i> are explicitly addressed in this section.</p> <p>These changes were made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
6.4.5.3	Modification	<p>Added content to the calculation of <i>forebay</i> refill time to address the possibility of net inflows being negative. Absent this additional clarity, the calculation would solve in a manner that was not consistent with the intent of the design.</p> <p>This change was made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
6.4.5.3	Removal	<p>Removed the reference to the section title "Calculate the Time Required to Fill the Forebay for a Single Resource" as that section title no longer exists in the current version of this <i>market manual</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7	Removal	<p>This section was updated by removing content that was redundant of the information found in the <i>market rules</i> and in the sections below.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7.1	Modification	<p>Updated the statement about which <i>reference levels</i> will be registered for <i>resources</i> of each thermal variant to provide clarity.</p>

Market Manual Section	Type of Change	Description
		<p>This clarification was made in response to internal stakeholder feedback.</p>
7.1.1.3	Modification	<p>Updated the text “Y” to replace it with “N” to align this content with the intended design.</p> <p>Under the previous version, thermal <i>resources</i> that can submit <i>start-up offers</i> and <i>speed no-load offers</i> would register primary and secondary <i>energy offer reference levels</i>. This was contrary to the design intent, which was that only thermal <i>resources</i> that cannot submit these <i>dispatch data</i> should be able to register primary and secondary <i>energy offer reference levels</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7.1.7.1	Editorial	<p>The text “PA/ID/FD” was replaced with “Primary Air/Induced Draught/Forced Draft” for clarity.</p> <p>This change was made in response to external stakeholder feedback (OPG 38) from the March 2023 stakeholder feedback.</p>
7.1.10.1	Addition	<p>Added a new section describing a new eligible short-run marginal cost associated with provision of <i>operating reserve</i> by thermal <i>resources</i>.</p> <p>This new cost is associated with extra fuel used (if any) while simultaneously providing <i>energy</i> and <i>operating reserve</i>.</p> <p>This change was made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>

Market Manual Section	Type of Change	Description
7.2.1.2	Addition	<p>Added content so that for pumped storage <i>facilities</i> that have more than one modeled load <i>resource</i>, the costs of pumping power can be appropriately accounted for instead of assuming a one-to-one relationship between modeled load and <i>generation resources</i> at the pumped storage <i>facility</i>.</p> <p>This change was made in response to external stakeholder feedback.</p>
7.2.2.1	Removal	<p>Removed the text "(HPU)" as this acronym is not used in the market manual.</p> <p>This change was made in response to external stakeholder feedback (OPG 39) from the March 2023 stakeholder feedback.</p>
7.2.3	Editorial	<p>Updated language in this section to clarify the impact of upgrades or modifications on equivalent operating hour methodology for O&amp;M costs for thermal <i>resources</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7.2.4	Removal	<p>Removed a statement about eligibility of operating and maintenance costs with provision of <i>operating reserve</i> as this statement was no longer consistent given the eligible costs that were added in this section.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7.2.4.1, 7.2.4.2,	Addition	<p>Added new sections describing further eligible <i>short-run marginal costs</i> associated with provision of <i>operating reserve</i> by hydroelectric <i>resources</i>.</p>

Market Manual Section	Type of Change	Description
7.2.4.3, 7.2.4.4		<p>Section 7.2.4.1 describes the costs of operating in condense mode and the costs of operating in speed no-load mode to provide synchronized <i>ten-minute operating reserve</i>.</p> <p>Sections 7.2.4.2 and 7.2.4.3 are specific to non-synchronized <i>ten-minute operating reserve</i> and <i>thirty-minute operating reserve</i> and state that eligible costs are determined for these products based on incremental costs with making the relevant capabilities available.</p> <p>Section 7.2.4.4 describes the new cost associated with providing any class of <i>operating reserve</i> associated with extra fuel used (if any) while simultaneously providing <i>energy</i> and <i>operating reserve</i>.</p> <p>These changes were made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
7.2.5, 7.2.5.1, 7.2.5.2	Modification	<p>Content in this section was updated to reflect the fact that <i>resources</i> that are in a <i>cascade group</i> can now register <i>reference levels</i> for each <i>resource</i> in the <i>cascade group</i>.</p> <p>These changes were made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
7.2.5.2	Modification	<p>This section was updated to provide a specific value of \$20/MWh for the cascade adders between <i>forebays</i> for <i>resources</i> in a <i>cascade group</i>.</p> <p>This value was set so that downstream <i>resources</i> in a <i>cascade group</i> will have higher <i>energy offer reference level values</i> than upstream <i>resources</i>.</p>

Market Manual Section	Type of Change	Description
		This content was updated in response to internal stakeholder feedback received during solution development.
7.2.5.2	Removal	<p>The introduction of the \$20 cascade adder means that it is not necessary to cap <i>energy offer reference level values</i> for <i>resources</i> at the top of a <i>cascade group</i> to \$1999.</p> <p>This content was removed in response to internal stakeholder feedback.</p>
7.2.5.2	Modification	<p>Updated the example of <i>cascade group hydroelectric resource reference level value</i> methodology to reflect the ability of downstream <i>resources</i> to register <i>reference level</i> components such as the storage horizon opportunity cost and the <i>forebay</i> refill opportunity cost and the cascade adder.</p> <p>These changes were made in response to external stakeholder feedback received during <i>reference level</i> consultations.</p>
7.6.1.1	Modification	<p>Updated the content in this section to provide clarity that the charging costs are determined on a monthly basis when determining <i>reference levels</i> for an <i>electricity storage resource</i>.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7.6.1.1	Modification	Updated the assumed charging hours used to determine charging costs for an <i>electricity storage resource</i> that has been operating for less than one year from the period between 23:00 and 07:00 to be between 23:00 and 06:00 EST.

Market Manual Section	Type of Change	Description
		This change was made in response to external stakeholder feedback received during <i>reference level</i> consultations.
7.6.1.1	Modification	<p>Updated the lanugage in this section that explained the <i>IESO</i> annual escalation to clarify that the relevant price was the LMP or the OZP, as appropriate. This updated language provides more specific information than was previously present.</p> <p>This change was made in response to internal stakeholder feedback.</p>
7.9	Editorial	<p>Updated the text in this section to remove "<i>minimum generation block run time</i>" as the acronym "MGBRT" was defined earlier in the <i>market manual</i>.</p> <p>This change was made in response to external stakeholder feedback (OPG 41) from the March 2023 stakeholder feedback.</p>
7.10.1.2	Removal	<p>This section was updated by removing content that was redundant of the information found in the first paragraph in the section.</p> <p>This change was made in response to internal stakeholder feedback.</p>

**Changes to Market Manual 2.12 – Treatment of Local Market Power**

This market manual was removed as the related procedures are being superseded by the new market power mitigation procedures.

**Summary of changes to Market Manual 2.12 – Treatment of Local Market Power: August 2021**

Market Manual Section	Type of Change	Description
All	Deleted	Delete Market Manual 2.12 – Treatment of Local Market Power in its entirety.

**Changes to Standard – Local Market Power Mitigation, Price Screen Duration Factors**

This standard was removed as the related procedures are being superseded by the new market power mitigation procedures.

**Summary of changes to Standard – Local Market Power Mitigation: IMO\_STD\_0007: August 2021**

Standard Section	Type of Change	Description
All	Deleted	Consequential to the deletion of 'Appendix 7.6 - Local Market Power' in the <i>market rules</i> , delete 'Local Market Power Mitigation: IMO_STD_0007' in its entirety.

**Market Entry Changes**

**Changes to Market Manual 1 Market Entry, Maintenance and Exit Part 1.3 – Identity Management Operations Guide**

A new Market Power Mitigation contact role was added.

**Summary of changes to Market Manual 1.3: August 2021**

Market Manual Section	Type of Change	Description
Appendix B	New	Addition of a Market Power Mitigation Contact.

**Changes to Market Manual 1.5 – Market Registration Procedures**



Modifications made in a few sections in this market manual to describe the obligations related to registering reference levels, reference quantities and market control entities.

A new Market Power Mitigation contact role was added and table headings were updated as a result of new content.

### Summary of changes to Market Manual 1.5: August 2021

Market Manual Section	Type of Change	Description
1.3 Roles and Responsibilities	Modification	Updated section cross-references to account for new content elsewhere in the <i>market manual</i> regarding <i>reference levels</i> , <i>reference quantities</i> and <i>market control entities</i> .  Added new IESO responsibilities related to reference levels, reference quantities and market control entities.
2.2 Registering as a Market Participant	Modified	Added content to reflect that prospective <i>market participants</i> seeking authorization as a subset of participation types are required to disclose <i>market control entities</i> and a <i>market control entity for physical withholding</i> .
3.1 Register Equipment Overview	Modified	Updated the content describing market control entity and market control entity for physical withholding.
3.2 Registering Facility, Equipment, and Resource Data	New	Added new section 3.2.6 Requirements for Market Power Mitigation that describes the requirements to register <i>reference levels for financial dispatch data parameters</i> , <i>reference levels for non-financial dispatch data parameters</i> and <i>reference quantities</i> .
3.5 Registration Requirements for Wholesale Customers,	Modified	Updated table cross references and table titles.

Market Manual Section	Type of Change	Description
3.7 Variable Generation Facility Registration	Modified	Updated table cross references and table titles.
4.2 Facility, Equipment and Resource Data Maintenance	Modified	Added Market Control Entity for Physical Withholding to the list of <i>market participant</i> changes.  Added changes to <i>reference levels</i> and <i>reference quantities</i> to the list of changes for which the <i>IESO</i> will issue a RAN.
Appendix A	Modified	Added Market Power Mitigation Contact.

**Summary of changes to Market Manual 1.5: December 2021**

Market Manual Section	Type of Change	Description
Table 3-2	Modification	Updated market rule references in response to stakeholder feedback.