

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 Some existing definitions were deleted as they were associated with procedures that are being superseded by the new market power mitigation procedures.

Appendix 7.6 of Chapter 7 of the *market rules* was removed as the related procedures are being superseded by the new market power mitigation procedures.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 “reasonably 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 market rules 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 subsequent 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> or the name of any system element 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"> 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 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>. <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 above 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"> • energy ramp rate reference level OPG 78 <p>This content was updated in response to stakeholder feedback from OPG (comment id 78)</p> <ul style="list-style-type: none"> • Global market power reference inertia <p>This content was updated in response to stakeholder feedback from OPG (comment id 113)</p> <ul style="list-style-type: none"> • Market control entity OPG 114 <p>This content was updated in response to stakeholder feedback from OPG (comment id 114)</p> <ul style="list-style-type: none"> • Market control entity for physical withholding OPG 114 <p>This content was updated in response to stakeholder feedback from OPG (comment id 114)</p> <ul style="list-style-type: none"> • Operating reserve ramp rate reference level OPG 78 <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"> Ramp hours to minimum loading point reference level OPG 78 <p>This content was updated in response to stakeholder feedback from OPG (comment id 78)</p> <ul style="list-style-type: none"> Simulated as-offered energy locational marginal price OPG 116 <p>This content was updated in response to stakeholder feedback from OPG (comment id 116)</p> <ul style="list-style-type: none"> Simulated reference quantity energy locational marginal price <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	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

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

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"> • designation of constrained areas; • designation of uncompetitive <i>intertie zones</i>; • determination of global market power reference intertie zones; • ex-post mitigation for <i>physical withholding</i>; and • ex-post mitigation of <i>intertie economic withholding</i> on an uncompetitive <i>intertie zone</i>.
1 Introduction	New	<p>This section contains:</p> <ul style="list-style-type: none"> • a description of the ex-ante and ex-post mitigation processes; • the purpose of the <i>market manual</i>; • the scope of the <i>market manual</i>;

Market Manual Section	Type of Change	Description
		<ul style="list-style-type: none"> the relevant roles and responsibilities of <i>market participants</i> and the <i>IESO</i>; and <i>IESO</i> contact information.
2 Designation of Constrained Areas	New	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 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	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

Market Manual Section	Type of Change	Description
on an Uncompetitive Intertie Zone		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	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> . This content was added in response to stakeholder feedback from OPG (comment id 117).
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).

Market Manual Section	Type of Change	Description
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	<p>Updated content to clarify that the additional condition for physical withholding for GOG-eligible resources only applies when that 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 "MWs 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>
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>

Market Manual Section	Type of Change	Description
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> <p>This content was added in response to OPG 15.</p>
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>

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 *inertie economic withholding* on an uncompetitive *inertie 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"> • a description of the topics addressed in the <i>market manual</i>; • the purpose of the <i>market manual</i>; • the scope of the <i>market manual</i>; • the relevant roles and responsibilities of <i>market participants</i> and the <i>IESO</i>; and • <i>IESO</i> contact information.
2 Overview of Reference Levels and	New	<p>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</p>

Market Manual Section	Type of Change	Description
Reference Quantities		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 Dispatch Data Parameters	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 parameters</i> . <i>Reference levels</i> for <i>financial dispatch data parameters</i> impact the application of ex-ante mitigation and <i>settlement</i> mitigation.

Market Manual Section	Type of Change	Description
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</i> for <i>financial dispatch data parameters</i> . <i>Reference levels</i> for <i>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</i> for <i>non-financial dispatch data parameters</i> . <i>Reference levels</i> for <i>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</i> . <i>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.
3.3, 3.4	Addition	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 financial and non-financial dispatch

Market Manual Section	Type of Change	Description
		<p>data 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 reference level 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 energy storage <i>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 maximum daily energy limit 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 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 feedback from OPG (comment id 90).</p>
6.4.4.2	Removal	<p>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</i></p>

Market Manual Section	Type of Change	Description
		<i>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 th percentile. This was updated to be the 98 th percentile. This change was made in response to stakeholder feedback received during reference level consultations.
6.4.5	Addition	Added content related to the forebay 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.
6.4.5.3	Modification	Replaced content related to the forebay refill opportunity cost describing how the time required to fill the forebay is calculated. This content was updated in response to stakeholder

Market Manual Section	Type of Change	Description
		feedback received during <i>reference level</i> consultations.
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"> • How thermal <i>resources</i> are categorized into variants based on their registered characteristics; and • How to determine the financial <i>reference levels</i> that are required for a thermal <i>resource</i> based on its registered characteristics. <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>pseudopseudo-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> <ul style="list-style-type: none"> • combined cycle operation, based on a 1x1 configuration; and • simple cycle operation, based on a 1x0 configuration where the <i>facility</i> has the

Market Manual Section	Type of Change	Description
		<p>ability to operate when the steam turbine is out of service.</p> <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 reference level 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 equation to the Primary Energy Offer Reference Level to align the <i>market manual</i> with the detailed design.</p>

Market Manual Section	Type of Change	Description
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	<p>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>.</p>
7.2.4.2	Modification	<p>The way that <i>energy offer reference level</i> value calculation for hydroelectric <i>resources</i> that are part of a cascade system is described was updated to more accurately reflect the approach that the <i>IESO</i> will take.</p>

Market Manual Section	Type of Change	Description
		<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>
<p>7.6, 7.6.1.1, 7.6.1.2, 7.6.1.3, 7.6.1.4</p>	<p>Editorial</p>	<p>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>.</p>
<p>7.6.1.1</p>	<p>Editorial</p>	<p>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>.</p>
<p>7.6.1.4</p>	<p>Editorial</p>	<p>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>.</p>
<p>7.6.1.5</p>	<p>Addition</p>	<p>Added this section to provide additional clarity to market participants which load resources at electricity storage facilities need to determine reference levels for operating reserve.</p>
<p>7.10</p>	<p>Addition</p>	<p>Added this section to explain occasions when the <i>IESO</i> may have to rely on alternate input</p>

Market Manual Section	Type of Change	Description
		<p>data to calculate <i>reference level values</i>. These occasions include:</p> <ul style="list-style-type: none"> • Historical data is not available for a new <i>resource</i>; • 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>). • External data is not available to the <i>IESO</i> (e.g. natural gas price index report). <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> <p>This change was made in response to stakeholder input received during <i>reference level</i> consultations.</p>

Market Manual Section	Type of Change	Description
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	<p>Updated content to clarify that market participants can initiate updates to reference levels or reference quantities when they reasonably expect the currently registered reference levels or refereneec quantities to no longer match the resource’s operational</p>

Market Manual Section	Type of Change	Description
		<p>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> <p>This change was made in response to OPG 25C.</p>

Market Manual Section	Type of Change	Description
7.6	Addition	Added language to make it clear that the opportunity cost referred to in this section is the intraday opportunity cost. This content was added in response to internal feedback.

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> .

Market Manual Section	Type of Change	Description
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</i> for <i>financial dispatch data parameters</i> , <i>reference levels</i> for <i>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.
3.7 Variable Generation Facility Registration	Modified	Updated table cross references and table titles.
4.2 Facility, Equipment and Resource Data Maintenance	Modified	<p>Added Market Control Entity for Physical Withholding to the list of <i>market participant</i> changes.</p> <p>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.</p>
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.