PROCEDURE

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Market Manual 2: Market Administration

Part 2.12: Treatment of Local Market Power

Issue 11.0

This procedure provides the steps required for the review of prices related to CMSC payments, as described in Appendix 7.6 of Chapter 7 of the "Market Rules".

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This *market manual* document may contain a summary of a particular *market rule*. Where provided, the summary has been used because of the length of the *market rule* itself. The reader should be aware, however, that where a *market rule* is applicable, the obligation that needs to be met is as stated in the "Market Rules". To the extent of any discrepancy or inconsistency between the provisions of a particular *market rule* and the summary, the provision of the *market rule* shall govern.

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Related Documents

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Table of Contents

List of Figures

List of Tables

Table of Changes

Reference (Section and Paragraph)	Description of Change
Throughout	Added reference to electricity storage participation where required

Market Manuals

The *market manuals* consolidate the market procedures and associated forms, standards, and policies that define certain elements relating to the operation of the *IESO-administered markets*. Market procedures provide more detailed descriptions of the requirements for various activities than is specified in the "Market Rules". Where there is a discrepancy between the requirements in a document within a *market manual* and the "Market Rules", the "Market Rules" shall prevail. Standards and policies appended to, or referenced in, these procedures provide a supporting framework.

Market Procedures

The Market Administration Manual is Volume 2 of the *market manuals*, where this document forms "Part 2.12: Treatment of Local Market Power".

A list of the other component parts of the "Market Administration Manual" is provided in "Part 2.0: Market Administration Overview", in Section 2, "About This Manual".

Structure of Market Procedures

Each market procedure is composed of the following sections:

1. ***"Introduction"***, which contains general information about the procedure, including an overview, a description of the purpose and scope of the procedure, and information about roles and responsibilities of the parties involved in the procedure.
2. ***"Procedural Work Flow"***, which contains a graphical representation of the steps and flow of information within the procedure.
3. ***"Procedural Steps"***, which contains a table that describes each step and provides other details related to each step.
4. ***"Appendices"***, which may include such items as standards, policies, agreements, and list of forms.

Conventions

The *market manual* standard conventions are as defined in the Market Manual Overview document.

– End of Section–

1. Introduction

1.1 Purpose

This procedure describes the activities required for the treatment of local market power as described in Appendix 7.6 Chapter 7 of the "Market Rules" (referred to as Appendix 7.6). The procedure is intended to provide a summary of the steps involved, particularly those that affect *market participants*, and to provide a summary of the interaction among *market participants* and the *IESO* as related to local market power investigations and their outcome.

The *market rules* require the *IESO* to *publish* certain information (Sections 1.2.3 of Appendix 7.6). This procedure also satisfies the need for such publication (see Section 1.4 below and Appendix C).

1.2 Scope

This procedure is intended to provide *market participants* with a summary of the steps and interfaces between *market participants* and the *IESO* for the treatment of local market power price reviews and the review of persistent and significant *constrained off events*. Procedural work flows and steps described in this document serve as a roadmap for *market participants* and the *IESO*, and reflect the requirements set out in the "Market Rules" and applicable *IESO* policies and standards.

The overview information in Section 1.3, below, is provided in part for context purposes, highlighting the main actions that comprise the procedure as illustrated in Section 2 and described in Section 3. Section 1.3 also identifies how implementation of Appendix 7.6 has proceeded, where the *IESO* has been provided flexibility under those *market rules*. That is, where *market rules* allow some choice, this *market manual* identifies the alternatives chosen by the *IESO*.

The process described in this *market manual* only applies to the review of prices associated with congestion management settlement credits (CMSC) for *energy* and the possible settlement adjustment that may occur if it is determined that local market power existed or where there are persistent and significant *constrained off events* . Section 1.8 of Appendix 7.6 indicates that the performance of these procedures does not preclude further analyses and investigations being performed as part of the Market Assessment and Compliance Division's (which includes the *market assessment unit*) or *market surveillance panel*'s normal investigation roles under Section 3 of Chapter 3 of the "Market Rules". However, such other surveillance analyses and investigations pursuant to Chapter 3 cannot lead to financial sanctions. Settlement adjustments can only be assessed through the processes prescribed by Appendix 7.6 while penalties may only occur through the enforcement processes of Chapter 3 section 6. Only Appendix 7.6 investigations are dealt with in this document.

This document covers:

- the assessments to be performed by the *IESO;*
- processes for *IESO* interaction with *market participants;*
- decisions related to adjusting CMSC payments;
- conducting an inquiry;
- applying *settlement* adjustments;
- designation of uncontested export *interties;* and
- *designation of constrained off watch zones*.

This document should be read by *registered market participants* and *metered market participants* whose *dispatchable facilities* may be part of a *constrained on event* or *constrained off event* and may consequently receive a CMSC payment. CMSC review and adjustments potentially apply to *generation units, dispatchable loads* and *electricity storage units* located within Ontario, and where CMSC has been paid to *boundary entities*, the review and adjustments may apply to these as well (section 1.2.1 and section 1.2.1C of Appendix 7.6).

Market participants paying *hourly uplifts* may also be interested in this document to the extent that, as per Section 1.7 of Appendix 7.6, the review and adjustments described may lead to credits (or consequential revisions) on their *settlement statements* and *invoices*.

Appendix 7.6 is entitled "Local Market Power" but also deals with situations that are related but not defined as local market power according to the definition of section 1.3.12 of Appendix 7.6. As a consequence, this market manual may use the phrase "local market power" in the broader sense of the title of the Appendix 7.6 (for example, "Local Market Power Inquiry" or "Local Market Power Mitigation Forms"), as opposed to references to the "existence of local market power" or similar wording.

1.3 Overview

CMSC are paid to *market participants* when the (unconstrained) *market schedule* and (constrained) *dispatch* schedule for a *registered facility* subject to *dispatch* differ (section 3.5 of chapter 9 of the "Market Rules"). The payment is based on the difference between the *energy market* price and the *offer* or *bid* prices for the *registered facility*. If a *registered facility* has local market power, because of the local nature of the *energy* or related product required [1], it may be able to modify its *offer* or *bid* prices to force up its congestion *settlement* credits to unreasonable levels. In *designated constrained off watch zones* where there are persistent and significant *constrained off events*, there may also be a basis for adjusting the congestion *settlement* credits.

[1] The product required may be an increase or decrease in energy production or consumption, including the provision of *reliability must-run* resources.

To review CMSC payments the *IESO* must initially determine which of two procedures it should apply. According to section 1.2.1C of Appendix 7.6 if a *registered facility* in a *designated constrained off watch zone* has received persistent and significant CMSC payments for *constrained off events*, the *IESO* proceeds with the analysis under section 1.4 of Appendix 7.6. Otherwise the *IESO* follows the procedures specified in section 1.3 of Appendix 7.6, which may lead to the analysis and other procedures in section 1.4.

The local market power screens of section 1.3 of Appendix 7.6 are used to determine if local market power may have existed. They also provide an initial limit on the magnitude of CMSC payments associated with *energy* production or withdrawal, by comparing the *offer* and *bid* prices for *energy* to a calculated upper and lower price limit. For persistent and significant *constrained off events*, the initial replacement price represents the basis for an initial recalculation of the CMSC payment. If pricing does justify a recalculation of the CMSC for either type of event, as per Section 1.4.5 of Appendix 7.6, the *IESO* may adjust CMSC payments. In the process the *registered market participant* for an *investigated facility* has opportunities to provide an explanation for the observed prices, may request an alternative price limit be applied (section 1.4.3.2 of Appendix 7.6) and may request an inquiry into its costs (section 1.6.1 of Appendix 7.6) before any *settlement* adjustments are finalized. (*Facilities* which may be constrained due to distribution or connection limitations and which may not receive a CMSC payment, would not be reviewed under Appendix 7.6. Such review only takes place when there is a CMSC payment). The several steps are outlined in section 1.3.1 below, while Appendix B provides a more complete description of the price screen applied to test for local market power, including the use of price duration factors. (See "Local Market Power Mitigation – Price Screen Duration Factors" for the factors and rationale for their selection.)

Appendix E provides criteria to be considered for the designation of an *intertie* as an uncontested export *intertie* and the revocation of such designation, which affects the definition of *reference price* for exports.

Appendix F describes the criteria for the *IESO*'s designation and possible revocation of constrained off watch zones, as well as the criteria for determining whether there have been persistent and significant CMSC payments for *constrained off events*. Appendix F also describes the manner in which the *IESO* may determine an initial replacement price.

The sub-sections below, in particular sub-section 1.4, provide additional information summarizing some of the details of implementation not specified in the "Market Rules".

1.3.1 Summary of Investigation of Local Market Power and Constrained Off Events

The initial step in the review process is to determine whether, according to the criteria of Appendix F, there have been persistent and significant *constrained off events* for a *registered facility* in a *designated constrained off watch zone*. If not, the *market rules* require the application of the 3 initial steps below, which are the local market power tests or screens. In the event of persistent and

significant *constrained off events* for a *registered facility* in a *designated constrained off watch zone* the procedure moves directly to the price investigation of step 4 below.

The seven screens and steps described in "Market Rules" Sections 1.3 through 1.6 of Appendix 7.6 can be summarized as follows.

Local Market Power Screens:

1. Is there a transmission flow constraint on the *IESO-controlled grid* or *security limit* causing the constrained *dispatch*?
2. Does the *offer* or *bid* price associated with the congestion payment exceed the price screens based on the *reference price*s and price duration factors?
3. Is there insufficient competition to respond to the constraint?

   If the answer to all three of these is "yes", then local market power may have existed and this event is subject to further investigation in order to determine if a recalculation of CMSC is justified (section 1.3.12 of Appendix 7.6).[2]

Price Investigation:

4. The *IESO* may conduct other assessments which could explain the bid or offer prices being investigated (section 1.4.1 of Appendix 7.6).

   If these assessments do not indicate that the prices were consistent with certain costs or benefits (section 1.4A.1 of Appendix 7.6), the *IESO* will continue the investigation (section 1.4.3.2 of Appendix 7.6).
5. The *IESO* will provide an opportunity for the *registered market participant* to make representations to explain their bid or offer prices (section 1.4.3.2 of Appendix 7.6).

   If the *IESO* does not find the *investigated price* to be consistent with appropriate costs or benefits (section 1.4A.1of Appendix 7.6), the *IESO* may choose to reduce the congestion payments (section 1.4.5 of Appendix 7.6). For local market power cases, the failed price screen is used to determine the magnitude of the payment adjustment for the *market participant.* For the review of persistent and significant *constrained off events* the *IESO* would use the initial replacement price. For either type of review the *IESO* may agree to an alternative price for the adjustment (sections 1.4.3.2 and 1.4.5.1 of Appendix 7.6)[3]. The *IESO* could instead request an inquiry, if there is some uncertainty as to whether or not there is justification for recalculating the CMSC (section 1.4.6 of Appendix 7.6) or if a re-calculation is justified based on a price other than the price limit calculated (section 1.4.5.2 of Appendix 7.6).

[2] The *market rules* offer some flexibility as to whether and how these screens are to be applied (Sections 1.2.2,, 1.2.6 and 1.3.1), so actual implementation is somewhat more complicated than these steps imply. See Section 1.4.

[3] In practice, it may be more efficient to agree on the CMSC adjustment for the event rather than on the equivalent price. In this and other circumstances where it is acceptable to the *IESO* and *market participant,* agreement on the CMSC adjustment will be treated as equivalent to agreement on the price.

Decision to Adjust CMSC:

6. If the *IESO* intends to reduce CMSC payments, has so notified the *registered market participant*, and the *registered market participant* does not request an inquiry, the *IESO* may then take its intended action (sections 1.4.5A and 1.4.9 of Appendix 7.6).

Proceed with Inquiry:

7. Alternately, if the *registered market participant* or the *IESO* so request, an inquiry is initiated (section 1.6.1 of Appendix 7.6). According to section 1.6. of Appendix 7.6, the inquiry seeks to determine if there was justification for the observed pricing, based primarily on the costs or benefits to the *registered market participant*. In addition to other costs, opportunity costs and a portion of fixed costs are to be considered for *constrained on event*s for *generation units* or *electricity storage units* that inject . For a *dispatchable load* or an *electricity storage unit* that withdraws, the inquiry seeks to establish the value of the consumption or the opportunity costs of not consuming *energy*. If pricing is not shown to be within the cost or value ranges allowed in the *market rules*, the *IESO* can reduce CMSC payments. The costs or value determined in the inquiry then become the benchmark for adjusting payments for the event.

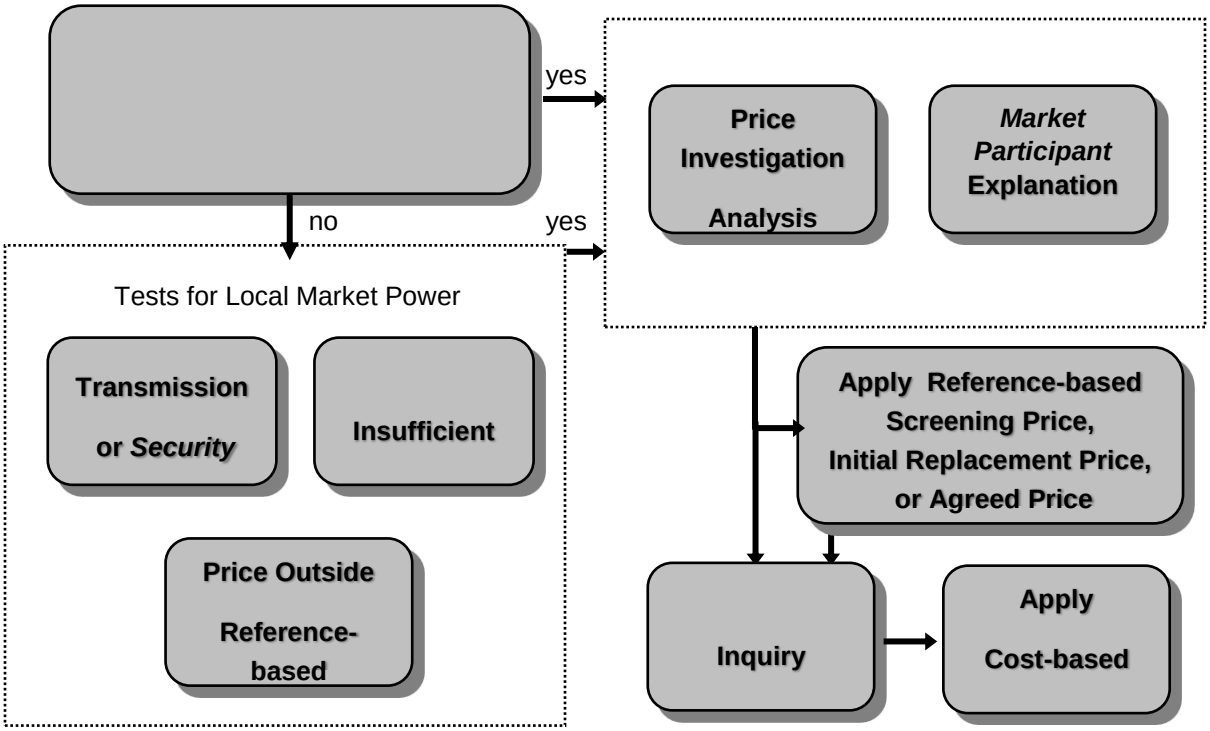


Figure 1-1: Overview of Review Process

Highlights of Procedure Details

This section provides information required to be *published* by the *market rules*. As well it lists certain implementation choices made by the *IESO*, where flexibility has been allowed in the *market rules* or *market rules* are not specific. Appendix C provides additional information regarding details and background for the choices made. Section 1.2.6 of Appendix 7.6 allows the *IESO* to apply some alternate analyses to that specified in section 1.3 of Appendix 7.6, if this is required for any reason. Such alternatives are not identified here, since these would only be determined at the time required. More details about the procedures for *designating constrained off watch zones* and dealing with persistent and significant *constrained off events* are provided in Appendix F.

The implementation of the process recognizes that some aspect of the analyses of Appendix 7.6 are done in each 5 minute *dispatch interval* for each *registered facility*, potentially leading to 288 sets of information (one for each *dispatch interval* of the day) that must be assessed every day for every *facility*. This places a significant burden on automated systems and has obvious implications for any manual processes required. In addition, it is not currently practical in general and through automated tools to relate specific constraints to *registered facilities* impacted. Together these lead to certain simplifications necessary for the implementation.

In summary, the implementation details are as follows:

1. Since it is not currently practical in general to relate specific constraints to *registered facilities* impacted, establishing that there is such a constraint is done through a combination of indirect and direct methods. The initial step is ruling out transmission loss-induced CMSC payments (for local market power reviews only) and those that result from *operating reserve* activation. Other causes not related to transmission or security, if identifiable, will also rule out an event from further review. Nevertheless, the *IESO* will still endeavour to identify specific constraining transmission or security limits, or whether the CMSC is transmission loss-induced in the case of persistent and significant *constrained off events*.
2. Despite the challenge of not being able to link a constraint to specific *facilities* in general, the sufficient competition rule (section 1.3.9 of Appendix 7.6) is applied by identifying which resources could have been used to respond to a constraint. Where required the *IESO* will apply a structural test, which includes a pivotal supplier test. (See section C.1.3 for details.)
3. The duration of a *constrained on event* or *constrained off event* will be calculated for the purpose of the local market power tests as two separate sub-totals daily by counting all corresponding constrained on *dispatch intervals* or constrained off *dispatch intervals* in a given *trading day* irrespective of whether these are consecutive.
4. Where *references prices* are negative, to avoid upper (lower) price limits being below (above) the *reference price*, the calculation of the price limit includes a component recognizing possible negative values, as specified in the *market rules*. (See section 1.3.8 of Appendix 7.6 and Appendix B.1.1 of this *market manual*.)

5. Because data may not be stable until the *final settlement statements* are issued, the *IESO* will begin the review for a particular *trading day* after the corresponding *final settlement statements* are issued.
6. For cases where there are persistent and significant CMSC for constrained off events the *IESO* will not review a *registered facility* unless the daily total *energy* related CMSC payments, induced by transmission flow constraints on the *IESO-controlled grid, security* limits or transmission losses exceeds $500. For other cases the *IESO* will not review the case unless the daily total *energy* related CMSC payments, induced by transmission flow constraints or *security* limits exceeds $500. For a given *dispatch interval*, the *IESO* will not review the results if the price for *investigated facility* is within $2 per MWh of the *energy market price*. (See section 1.2.2 of Appendix 7.6)
7. Where the *IESO* does not perform the analyses contemplated in section 1.4.1 of Appendix 7.6, because of a lack of reliable information, other priorities or because of the low the potential magnitude of the CMSC adjustments, such *facilities* will not be subject to settlement adjustment for the corresponding *constrained on events* or *constrained off events*. (See section 1.4.2 of Appendix 7.6.)
8. The analyses performed will look at various factors like fuel prices, offer price history, prices in other markets and opportunity costs (section 1.4.1 of Appendix 7.6), and will be directed primarily toward determining whether the observed pricing can be explained by costs, opportunity costs or the value or benefits of consumption (section 1.4A.1 of Appendix 7.6).
9. Following notification by the *IESO* of its determination of a possible justification for recalculating the CMSC, a *market participant* will have 5 *business days* to contact the *IESO* to provide an explanation for the prices in question or to request the application by the *IESO* of an alternative price limit. (See section 1.4.3.2 of Appendix 7.6)
10. *Settlement* revisions will be effected on the last day of the current *billing period* (section 1.7.2 of Appendix 7.6), and will appear on the *settlement statements* as charge code 120 (debit to the *metered market participant* for the *investigated facility*) or 170 (credit due to consequential revisions to those paying *hourly uplift*). Since a CMSC adjustment may affect DA_IOG, DA_GCG and SGOL payments, the *IESO* will review those payments in light of CMSC adjustments and modify those as necessary. The *IESO* will endeavour to include those adjustments in the same billing period as the CMSC adjustment.
11. The designation by the *IESO* that an *intertie* is an uncontested export *intertie* (section 1.3.3.4 of Appendix 7.6) and the revocation of such designation, are based on the criteria specified in Appendix E. For exporting *facilities* at such *interties*, the assessment of upper and lower bound price limits will be based only on the current *market price* for *energy*, and not the *historical reference price* for such *facilities*.

1.4 Roles and Responsibilities

Responsibility for carrying out these procedures is shared among:

- ***Market participants***, which are responsible for:
  - receiving notifications from the *IESO* and responding, if necessary;
  - making voluntary representations to the *IESO* regarding the observed pricing; and
  - providing in a timely and accurate manner, all information requested by the *IESO* for an inquiry.
- The ***market surveillance panel***, which has the authority for:
  - developing and proposing to the *IESO Board* a set of price screen duration factors used in determining high and low end price limits (per Section 1.3.5 of Appendix 7.6). (See "Local Market Power Mitigation – Price Screen Duration Factors".)
- The ***IESO***, which is responsible for:
  - designating and revoking designations for constrained off watch zones and uncontested export interties;
  - performing initial screening assessments, including the determination of persistent and significant constrained off events, any analyses required for price investigations, calculating revised prices, *settlement* credit adjustments and any interest calculations;
  - determining whether there is justification for recalculating CMSC;
  - preparing explanations of actions and notifying *registered market participants* for *investigated facilities* of findings and intended actions at various specified times in the process;
  - conducting any inquiries;
  - maintaining appropriate confidentiality; and
  - applying *settlement* credit adjustments, interest and consequential revisions for affected *market participants*.

1.5 Contact Information

As part of the participant authorization and registration process, applicants are able to identify a range of contacts within their organization that address specific areas of market operations. For the investigation under Appendix 7.6, this contact will most likely be the Non-Compliance Contact Type as indicated in PLC (MP Contacts screens) for the *registered market participant* for the *investigated facility*. If a *market participant* has not identified a specific contact, the *IESO* will seek to contact the Main Contact in PLC that is established during the participant authorization process. The *IESO* will seek to contact these individuals for activities within this procedure, unless alternative arrangements have been established between the *IESO* and the *market participant*. For more information on PLC and the participant authorization process see *Market Entry, Maintenance and Exit, Part 1.1 – Participant Authorization Maintenance and Exit.*

Unless otherwise specified in a notice to the *market participant*, if the *market participant* wishes to contact the *IESO*, the *market participant* can contact the *IESO* Market Relations Help Centre via email at *customer.relations@ieso.ca* or via telephone, mail or courier to the numbers and addresses given on the *IESO's* Web site (www.ieso.ca - or click on 'Have a question?' to go to the 'Contacting the IESO' page). If the *IESO* Help Centre is closed, telephone messages or emails may be left in relevant voice or electronic *IESO* mail boxes, which will be answered as soon as possible by Help Centre staff. If a specific alternative contact is specified in the notices or communication with *market participant*, the *market participant* may contact such *IESO* staff directly.

Standard forms that *market participants* may use for this procedure are listed in Appendix A. These forms are generally available for downloading on the *IESO*'s public Web site. These forms as well as any accompanying supporting documentation must be transmitted to the *IESO* via mail, fax or courier, by using the appropriate address or number provided on the *IESO*'s public Web site, if not otherwise identified on the form. All correspondence relating to this procedure shall identify the subject: Local Market Power, and include any case numbers designated by the *IESO*. Documentation where it is not a requirement to be mailed or couriered, can also be emailed to macd@ieso.ca.

- End of Section -

2. Procedural Work Flow

The diagrams in this section represent the flow of work and information between the *IESO* and the *registered market participant* for the *investigated facility* involved in the process.

The steps illustrated in the diagrams are described in detail in Section 3 below.

Figure 2-1 shows the process Following Identification of the Possible Justification for and Revisions to CMSC, for which the procedural steps appear in Table 3-1 of section 3.1. Figure 2-2 shows the process for a Local Market Power Inquiry, for which the procedural steps appear in Table 3-2 of section 3.2.

Table 2–1: Legend for Work Flow Diagrams

Legend	Description
Oval	An event that triggers task or that completes task. Trigger events and completion events are numbered sequentially within procedure (01 to 99)
Task Box	Shows reference number party responsible for performing task (if "other party"), and task name or brief summary of task. Reference number (e.g., 1A.02) indicates procedure number within current *market manual* (1), sub-procedure identifier (if applicable) (A), and task number (02)
Solid horizontal line	Shows information flow between the *IESO* and external parties
Solid vertical line	Shows linkage between tasks
Broken line	Links trigger events and completion events to preceding or succeeding task

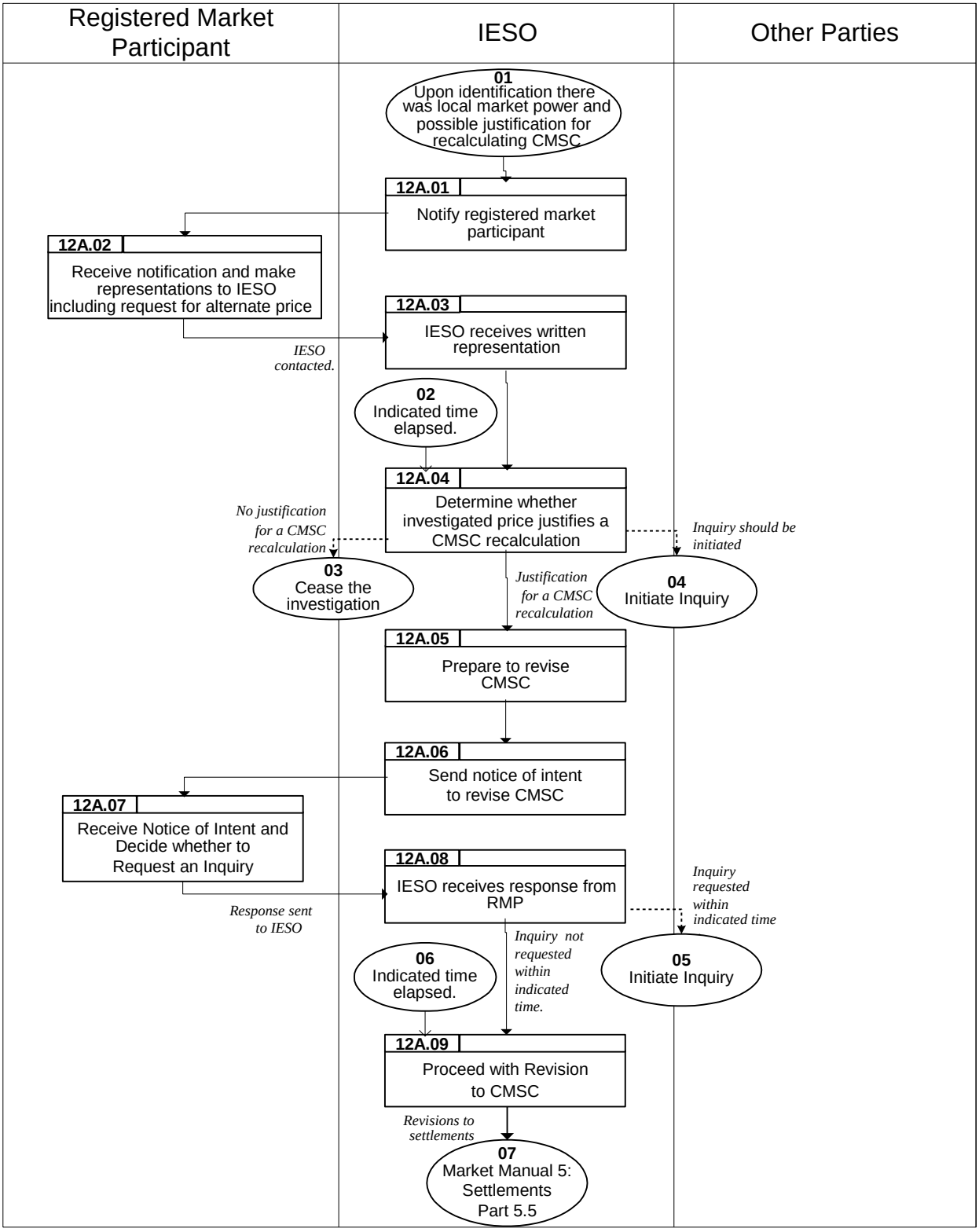


Figure 2–1: Work Flow Following Identification of the Possible Justification for and Revisions to CMSC

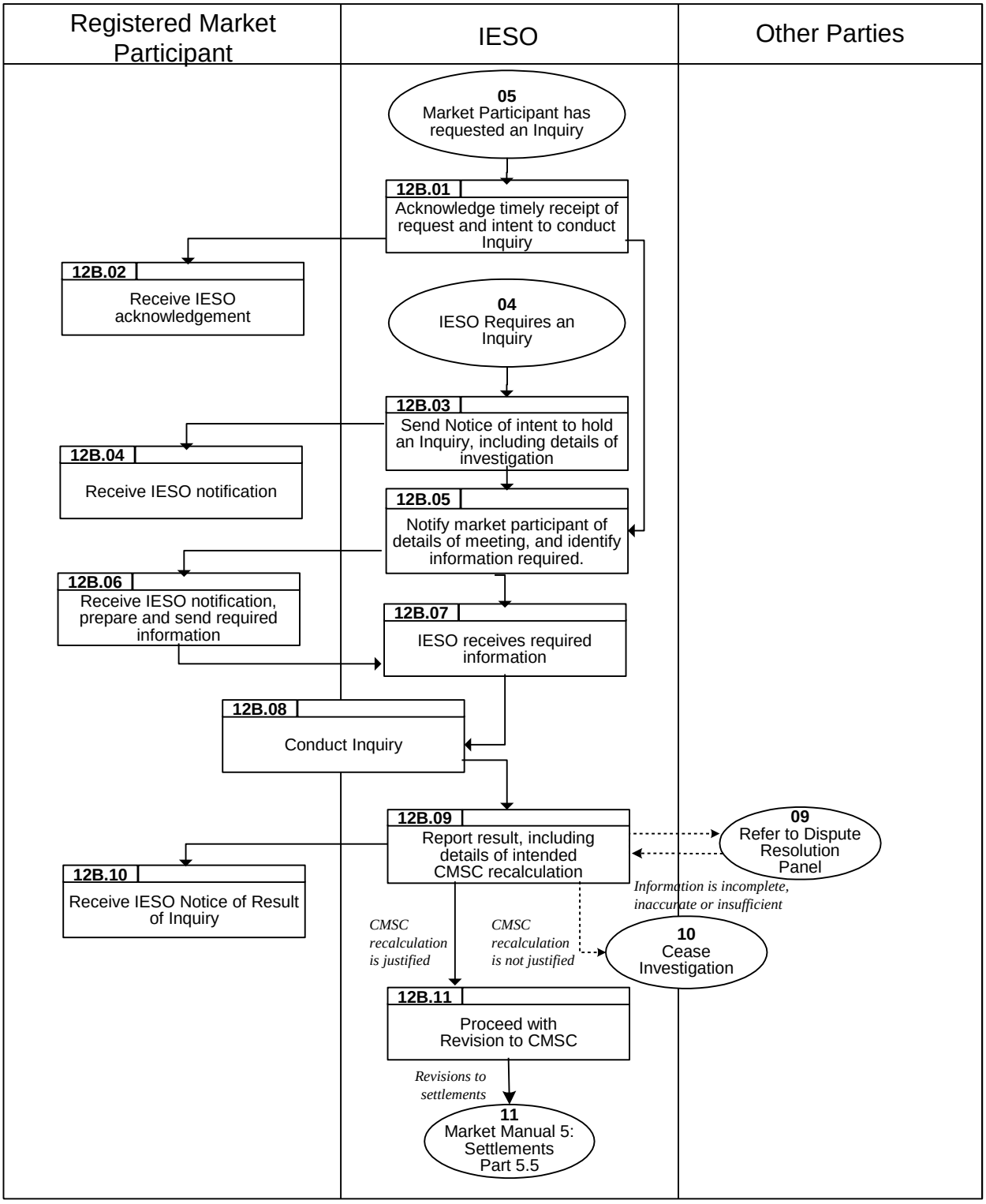


Figure 2–2: Work Flow for Local Market Power Inquiry

– End of Section –

3. Procedural Steps

This section contains detail on the tasks (steps) that comprise the treatment of compliance issues. The tables contain seven columns, as follows:

Ref

The numerical reference to the task.

Task Name

The task name as identified in Section 2.

Task Detail

Detail about the task.

When

A list of all the events that can trigger commencement of the task.

Resulting Information

A list of the information flows that may or must result from the task.

Method

The format and method for each information flow are specified.

Completion Events

A list of all the circumstances in which the task should be deemed finished.

3.1 Identification of the Possible Justification for and Revisions to Settlement Credits

When the *IESO* establishes that there may be justification for recalculating CMSC, following either the establishing of local market power or the existence of persistent and significant *constrained off events*, the *IESO* notifies the *registered market participant* for the *investigated facility*, providing it a reasonable opportunity (five *business days*, unless otherwise stated), to explain the observed pricing. Following such representation, if any, the *IESO* determines whether to cease further action, launch an inquiry, or proceed with a revision to CMSC. If the *IESO* intends to revise CMSC, the *IESO* is to again contact the *registered market participant*. In this second notice the *IESO* is to state the grounds for such action, the approximate price and CMSC adjustment involved. The *registered market participant* has five *business days* after the receipt of the notice to request an inquiry. If no inquiry is requested within this time the *IESO* may proceed to adjust the CMSC *amount*. Otherwise an inquiry is to be initiated. The specific Steps, excluding the process for the inquiry, are shown in Table 3-1 and are illustrated in Section 2, Figure 2–1. See Table 3-2 and Figure 2-2 for the Steps associated with an Inquiry.

Interaction summary:

There are several opportunities for both the *IESO* to provide information to the *market participant* and for the *market participant* to provide information to the *IESO*.

a. After obtaining each day's worth of *settlement* data, the *IESO* will assess it and identify possible events for further investigation. Details and summaries of the events will be captured in a (password protected) Microsoft Excel spreadsheet which will be sent to the applicable *market participant* by email, for each *trade day*. The magnitude of possible CMSC revisions are provided in the data, and calculated using the same price limits which are calculated for the local market power price screen or initial replacement price, as appropriate. The *market participant* has 5 *business days* to make comments including requesting an alternative price limit be applied.

b. Following these comments, the *IESO* will review the events, and confirm or exclude the identified events based on criteria specified in the *market rules* and as explained in this *market manual*. If the matter continues, the *market participant* and the *IESO* may agree to an alternative price, if so requested by the *market participant*[4]. Subsequently, a revised list of events, again with details of the calculation and other associated information, is sent to the *market participant*, in another (password protected) spreadsheet file. The *market participant* has 5 *business days* from receipt of the notice to request an inquiry.

c. If the *market participant* does not request an inquiry, *settlement* adjustments are made at the end of the billing cycle. If there is an inquiry, there are no *settlement* adjustments at this point.

[4] In practice, it may be more efficient to agree on the CMSC adjustment for the event rather than on the equivalent price. In this and other circumstances where it is acceptable to the *IESO* and *market participant*, agreement on the CMSC adjustment will be treated as equivalent to agreement on the price.

d. In the inquiry, various cost or other information needs to be provided as specified by the *IESO*, along with other relevant information the *market participant* may offer. The inquiry can conclude that no CMSC adjustment is necessary; or it may establish a price based on cost or other information specified in sections 1.6.3 to 1.6.6 of Appendix 7.6, and use this to recalculate the CMSC, and adjust *settlement* credits.

Table 3–1: Procedural Steps Following Identification of the Possible Justification for and Revisions to CMSC

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12A.01	Notify *registered market participan*t	Following the analyses of Section 1.4.1 of Appendix 7.6 and based on the criteria in section 1.4A.1 of Appendix 7.6, the *IESO* may conclude there is possible justification for recalculating CMSC. The *registered market participant* is to be notified and provided a reasonable opportunity, as identified in the notice (5 *business days*, unless otherwise specified in notice) to explain why the *investigated price* does not justify the recalculation of CMSC or to request the *IESO* apply an alternative price.	Upon identification that there is possible justification for recalculating CMSC.	Notification of possible CMSC adjustment. "Notice of Possible CMSC Recalculation for Local Market Power" – IMO-FORM- 1439	Fax, courier or email	Notice sent to the *registered market participant*
12A.02	Receive notification and make representations to *IESO* including request for alternate price	The *registered market participant* may decide to contact *IESO* within the specified period to explain observed pricing or request the *IESO* apply an alternative price. This is to be a written response, submitted to the *IESO* The *registered market participant* may choose to take no action at this stage.	Following Step 12A.01	Explanation why pricing does not justify recalculating CMSC. "Response to Notice of Possible CMSC Recalculation for Local Market Power" – IMO- FORM- 1440	Fax, courier or email	*IESO* contacted.

Table 3–1: Procedural Steps Following Identification of the Possible Justification for and Revisions to CMSC

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12A.03	*IESO* receives written explanation	*IESO* receives written explanation.	Following Step 12A.02, if the *registered market participant* has chosen to do so.	Explanation from the *registered market participant*	None	Representation from the *registered market participant* or indicated time elapsed.

Table 3–1: Procedural Steps Following Identification of the Possible Justification for and Revisions to CMSC

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12A.04	Determine whether *investigated price* justifies a recalculation of CMSC.	Based on its analyses and any representation from the *registered market participant*, the *IESO* determines that: • there is no justification for CMSC recalculation, in which case, it ceases the investigation, • there is justification for CMSC recalculation, or • an inquiry should be initiated (see Section 3.2). The *registered market participant* and *IESO* may agree to an alternative price if the *IESO* intends to perform a CMSC recalculation. An inquiry could be initiated if the outcome is unclear, for example if insufficient information has been voluntarily provided. If the investigation is to be terminated, send notification to *registered market participant.*	Following completion of Step 12A.03	If the investigation is to be terminated, notice of such. "Termination of Local Market Power Investigation" – IMO-FORM-1450	Fax, courier or email	Determination of action to be taken, and if the investigation is to be terminated, notification sent to *registered market participant.*

Table 3–1: Procedural Steps Following Identification of the Possible Justification for and Revisions to CMSC

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12A.05	Prepare to revise CMSC	Where *IESO* intends to revise CMSC, it shall : • replace the *investigated price* by the calculated upper or lower price limit or initial replacement price, or an agreed alternate price, and determine magnitude of adjustment • develop written reasons for these determinations	Following step 12A.04, where the determination is to revise CMSC.	Estimate of the revision and written reasons for this determination	None	Indicated information has been developed.
12A.06	Send notice of intent to revise CMSC	Prior to applying the revision to CMSC, the *IESO* shall notify the *registered market participant* of: • the grounds and associated information for such action • estimates of the revisions • the right of the *registered market participant* to request an inquiry The *registered market participant* may request an inquiry within five *business days* of the date of receipt of the notice.	Following step 12A.05	Notification of intent to revise CMSC and grounds for such actions. "Notice of Intent to Revise CMSC for Local Market Power" – IMO- FORM- 1441	Fax, courier or email	Notice sent to *registered market participant*

Table 3–1: Procedural Steps Following Identification of the Possible Justification for and Revisions to CMSC

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12A.07	Receive Notice of Intent and decide whether to request an Inquiry	Within five *business days* following receipt of the *IESO* notice, the *registered market participant* may request an inquiry. Or it may accept the *IESO*'s determination, which leads to a CMSC revision, based on the adjusted price. The *registered market participant* may also notify *IESO* of their intent not to request an inquiry.	Following step 12A.06	The *registered market participant* request for an Inquiry "Request for a Local Market Power Inquiry" – IMO-FORM- 1442	Fax or courier	Response sent to *IESO*, or period elapsed
12A.08	*IESO* receives response from the *registered market participant*	*IESO* receives the *registered market participant*'s response requesting an inquiry. If request for an inquiry is late, notify *registered market participant* that request is denied.	Following Step 12A.07, if *registered market participant* has chosen to submit response.	The *registered market participant* intent to move to an inquiry, and notification if the request is denied. "Denial of Request for a Local Market Power Inquiry" – IMO-FORM-1452	None	*IESO* receives response, or period elapsed. If request for an inquiry is denied, notification is sent.

Table 3–1: Procedural Steps Following Identification of the Possible Justification for and Revisions to CMSC

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12A.09	Proceed with Revision to CMSC	If the *registered market participant* has not requested an inquiry within the indicated time, the *IESO* will revise the CMSC. • Revision to the CMSC, appropriate interest debits and any consequential revisions. The CMSC revision and any interest will appear as debits on the final *preliminary settlement statement* for the *billing period* for the *metered market participant* for the *investigated facility*. Consequential revisions will appear on the *settlements statements* for those *market participants* paying *hourly uplift*.	Following step 12A.08, if no inquiry has been requested within the designated period.	None	None	Revision data is available for inclusion in a *preliminary settlement statement*.

3.2 Process for a Local Market Power Inquiry

The price investigation process described in Section 3.1 may lead to the initiation of an inquiry. Section 1.6 of Appendix 7.6 of the "Market Rules" describes the inquiry process.

Table 3–2: Procedural Steps for a Local Market Power Inquiry

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12B.01	Acknowledge timely receipt of request and intent to conduct Inquiry	Acknowledge timely receipt of *registered market participant's* request for an inquiry, and that the *IESO* will be in contact to arrange a meeting time and location.	*Registered market participant* has requested an Inquiry.	Notification that request was received and Inquiry will be arranged. "Approval of Request for a Local Market Power Inquiry" – IMO-FORM- 1451	Fax, courier or email	Receipt sent to the *registered market participant*
12B.02	Receive *IESO* acknowledgement	*Registered market participant* receives notification from *IESO*.	Following Step 12B.01	*IESO* receipt of request and intent to arrange a meeting.	None	Notification received.

Table 3–2: Procedural Steps for a Local Market Power Inquiry

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12B.03	Send Notice of intent to hold an Inquiry, including details of investigation	*IESO* develops and sends information to registered *market participant*, identifying events still under investigation, price limits applied, estimated CMSC adjustments using these price limits, and the reason for pursuing an inquiry.	*IESO* Requires an Inquiry (Following Step 12A.04, if the *IESO* has chosen to do so).	Description of investigated event and reason for pursuing an Inquiry "Notification of IESO Requirement to Hold a Local Market Power Inquiry" – IMO-FORM- 1453	Fax, courier or email.	Notification sent to the *registered market participant*
12B.04	Receive *IESO* notification	*Registered market participant* receives notification from *IESO*.	Following Step 12B.03	*IESO* requirement to hold a Local Market Power Inquiry.	None	Notification received.
12B.05	Notify *market participant* of details of meeting, and identify information required.	A mutually acceptable date and venue for a meeting is scheduled. The *IESO* formally notifies *registered market participant* of date, time and location arranged for meeting, and all local market power investigated cases to be considered at this meeting. The *IESO* also identifies any information to be provided, requesting submission of this information 3 *business days* in advance of the meeting.	Following step 12B.01 or 12B.03.	Notice of meeting, and information required to be submitted "Notice of Meeting and Request for Information for a Local Market Power Inquiry" – IMO-FORM-1454.	Fax, courier or email.	Notification sent to the *registered market participant*

Table 3–2: Procedural Steps for a Local Market Power Inquiry

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12B.06	Receive *IESO* notification, prepare and send required information	Following notification by *IESO* of meeting particulars and information required, the *registered market participant* prepares the information and submits to *IESO* the information requested.	Following step 12B.05	Information required for inquiry. "Submission of Information Requested for a Local Market Power Inquiry" – IMO-FORM-1455	Fax, courier or email.	Information sent by *registered market participant.*
12B.07	*IESO* receives required information	*IESO* receives information and reviews it in advance of the inquiry meeting. If information has not been received on time, *IESO* may attempt to contact the *registered market participant* to confirm status.	Following step 12B.06	Information requested by the *IESO*.	None	Information received by *IESO*, or period elapsed

Table 3–2: Procedural Steps for a Local Market Power Inquiry

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12B.08	Conduct Inquiry	*IESO* meets with *registered market participant* to establish costs and other relevant information (which may include annual revenues for the *investigated facility*) necessary to establish an upper price range and / or a lower price range based on cost or value, as identified in sections 1.6.3 or 1.6.6 of Appendix 7.6. At such meeting the *IESO* shall provide the *registered market participant* with a reasonable opportunity to make representations as to why the *investigated price* does not justify the re-calculation of CMSC. Formal meeting minutes are issued to ensure proper representation of material presented and discussed. These minutes form part of the input to the decision taken by the *IESO*.	Following step 12B.07, at date and time specified in step 12B.03	Minutes of meeting; identification of costs and other relevant information	Email or fax	Meeting completed.

Table 3–2: Procedural Steps for a Local Market Power Inquiry

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12B.09	Report result, including any details of intended CMSC recalculation	*IESO* determines upper and / or lower price range. As per section 1.6.7 of Appendix 7.6, if the investigated price(s) fall outside the calculated range the *IESO*: • shall replace the *investigated price* with the appropriate upper or lower calculated price; and • shall report such conclusions, including reasons, to the *registered market participant* If the *IESO* determines the *investigated price* is within the allowed range, as per section 1.6.9 of Appendix 7.6, it shall report such conclusion to the *registered market participant* and not take any further action. If data provided during inquiry was inadequate, the *IESO* may refer the matter to the *dispute resolution panel.*	Following step 12B.08.	Result of inquiry "Intent to Revise CMSC Following a Local Market Power Inquiry" – IMO-FORM-1456 or "Termination of Investigation following Local Market Power Inquiry" – IMO-FORM-1457 or "Referral of Local Market Power Inquiry to Dispute Resolution Panel" – IMO- FORM-1458	Fax, courier or email	Notice of result of inquiry sent to the *registered market participant*.
12B.10	Receive *IESO* Notice of Result of Inquiry	Receive *IESO* report.	Following step 12B.09.	Result of inquiry	None	Receipt of *IESO* Report of Inquiry results

Table 3–2: Procedural Steps for a Local Market Power Inquiry

Ref	Task Name	Task Detail	When	Resulting Information	Method	Completion Events
12B.11	Proceed with Revision to CMSC	The *IESO* shall revise CMSC in a manner similar to Step 12A.09.	Following step 12B.09, if result is to perform CMSC recalculation.	None	None	Revised data is available for inclusion in a *preliminary settlement statement* .

- End of Section -

Appendix A: Forms

A.1 Local Market Power Mitigation Forms

The following forms are used in the Local Market Power Mitigation process:

Form Name	Form Number
Notice of Possible CMSC Recalculation for Local Market Power	IMO- FORM- 1439
Response to Notice of Possible CMSC Recalculation for Local Market Power	IMO- FORM- 1440
Notice of Intent to Revise CMSC for Local Market Power	IMO- FORM- 1441
Request for a Local Market Power Inquiry	IMO- FORM- 1442
Termination of Local Market Power Investigation	IMO- FORM-1450
Approval of Request for a Local Market Power Inquiry	IMO- FORM-1451
Denial of Request for a Local Market Power Inquiry	IMO- FORM-1452
Notification of IESO Requirement to Hold a Local Market Power Inquiry	IMO- FORM-1453
Notice of Meeting and Request for Information for a Local Market Power Inquiry	IMO- FORM-1454
Submission of Information Requested for a Local Market Power Inquiry	IMO- FORM-1455
Intent to Revise CMSC Following a Local Market Power Inquiry	IMO- FORM-1456
Termination of Investigation following Local Market Power Inquiry	IMO- FORM-1457
Referral of Local Market Power Inquiry to Dispute Resolution Panel	IMO- FORM-1458

- End of Section -

Appendix B: Summary of Price Screen Calculations

B.1 Price Screen Calculation

The "Market Rules" Section 1.3.5 through 1.3.8, define how to develop a high end price and a low end price to be used as screens for identifying if local market power existed. Prices may be unacceptable if they fall outside the calculated limits.

To determine the high and low ends of the range, the *IESO* must first calculate high and low prices for each of two references prices. These high and low prices are also dependent on high and low end factors. The sections below describe how:

- the high end and low end of the price range are calculated, (Section 1.3.8 of Appendix 7.6 of the "Market Rules")
- the applicable high end factors and low end factors are derived from component duration factors, which are functions of the consecutive and cumulative hours constrained (Sections 1.3.6 through 1.3.8 of Appendix 7.6 of the "Market Rules").

Note that the price duration factors mentioned here are specified in the *IESO* Standards document "Local Market Power Mitigation – Price Screen Duration Factors".

The following briefly summarizes the approach indicated in the "Market Rules" for determining the upper (high end) price limit. The *market rules* for developing the lower (low end) price limit are similar.

- The upper price limit is determined as the higher of two separate limits, one based on the *reference price* which is the current *market price* for *energy*, the second based on the historical *reference price* for the *facility* (the 90 day average bid or offer price or, for hydroelectric *facilities*, the 30 day average MCP). There are two separate *historical reference prices,* one for the period from 7:00 to 23:00 EST on *business days* (Period A) and one for all other times (Period B)[5]. If fewer than fifteen days of data (or 10 days for hydroelectric *facilities*) are included in the *historical reference price* only the first *reference price* (the current *market price* for *energy*) will be used to establish the price limit. Similarly, for a withdrawing *boundary entity* at an uncontested export *intertie*, only the current *market price* for *energy* is used for calculating price limits.
- The upper price limit associated with former *reference price (*the *market price* for *energy)* is the smaller of two values, based on:

[5] The labels 'Period A' and 'Period B' are for convenience only. There are no formal names for these two time periods. Period A and Period B are similar to but not precisely the same as industry definitions for on-peak and off-peak (respectively).

a. *market price* for *energy* and the high end factor based on the cumulative hours

b. *market price* for *energy* and the high end factor based on the consecutive hours

- The price limit associated with the *historical reference price* is similarly defined, but uses cumulative and consecutive hour duration factors which may be different from those used with the *market price* for *energy*.

For a *constrained on generation unit* (or *constrained off dispatchable load*), if the current *offer* (*bid*) price is greater than the allowed upper price limit (the higher of the limits based on the two *reference prices*), the price screen fails, i.e. the *facility* may be investigated further.

For a *constrained off generation unit* (or *constrained on dispatchable load*), if the current *offer* (*bid*) price is less than the allowed lower price (the lower of the limits based on the two *reference prices*), the price screen fails.

If it is determined that a CMSC recalculation is needed, only the appropriate high end or low end price would replace any price in the offer or bid curve which is beyond the limit.

B.1.1 High and Low End Duration Factors

The *market rules* specify how higher and lower limits are derived from duration factors for each of the two *reference prices* (section 1.3.8 of Appendix 7.6) . In general price limits are calculated using an equation of the form:

reference price + absolute value (*reference price)* x (factor –1)

For the high end price limit associated with the *historical reference price*, take the lesser of the two high end prices where one is based on consecutive hours and the other based on cumulative hours (section 1.3.8.1 a, b, Appendix 7.6). The two high end prices related to the *historical reference price* are calculated as[6]:

Consecutive hours high end historical price = $HP + [h_{Hist\text{-}Consec}\text{-}1]*Abs[HP]$

Cumulative hours high end historical price = $HP + [h_{Hist\text{-}Cumul}\text{-}1]*Abs[HP]$

The high end historical price is the lesser of these two high end prices.

Similarly, for the *reference price* based on the *energy market* price (the 'current' price)

Consecutive hours high end current price = $EMP + [h_{EMP\text{-}Consec}\text{-}1]*Abs[EMP]$

Cumulative hours high end current price = $EMP + [h_{EMP\text{-}Cumul}\text{-}1]*Abs[EMP]$

and the high end current price is the lesser of these two high end prices.

where

[6] The change to the original definition, which had the form factor * reference price, was necessitated to accommodate reference prices which may have negative values. The above formulation is equivalent to factor * reference price when the reference price is positive.

EMP is the *energy market* price (the 'current' price) at the *delivery point* or *intertie metering point* relevant to the *investigated facility* for the *dispatch interval* associated with the *investigated price*

HP is the *historical reference price* (a 90 day average of the highest price for the *facility* accepted in the *market schedule* for each *dispatch interval.* There is a separate *Period A historical reference price* and *Period B historical reference price*)

Abs[X] is the absolute value of X

$h_{Hist\text{-}Consec}$ etc. represent high end factors for consecutive or cumulative durations, for either the *historical reference price* (or the *reference price* which is the current *market price* for *energy)*

Note, in the above, the high end prices could also be derived by defining intermediate factors:

$h_{Hist} = \min (h_{Hist\text{-}Consec}, , h_{Hist\text{-}Cumul})$

and

$h_{EMP} = \min (h_{EMP\text{-}Consec} , h_{EMP\text{-}Cumul})$

and using these with the corresponding *reference price.* This form is easier to work with and understand. It indicates that separate duration factors are derived for consecutive hours and for cumulative hours. The lesser of these two factors is to be used for establishing the higher price limit. Since high end factors are larger than 100%, taking the lesser of these two factors leads to a lower high price range and lower allowed congestion payments.

Similarly, for the low end prices (section 1.3.8.2 a, b)

Consecutive hours low end historical price = $HP + [l_{Hist\text{-}Consec}\text{-}1]*Abs[HP]$

Cumulative hours low end historical price = $HP + [l_{Hist\text{-}Cumul}\text{-}1]*Abs[HP]$

and the low end historical price is the larger of these two high end prices.

Consecutive hours low end current price = $EMP + [l_{EMP\text{-}Consec}\text{-}1]*Abs[EMP]$

Cumulative hours low end current price = $EMP + [l_{EMP\text{-}Cumul}\text{-}1]*Abs[EMP]$

and the low end current price is the larger of these two high end prices.

where

l_{Hist}etc. are the lower price duration factors for the *historical reference price* HP, etc.

Again, these equations are equivalent to saying:

$l_{Hist} = \max (l_{Hist\text{-}Consec}, , l_{Hist\text{-}Cumul})$

and

$l_{EMP} = \max (l_{EMP\text{-}Consec} , l_{EMP\text{-}Cumul})$

The larger of these two factors is to be used for establishing the lower price range. Taking the larger factor leads to a higher low end price limit and lower allowed congestion payments.

B.1.2 Calculation of High End or Low End Price Limit

The allowed upper limit for the price is the larger of two high end prices (section 1.3.8.1 c.):

Allowed Upper Price = max [high end historical price, high end current price]

For a *constrained on generation unit* (*constrained off dispatchable load*), if the current *offer* (*bid*) price > allowed upper range, the price screen fails, i.e. the *facility* may be investigated further. Taking the higher of the two prices above means that an *offer* (*bid*) price is accepted if it falls within the limit established by either the *historical reference price* or *reference price* using the *market price* for *energy* .

The allowed lower price limit is the lesser of two low end prices (section 1.3.8.2 c):

Allowed Lower Price = min [low end historical price, low end current price]

For a *constrained off generation unit* (*constrained on dispatchable load*), if the current *offer* (*bid*) price < allowed lower range, the price screen fails.

- End of Section -

Appendix C: Highlights of Implementation Details

This Appendix provides additional information regarding some of the details of implementation not specified in the "Market Rules", and provides some background for information which is required to be *published* by section 1.2.2 of Appendix 7.6 of the "Market Rules". Appendix F provides further information about criteria and procedures specific to the *designation of constrained off watch zones* and for identifying and dealing with persistent and significant CMSC for *constrained off events*.

C.1 Practical Limitations and Implementation Implications

The three initial steps or screens in the process for determining whether local market power existed are:

1. there is a transmission flow constraint within Ontario or *security limit* causing the constrained *dispatch*,
2. the *offer* or *bid* price associated with the congestion payment exceeds the calculated price limits, and
3. there is insufficient competition to respond to the constraint.

Because of difficulties in identifying and dealing with constraint information after-the-fact, the implementation of the 1st and 3rd steps requires some explanation.

C.1.1 Limitations of Available Constraint Data

To determine the existence of local market power, the *IESO* must identify that CMSC payments have been induced by transmission flow constraint on the *IESO-controlled grid* or *security limit*. In practice, there are three sources for such constraints as they may impact on the *real-time schedule* submitted to *registered facilities*.

- The DSO (Dispatch Scheduling Optimizer) automatically performs a *security* analysis on pre-determined candidate constraints. There are approximately a thousand such possible constraints, many of which may be binding under one of many contingency conditions. The DSO identifies those several constraints which may be binding in each 5 –minute *dispatch interval*, from amongst the several thousand variations possibly active.
- *IESO* control room operators may over-ride the DSO results, set limits and otherwise modify the DSO calculated *dispatch* if necessary for system *security*. Such actions would be noted in the operator's log.
- *Registered facilities* may be constrained on or constrained off, to provide more or less *energy* than in the unconstrained *market schedule*, in response to local reserve

requirements which are induced by transmission limitations. The DSO identifies the local reserve limitations but not how these constrain *energy dispatched*.

For the very large number of possible constraints, in the first instance, it is currently not practical to have an automated process translate the specific contingency into the *registered* facilities that may have been affected. With respect to operator logs, this is not a data source which can be used as the basis for automated analysis. In the third case where energy dispatch may be constrained indirectly because of local reserve requirements, no direct information is available.

The consequence is that although binding constraints may be identifiable for most situations, it is not feasible to translate this information into impacts on all registered facilities which may have been or were potentially affected.

C.1.2 Identification of Registered Facilities Affected by Constraints

A combination of indirect and direct assessments is applied to satisfy the requirements of section 1.3.1 of Appendix 7.6, whereby other factors are ruled out in order to establish that the CMSC was induced by a relevant constraint. This is applicable for establishing the existence of local market power and the determination of cause of CMSC for persistent and significant constrained off events (under Appendix F, section F.4 iii).

There appear to be several causes, or categories, for CMSC payments other than those induced by transmission flow constraints and security limits which justify excluding the event from review.

Transmission losses are a significant cause for CMSC payments being generated (i.e. as the result of differences in the market schedule and real-time schedule). To rule out losses, for testing whether local market power existed, a test is applied to determine if the investigated price is close enough to the uniform market price for energy for Ontario that selection may have been induced by transmission losses. Since this can lead to constraining a unit on or off, investigated prices are compared to the uniform market price for energy for Ontario plus or minus 30%.

The 30% factor represents a very high level of incremental losses, which would rarely be exceeded in most parts of Ontario7. (It is possible, at a future date, to refine the calculation to be more area specific.)

Another common situation where a CMSC payment may be generated, but not be reviewed under Appendix 7.6, is the case where a facility has been providing operating reserve. If the facility is dispatched manually by the operators to provide energy in response to a contingency, there may be a CMSC payment. Such information is readily available for automated processing, and if identified, will lead to such CMSC payment not being reviewed under Appendix 7.6.

[7] Losses in the furthest northwestern areas of the province can be larger, and may be accounted for following the price screen.

There are also other system requirements or causes for CMSC, such as the multiple ramp rates used in the market schedule, constraining facilities on or off to ensure system *adequacy*. To the extent these various causes are identifiable, CMSC induced by these will be ruled out from further review.

Nevertheless, where the *IESO* investigates a *facility* for possible recalculation of CMSC, it will still endeavour to identify specific constraining transmission or security limits or whether it was transmission loss-induced.

C.1.3 Screen for Sufficient Competition

This describes the general approach of the *IESO* to determine whether there is 'sufficient competition' as required under section 1.3.9 of Appendix 7.6 of the "Market Rules". Sufficient competition is one of three tests required to establish that local market power existed as set out in Appendix 7.6.

Note that the approach taken here is not necessarily consistent with analyses that the Market Surveillance Panel (MSP) might consider in its assessment of market power or the exercise of market power. Such differences reflect the different purposes for analyses, conclusions and remedies available to the MSP related to the market as a whole as distinct from the review carried out by the *IESO* under Appendix 7.6.

Statement of the Sufficient Competition Test

Section 1.3.9 of Appendix 7.6 of the "Market Rules" specifies that the *IESO* shall determine if sufficient competition existed based on the number of *market participants* and MW quantities which could have effectively responded, that is, which could alternatively been used to satisfy the constraint. The *market rules* indicate which MW are to be considered in the assessment, namely the magnitude of MW which could have been constrained on or constrained off. This defines the geographic sub-market for which sufficient competition is to be determined, as well as the resources which could have competed in that sub-market.

Essentially, the service being sought in the constrained schedule is an increase or decrease in MW relative to the selection in the market schedule, in the electrical area of interest:

- For situations where more MW of supply are required in an area, additional supply above the market schedule might be provided by generation, imports, or *electricity storage units* that inject or consumption below the market schedule by dispatchable loads, exports, or *electricity storage units* that withdraw may satisfy the requirement;
- For situations where fewer MW of supply are required in an area, reduced supply below the market schedule by generation, imports, or *electricity storage units* that inject may satisfy the requirement, or additional consumption/withdrawals above the market schedule might be provided by dispatchable loads, *electricity storage units* that withdraw or exports.

The limit for increasing supply or consumption is the difference between the market schedule and the maximum bid or offer. The limit for reducing supply or consumption is the market schedule quantity.

If it is determined that a *facility* has failed the price screens contained in Appendix 7.6, the *IESO* may pursue an adjustment to the CMSC unless there is evidence, based on the following tests, that there was 'sufficient competition'. According to section 1.3.9, these tests would consider those resources bid or offered, and whether they able to increase or decrease supply or consumption, as necessary, relative to the amount already scheduled in the *market schedule*:

1. There must be at least three (3) other competitors technically able to provide some portion of the required service; and
2. The total capacity available from competitors must be greater than the constrained on (or off) requirement.

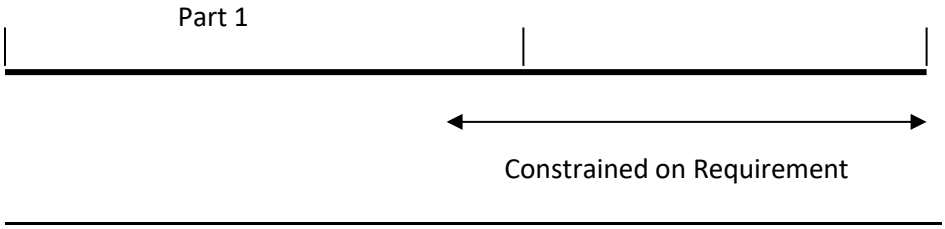
Thus, if there are at least 3 other *market participants* with resources (*generators*, *dispatchable loads, electricity storage participants,* or *boundary entities*) that in total are able to meet the constrained on (or off) requirement, the review under Appendix 7.6 would end.

The second test, also referred to as the pivotal test, involves the *market participant* being viewed as a pivotal supplier if at least 1 MW of the *market participant's facilities* were necessary to be constrained on or off, in order to satisfy the transmission or *security* requirement.

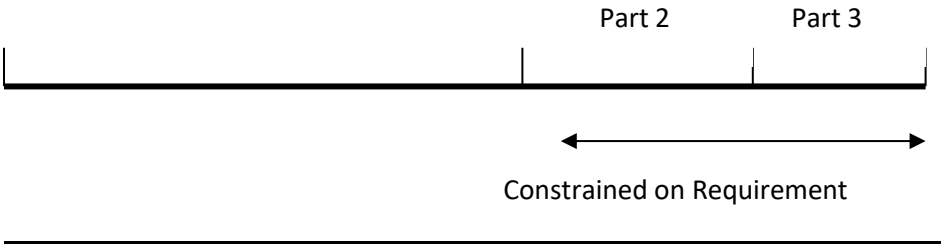
Examples

In the examples below, the range shown represents for each participant (Part 1, Part 2, etc.) the resources available to be constrained to meet a local requirement. In these examples the local condition requires constraining on resources, represented by the line with the double-sided arrow.

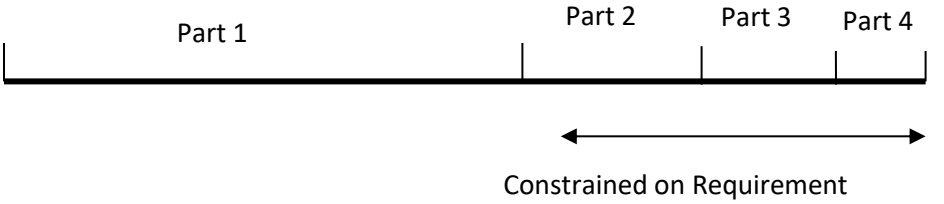
Case 1: Insufficient Competition - Participant 1 is pivotal



Case 2: Insufficient Competition - Participant 1 not pivotal, but only two other competitors.



Case 3: Sufficient Competition – Participant 1 not pivotal, 3 other competitors



Implementation

Sometimes when investigated resources are constrained on or off, the resources from one or two suppliers are critical to satisfying the security problem. The resources are critical in the sense that only they are technically able to respond in the time required to satisfy the dispatch instructions. Under these circumstances the *IESO* would conclude there was insufficient competition.

In circumstances where there may have been several alternatives for satisfying the requirement, if there is some question whether particular resources were critical, a more formal determination and complete assessment of available resources may be needed.

This analysis would be applied to the *bids* and *offers* that had been submitted for the period under investigation. That is, availability would be defined in terms of the submitted *dispatch data* and any *outages* or deratings of these *facilities*. In the case of imports or exports the timing of the decision being taken would also be relevant for determining whether these could have effectively responded to the need.

It is possible that resources in different locations electrically may have a considerably different impact on a particular constraint. For example, 90% of the output from a unit may flow across a congested line, while only 10% of the flow from another unit impacts the line. In this situation, treating each MW as equivalent is not appropriate and the *IESO* would modify the analysis accordingly, recognizing the effective impact of the MW available.

Application of this test above refers to specific *facilities* which could have been selected as an alternative to the *investigated facility*. However, such analysis cannot be performed unless it is first established which constraint is active, and then which *facilities* would have been in competition with the *investigated facility* to help deal with this constraint. As indicated [above] in section C.1.2, after-the-fact determination of the constraint and related resources cannot always be precise. In its

assessment of sufficient competition the *IESO* will conclude such relationships based first on the determination of the constraint and then the resources likely affected.

With this approach *boundary entities* in southern Ontario typically would not be seen as pivotal for most transmission or *security* induced constraints. In the *predispatch* they may be competing with other *boundary entities* at the same *intertie zone*, with *facilities* in Ontario and may be competing with *boundary entities* at other *intertie zones* as well, depending on the nature of the constraint. Under these circumstances it is likely the *IESO* would conclude that there is sufficient competition in the *predispatch*, unless the relevant constraint was highly localized.

One exception to this is that all imports and exports curtailed by the Transmission Loading Relief (TLR) process receiving CMSC are considered pivotal. The reason for this is that the selection of transactions to be cut and how much is cut is determined by a NERC tool[8] which does not consider economics. There is no discretion permitted the IESO to substitute other transactions. The IESO must cut all specified transactions by the proportionate amount as calculated by the NERC tool.

The designation as an uncontested export *intertie* does not prevent the application of the sufficient competition screen. It is possible that an export at a designated *intertie* is constrained off at a time where there are several other competitors able to respond. Such competitors could be located at the designated *intertie*, at another *intertie* or may be *generation, dispatchable load facilities,* or *electricity storage facilities* nearby in Ontario. Thus although the *facility* may exhibit prices above the price limit based on the *market price* for *energy* (which becomes the effective *reference price* for exports at designated *interties*), the local market power investigation may still be terminated because there is sufficient local competition at the time.

C.1.4 The Duration of a Constrained on Event or Constrained off Event

The duration of a *constrained on event* or *constrained off event* must be determined in a simplified way.

In part, this is due to the sometimes limited information relating to the underlying flow or *security* constraint and the resulting *dispatch*. In this context it is not always possible to determine the consecutive period of time a resource is constrained on (for example) because of a specific transmission flow or *security* constraint which has emerged. The actual elapsed time for the underlying constraint would not be known in the current analyses described above.

Moreover, based on testing results, it appears that *dispatch instructions* appear to change relatively frequently, more so for units which are closer to the *energy market* price and the marginal units,

[8] The TLR process is a NERC procedure followed by the IESO and other reliability coordinators, to deal with potentially unacceptable flows on critical flowgates in the interconnected network. It is described in NERC Procedure Standard IRO-006-1 — Reliability Coordination — Transmission Loading Relief ftp://www.nerc.com/pub/sys/all_updl/standards/rs/IRO-006-1.pdf. Depending on the nature of the problem a reliability coordinator will identify a problem, run the NERC Interchange Distribution Calculator (IDC) which specifies how much of which intertie transactions must be cut, and notifies other coordinators of specific cuts needed. Imports or exports to Ontario cut by the process for flow problems in Ontario or at its interties would be treated as constrained off and potentially receive CMSC.

even though it is suspected that the underlying constraints are not changing as often. This may be the result of the DSO finding slightly different optimal solutions as conditions change slightly on the system.

Under these circumstances, a simplified determination of the event duration will be applied. Within a given *trading day* (24 hour period), there will be one count accumulating all constrained off *dispatches* and another count for all constrained on *dispatches* for a given *registered facility*. One of these two duration counters will be used to determine the price limit for the *investigated price*.

Note that even though the event duration may represent many 5-minute *dispatch intervals* within a day, the price investigation must take place for each 5-minute *dispatch interval*, rather than once for the day or hour. This is necessary since the upper and lower price limits vary with the *energy market* price in each 5 minute *dispatch interval*.

C.2 Timing of Processing and Relation to an Event

A range of data is required to perform the review under Appendix 7.6. Until all such data is available and stable it is impractical for the *IESO* to perform and complete the screening and assessments of Appendix 7.6 which includes several manual steps. The stability of the data is not anticipated to happen until the *final settlement statements* for a trading date have been issued. Currently, such *final settlement statements* are to be issued 20 *business days* after the trading date. This is the point at which the Market Assessment & Compliance Division will begin the assessments under Appendix 7.6

C.3 Reference Prices

Section 1.3.3 of Appendix 7.6 describes two *reference prices* to be used as part of the tests for local market power.

One *reference price* is the *market price* for *energy*, which would be the appropriate zonal price for the 5-minute *dispatch interval*, also used for calculating the CMSC.

The second *reference price* is the *historical reference price* for the *investigated facility* which may be either for the period from 7:00 to 23:00 EST on *business days* (referred to as Period A for convenience) or the period including all other hours (Period B). This is calculated as the unweighted average of the prices submitted by the *registered market participant* for the *investigated facility* which were accepted by the *IESO* in the *market schedules* for all *dispatch intervals* in the ninety days preceding the date in question. For hydroelectric *facilities* the *historical reference price* is a thirty day average based on the MCP rather then submitted prices. *Dispatch intervals* in the period from 7:00 through 23:00 EST on *business days* are used to establish the *historical reference pric*e applied to subsequent intervals in this time range. Similarly a separate unweighted average is calculated and applied to *dispatch intervals* in all other hours.. The price for any *dispatch interval* is taken as the *offer* or *bid* price corresponding to the quantity in the *market schedule*.

If there are fewer than fifteen days worth of data in the previous 90 days, or ten days in the previous 30 days for hydroelectric *facilities*, only the *market price* for *energy* is used to establish the price screens.

A possible alternative *reference price* based on increments of supply or consumption is identified in Section 1.3.4 of Appendix 7.6, but this has not yet been established for use in these screens.

C.4 Materiality Thresholds for Screening

Section 1.2.2 of Appendix 7.6 indicates that the *IESO* is not required to perform the initial analyses (and subsequent actions) if the event in question is not material. More specifically, if the maximum credit adjustment falls below a *published* threshold (that is, the value below) or if the impact on *offer* or *bid* price is not material, the *IESO* need not perform the analyses.

The maximum credit impact threshold is applied to events subject to review, by comparing:

1. the total daily CMSC *energy* credit for a given *facility* for a single *trading day*, and a fixed dollar amount, $X = $500, i.e. daily total CMSC vs. $X. The comparison will be made to the daily total of all CMSC for the *facility* as well as to the daily total comprised only of those payments and congestion events which may be subject to adjustments, i.e. those that may have been induced by a transmission flow constraint or *security limit.*

The materiality of the price impact is checked for each 5 minute *dispatch interval* subject to review, by comparing:

2. the absolute difference between the *investigated price* and the 5 minute *energy market* price (EMP), and a price threshold Z = $2 per MWh, i.e. ABS (Price – EMP) vs. $Z per MWh

It is possible for the *energy* component of CMSC for a *dispatch interval* to be negative. The *IESO* would not review the prices for these.

C.5 Decision to Perform Price Investigation

According to section 1.4.1 of Appendix 7.6, if an *investigated facility* has failed the three screens indicating that local market power existed, or if there have been persistent and significant *constrained off events*, the *IESO* is to conduct further analyses to determine whether or not there is possible justification for recalculating CMSC. However, the *IESO* is not compelled to perform such analysis and may cease the investigation (section 1.4.2 of Appendix 7.6) if:

- insufficient reliable information is available,
- the effort is large relative to the materiality of the price impact, or
- there are higher priority activities related to local market power mitigation, to be performed.

To the extent that certain additional analyses can be automated, the *IESO* will endeavour to apply these to all *investigated facilities* and events. The analyses performed will be directed toward

determining whether the observed pricing can be explained by opportunity costs or other costs. (See section C.7A.)

However, this will not be possible in all cases, so the *IESO* will prioritize activities taking into account the following or other relevant factors:

- the potential magnitude of the CMSC adjustments, and / or
- the extent to which *investigated price*s exceed the price screen limits or initial replacement prices.

Facilities excluded as the result of such prioritization will not be subject to CMSC adjustment for the corresponding constrained *on events* or *constrained off events* (section 1.4.2 of Appendix 7.6).

C.6 Opportunity for Representation by Market Participant

Under section 1.4.3.2 of Appendix 7.6, if the *IESO* determines that there may be justification for recalculating CMSC, the *registered market participant* for the *investigated facility* is to be provided a reasonable opportunity to make representations regarding the *investigated price*. At this time the *registered market participant* may also request that the *IESO* apply an alternative price limit to replace the *investigated price* when calculating the CMSC adjustment. The *IESO* considers 5 *business days* as a reasonable period, and will provide the *registered market participant* opportunity to contact the *IESO* through written material to make such representations. If circumstances require and a longer period of time is allowed for response, this would be indicated in the notice (IMO-FORM-1339) sent to the *registered market participant* or subsequent communication.

In practice, it may be more efficient to agree on the CMSC adjustment for the event rather than on the equivalent price. In this and other circumstances where it is acceptable to the *IESO* and *market participant,* agreement on the CMSC adjustment will be treated as equivalent to agreement on the price.

C.7 [Intentionally left blank – section deleted]

C.7A Decision to Recalculate and Revise CMSC

After the *IESO* has established the existence of local market power or has identified persistent and significant *constrained off events*, section 1.4A of Appendix 7.6 identifies the criteria it is to take into account for determining whether a CMSC recalculation is justified. In the first instance, with respect to notifying the *market* participant of a possible recalculation of CMSC, the *IESO* is to compare the investigated price with specified costs or other values, based on data initially available to it. Following any representation by the *market participant* and the receipt of additional information, the *IESO* would makes its decision whether to recalculate and revise CMSC, based on the same type of cost or other values, using any additional information it has obtained.

In each instance the investigated price is tested to determine if it is consistent with:

- marginal costs, opportunity costs, replacement energy costs, or
- the value or benefits of consumption

as appropriate for *generation facilities, dispatchable load*s, *electricity storage facilities,* imports or exports. Other values, benefits or costs may be relevant, as determined by the *IESO*.

The value or benefits of consumption/withdrawals represents the indifference price to the consuming/withdrawing *market participant*, that is, if this were the market price, the load or *electricity storage unit* would be equally well-off consuming/withdrawing or not consuming/withdrawing. It is the price at which there is no profit. This is similar to the cost concept for a generator or an *electricity storage unit* that injects when market price equals the marginal cost of production the generator or *electricity storage unit* that injects should be indifferent to whether it generates/injects or not.

The assessment whether a price is "consistent with" these costs or benefits would depend on the circumstances. Typically being within $10 per MWh or 10% would be treated as being consistent with costs, etc. At times a somewhat greater difference is acceptable, depending on the accuracy of the cost data, or the possible existence of fixed costs which may apply to many hours. Normally the *IESO* would use actual after-the-fact costs. This also may justify allowing somewhat greater differences, if costs fluctuate considerably relative to expectations before an event[9].

Allowing some difference between bid / offer prices and costs etc. allows a *market participant* to make some contribution to fixed costs, accounts for some uncertainties in measurement and minimizes administrative burden to both the *IESO* and *market participants* where the CMSC adjustment might not be substantial.

C.8 Applying Settlement Adjustments

The general procedures describing quantities and timing are described in Section 1.7 of Appendix 7.6. More details about manual line items and per unit charges are explained in "Format Specifications for Settlement Statement Files and Data Files".

In summary:

- The settlement revision and any interest will appear as debits on the last preliminary settlement statement for the billing period for metered *market participant* for the investigated facility. Consequential revisions will appear on the preliminary settlements statements for those *market participants* paying hourly uplift.
- A Manual Line Item entry using charge code 120 will identify the revision and any interest debits for the investigated facility and period investigated. See "Market Manual 5:

[9] unless some of these uncertainties are already accounted for through the various methodologies for determining costs. The existence of such fluctuations and uncertainties implies that on occasion actual costs would be considerably higher than offers or bids and participants would not be compensated through higher CMSCs at those times.

Settlements, Part 5.5: Physical Markets Settlement Statements" and "Charge Types and Equations". Since the date, hour and interval fields of the Manual Line Item refer to the date of the preliminary settlement statement, the trading date, hour and dispatch interval associated with each adjustment will be shown in the comments field[10]. If the *IESO* and *market participant* agree, an aggregate figure may be used instead of interval figures, e.g. daily total adjustment for the event.

- A Per Unit Adjustment line item using charge code 170 will show the prorated portion of the total adjustments, across all investigated facilities for the period, including interest.
- A settlement revision above may require the recalculation of SGOL, DA-GCG or DA_IOG and adjustment of related payments. The *IESO* will endeavour to include these adjustments in the same billing period as the revision to the CMSC payment.

- End of Section -

[10] For charge code120, the comment field will contain a description of the time period, and descriptor "LMP CMSC Revision" for the CMSC adjustment, or "LMP CMSC Revision Interest" for the interest debit.

Appendix D: [Intentionally left blank – section deleted]

- End of Section -

Appendix E: Criteria for Designation and Revocation as Uncontested Export Interties

Pursuant to section 1.3.3.4 of Appendix 7.6 of the "Market Rules", the *IESO* may designate certain *interties* as uncontested export *interties* for the purposes of local market power investigations.

> 1.3.3.4 if the *investigated facility* is a *boundary entity* withdrawing *energy* from the *IESO-administered markets* at an *intertie* that has been designated by the *IESO* as an uncontested export intertie, being an *intertie*:
>
> a. where at least ninety percent of the withdrawals over that *intertie* in the ninety days prior to such designation have been accounted for by one *market participant*, or
>
> b. which is uncontested in accordance with criteria stipulated by the *IESO Board* (which criteria shall also specify the factors allowing revocation of the designation)

This appendix provides additional criteria under sub-section b. for identifying uncontested export *interties* and for revoking the designation as uncontested in either case.

E.1 Uncontested Intertie – Additional Criteria

Where the criterion identified in section 1.3.3.4a is not satisfied but the *IESO* finds reasonable grounds to believe that one or more participants effectively control(s) the level of CMSC payments from export transactions on a particular intertie, the *IESO* may designate the intertie as uncontested. In reaching its decision the *IESO* will consider evidence of the following factors that would support designating the intertie uncontested for the purposes of local market power investigations:

(i) a *market participant's* share of total withdrawals in MWh over the last 90 days exceeds 60 percent, and over the same period of time at least one of the following conditions exist and is not explained by other market factors:

- there is a negative correlation between the level of CMSC payments or export prices and the number of *market participant's* trading on the *intertie*,
- the *market participant's* bid prices on the *intertie* bears little relationship to prices prevailing in related markets or other measures of the opportunity cost that place a value on the amount of *energy* sought by the *market participant*,
- the *intertie* has rarely or never been congested by exports;

(ii) the existence of corporate affiliations, agreements or arrangements among *market participants* the effect of which appears to increase the level of CMSC payments related to export transactions on the *intertie*, or other evidence of interdependent behaviour having such effect;

(iii) conditions which prevent or limit the use of the *intertie* for exports by *market participants*, including:

- institutional or regulatory barriers in the external *control area,*
- physical barriers such as limited transmission controlled by one-party or captive load at the *intertie*, or
- economic factors or contractual arrangements, such as substantial transmission access fees.

E.2 Revocation of Designation

The *IESO* will monitor conditions at the designated *interties* and if it determines that 1.3.3.4a and 1.3.3.4b no longer hold, it shall revoke such designation. In addition, any *market participant* may request that the *IESO* revoke a designation. Such a request will include any information or facts supporting the request.

- End of Section -

Appendix F: Treatment of Persistent and Significant Constrained Off Payments

Several sections in Appendix 7.6 of the "Market Rules" reference procedures to be followed for dealing with persistent and significant *constrained off events* which may occur in certain areas of the province, referred to as *designated constrained off watch zones* (or COWZ).

Section 1.2.1A indicates that the applicable *market manual* (this document) will describe:

i) the criteria for identifying *designated constrained off watch zones*;

ii) the criteria for determining what constitutes persistent and significant events; and

iii) the manner for determining an initial replacement price.

According to section 1.2.1C if persistent and significant events are identified, the *IESO* is directed to perform the analyses outlined in section 1.4.1, which in turn permits the *IESO* to consider factors as set out in the *market manual*. This Appendix F establishes: criteria for identifying constrained off watch zones, criteria for determining what constitutes persistent and significant events, the methodology for determining an initial replacement price, and other factors that may be considered as part of a section 1.4 analysis.

Other details of procedures which are common to the review for local market power as well as persistent and significant *constrained off events* are provided in the main portion and other appendices of this *market manual*.

F.1 Constrained Off Watch Zones

Where nodal prices regularly differ from the *energy market price*, *facilities* may be persistently and significantly constrained off. For *registered facilities* within a previously *designated constrained off watch zone* the *IESO* may review transactions and under specified circumstances make adjustments to CMSC payments. The *IES*O's authority to review transactions in this manner is limited to injections by imports, *electricity storage units* that inject*,* and generation in constrained off watch zones designated for injections, and limited to withdrawals by exports, *dispatchable loads,* and *electricity storage units* that withdraw in constrained off watch zones designated for withdrawals.

Before the analysis indicated under section 1.2.1C can be performed and any adjustment may be made to the CMSC paid to a *facility* within a constrained off watch zone, the *IESO* must first establish that the *facility* had been constrained off on a persistent and significant basis. However, being in a designated watch zone and identified as persistent and significant is not a reason for adjusting CMSC payments. The *IESO* is required to conduct further tests before concluding any CMSC adjustments are justified.

As such, it is prudent to allow designation as a constrained off watch zone to occur more readily than the revocation. This approach allows the *IESO* to quickly respond to emerging conditions that foster persistent and significant *constrained off events* while at the same time avoid situations where a recently revoked designation is subsequently re-designated shortly thereafter following the re-emergence of previous conditions. Otherwise, changing conditions could lead to a disconnect between the designation of a constrained off watch zone and the need for that constrained off watch zone.

The criteria for designation are based on the portion of time, over various periods, when a representative nodal price for an area differs materially from the uniform *energy market price* (EMP). Material differences between EMP and nodal prices create conditions under which *facilities* are more likely to be constrained off. For constrained off watch zones for injections, price differences will be considered material whenever the nodal price is at least $20 / MWh below the EMP for a given hour.

EMP > Nodal Price + $20 [test for injections]

For constrained off watch zones for withdrawals, the nodal price must be at least $20 / MWh higher for the hour to be counted.

Nodal Price > MCP + $20 [test for withdrawals]

Boundary entities respond to *pre-dispatch* (or projected) prices while internal *facilities* respond to real-time prices. As such, both sets of prices are relevant. However, for equitable treatment an area should be designated a watch zone for all injecting (or withdrawing) *facilities*. Accordingly, an area will be designated a constrained off watch zone if either *pre-dispatch* or real-time price differences exceed the materiality threshold for a sufficient period of time, as identified below. For the constrained off watch zone designation to be revoked both sets of price differences must fall below the material thresholds for the period of time identified below.

An area may be designated as a constrained off watch zone for injections. Similarly, an area may be designated as a constrained off watch zone for withdrawals. Such designations are not mutually exclusive, that is, a zone may be declared for both injections and withdrawals, but these designations apply independently to imports, generation, and *electricity storage units* that inject (for designated injection zones) or exports, *dispatchable load,* and *electricity storage units* that withdraw (for designated withdrawal zones).

Although constrained off watch zones are defined by reference to areas and representative nodes within the *IESO-controlled grid*, boundary entity transactions that inject or withdraw *energy* from those areas are treated as within the zone and subject to review and possible adjustment accordingly.

The *IESO* will regularly review constrained off watch zones to monitor changing conditions. According to section 1.2.1D of Appendix 7.6, any changes to designations must be published to become effective. A *market participant* may request review of designations, provided that it states reasons for the request. Upon receiving a request to review the designation of a constrained off

watch zone, the *IESO* will commence the review in a timely manner, unless in the *IESO's* opinion, the review is not reasonably warranted.

F.1.1 Criteria for Designation as a Constrained Off Watch Zone

An area may be designated a constrained off watch zone for withdrawals (exporting boundary entities, *dispatchable loads,* and *electricity storage units* that withdraw) if for pre-dispatch or real-time the representative nodal price for the area exceeds the *market price* for *energy* by at least $20/MWh:

i) at least 40% of the time in the previous 30 days;

ii) at least 30% of the time in the previous 60 days; or

iii) at least 25% of the time for any of the periods of 90 days, 120 days, 150 days and 180 days prior to the day of review.

An area may be designated a constrained off watch zone for injections (importing boundary entities dispatchable generation, and dispatchable *electricity storage units* that inject) if for pre-dispatch or real-time the representative nodal price for the area is less than the *market price* for *energy* by at least $20/MWh:

i) at least 40% of the time in the previous 30 days;

ii) at least 30% of the time in the previous 60 days; or

iii) at least 25% of the time for any of the periods of 90 days, 120 days, 150 days and 180 days prior to the day of review.

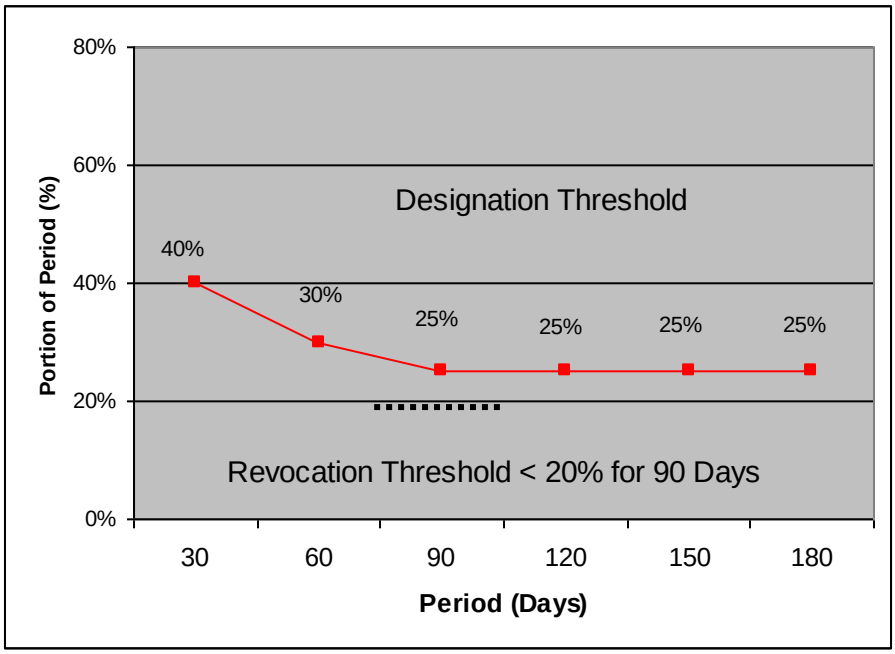


Figure F-1: Thresholds for Designation and Revocation of Constrained Off Watch Zones

The price comparison is applied hourly, without differentiation between on-peak or off-peak periods. The quantities used are the 1 hour-ahead *pre-dispatch* prices, *HOEP* and the interval average nodal price for the hour in real-time.

F.1.2 Criteria for Revocation of Designation

Subject to the exception mentioned below, the *IESO* will revoke the designation of an area as a constrained off watch zone if none of the conditions for designation in F.1.1 continue to apply and for both pre-dispatch and real-time the representative nodal price for the area is materially different from the *energy market price* (as defined by the tests above) less than 20% of the time in the previous 90 days.

The *IESO* need not revoke the designation if it is anticipated that conditions are likely to change within the next 60 days which may again justify designation. The *IESO* may consider forecasts (e.g. the 18 Month Outlook), seasonal trends or other relevant factors for this determination.

F.1.3 Zones and Representative Nodes.

The commonly used division of the province into 10 areas can be used for assessing and designating constrained off watch zones. See http://www.ieso.ca/imoweb/pubs/marketReports/OntTxSystem_2005jun.pdf or http://www.ieso.ca/imoweb/WebData/TransitionInformation/Pda10/AreaInterface_Defn_10zones.pdf

The 10 areas are listed in Table F-1. Imports and exports taking place at the interties connected to an area designated as a constrained off watch zone are considered to be part of that zone. The representative nodal price for each hour for an area will be the average of the hourly nodal prices, of up to 5 representative nodes for that area. The IESO will use up to 5 representative nodes in each area near the interface which most likely constrains the whole area. Not all areas have five facilities for which nodal prices are calculated, so there may be fewer than five representative nodes in some areas.

Table F-1: Area for Possible Designation as Constrained Off Watch Zones

Area	Connected Interties
Northwest	MBSI, MNSI
Northeast	PQHZ, PQDZ
Essa	
Ottawa	PQDA, PQHA
East	PQBE, PQPC, PQQC, PQXY
Toronto	

Area	Connected Interties
Southwest	
Bruce	
West	MISI
Niagara	NYSI

These divisions and representative nodes, however, may be altered by the *IESO* where changing conditions within the province make it appropriate to do so. For example, the divisions may be altered if an existing area is impacted by extended transmission, generation, or injection outages. A new area would be created if it meets or is expected to meet the criteria for designation as a constrained-off watch zone. Changes to areas and representative nodes would be published before they would be implemented. (Refer to the IESO Local Market Power Mitigation web page for details.) However, creation of very small areas may be avoided if there are only one or two *market participants* capable of *energy* injections or withdrawals in the area, and where *constrained off events* are likely to lead to a finding of local market power, according to section 1.3 of Appendix 7.6.

F.2 Persistent and Significant Constrained Off Events

F.2.1 Criteria for Assessing Persistent and Significant Constrained Off Events

The motivation behind different treatment for persistent and significant *constrained off events* was to prevent *market participants* from receiving constrained off CMSC payments where there is little prospect of purchasing or delivering *energy*. For the purpose of these analyses, the *IESO* is not interested in a *market participant's* intent, rather the criteria for review focuses solely on outcomes.

The tests for identification of persistent and significant *constrained off events* and payments recognize that conditions for being constrained off exist, and that the participant received a considerable CMSC payment as the result of such events. *Constrained off events* should be identified as persistent and significant if they occur frequently over longer periods of time or if they occur less frequently but involve larger CMSC payments.

No single metric is sufficient to identify all possible conditions of persistent and significant constrained off payments. Accordingly, several alternative thresholds are set out below, associated with duration measures and monetary amounts. For a given day, a *facility* would be part of a series of persistent and significant events if at least one of the duration measures and at least one of the monetary amounts trigger. At least one of each category must trigger for an event to be considered persistent and significant, and for the day to be accorded the different treatment (as specified in section 1.2.1C of Appendix 7.6).

The thresholds required to establish persistence and significance will vary with the period of time considered. As the period increases the number of hours and total CMSC to establish persistence and significance increases, although these increase more slowly than the number of days (that is, the threshold number of hours per day or dollars per day decrease as the period increases.

The *IESO* would perform these tests only on *registered facilities* in a *designated constrained off watch zone*. For generation, *dispatchable load,* and *electricity storage units* within Ontario, the *IESO* would look at the constrained off schedule duration and CMSC quantities for the *registered facility*. For imports the calculations would be based on the aggregate duration and monetary quantities for all imports for a given *market participant* at a given intertie. For exports the calculations would similarly be based on the aggregate duration and monetary quantities for all exports for a given *market participant* at a given intertie.

In developing appropriate measures, the *IESO* has considered two competing interests:

i) the interests of traders, generators, *dispatchable loads,* and *electricity storage participants* who may have CMSC payments reduced at a later time, which may create administrative issues and the need for resources to respond to an *IESO* review; and

ii) the interests of Ontario consumers in avoiding potentially large amounts of CMSC payments to *market participants* for transactions that had little prospect of benefiting the Ontario electricity market.

Market participants should note that the existence of persistent and significant events do not in and of themselves trigger an investigation or an adjustment to CMSC payments. An investigation and adjustment depend on a comparison of the *bid* or *offer* price and other factors referred to section 1.4A of the "Market Rules" and section F.3 (below). Further, a CMSC adjustment does not necessarily mean elimination of the entire CMSC payments. In most situations, the *IESO* will only recover a portion of these.

When calculating totals for the threshold tests below, the constrained off hours or CMSC amounts to be used are to be based on the initial payment made and not net CMSC after adjustments.

It should be emphasized that only the CMSC for the trade date are subject to review and adjustment, even though the finding of persistent and significant *constrained off events* applies to a series of days and CMSC events. If previous days were not determined as persistent and significant when they were originally reviewed, they are not reassessed later.

F.2.2 Duration Measures

The primary measure of duration is the number of hours that a *market participant* is constrained off. A secondary measure used below is the portion of the *market participant's market schedule energy* that is constrained off, allowing the *IESO* to assess whether a *market participant's* scheduled *energy* is constrained off more often than it flows.

Test for Persistence

To establish *constrained off events* on a given *trade day* for a given *generation facility*, *dispatchable load facility*, *electricity storage facility, market participant's* imports at a given *intertie zone*, or *market participant's* exports at a given *intertie zone* as persistent, any one of the following constrained off conditions must apply:

i) a minimum of 4 consecutive hours during the *trade day* (with total constrained off CMSC for the day at least $8,000);

ii) a minimum of 7 hours, in aggregate, during the *trade day* (with total constrained off CMSC for the day at least $8,000);

iii) a minimum of 15 hours, in aggregate, over the 3 *trade days* ending with the current *trade day*;

iv) a minimum of 25 hours, in aggregate, over the 7 *trade days* ending with the current *trade day*;

v) a minimum of 60 hours, in aggregate, over the 28 *trade days* ending with the current *trade day*;

vi) the number of hours is at least 90% of the corresponding minimum number of hours for at least two of the above periods; or

vii) at least 50% of the *energy* scheduled in the *market schedule* was constrained off in one of the 3 day, 7 day or 28 days periods specified above.

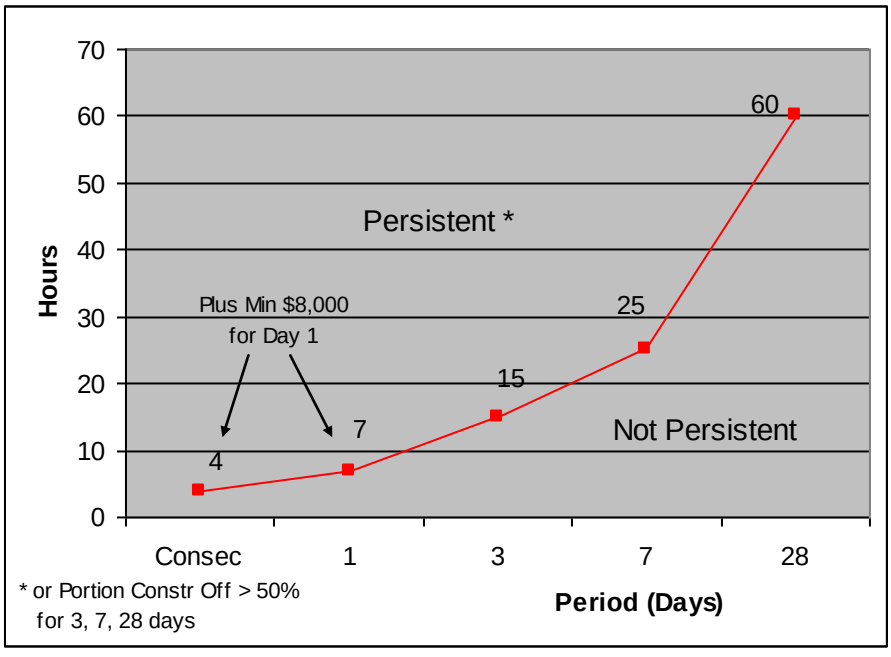


Figure F-2: Duration Criteria for Persistent and Significant Constrained Off Event

F.2.3 Monetary Amounts

Test for Significance

Significance relates to the cumulative magnitude of constrained off CMSC payments. To establish the significance of a constrained off situation on a given *trade day* for a given *generation facility*, *dispatchable load facility*, *electricity storage facility, market participant's* imports at a given *intertie zone*, or *market participant's* exports at a given *intertie zone* as significant, any one of the following conditions must also apply:

i) the aggregate CMSC for the *facility* on the *trade day* is at least $5,000;

ii) the aggregate CMSC exceeds $10,000 over the 3 *trade days* ending with the current *trade day;*

iii) the aggregate CMSC exceeds $15,000 over the 7 *trade days* ending with the current *trade day;*

iv) the aggregate CMSC exceeds $40,000 over the 28 *trade days* ending with the current *trade day*; or

v) the CMSC payments are at least 90% of the corresponding minimum quantities for at least two of the above periods.

In addition to one of these conditions, to be established as significant the aggregate CMSC on the *trade day* must also be at least $3,000.

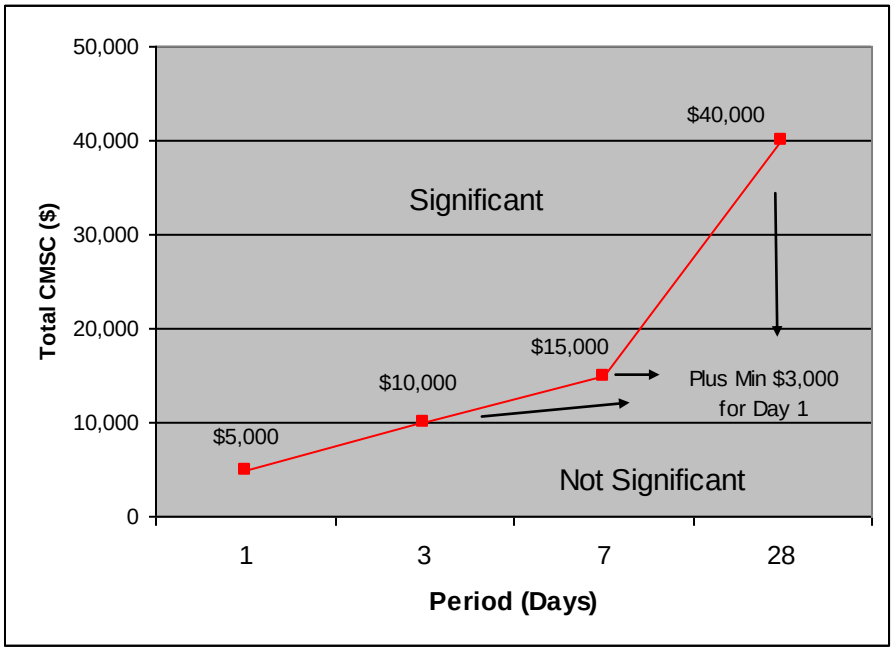


Figure F-3: Monetary Amount for Persistent and Significant Constrained Off Event

F.3 Initial Replacement Price

If the *IESO* determines that a possible adjustment to CMSC payments may be required, the *IESO* must notify the *market participant* of the initial replacement price being considered (section 1.4.5A of Appendix 7.6). To determine initial replacement price for constrained off imports, generation and *electricity storage units* that inject the *IESO* will rely on information that provides a reasonable indicator of the importer's or generator's foregone *energy* purchase costs, production costs or opportunity costs. To determine initial replacement price for constrained off exports, *dispatchable load* and *electricity storage units* that withdraw the *IESO* will rely on information that provides a reasonable indicator of the exporter's, *dispatchable load's,* or *electricity storage unit* that withdraws' lost opportunity price, value of consumption or replacement *energy* costs. Information that may qualify as a reasonable indicator could include external *market prices, reference prices*, or other cost estimates.

The replacement price is designed to put the *market participant* into a position where it is financially indifferent to being constrained off relative to the profit implied by the *market schedule* and *market price* for *energy*. This applies for the determination of the initial replacement place, as well as for the final price which may be used to adjust CMSC.

In order to determine an initial replacement price, the *IESO* may consider a variety of cost or price information estimates, and may use data it views as suitable for achieving the outcome of financial indifference. Estimates may be based on, but are not limited to, the following:

i) market prices in neighbouring jurisdictions for the relevant periods;

ii) *IESO's* knowledge of the *market participant's* actual costs or value as established through information recently provided by the *market participant*;

iii) estimates of costs based for example on typical industry information;

iv) recent *offer* or *bid* data submitted by the *market participant* where the *IESO* has reason to believe these are an accurate representation of costs or prices;

v) for *energy* limited resources, the *IESO*'s estimate of the *facility*'s opportunity costs; or

vi) other information considered relevant by the *IESO*.

More specifically for imports and exports, the relevant market prices in neighbouring jurisdictions most likely to be the basis for establishing the initial replacement price are summarized in the following table. For imports and exports other cost information may also be taken into account, e.g. transmission charges, in establishing the replacement price. (See also section F.5)

Table F-2: Relevant Market Prices[11]

Intertie Zone	Imports to *IESO*	Exports from *IESO*
New York (NYSI)	NYISO RT "OH"	Max (NYISO RT "OH", NYISO HAM "OH")
Michigan (MISI)	MISO RT "ONT"	MISO RT "ONT"
Minnesota (MNSI)	MISO RT "ONT"	MISO RT "ONT"
Manitoba (MBSI)	MISO RT "MHEB_DYN"	MISO RT "MHEB_DYN"
Quebec[12] (various)	Min (NYISO RT "HQ", ISONE RT "Phase I / Phase II")	Max (NYISO RT "HQ", NYISO HAM "HQ", ISONE average "Phase I / Phase II" RT price)

F.4 Transmission Causes for CMSC and Role of Nodal Price

The concern being dealt with in this appendix relates to CMSC payments that are somewhat predictable and associated with possible *constrained off events* that arise out of consistent differences between nodal prices and the *energy market price*. For the most part the *energy market price* and nodal price differences reflect transmission limits, security constraints or transmission losses. These same factors induce the majority of CMSC payments. However, there are other causes for CMSC and not all constraints affect nodal prices. As a practical matter it is not possible to assess every interval, every node, every constraint or every CMSC payment. The *IESO* has established the following criteria as part of implementing this program:

i) When designating and revoking constrained off watch zones, the *IESO* will consider the difference between nodal prices and the *energy market price*, without concern for the underlying causes of the price differences.

[11] Price and interface names may differ from those in the table, depending on the report or data source, and may be subject to modification by the relevant ISO.

[12] These prices from other accessible markets are intended to represent the opportunity cost in that hour for transactions between Ontario and Quebec, on the assumption that energy could be wheeled through Quebec or that these represent a competitive alternative to transactions with the *IESO*.

ii) When applying persistence and significance threshold tests, the *IESO* will consider duration of events and monetary amounts based on all observed *constrained off events* for the *facility* over the relevant history, without concern for the underlying cause of the constrained off event.

iii) When carrying out a price investigation (section 1.4 of Appendix 7.6) for persistent and significant *constrained off events*, the *IESO* will only consider constrained off CMSC induced by transmission losses, transmission flow limits or *security* constraints, and only CMSC stemming from these events may be subject to an adjustment. (See Appendix C.1.2 for more detail.)

An implication of the above criteria is that for a given *trade day* and *facility*, all constrained off CMSC will be treated in the same manner, either as part of persistent and significant events or not. These assumptions ensure that any reviews under Appendix 7.6 apply only for transmission or *security* induced CMSC, or in the case of persistent and significant events, transmission loss-induced CMSC as well.

F.5 Other Relevant Factors

For the decision that there may be a possible justification for recalculating CMSC under section 1.4.3 of Appendix 7.6, the *IESO* must establish cost or opportunity cost benchmarks against which it can compare *bid* or *offer* prices to determine if there is a basis for adjusting CMSC. Since for persistent and significant CMSC events, the *IESO* will determine initial replacements prices using cost or opportunity cost information, the initial replacement price may reflect the *IESO*'s best estimate of comparable current *bids* and *offers*. If there is net negative CMSC for Operating Reserve (net of any negative and positive CMSC for different types of OR) the *IESO* may consider this as relevant to the comparison with costs.

To the extent there may be other information or estimates, which may be more of a qualitative nature or which may be useful but somewhat imprecise, the *IESO* may for the purpose of these additional analyses modify the initial replacement price with dollar or percentage adjustments to better reflect such estimates. For example, if there are charges expected to be paid when an export transaction is constrained off (e.g. the Revenue Sufficiency Guarantee in MISO), but are poorly known at the outset, the *IESO* can estimate these and consider them in the factors under 1.4.1 and in the determination under 1.4A, the comparison for cost consistency. The use of such adjustments may not occur at the outset of this process, and may require some experience by the *IESO* to gain a better understanding of the implication of such factors.

- End of Section -

References

Document Name	Document ID
Market Rules	MDP_RUL_0002
Local Market Power Mitigation – Price Screen Duration Factors	IMO_STD_0007
Market Manual 2: Market Administration Part 2.7: Treatment of Market Surveillance Issues	MDP_PRO_0023
Market Manual 5: Settlements, Part 5.5: Physical Markets Settlement Statements	MDP_PRO_0033
Market Manual 5: Settlements, Part 5.6: Physical Markets Settlement Invoicing	MDP_PRO_0035
Market Manual 1: Market Entry, Maintenance and Exit, Part 1.1 – Participant Authorization Maintenance & Exit	MDP_PRO_0014
Format Specifications for Settlement Statement Files and Data Files	IMP_SPEC_0005
Market Manual 2: Market Administration Part 2.0: Market Administration Overview	MDP_MAN_0002
IESO Charge Types and Equations	IMP_LST_0001

– End of Document –