
Market Manual 5: Settlements

Part 5.4: Prudential Support

~~**Issue 30.5-MRP**~~~~**Issue 30.4-MRP**~~
~~**December 20, 2022**~~~~**September 9, 2022**~~

This *market manual* is provided for stakeholder engagement purposes. Please note that additional changes to this document may be incorporated as part of future engagement in MRP or other *IESO* activities prior to this *market manual* taking effect.

This procedure describes the activities to be undertaken by the *IESO* and *market participants* to manage the prudential support required to participate in the *day-ahead market*

Document Change History

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Related Documents

Document ID	Document Title

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Table of Changes

Reference (Paragraph and Section)	Description of Change
Throughout	<ul style="list-style-type: none"> • “Batch 1” changes for Market Renewal Program. This version incorporates minor conforming changes reflecting design elements in the following detailed design documents: <ul style="list-style-type: none"> • Authorization and Participation • Prudential Security • Facility Registration
<u>Throughout</u>	<ul style="list-style-type: none"> • <u>Interim Alignment Batch for Market Renewal Program. This version contains conforming changes to align terminology and reduce redundancy between MRP governing documents.</u>



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 Manual Conventions

The standard conventions followed for *market manuals* are as follows:

- The word 'shall' denotes a mandatory requirement;
- References to *market rule* sections and sub-sections may be abbreviated in accordance with the following representative format: '**MR Ch.1 ss.1.1-1.2**' (i.e. *market rules*, Chapter 1, sections 1.1 to 1.2);
- References to *market manual* sections and sub-sections may be abbreviated in accordance with the following representative format: '**MM 1.5 ss.1.1-1.2**' (i.e. *market manual* 1.5, sections 1.1 to 1.2);
- Internal references to sections and sub-sections within this manual take the representative format: 'sections 1.1 – 1.2';
- Terms and acronyms used in this *market manual* in its appended documents that are italicized have the meanings ascribed thereto in **MR Ch.11**;
- All user interface labels and options that appear on the IESO gateway and tools are formatted with the bold font style; and
- Data fields are identified in all capitals.

– End of Section –

1. Introduction

1.1. Purpose

This *market manual* describes the activities performed by the *IESO* and *market participants*, as they relate to *prudential support*. *Market participants' prudential support obligations* are reviewed at the time of authorization and on an ongoing basis by the *IESO* and may increase or decrease based on *market participants' actual and expected market activities*.¹ This *market manual* also describes the activities performed by *market participants* to post *prudential support* to satisfy their *prudential support obligations* for *physical transactions* and *virtual transactions* and the actions undertaken by the *IESO*.

1.2. Scope

This *market manual* provides *market participants* with a summary of the steps and interfaces between *market participants* and the *IESO* with regards to managing their *prudential support*. The procedural workflows and steps serve as a roadmap and reflect the requirements set out in the *market rules* and *IESO* policies and standards.

This *market manual* applies only to the *prudential support obligations* that relate to the *IESO's physical markets*. This *market manual* does not address:

- the process of posting *transmission rights (TR) market deposits*, which are a prerequisite for participating in a *TR auction*. This process is provided in [Market Manual 4: Market Operations Part 4.4: Transmission Rights Auction](#) ~~Market Manual 4.4: Transmission Rights Auction~~;
- the process of posting *capacity auction deposits*, which are a prerequisite for participating in a *capacity auction*. This process is provided in [Market Manual 12: Capacity Auctions](#) ~~Market Manual 12: Capacity Auctions~~; and
- the process of issuing a *default levy* by the *IESO*, which is provided in [Market Manual 5 Settlements Part 5.9: Settlement Payment Methods and Schedule](#) ~~Market Manual 5.9: Settlement Payment Methods and Schedule~~.

This *market manual* covers the following:

- Setting Prudential Support Obligations for Physical Transactions – this section describes the calculation and the *IESO* review of a *market*

¹ Unless otherwise stated, references to a *market participant* in this procedure are deemed to also include persons who intend to become authorized as a *market participant*.

participant's prudential support obligation for physical transactions and the forms of prudential support for physical transactions;

- Daily Monitoring of Prudential Support for Physical Transactions – this section describes the *IESO's* daily monitoring of *actual exposure* and *trading limit*, as well as *margin call warnings* and *margin calls* for *physical transactions*;
- Set Prudential Support Obligations for Virtual Transactions – this section describes the calculation and *IESO* review of a *market participant's prudential support obligation for virtual transactions*, the forms of *prudential support for virtual transactions* and monitoring of *actual exposure* and *trading limit*. It also describes *margin call warnings* and *margin calls* for *virtual transactions*;
- Daily Monitoring of Prudential Support for Virtual Transactions – this section describes the *IESO's* daily monitoring of *actual exposure* and *trading limit* and *margin call warnings* and *margin calls* for *virtual transactions*;
- Consolidated Process for Physical Transactions and Virtual Transactions – this section describes the *IESO's* daily monitoring of *market participants' consolidated trading limit* for their *physical transactions* and *virtual transactions* against their consolidated *actual exposure* for their *physical transactions* and *virtual transactions*;
- Event of Default – this section discusses the impact of an event of default on physical bilateral contract quantities for market participants and default levy issuance to market participants conducting physical transactions and virtual transactions;
- Capacity Prudential Requirements – this section describes the calculation of *prudential support obligations* for *capacity auction participants*;
- Prudential SecuritySupport Reports – this section describes the *virtual transaction price delta* reports; and
- appendices – the appendices include information such as forms, credit rating reduction tables and good payment history reduction tables.

1.3. Prudential SecuritySupport Overview

~~In real-time electricity markets, there is no way to recover the physical commodity if a buyer is unable to pay because the electricity has already been consumed. In addition, for virtual transactions, once a bid or offer has been approved in the day-ahead market, the virtual trader must buy back or sell the quantity of energy equal to their original virtual offer or bid at the real-time market locational marginal price of energy at a virtual transaction zonal trading entity. The difference between the day-ahead market locational marginal price of energy at a virtual transaction zonal~~

~~trading entity and the real-time market locational marginal price of energy at a virtual transaction zonal trading entity could lead to losses for the market participant conducting virtual transactions, which it may not be able to cover.~~

~~Under the market rules, the IESO must pay market creditors within four business days from the time when the IESO issues an invoice. Market debtors must pay the IESO within two business days of receiving an invoice from the IESO so that the IESO can remit funds owed. Market participants conducting virtual transactions are subject to the same invoicing and payment timelines.~~

~~If market participants do not remit their full amount due, the IESO does not assume the outstanding debt. Instead, all non-defaulting market participants assume the debt. The prudential support process helps ensure that the IESO has a reasonable amount of collateral on hand to cover potential default situations for both physical transactions and virtual transactions. The process helps provide protection to non-defaulting market participants from the risk of having to incur the costs of another market participant's default.~~

~~The IESO requires prudential support from market participants seeking authorization to~~ The IESO requires separate prudential support from market participants authorized, or seeking authorization, to:

- participate in the day-ahead market and real-time market and for capacity auction participants that acquire using physical transactions;
- participate in the day-ahead market using virtual transactions; and
- deliver upon a capacity obligation required in the capacity auction. For details on capacity prudential support requirements for capacity auction participants, refer to Section 7 of this market manual.

~~Figure 1-1 provides an overview of the~~ The process to calculate market participants' the market participants prudential support obligation for physical transactions and for virtual transactions includes four steps:

1. Market participant provides information to the IESO.
2. The IESO calculates the prudential support obligation.
3. The IESO and the market participant review and agree upon the prudential support obligations. The market obligation amount, resulting in a Schedule A.

~~Market participant information requirements, posts the IESO's calculation of the required prudential support obligation, and the amount in an acceptable forms of prudential support will differ depending on whether market participants conduct physical transactions or virtual transactions.~~

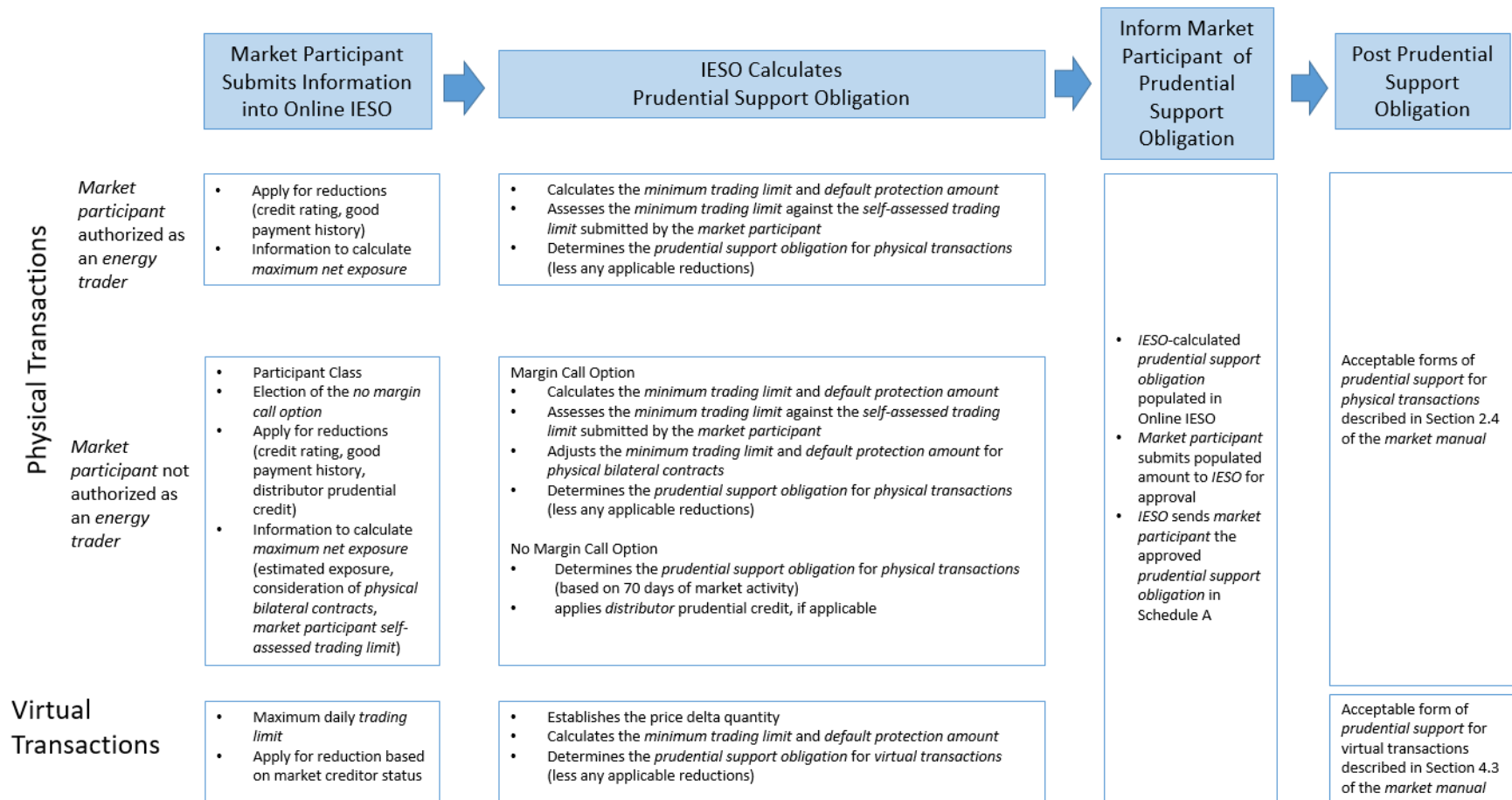


Figure 1-1: Overview of the Process for Setting a Market Participant's Prudential Support Obligation

~~4. Figure 1-2 provides an overview of the process for daily form.~~

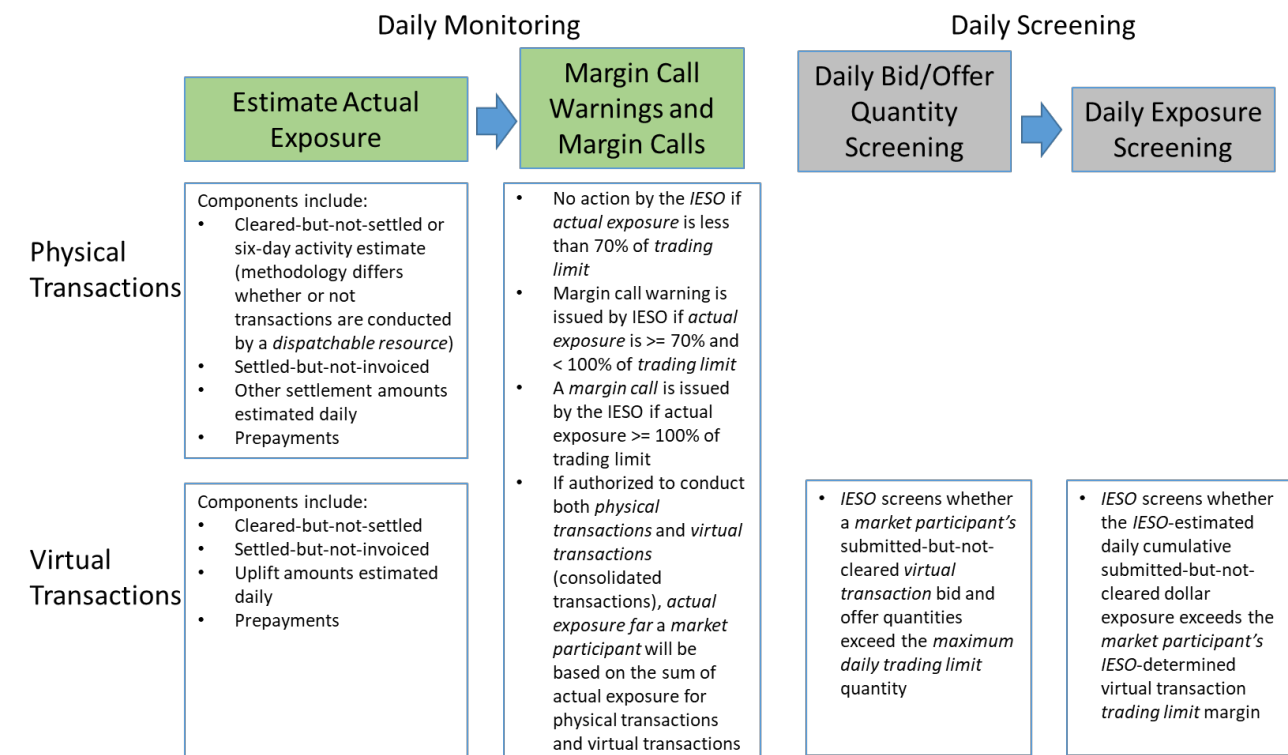
~~Daily monitoring and screening of market participants' prudential support obligation— occurs once the market participant begins submitting bids or offers into the day-ahead market.~~

~~The process to monitor physical transactions and virtual transactions includes two steps:~~

- ~~1. The IESO estimates the market participant's actual exposure and compares it to the market participant's trading limit.~~
- ~~2. The IESO issues a margin call warning or margin call to the market participant, if appropriate.~~

The components that are used in market participants' actual exposure estimate differ depending on whether market participants conduct only physical transactions, only virtual transactions, or a combination of physical transactions and virtual transactions. ~~Daily screening is limited to market participants conducting virtual transactions.~~

Daily screening is limited to market participants conducting virtual transactions.



~~Figure 1-2: Overview of the Process for Monitoring and Screening of a Market Participant's Prudential Support Obligation~~

The process to screen *virtual transactions* includes two tests:

1. The *IESO* screens whether a *market participant's* submitted-but-not-cleared *virtual transaction bid* and *offer* quantities exceed the *maximum daily trading limit quantity*.
2. The *IESO* screens whether the *IESO*-estimated daily cumulative submitted-but-not-cleared dollar exposure exceeds the *market participant's IESO-determined virtual transaction trading limit margin*.

1.4. Roles and Responsibilities

Responsibility for *prudential support* is shared among:

- *market participants*, who are responsible for functions and responsibilities such as:
 - submitting the required *prudential support* information via Online IESO ~~and/or Prudential Manager~~² for *physical transactions* and *virtual transactions*;
 - notifying the *IESO* that they wish to adjust their *self-assessed trading limits* for *physical transactions* as necessary to reflect their expected trading activity during that *billing period*. This excludes *market participants* authorized to conduct *physical transactions* under the *no margin call option*;
 - notifying the *IESO* that they wish to adjust their *maximum daily trading limit* quantity (in MWh) for *virtual transactions* as necessary to reflect their expected trading activity during that *billing period*;
 - posting an appropriate form of *prudential support* that satisfies their *prudential support obligations* for *physical transactions* and/or *virtual transactions*;
 - submitting to the *IESO* the quantity and duration of the applicable *physical bilateral contracts* and notifying the *IESO* immediately upon a change in the quantity or duration of the *physical bilateral contract*. This includes the termination of the contracts for a *market participant* that is not an *energy trader* with a credit rating of BBB– or higher and that has requested its *physical bilateral contract* quantities be taken into consideration when calculating its *minimum trading limit* and *default protection amount* for its *physical transactions*;

²-**Prudential Manager** can be accessed by navigating through: <https://portal.ieso.ca>

- ensuring valid prudential contacts are registered with the *IESO* to receive *margin call* warnings and *margin call* notices and taking appropriate action;
- ensuring valid prudential contacts are registered with the *IESO* to receive a default notice, or a *notice of intent to suspend*, and taking appropriate action to remedy the *event of default*; and
- maintaining appropriate levels of *prudential support* as required under the *market rules*;
 - ~~○ if *prudential support* is due to expire or terminate, *market participants* must provide *prudential support* at least 10 *business days* prior to expiration (Chapter 2, Section 5.2.5 of the *market rules*);~~
 - ~~○ where *market participants'* credit rating or good payment history are revised, resulting in additional *prudential support* requirements, they must provide any additional *prudential support* within five *business days* (Chapter 2, Section 5.2.6 of the *market rules*); or~~
 - ~~○ where any part of the *prudential support* provided by *market participants* otherwise ceases to be current or valid for any reason, *market participants* must immediately notify the *IESO* and provide to the *IESO* within two *business days*, a replacement of its *prudential support* (Chapter 2, Section 5.2.7 of the *market rules*).~~
- The *IESO*, which is responsible for functions and responsibilities such as:
 - continuously assessing the *minimum trading limit*, *trading limit*, and *default protection amount* of each prospective market participation authorization (or *market participant*) as applicable;
 - assessing (and reassessing) the *maximum net exposure* and *prudential support obligation* of each applicant seeking authorization (or each *market participant*);
 - determining whether adequate *prudential support* has been provided by the *market participant*, according to the *market rules*;
 - checking for credit rating watch warnings against *market participants* conducting *physical transactions*;
 - determining if the *estimated actual exposure* amount is below the *trading limit* and warning *market participants* of potential *margin calls* or issuing *margin calls*, as appropriate (with the exception of *market participants* under the *no margin call option*);

- providing information to the Energy Market Interface ("EMI") regarding the maximum quantity (in MWh) and *trading limit* (in dollars) that a *market participant* can transact through *virtual transactions* on a given *trading day*;
- taking appropriate action in response to an *event of default*; and
- drawing on a *market participant's prudential support*, as necessary, and verifying that *prudential support* is re-established within a specified timeframe.

1.5. Contact Information

As part of the participant authorization and registration process, *market participants* are required to identify a Prudential Requirements Contact. If a *market participant* has not identified a specific contact, the *IESO* will seek to contact the Primary Contact for activities within this *market manual*, unless alternative arrangements have been established between the *IESO* and the *market participant*. If *market participants* wish to contact the *IESO*, they can contact *IESO* Customer Relations via email at IESOCustomerRelations@ieso.ca, *IESO* Prudentials via email at prudential@ieso.ca, or by using the phone number provided on the *IESO*'s website (www.ieso.ca), on the [Contact](#) page.

– End of Section –

2. Setting Prudential Support Obligations for Physical Transactions

This section describes the process of setting *market participants' prudential support obligation* and the process of posting *prudential support* for *market participants* authorized to conduct *physical transactions* in the *day-ahead market* and the *real-time market*. *Market participants* that intend to conduct *physical transactions* in the *day-ahead market* and the *real-time market* are required to initiate this process prior to entering the *IESO-administered market*.

Market participants with *prudential support obligations* are grouped into two categories:

- *market participants* authorized as *energy traders*³; and
- *market participants* not authorized as *energy traders*.

The process for setting the *prudential support obligation* consists of the following activities:

1. *Market participants* submit *prudential support* information to the *IESO* using Online IESO.
2. The *IESO* uses the information submitted by the *market participants* to calculate the *market participants' aggregate day-ahead market and real-time market prudential support obligation as per the market rules subject to any applicable reductions*.
3. The *IESO* informs *market participants* of the *prudential support obligation* using Online IESO.
4. *Market participants* post their *prudential support* in a form required by the *IESO*. If no further changes are required, the *IESO* will provide the *market participants* with a Schedule A⁴.

³ For the purposes of setting a *market participant's prudential support obligation* for *physical transactions* and monitoring activities in respect of *physical transactions*, as described in sections 2 and 3 of this *market manual*, a *retailer* shall be deemed to be an *energy trader* (~~Chapter MR Ch. 2, section ss. 5.2.10 of the market rules~~).

⁴ A Schedule A sets out a *market participant's prudential support obligation* and is available in the "prudential support obligation" tab of the Prudential Manager on the *IESO* portal.

2.1. Submitting Prudential Support Information for Physical Transactions

As part of the Authorization and Participation process described in Market Manual 1: Connecting to Ontario's Power System Part 1.5: Market Registration Procedures MM 1.5: Market Registration Procedures, *market participants* must submit their *prudential support information*, using Online IESO. To do this, each prospective *market participant* must first assign a Prudential Requirements Contact. This contact will be granted permissions in Online IESO to submit the information required to establish the *market participant's prudential support obligation* and will function as the point of contact for the IESO for matters relating to *prudential support*.

~~After authorization, market participants must keep the IESO informed, using Online IESO, of circumstances that could change their prudential support obligation for physical transactions and ensure that all amounts of prudential support continue to satisfy the market participant's prudential support obligation. Notably, this is likely to occur in the circumstances that include but are not limited to:~~

- ~~• a change to market participants' credit rating or payment history, which requires a review of the market participant's prudential support obligation. Market participants that owe the IESO additional prudential support as a result of a review to their prudential support obligation, will have up to five business days to post the balance required to satisfy their prudential support obligation; or~~
- ~~• an event of default.~~

~~In addition, market participants should review their self-assessed trading limit for physical transactions and submit a revised self-assessed trading limit for physical transactions, as appropriate, as described in Chapter 2, Section 5.3.2 of the market rules.~~

2.1.1. Information Required ~~off~~from Market Participants Authorized as Energy Traders

Market participants authorized (or requesting authorization) as *energy traders* provide two sets of information:

- ~~• application for reductions; and~~
- information to calculate *maximum net exposure*. This information consists of the estimated maximum monthly *settlement* amount and the option to submit a *self-assessed trading limit*; and

~~1.1.1.2.~~ Application **application** for Reductions

~~(Market Rules: Chapter 2, Section 5.8)~~

~~Market participants authorized as energy traders may select one of the following for reductions:~~

- ~~• reduction for credit rating. During the first three months of conducting transactions in the IESO-administered markets of any type, market participants authorized as energy traders are not eligible for this reduction;~~
- ~~• reduction for good payment history. During the first two years of conducting transactions in the IESO-administered markets of any type, market participants are not eligible for this reduction.~~

2.1.1.1. Information to Calculate Maximum Net Exposure

~~(Market Rules: Chapter MR Ch.2, Sections ss.5.3.1, 5.3.2, 5.3.4.2, 5.3.4.3, 5.3.5, and 5.3.8.2)~~

~~Market participants authorized as energy traders who have not conducted physical transactions for energy for at least three previous billing periods are required to provide their estimated net settlement amount for the upcoming energy market billing period. After an energy trader has conducted physical transactions for energy for at least three previous billing periods, energy traders are no longer required to provide their estimated net settlement amounts. The IESO will use an average of the actual net settlement amounts for the three most recent energy market billing periods for which the energy trader has conducted physical transactions for energy, to calculate maximum net exposure.~~

Prospective market participants who wish to be authorized as energy traders are also required to submit a self-assessed trading limit, even if that self-assessed trading limit might be zero. Once authorized as a market participant, energy traders may, on an ongoing basis, elect to submit a revised self-assessed trading limit in dollars or as a percentage of their estimated net settlement amount. Energy traders may consider using up to 100% of their estimated net settlement amount for the upcoming energy market billing period in their calculation if they want to decrease the likelihood of receiving margin calls. Energy traders who wish to post the lowest amount of prudential support allowable by the IESO should continue to keep their self-assessed trading limit at zero.

2.1.1.2. Application for Reductions

~~(MR Ch.2 ss.5.8)~~

~~Market participants authorized as energy traders may select one of the following for reductions:~~

- ~~• reduction for credit rating, in accordance with MR Ch.2 ss.5.8.1 and 5.8.6.3; or~~
- ~~• reduction for good payment history in accordance with MR Ch.2 ss.5.8.4.~~

2.1.2. Information Required ~~off~~from Market Participants Not Authorized as Energy Traders

Market participants not authorized as *energy traders* provide the following information:

- participant class;
- option to select the *no margin call option*;
- application for reductions; and
- information to calculate *maximum net exposure*. This information consists of the estimated exposure, *physical bilateral contracts*, and *self-assessed trading limits*.

2.1.2.1. Participant Class

~~Market~~To determine the *market participant's prudential support obligation*, *market participants* must indicate if they are a ~~local distribution company~~ and provide ~~information on their types of loads~~. This is used to determine the *market participant's global adjustment allocation and all applicable reductions*. ~~distributor~~.

2.1.2.2. Election of the No-Margin Call Option

~~(Market Rules: Chapter MR Ch.2, Sections ss.5.6.4, 5.6.5, 5.6.6 and 5.6.7)~~

Subject to the *IESO's* approval, *market participants* that are authorized to conduct *physical transactions*, but are not authorized as a *virtual trader*, may elect to participate in the *no margin call option*. *Market participants* that elect the *no margin call option* are exempt from receiving *margin calls* (~~Chapter MR Ch.2, Section ss.5.6.4 of the market rules~~). *Margin calls* are issued to *market participants* when their *actual exposure* reaches 100% of their *trading limit*. However, the *IESO* determines the *prudential support obligation* for *market participants* electing the *no margin call option* using an alternate methodology as described in ~~Chapter MR Ch.2, Sections ss.5.6.5 and 5.6.6 of the market rules~~.

~~2.1.2.3.1.1.1. Application for Reductions~~

~~2.1.2.3. (Market Rules: Chapter Applying for Reductions~~

~~(MR Ch.2, Section ss.5.8)~~

Market participants that are not *distributors* may apply for ~~one of either the~~ credit rating or good payment history ~~reductions~~reduction to their *prudential support obligation* relative to their ~~maximum net exposure~~obligations for *physical transactions*.

Distributors may apply for ~~one of either a~~ credit rating or good payment history reduction in addition to the reduction for the *distributor* prudential credit to their *prudential support obligation* ~~relative to their maximum net exposure~~ for *physical transactions*:

- ~~• reduction for credit rating;~~ or
- reduction for good payment history; and;
- distributor prudential credit.

~~Note: The reductions mentioned in this section are only applicable to maximum net exposure for physical transactions.~~

~~Market participants that elect the no margin call option may only apply for reductions to their prudential support obligations for physical transactions if they are small distributors that are not authorized to conduct virtual transactions as permitted by MR Ch.2 ss.5.6.6 and 5.6.7.~~

Reduction for Credit Rating

~~If market participants elect the margin call option, they (MR Ch.2 ss.5.8.1, 5.8.1A and 5.8.2)~~

Eligible market may apply to have their *prudential support obligation* for *physical transactions* reduced by requesting a reduction to their *maximum net exposure* using their credit rating (refer to [Appendix B: Credit Ratings](#)). For this application, *market participants* provide their credit rating in accordance with Standard & Poors, Moody's and DBRS Morningstar. If *market participants* share their credit rating with multiple *market participants*, they must provide all the associated *market participant* information along with the percentage share to be allocated to each.

~~If market participants elect the no margin call option and are small distributors, they may apply for a reduction based on their credit rating. However, market participants that are small distributors are not eligible for this reduction if they are authorized to conduct virtual transactions.~~

~~All other market participants that have elected the no margin call option are ineligible for a reduction for a credit rating.~~

Reduction for Good Payment History

~~If (MR Ch.2 ss.5.8.3, 5.8.4 and 5.8.5)~~

Eligible market participants ~~elect the margin call option, they~~ may apply to have their *prudential support obligation* for *physical transactions* reduced by requesting a reduction to their *maximum net exposure* based on evidence from the *market participants'* electricity purchases in Ontario (refer to [Appendix C: Good Payment History](#)).

~~All other market participants that have elected the no margin call option are ineligible for a reduction for a credit rating.~~

Distributor Prudential Credit

~~(MR Ch.2 ss.5.8.8)~~

The Ontario Energy Board's Retail Settlement Code authorizes *distributors* to collect *prudential support* from their customers. ~~In such cases, the retail customers post prudential support with the distributor, in addition to the prudential support for physical transactions posted by the distributor with the IESO for the same energy measured in MWh.~~

Distributors are permitted to apply a 60% reduction to their *prudential support obligation* for *physical transactions* for every dollar in *prudential support* they have collected from their customers ~~(Chapter 2, Section 5.8.8 of the market rules) if in one of the following "tangible" forms:~~ if in any of the forms. Refer to **MR Ch.2 ss.5.8.8** for additional information on the process for claiming this reduction including the submission of the "Affidavit Regarding Reduction in Prudential Support Obligations" – IMO AFF 0001 form.

- ~~• cash;~~
- ~~• Government of Canada T-Bills;~~
- ~~• irrevocable commercial letters of credit from a Schedule Bank in Canada; and~~
- ~~• guarantees by a third person or affiliate.~~

~~To qualify for this reduction in their prudential support obligation for physical transactions, distributors must provide proof of the prudential support they have collected from their customers. They can provide this proof by swearing an "Affidavit Regarding Reduction in Prudential Support Obligations" – IMO_AFF_0001 form for physical transactions. This form is an affidavit attesting to the amount of tangible prudential support that distributors hold for their customers. The submitted proof may also include copies of the irrevocable letters of credit and bank statements detailing cash deposits held for such a purpose as requested by the IESO.~~

For example, if a *distributor* has a *maximum net exposure* of \$25 million for its *physical transactions*, but the *distributor* has collected *prudential support* in the amount of \$10 million from its own customers, and can provide verifiable proof (i.e. an affidavit) of said *prudential support* to the *IESO*, then its outstanding *prudential support obligation* would be \$19 million [$\$25\text{M} - (\$10\text{M} * 0.6)$]. Any outstanding *prudential support obligation* would have to be met by using one or a combination of the other instruments listed in ~~Chapter 2, Section 5.7 of the market rules.~~ **MR Ch.2 ss.5.7.** Under this option, a *distributor* can also claim good payment history or credit rating reduction pursuant to ~~Chapter MR Ch.2, Section ss.5.8.5~~ or

~~5.8.1A of the market rules~~ to meet its *prudential support obligation* for its *physical transactions*. The *distributor* prudential credit will be deducted first before other applicable reductions can be applied.

~~Under a no margin call option, all distributors, with the exception of small distributors, will be ineligible for the distributor prudential credit.~~

2.1.2.4. Information to Calculate Maximum Net Exposure

~~(MR Ch.2 ss.5.2.4 and 5.3)~~

Estimated Exposure

To help the IESO estimate ~~their~~ market participants' *maximum net exposure* for *physical transactions*, *market participants* ~~must~~ will submit their ~~combined~~ estimated daily maximum quantity of *energy* to be transacted in ~~the~~ both the *day-ahead market* and the *real-time market*, and the expected estimated peak load associated with the daily maximum quantity of *energy*. *Market participants* can update these estimated values in Online IESO for an upcoming *billing period* that may impact their *prudential support obligation*.

Option for ~~Consideration of~~ Adjustments Based on Physical Bilateral Contracts

~~Market~~ (MR Ch.2 ss.5.3.8A and 5.3.8B)

MR Ch.2 ss.5.3.8A and 5.3.8B authorize eligible *market participants* ~~with a credit rating of BBB— or higher, subject to any adjustments set out in Chapter 2, Section 5.8.2 of the market rules, may choose~~ elect to use the ~~IESO's settlement process to settle~~ adjust their prudential support obligation based on their *physical bilateral contracts*. If *market participants* ~~choose for the IESO to settle their physical bilateral contracts~~ make this election, they ~~may submit~~ will:

1. Submit to the *IESO* the aggregate *energy* quantities and duration associated with the *physical bilateral contracts* from all applicable *resources*. ~~Market participants can then request, and~~
2. Request that the *IESO* remove these *energy* quantities when calculating their *minimum trading limit* and *default protection amount* in respect of *physical transactions*.

Market participants are required to ~~also~~ notify the *IESO* immediately upon a change in the submitted *energy* quantities or duration of their applicable *physical bilateral contracts*, including termination of any of the contracts.

Market Participant Self-Assessed Trading Limit

(MR Ch.2 ss.5.3.2 and 5.3.3)

For the purpose of establishing *market participants' trading limits* and *maximum net exposure* for *physical transactions*, *market participants* that conduct *physical transactions* are eligible to submit a self-assessed *trading limit* in accordance with MR Ch.2 ss.5.3.3 by providing either:

- the number of calendar days ~~up to 70 calendar days, between 7 and 90 inclusive,~~ in which they intend to participate in *physical transactions* in the *day-ahead market* and the *real-time market*; or
- a dollar amount estimate of their *trading limits* for the upcoming *billing period*.

~~A market participant that intends to reduce the number of margin calls should base their might consider using a self-assessed trading limit of 49 calendar days of market activity. If a market participant wants to reduce the number of margin calls; or seven calendar days of market activity to post a lower prudential support amount, the market participant may at a minimum, use seven calendar days of market activity.~~

2.2. Calculating Prudential Support Obligation for Physical Transactions

2.2.1. Assessment Calculating Prudential Support Obligations for Market Participants Authorized as Energy Traders

~~(Market Rules: Chapter 2, Sections (MR Ch.2 ss.5.3.1, 5.3.2, 5.3.4.2, 5.3.4.3, 5.3.5, 5.3.8.2 and 5.8)~~

Upon receipt of the *prudential support* information from *market participants*, the *IESO* undertakes a five-stage process to calculate the *prudential support obligation* for *physical transactions* for *market participants* authorized as *energy traders* during which the *IESO*:

- ~~Calculates~~ calculates the *minimum trading limit* as a dollar amount ~~;~~
- ~~Calculates~~ calculates the *default protection amount* as a dollar amount, which is equal to the *minimum trading limit* in the previous step ~~;~~
- ~~Assesses~~ assesses the *minimum trading limit* against the *self-assessed trading limit* submitted by *market participants*. The *IESO* then selects the greater of the two *trading limit* amounts and establishes the *maximum net exposure* for *market participants* as the sum of the selected *trading limit* and the *default protection amount* ~~;~~
- ~~Applies~~ applies any applicable reductions ~~;~~ and

- ~~Determines the market participant's~~ determines the prudential support obligation for physical transactions. ~~This amount is equal to the market participant's maximum net exposure for physical transactions.~~

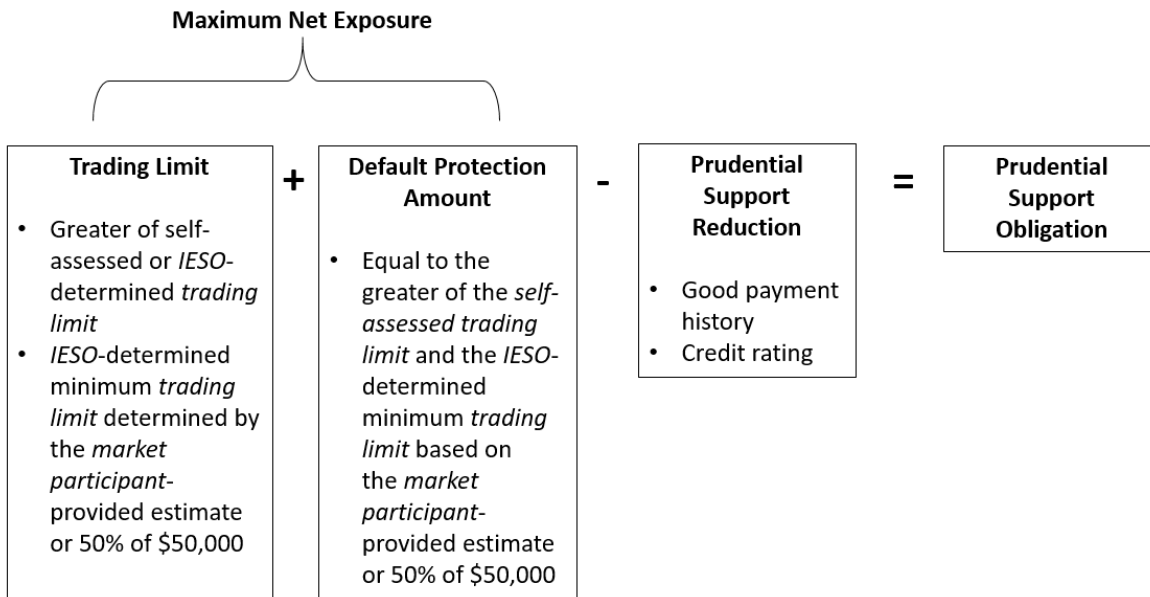
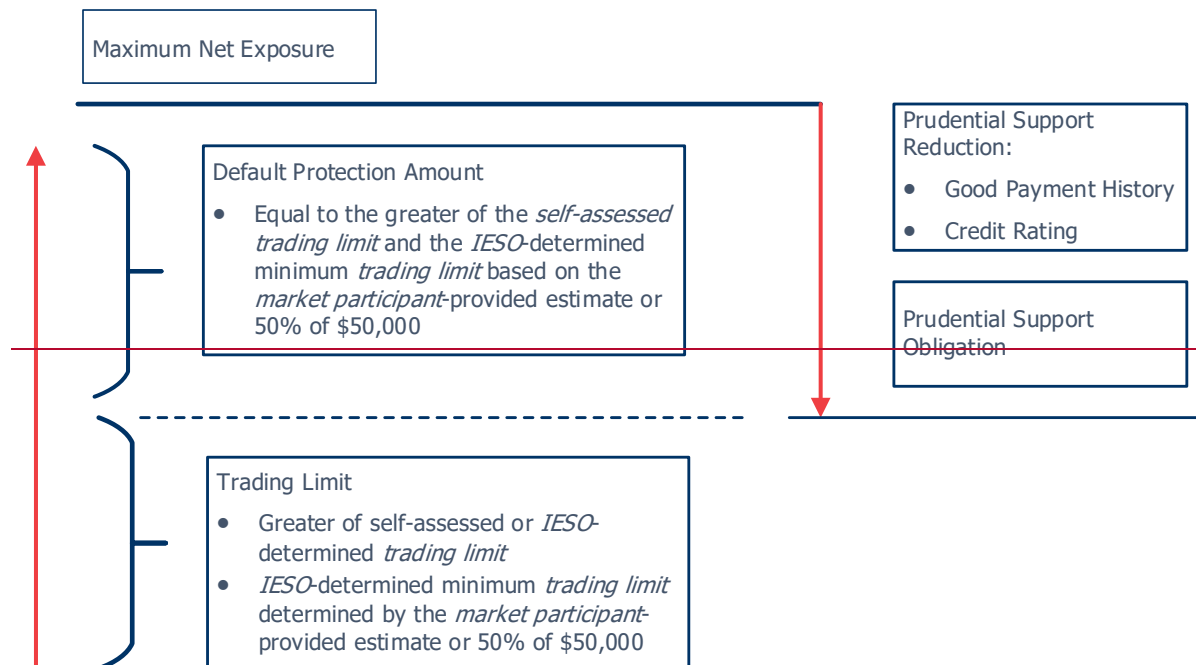


Figure 2-1 provides an illustration of how the IESO determines the prudential support obligation for physical transactions ~~are determined~~ for market participants that are *energy traders*.



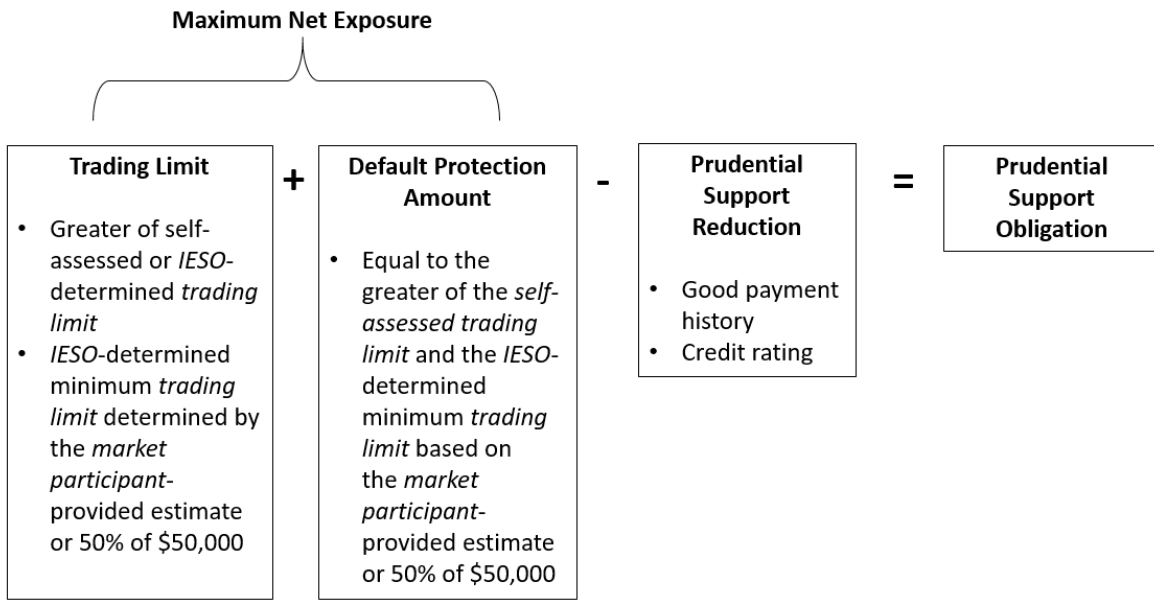


Figure 2-1: Determination of Prudential Support Obligation for a Market Participant that is an Energy Trader

For details on the process of calculating the *prudential support obligation* and *default protection amount* for a *market participant* authorized as an *energy trader* that has not conducted *physical transactions* for *energy* for at least three previous *energy market billing periods*, refer to section 2.2.1.5 below (**MR Ch.2 ss.5.3.4.3**).

2.2.1.1. Determining the Minimum Trading Limit for Physical Transactions

(~~Market Rules: Chapter MR Ch.2, Sections ss.5.3.4.2, 5.3.4.3 and 5.3.5~~)

~~The *IESO* calculated *minimum trading limit* for *physical transactions* is a dollar amount that represents a *market participant's* lowest possible *trading limit* that may be established under the *market rules*. This amount is based on an estimate of a *market participant's* expected combined activity for *physical transactions* in the *day-ahead market*^{4.3} and the *real-time market* (refer to Chapter 2, Section 5.3.5 of the *market rules*).~~

The *IESO* calculates the *minimum trading limit* by estimating the net *settlement amount* that a *market participant* would incur when conducting *physical transactions* in the *day-ahead market* and the *real-time market*.

For *market participants* that are *energy traders*, the *IESO* sets their *minimum trading limits* for their *physical transactions* to 25% of each *market participant's* estimated net *settlement amount* for the upcoming *energy market billing period*. If any *market participant* has been subject to more than one *margin call* per *billing period*, the *IESO* may use a greater percentage, up to and including 100%, of the *market participant's* estimated net *settlement amounts* (**Chapter MR Ch. 2, Section ss.5.3.4.2 of the market rules**).

To estimate the net *settlement amount*, the *IESO* uses the following:

- an average of the market participant's estimated net settlement amounts for physical transactions for the three most recent energy market billing periods where the market participant transacted energy within the IESO-administered markets; or
- an estimate of the *market participant's* future market activity as the estimated net *settlement amount* for *physical transactions* for the upcoming *billing period* if the *market participant* has not conducted *physical transactions* for energy for at least three most recent *energy market billing periods*, calculated in accordance with ~~Chapter MR Ch.2, Section ss.5.3.4.3~~ of the *market rules*.

~~For further details surrounding the process of calculating the prudential support obligation for market participants authorized as energy traders that have not conducted physical transactions for energy for at least three previous energy market billing periods, refer to Section 2.2.1.5 below (Chapter 2, Section 5.3.4.3 of the market rules).~~

2.2.1.2. Determining the Default Protection Amount for Physical Transactions

~~(Market Rules: Chapter 2, Section 5(MR Ch.2 ss.5.3.8.2))~~

~~The default protection amount for physical transactions represents the IESO's estimate of the additional debt market participants could accumulate while conducting physical transactions in the day-ahead market and real-time market.~~ The *default protection amount* estimates the debt that can be accumulated if a *market participant* were to default on a payment date until such time as the *market participant* could be removed from the *IESO-administered markets*, and be prevented from incurring any further debt. For *market participants* that are *energy traders*, the *default protection amount* is equal to the *minimum trading limit* calculated by the *IESO*.

~~For details on the process of calculating the default protection amount for a market participant authorized as an energy trader that has not conducted physical transactions for energy for at least three previous energy market billing periods, refer to Section 2.2.1.5 below (Chapter 2, Section 5.3.4.3 of the market rules).~~

2.2.1.3. Determining the Maximum Net Exposure for Physical Transactions

~~(Market Rules: Chapter 2, Section 5(MR Ch.2 ss.5.3.1))~~

The *IESO* calculates the *maximum net exposure* for *physical transactions* of an *energy trader* by adding the *trading limit* with the default protection amount in respect of *physical transactions*.

2.2.1.4. Application of Reductions

~~(Market Rules: Chapter MR Ch.2, Section ss.5.8)~~

~~Market participants may be eligible for a reduction to their~~ The *IESO* will reduce the maximum net exposure for physical transactions based on:

- ~~• the market participants' credit rating;~~
- ~~• the market participants' good payment history for the purchase of electricity in Ontario.~~

~~Appendix A and Appendix B provide further details for credit rating any approved reductions for non-distributors and reduction amounts for good payment history for non-distributors. Refer to section 2.1.2.3 of this market manual.~~

~~The *IESO* applies reductions equally to the default protection amount and the trading limit. In addition, new market participants will be ineligible for reductions associated with credit ratings until they have conducted physical transactions for at least three consecutive months.~~

2.2.1.5. ~~Determination of~~ Determining the Prudential Support Obligation for Physical Transactions

The *IESO* determines the *prudential support obligation* for *energy traders* ~~using the following two methods~~ depending on whether they have conducted physical transactions for energy for three previous energy market billing periods.

Energy Traders with Transaction History for Three Previous Energy Market Billing Periods

~~(Market Rules: Chapter MR Ch.2, Sections ss.5.3.4.2, 5.3.8.2 and 5.8)~~

For *energy traders* that have conducted *physical transactions* for *energy* for three previous *energy market billing periods*, their *prudential support obligation* for *physical transactions* is equal to their *maximum net exposure* for *physical transactions* minus applicable reductions.

Energy Traders Without Transaction History for Three Previous Energy Market Billing Periods

~~(Market Rules: Chapter MR Ch.2, Sections ss.5.3.4.3, 5.3.8.2, and 5.8.6.3)~~

For *energy traders* that have not conducted *physical transactions* for *energy* for three previous *energy market billing periods*, their *prudential support obligation* for *physical transactions* is equal to their *maximum net exposure*.

The *IESO* requires *market participants* that are *energy traders* without any activity of conducting *physical transactions* for *energy* in the *IESO-administered markets* in three previous *energy market billing periods* to post no less than \$50,000 of *prudential support*: (representing the sum of \$25,000 for the *trading limit* and *default protection amount*, respectively). This requirement applies to all *market participants* regardless of whether they expect to be a net creditor.

~~The *prudential support obligation for physical transactions for market participants that are energy traders without experience conducting physical transactions for energy for at least three previous energy billing periods* is equal to the greater of the following:~~

- ~~• the *minimum trading limit plus the default protection amount for physical transactions*; or~~
- ~~• \$50,000, equalling the sum of its *minimum trading limit* of \$25,000 and the *default protection amount* of \$ 25,000 for *physical transactions*.~~

2.2.2. Assessment Calculating Prudential Support Obligations for Market Participants Not Authorized as Energy Traders

2.2.2.1. Margin Call Option

Upon receipt of *market participants' prudential support* information, the *IESO* undertakes a six-stage process to calculate *market participants' prudential support obligation* for *physical transactions* under a *margin call* option, during which the *IESO*:

1. calculates the *minimum trading limit* as a dollar amount;
2. calculates the *default protection amount* as a dollar amount;
3. assesses the *minimum trading limit* against the *self-assessed trading limit* submitted by the *market participants*. The *IESO* then selects the greater of the two *trading limit* amounts and establishes the *maximum net exposure* for the *market participant* as the sum of the selected *trading limit* and the *default protection amount*;
4. adjusts the minimum trading limit and default protection amount for physical bilateral contracts;
5. applies any applicable reductions; and
6. determines the market participant's prudential support obligation for physical transactions.

Figure 2-2 provides an illustration of how the *IESO* determines the *physical transaction prudential support obligations* ~~are determined~~ for *market participants* that are not *energy traders* under a *margin call option*.

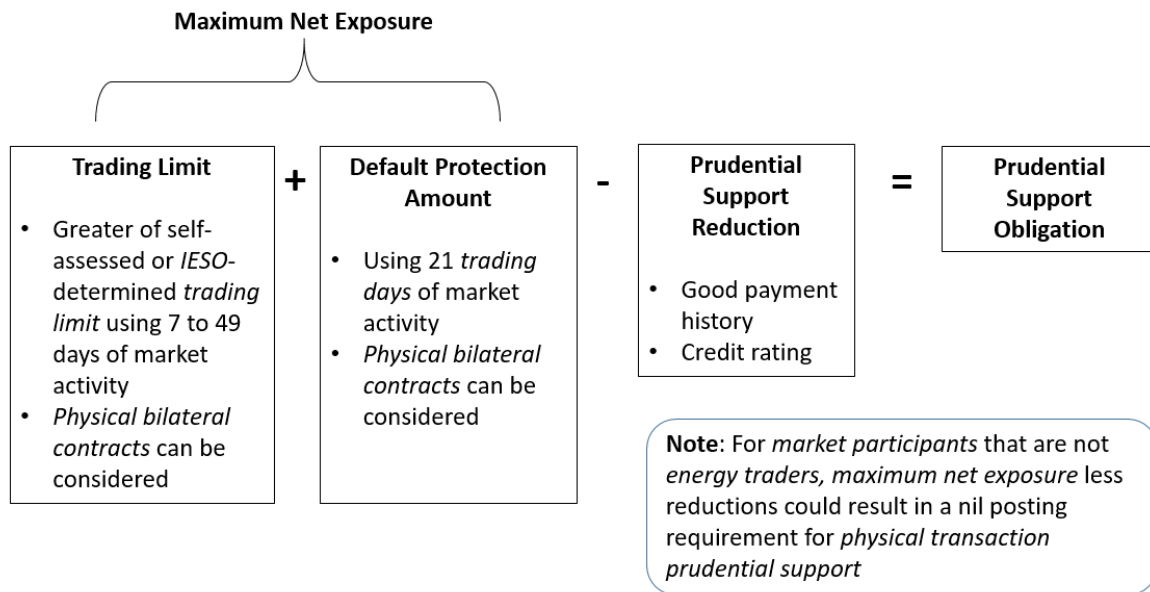
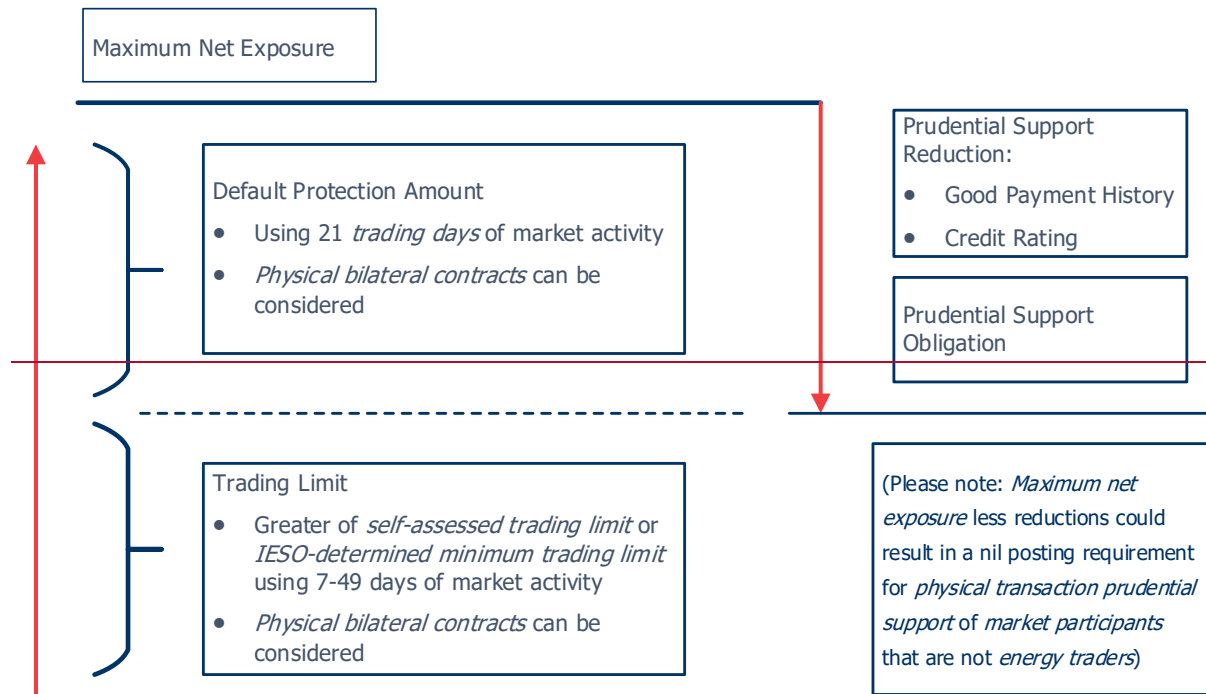


Figure 2-2: Margin Call Option for Physical Transactions for a Market Participant that is not an Energy Trader

The charges estimated as part of the *minimum trading limit* and *default protection amount* for a *market participant* that is not an *energy trader* include but ~~may change over time~~ are not limited to:

- energy exposure (including physical bilateral contract credit (if requested by market participant));
- global adjustment;
- transmission exposure;
 - line connection service rate (as applicable);
 - network service rate (as applicable);
 - transformation connection service rate (as applicable);
- rural rate protection;
- *IESO* fee; and
- uplifts and ancillary charges.

The *IESO* applies HST to all charges listed as part of the *minimum trading limit* and *default protection amount* estimation.

Determining the Trading Limit for Physical Transactions

~~(Market Rules: Chapter MR Ch.2, Sections ss.5.3.2, 5.3.4.1, and 5.3.5)~~

The *IESO* establishes the *trading limit* for *market participants* to limit the amount of debt that *market participants* may accumulate before the *IESO* issues a *margin call*. The *IESO* determines the *trading limit* for *physical transactions* based on the greater of a *market participant's* (i) *self-assessed trading limit*; and (ii) the *IESO*-calculated *minimum trading limit* for *physical transactions* ~~(refer to Chapter 2, Section 5.3.5 of the market rules).~~

~~Both the self-assessed trading limit and IESO-calculated minimum trading limit for physical transactions are dollar amounts that are based on the expected activity of market participants in both the day-ahead market and the real-time market related to physical transactions. The minimum trading limit for physical transactions represents a market participant's lowest possible trading limit that may be established under the market rules.~~

The *IESO* calculates the *minimum trading limit* for *physical transactions* by estimating the net exposure that *market participants* would incur when they conduct *physical transactions* in the *day-ahead market* and the *real-time market*. This estimate accounts for at least seven calendar days of market activity, ignoring the impact of *physical bilateral contracts*. For additional information on the calendar days of market activity factored into the calculation of the *minimum trading limit*, refer to ~~Chapter MR Ch.2, Section ss.5.3.4.1 of the market rules.~~ The *IESO* will use the applicable *energy price* for ~~each resource of a market participant~~ *participant's resources* to calculate that *market participant's minimum trading limit*. The *energy prices* applicable to each *market participant* in the

calculation of its *minimum trading limit* will be made available in the **Records** tab in Online IESO.

Determining ~~of~~the Default Protection Amount for Physical Transactions

~~(Market Rules: Chapter (MR Ch.2, Section ss.5.3.8.1)~~

~~The default protection amount for physical transactions represents the IESO's dollar estimate of the additional debt that market participants could accumulate while conducting physical transactions in the day-ahead market or the real-time market. The default protection amount is determined~~The IESO determines the *default protection amount* by estimating the amount of additional debt *market participants* could experience if an *event of default* were to occur until the time *market participants* could be removed from the *day-ahead market* or the *real-time market*. The IESO's calculation of the *default protection amount* under a *margin call* option is similar to the methodology it uses to calculate the *minimum trading limit*.

For a *market participant* that is not an *energy trader*, the IESO determines the *default protection amount* for *physical transactions* by factoring 21 calendar days of market activity ignoring the impact of *physical bilateral contracts*, covering potentially both the *day-ahead market* activity and the *real-time market* activity following an *event of default*.

The IESO will use the applicable estimated *energy price* for each *resource* of a *market participant* to calculate that *market participant's default protection amount*. The *energy prices* applicable to each *market participant* in the calculation of its *default protection amount* will be made available in the **Records** tab in Online IESO.

Determining the Maximum Net Exposure for Physical Transactions

~~(Market Rules: Chapter MR Ch.2, Section ss.5.3.1)~~

~~The maximum net exposure, in respect of physical transactions, is the IESO's estimate of the net settlement amount market participants could owe for conducting physical transactions in the day-ahead market and the real-time market.~~

The IESO establishes *market participants' maximum net exposure* for *physical transactions* by adding the *market participants' trading limit* for *physical transactions* and *default protection amount* for *physical transactions*. ~~In the event market participants' maximum net exposure for physical transactions is negative or equal to zero, market participants are not required to post prudential support.~~

Adjustment of Minimum Trading Limit and Default Protection Amount for Physical Bilateral Contracts

~~(Market Rules: Chapter MR Ch.2, Sections ss.5.3.8A and 5.3.8B)~~

If *market participants* that are not *energy traders* request an adjustment based on their *physical bilateral contracts*, as described in [Section 2.1.2.4](#), the IESO calculates

their *minimum trading limits* and *default protection amounts* by removing the *energy quantities* associated with the *market participants' physical bilateral contracts* registered with the *IESO*.

For this calculation, the *IESO* assumes all transacted quantities are completed through the *day-ahead market* and *real-time market* net of *energy quantities* associated with those *physical bilateral contracts*. For details on *physical bilateral contracts*, refer to ~~Chapter MR Ch. 2, Section ss. 5.38A- and 5.3.8B~~ and ~~Chapter MR Ch. 8 of the market rules.~~

Application of Reductions

~~(Market Rules: Chapter MR Ch. 2, Section ss. 5.8)~~

~~Market participants may be eligible for a reduction to their~~ The IESO will reduce the maximum net exposure for physical transactions based on:

- ~~• the market participants' credit rating;~~
- ~~• the market participants' good payment history for the purchase of electricity in Ontario; or~~
- ~~• the distributor prudential credit.~~

~~Appendix B and Appendix C provide further details for credit rating any approved reductions for non-distributors, credit rating reductions for distributors, reduction amounts for good payment history for non-distributors and reduction amounts for good payment history for distributors.~~ Refer to section 2.1.2.3 of this market manual.

Determination of Prudential Support Obligation

~~(MR Ch. 2 ss. 5.3.9)~~

The *maximum net exposure* less allowable reductions that may be permitted under ~~Chapter 2, Section MR Ch. 2 ss. 5.8 of the market rules constitute~~ constitutes the amount of *prudential support obligation* for *physical transactions* that *market participants* not authorized as *energy traders* must submit. The *IESO* determines the *prudential support obligations* for *market participants* as follows:

- if the *maximum net exposure* calculated by the *IESO* for a *market participant* is positive, and available *prudential support* reductions do not lower the *market participant's prudential support obligation* to zero, the *market participant* must post prudential support to the *IESO*; and
- if a *market participant's maximum net exposure* for *physical transactions*, as calculated by the *IESO*, is zero or negative, the *market participant* is not required to post any *prudential support* to the *IESO* for *physical transactions*.

2.2.2.2. No Margin Call Option

(~~Market Rules: Chapter MR Ch.2, Sections ss.5.6.4 and 5.6.5~~)

For *market participants* that elect the *no margin call option*, the *IESO* establishes the *maximum net exposure* for those *market participants' physical transactions* by factoring in 70 calendar days of market activity into the calculation (~~Chapter 2, Section 5.6.5 of the market rules~~). The *IESO* does not take into account *physical bilateral contracts for the day-ahead market and real-time market towards in determining market participants' maximum net exposure for their physical transactions* under a *no margin call option*. Other than *small distributors*, *market participants* that elect the *no margin call option* are ineligible to receive reductions to their *maximum net exposure* (refer to ~~Chapter 5, Section 5.6.6 of the market rules~~ **MR Ch.2 ss.5.6.6**).

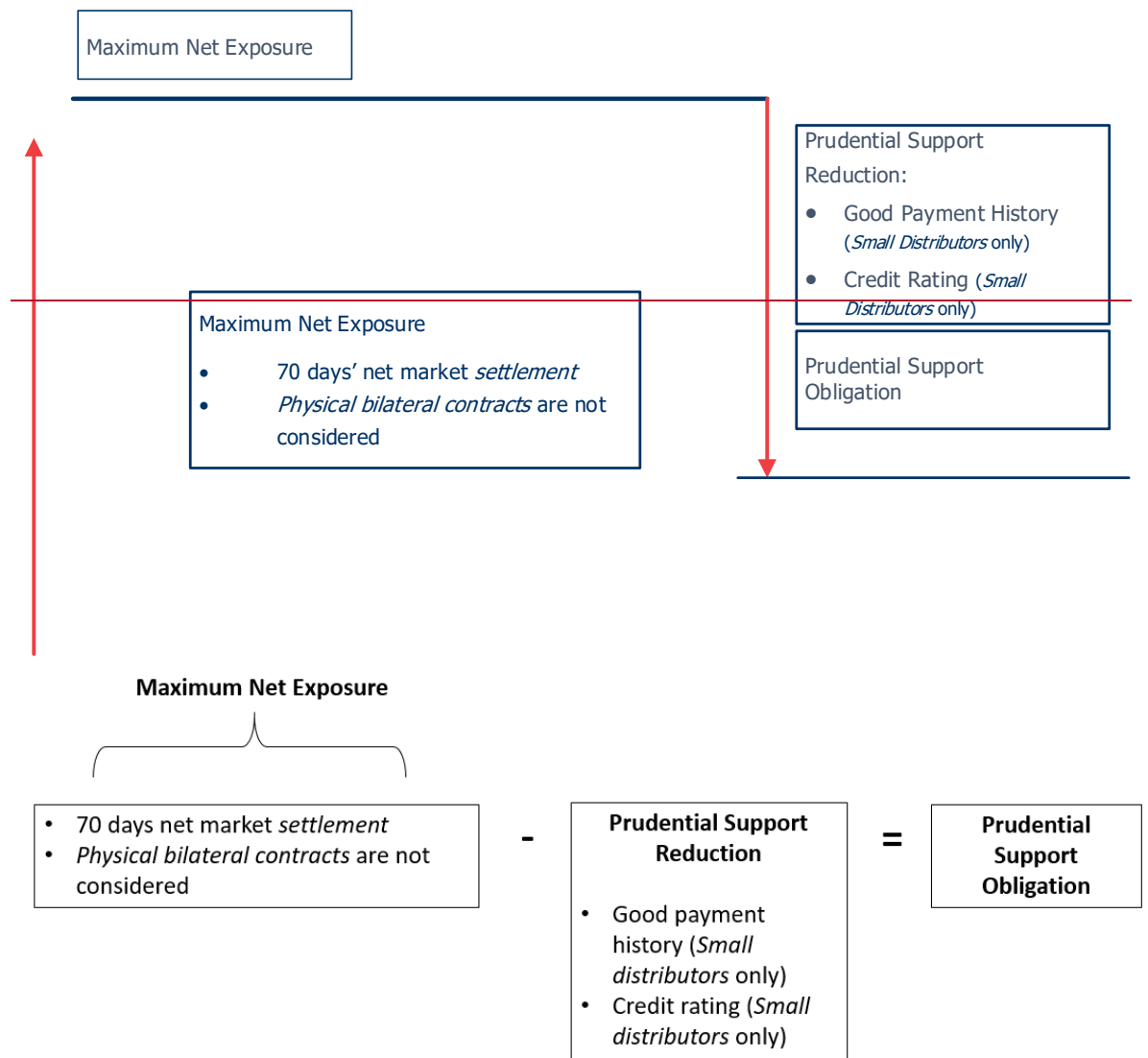


Figure 2-3: No Margin Call Option for Physical Transactions for a Market Participant that is not an Energy Trader

2.3. Informing Market Participants of their Prudential Support Obligations ~~Obligation for Physical Transactions~~

After determining *prudential support obligations*, the following steps occur to inform *market participants* of their *prudential support obligations*:

1. Online IESO presents the *market participants'* proposed *prudential support obligation* for their review in the **Tasks** tab.
2. If the *market participants* are satisfied with the *IESO*-proposed *prudential support obligation*, they ~~will~~ submit the proposed amount into Online IESO for processing.
3. Upon approval of this amount by the *IESO*, an email notification from the *IESO* will be sent to the *market participants* advising them that the *prudential support obligation*, as set out in Schedule A assessment results, is available in Online IESO. Schedule A assessment results also reflect whether any allowable reductions are applied to the calculation of the *prudential support obligation*.

2.4. Posting ~~of~~ Prudential Support for Physical Transactions

~~(Market Rules: Chapter 2, Section 5.7)~~

~~(MR Ch.2 ss.5.7 and 5.3.9)~~

~~After *market participants* receive their Schedule A assessment results, ~~they are then~~ required to post *prudential support* to satisfy their *prudential support obligation* for *physical transactions* with the *IESO* or the *IESO's* custodian. *Prudential support* must be posted at least two weeks before the *market participants* becomes authorized to participate in the *IESO-administered markets*. Furthermore, existing *market participants* that have previously posted *prudential support* in the form of a guarantee or letter of credit to satisfy their *prudential support obligation* for *physical transactions* must provide the *IESO* with updated *prudential support* for *physical transactions* in order to become authorized as *virtual traders* (Chapter 2, Section 5.7.3A of the *market rules*). Such *market participants* must provide the *IESO* with replacement *prudential support* dated no earlier than January 1, 2023.~~

~~The *prudential support* posted must, if required by *market participants* to **MR Ch.2 ss.5.3.9**, satisfy their *prudential support obligations* for *physical transactions* ~~must be in~~ by submitting one or a combination of the following formats as outlined in Chapter **MR Ch.2**, Section **ss.5.7.2** of the *market rules*:~~

- ~~• a guarantee or an irrevocable commercial letter of credit, which is in a form acceptable to the *IESO* and provided by:~~

~~a bank named in a Schedule to the *Bank Act, S.C. 1991, c.46*, with a minimum long-term credit rating of "A" from *Failure to provide and maintain prudential support* in an amount greater than or equal to the *prudential support obligation for physical transactions* constitutes an *IESO*-approved credit rating agency; or *event of default* under **MR Ch.3 ss.6.3.1.3.**~~

- ~~• a credit union licensed by the Financial Services Commission of Ontario with a minimum long-term credit rating of "A" from an *IESO*-approved credit rating agency;~~
- ~~• a guarantee in a form acceptable to the *IESO* provided by a person, other than an *affiliate* of the *market participant*, having a credit rating from an *IESO*-approved credit rating agency;~~
- ~~• marketable securities in the form of Canadian Government treasury bills. Such treasury bills shall be valued as cash at their current market value less 2% to take into account the potential eroding effects of interest rate increases;~~
- ~~• subject to Chapter 2, Section 5.7.4 and 5.7.4A of the *market rules*, a guarantee in a form acceptable to the *IESO* provided by a person that is a rated *affiliate* of the *market participant* and has a credit rating from an *IESO*-approved credit rating agency (refer to Chapter 2, Sections 5.7.2.2, 5.7.3A, 5.7.3B, 5.7.4 and 5.7.4A of the *market rules* for limits on the guarantee from a rated *affiliate*); or~~
- ~~• cash deposits made to the *IESO* by a *market participant* or on the *market participant's* behalf, as long as the *market participant* meets the following criteria:~~
 - ~~• the *market participant* had already met its *prudential support obligation* for *physical transactions* in whole or in part through a cash deposit on November 4, 2004; and~~
 - ~~• the *market participant's prudential support obligation* for *physical transaction* was \$200,000 or less on November 4, 2004 and it remains \$200,000 or less.~~

Once a *market participant* posts its *prudential support*, the *IESO* will review and, ~~upon acceptance~~once accepted, will send the *market participant* ~~an e-mail~~a notification stating that a detailed Schedule A is available in the **Prudential Support Obligation** tab of the **Prudential Manager**.

Market participants that are authorized to conduct both *physical transactions* and *virtual transactions* must post an authorized form of *prudential support* for each of their *prudential support obligations* for *physical transactions* and for *virtual transactions*.

2.5. Updating the Prudential Support Obligation for Physical Transactions

~~(Market Rules: Chapter MR Ch.2, Section ss.5.3.11 and 5.3.12)~~

To ensure that the *prudential support* posted by *market participants* is sufficient to satisfy their *prudential support obligations*, the *IESO* regularly reviews *market participants' prudential support obligations* for *physical transactions*. The *IESO* conducts this review in the ~~following~~ circumstances and applicable timelines set out in MR Ch.2 ss.5.3.11. Changes in a *market participant's* status that may trigger a review of its *maximum net exposure* under MR Ch.2 ss.5.3.11.3 may include:

- ~~• prior to the start of each *energy market billing period*, when the *IESO* reviews;~~
- ~~• the daily trading activity in MWh for *market participants* that are not an *energy trader* against their submitted daily quantity in MWh; or~~
- ~~• the average net settlement amounts for the most recent three *energy market billing periods* for *market participants* that are *energy traders*;~~
- ~~• within two business days after *market participants' actual exposure* for *physical transactions* exceeds the *market participants' trading limits* (with the exception of *market participants* under the *no margin call option*);~~
- ~~• within two *business days* after the *IESO* receives notice of any changes to the status of a *market participant* if the *IESO* determines that the change in such status would have a material impact on the *market participant's maximum net exposure*. Examples of such changes include operational changes, such as increase or decrease in load, peaks, etc.;~~
- ~~• when the *IESO* has adjusted the *minimum trading limit* for *market participants* that are *energy traders* conducting *physical transactions* pursuant to Chapter 2, Section 5.3.4.3 of the *market rules*;~~
- ~~• when the *IESO* has adjusted its price basis under Chapter 2, Section 5.3.10B of the *market rules*; and~~
- when the *IESO* annually estimates ~~future Class A or Class B~~ global adjustment amounts; and
- when there are operational changes, such as increase or decrease in expected consumption.

If the *IESO* review reveals that the *market participants' participant's maximum net exposure* for *physical transactions* has changed from the amount that was

previously determined, the *IESO* will update ~~the market participants'~~ Schedule A⁵ accordingly, ~~and inform. Under such circumstances,~~ the ~~market participants of the same. If market participants are~~ participant is required to ~~post~~supply additional ~~prudential support~~ as a result of the change to their ~~maximum net exposure for physical transactions,~~ they must provide the additional ~~prudential support~~ within five ~~business days~~ from the effective date of the change in accordance with MR Ch.2 ss.5.3.12.

~~There are circumstances where market participants may be required to re-establish a portion or all of their prudential support to ensure that their prudential support obligations for physical transactions are satisfied. These circumstances include but are not limited to:~~

- ~~• if any part of market participants' In the event the prudential support is due to expire or terminate, those market participants must provide the replacement at least 10 business days before the expiry date;~~
- ~~• if any part of market participants' prudential support is otherwise no longer current or valid, the market participants must provide a replacement within two business days of being notified to that effect by the IESO; or~~
- ~~• if the IESO draws or claims any part of the market participants' prudential support, the market participant must provide a replacement within five business days of receiving notice from the IESO.~~

~~1.1.2. Credit Warnings in the context of Physical Transactions~~

~~(Market Rules: Chapter 2, Section 5.8.2)~~

~~If the IESO determines that there is a credit watch negative warning for a market participant, there is an automatic one-notch reduction in has been reduced as result of the market participant's credit rating (for example, from BBB+ to BBB), as set out in Appendix B. A credit watch negative warning is generated when there is a movement of the market participant to a negative credit watch status by any IESO approved bond-rating agencies. The IESO will review the market participant's prudential support obligation for physical transactions and/or review the acceptability of any prudential guarantees received as prudential support for physical transactions, based on the revised credit rating of the guarantor or payment history; or has otherwise ceased to be valid, refer to MR Ch.2 ss.5.2.5, 5.2.6 and 5.2.7 respectively.~~

– End of Section –

⁵ A Schedule A sets out a market participant's prudential support obligation and is available in the "prudential support obligation" tab of the Prudential Manager on the *IESO* portal. Schedule A also reflects whether any allowable reductions are used in the calculation of the prudential support obligation.

3. Daily Monitoring of Prudential Support for Physical Transactions

The *IESO* verifies that each *market participant* has provided sufficient levels of *prudential support* to cover their ~~financial trading activity for both the day-ahead market and the real-time market.~~physical transactions. Daily monitoring applies to *market participants* ~~who are subject to margin calls by~~that have not elected~~the no margin call option.~~

Daily monitoring for ~~market participants authorized to conduct~~ *physical transactions* consists of the following activities:

- the *IESO* calculates *market participants'* estimated *actual exposure* using an estimate of charges;
- the *IESO* compares the calculated *actual exposure* against the *trading limit* to determine whether to issue a *margin call* or a *margin call warning*⁶ to a *market participant*; and
- *market participants* take actions to respond to *margin calls* or *margin call warnings*.

Throughout the process, *market participants* can view their own estimated *actual exposure* ~~and~~, *margin call warnings* and *margin calls* using the **Prudential Manager**.

3.1. ~~Estimated~~Estimating Actual Exposure for Physical Transactions

~~(Market Rules: Chapter (MR Ch. 2, Section s.5.5.1)~~

~~Market participants'~~The components of *actual exposure* for ~~their~~*physical transactions* are ~~comprised of the following components:~~calculated on a daily basis and include:

- cleared-but-not settled (for ~~resources that are not non-dispatchable resources/loads~~) or six-day activity estimate (for ~~resources that are not non-dispatchable loads~~);
- settled-but-not-invoiced;
- other *settlement amounts* estimated daily; and

⁶ The *IESO* issues *margin call warnings* by delivering a "Notice of Margin Call Warning" via a generic email.

- prepayments.

3.1.1. Cleared-But-Not-Settled or Six-Day Activity Estimate for Physical Transactions

Settlement amounts for a given *trading day* are first calculated by the *IESO* on the seventh calendar day following a *trading day*. ~~As a result~~ Therefore, the *IESO* ~~must estimate~~ estimates *actual exposure for physical transactions* during the six-calendar ~~day~~ days period ~~during which~~ when *settlements* data is unavailable using either the following ~~components: six-day activity estimate or the cleared-but-not-settled amounts.~~

- ~~for physical transactions conducted by market participants by using dispatchable resources: a cleared but not settled component; and~~
- ~~for physical transactions conducted by market participants by using resources that are not dispatchable: a six-day activity estimate component.~~

3.1.1.1. **Cleared-but-Not-Settled for Physical Transactions Conducted by a Market Participant by Using a Dispatchable Resource or Price Responsive Load**

The cleared-but-not-settled calculation ~~for physical transactions~~ applies to market participants conducting physical transactions using dispatchable resources. It is an estimate based on *bids* and *offers* of the net amount of *dispatched energy* and *operating reserve* that has not yet been settled. Cleared-but-not settled amounts are applicable to market participants conducting physical transactions using the following resources:

~~Cleared but not settled amounts for physical transactions are applicable to market participants using the following dispatchable resources:~~

- ~~dispatchable generation resources;~~
- ~~dispatchable loads; and~~
- ~~boundary entity resource import and export transactions.~~
- ~~For the purpose of calculating the cleared but not settled component, physical transactions conducted by market participants by using price responsive loads are subject to the same methodology as used for dispatchable loads;.~~

~~The IESO updates the cleared but not settled component applicable to the physical transactions conducted by market participants by using a dispatchable resource on a daily basis.~~

- electricity storage resources; and

- boundary entity resources.

At any given time, the IESO's rolling six-calendar days cleared-but-not-settled calculation covers the previous six calendar days withof market activity that has not yet been re-categorized under the settled-but-not-invoiced component. ~~On the seventh calendar day following a given trading day with market activity, the IESO removes the amount for the oldest calendar day from the six calendar day rolling calculation of the cleared but not settled calculation and adds the amount from the calendar day to the settled but not invoiced total. The daily update to the cleared but not settled calculation by the IESO reflects the total based on the cleared but not settled calculation for that trading day.~~

3.1.1.2. Six-Day Activity Estimate Calculation

1.1.2.1. The six-day activity calculation is an estimate of consumption and injections for Physical Transactions Conducted by a Market Participant by Using a Resource *physical transactions, that is Not Dispatchable*

has not yet been settled. The six-day activity estimate calculation for *physical transactions* applies to *market participants* conducting *physical transactions using resources that are not dispatchable*. ~~Physical transactions conducted by market participants by using resources that are not dispatchable include but are not limited to:~~

- ~~transactions arising from the consumption of energy from non-dispatchable loads such as local distribution companies; and~~
- ~~transactions arising from the injection of energy by market participants using self-scheduling generation resources.~~

For a given *trading day*, the IESO's rolling six-day activity estimate uses the average Allocated Quantity of Energy Withdrawn ("AQEW") or the Allocated Quantity of Energy Injected ("AQEI") from the previous six calendar days and multiplies the quantities by the applicable average daily prices.

3.1.2. Settled-but-Not-Invoiced for Physical Transactions

The settled-but-not-invoiced component represents *settlement amounts* specific to a *market participant-participant's physical transactions* that appear on ~~the~~their *preliminary settlement statements* or *final settlement statements* but that have not yet appeared on ~~the~~the *market participant's invoice*.

~~The IESO determines the settled but not invoiced component of the actual exposure for physical transactions based on a market participant's day-ahead market. This includes both hourly and real-time market activity. All non-hourly settlement amounts used in the settled but not invoiced component are either~~

~~hourly or non-hourly charges~~ from a *market participant's preliminary settlement statements* and *final settlement statements*. For details on physical market settlement statements, refer to Market Manual 5 Settlements Part 5.5: Physical Markets Settlement Statements ~~Market Manual 5.5: Physical Markets Settlement Statements~~.

3.1.3. Other Settlement Amounts Estimated Daily

On a daily basis, the *IESO* estimates other *settlement amounts*. The other *settlement amounts* do not fall under the category of cleared-but-not-settled, ~~nor~~ six-day estimate, and are non-hourly. The majority of these ~~non-hourly settlement amounts~~ are calculated based on legislation and regulation in Ontario charges provided by applicable law. *Market participants* may view all *settlement amounts* under the *actual exposure* calculation through the **Estimated Net Exposure** tab in the **Prudential Manager**.

3.1.4. Prepayments

Market participants may reduce the level of their estimated *actual exposure* at any time by making a pre-payment ~~prepayment~~ to the *IESO*, and then logging in to send the *IESO* an electronic Notification of Prepayment using **Prudential Manager**. These prepayments are then applied to the *invoice* once the invoice is issued. These include *margin call* prepayments and voluntary prepayments.

3.2. Margin Call Warnings and Margin Calls for Physical Transactions

~~(Market Rules: Chapter MR Ch.2, Section ss.5.4 and 5.6)~~—

Table 3-1 summarizes the actions taken by the *IESO* based on a comparison of *market participants' trading limit* for *physical transactions* and their *actual exposure* for *physical transactions*.

Table 3-1: Actions Taken as a Result of Daily Monitoring of Physical Transactions

Trading Limit – AE comparison	IESO Action	Market Participant Action
<i>Actual exposure</i> < 70 % <i>trading limit</i>	None	None
70% <i>trading limit</i> ≤ <i>actual exposure</i> < 100 % <i>trading limit</i>	The <i>IESO</i> issues a "Notice of Margin Call Warning" to <i>market participants</i> for their <i>physical transactions</i> for the day-ahead market and the real-time market via a generic <u>e-mail</u> email .	Market participants may make a cash payment to reduce a portion of any amounts payable to the IESO to reduce their actual exposure for physical transactions, or take other appropriate actions to ensure that

Trading Limit – AE comparison	IESO Action	Market Participant Action
		their actual exposure for physical transactions does not reach their trading limit for physical transactions (Chapter 2, Section 5.4.1 of the market rules). Refer to MR Ch.2 ss.5.4.1.
Actual exposure >= 100 % trading limit	The IESO issues a <i>margin call notice</i> to market participants for their <i>physical transactions</i> for the day-ahead market and the real-time market via a generic e-mail.	A market participant is required to satisfy a margin call by paying cash in an amount sufficient to reduce its actual exposure for physical transactions to no more than 75% of the market participant's trading limit for physical transactions (Chapter 2, Section 5.6.1 and 5.6.2 of the market rules). Note, payment must be made by 4:00 pm eastern prevailing time (EPT) on the second business day following the date of the <i>margin call</i> . Refer to MR Ch.2 ss.5.6.1 and 5.6.2.

~~Note, market~~

Market participants can log on to the **Prudential Manager** located on the IESO portal to view *margin call* warnings and *margin call* details.

~~The IESO has the authority to draw upon all or part of the market participant's prudential support for physical transactions in the event that market participants default on their required margin call payment. Market participants are considered to have defaulted on the required margin call payment if their actual exposure for physical transactions is not reduced to no more than 75% of the trading limit for physical transactions by 4:00 pm EPT on the second business day following the date of the margin call.~~

– End of Section –

4. Setting Prudential Support Obligations for Virtual Transactions

The *IESO* requires that *market participants* be authorized as *virtual traders* to conduct *virtual transactions* in the *day-ahead market* (refer to [Market Manual 1: Connecting to Ontario's Power System Part 1.5: Market Registration Procedures](#) [Market Manual 1.5: Market Registration Procedures, Section 2](#)). To account for the heightened risk profile associated with *virtual transactions*, the authorization to conduct *virtual transactions* gives rise to a *prudential support obligation* specific for *virtual transactions*. Therefore, the *IESO* calculates the *prudential support obligation* for *virtual transactions* and *actual exposure* for *virtual transactions* differently than for *physical transactions*.

The following section describes the process of setting *market participants' prudential support obligations* and posting of *prudential support* for *market participants* authorized as *virtual traders*.

The process is ~~made up of largely consistent with~~ the following activities:

- ~~1. Market participants submit prudential support information to the IESO using Online IESO.~~
- ~~2. The IESO uses the information submitted by four steps outlined in Section 2 of this market participants to determine that market participant's prudential support obligation subject to any applicable reductions.~~
- ~~3. The IESO informs market participants of their prudential support obligation. If this is the first time market participants have submitted prudential support or if there is a requirement to change the amount of prudential support, the IESO will inform market participants through Online IESO.~~
- ~~4. Market participants post their prudential support in a form required by the IESO.~~

~~The IESO receives the prudential support and either accepts or rejects the prudential support. If the prudential support is accepted by the IESO, the IESO sends an e-mail notification to the market participant which states the detailed Schedule A⁷ is available to be viewed by the market participant manual in the **Prudential Support** tab of the **Prudential Manager** context of *physical transactions*.~~

⁷A Schedule A sets out a *market participant's prudential support obligation* and is available in the **Prudential Support Obligation** tab of the **Prudential Manager** on the *IESO* portal.

4.1. Submitting Prudential Support Information for Virtual Transactions

As part of the Authorization and Participation process described in ~~Market Manual 1: Connecting to Ontario's Power System Part 1.5: Market Registration Procedures~~ Market Manual 1.5: Market Registration Procedures, all *market participants* must submit their *prudential support* information using Online IESO. To do this, each *market participant* must first assign a Prudential Requirements Contact, ~~who will be granted permissions in Online IESO to submit information required to establish the market participant's prudential support obligation.~~ The Prudential Requirements Contact is also the *IESO's* point of contact for matters relating to *prudential support*. ~~as described in section 2.1 of this market manual.~~

After authorization, ~~market participants~~ must keep the *IESO* informed of circumstances that could change their *prudential support obligation for virtual transactions* by using Online IESO. ~~Market participants~~ must confirm that all amounts of *prudential support* continue to satisfy the *market participants' prudential support obligation*. Notably, this is likely to occur in the circumstances that include but are not limited to:

- ~~• if there has been a change to the market participant's credit ratings; or~~
- ~~• if an event of default occurs.~~

Market participants authorized (or requesting authorization) to conduct *virtual transactions* shall provide, ~~using Online IESO,~~ their two sets of information:

- maximum daily trading limit. This limit represents; and
- application for reductions.

4.1.1. Maximum Daily Trading Limit

(MR Ch.2 ss.5C.1.3)

~~Market participants~~ may submit the *maximum* quantity ~~a virtual trader may bid or offer in a given trading day~~ and is the absolute value in MWh that can be submitted by a *virtual trader*. ~~The maximum daily trading limit is the input by which market participants may to~~ adjust the amount of their *trading limits* for *virtual transactions*, and accordingly, their *prudential support obligations for virtual transactions*. ~~In addition, market participants should review their maximum daily trading limit prior to the start of each billing period and submit a revised maximum daily trading limit, as appropriate.~~

The *maximum daily trading limit* is applicable for all *energy market billing periods* until a revised *maximum daily trading limit* is submitted by *market participants*. ~~If market participants submit a~~ and authorized by the IESO. Once authorized, the revised *maximum daily trading limit*, ~~this maximum daily trading limit~~ will supersede

any previous *maximum daily trading limit* ~~once approved by the IESO.~~ If the revised *maximum daily trading limit* results in an increase in the *market participants' prudential support obligations* for ~~its~~ *virtual transactions*, the *market participant* must provide the *IESO* with additional *prudential support* before the *IESO* authorizes the increase in the *maximum daily trading limit*. *Market participants should review their maximum daily trading limit prior to the start of each billing period and submit a revised maximum daily trading limit, as appropriate.*

4.1.2. Determining Application for Reductions

(MR Ch. 2, s.5C.6)

Market participants may be eligible for a reduction to their maximum net exposure for virtual transactions based on their credit with the IESO in accordance with MR Ch.2, ss.5C.6.1. Reductions will be based upon the average of the most recent six consecutive invoices where the market participant conducts physical transactions using a generation resource or injects energy using an electricity storage resource and is eligible for market creditor status.

4.2. Calculating the Prudential Support Obligation for Virtual Transactions

(MR Ch.2 ss.5C.1 and 5C.5)

The *prudential support obligations* for *virtual transactions* represents an amount that is distinct from a *prudential support obligation* for *physical transactions*, and is determined using a different methodology. Notable differences between the calculation of a *prudential support obligation* for *physical transactions* and a *prudential support obligation* for *virtual transactions* include the following:

- the *no margin call option* is unavailable to *market participants* authorized to conduct *virtual transactions*; and
- *prudential support obligations* for *virtual transactions* are not eligible for the same reductions available for *prudential support obligations* for *physical transactions*.

The *IESO* undertakes the following five-step process to establish the *prudential support obligation* for *virtual transactions*:

1. ~~Establish~~establishes the price delta quantity applicable to all *market participants* authorized to conduct *virtual transactions*.;
2. ~~Calculate~~calculates the *minimum trading limit (in dollars) for the market participant*.as a dollar amount;

3. ~~Calculate~~calculates the *default protection amount (in dollars) for the market participant as a dollar amount*;
4. ~~Apply~~applies a market creditor status reduction to the prudential support obligation for virtual transactions based on ~~credit received for its~~ physical transactions as a generator, if applicable; ~~and~~
5. ~~Determine~~determines the prudential support obligation for ~~the market participant (in dollars)~~virtual transactions.

Figure 4-1 provides an illustration of how a *market participant's virtual transaction prudential support obligation* is determined.

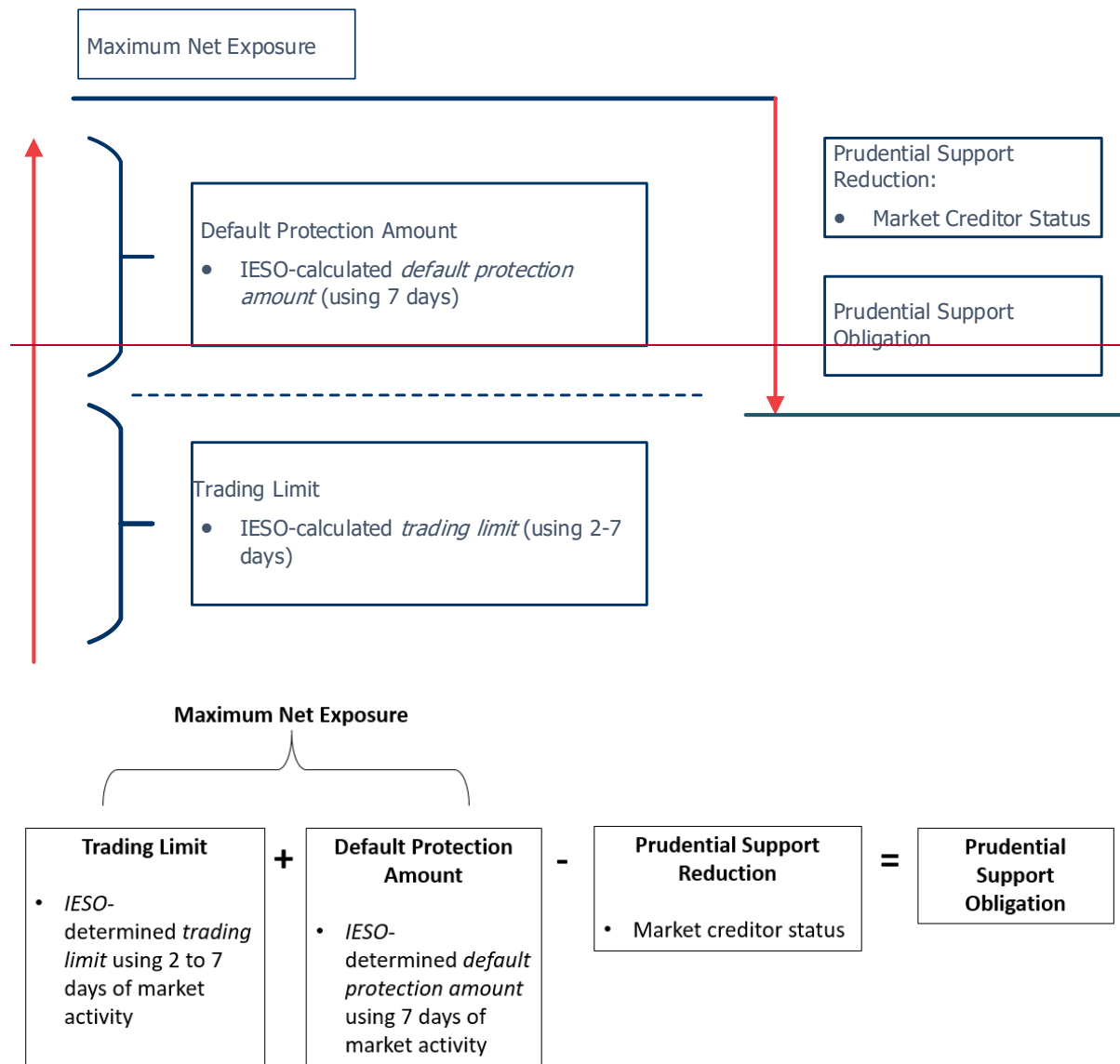


Figure 4-1: Margin Call Option for Virtual Transactions

4.2.1. Determining the Price Delta for Prudential Support Obligation for Virtual Transactions

~~(Market Rules: Chapter MR Ch.2, Section ss.5C.1.9)~~

~~To~~One of the inputs the IESO uses to determine market participants' prudential support obligations for virtual transactions, ~~the IESO uses various inputs. One of these inputs~~ is a price delta that is applicable to all virtual traders at a given time. The IESO ~~calculates a single price delta for an interim period and an enduring period using historical data. The price delta for the interim period will be calculated using historical data based on outcomes from the day-ahead commitment prices and shadow prices. After the IESO accumulates day-ahead market and real-time market historical price data for the period mentioned in the section below, the IESO will calculate an enduring price delta. The circumstances where the IESO is required to review the interim price delta are the same as the circumstances used for the enduring price delta.~~

4.2.1.1. Enduring-Price Delta for Prudential Support Obligation for Virtual Transactions

~~The IESO determines a price delta between the day-ahead market and the real-time market applicable to virtual traders. A single price delta applies to all virtual traders and is used as one of the inputs by the IESO to calculate the:~~

- ~~• minimum trading limit for virtual transactions; and~~
- ~~• default protection amount for virtual transactions.~~

~~(MR Ch.2 ss.5C.1.9.1, 5C.1.10 and 5C.1.11)~~

The price delta represents the absolute value of the difference between the day-ahead virtual zonal energy price and the hourly average real-time virtual zonal energy prices. ~~Each year, the~~The IESO determines the price delta on an annual basis by:

- ~~• collecting energy prices for all hours over the most recent three years for all virtual transaction zonal trading entities;~~
- assessing~~calculating~~ the difference between the day-ahead virtual zonal energy price and the applicable hourly average real-time virtual zonal energy price; for each hour and virtual transaction zonal trading entity for the previous three years; and
- ~~• identifying the 97th percentile value for this data set; and~~
- modifying as the new price delta if it has increased or decreased by 15% or more from the previous delta. value.

~~The IESO publishes the price delta for market participants through the IESO website. The IESO annually updates the data used to calculate the price delta by~~

~~replacing the data from the oldest year with data from the most recent year. The IESO also performs an annual review, and modifies the price delta if it has increased or decreased by 15% or more from the previous delta.~~

The IESO reviews and, if required, publishes a revised price delta in accordance with MR Ch.2 ss.5C.1.10 and 5C.1.11.

4.2.1.2. Interim Price Delta for Prudential Support Obligation for Virtual Transactions

~~The IESO uses (MR Ch. 2, s.5C.1.9.2)~~

~~For an interim price delta, made up of a smaller data set period, until three years of hourly day-ahead virtual zonal energy prices market and hourly average real-time virtual zonal energy prices are available. market price data has been accumulated, the IESO will calculate an interim price delta that includes shadow prices from the day-ahead commitment process.~~

Similar to the enduring price delta, the IESO uses the 97th percentile of interim price delta data to set the interim price delta to be used for the calculation of prudential support obligations for virtual transactions.

4.2.2. Determining the Minimum Trading Limit for Virtual Transactions

(MR Ch.2 ss.5C.1.5 and 5C.1.9)

The IESO calculates market participants' minimum trading limit ~~(in dollars)~~ for virtual transactions based on the following inputs:

- ~~• the maximum daily trading limit quantity;~~
- ~~• the number of trading days of exposure, in accordance with MR Ch. 2, s.5C.1.5;~~
- ~~• the price delta as described in MWh submitted by section 4.2.1 of this market participants manual; and~~
- ~~• the estimated virtual uplift rate, which represents the IESO's estimation of day-ahead market reliability unit commitment uplift amounts that may be incurred by virtual transaction offers to provide energy. This rate may be updated on an annual basis if it increases or decreases by 15% or more.~~

The IESO-determined minimum trading limit for virtual transactions will be the market participants' trading limit for their virtual transactions.

~~The following equation contains the formula for calculating the~~ The minimum trading limit for virtual transactions in dollars, TL_{VT}\$, is calculated as follows:

$$TL_{VT\$} = [(TL_{VT} \times \Delta DAP_{VT}, ARTP_{VT} \times \#Days_{TL}) + (U_{VT} \times TL_{VT} \times \#Days_{TL})]$$

$$TL_{VT\$} = (\Delta DAP_{VT}, ARTP_{VT} + U_{VT}) \times TL_{VT} \times \#Days_{TL}$$

where:

Variable	Description
$TL_{VT\\$}$	is the minimum trading limit for virtual transactions (in dollars);
TL_{VT}	is the market participant-submitted absolute value of the maximum daily trading limit quantity (in MWh) for virtual transactions;
$\Delta DAP_{VT}, ARTP_{VT}$	is the IESO-determined price delta calculated in accordance with Section 4.2.1 of this market manual;
$\#Days_{TL}$	is the minimum trading limit assessment period for virtual transactions denoted as a number of calendar days assuming two calendar days of participation in the day-ahead market with the IESO's authority to increase up to and including seven calendar days if the market participant was subject to more than one margin call per energy market billing period; and, and
U_{VT}	is the virtual transaction uplift estimation rate in \$/MWh. This is the IESO's estimation of day-ahead market reliability unit commitment uplift amounts that may be incurred by virtual transaction offers to provide energy. This rate may be updated on annual basis if it increases or decreases by 15% or more.

4.2.3. Determining the Default Protection Amount for Virtual Transactions

~~(Market Rules: Chapter MR Ch.2, Section ss.5C.1.7)~~

The IESO determines the default protection amount for virtual transactions using the same formula ~~to calculate as that for~~ the minimum trading limit for virtual transactions. ~~Although the formula is the same, the number of calendar days used in each calculation can differ. When calculating the default protection amount, the IESO uses, but using~~ seven calendar trading days of participation in the day-ahead market exposure.

The ~~following equation contains the formula for the default protection amount for virtual transactions: in dollars, $DPA_{VT\$}$, is calculated as follows:~~

$$DPA_{VT\$} = [(TL_{VT} \times \Delta DAP_{VT}, ARTP_{VT} \times \#Days_{DPA}) + (U_{VT} \times TL_{VT} \times \#Days_{DPA})]$$

where:

Variable	Description
TL_{VT}	is the <i>market participant</i> submitted absolute value of the <i>maximum daily trading limit</i> quantity (in MWh) for <i>virtual transactions</i> ;
$\Delta DAP_{VT}, ARTP_{VT}$	is the <i>IESO</i> –determined price delta calculated in accordance with Section 4.2.1 of this <i>market manual</i> ;
$\#Days_{DPA}$	is the <i>default protection amount</i> assessment period for <i>virtual transactions</i> for seven calendar days; and
U_{VT}	is the <i>virtual transaction</i> uplift daily estimation rate, in \$/MWh. This is the same as the rate used for the calculation of the <i>minimum trading limit</i> for <i>virtual transactions</i> .

~~1.1.3. Applicable Reduction~~

~~4.2.3.1. (Market Rules: Chapter Application of Reductions~~

~~(MR Ch.2, Section ss.5C.6)~~

~~Market participants may be eligible for a reduction to their~~ The IESO will reduce the maximum net exposure for virtual transactions based on their credit with the IESO in accordance with Chapter 2, Section 5C.6.1 of if the IESO’s approves the market participant’s market credit status, as expressed described in section 4.1.2 of this market manual.

4.2.4. Determining the Prudential Support Obligation for Virtual Transactions

The prudential support obligation for virtual transactions in the following equation, $PSO_{VT\$}$, is calculated as follows:

$$PSO_{VT\$} = TL_{VT\$} + DPA_{VT\$} - (0.75 \times AIS_{VT\$})$$

where:

Variable	Description
$PSO_{VT\$}$	is the <i>market participant’s prudential support obligation</i> for <i>virtual transactions</i> (in dollars)
$TL_{VT\$}$	is the <i>minimum trading limit</i> for <i>virtual transactions</i> (in dollars)
$DPA_{VT\$}$	is the <i>default protection amount</i> for <i>virtual transactions</i> (in dollars)

Variable	Description
AIS _{VT} \$	is the average of its most recent six consecutive <i>invoices</i> (<u>in dollars</u>) where a <i>market participant</i> conducts <i>physical transactions</i> using a <i>generation unit</i> <u>or injects energy using and electricity storage resource</u> and is eligible for market creditor status (in dollars)

4.3. ~~Posting~~ Informing Market Participants of their Prudential Support Obligation for Virtual Transactions

~~(Market Rules: Chapter 2, Section~~ Refer to section 2.3 of this *market manual*.

4.4. Posting Prudential Support for Virtual Transactions

~~(MR Ch.2 ss.5C.5)~~

~~Market~~After *market participants* may receive their Schedule A assessment results, the market participants must satisfy their *prudential support obligations* for *virtual transactions* by submitting a guarantee or an irrevocable commercial letter of credit, which a combination of the formats outlined in ~~both cases must be~~ **MR Ch.2 ss.5C.5.2**. Failure to provide and maintain *prudential support* in an amount greater than or equal to the *prudential support obligation* for *virtual transactions* constitutes an *event of default* under **MR Ch.3 ss.6.3.1.3**.

~~Once a form acceptable to~~ *market participant* posts its *prudential support*, the *IESO* and provided by ~~(Chapter 2, Section 5C.5.2 of the market rules)~~: will review and, once accepted, will send the *market participant* a notification stating that a detailed Schedule A is available in the **Prudential Support Obligation** tab of the **Prudential Manager**.

- ~~• a bank named in a Schedule to the Bank Act, S.C. 1991, c.46, with a minimum long term credit rating of "A" from an IESO approved credit rating agency; or~~
- ~~• a credit union licensed by the Financial Services Commission of Ontario with a minimum long term credit rating of "A" from an IESO approved credit rating agency.~~

Market participants that are authorized to conduct both *physical transactions* and *virtual transactions* must post an authorized form of *prudential support* for each of their *prudential support obligations* for *physical transactions* and *virtual transactions*. The *IESO* may draw upon both *physical forms of prudential support* and *virtual forms of prudential support* in the *event of default* by *market participants* engaging in both *physical transactions* and *virtual transactions*.for *virtual transactions*.

4.4.4.5. Updating the Prudential Support Obligation for Virtual Transactions

(Market Rules: Chapter MR Ch.2, Section ss.5C.1.12 and 5C.1.13)

The IESO will, on an ongoing basis, review a market participant's minimum trading limit, trading limit, default protection amount and maximum net exposure, for virtual transactions in circumstances that include:

- prior to the start of each energy market billing period;
- within two business days after a market participant's actual exposure for virtual transactions exceeds the market participant's trading limit for virtual transactions;

within two business days after it receives notice of any changes to the status of a market participant as compared to such status that was in effect when the market participant posted its prudential support. To ensure that the prudential support posted by market participants is sufficient to satisfy their prudential support obligations, the IESO regularly reviews market participants' prudential support obligations for virtual transactions. The IESO conducts this review in the circumstances and applicable timelines set out in MR Ch.2 ss.5C.1.12. Changes in a market participants' status that may trigger a review of its maximum net exposure under MR Ch.2 ss.5C.1.12.3 include changes to the market participant's net creditor status.

- If the IESO review reveals that the market participant's maximum net exposure for virtual transactions was last calculated if has changed from the IESO determines amount that the change in such status would have a material impact on the market participant's maximum net exposure for virtual transactions (e.g., change in the market creditor status of a market participant conducting virtual transactions);
- when the IESO has adjusted a market participant's minimum trading limit, if the market participant was subject to more than one margin call per billing period, pursuant to (Chapter 2, Section 5C.1.4 of the market rules);
- when the IESO has adjusted the price delta under (chapter 2, Section 5C.1.9 of the market rules); and
- when the market participant amends its was previously submitted maximum daily trading limit quantity (in MWh) for virtual transactions.

Should a market participant's maximum net exposure for virtual transactions change as revealed over the course of the IESO's review determined, the IESO will inform the market participant of an updated update Schedule A. In all accordingly. Under such cases where circumstances, the prudential support obligation increases, market participants must respond by providing participant is required to supply

~~additional *prudential support* for their *virtual transactions* within five *business days* from the effective date of the change in accordance with **MR Ch.2 ss.5C.1.13**.~~

~~Similarly, *market participants* must keep the *IESO* informed of circumstances that could change their *prudential support obligation* for *virtual transactions* and ensure that all amounts of *prudential support* continue to satisfy the *market participants'* *prudential support obligations*.~~

~~There are circumstances where a *market participant* may be required to update a portion or all of its *prudential support* for *virtual transactions* to ensure that its *prudential support* obligation is satisfied. These circumstances include:~~

- ~~• if any part of a *market participant's* *prudential support* is due to expire or terminate, the *market participant* must provide the replacement at least 10 *business days* before the expiry date;~~

~~if any part of a *market participant's prudential support* is or otherwise no longer current or ceases to be valid, the *market participant* must provide a replacement within two *business days*; and refer to **MR Ch.2 ss.5.2.5** and **5.2.7** respectively.~~

- ~~• if the *IESO* draws or claims any part of the *market participant prudential support*, the *market participant* must provide a replacement within five *business days* of receiving notice from the *IESO*.~~

~~If a revision to the maximum daily *trading limit* is not submitted by *market participants*, the *IESO* treats the previously submitted maximum daily *trading limit* for *virtual transactions* as a standing maximum daily *trading limit* for *virtual transactions* (Chapter 2, Section 5C.1.3 of the *market rules*).~~

– End of Section –

5. Daily Monitoring of Prudential Support for Virtual Transactions

The IESO verifies that each market participant has provided sufficient levels of prudential support to cover their virtual transactions. The IESO monitors market participants' virtual transaction activity within the IESO-administered markets using two methods:

- the IESO performs the daily screening of *bids* and *offers* that have been submitted-but-not-cleared during the *day-ahead market* submission window with respect to *virtual transactions*; and
- the IESO performs the daily monitoring of *actual exposure* for market participants' *virtual transactions* against that market participant's IESO-determined *trading limit* for *virtual transactions*.

These methods require the IESO to determine and use *day-ahead market* to *real-time market* price deltas, which are described in greater detail in the sub-sections that follow.

5.1. Daily Screening of Virtual Transactions

~~(Market Rules: Chapter 2, Section 5C.2.3)~~

~~Market participants that submit bids and offers related to~~ Information submitted during the prudential support process for virtual transactions for the day-ahead market during the day-ahead market submission window will have all of their virtual transactions rejected if they fail either of is used for the following two screenings at the stage of submitting dispatch data on virtual zonal resources:

- daily *bid* and *offer* quantity screening; ~~or~~ and
- daily dollar exposure screening.

If market participants fail ~~one~~ either of the screenings, they will receive a rejection message through the ~~Energy Market Interface ("EMI")~~ and will not be able to submit *bids* or *offers* in the *day-ahead market* up until the close of the *day-ahead market submission window* for a given *trading day*. In order to avoid the rejection of the *virtual transaction bids and offers*, market participants should consider using the formulae listed in ~~Chapter MR Ch. 2, Section ss. 5C.2.1 of the market rules~~ to calculate the potential exposure for their *virtual transaction bids and offers*.

5.1.1. Daily Bid and Offer Quantity Screening

(MR Ch. 7, s.3.8B.3)

The *IESO* screens the ~~market participants submitted virtual transaction participants' bid and offer quantities (in MWh) against their maximum daily trading limit quantity (in MWh) supplied by market participants in the EMI. The IESO will reject the market participants' submitted virtual transaction bid and offer quantities should the market participants' virtual transaction bids and offer quantities (in MWh) exceed their maximum daily trading limit quantity (in MWh). The IESO's daily bid and offer quantity screen calculate the absolute value of the sum of all virtual transaction bid and offer energy quantities (in MWh) submitted by the market participant at any of the submitted on virtual zonal trading entities resources during the day-ahead market submission window. against their maximum daily trading limit quantity (in MWh), as described in **MR Ch.7 ss.3.8B.3.**~~

5.1.2. Daily Exposure Screening

(MR Ch.7 ss.3.8B.1.4)

The *IESO* screens ~~whether the market participants' IESO-estimated daily cumulative market participants' bid and offer prices (in dollars) submitted on virtual zonal resources during the day-ahead market submission window, by calculating a submitted-but-not-cleared dollar exposure exceeds and comparing it against the market participants' IESO-determined virtual transaction trading limit margins. Refer to **MR Ch.7 ss.3.8B.1.4.**~~

The submitted-but-not-cleared dollar exposure, $SNC_{VT\$}$, used by the *IESO* as part of the daily dollar exposure screen is calculated as follows:

$$SNC_{VT\$} = \sum_{m=1}^M \sum_{h=1}^{24} \left[SNC_{VTm,h} \times \Delta (DAP_{VTZm,h}, ARTP_{VTZm,h}) \right] + (U_{VT} \times SNC_{VTm,h})$$

Where:

<u>Variable</u>	<u>Description</u>
M	is the set of all <u>virtual zonal resources</u>
$SNC_{VTm,h}$	is the absolute sum of submitted quantities of <u>bids and offers</u> submitted in respect of <u>virtual transactions (in MWh) by market participant for settlement hour h at the virtual zonal resource m. The quantity (in MWh) will be zero for each trade date at the start of the day-ahead market submission window;</u>
$DAP_{VTZm,h}, ARTP_{VTZm,h}$	is the <u>IESO-determined price delta</u> calculated in accordance with section 5.3 of this <u>market manual;</u> and
U_{VT}	is the <u>virtual transaction uplift estimation rate, in \$/MWh. This is the IESO's estimation of day-ahead market reliability unit commitment uplift amounts that</u>

Variable**Description**

may be incurred by energy offers for virtual zonal resources .

The *IESO* determines the market participants' virtual transaction trading limit margins by deducting the market participants' actual exposure for virtual transactions, described in section 5.2 of this market manual from their *trading limit for virtual transactions* on a daily basis.

~~The following equation contains the formula for the submitted but not cleared dollar exposure used by the IESO as part of the daily dollar exposure screen:~~

$$SNC_{VT\$} = \sum_{m=1}^M \sum_{h=1}^{24} \left[SNC_{VT,m,h} \times \Delta (DAP_{VTZ,m,h}, ARTP_{VTZ,m,h}) \right] + (U_{VT} \times SNC_{VT,m,h})$$

~~Where:~~

Variable**Description**

~~$SNC_{VT\$}$~~

~~is the IESO-estimated daily cumulative submitted but not cleared dollar exposure. This dollar value will be \$0 for each trade date at the start of the day-ahead market submission window;~~

~~M~~

~~is the set of all virtual zonal trading entities~~

~~$SNC_{VT,m,h}$~~

~~is the absolute sum of submitted quantities of bids and offers submitted in respect of virtual transactions (in MWh) by market participant for settlement hour h at the virtual zonal trading entity m. The quantity (in MWh) will be zero for each trade date at the start of the day-ahead market submission window;~~

~~$DAP_{VTZ,m,h}, ARTP_{VTZ,m,h}$~~

~~is the IESO-determined price deltas calculated in accordance with Section 5.3 of this market manual; and~~

~~U_{VT}~~

~~is the virtual transaction uplift estimation rate, in \$/MWh. This is the IESO's estimation of day-ahead market reliability unit commitment uplift amounts that may be incurred by virtual transaction offers to provide energy.~~

Daily Monitoring of Virtual Transaction

5.2. Estimating Actual Exposure and Trading Limit for Virtual Transactions

(Market Rules: Chapter (MR Ch.2, Section ss.5C.3.1)

~~Actual exposure for virtual transactions consists of all financially unsettled and settled day-ahead market transactions attributable to market participants' virtual transactions. The IESO calculates and accrues market participants' actual exposure for their virtual transactions from the start of a given billing period up to and including three business days prior to invoice issuance, net of any prepayments made after the issuance of the previous month's invoice and up to one business day prior to the issuance of the current month's invoice. The IESO monitors market participants' actual exposure for their virtual transactions against the market participants' IESO-determined virtual transaction trading limit on a daily basis. The amounts of actual exposure and trading limit for virtual transactions used for the daily monitoring by the IESO are available on the Prudential Manager.~~

The IESO takes into account market participants' virtual transaction day-ahead market activity when determining the components of actual exposure for the market participant. The components of actual exposure for virtual transactions are calculated on a daily basis and include:

- cleared-but-not-settled;
- settled-but-not-invoiced; and
- prepayments.

~~Similar to physical transactions, prepayment allows for the reduction in actual exposure. These prepayments can be either voluntary prepayments or margin call prepayments.~~

5.2.1. Cleared-but-Not-Settled Component for Virtual Transactions

The cleared-but-not-settled component includes the sum of a market participant's bids and offers submitted ~~with respect to their~~ for virtual transactions ~~zonal resources~~ for the previous six consecutive ~~rolling~~ calendar days that have cleared the day-ahead market ~~and the real-time market~~ but have not yet been settled. ~~The six-calendar days~~ This amount is calculated based on the price deltas described in section 5.3 of cleared but not settled can be further broken down into the following two categories: ~~this market manual.~~

- ~~day-ahead market cleared but not settled; and~~
- ~~real-time market cleared but not settled.~~

~~1.1.3.1. Day-Ahead Market Cleared but Not Settled Calculation for Virtual Transactions~~

~~A market participant's day-ahead market cleared but not settled amount for virtual transactions, includes virtual transaction day-ahead market schedules and IESO-estimated virtual zonal trading entity price deltas as described in Section 5.3 this market manual.~~

~~The IESO considers market participants' bids and offers for their virtual transactions to be cleared but not settled in the day-ahead market until the virtual zonal energy prices become available from the real-time market.~~

~~1.1.3.2. Real-Time Market Cleared but Not Settled Calculation for Virtual Transactions~~

~~A market participant's real-time market cleared but not settled amount for virtual transactions is based on virtual transaction day-ahead market schedules, day-ahead virtual zonal energy price and hourly average real-time virtual zonal energy price.~~

~~The IESO calculates the cleared but not settled amount for the real-time market once virtual zonal energy prices become available in the real-time market. For the cleared but not settled calculation for the real-time market, the IESO estimated price deltas are no longer required as the actual price deltas become available for the same location, day and hour as the bid and/or offer.~~

5.2.2. Settled-but-Not-Invoiced for Virtual Transactions

~~The settled but not invoiced component~~The settled-but-not-invoiced component represents settlement amounts specific to a market participant's virtual transactions that appear on their preliminary settlement statements or final settlement statements but that have not yet appeared on the market participant's invoice. This includes the settled value of virtual transactions plus any associated day-ahead market reliability unit commitment uplift.

~~The IESO determines the amount of the settled but not invoiced component of the actual exposure for virtual transactions for a market participant on a daily basis, based on that market participant's activity in the day-ahead market and real-time market covering any amount that has been settled but has not yet appeared on an invoice. The settled but not invoiced amount includes:~~

- ~~• all settlement amounts used in the settled but not invoiced component are hourly and non-hourly charges from the market participants' preliminary settlement statements and final settlement statements; and~~

~~a#~~The settled-but-not-invoiced amount also includes all settlement amounts calculated from the time they are no longer cleared-but-not-settled to the time the amounts appear on a preliminary settlement statement. For details on physical market settlement statements, refer to Market Manual 5.5: Physical Markets Settlement Statements.

~~The IESO calculates the settled but not invoiced component of actual exposure using the following settlement amounts:~~

- ~~• Hourly Virtual Transaction Settlement Amount; and~~

- ~~• Day Ahead Market Reliability Unit Commitment Uplift, which applies to *virtual transactions to sell energy* only.~~

~~For details on physical market *settlement statements*, refer to Market Manual 5: Settlements Part 5.5: Physical Markets Settlement Statements.~~

~~1.2. Price Delta for Daily Cumulative Submitted but Not Cleared Dollar Exposure and Cleared but Not Settled for Virtual Transactions~~

5.2.3. Prepayments

~~Refer to section 3.1.4 of this *market manual*.~~

5.3. Daily Price Delta

~~(MR Ch.2 s.5C.3.2).~~

The *IESO* determines a price delta on a daily basis to calculate:

- the ~~daily~~ cumulative submitted-but-not-cleared dollar exposure; and
- the ~~daily~~ cleared-but-not-settled component of *actual exposure*.

~~Determining a price delta will include calculating a price delta for an interim period then calculating a price delta for an enduring period.~~

~~1.2.1. Enduring Price Delta for Daily Cumulative Submitted but Not Cleared Dollar Exposure and Cleared but Not Settled~~

~~The enduringThis price delta is used in the *IESO's* daily dollar exposure screening and is distinct from the price delta discussed at Sectionsection 4.2.1 of this *market manual*. It is based on the absolute value of the difference between the day-ahead virtual zonal *energy* price and the hourly average real-time virtual zonal *energy* price calculated to the 97th percentile. This enduring price delta is observed for the 30 calendar days prior to the given *trading day* of the current year and 30 calendar days prior and after the same *trading day* and month for the prior 24 months for each of the virtual zones.~~

~~The *IESO* modifies the applicable enduring price delta if the price delta is not within 15% of the actual price differences within a *virtual transaction* zonal trading entity.~~

~~1.2.2. Interim Price Delta for Daily Cumulative Submitted but Not Cleared Dollar Exposure and Cleared but Not Settled~~

~~The *IESO* uses of this *market manual*.~~

~~The enduring price delta is calculated as described in **MR Ch.7 ss.5C.3.2**.~~

~~For an interim price delta period, until 25 months of hourly day-ahead virtual zonal energy prices and hourly average real-time virtual zonal energy prices are available for all virtual zones, the IESO will calculate an interim price delta that includes shadow prices from the day-ahead commitment process.~~

~~Similar to the enduring price delta noted above, the IESO uses the 97th percentile of interim price delta data to set the interim price delta to be used for each of the daily monitoring for virtual zones transactions.~~

~~The rolling data set used also corresponds to the same timelines as mentioned in the enduring price delta sub-section above. The circumstances wherefor the IESO virtual transaction zone is required to review updated if the interim new price delta are the same as the circumstances used for the enduring has increased or decreased by greater than or equal to 15% from the previous price delta for that virtual transaction zone.~~

5.3.5.4. Margin Call Warnings and Margin Calls for Virtual Transactions

~~(Market Rules: Chapter MR Ch. 2, Sections ss. 5C.2.1, 5C.2.2 and 5C.4)~~

~~The IESO monitors market participants' actual exposure for their virtual transactions against the market participants' IESO-determined virtual transaction trading limit on a daily basis. The amounts of actual exposure and trading limit for virtual transactions used for the daily monitoring by the IESO are available on the Prudential Manager.~~

Table 5-1 summarizes the actions taken by the IESO based on a comparison of market participants' trading limit for virtual transactions and their actual exposure for virtual transactions.

Table 5-1: Actions Taken as a Result of Daily Monitoring of Virtual Transactions

Trading Limit – AE comparison	IESO Action	Market Participant Action
<i>Actual exposure < 70-% virtual transaction trading limit</i>	None	None
<i>70% trading limit <= actual exposure < 100-% trading limit</i>	The IESO issues a "Notice of Margin Call Warning" to market participants for their virtual transactions for the day-ahead market via a generic e-mail.	Market participants may make a cash payment to reduce a portion of any amounts payable to the IESO to reduce their actual exposure for virtual

Trading Limit – AE comparison	IESO Action	Market Participant Action
		<p>transactions, or take other appropriate actions to ensure that their actual exposure for virtual transactions does not reach their trading limit for virtual transactions (Chapter 2, Section 5C.2.1 of the market rules). Refer to MR Ch.2 ss.5C.2.1.</p>
<p><i>Actual exposure</i> >= 100-% trading limit</p>	<p>The IESO issues a margin call via a generic e-mail notice to market participants when their actual exposure for their virtual transactions reaches or exceeds 100% of its IESO-determined virtual transaction trading limit via a generic email.</p> <p>The IESO will reject a market participant's subsequent bids and offers for the market participant's virtual transactions: <u>as described in MR Ch.2 ss.5C.2.2.</u></p>	<p>Market participants are required to satisfy a margin call by paying cash in an amount sufficient to reduce their actual exposure for physical transactions to no more than 75% of the market participant's trading limit for physical transactions (Chapter 2, Section 5C.4.1 and 5C.4.2 of the market rules).</p> <p>Note, payment must be made by 4:00 pm eastern prevailing time ("EPT") on the second business day following the date of the margin call by a market participant.</p> <p><u>Refer to MR Ch.2 ss.5C.4.1 and 5C.4.2.</u></p> <p>The market participant's ability to conduct virtual transactions will be reinstated after it brings its actual exposure for virtual transactions to at least the dollar equivalent of 75% of its trading limits described in MR Ch.2 ss.5C.4.</p>

| ~~Note, market~~*Market* participants can log on to the **Prudential Manager** located on the *IESO* portal to view *margin call* warnings and *margin call* details.

– End of Section –

6. Consolidated Process for Monitoring Physical Transactions and Virtual Transactions

~~(Market Rules: Chapter MR Ch.2, Section ss.5D)~~

Where a *market participant* is authorized to conduct both *physical transactions* and *virtual transactions*, the IESO monitors *market participants'* consolidated *actual exposure* against that *market participants'* consolidated *trading limit* (in dollars). Consolidated *actual exposure* and consolidated *trading limit* are calculated as described in **MR Ch.2 ss.5D.2.**

~~Market Figure 6- summarizes the actions taken by the IESO based on a comparison of *market participants'* consolidated *actual exposure* is determined as the sum of:~~

- ~~• *trading limit* and their *actual exposure* for *virtual transactions*; and~~
- ~~• *actual exposure* for *physical transactions*.~~

~~Market participants' consolidated *trading limit* is determined as the sum of the:~~

- ~~• *trading limit* for *virtual transactions*; and~~
- ~~• *trading limit* for *physical transactions*.~~

~~The IESO issues a Notice of Margin Call Warning to *market market participants* via a generic e-mail, when a *market participant's* consolidated *actual exposure* reaches or exceeds 70% of its IESO determined consolidated *trading limit* (in dollars).~~

~~The IESO issues a *margin call* to *market participants* when their consolidated *actual exposure* reaches or exceeds 100% of the sum of their consolidated *trading limit* (in dollars). *Market participants* that are authorized to conduct both *physical transactions* and *virtual transactions* will have their prepayment applied to their consolidated *actual exposure*. In addition, *market participants* that are authorized to conduct both *physical transactions* and *virtual transactions* will have their *bids* and *offers* in respect of their *virtual transactions* rejected in the event their consolidated *actual exposure* exceeds their consolidated *trading limit* (in dollars). Table 6-1 summarizes comparisons of daily monitoring of *actual exposure* and *trading limit* between *market participants* that are solely authorized to conduct *physical transactions* or solely authorized to conduct *virtual transactions* against *market participants* that are authorized to conduct both *physical transactions* and *virtual transactions*.~~

TableFigure 6-1- Comparison of 1 Actions Taken as a Result of Daily Monitoring Activities between Market Participants Authorized to Conduct of Physical Transactions, and Virtual Transactions, or Both

<p><u>Activity Trading Limit – AE comparison</u></p>	<p><u>Authorized to Conduct either Physical Transactions or Virtual Transactions IESO Action</u></p>	<p><u>Authorized to Conduct both Physical Transactions and Virtual Transactions Market Participant Action</u></p>
<p>“Margin Call Warning Notification” and Margin Call Consolidated actual exposure < 70% consolidated trading limit</p>	<p>“Notice of Margin Call Warning” and margin call issued for physical transactions or virtual transactions None</p>	<p>Consolidated “Notice of Margin Call Warning” and margin call issued for the sum of actual exposure for physical transactions and actual exposure for virtual transactions (Chapter 2, Section 5D.2 of the market rules). None</p>
<p>Margin Call Warning and Margin Call Thresholds 70% consolidated trading limit ≤ consolidated actual exposure < 100% consolidated trading limit</p>	<p>The IESO issues a consolidated “Notice of Margin Call Warning” issued when actual exposure to market participants for their physical transaction or actual exposure for transactions and virtual transactions reaches 70% and is less than 100% of the market participant’s respective trading limit (in dollars). Margin call issued when actual exposure for physical transactions or virtual transactions equals or exceeds the market participant’s respective trading limit (in dollars) via a generic email.</p>	<p>“Notice of Margin Call Warning” issued when consolidated actual exposure for physical transaction and virtual transactions reaches 70% and is less than 100% of the market participant’s consolidated trading limit (in dollars) (Chapter 2, Section 5D.3.1 of the market rules) Margin call issued when consolidated actual exposure equals or exceeds the market participant’s consolidated trading limit (in dollars) Refer to MR Ch.2 ss.5D.3.1</p>

<p><u>Activity Trading Limit – AE comparison</u></p>	<p><u>Authorized to Conduct either Physical Transactions or Virtual Transactions IESO Action</u></p>	<p><u>Authorized to Conduct both Physical Transactions and Virtual Transactions Market Participant Action</u></p>
<p>Prepayment</p>	<p>Prepayments applied to actual exposure for physical transactions or to actual exposure for virtual transactions</p>	<p>Prepayment applied collectively to the consolidated actual exposure for physical transactions and virtual transactions (Chapter 2, Section 5D.3.2 of the market rules)</p>
<p>consolidated actual exposure Virtual Trading Privileges >= 100% consolidated trading limit</p>	<p>The IESO will reject bids and offers from issues a consolidated margin call notice to market participant in respect of its virtual participants for their physical transactions when the actual exposure for and virtual transactions via a generic email. The IESO will reject a market participant's subsequent bids and offers for the market participant's virtual transactions equals or exceeds its virtual transaction trading limit (in dollars), as described in MR Ch. 2 ss. 5D.3.2.</p>	<p>The IESO will reject bids and offers from a market participant in respect of its virtual transactions when the consolidated actual exposure for a market participant equals or exceeds its consolidated trading limit (in dollars) (Chapter 2, Section 5D.3.3 of the market rules) Refer to MR Ch. 2 ss. 5D.3.1 and 5C.4.2. The market participant's ability to conduct virtual transactions will be reinstated as described in MR Ch. 2 ss. 5D.4.</p>

Prepayments made to reduce actual exposure will be applied collectively to the consolidated actual exposure for physical transactions and virtual transactions as described in **MR Ch. 2 ss. 5D.3.2.**

– End of Section –

7. Event of Default

(~~Market Rules: Chapter MR Ch.2, Section s.8~~)

Where the *IESO* issues a default notice or a *notice of intent to suspend*, it also:

- deems any *physical bilateral contract quantities* to be zero for the period from the date the *event of default* occurs until it is remedied if that *market participant* is the *selling market participant*; or
- rescinds or refuses to accept any initial or revised *physical bilateral contract data* relating to a *dispatch day* after the date of the *event of default* if that *market participant* is the *buying market participant*.

The process of default is addressed in ~~Market Manual 5: Settlements Part 5.9: Payment Methods and Schedule~~ [Market Manual 5: Settlements Part 5.9: Payment Methods and Schedule](#), where this relates to non-payment of an *invoice* and in ~~Market Manual 2: Market Administration Part 2.6: Treatment of Compliance Issues~~ [Market Manual 2: Market Administration Part 2.6: Treatment of Compliance Issues](#), where it relates to a compliance issue.

Refer to ~~Market Manual 5: Settlements Part 5.3: Submission of Physical Bilateral Contract Data~~ [Market Manual 5: Settlements Part 5.3: Submission of Physical Bilateral Contract Data](#) for more information on the Physical Bilateral Contract process.

7.1. Default Levy

If the *IESO* is unable to remedy an *event of default* using the posted *prudential support* by a defaulting *market participant*, the *IESO* is entitled to issue a *default levy* to all *non-defaulting market participants* that were participating in the *energy markets* at the time of the failure of payment of a *defaulting market participant* irrespective of whether the *event of default* occurred in the context of *physical transactions* or *virtual transactions*.

Following an *event of default*, the *IESO* has the authority to draw upon *market participants' prudential support* for both *physical transactions* and *virtual transactions* if a *market participant* has posted *prudential support* for both.

– End of Section –

8. Capacity Prudential Requirements

The *IESO* determines the *capacity prudential support* obligation for each *capacity market participant* for each *obligation period* based on a percentage of the monthly availability payment, less any allowable reductions.

The *IESO* calculates the *capacity prudential support* obligation as follows:

- [Monthly Availability Payment (\$) × 50%] – Allowable Reductions

where:

- Monthly Availability Payment = Σ (*Capacity obligation(s)* for the *obligation period* × Zonal Clearing Price × 23 days).

All *capacity auction participants* with a *capacity obligation* are encouraged to post *prudential support* for the *obligation period*, at least 60 days prior to the *obligation period*.

The Prudential Requirements Contact has a task in Online IESO to submit the *capacity prudential support* information.

The *capacity prudential support* posted by *market participants* or *capacity market participants* to satisfy this obligation must be in the following format (~~Chapter 2, Section 5.B.4.2 of the market rules~~ **MR Ch.2 ss.5B.4.2**):

- a guarantee or irrevocable commercial letter of credit, which is in a form acceptable to the *IESO* and provided by:
 - a bank named in a Schedule to the Bank Act, S.C. 1991, c.46 with a minimum Standard and Poor's long-term credit rating of "A" or equivalent from an *IESO* acceptable major bond rating agency; or
 - a credit union licensed by the Financial Services Commission of Ontario with a minimum Standard and Poor's long-term credit rating of "A" or equivalent from an *IESO* acceptable major bond rating agency.

There are two allowed reductions that may be used by *market participants* (if applicable) in order to reduce their *prudential support obligation* (~~Chapter 2, Section 5B.5 of the market rules~~ **MR Ch.2 ss.5B.5**):

- reduction for credit rating; and
- good payment history reduction.

If *market participants* are currently utilizing reductions in the *physical market*, the *IESO* will adjust the reductions ~~will be adjusted~~ accordingly to not exceed the maximum allowable under the *market rules*.

The *capacity prudential support obligation* amount may increase depending on poor creditworthiness/ history in the *IESO* market.

In the case where a full or partial *capacity obligation transfer* is being requested:

- the *capacity transferee* must satisfy its *capacity prudential support obligation*, including any additional *capacity prudential support obligation* that may be required as a result of a transfer request, within **5five** *business days* of receiving a notification from the *IESO* or within such longer period of time as may have been agreed to with the *IESO*.
- after the *capacity transferee* has satisfied the *capacity prudential support obligation* or revised *capacity prudential support obligation*, as applicable, the *IESO* will notify the *capacity transferor* of its approval or rejection of the transfer request. Upon receiving an approval notification, the *capacity transferor* may request the *IESO* to reassess its *capacity prudential support obligation*.

– End of Section –

9. Prudential SecuritySupport Reports

The *IESO* will publish two reports, described in Table 9-1, for *market participants* authorized to conduct *virtual transactions*.

Table 9-1: Virtual Transaction Price Delta Reports Description

Report Name	Publication Frequency	Audience	Report Description
Annual Virtual Transaction Price Delta Report	Annual	Public	One price calculated annually to the 97 th percentile based on the day-ahead and real-time price differences of all the nine virtual zonal trading entities.
Daily Virtual Transaction Price Delta Report	Daily	Public	Nine price deltas (one for each virtual zonal trading entity) calculated daily to the 97 th percentile using the differences between the corresponding day-ahead prices and real-time prices for each of the nine virtual zonal trading entities

– End of Section –

~~Appendix B:~~ Appendix A: ~~Appendix A:~~ Forms

This appendix contains a list of forms associated with the *prudential support market manual*, which are available on the *IESO's* Web site (<http://www.ieso.ca/>). The forms included are listed in table A-1 below:

Table A-1: Forms

Form Name	Form Number	Description
Prudential Guarantee	IMP_GRNT_0001	Guarantee agreement to provide prudential support for <i>physical transactions</i> by the guarantor to the <i>IESO</i> .
Affidavit Regarding Reduction in Prudential Support Obligations	IESO_AFF_0001	Affidavit provided by a <i>market participant</i> that is a <i>distributor</i> , in respect of a claim of reduction to its <i>prudential support obligation</i> for its <i>physical transactions</i> .
Pledge of Cash and Treasury Bills	IESO_AGR_0013	Pledge of Cash and Treasury Bill as a form of <i>prudential support</i> between the pledger and the <i>IESO</i> to cover a <i>market participant's prudential support obligation</i> for its <i>physical transactions</i> .

– End of Section –

~~Appendix C:~~ Appendix B: ~~Appendix B:~~ Credit Ratings

(MR Ch. 2, ss.5.8.1 and 5.8.1A)

The reduction in the level of *prudential support obligation* relative to the *market participant's maximum net exposure* that can be applied by the IESO based on a *market participant's* credit rating is set out in the following tables (~~Chapter 2, Section 5.8.1 and 5.8.1A~~ of the *market rules*):

Table B-1: Credit Rating Reductions for Non-Distributors

Credit Rating with Standard and Poor's Rating Terminology	Maximum allowable reduction in Prudential Support (\$)
AA- and above or equivalent	100% of <i>maximum net exposure</i>
A-, A, A+ or equivalent	Greater of 90% of <i>maximum net exposure</i> or \$37,500,000
BBB-, BBB, BBB+ or equivalent	Greater of 65% of <i>maximum net exposure</i> or \$15,000,000
BB-, BB, BB+ or equivalent	Greater of 30% of <i>maximum net exposure</i> or \$4,500,000
Below BB- or equivalent	0

Table B-2: Credit Rating Reductions for Distributors

Credit Rating with Standard and Poor's Rating Terminology	Maximum allowable reduction in Prudential Support (\$)
AA- and above or equivalent	100% of <i>maximum net exposure</i>
A-, A, A+ or equivalent	Greater of 95% of <i>maximum net exposure</i> or \$45,000,000
BBB-, BBB, BBB+ or equivalent	Greater of 80% of <i>maximum net exposure</i> or \$22,500,000
BB-, BB, BB+ or equivalent	Greater of 55% of <i>maximum net exposure</i> or \$7,500,000
Below BB- or equivalent	0

– End of Section –

~~Appendix D:~~ Appendix C: Good Payment History

(MR Ch. 2, ss.5.8.1 and 5.8.4 and 5.85)

Table C-1: Good Payment History Reductions for Non-Distributors

Good Payment History	Allowable Reduction in Prudential Support Obligation (for non-distributors)
Six years or more	The lesser of \$12,000,000 or 50% of <i>maximum net exposure</i>
Five or more years but less than six years	The lesser of \$7,500,000 or 30% of <i>maximum net exposure</i>
Four or more years but less than five years	The lesser of \$6,000,000 or 25% of <i>maximum net exposure</i>
Three or more years but less than four years	The lesser of \$4,500,000 or 20% of <i>maximum net exposure</i>
Two or more years but less than three years	The lesser of \$3,000,000 or 15 % of <i>maximum net exposure</i>
Less than two years	\$0

Table C-2: Good Payment History Reductions for Distributors

Good Payment History	Allowable Reduction in Prudential Support Obligation (for distributors)
Six or more years	The lesser of \$14,000,000 or 80% of <i>maximum net exposure</i>
Five or more years but less than six years	The lesser of \$9,000,000 or 65% of <i>maximum net exposure</i>
Four or more years but less than five years	The lesser of \$7,500,000 or 45% of <i>maximum net exposure</i>
Three or more years but less than four years	The lesser of \$6,000,000 or 35% of <i>maximum net exposure</i>
Two or more years but less than three years	The lesser of \$4,500,000 or 25% of <i>maximum net exposure</i>

Good Payment History	Allowable Reduction in Prudential Support Obligation (for distributors)
Less than two years	\$0

– End of Section –

~~Appendix E: Appendix D: Appendix D:~~ Global Adjustment Calculation for Minimum Trading Limit and Default Protection Amount

The *IESO* estimates global adjustment for *market participants* that are not *energy traders*. The global adjustment estimate is included as part of their *physical transaction minimum trading limit* and *default protection amount* calculation for the *IESO-administered markets*.

The *IESO* calculates the global adjustment 'Class B' estimate for a *market participant* that is not an *energy trader* as follows for its *prudential support obligation*:

- Global Adjustment (Class B) Minimum Trading Limit and Default Protection Amount calculation = Global Adjustment (Class B) price per MWh provided by the OEB x *Market participant*-provided daily quantity (in MWh) x # of days for Minimum Trading Limit or Default Protection Amount

The global adjustment price for a *market participant* that is not an *energy trader* stays static until the daily quantity of MWh injected or withdrawn for that *market participant* is changed or after conducting the annual review for global adjustment.

The *IESO* calculates the global adjustment 'Class A' estimate for a *market participant* that is not an *energy trader* as follows for its *prudential support obligation*:

- Global Adjustment (Class A) Minimum Trading Limit and Default Protection Amount calculation = $(PDF^8 \times \text{Total Global Adjustment Dollars Forecasted by the OEB}) / (\text{Market participant provided } \text{Daily Maximum Annual Class A withdrawals in MWh} \times 365 \text{ days})$

The Global Adjustment estimate for *market participants* is determined as the sum of the Class A and Class B Global Adjustment calculations.

– End of Section –

⁸ PDF is the Peak Demand Factor assigned to each 'Class A' market participant based on their five coincident peak demands during a predetermined base period.

References

Document ID	Document Title
IMO_LST_0001	List of Financial Institutions Eligible to Provide Prudential Support
N/A	The Bank Act, S.C. 1991

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