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# IESO Charge Types and Equations

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Issue 82.2  
January 29, 2024

This document 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 document taking effect.

This document enumerates the various *charge types* and equations used in the *IESO settlements process* for *IESO-administered markets*.

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## Document Change History

| Issue   | Reason for Issue                   | Date             |
|---|------------------------------------|------------------|
| For change history prior to Issue 22.0, refer to Issue 29.0 of the CT&E.<br>For change history for Issue 22.0 to Issue 29.0, refer to Issue 38.0 of the CT&E.<br>For change history for Issue 30.0 to Issue 49.0, refer to Issue 59.0 of the CT&E |                                    |                  |
| This version of IESO Charge Types and Equations contains new content under the Market Renewal Program (MRP). For history prior to MRP, refer to version 82.0.   |                                    |                  |
| 82.1  | Updated for Stakeholder Engagement | August 4, 2023   |
| 82.2  | Updated for Stakeholder Engagement | January 29, 2024 |

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## Related Documents

| Document ID  | Document Title  |
|--------------|---|
| MDP_PRO_0033 | Market Manual 5: Settlements, Part 5.5: IESO-Administered Markets Settlement Amount |
| MDP_PRO_0035 | Market Manual 5: Settlements, Part 5.6: Non-Market Settlement Programs              |



# Table of Contents

|   |            |
|---|------------|
| <b>IESO Charge Types and Equations .....</b>  | <b>i</b>   |
| <b>Table of Contents.....</b>   | <b>i</b>   |
| <b>List of Tables.....</b>  | <b>ii</b>  |
| <b>List of Figures .....</b>  | <b>iii</b> |
| <b>Table of Changes .....</b>   | <b>iv</b>  |
| <b>Conventions .....</b>  | <b>v</b>   |
| 1. Introduction .....   | 1          |
| 1.1. Purpose .....  | 1          |
| 1.2. Scope .....  | 1          |
| 1.3. Tax Treatment .....  | 2          |
| 1.4. Contact Information .....  | 2          |
| 2. Active IESO Charge Types and Equations .....   | 4          |
| 2.1. Variable Descriptions .....  | 4          |
| 2.2. Charge Types and Equations.....  | 8          |
| 2.3. Rounding Conventions – by Charge Type .....  | 150        |
| 2.4. Settlement of Physical Bilateral Contracts .....   | 213        |
| 3. Inactive IESO Charge Types and Equations.....  | 222        |
| 3.1. Variable Descriptions .....  | 222        |
| 3.2. Charge Types and Equations.....  | 235        |
| 3.3. Rounding Conventions – by Settlement Variable.....   | 326        |
| 3.4. Rounding Conventions – by Charge Type .....  | 334        |
| 3.5. Settlement of Physical Bilateral Contracts .....   | 365        |
| 3.6. Exemptions from the Day-Ahead Import Failure Charge, Day-Ahead<br>Export Failure Charge, and Day-Ahead Linked Wheel Failure<br>Charge..... | 373        |
| <b>References .....</b>   | <b>383</b> |

## List of Tables

|  |     |
|--|-----|
| Table 2-1: Variable Descriptions for Active Charge Types and Equations .....                                 | 4   |
| Table 2-2: Description of Column References for Charge Types and Equations .....                             | 8   |
| Table 2-3: Financial Market Charge Types and Equations .....   | 10  |
| Table 2-4: Physical Market Charge Types and Equations .....  | 10  |
| Table 2-5: Description of Column References for Rounding Conventions – by Individual Charge Type .....       | 150 |
| Table 2-6: Rounding Conventions – by Individual Charge Type .....  | 152 |
| Table 2-7: Day-Ahead Market: Market Price of Energy Applied to Location of Physical Bilateral Contract ..... | 213 |
| Table 2-8: Real-Time Market: Market Price of Energy Applied to Location of Physical Bilateral Contract ..... | 214 |
| Table 2-9: Derived Quantities Example 1 .....  | 217 |
| Table 2-10: Derived Quantities Example 2 .....   | 217 |
| Table 2-11: Derived Quantities Example 3 .....   | 218 |
| Table 2-12: Derived Quantities Example 4 .....   | 218 |
| Table 2-13: Allocation of Hourly Uplift Components .....   | 219 |
| Table 3-1: Variable Descriptions for Inactive Charge Types and Equations .....                               | 222 |
| Table 3-2: Inactive Charge Types and Equations in the Physical Market .....                                  | 235 |
| Table 3-3: Rounding Conventions by Settlement Variable .....   | 326 |
| Table 3-4: Rounding Conventions by Charge Type .....   | 334 |
| Table 3-5: Energy Pricing – Location of Bilateral Contract .....   | 365 |
| Table 3-6: Bilateral Contract Quantities .....   | 366 |
| Table 3-7: Derived Quantities Example 1 .....  | 367 |
| Table 3-8: Derived Quantities Example 2 .....  | 367 |
| Table 3-9: Derived Quantities Example 3 .....  | 368 |
| Table 3-10: Derived Quantities Example 4 .....   | 368 |
| Table 3-11: Time Resolution of Bilateral Contract Quantities and Rounding .....                              | 369 |
| Table 3-12: Allocation of Hourly Uplift Components Between Buying and Selling Market Participants .....      | 370 |



## List of Figures

|   |     |
|---|-----|
| Figure 3-1: Example of an Import Transaction that PASSES the “Offer Price Test” ..... | 379 |
| Figure 3-2: Example of an Import Transaction that FAILS the “Offer Price Test” .....  | 380 |
| Figure 3-3: Example of an Export Transaction that PASSES the “Offer Price Test” ..... | 381 |
| Figure 3-4: Example of an Export Transaction that PASSES the “Offer Price Test” ..... | 382 |

## Table of Changes

| Reference<br>(Section and Paragraph) | Description of Change   |
|--------------------------------------|---|
| Throughout                           | <p>Updated to:</p> <ul style="list-style-type: none"> <li>• incorporate <i>operating reserve non-accessibility settlement amounts</i>;</li> <li>• incorporate <i>capacity obligation settlement amounts</i>;</li> <li>• incorporate design changes presented to stakeholders at the September 21, 2023 Engagement Webinar: <i>day-ahead market balancing credit</i>;</li> <li>• incorporate design changes presented to stakeholders at the December 15, 2023 Engagement Webinar: <i>settlement of non-dispatchable generation resources and intertie failure charges</i>; and</li> <li>• address internal and external feedback</li> </ul> |



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## Conventions

The standard conventions 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*, Ch.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.

Unless otherwise noted, usage of variable subscripts and superscripts within this document shall mirror the same usage within **MR Ch.9**. One notable exception is the usage of notation to sum across *settlement amounts* for *charge type* "c". This is noted within the applicable equations.

– End of Section –



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# 1. Introduction

## 1.1. Purpose

The purpose of this document is to provide the reader with the formulas and variable definitions behind each different *charge type* implemented in the *IESO settlements process*, including tax treatment. Furthermore, this document relates each *charge type* to the high-level description of the *settlement amount* within the *IESO market rules* and, where applicable, notes any aspects of the implementation of the *charge type* itself.

This document must be read in conjunction with the applicable *market rules*. Where there is a conflict between this document and the *market rules*, the *market rules* shall prevail.

## 1.2. Scope

This document provides the formulas and the Harmonized Sales Tax (HST) tax treatment for each *charge type* implemented in the *IESO settlements system*. This document does not, however, provide the format of the information provided to *market participants* on *settlement statements* with respect to each *charge type*. For more information on these topics, refer to the [Format Specifications for Settlement Statement Files and Data Files](#) document located on the [Technical Interfaces](#) webpage under 'Commercial Reconciliation'.

This document is structured as follows:

[Section 2](#): Active *IESO Charge Types and Equations*

[Section 2.1](#): This section contains a description of the variables that are specific to *charge types* associated with *applicable law* within [section 2.2](#). Variables not defined in this section are as defined in **MR Ch.9 Appendix 9.2** or within the relevant *market rule* that is specific to the *charge type*.

[Section 2.2](#): This section contains all active *IESO charge types* and equations that are either:

- part of the *IESO-administered market*, or
- associated with non-market *settlement* programs as mandated by *applicable law*, administered by the *IESO*.

[Section 2.3](#): This section contains a description of rounding conventions for *charge type* calculations within [section 2.2](#).

[Section 2.4](#): This section contains a description of *physical bilateral contract quantities*, their usage by the *settlements system*, and their use by *market participants* as a vehicle for transferring components of *hourly uplifts*.

### [Section 3](#): Inactive *IESO* Charge Types and Equations

Similar to subsections within [section 2](#), however the provisions of [section 3](#) are applicable to those *IESO charge types* and equations that are no longer active and have been retained in the event that a re-calculation of the *charge type* is required. The *charge types* included in this section are:

- expired (i.e. program has ended);
- replaced with another *charge type*;
- replaced with an updated calculation (i.e. due to new variable or exclusion/addition of *charge type* to be uplifted); or
- retired under the Market Renewal Program (MRP), effective from the MRP commencement date.

This section also includes [section 3.6](#) which describes how day-ahead import, export and linked wheel transactions are subject to an “Offer Price Test” in order to determine if they are exempt from the Day-Ahead Failure Charges (*charge types* 1135, 1136 and 1134) which has been retired under MRP.

## 1.3. Tax Treatment

The *IESO* is a registrant for purposes of the Excise Tax Act and all or substantially all of the supplies made by the *IESO* are taxable for GST/HST purposes.

The *IESO* administers the *IESO-administered markets* in compliance with the current provisions of the Excise Tax Act and the published rulings, administrative policies, and assessing practices of the Canada Revenue Agency. The *IESO* conducts regular tax reviews with its advisors to ensure that transactions within the *IESO-administered markets* comply with the foregoing.

*Market participants* should consult their own legal and tax advisors for advice with respect to the tax consequences of transactions in the *IESO-administered markets*.

## 1.4. Contact Information

Changes to this document are managed via the [IESO Change Management process](#). Stakeholders are encouraged to participate in the evolution of this document via this process.

As part of the authorization and registration process<sup>1</sup>, *market participants* are required to identify a Settlements Contact. If a *market participant* has not identified a specific contact, the *IESO* will seek to contact the Primary Contact unless alternative arrangements have been established between the *IESO* and the *market participant*.

To contact the *IESO*, you can email *IESO* Customer Relations at [customer.relations@ieso.ca](mailto:customer.relations@ieso.ca) or use telephone or mail. Telephone numbers and the mailing address can be found on the [IESO website](#). *IESO* Customer Relations staff will respond as soon as possible.

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<sup>1</sup> Refer to [MM 1.5: Market Registration Procedures](#) for adding and updating contact roles with the *IESO*.

If you have a specific inquiry regarding a *settlement amount* on any of your *settlement statements*, refer to **MM 5.10: Settlement Disagreements** for further details.

– End of Section –

## 2. Active IESO Charge Types and Equations

The provisions of this section include all active *charge types* that are:

- part of the *IESO-administered market*; and
- associated with non-market *settlement* programs as mandated by *applicable law*, administered by the *IESO*.

### 2.1. Variable Descriptions

The following Table 2-1 contains descriptions of variables that are specific to *charge types* associated with *applicable law* within [section 2.2](#).

Variables not defined in this table are as defined in **MR Ch.9 Appendix 9.2** or within the relevant *market rule* that is specific to the *charge type*.

**Table 2-1: Variable Descriptions for Active Charge Types and Equations**

| Key to the Table Below         |                                     |  |   |  |
|--------------------------------|-------------------------------------|--|---|--|
| Variable used within Section 2 | Data Description                    | Description  | Maximum Rounding Convention in Settlement Statements or Data Files <sup>2</sup> | Relevant Reference and Other Information |
| EEQ                            | Excluded Energy Quantity            | The total volume of <i>energy</i> (MWh) supplied to Fort Frances Power Corporation Distribution Inc. by Abitibi-Consolidated Inc. during the month.  | 3   | Refer to regulations.                    |
| EGEI <sub>k</sub>              | Embedded Generator Energy Injection | The total volume of <i>energy</i> (MWh) supplied by <i>embedded generators</i> during the month to <i>distributors</i> who are <i>market participants</i> and to all embedded distributors to whom the <i>market participant 'k'</i> is the host <i>distributor</i> , adjusted for | 3   | Refer to regulations.                    |

<sup>2</sup> This column discloses the accuracy of a *settlement* variable appearing on a *settlement statement*. NOTE: This should not be confused with the number of decimal places allowable in some columns on the *settlement statements* and data files as set out in [Format Specifications for Settlement Statements and Data Files](#).

| Key to the Table Below                   |   |  |   |  |
|--|---|--|---|--|
| Variable used within Section 2           | Data Description  | Description  | Maximum Rounding Convention in Settlement Statements or Data Files <sup>2</sup> | Relevant Reference and Other Information                   |
|  |   | losses as required by the <i>OEB</i> , Retail Settlement Code.   |   |  |
| ETS                                      | Export Transmission Service Tariff Rate   | Export Transmission Service Tariff Rate in units of \$/MWh.  | 2   | Subject to the OEB "Ontario Transmission Rate Order".      |
| GA_AQEW <sub>g,k,h,M<sup>m</sup>,t</sub> | Allocated Quantity of Energy Withdrawn for elements of the Global Adjustment distribution | Allocated quantity in MWh of <i>energy</i> withdrawn by <i>market participant</i> or Distributor 'k' at <i>RWM</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h' in month 'M' for element "g".<br>Where 'g' is 1 for Class A Market Participant or Consumer load, and 2 for <i>energy</i> withdrawn by Generator 'k' in the course of providing Ancillary Services.                  |   | Refer to regulations.                                      |
| GAR <sub>B</sub>                         | Global Adjustment Rate for Class B  | GA Class B Rate.   |   | Refer to regulations.                                      |
| GRP                                      | Generator Regulated Price   | A regulated price (\$/MWh) with respect to output of OPG's regulated generating stations, set by the <i>OEB</i> .  | 2   | Subject to regulation by the <i>Ontario Energy Board</i> . |
| LCD <sub>k,h<sup>m</sup></sub>           | Line Connection Demand (KW)   | Billing Demand for Line Connection Transmission Service (KW) for <i>transmission customer</i> 'k' at transmission delivery point 'm' during <i>settlement hour</i> 'h' in which LCD <sub>k,h<sup>m</sup></sub> denotes the non-coincident peak demand for the month.   | 3   | Subject to the OEB "Ontario Transmission Rate Order".      |
| NSD <sub>k,h<sup>m</sup></sub>           | Network Service Demand (KW)   | The Billing Demand for Network Transmission Service (KW) is defined as the higher of:<br>transmission customer coincident peak demand (KW) in the hour of the month when the total hourly demand of all PTS customers is highest for the month; and<br>85% of the customer peak demand in any hour during the peak period 7 AM to 7 PM (local time) on <i>business days</i> defined by the <i>IESO</i> . | 3   | Subject to the OEB "Ontario Transmission Rate Order".      |

| Key to the Table Below         |  |  |   |  |
|--------------------------------|--|--|---|--|
| Variable used within Section 2 | Data Description   | Description  | Maximum Rounding Convention in Settlement Statements or Data Files <sup>2</sup> | Relevant Reference and Other Information                   |
|                                |  | <p>For the purposes of determining business days for calculating transmission charges, the IESO uses the holidays identified by the Ontario Energy Board.</p> <p>The peak period hours will be between 0700 and 1900 hours Eastern Standard Time during winter (i.e. during standard time) and 0600 to 1800 hours during summer (i.e. during daylight savings time), in conformance with the meter time standard used by the <i>IESO</i> settlement systems.</p> |   |  |
| $PDF_{k,m,d}$                  | Peak Demand Factor   | The Peak Demand Factor for Class A Market Participant or Distributor 'k' for month 'm' with effectiveness ratio 'd'.   |   | Subject to regulation by the <i>Ontario Energy Board</i> . |
| $PGSh_{h,M}$                   | Allocated Quantity of Energy Withdrawn by OPG at Beck Pump Generating Station  | Allocated quantity in MWh of <i>energy</i> withdrawn by OPG at Beck Pump Generating Station in <i>metering interval</i> 't' of <i>settlement hour</i> 'h' for month 'M'.   |   |  |
| PTS-L                          | Provincial Transmission Service Line Connection Service Rate (\$/KW)           | Line Connection Transmission Tariff Service Rate in units of dollars per kilowatt.   | 2   | Subject to the OEB "Ontario Transmission Rate Order".      |
| PTS-N                          | Provincial Transmission Service Network Service Rate (\$/KW)                   | Network Transmission Tariff Service Rate in units of dollars per kilowatt.   | 2   | Subject to the OEB "Ontario Transmission Rate Order".      |
| PTS-T                          | Provincial Transmission Service Transformation Connection Service Rate (\$/KW) | Transformation Connection Service Transmission Tariff Rate in units of dollars per kilowatt.   | 2   | Subject to the OEB "Ontario Transmission Rate Order".      |
| $RPP_i$                        | Regulated Price Plan   | A fixed <i>energy</i> rate for all <i>metering intervals</i> based on consumption level I.   |   | Subject to regulation by the <i>Ontario Energy Board</i> . |



| Key to the Table Below         |                                       |  |   |  |
|--------------------------------|---------------------------------------|--|---|--|
| Variable used within Section 2 | Data Description                      | Description  | Maximum Rounding Convention in Settlement Statements or Data Files <sup>2</sup> | Relevant Reference and Other Information   |
| $TCD_{k,h}^m$                  | Transformation Connection Demand (KW) | Billing Demand for Transformation Connection Transmission Service (KW) for <i>transmission customer</i> 'k' at transmission delivery point m during <i>settlement hour</i> 'h' in which $TCD_{k,h}^m$ denotes the non-coincident peak demand for the month.  | 3   | Subject to the OEB "Ontario Transmission Rate Order".  |
| $TD_{k,h,c}$                   | Total Market Settlement Amount        | Total <i>settlement amount</i> (dollars) for the market used in <i>hourly uplift</i> and calculations for various other non-hourly <i>settlement amounts</i> for <i>market participant</i> 'k' or <i>transmission customer</i> 'k' during <i>settlement hour</i> 'h' with respect to <i>charge type</i> 'c'.   | N/A   | This is purely a notational term is used within the documentation to describe the aggregation of various <i>settlement amounts</i> .<br>A summation across <i>charge type</i> 'c' denotes an aggregation of all <i>settlement amounts</i> for that <i>charge type</i> for the time period concerned.<br>e.g.: $\sum_c^T$ indicates a summation of all <i>settlement amounts</i> for <i>charge type</i> 'c' during all <i>metering intervals</i> 'T'. |
| TLQ                            | Threshold Load Quantity               | A threshold (kWh) with respect to monthly consumption of regulated customers, set by the OEB.  |   | Subject to regulation by the <i>Ontario Energy Board</i> .   |
| $TP_c$                         | Tariff price                          | A stipulated rate (\$/MWh, \$/KW) used in the calculation of a specific <i>charge type</i> 'c'.  | N/A   | This is purely a notational term used within the documentation to describe the unique per MW or per MWh rate applied to specific quantities in order to calculate various <i>settlement amounts</i> .  |
| $U_k$                          | Energy Storage Facility Injection     | The total volume of <i>energy</i> (MWh) conveyed back into the <i>IESO-controlled grid</i> during the month by energy storage facilities associated with Class B <i>market participant</i> 'k' and the total volume of <i>energy</i> (MWh) conveyed back into the <i>distribution system</i> during the month by energy storage facilities that are Class B consumers of <i>distributor</i> 'k'. |   | Refer to regulations.  |

## 2.2. Charge Types and Equations

The following tables contain all active *IESO charge types* and equations that are:

- part of the *IESO-administered market*; and
- associated with non-market *settlement* programs as mandated by *applicable law*, administered by the *IESO*.

Refer to [section 3.2](#) for inactive *IESO charge types* and equations.

The following Table 2-2 provides a description of each of the column references for *charge types* and equations.

**Table 2-2: Description of Column References for Charge Types and Equations**

| Key to the Table Below        |  |
|-------------------------------|--|
| <b>Charge Type Number</b>     | The designation number for each <i>charge type</i> enumerated below – which corresponds to the <i>charge type</i> numbers used on <i>settlement statements</i> and <i>invoices</i> .   |
| <b>Charge Type Name</b>       | The name of the <i>charge type</i> , including, where applicable, the abbreviated name used to describe the <i>settlement amount</i> within the <i>IESO market rules</i> and <i>market manuals</i> .   |
| <b>Market Rules Reference</b> | The relevant reference to the variable in question within the <i>IESO market rules</i> .   |
| <b>Equation</b>               | The equation used by the <i>IESO settlements process</i> to calculate the <i>settlement amount</i> for the <i>charge type</i> .  |
| <b>Settlement Resolution</b>  | <p>The level of granularity by which the <i>IESO settlements process</i> calculates the <i>settlement amount</i> for the <i>charge type</i>, and provides the supporting data in the <i>settlement</i> data file.</p> <p>Where:</p> <ul style="list-style-type: none"> <li>• Interval calculations are performed on the basis of each relevant, 5-minute <i>metering interval</i>;</li> <li>• Hourly calculations are performed on the basis of each <i>settlement hour</i>;</li> <li>• Daily calculations are performed on the basis of each calendar day;</li> <li>• Monthly calculations are performed on the basis of a calendar month (equivalent to an <i>energy market billing period</i>);</li> <li>• Quarterly calculations are performed on the basis of 3 month intervals;</li> <li>• Yearly calculations are performed on the basis of a calendar year.</li> </ul> |

| Key to the Table Below  |  |
|---|--|
| <b>Cashflow</b>   | <p>This column indicates whether or not the <i>settlement amount</i> for the <i>charge type</i> is:</p> <p>“Due <i>IESO</i>” – which means, owed to the <i>IESO</i> by the <i>market participant</i>; *** or<br/>                     “Due <i>MP</i>” – which means, owed to the <i>market participant</i> by the <i>IESO</i>; *** or<br/>                     “Either Way” – which indicates that the <i>settlement amount</i> in question could be either owed to the <i>IESO</i> by the <i>market participant</i> or owed to the <i>market participant</i> by the <i>IESO</i> in any given time period (according to the applicable “Settlement Resolution”).</p> <p><b>***NOTE in cases where a Cashflow is designated as “Due <i>IESO</i>” or “Due <i>MP</i>” this should be read in the context of its intended use in the normal course of <i>settlements</i>. However, such cashflows can always be REVERSED in situations where an adjustment is applied to a <i>market participant</i>, or the application of a per-unit charge in order to offset an adjustment to another <i>market participant</i>.</b></p> |
| <b>HST Tax Treatment within Ontario</b>                           | <p>This column indicates the percentage levy as per the Harmonized Sales Tax (HST).<br/>                     Zone used for Tax Basis is (ONZN) for Ontario.</p>  |
| <b>HST Tax Treatment for U.S., Manitoba and Quebec Generation</b> | <p>This column indicates the percentage levy as per the Harmonized Sales Tax (HST).<br/>                     Zones used for Tax Basis are (NYSI) for US Generation, (MBSI) for Manitoba Generation and (PQSI) for Quebec Generation.</p>   |
| <b>HST Tax Treatment for US Load</b>                              | <p>This column indicates the percentage levy as per the Harmonized Sales Tax (HST).<br/>                     Zone used for Tax Basis is (NYSI) for US Load.</p>  |
| <b>HST Tax Treatment for Manitoba and Quebec Load</b>             | <p>This column indicates the percentage levy as per the Harmonized Sales Tax (HST).<br/>                     Zones used for Tax Basis are (MBSI) for Manitoba Load and (PQSI) for Quebec Load.</p>   |
| <b>Comments</b>   | <p>This column notes any <i>charge types</i> that are governed by various documentation other than the <i>IESO market rules</i> such as <i>applicable law</i>. References to other <i>market manuals</i> may be included here, where applicable.</p>   |

### 2.2.1. Financial Market Charge Types and Equations

The following Table 2-3 describes the *charge types* and equations in the financial market.

**Table 2-3: Financial Market Charge Types and Equations**

| Charge Type Number | Charge Type Name                             | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 52                 | Transmission Rights Auction Settlement Debit | MR Ch.8 s.3.17         | $QTR_{k,h}^{ij} \times TRMP$ <p>Where 'TRMP' is the price of each <i>transmission right</i> in a single round of a <i>TR auction</i> and expressed in up to 2 decimal places.</p> | Daily                 | Due IESO | Exempt                               | Exempt  | Exempt                              | Exempt   |          |

### 2.2.2. Physical Market Charge Types and Equations

The following Table 2-4 describes the *charge types* and equations in the *physical market*.

**Table 2-4: Physical Market Charge Types and Equations**

| Charge Type Number | Charge Type Name                   | Market Rules Reference | Equation  | Settlement Resolution     | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|------------------------------------|------------------------|---|---------------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
| 102                | TR Clearing Account Credit (TRCAC) | MR Ch.9 s.4.9          | <p><b>For loads:</b></p> $TRCAC_k = TRCAD_L \times \sum_H^{M,T} [(AQEW_{k,h}^{m,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t})]$ <p><b>For exporters:</b></p> $TRCAC_k = TRCAD_E \times \sum_H^{I,T} [(SQEW_{k,h}^{i,t}) / \sum_{k,H}^{I,T} (SQEW_{k,h}^{i,t})]$ | Monthly (when applicable) | Due MP   | 13                                   | N/A   | 0                                   | 13   | The <i>billing period</i> is defined in MM5.5: IESO-Administered Markets |

| Charge Type Number | Charge Type Name                             | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                           |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|------------------------------------|
|                    |  |                        | <p><b>Where</b><br/> <math>TRCAD_L = (\sum_K TD_C / \sum_K TD_{C,C1}) \times TRCAD</math><br/> <math>TRCAD_E = (\sum_K TD_{C1} / \sum_K TD_{C,C1}) \times TRCAD</math></p> <p>Where 'C' is the set of all <i>monthly service charge types c</i> as follows: 650,651,652.<br/>                     Where 'C1' is the set of all <i>monthly export transmission charge types c</i> as follows:653.<br/>                     Where 'H' is the set of all <i>settlement hours 'h'</i> in the <i>billing periods</i> immediately preceding the current <i>billing period</i>, as determined by <i>IESO Board</i>.<br/>                     Where 'T' is the set of all <i>metering intervals 't'</i> in the set of all <i>settlement hours 'H'</i>.<br/>                     Where 'M' is the set of all <i>delivery points 'm'</i>, excluding any <i>intertie metering points</i>.<br/>                     Where 'I' is the set of all <i>intertie metering points 'i'</i>.<br/>                     Where 'K' is the set of all <i>market participants 'k'</i>.</p>    |                       |          |                                      |   |                                     |  | Settlement Amounts, section 2.22.1 |
| 104 MRP updated    | Transmission Rights Settlement Credit (TRSC) | MR Ch.9 s.3.8.1        | <p>1. If the injection TR zone of the <i>transmission right</i> is in the <i>IESO control area</i>:<br/> <math>TRSC_{k,h} = Max[0, QTR_{k,h}^{i,j} \times DAM\_PEC_h^i]</math></p> <p>2. If the withdrawal TR zone of the <i>transmission right</i> is in the <i>IESO control area</i>:<br/> <math>TRSC_{k,h} = Max[0, -1 \times QTR_{k,h}^{i,j} \times DAM\_PEC_h^j]</math></p> <p><b>Where:</b></p> <ol style="list-style-type: none"> <li><i>j</i> = the <i>registered wholesale meter or intertie metering point</i> associated with the <i>withdrawal TR zone</i>;</li> <li><i>i</i> = the <i>registered wholesale meter or intertie metering point</i> associated with the <i>injection TR zone</i>;</li> <li><math>DAM\_PEC_h^i</math> = the <i>day-ahead market external congestion price for energy</i> in injection <i>TR zone 'i'</i> in <i>settlement hour 'h'</i>; and</li> <li><math>DAM\_PEC_h^j</math> = the <i>day-ahead market external congestion price for energy</i> in withdrawal <i>TR zone 'j'</i> in <i>settlement hour 'h'</i>.</li> </ol> | Hourly                | Due MP   | 0                                    | 0   | 0                                   | 0  |                                    |

| Charge Type Number | Charge Type Name                                | Market Rules Reference                 | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|--|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 114                | Outage Cancellation/ Deferral Settlement Credit | MR Ch.9 s.4.14.12 and MR Ch.5 s.6.7.4  | Manual Entry as per MR Ch.5 s.6.7.4.   | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |          |
| 115                | Unrecoverable Testing Costs Credit              | MR Ch.9 s.4.14.12 and MR Ch.4 s.5.3.4  | Manual Entry as per MR Ch.4 s.5.3.4.   | Monthly               | Due MP   | 13                                   | 13  | 13                                  | 13   |          |
| 116                | Tieline Maintenance Reliability Credit          | MR Ch.9 s.4.14.12 and MR Ch.5 s.5.3.4  | Manual Entry as per MR Ch.5 s.5.3.4.   | Monthly               | Due MP   | 13                                   | 13  | 13                                  | 13   |          |
| 118                | Emergency Energy Rebate                         | MR Ch.9 s.4.14.13 and MR Ch.5 s.4.4A.1 | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>                     Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>   | Monthly               | Due MP   | 13                                   | N/A   | 0                                   | 13   |          |
| 119 MRP updated    | Station Service Reimbursement Credit            | MR Ch.9 ss.2.2.12-2.2.17               | $= \{TD_{C,k,h}^{m,T} \times [\sum^{T^2} (AQEW_{k,h}^{m,t}) / \sum_{k,h}^{T^2} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\}$ $+ \{TD_{C2,k,H}^{m,T} \times [\sum_{H^2}^{T^2} (AQEW_{k,h}^{m,t}) / \sum_{k,H}^{T^2} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\}$ $+ \{TD_{C3,k,H}^{m,T} \times [\sum_{H^3}^{T^2} (AQEW_{k,h}^{m,t}) / \sum_{k,H^3}^{T^2} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\}$ <p><b>Where:</b><br/>                     'T' is the set of all <i>metering intervals</i> in <i>settlement hour</i> 'h'.<br/>                     'M' is the eligible generation station service <i>delivery point</i> 'm' of <i>market participant</i> 'k'<br/>                     'C' is the set of the following hourly uplift <i>charge type</i> c as follows:<br/>                     186,250,252,254,451,1120,1865,1950,1970,1977,1980,1981</p> | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name                                    | Market Rules Reference | Equation   | Settlement Resolution | Cashflow            | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|------------------------|--|-----------------------|---------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |   |                        | <p>'T2' is the set of all <i>metering intervals</i> in <i>settlement hour</i> 'h' where the eligible <i>generation facility</i> or <i>electricity storage facility</i> was a net injector of <i>energy</i> into the <i>IESO-controlled grid</i>.</p> <p>'K' is the set of all <i>market participants</i></p> <p>'C2' is the set of the following non-hourly monthly <i>charge type</i> 'c' as follows:<br/>102,164,165,166,167,168, 450,452,454,460,550,1116,1118,1188,1650,1982,1986,9920</p> <p>'C3' is the set of the following daily <i>charge type</i> 'c' as follows:<br/>1119,1850,1851,1960,1967,1971</p> <p>'H' is the set of all <i>settlement hours</i> 'h' in the <i>billing period</i></p> <p>'H2' is the set of all <i>settlement hours</i> 'h' in the <i>billing period</i> where the eligible <i>generation facility</i> or <i>electricity storage facility</i> was a net injector of <i>energy</i> into the <i>IESO-controlled grid</i>.</p> <p>'H3' is the set of all <i>settlement hours</i> 'h' in the day</p> <p>'H4' is the set of all <i>settlement hours</i> 'h' in the day where the eligible <i>generation facility</i> or <i>electricity storage facility</i> was a net injector of <i>energy</i> into the <i>IESO-controlled grid</i>.</p> |                       |                     |                                      |   |                                     |  |   |
| 121                | Northern Energy Advantage Program Settlement Amount | N/A                    | $= \sum_{M H T} (AQEW_{mh}^t) \times (\text{Rate})$ <p>Where:<br/>Rate is the program rate<br/>'M' is the set of all <i>delivery points</i> 'm' for all <i>market participant-eligible facilities</i>.<br/>'H' is the set of all <i>settlement hours</i> 'h' in the settlement period.<br/>'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>  | Quarterly             | Due MP              | 0                                    | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to Ministry of Northern Development, Mines, Natural Resources and Forestry specifications. |
| 123                | MACD Enforcement Activity Amount                    | N/A                    | Manual entry based on the values submitted by MACD.  | Monthly               | Due MP              | 13                                   | N/A   | N/A                                 | N/A  |   |
| 142                | Regulated Price Plan Settlement Amount              | N/A                    | <p><b>NOTE:</b> The equation identified below applies to low volume and designated consumers (as defined in <i>Ontario Energy Board Act, 1998</i> and associated regulations) in the <i>IESO-administered market</i>. For <i>distributors</i>, <i>charge type</i> 142 is applied once a month based on the values submitted by the <i>distributor</i> via On-line settlement forms: "Tiered Regulated Price Plan for Conventional Meters vs. Market Price – Variance", "Standard TOU Regulated Price Plan for Smart Meters vs. Market Price Variance", "ULO</p>  | Monthly               | Due LDCs Either way | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to   |

| Charge Type Number | Charge Type Name                                     | Market Rules Reference | Equation   | Settlement Resolution | Cashflow        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|------------------------|--|-----------------------|-----------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |  |                        | <p>Regulated Price Plan for Smart Meters vs. Market Price Variance” and “Regulated Price Plan – Final Variance Settlement Amount”.</p> <p><b>Regulated Price Plan Settlement Amount:</b></p> $NEMSC_{k,H} - \{ \text{MIN} [ \text{TLQ} , \sum_H^{M,T} (AQEW_{k,h}^{m,t} - AQEI_{k,h}^{m,t} - \sum_s BCQ_{s,k,h}^{m,t}) ] \times RPP_{I=1} + \text{MAX} [ 0, \sum_H^{M,T} (AQEW_{k,h}^{m,t} - AQEI_{k,h}^{m,t} - \sum_s BCQ_{s,k,h}^{m,t}) - \text{TLQ} ] \times RPP_{I=2} \}$                                      |                       |                 |                                      |   |                                     |  | government and OEB regulations.  |
| 143                | NUG Contract Adjustment Settlement Amount            | N/A                    | Manual entry based on the values submitted by <i>OEFC</i> via On-line settlement form “NUG Adjustment Amount Information”, subject to Regulation.  | Monthly               | Due <i>OEFC</i> | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |
| 144                | Regulated Nuclear Generation Adjustment Amount       | N/A                    | <p><b>For dispatchable <i>delivery points</i>:</b></p> $(GRP - EMP_h^{m,t}) \times AQEI_{k,h}^{m,t}$ <p><b>For non-dispatchable <i>delivery points</i>:</b></p> $(GRP - HOEP_h) \times \sum^T AQEI_{k,h}^{m,t}$ <p>Where ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p>   | Interval or Hourly    | Due OPG         | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |
| 145                | Regulated Hydroelectric Generation Adjustment Amount | N/A                    | $NEMSC_{k,H} - \{ \sum_H^{M,T} [ (MWAvG_T \times GRP) + ( (AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t}) - MWAvG_T ) \times EMP_h^{m,t} ] \}$ <p>Where</p> <p>‘M’ is the set of all <i>delivery points</i> ‘m’ of OPG’s regulated hydroelectric generating stations.</p> <p>‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>‘H’ is the set of all <i>settlement hours</i> ‘h’ in the month.</p> <p>MWAvG is the average hourly net energy production within a given month.</p> | Monthly               | Due OPG         | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to <i>OEB</i> regulation. |



| Charge Type Number | Charge Type Name                              | Market Rules Reference | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
| 147                | Class A – Global Adjustment Settlement Amount | N/A                    | $\sum_{H,M,C} TD * PDF_{k,m,d}$ <p>Where<br/>                     'd' is the ratio of the number of days in the month the Peak Demand Factor was effective compared to the total number of days in the month<br/>                     and<br/>                     'C' is the set of the following <i>charge types</i> 'c':<br/> <b>193, 194, 195, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1450, 1460, 1461, 1462, 1464, 1466, 1468, 1469, 1471, 1472, 1473, 1474, 1475.</b></p>   | Monthly               | Either Way | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation.<br><br><i>Charge type 147 is also used to settle Interruptible Rate Pilot participants starting with trade date July 1, 2023.</i> |
| 148                | Class B – Global Adjustment Settlement Amount | N/A                    | <p>For Fort Frances Power Corporation Distribution Inc.:</p> $(\sum_{H,M,C} TD - TD_{147}) \times \text{MAX}((\sum_{H^M,T} AQEW_{k,h}^{m,t} + EGEI_k - EEQ), 0) / \text{Class B Load}$ <p>For other Class B <i>Market Participants</i> and Distributors:</p> $(\sum_{H,M,C} TD - TD_{147}) \times \text{MAX}((\sum_{H^M,T} AQEW_{k,h}^{m,t} + EGEI_k - GA\_AQEW_{g,k,h,M}^{m,t} - PGS_{h,M}), 0) / \text{Class B Load}$ <p>Class B Load =</p> $(\sum_K (\text{MAX}(\sum_{H^M,T} AQEW_{k,h}^{m,t} + EGEI_k - EEQ - \sum_{H^M,T} GA\_AQEW_{g,k,h,M}^{m,t} - \sum_H PGS_{h,M}, 0))) - \sum_K U_k$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>                     Where 'K' is the set of all <i>market participants</i> 'k'.</p> | Monthly               | Either Way | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation..  |

| Charge Type Number | Charge Type Name                                | Market Rules Reference                | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
|                    |   |                                       | Where 'M' is the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'.<br>Where 'C' is the set of the following <i>charge types</i> 'c':<br><b>193, 194, 195, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1450, 1460, 1461, 1462, 1464, 1466, 1468, 1469, 1471, 1472, 1473, 1474, 1475.</b> |                       |          |                                      |   |                                     |  |  |
| 149                | Regulated Price Plan Retailer Settlement Amount | N/A                                   | Manual entry based on the values submitted by market participants via On-line settlement form "Retailer Payments for Contract Price vs. HOEP for Regulated Consumers with a Retail Contract".   | Monthly               | Due LDCs | 13                                   | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation. |
| 164                | Outage Cancellation/Deferral Debit              | MR Ch.5 s.6.7.4 and MR Ch.9 s.4.14.12 | $\sum_{c,H^M,T} TD_{k,H,(114)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H^M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.  | Monthly               | Due IESO | 13                                   | N/A   | 0                                   | 13   |  |
| 165                | Unrecoverable Testing Costs Debit               | MR Ch.9 s.4.14.12 and MR Ch.4 s.5.3.4 | $= \sum_{H,c} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H^M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.  | Monthly               | Due IESO | 13                                   | N/A   | 0                                   | 13   |  |
| 166                | Tieline Reliability Maintenance Debit           | MR Ch.9 s.4.14.12 and MR Ch.5 s.5.3.4 | $= \sum_{H,c} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H^M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.  | Monthly               | Due IESO | 13                                   | N/A   | 0                                   | 13   |  |
| 167                | Emergency Energy Debit                          | MR Ch.9 s.4.14.12 and                 | $= \sum_{H,c} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H^M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$   | Monthly               | Due IESO | 13                                   | N/A   | 0                                   | 13   |  |

| Charge Type Number | Charge Type Name                    | Market Rules Reference               | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|-------------------------------------|--------------------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                                     | MR Ch.5 s.2.3.3A                     | Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'c' is any payments made for <i>emergency energy</i> during the applicable period.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.   |                       |          |                                      |   |                                     |  |          |
| 168                | TR Market Shortfall Debit           | MR Ch.9 s.6.16.6.3                   | <p><b>For loads:</b><br/> <math>TRCAC_k = TRCAD_L \times \sum_H^{M,T} [(AQEW_{k,h}^{m,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t})]</math></p> <p><b>For exporters:</b><br/> <math>TRCAC_k = TRCAD_E \times \sum_H^{I,T} [(SQEW_{k,h}^{i,t}) / \sum_{K,H}^{I,T} (SQEW_{k,h}^{i,t})]</math></p> <p><b>Where</b><br/> <math>TRCAD_L = (\sum_K TD_c / \sum_K TD_{c,C1}) \times TRCAR</math><br/> <math>TRCAD_E = (\sum_K TD_{c1} / \sum_K TD_{c,C1}) \times TRCAR</math></p> <p>Where 'TRCAR' is the total dollar value (in \$ and up to 2 decimal places) of TR shortfall recovery from the <i>TR clearing account</i> authorized by the <i>IESO Board</i> in the current <i>energy market billing period</i>.<br/>                     Where 'C' is the set of all <i>monthly service charge types c</i> as follows: 650,651,652.<br/>                     Where 'C1' is the set of all <i>monthly export transmission charge types c</i> as follows:653.<br/>                     Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>                     Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.<br/>                     Where 'M' is the set of all <i>delivery points</i> 'm', excluding any <i>intertie metering points</i>.<br/>                     Where 'I' is the set of all <i>intertie metering points</i> 'i'.<br/>                     Where 'K' is the set of all <i>market participants</i> 'k'.</p> | Monthly               | Due IESO | 13                                   | N/A   | 0                                   | 13   |          |
| 169                | Station Service Reimbursement Debit | MR Ch.9 ss.2.2.12-2.2.17 and 4.14.12 | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} - GSSR\_AQEW_{k,h}^{i,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} - GSSR\_AQEW_{k,h}^{i,t})]$ <p>Where 'c' is <i>charge type</i> 119.<br/>                     Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>                     Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>  | Monthly               | Due IESO | 13                                   | N/A   | 0                                   | 13   |          |

| Charge Type Number               | Charge Type Name                                   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|----------------------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
| 171                              | Northern Energy Advantage Program Balancing Amount | N/A                    | $\sum_K TD_{k,121}$ <p>Where 'k' is part of a subset of eligible <i>market participants</i> 'k'.</p>   | Quarterly             | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to Ministry of Northern Development, Mines, Natural Resources and Forestry specifications. |
| 173                              | MACD Enforcement Activity Balancing Amount         | N/A                    | $\sum_K TD_{k123}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.<br/>Where <math>TD_{k123}</math> is the <i>settlement amount</i> of charge type 123 for the month for <i>market participant</i> 'k'.</p>   | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  |   |
| 186<br>MRP updated + name change | Intertie Failure Charge Uplift (INFCU)             | MR Ch.9 s.3.11         | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \sum_{K}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 1828,1829,1928,1929.</p> | Hourly                | Due MP   | 13                                   | N/A   | 0                                   | 13   |   |
| 192                              | Regulated Price Plan Balancing Amount              | N/A                    | $\sum_K TD_{k,142}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.<br/>Where <math>TD_{k,142}</math> is the total <i>settlement amount</i> of charge type 142 for the month for <i>market participant</i> 'k'.</p>   | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation.  |
| 193                              | NUG Contract Adjustment Balancing Amount           | N/A                    | $TD_{143}$   | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation.  |

| Charge Type Number | Charge Type Name                                      | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
| 194                | Regulated Nuclear Generation Balancing Amount         | N/A                    | TD <sub>144</sub>   | Interval or Hourly    | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation.                               |
| 195                | Regulated Hydroelectric Generation Balancing Amount   | N/A                    | TD <sub>145</sub>   | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to OEB regulation.                                      |
| 196                | Global Adjustment Balancing Amount                    | N/A                    | $\sum_k TD_{k,147, 148} - \Sigma 197$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where TD <sub>k,147, 148</sub> is the <i>settlement amount</i> of <i>charge type</i> 147 and 148 for the month for <i>market participant</i> 'k'. | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |
| 197                | Global Adjustment - Special Programs Balancing Amount | N/A                    | $\sum_k TD_{k,1466}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where TD <sub>k,1466</sub> is the <i>settlement amount</i> of <i>charge type</i> 1466 for the month for <i>market participant</i> 'k'.                             | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation.                               |
| 199                | Regulated Price Plan Retailer Balancing Amount        | N/A                    | $\sum_k TD_{k,149}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where TD <sub>k,149</sub> is the <i>settlement amount</i> of <i>charge type</i> 149 for the month for <i>market participant</i> 'k'.                                | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation.                               |
| 201                | 10 Minute Spinning Reserve Market                     | MR Ch.9 s.3.11         |   | Hourly                | Due MP   | 13                                   | N/A   | 0                                   | 13   |  |

| Charge Type Number | Charge Type Name  | Market Rules Reference            | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|-----------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Shortfall Rebate<br><br>(HUSA)  |                                   | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \frac{\sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t})}{\sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 251.</p> |                       |          |                                      |   |                                     |  |          |
| 203                | 10 Minute Non-spinning Reserve Market Shortfall Rebate<br><br>(HUSA)  | MR Ch.9 s.3.11                    | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \frac{\sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t})}{\sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 253.</p> | Hourly                | Due MP   | 13                                   | N/A   | 0                                   | 13   |          |
| 205                | 30 Minute Operating Reserve Market Shortfall Rebate<br><br>(HUSA)     | MR Ch.9 s.3.11                    | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \frac{\sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t})}{\sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 255.</p> | Hourly                | Due MP   | 13                                   | N/A   | 0                                   | 13   |          |
| 206<br>MRP updated | 10-Minute Spinning Non-Accessibility Settlement Amount<br><br>(ORSCB) | MR Ch.9 ss.3.10.1, 3.10.6-3.10.16 | <p><b>For dispatchable loads and non-aggregated generation resources</b></p> $ORSCB_{r1,k,h}^{m,t} = \text{Min}[0, (TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}) \times RT\_PROR_{r1,h}^{m,t}]$   | Interval              | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <p><b>1. For a dispatchable electricity storage resource or a non-aggregated dispatchable generation resource:</b></p> <p>a. <math>TAOR_{k,h}^{m,t} = \text{Max}(0, MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t})</math></p> <p>b. <math>MAX\_CAP_{k,h}^{m,t}</math> = the maximum limit used in determining the <i>real-time schedule</i> in the <i>dispatch scheduling</i> and pricing process</p> <p><b>2. For a dispatchable load:</b></p> <p>a. <math>TAOR_{k,h}^{m,t} = \text{Max}(0, AQEW_{k,h}^{m,t} - MC_{k,h}^{m,t})</math></p> <p>b. <math>MC_{k,h}^{m,t}</math> = the minimum consumption level, equal to the quantity in the <i>price-quantity pair</i> where the <i>bid price</i> is the <i>maximum market clearing price</i></p> <p><b>For aggregated generation resources non-pseudo-units:</b></p> $ORSCB_{r1,k,h}^{m,t} = ORSCB_{k,h}^{M,t} \times \frac{ORIA_{r1,k,h}^{m,t}}{\sum_R^M ORIA_{r,k,h}^{m,t}}$ <p><b>Where:</b></p> <p>i. 'M' = the set of all <i>delivery points</i> 'm' of the aggregated group of <i>dispatchable generation resources</i></p> <p>ii. <math>TAOR_{k,h}^{m,t} = \text{Max}(0, MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t})</math></p> <p>iii. <math>ORIA_{r,k,h}^{m,t}</math> is calculated as:</p> <p>a. <math>ORIA_{r1,k,h}^{m,t} = \text{Min}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t})</math></p> <p>b. <math>ORIA_{r2,k,h}^{m,t} = \text{Min}[0, \text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}) - RT\_QSOR_{r2,k,h}^{m,t}]</math></p> <p>c. <math>ORIA_{r3,k,h}^{m,t} = \text{Min}[0, \text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}) - RT\_QSOR_{r3,k,h}^{m,t}]</math></p> <p>iv. <math>ORSCB_{k,h}^{M,t} = \text{Min}[0, \sum_R^M (NORD_{r,k,h}^{m,t} \times RT\_PROR_{r,k,h}^{m,t})]</math> and is the total amount of non-accessibility <i>operating reserve</i> for the aggregated group and is prorated in <i>charge types</i> 206, 208 and 210, as applicable.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>v. <math>NORD_{r,k,h}^{m,t}</math> is calculated as:</p> <p>a. <math>NORD_{r1,k,h}^{m,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{m,t}, TAOR_{r1,k,h}^{m,t}) + REAH_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}</math></p> <p>b. <math>NORD_{r2,k,h}^{m,t} = \text{Min}[(RT\_QSOR_{r2,k,h}^{m,t}, \text{Max}(0, TAOR_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t})] + REAH_{r2,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}</math></p> <p>c. <math>NORD_{r3,k,h}^{m,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{m,t}, \text{Max}(0, TAOR_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t})] + REAH_{r2,k,h}^{m,t} - RT\_QSOR_{r3,k,h}^{m,t}</math></p> <p>vi. <math>REAH_{r,k,h}^{m,t}</math> is calculated as follows for each type of <i>class r reserve</i>:</p> $REAH_{r,k,h}^{m,t} = TREA H_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{m,t}}{\sum^M EAH_{k,h}^{m,t}}$ <p>vii. <math>EAH_{k,h}^{m,t} = \text{Max}(0, TAOR_{k,h}^{m,t} - \sum_R RT\_QSOR_{r,k,h}^{m,t})</math></p> <p>viii. When <math>\sum^M EAH_{k,h}^{m,t} = 0</math>, then <math>TREA H_{r,k,h}^{M,t} = 0</math>, and when <math>\sum^M EAH_{k,h}^{m,t} &lt; 0</math>, then <math>TREA H_{r,k,h}^{M,t}</math> is calculated as follows:</p> <p>a. <math>TREA H_{r1,k,h}^{M,t} = \text{Min}(\sum^M EAH_{k,h}^{m,t}, (-1) \times \sum^M ORIA_{r1,k,h}^{m,t})</math></p> <p>b. <math>TREA H_{r2,k,h}^{M,t} = \text{Min}[(\sum^M EAH_{k,h}^{m,t}) - TREA H_{r1,k,h}^{M,t}, (-1) \times \sum^M ORIA_{r2,k,h}^{m,t}]</math></p> <p>c. <math>TREA H_{r3,k,h}^{M,t} = \text{Min}[(\sum^M EAH_{k,h}^{m,t}) - TREA H_{r1,k,h}^{M,t} - TREA H_{r2,k,h}^{M,t}, (-1) \times \sum^M ORIA_{r3,k,h}^{m,t}]</math></p> <p><b>For generation resources that are pseudo-units:</b></p> <p><b>A. For a combustion turbine generation unit</b></p> $ORSCB_{r1,k,h}^{c,t} = ORSCB_{k,h}^{M,t} \times \frac{\sum_R ORIA_{r1,k,h}^{c,t}}{\sum^M (ORIA_{r,k,h}^{c,t} + ORIA_{r,k,h}^{s,t})}$ <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i></p> <p>b. <math>ORIA_{r,k,h}^{c,t}</math> is calculated as:</p> <p>i. <math>ORIA_{r1,k,h}^{c,t} = \text{Min}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t})</math></p> |                       |          |                                      |   |                                     |  |          |



| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | ii. $ORIA_{r2,k,h}^{c,t} = \text{Min}[0, \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}) - RT\_QSOR_{r2,k,h}^{c,t}]$<br>iii. $ORIA_{r3,k,h}^{c,t} = \text{Min}[0, \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}) - RT\_QSOR_{r3,k,h}^{c,t}]$<br><br>and where:<br>i. $TAOR\_CT_{k,h}^{c,t} = \text{Max}(0, \text{MAX\_CAP}_{k,h}^{c,t} - AQEI_{k,h}^{c,t})$ when $AQEI_{k,h}^{c,t} \geq \text{minimum loading point}$<br>ii. $TAOR\_CT_{k,h}^{c,t} = 0$ when $AQEI_{k,h}^{c,t} < \text{minimum loading point}$<br><br><b>B. For a steam turbine generation unit</b><br><br>$ORSCB_{r1,k,h}^{s,t} = ORSCB_{k,h}^{M,t} \times \frac{\sum_R ORIA_{r1,k,h}^{s,t}}{\sum_R^M (ORIA_{r,k,h}^{c,t} + ORIA_{r,k,h}^{s,t})}$<br><br>Where:<br>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i><br>b. $ORIA_{r,k,h}^{s,t}$ is calculated as:<br>i. $ORIA_{r1,k,h}^{s,t} = \text{Min}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t})$<br>ii. $ORIA_{r2,k,h}^{s,t} = \text{Min}[0, \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}) - RT\_QSOR_{r2,k,h}^{s,t}]$<br>iii. $ORIA_{r3,k,h}^{s,t} = \text{Min}[0, \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t}) - RT\_QSOR_{r3,k,h}^{s,t}]$<br><br>and where:<br>i. $TAOR\_ST_{k,h}^{s,t} = \text{Max}[0, (\sum_D^{P1} RT\_ORRQ_{k,d}^p) - (\sum^{C1} \text{MAX\_CAP}_{k,h}^{c,t}) - AQEI_{k,h}^{s,t}]$<br>a. P1 = the set of the <i>resource's pseudo-units</i> 'p' where $AQEI_{k,h}^{c,t} \geq \text{minimum loading point}$ and is not operating in <i>single cycle mode</i> ;<br>b. C1 = the set of the <i>resource's combustion turbine generation units</i> 'c' associated with the steam turbine <i>generation unit</i> and $AQEI_{k,h}^{c,t} \geq \text{minimum loading point}$ and is not operating in <i>single cycle mode</i> ; and<br>c. D = the set of <i>pseudo-unit</i> operating regions 'd1', 'd2', and 'd3'. |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>For both the combustion turbine <i>generation unit</i> and the steam turbine <i>generation unit</i>:</b></p> <p><math>ORSCB_{k,h}^{M,t}</math> is the total amount of non-accessibility <i>operating reserve</i> for the aggregated group and is prorated in <i>charge types</i> 206, 208 and 210, as applicable, to determine the <i>operating reserve</i> non-accessibility charge for each combustion turbine <i>generation unit</i> and steam turbine <i>generation unit</i> of the aggregated group.</p> $ORSCB_{k,h}^{M,t} = \text{Min} \left[ 0, \sum_R^M \left( (NORD_{r,k,h}^{c,t} \times RT\_PROR_{r,k,h}^{c,t}) + (NORD_{r,k,h}^{s,t} \times RT\_PROR_{r,k,h}^{s,t}) \right) \right]$ <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i></p> <p>b. <math>NORD_{r,k,h}^{c,t}</math> for the combustion turbine <i>generation unit</i> is calculated as:</p> <ol style="list-style-type: none"> <li><math>NORD_{r1,k,h}^{c,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{c,t}, TAOR\_CT_{r1,k,h}^{c,t}) + REAH_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}</math></li> <li><math>NORD_{r2,k,h}^{c,t} = \text{Min}[RT\_QSOR_{r2,k,h}^{c,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t})] + REAH_{r2,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}</math></li> <li><math>NORD_{r3,k,h}^{c,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{c,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t})] + REAH_{r2,k,h}^{c,t} - RT\_QSOR_{r3,k,h}^{c,t}</math></li> </ol> <p>c. <math>NORD_{r,k,h}^{s,t}</math> for the steam turbine <i>generation unit</i> is calculated as:</p> <ol style="list-style-type: none"> <li><math>NORD_{r1,k,h}^{s,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{s,t}, TAOR\_CT_{r1,k,h}^{s,t}) + REAH_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}</math></li> <li><math>NORD_{r2,k,h}^{s,t} = \text{Min}[RT\_QSOR_{r2,k,h}^{s,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t})] + REAH_{r2,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t}</math></li> <li><math>NORD_{r3,k,h}^{s,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{s,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t})] + REAH_{r2,k,h}^{s,t} - RT\_QSOR_{r3,k,h}^{s,t}</math></li> </ol> <p>d. <math>REAH_{r,k,h}^{c,t}</math> for the combustion turbine <i>generation unit</i> is calculated as follows for each type of <i>class r</i> <i>reserve</i>:</p> $REAH_{r,k,h}^{c,t} = TREAH_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{c,t}}{\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})}$ <p>e. <math>REAH_{r,k,h}^{s,t}</math> for the steam turbine <i>generation unit</i> is calculated as follows for each type of <i>class r</i> <i>reserve</i>:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference            | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|-----------------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                                   | $REAH_{r,k,h}^{s,t} = TREA H_{r,k,h}^{m,t} \times \frac{EAH_{k,h}^{s,t}}{\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})}$ <p>f. <math>EAH_{k,h}^{c,t} = \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - \sum_R RT\_QSOR_{r,k,h}^{c,t})</math> for the combustion turbine <i>generation unit</i></p> <p>g. <math>EAH_{k,h}^{s,t} = \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - \sum_R RT\_QSOR_{r,k,h}^{s,t})</math> for the steam turbine <i>generation unit</i></p> <p>h. When <math>\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) = 0</math>, then <math>TREA H_{r,k,h}^{m,t} = 0</math>, and when <math>\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) &lt; 0</math>, then</p> <p>i. <math>TREA H_{r1,k,h}^{m,t} = \text{Min}(\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}), (-1) \times \sum^M (ORIA_{r1,k,h}^{s,t} + ORIA_{r1,k,h}^{c,t}))</math></p> <p>ii. <math>TREA H_{r2,k,h}^{m,t} = \text{Min}[(\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})) - TREA H_{r1,k,h}^{m,t}, (-1) \times \sum^M (ORIA_{r2,k,h}^{c,t} + ORIA_{r2,k,h}^{s,t})]</math></p> <p>iii. <math>TREA H_{r3,k,h}^{m,t} = \text{Min}[(\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})) - TREA H_{r1,k,h}^{m,t} - TREA H_{r2,k,h}^{m,t}, (-1) \times \sum^M (ORIA_{r3,k,h}^{c,t} + ORIA_{r3,k,h}^{s,t})]</math></p> |                       |          |                                      |   |                                     |  |          |
| 208 MRP updated    | 10-Minute Non-Spinning Accessibility Settlement Amount (ORSCB) | MR Ch.9 ss.3.10.1, 3.10.6-3.10.16 | <p><b>For dispatchable loads and non-aggregated generation resources</b></p> $ORSCB_{r2,k,h}^{m,t} = \text{Min}\{0, [\text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}) - AQOR_{r2,k,h}^{m,t}] \times RT\_PROR_{r2,h}^{m,t}\}$ <p><b>Where:</b></p> <p><b>1. For a dispatchable electricity storage resource or a non-aggregated dispatchable generation resource:</b></p> <p>a. <math>TAOR_{k,h}^{m,t} = \text{Max}(0, MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t})</math></p> <p>b. <math>MAX\_CAP_{k,h}^{m,t}</math> = the maximum limit used in determining the <i>real-time schedule</i> in the <i>dispatch scheduling</i> and pricing process</p> <p><b>2. For a dispatchable load:</b></p> <p>a. <math>TAOR_{k,h}^{m,t} = \text{Max}(0, AQEW_{k,h}^{m,t} - MC_{k,h}^{m,t})</math></p> <p>b. <math>MC_{k,h}^{m,t}</math> = the minimum consumption level, equal to the quantity in the <i>price-quantity pair</i> where the <i>bid</i> price is the <i>maximum market clearing price</i></p>   | Interval              | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>For aggregated <i>generation resources non-pseudo-units</i>:</b></p> $ORSCB_{r2,k,h}^{m,t} = ORSCB_{k,h}^{M,t} \times \frac{ORIA_{r2,k,h}^{m,t}}{\sum_R^M ORIA_{r,k,h}^{m,t}}$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. 'M' = the set of all <i>delivery points</i> 'm' of the aggregated group of <i>dispatchable generation resources</i></li> <li>ii. <math>TAOR_{k,h}^{m,t} = \text{Max}(0, MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t})</math></li> <li>iii. <math>ORIA_{r,k,h}^{m,t}</math> is calculated as: <ul style="list-style-type: none"> <li>a. <math>ORIA_{r1,k,h}^{m,t} = \text{Min}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t})</math></li> <li>b. <math>ORIA_{r2,k,h}^{m,t} = \text{Min}[0, \text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}) - RT\_QSOR_{r2,k,h}^{m,t}]</math></li> <li>c. <math>ORIA_{r3,k,h}^{m,t} = \text{Min}[0, \text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}) - RT\_QSOR_{r3,k,h}^{m,t}]</math></li> </ul> </li> <li>iv. <math>ORSCB_{k,h}^{M,t} = \text{Min}[0, \sum_R^M (NORD_{r,k,h}^{m,t} \times RT\_PROR_{r,k,h}^{m,t})]</math> and is the total amount of non-accessibility <i>operating reserve</i> for the aggregated group and is prorated in <i>charge types</i> 206, 208 and 210, as applicable.</li> </ul> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>v. <math>NORD_{r,k,h}^{m,t}</math> is calculated as:</p> <p>a. <math>NORD_{r1,k,h}^{m,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{m,t}, TAOR_{r1,k,h}^{m,t}) + REAH_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}</math></p> <p>b. <math>NORD_{r2,k,h}^{m,t} = \text{Min}[(RT\_QSOR_{r2,k,h}^{m,t}, \text{Max}(0, TAOR_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t})] + REAH_{r2,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}</math></p> <p>c. <math>NORD_{r3,k,h}^{m,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{m,t}, \text{Max}(0, TAOR_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t})] + REAH_{r2,k,h}^{m,t} - RT\_QSOR_{r3,k,h}^{m,t}</math></p> <p>vi. <math>REAH_{r,k,h}^{m,t}</math> is calculated as follows for each type of class r reserve:</p> $REAH_{r,k,h}^{m,t} = TREA H_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{m,t}}{\sum^M EAH_{k,h}^{m,t}}$ <p>vii. <math>EAH_{k,h}^{m,t} = \text{Max}(0, TAOR_{k,h}^{m,t} - \sum_R RT\_QSOR_{r,k,h}^{m,t})</math></p> <p>viii. When <math>\sum^M EAH_{k,h}^{m,t} = 0</math>, then <math>TREA H_{r,k,h}^{M,t} = 0</math>, and when <math>\sum^M EAH_{k,h}^{m,t} &lt; 0</math>, then <math>TREA H_{r,k,h}^{M,t}</math> is calculated as follows:</p> <p>a. <math>TREA H_{r1,k,h}^{M,t} = \text{Min}(\sum^M EAH_{k,h}^{m,t}, (-1) \times \sum^M ORIA_{r1,k,h}^{m,t})</math></p> <p>b. <math>TREA H_{r2,k,h}^{M,t} = \text{Min}[(\sum^M EAH_{k,h}^{m,t}) - TREA H_{r1,k,h}^{M,t}, (-1) \times \sum^M ORIA_{r2,k,h}^{m,t}]</math></p> <p>c. <math>TREA H_{r3,k,h}^{M,t} = \text{Min}[(\sum^M EAH_{k,h}^{m,t}) - TREA H_{r1,k,h}^{M,t} - TREA H_{r2,k,h}^{M,t}, (-1) \times \sum^M ORIA_{r3,k,h}^{m,t}]</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>For generation resources that are pseudo-units:</b></p> <p><b>A. For a combustion turbine generation unit</b></p> $ORSCB_{r2,k,h}^{c,t} = ORSCB_{k,h}^{M,t} \times \frac{\sum_R ORIA_{r2,k,h}^{c,t}}{\sum_R^M (ORIA_{r,k,h}^{c,t} + ORIA_{r,k,h}^{s,t})}$ <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i>;</p> <p>b. <math>ORIA_{r,k,h}^{c,t}</math> is calculated as:</p> <ul style="list-style-type: none"> <li>i. <math>ORIA_{r1,k,h}^{c,t} = \text{Min}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t})</math></li> <li>ii. <math>ORIA_{r2,k,h}^{c,t} = \text{Min}[0, \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}) - RT\_QSOR_{r2,k,h}^{c,t}]</math></li> <li>iii. <math>ORIA_{r3,k,h}^{c,t} = \text{Min}[0, \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}) - RT\_QSOR_{r3,k,h}^{c,t}]</math></li> </ul> <p><b>and where:</b></p> <ul style="list-style-type: none"> <li>i. <math>TAOR\_CT_{k,h}^{c,t} = \text{Max}(0, MAX\_CAP_{k,h}^{c,t} - AQEI_{k,h}^{c,t})</math> when <math>AQEI_{k,h}^{c,t} \geq \text{minimum loading point}</math></li> <li>ii. <math>TAOR\_CT_{k,h}^{c,t} = 0</math> when <math>AQEI_{k,h}^{c,t} &lt; \text{minimum loading point}</math></li> </ul> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>B. For a steam turbine generation unit</b></p> $ORSCB_{r2,k,h}^{s,t} = ORSCB_{k,h}^{M,t} \times \frac{\sum_R ORIA_{r2,k,h}^{s,t}}{\sum_R^M (ORIA_{r,k,h}^{c,t} + ORIA_{r,k,h}^{s,t})}$ <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i></p> <p>b. <math>ORIA_{r,k,h}^{s,t}</math> is calculated as:</p> <ol style="list-style-type: none"> <li><math>ORIA_{r1,k,h}^{s,t} = \text{Min}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t})</math></li> <li><math>ORIA_{r2,k,h}^{s,t} = \text{Min}[0, \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}) - RT\_QSOR_{r2,k,h}^{s,t}]</math></li> <li><math>ORIA_{r3,k,h}^{s,t} = \text{Min}[0, \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t}) - RT\_QSOR_{r3,k,h}^{s,t}]</math></li> </ol> <p><b>and where:</b></p> <ol style="list-style-type: none"> <li><math>TAOR\_ST_{k,h}^{s,t} = \text{Max}[0, (\sum_D^{P1} RT\_ORRQ_{k,d}^p) - (\sum_{C1} MAX\_CAP_{k,h}^{c,t}) - AQEI_{k,h}^{s,t}]</math> <ol style="list-style-type: none"> <li>P1 = the set of the <i>resource's pseudo-units</i> 'p' where <math>AQEI_{k,h}^{c,t} \geq \text{minimum loading point}</math> and is not operating in <i>single cycle mode</i>;</li> <li>C1 = the set of the <i>resource's combustion turbine generation units</i> 'c' associated with the steam turbine <i>generation unit</i> and <math>AQEI_{k,h}^{c,t} \geq \text{minimum loading point}</math> and is not operating in <i>single cycle mode</i>; and</li> <li>D = the set of <i>pseudo-unit</i> operating regions 'd1', 'd2', and 'd3'.</li> </ol> </li> </ol> <p><b>For both the combustion turbine generation unit and the steam turbine generation unit:</b></p> <p><math>ORSCB_{k,h}^{M,t}</math> is the total amount of non-accessibility <i>operating reserve</i> for the aggregated group and is prorated in <i>charge types</i> 206, 208 and 210, as applicable, to determine the <i>operating reserve</i> non-accessibility charge for each combustion turbine <i>generation unit</i> and steam turbine <i>generation unit</i> of the aggregated group.</p> $ORSCB_{k,h}^{M,t} = \text{Min}\left[0, \sum_R^M \left( (NORD_{r,k,h}^{c,t} \times RT\_PROR_{r,k,h}^{c,t}) + (NORD_{r,k,h}^{s,t} \times RT\_PROR_{r,k,h}^{s,t}) \right)\right]$ |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i></p> <p>b. <math>NORD_{r,k,h}^{c,t}</math> for the combustion turbine <i>generation unit</i> is calculated as:</p> <p>i. <math>NORD_{r1,k,h}^{c,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{c,t}, TAOR\_CT_{r1,k,h}^{c,t}) + REAH_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}</math></p> <p>ii. <math>NORD_{r2,k,h}^{c,t} = \text{Min}[(RT\_QSOR_{r2,k,h}^{c,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t})] + REAH_{r2,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}</math></p> <p>iii. <math>NORD_{r3,k,h}^{c,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{c,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t})] + REAH_{r2,k,h}^{c,t} - RT\_QSOR_{r3,k,h}^{c,t}</math></p> <p>c. <math>NORD_{r,k,h}^{s,t}</math> for the steam turbine <i>generation unit</i> is calculated as:</p> <p>i. <math>NORD_{r1,k,h}^{s,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{s,t}, TAOR\_CT_{r1,k,h}^{s,t}) + REAH_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}</math></p> <p>ii. <math>NORD_{r2,k,h}^{s,t} = \text{Min}[(RT\_QSOR_{r2,k,h}^{s,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t})] + REAH_{r2,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t}</math></p> <p>iii. <math>NORD_{r3,k,h}^{s,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{s,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t})] + REAH_{r2,k,h}^{s,t} - RT\_QSOR_{r3,k,h}^{s,t}</math></p> <p>d. <math>REAH_{r,k,h}^{c,t}</math> for the combustion turbine <i>generation unit</i> is calculated as follows for each type of <i>class r reserve</i>:</p> $REAH_{r,k,h}^{c,t} = TREA_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{c,t}}{\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})}$ <p>e. <math>REAH_{r,k,h}^{s,t}</math> for the steam turbine <i>generation unit</i> is calculated as follows for each type of <i>class r reserve</i>:</p> $REAH_{r,k,h}^{s,t} = TREA_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{s,t}}{\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})}$ |                       |          |                                      |   |                                     |  |          |



| Charge Type Number | Charge Type Name                                      | Market Rules Reference            | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|-----------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                                   | f. $EAH_{k,h}^{c,t} = \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - \sum_R RT\_QSOR_{r,k,h}^{c,t})$ for the combustion turbine <i>generation unit</i><br>g. $EAH_{k,h}^{s,t} = \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - \sum_R RT\_QSOR_{r,k,h}^{s,t})$ for the steam turbine <i>generation unit</i><br>h. When $\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) = 0$ , then $TREAH_{r,k,h}^{M,t} = 0$ , and when $\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) < 0$ , then<br>i. $TREAH_{r1,k,h}^{M,t} = \text{Min}(\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}), (-1) \times \sum^M (ORIA_{r1,k,h}^{s,t} + ORIA_{r1,k,h}^{c,t}))$<br>ii. $TREAH_{r2,k,h}^{M,t} = \text{Min}[(\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})) - TREAH_{r1,k,h}^{M,t}, (-1) \times \sum^M (ORIA_{r2,k,h}^{c,t} + ORIA_{r2,k,h}^{s,t})]$<br>iii. $TREAH_{r3,k,h}^{M,t} = \text{Min}[(\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})) - TREAH_{r1,k,h}^{M,t} - TREAH_{r2,k,h}^{M,t}, (-1) \times \sum^M (ORIA_{r3,k,h}^{c,t} + ORIA_{r3,k,h}^{s,t})]$  |                       |          |                                      |   |                                     |  |          |
| 210 MRP updated    | 30-Minute Non-Accessibility Settlement Amount (ORSCB) | MR Ch.9 ss.3.10.1, 3.10.6-3.10.16 | <p><b>For dispatchable loads and non-aggregated generation resources</b></p> $ORSCB_{r3,k,h}^{m,t} = \text{Min}\{0, [\text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}) - RT\_QSOR_{r3,k,h}^{m,t}] \times RT\_PROR_{r3,h}^{m,t}\}$ <p><b>Where:</b></p> <p><b>1. For a dispatchable electricity storage resource or a non-aggregated dispatchable generation resource:</b></p> a. $TAOR_{k,h}^{m,t} = \text{Max}(0, MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t})$<br>b. $MAX\_CAP_{k,h}^{m,t}$ = the maximum limit used in determining the <i>real-time schedule</i> in the <i>dispatch scheduling</i> and pricing process<br><p><b>2. For a dispatchable load:</b></p> a. $TAOR_{k,h}^{m,t} = \text{Max}(0, AQEW_{k,h}^{m,t} - MC_{k,h}^{m,t})$<br>b. $MC_{k,h}^{m,t}$ = the minimum consumption level, equal to the quantity in the <i>price-quantity pair</i> where the <i>bid price</i> is the <i>maximum market clearing price</i> <p><b>For aggregated generation resources non-pseudo-units:</b></p> $ORSCB_{r3,k,h}^{m,t} = ORSCB_{k,h}^{M,t} \times \frac{ORIA_{r3,k,h}^{m,t}}{\sum_R ORIA_{r,k,h}^{m,t}}$ | Interval              | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. 'M' = the set of all <i>delivery points</i> 'm' of the aggregated group of <i>dispatchable generation resources</i></li> <li>ii. <math>TAOR_{k,h}^{m,t} = \text{Max}(0, \text{MAX\_CAP}_{k,h}^{m,t} - AQEI_{k,h}^{m,t})</math></li> <li>iii. <math>ORIA_{r,k,h}^{m,t}</math> is calculated as:                             <ul style="list-style-type: none"> <li>a. <math>ORIA_{r1,k,h}^{m,t} = \text{Min}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t})</math></li> <li>b. <math>ORIA_{r2,k,h}^{m,t} = \text{Min}[0, \text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}) - RT\_QSOR_{r2,k,h}^{m,t}]</math></li> <li>c. <math>ORIA_{r3,k,h}^{m,t} = \text{Min}[0, \text{Max}(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}) - RT\_QSOR_{r3,k,h}^{m,t}]</math></li> </ul> </li> <li>iv. <math>ORSCB_{k,h}^{M,t} = \text{Min}[0, \sum_R^M (NORD_{r,k,h}^{m,t} \times RT\_PROR_{r,k,h}^{m,t})]</math> and is the total amount of non-accessibility <i>operating reserve</i> for the aggregated group and is prorated in <i>charge types</i> 206, 208 and 210, as applicable.</li> <li>v. <math>NORD_{r,k,h}^{m,t}</math> is calculated as:                             <ul style="list-style-type: none"> <li>a. <math>NORD_{r1,k,h}^{m,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{m,t}, TAOR_{r1,k,h}^{m,t}) + REAH_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}</math></li> <li>b. <math>NORD_{r2,k,h}^{m,t} = \text{Min}[RT\_QSOR_{r2,k,h}^{m,t}, \text{Max}(0, TAOR_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t})] + REAH_{r2,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}</math></li> <li>c. <math>NORD_{r3,k,h}^{m,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{m,t}, \text{Max}(0, TAOR_{r1,k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t})] + REAH_{r3,k,h}^{m,t} - RT\_QSOR_{r3,k,h}^{m,t}</math></li> </ul> </li> <li>vi. <math>REAH_{r,k,h}^{m,t}</math> is calculated as follows for each type of <i>class r reserve</i>:<br/> <math display="block">REAH_{r,k,h}^{m,t} = TREATH_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{m,t}}{\sum^M EAH_{k,h}^{m,t}}</math> </li> <li>vii. <math>EAH_{k,h}^{m,t} = \text{Max}(0, TAOR_{k,h}^{m,t} - \sum_R RT\_QSOR_{r,k,h}^{m,t})</math></li> </ul> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>viii. When <math>\sum^M EAH_{k,h}^{m,t} = 0</math>, then <math>TREAH_{r,k,h}^{M,t} = 0</math>, and when <math>\sum^M EAH_{k,h}^{m,t} &lt; 0</math>, then <math>TREAH_{r,k,h}^{M,t}</math> is calculated as follows:</p> <p>a. <math>TREAH_{r1,k,h}^{M,t} = \text{Min}(\sum^M EAH_{k,h}^{m,t}, (-1) \times \sum^M ORIA_{r1,k,h}^{m,t})</math></p> <p>b. <math>TREAH_{r2,k,h}^{M,t} = \text{Min}[(\sum^M EAH_{k,h}^{m,t}) - TREAH_{r1,k,h}^{M,t}, (-1) \times \sum^M ORIA_{r2,k,h}^{m,t}]</math></p> <p>c. <math>TREAH_{r3,k,h}^{M,t} = \text{Min}[(\sum^M EAH_{k,h}^{m,t}) - TREAH_{r1,k,h}^{M,t} - TREAH_{r2,k,h}^{M,t}, (-1) \times \sum^M ORIA_{r3,k,h}^{m,t}]</math></p> <p><b>For generation resources that are pseudo-units:</b></p> <p><b>A. For a combustion turbine generation unit</b></p> $ORSCB_{r3,k,h}^{c,t} = ORSCB_{k,h}^{M,t} \times \frac{\sum_R ORIA_{r3,k,h}^{c,t}}{\sum_R (ORIA_{r,k,h}^{c,t} + ORIA_{r,k,h}^{s,t})}$ <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i></p> <p>b. <math>ORIA_{r,k,h}^{c,t}</math> is calculated as:</p> <p>i. <math>ORIA_{r1,k,h}^{c,t} = \text{Min}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t})</math></p> <p>ii. <math>ORIA_{r2,k,h}^{c,t} = \text{Min}[0, \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}) - RT\_QSOR_{r2,k,h}^{c,t}]</math></p> <p>iii. <math>ORIA_{r3,k,h}^{c,t} = \text{Min}[0, \text{Max}(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}) - RT\_QSOR_{r3,k,h}^{c,t}]</math></p> <p><b>and where:</b></p> <p>i. <math>TAOR\_CT_{k,h}^{c,t} = \text{Max}(0, MAX\_CAP_{k,h}^{c,t} - AQEI_{k,h}^{c,t})</math> when <math>AQEI_{k,h}^{c,t} \geq \text{minimum loading point}</math></p> <p>ii. <math>TAOR\_CT_{k,h}^{c,t} = 0</math> when <math>AQEI_{k,h}^{c,t} &lt; \text{minimum loading point}</math></p> <p><b>B. For a steam turbine generation unit</b></p> $ORSCB_{r3,k,h}^{s,t} = ORSCB_{k,h}^{M,t} \times \frac{\sum_R ORIA_{r3,k,h}^{s,t}}{\sum_R (ORIA_{r,k,h}^{c,t} + ORIA_{r,k,h}^{s,t})}$ |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i></p> <p>b. <math>ORIA_{r,k,h}^{s,t}</math> is calculated as:</p> <ol style="list-style-type: none"> <li>i. <math>ORIA_{r1,k,h}^{s,t} = \text{Min}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t})</math></li> <li>ii. <math>ORIA_{r2,k,h}^{s,t} = \text{Min}[0, \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}) - RT\_QSOR_{r2,k,h}^{s,t}]</math></li> <li>iii. <math>ORIA_{r3,k,h}^{s,t} = \text{Min}[0, \text{Max}(0, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t}) - RT\_QSOR_{r3,k,h}^{s,t}]</math></li> </ol> <p><b>and where:</b></p> <ol style="list-style-type: none"> <li>i. <math>TAOR\_ST_{k,h}^{s,t} = \text{Max}[0, (\sum_D^{P1} RT\_ORRQ_{k,d}^p) - (\sum_{C1}^{C1} MAX\_CAP_{k,h}^{c,t}) - AQEI_{k,h}^{s,t}]</math> <ol style="list-style-type: none"> <li>a. P1 = the set of the <i>resource's pseudo-units</i> 'p' where <math>AQEI_{k,h}^{c,t} \geq</math> <i>minimum loading point</i> and is not operating in <i>single cycle mode</i>;</li> <li>b. C1 = the set of the <i>resource's combustion turbine generation units</i> 'c' associated with the steam turbine <i>generation unit</i> and <math>AQEI_{k,h}^{c,t} \geq</math> <i>minimum loading point</i> and is not operating in <i>single cycle mode</i>; and</li> <li>c. D = the set of <i>pseudo-unit</i> operating regions 'd1', 'd2', and 'd3'.</li> </ol> </li> </ol> <p><b>For both the combustion turbine generation unit and the steam turbine generation unit:</b></p> <p><math>ORSCB_{k,h}^{M,t}</math> is the total amount of non-accessibility <i>operating reserve</i> for the aggregated group and is prorated in <i>charge types</i> 206, 208 and 210, as applicable, to determine the <i>operating reserve</i> non-accessibility charge for each combustion turbine <i>generation unit</i> and steam turbine <i>generation unit</i> of the aggregated group.</p> $ORSCB_{k,h}^{M,t} = \text{Min}\left[0, \sum_R^M \left( (NORD_{r,k,h}^{c,t} \times RT\_PROR_{r,k,h}^{c,t}) + (NORD_{r,k,h}^{s,t} \times RT\_PROR_{r,k,h}^{s,t}) \right)\right]$ <p><b>Where:</b></p> <p>a. 'M' = the set of all <i>delivery points</i> 'c' and 's' of the aggregated group of <i>dispatchable generation resources</i></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>b. <math>NORD_{r,k,h}^{c,t}</math> for the combustion turbine <i>generation unit</i> is calculated as:</p> <p>i. <math>NORD_{r1,k,h}^{c,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{c,t}, TAOR\_CT_{r1,k,h}^{c,t}) + REAH_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}</math></p> <p>ii. <math>NORD_{r2,k,h}^{c,t} = \text{Min}[(RT\_QSOR_{r2,k,h}^{c,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t})] + REAH_{r2,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}</math></p> <p>iii. <math>NORD_{r3,k,h}^{c,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{c,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t})] + REAH_{r2,k,h}^{c,t} - RT\_QSOR_{r3,k,h}^{c,t}</math></p> <p>c. <math>NORD_{r,k,h}^{s,t}</math> for the steam turbine <i>generation unit</i> is calculated as:</p> <p>i. <math>NORD_{r1,k,h}^{s,t} = \text{Min}(RT\_QSOR_{r1,k,h}^{s,t}, TAOR\_CT_{r1,k,h}^{s,t}) + REAH_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}</math></p> <p>ii. <math>NORD_{r2,k,h}^{s,t} = \text{Min}[(RT\_QSOR_{r2,k,h}^{s,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t})] + REAH_{r2,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t}</math></p> <p>iii. <math>NORD_{r3,k,h}^{s,t} = \text{Min}[RT\_QSOR_{r3,k,h}^{s,t}, \text{Max}(0, TAOR\_CT_{r1,k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t})] + REAH_{r2,k,h}^{s,t} - RT\_QSOR_{r3,k,h}^{s,t}</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                        | <p>d. <math>REAH_{r,k,h}^{c,t}</math> for the combustion turbine <i>generation unit</i> is calculated as follows for each type of <i>class r</i> reserve:</p> $REAH_{r,k,h}^{c,t} = TREA_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{c,t}}{\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})}$ <p>e. <math>REAH_{r,k,h}^{s,t}</math> for the steam turbine <i>generation unit</i> is calculated as follows for each type of <i>class r</i> reserve:</p> $REAH_{r,k,h}^{s,t} = TREA_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{s,t}}{\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t})}$ <p>f. <math>EAH_{k,h}^{c,t} = \text{Max}(0, TAOR_{CT_{k,h}}^{c,t} - \sum_R RT_{QSOR_{r,k,h}}^{c,t})</math> for the combustion turbine <i>generation unit</i></p> <p>g. <math>EAH_{k,h}^{s,t} = \text{Max}(0, TAOR_{ST_{k,h}}^{s,t} - \sum_R RT_{QSOR_{r,k,h}}^{s,t})</math> for the steam turbine <i>generation unit</i></p> <p>h. When <math>\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) = 0</math>, then <math>TREA_{r,k,h}^{M,t} = 0</math>, and when <math>\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) &lt; 0</math>, then</p> <ul style="list-style-type: none"> <li>i. <math>TREA_{r1,k,h}^{M,t} = \text{Min}(\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}), (-1) \times \sum^M (ORIA_{r1,k,h}^{s,t} + ORIA_{r1,k,h}^{c,t}))</math></li> <li>ii. <math>TREA_{r2,k,h}^{M,t} = \text{Min}[\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) - TREA_{r1,k,h}^{M,t}, (-1) \times \sum^M (ORIA_{r2,k,h}^{c,t} + ORIA_{r2,k,h}^{s,t})]</math></li> <li>iii. <math>TREA_{r3,k,h}^{M,t} = \text{Min}[\sum^M (EAH_{k,h}^{c,t} + EAH_{k,h}^{s,t}) - TREA_{r1,k,h}^{M,t} - TREA_{r2,k,h}^{M,t}, (-1) \times \sum^M (ORIA_{r3,k,h}^{c,t} + ORIA_{r3,k,h}^{s,t})]</math></li> </ul> |                       |          |                                      |   |                                     |  |          |
| 212<br>MRP new     | Day-Ahead Market 10-Minute Spinning Reserve Settlement Credit<br><br>(HORSA{1}) | MR Ch.9 s.3.1.10       | $HORSA\{1\}_{k,h} = \sum^M (DAM\_PROR_{r1,h}^m \times DAM\_QSOR_{r1,k,h}^m + DAM\_PROR_{r1,h}^i \times DAM\_QSOR_{r1,k,h}^i)$   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 213<br>MRP new     | Real-Time 10-Minute Spinning Reserve Settlement Credit<br><br>(HORSA{2})            | MR Ch.9 s.3.1.11       | $HORSA\{2\}_{k,h} = \sum^{M,T} \{RT\_PROR_{r1,h}^{m,t} \times (RT\_QSOR_{r1,k,h}^{m,t} - DAM\_QSOR_{r1,k,h}^m) + RT\_PROR_{r1,h}^{i,t} \times (RT\_QSOR_{r1,k,h}^{i,t} - DAM\_QSOR_{r1,k,h}^i)\}$ | Interval              | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 214<br>MRP new     | Day-Ahead Market 10-Minute Non-Spinning Reserve Settlement Credit<br><br>(HORSA{1}) | MR Ch.9 s.3.1.10       | $HORSA\{1\}_{k,h} = \sum^M (DAM\_PROR_{r2,h}^m \times DAM\_QSOR_{r2,k,h}^m + DAM\_PROR_{r2,h}^i \times DAM\_QSOR_{r2,k,h}^i)$   | Hourly                | Due MP     | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 215<br>MRP new     | Real-Time 10-Minute Non-Spinning Reserve Settlement Credit<br><br>(HORSA{2})        | MR Ch.9 s.3.1.11       | $HORSA\{2\}_{k,h} = \sum^{M,T} \{RT\_PROR_{r2,h}^{m,t} \times (RT\_QSOR_{r2,k,h}^{m,t} - DAM\_QSOR_{r2,k,h}^m) + RT\_PROR_{r2,h}^{i,t} \times (RT\_QSOR_{r2,k,h}^{i,t} - DAM\_QSOR_{r2,k,h}^i)\}$ | Interval              | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 216<br>MRP new     | Day-Ahead Market 30-Minute Operating Reserve Settlement Credit                      | MR Ch.9 s.3.1.10       | $HORSA\{1\}_{k,h} = \sum^M (DAM\_PROR_{r3,h}^m \times DAM\_QSOR_{r3,k,h}^m + DAM\_PROR_{r3,h}^i \times DAM\_QSOR_{r3,k,h}^i)$   | Hourly                | Due MP     | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number               | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|----------------------------------|--|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
|                                  | (HORSA{1})   |                        |   |                       |            |                                      |   |                                     |  |          |
| 217<br>MRP new                   | Real-Time 30-Minute Operating Reserve Settlement Credit<br><br>(HORSA{2})          | MR Ch.9 s.3.1.11       | $HORSA\{2\}_{k,h} = \sum^{M,T} \{ RT\_PROR_{r3,h}^{m,t} \times (RT\_QSOR_{r3,k,h}^{m,t} - DAM\_QSOR_{r3,k,h}^m) + RT\_PROR_{r3,h}^{i,t} \times (RT\_QSOR_{r3,k,h}^{i,t} - DAM\_QSOR_{r3,k,h}^i) \}$   | Interval              | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 250<br>MRP updated + name change | 10-Minute Spinning Reserve Hourly Uplift<br><br>(HUSA)                             | MR Ch.9 s.3.11         | $= \sum_c^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all charge types 'c' as follows: 206,212,213.</p> | Hourly                | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |
| 251                              | 10 Minute Spinning Market Reserve Shortfall Debit<br><br>(ORSSD <sub>k,r,h</sub> ) | MR Ch.9 s.3.9.2        | Manual Entry as per MR Ch.9 s.3.9.2 where the value below which ORESF <sub>k,r,h</sub> <sup>m,t</sup> shall be set at zero equals ∞.  | Interval              | Due IESO   | 13                                   | 13  | N/A                                 | N/A  |          |
| 252<br>MRP updated + name change | 10-Minute Non-Spinning Reserve Hourly Uplift<br><br>(HUSA)                         | MR Ch.9 s.3.11         | $= \sum_c^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all charge types 'c' as follows: 208,214,215.</p> | Hourly                | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |



| Charge Type Number               | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|----------------------------------|--|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 253                              | 10 Minute Non-spinning Market Reserve Shortfall Debit<br><br>(ORSSD <sub>k,r,h</sub> ) | MR Ch.9 s.3.9.2        | Manual Entry as per MR Ch.9 s.3.9.2 where the value below which ORESF <sub>k,r,h</sub> <sup>m,t</sup> shall be set at zero equals ∞.  | Interval              | Due IESO   | 13                                   | 13  | N/A                                 | N/A  |          |
| 254<br>MRP updated + name change | 30 Minute Operating Reserve Hourly Uplift<br><br>(HUSA)                                | MR Ch.9 s.3.11         | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all charge types 'c' as follows: 210,216,217.</p> | Hourly                | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |
| 255                              | 30 Minute Operating Reserve Market Shortfall Debit<br><br>(ORSSD <sub>k,r,h</sub> )    | MR Ch.9 s.3.9.2        | Manual Entry as per MR Ch.9 s.3.9.2 where the value below which ORESF <sub>k,r,h</sub> <sup>m,t</sup> shall be set at zero equals ∞.  | Interval              | Due IESO   | 13                                   | 13  | N/A                                 | N/A  |          |
| 400                              | Black Start Capability Settlement Credit   | MR Ch.9 s.4.2.2        | Manual Entry as per MR Ch.9 s.4.2.2.  | Monthly               | Due MP     | 13                                   | N/A   | N/A                                 | N/A  |          |
| 404                              | Regulation Service Settlement Credit   | MR Ch.9 s.4.2.3        | Manual Entry as per MR Ch.9 s.4.2.3.  | Monthly               | Due MP     | 13                                   | N/A   | N/A                                 | N/A  |          |
| 410                              | IESO-Controlled Grid Special Operations Credit   | MR Ch.5 s.8.2.6        | Manual Entry as per MR Ch.5 s.8.2.6.  | Monthly               | Either way | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 450                | Black Start Capability Settlement Debit                       | MR Ch.9 s.4.2.2        | $= \sum_{H,c}^{M,T} TD_{h,(400)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>   | Monthly               | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |
| 451                | Hourly Reactive Support and Voltage Control Settlement Debit  | MR Ch.9 s.4.2.4        | $= \sum_c^{M,T} TD_{k,h,c} \times \left[ \sum_{k,h}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 1401,1402,1404,1405,1451.</p>   | Hourly                | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |
| 452                | Monthly Reactive Support and Voltage Control Settlement Debit | MR Ch.9 s.4.2.4        | $= \sum_{H,c}^{M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'C' is the set of the following charge types 'c' as follows: <b>1403,1406,1407,1408,1409,1417</b><br/>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p> | Monthly               | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |
| 454                | Regulation Service Settlement Debit                           | MR Ch.9 s.4.2.3        | $= \sum_{H,c}^{M,T} TD_{h,(404)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>   | Monthly               | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |
| 460                | IESO-Controlled Grid Special                                  | MR Ch.5 s.8.2.6        | $= \sum_{H,c}^{M,T} TD_{h,(410)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$   | Monthly               | Either way | 13                                   | N/A   | 0                                   | 13   |          |

| Charge Type Number | Charge Type Name                         | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                    | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|--|-----------------------|-----------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    | Operations Debit                         |                        | Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.  |                       |                             |                                      |   |                                     |  |   |
| 500                | Must Run Contract Settlement Credit      | MR Ch.9 s.4.2.1        | Manual Entry as per MR Ch.9 s.4.2.1.   | Monthly               | Due MP                      | 13                                   | N/A   | N/A                                 | N/A  |   |
| 550                | Must Run Contract Settlement Debit       | MR Ch.9 s.4.2.1        | $= \sum_{k,H,T} TD_{h,(500)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'. | Monthly               | Due IESO                    | 13                                   | N/A   | 0                                   | 13   |   |
| 600                | Network Service Credit                   | MR Ch.9 s.4.1          | $\sum_{k,H,c} (TD_{650})$<br>Where 'H' is the set of the <i>settlement hours</i> 'h' in the month during which the Network Service Demand occurs at every <i>delivery point</i> defined for Transmission Network Service charges.  | Monthly               | Due applicable transmitters | 13                                   | N/A   | N/A                                 | N/A  | Subject to the OEB "Ontario Transmission Rate Order". |
| 601                | Line Connection Service Credit           | MR Ch.9 s.4.1          | $\sum_{k,H,c} (TD_{651})$<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month during which the Line Connection Service Demand occurs at every <i>delivery point</i> defined for Transmission Line Connection Service charges.  | Monthly               | Due applicable transmitters | 13                                   | N/A   | N/A                                 | N/A  | Subject to the OEB "Ontario Transmission Rate Order". |
| 602                | Transformation Connection Service Credit | MR Ch.9 s.4.1          | $\sum_{k,H,c} (TD_{652})$  | Monthly               | Due applicable transmitters | 13                                   | N/A   | N/A                                 | N/A  | Subject to the OEB "Ontario Transmission Rate Order". |

| Charge Type Number | Charge Type Name                         | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|---|-----------------------|----------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |  |                        | Where 'H' is the set of all <i>settlement hours</i> 'h' in the month during which the Transformation Connection Demand occurs at every <i>delivery point</i> defined for Transmission Transformation Connection Service charges.  |                       |                            |                                      |   |                                     |  |   |
| 603                | Export Transmission Service Credit       | MR Ch.9 s.4.1          | $\sum_{k,H,c} (TD_{653}^i)$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>                     Where 'i' is an <i>intertie metering point</i> 'i' where an export transaction occurred during the month.<br/>                     Each <i>charge type</i> 603 line detail record line item is therefore totaled on the basis of TD<sub>653</sub> per <i>intertie metering point</i> 'i' per month.</p> | Monthly               | Due applicable transmitter | 13                                   | N/A   | N/A                                 | N/A  | Subject to the OEB "Ontario Transmission Rate Order". |
| 650                | Network Service Charge                   | MR Ch.9 s.4.1          | $NSD_{k,h}^m \times PTS-N$ <p>The Billing Demand for Network Transmission Service (kW) is defined as the higher of:<br/>                     Transmission customer coincident peak demand (kW) in the hour of the month when the total hourly demand of all PTS customers is highest for the month; and<br/>                     85% of the customer peak demand in any hour during the peak period.</p>                              | Monthly               | Due IESO                   | 13                                   | N/A   | N/A                                 | N/A  | Subject to the OEB "Ontario Transmission Rate Order". |
| 651                | Line Connection Service Charge           | MR Ch.9 s.4.1          | $LCD_{k,h}^m \times PTS-L$ <p>Where 'h' is the <i>settlement hour</i> of the current <i>billing period</i> in which LCD<sub>k,h</sub><sup>m</sup> denotes the non-coincident peak demand for the month.</p>   | Monthly               | Due IESO                   | 13                                   | N/A   | N/A                                 | N/A  | Subject to the OEB "Ontario Transmission Rate Order". |
| 652                | Transformation Connection Service Charge | MR Ch.9 s.4.1          | $TCD_{k,h}^m \times PTS-T$  | Monthly               | Due IESO                   | 13                                   | N/A   | N/A                                 | N/A  | Subject to the OEB "Ontario Transmission Rate Order". |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow            | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|---|-----------------------|---------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |  |                        | Where 'h' is the <i>settlement hour</i> of the current <i>billing period</i> in which $TCD_{k,h}^m$ denotes the non-coincident peak demand for the month.   |                       |                     |                                      |   |                                     |  |   |
| 653                | Export Transmission Service Charge                               | MR Ch.9 s.4.1          | $\sum_H^T SQEW_{k,h}^{i,t} \times ETS$<br><br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' during the set of <i>settlement hours</i> 'H'. | Monthly               | Due <i>IESO</i>     | 13                                   | N/A   | 0                                   | 13   | Subject to the OEB "Ontario Transmission Rate Order".   |
| 700                | Dispute Resolution Settlement Amount                             | MR. Ch.9 s.6.10.4      | Manual Entry as per MR Ch.9 s.6.10.4.   | Monthly               | Due MP              | 13                                   | 13  | 0                                   | 13   | Note: tax would follow original disputed transaction  |
| 703                | Rural and Remote Settlement Credit                               | N/A                    | Manual Entry as per Regulation.   | Monthly               | Due MP              | 13                                   | N/A   | N/A                                 | N/A  | Ontario Regulation 442/01<br>Refer to Ministry of Energy website for details.                   |
| 705                | Ontario Fair Hydro Plan First Nations On-reserve Delivery Amount | N/A                    | Manual entry based on:<br>(1) the values submitted via on-line settlement form "First Nations On-Reserve Delivery Credit (FNDC)"  | Monthly               | Due LDCs either way | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government and OEB regulations. |
| 706                | Ontario Fair Hydro Plan Distribution Rate Protection Amount      | N/A                    | Manual entry based on:<br>(1) the values submitted via on-line settlement form "Distribution Rate Protection (DRP)"   | Monthly               | Due LDCs either way | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government and OEB regulations. |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|---|-----------------------|------------------------|--------------------------------------|---|-------------------------------------|--|---|
| 750                | Dispute Resolution Balancing Amount (IESO)                                       | MR. Ch.9 s.6.10.4      | $\sum_k TD_{k,700}$ , where applicable  | Monthly               | Due <i>IESO</i>        | N/A                                  | N/A   | N/A                                 | N/A  |   |
| 751                | Dispute Resolution Board Service Debit   |                        |   |                       |                        | 13                                   | 13  | 13                                  | 13   |   |
| 753                | Rural and Remote Settlement Debit  | N/A                    | $AQEW_{k,h}^{m,t} \times TP$  | Monthly               | Due <i>IESO</i>        | 13                                   | N/A   | N/A                                 | N/A  | Ontario Regulation 442/01<br>Refer to Ministry of Energy website for details.                   |
| 755                | MOE - Ontario Fair Hydro Plan First Nations On-reserve Delivery Balancing Amount | N/A                    | $\sum_k TD_{k,705}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,705}$ is the total <i>settlement amount</i> of <i>charge type</i> 705 for the month for <i>market participant</i> 'k'. | Monthly               | Due Ministry of Energy | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government and OEB regulations. |
| 756                | MOE - Ontario Fair Hydro Plan Distribution Rate Protection Balancing Amount      | N/A                    | $\sum_k TD_{k,706}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,706}$ is the total <i>settlement amount</i> of <i>charge type</i> 706 for the month for <i>market participant</i> 'k'. | Monthly               | Due Ministry of Energy | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government and OEB regulations. |
| 850                | Market Participant Default Settlement  | MR Ch.2 s.8.6          | Manual Entry as per MR Ch.2 s.8.6.  | Monthly               | Due <i>IESO</i>        | 13                                   | 13  | 13                                  | 13   |   |

| Charge Type Number | Charge Type Name   | Market Rules Reference     | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                          |
|--------------------|--|----------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|-----------------------------------|
|                    | Debit (Recovery)   |                            |   |                       |          |                                      |   |                                     |  |                                   |
| 851                | Market Participant Default Interest Debit                                  | MR Ch.2 ss.8.3 and 8.5     | Manual Entry as per MR Ch.2 ss.8.3 and 8.5.   | Monthly               | Due IESO | N/A                                  | N/A   | N/A                                 | N/A  |                                   |
| 900                | GST/HST Credit   | N/A                        | $\sum_c TD_{k,c}$ <p>A summation of all Goods and Services Tax Credits or Harmonized Sales Tax Credits payable to <i>market participant</i> 'k' across all <i>charge types</i> 'c'.<br/>Where 'C' is the set of all <i>charge types</i> 'c'.</p>                      |                       | Due MP   | N/A                                  | N/A   | N/A                                 | N/A  | Only appear as "SC" record types. |
| 950                | GST/HST Debit  | N/A                        | $\sum_c TD_{k,c}$ <p>A summation of all Goods and Services Tax Debits or Harmonized Sales Tax Debits payable <i>by market participant</i> 'k' across all <i>charge types</i> 'c'.<br/>Where 'C' is the set of all <i>charge types</i> 'c'.</p>                        |                       | Due IESO | N/A                                  | N/A   | N/A                                 | N/A  | Only appear as "SC" record types. |
| 1100<br>MRP new    | Day-Ahead Market Energy Settlement Amount for Generators<br><br>(HPTSA{1}) | MR Ch.9 ss.3.1.2 and 3.1.3 | $HPTSA\{1\}_{k,h} = \sum^M [(DAM\_QSI_{k,h}^m - DAM\_QSW_{k,h}^m) \times DAM\_LMP_h^m] + HPTSA\_PBC\{1\}_{k,h}$ <p><b>Where:</b><br/>a. <math>HPTSA\_PBC\{1\}_{k,h} = \sum^M [DAM\_LMP_h^m \times (\sum_S DAM\_BCQ_{s,k,h}^m - \sum_B DAM\_BCQ_{k,b,h}^m)]</math></p> | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |                                   |

| Charge Type Number  | Charge Type Name   | Market Rules Reference     | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|---------------------|--|----------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 1101<br>MRP updated | Real-Time Energy Settlement Amount for Generators<br><br>(HPTSA{2})                | MR Ch.9 ss.3.1.5 and 3.1.6 | $HPTSA\{2\}_{k,h} = \sum^{M,T} RT\_LMP_h^{m,t} \times \frac{((AQEI_{k,h}^{m,t} - DAM\_QSI_{k,h}^m) - (AQEW_{k,h}^{m,t} - DAM\_QSW_{k,h}^m))}{12} + HPTSA\_PBC\{2\}_{k,h}$ <p><b>Where:</b><br/>                     a. <math>HPTSA\{2\}\_PBC_{k,h} = \sum^{M,T} RT\_LMP_h^{m,t} \times (\sum_S BCQ_{s,k,h}^{m,t} - \sum_B BCQ_{k,b,h}^{m,t})</math></p> | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  |          |
| 1102<br>MRP new     | Day-Ahead Market Energy Settlement Amount for Dispatchable Loads<br><br>(HPTSA{1}) | MR Ch.9 ss.3.1.2 and 3.1.3 | $HPTSA\{1\}_{k,h} = \sum^M [(DAM\_QSI_{k,h}^m - DAM\_QSW_{k,h}^m) \times DAM\_LMP_h^m] + HPTSA\_PBC\{1\}_{k,h}$ <p><b>Where:</b><br/>                     a. <math>HPTSA\_PBC\{1\}_{k,h} = \sum^M [DAM\_LMP_h^m \times (\sum_S DAM\_BCQ_{s,k,h}^m - \sum_B DAM\_BCQ_{k,b,h}^m)]</math></p>  | Hourly                | Due IESO   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1103<br>MRP updated | Real-Time Energy Settlement Amount for Dispatchable Loads<br><br>(HPTSA{2})        | MR Ch.9 ss.3.1.5 and 3.1.6 | $HPTSA\{2\}_{k,h} = \sum^{M,T} RT\_LMP_h^{m,t} \times \frac{((AQEI_{k,h}^{m,t} - DAM\_QSI_{k,h}^m) - (AQEW_{k,h}^{m,t} - DAM\_QSW_{k,h}^m))}{12} + HPTSA\_PBC\{2\}_{k,h}$ <p><b>Where:</b><br/>                     a. <math>HPTSA\{2\}\_PBC_{k,h} = \sum^{M,T} RT\_LMP_h^{m,t} \times (\sum_S BCQ_{s,k,h}^{m,t} - \sum_B BCQ_{k,b,h}^{m,t})</math></p> | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  |          |



| Charge Type Number | Charge Type Name   | Market Rules Reference     | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|----------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 1104<br>MRP new    | Day-Ahead Market Energy Settlement Amount for Price Responsive Loads<br><br>(HPTSA{1}) | MR Ch.9 ss.3.1.2 and 3.1.4 | $HPTSA\{1\}_{PRL\_SSW}_{k,h} = -1 \times \left[ \sum^{M1} (DAM\_QSW_{k,h}^m \times DAM\_LMP_h^m) + \sum^{M2} (DAM\_QSW_{k,h}^m \times DAM\_LMP_h^m) \right] + HPTSA\_PBC\{1\}_{k,h}$ <p><b>Where:</b></p> <p>a. <math>HPTSA\_PBC\{1\}_{k,h} = \sum^{M1} [DAM\_LMP_h^m \times (\sum_S DAM\_BCQ_{s,k,h}^m - \sum_B DAM\_BCQ_{k,b,h}^m)]</math></p> <p>b. M1 = the set of all <i>delivery points</i> 'm' for <i>price responsive loads</i> and <i>self-scheduling electricity storage resources</i> that are withdrawing; and</p> <p>c. M2 = the set of all <i>delivery points</i> 'm' for <i>price responsive loads</i> used as physical <i>hourly demand response resources</i> to fulfill <i>capacity obligations</i>.</p>   | Hourly                | Due IESO   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1105<br>MRP new    | Real-Time Energy Settlement Amount for Price Responsive Loads<br><br>(HPTSA{2})        | MR Ch.9 ss.3.1.5 and 3.1.7 | $HPTSA\{2\}_{PRL\_SSW}_{k,h} = -1 \times \left[ \sum^{M1,T} RT\_LMP_h^{m,t} \times \frac{(AQEW_{k,h}^{m,t} - DAM\_QSW_{k,h}^m)}{12} - \sum^{M2,T} RT\_LMP_h^{m,t} \times \frac{DAM\_QSW_{k,h}^m}{12} \right] + HPTSA\_PBC\{2\}_{k,h}$ <p><b>Where:</b></p> <p>a. <math>HPTSA\{2\}_{PBC}_{k,h} = \sum^{M,T} RT\_LMP_h^{m,t} \times (\sum_S BCQ_{s,k,h}^{m,t} - \sum_B BCQ_{k,b,h}^{m,t})</math></p> <p>b. M1 = the set of all <i>delivery points</i> 'm' for <i>price responsive loads</i> and <i>self-scheduling electricity storage resources</i> that are withdrawing; and</p> <p>c. M2 = the set of all <i>delivery points</i> 'm' for <i>price responsive loads</i> used as physical <i>hourly demand response resources</i> to fulfill <i>capacity obligations</i>.</p> | Interval              | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1106<br>MRP new    | Day-Ahead Market Energy Settlement Amount for Virtual                                  | MR Ch.9 s.3.1.8            | $HVTSA\{1\}_{k,h} = \sum^V DAM\_QVSI_{k,h}^v \times DAM\_LMP_h^{vz}$   | Hourly                | Due MP     | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Transactions to Sell<br><br>(HVTSA{1})  |                        |  |                       |          |                                      |   |                                     |  |          |
| 1107<br>MRP new    | Real-Time Energy Settlement Amount for Virtual Transactions to Sell<br><br>(HVTSA{2})       | MR Ch.9 s.3.1.9        | $HVTSA\{2\}_{k,h} = -1 \times \sum^{v,t} DAM\_QVSI_{k,h}^v / 12 \times RT\_LMP_h^{vz,t}$ | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1108<br>MRP new    | Day-Ahead Market Energy Settlement Amount for Virtual Transactions to Buy<br><br>(HVTSA{1}) | MR Ch.9 s.3.1.8        | $HVTSA\{1\}_{k,h} = -1 \times \sum^v DAM\_QVSW_{k,h}^v \times DAM\_LMP_h^{vz}$           | Hourly                | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1109<br>MRP new    | Real-Time Energy Settlement Amount for Virtual Transactions to Buy<br><br>(HVTSA{2})        | MR Ch.9 s.3.1.9        | $HVTSA\{2\}_{k,h} = \sum^{v,t} DAM\_QVSW_{k,h}^v / 12 \times RT\_LMP_h^{vz,t}$           | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number  | Charge Type Name  | Market Rules Reference     | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|---------------------|---|----------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 1110<br>MRP new     | Day-Ahead Market Energy Settlement Amount for Imports<br><br>(HPTSA{1}) | MR Ch.9 ss.3.1.2 and 3.1.3 | $HPTSA\{1\}_{k,h} = \sum^M [(DAM\_QSI_{k,h}^i - DAM\_QSW_{k,h}^i) \times DAM\_LMP_h^i] + HPTSA\_PBC\{1\}_{k,h}$ <p><b>Where:</b></p> <p>a. <math>HPTSA\_PBC\{1\}_{k,h} = \sum^M [DAM\_LMP_h^i \times (\sum_S DAM\_BCQ_{s,k,h}^i - \sum_B DAM\_BCQ_{k,b,h}^i)]</math></p>  | Hourly                | Due MP     | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1111<br>MRP updated | Real-Time Energy Settlement Amount for Imports<br><br>(HPTSA{2})        | MR Ch.9 ss.3.1.5 and 3.1.6 | $HPTSA\{2\}_{k,h} = \sum^{M,T} RT\_LMP_h^{i,t} \times \frac{((SQEI_{k,h}^{i,t} - DAM\_QSI_{k,h}^i) - (SQEW_{k,h}^{i,t} - DAM\_QSW_{k,h}^i))}{12} + HPTSA\_PBC\{2\}_{k,h}$ <p><b>Where:</b></p> <p>a. <math>HPTSA\{2\}\_PBC_{k,h} = \sum^{M,T} RT\_LMP_h^{i,t} \times (\sum_S BCQ_{s,k,h}^{i,t} - \sum_B BCQ_{k,b,h}^{i,t})</math></p> | Interval              | Either Way | N/A                                  | 13  | N/A                                 | N/A  |          |
| 1112<br>MRP new     | Day-Ahead Market Energy Settlement Amount for Exports<br><br>(HPTSA{1}) | MR Ch.9 ss.3.1.2 and 3.1.3 | $HPTSA\{1\}_{k,h} = \sum^M [(DAM\_QSI_{k,h}^i - DAM\_QSW_{k,h}^i) \times DAM\_LMP_h^i] + HPTSA\_PBC\{1\}_{k,h}$ <p><b>Where:</b></p> <p>a. <math>HPTSA\_PBC\{1\}_{k,h} = \sum^M [DAM\_LMP_h^i \times (\sum_S DAM\_BCQ_{s,k,h}^i - \sum_B DAM\_BCQ_{k,b,h}^i)]</math></p>  | Hourly                | Due IESO   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number                | Charge Type Name  | Market Rules Reference           | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|-----------------------------------|---|----------------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 1113<br>MRP updated               | Real-Time Energy Settlement Amount for Exports<br><br>(HPTSA{2})  | MR Ch.9 ss.3.1.5 and 3.1.6       | $HPTSA\{2\}_{k,h} = \sum^{M,T} RT\_LMP_h^{i,t} \times \frac{((SQEI_{k,h}^{i,t} - DAM\_QSI_{k,h}^i) - (SQEW_{k,h}^{i,t} - DAM\_QSW_{k,h}^i))}{12} + HPTSA\_PBC\{2\}_{k,h}$ <p><b>Where:</b></p> <p>a. <math>HPTSA\{2\}\_PBC_{k,h} = \sum^{M,T} RT\_LMP_h^{i,t} \times (\sum_S BCO_{s,k,h}^{i,t} - \sum_B BCO_{k,b,h}^{i,t})</math></p>   | Interval              | Either Way | N/A                                  | N/A   | 0                                   | 13   |          |
| 1115<br>MRP updated + name change | Non-Dispatchable Load Energy Settlement Amount<br><br>(HPTSA_NDL) | MR Ch.9 ss.3.1.5 and 3.2.1-3.2.3 | $HPTSA\_NDL_{k,h} = -1 \times (DAM\_LMP_h^z + LFDC_h) \times \sum^T (AQEW_{k,h}^{m,t} - AQEI_{k,h}^{m,t}) + HPTSA\_PBC\{2\}_{k,h}$ <p><b>Where:</b></p> <p>a. <math>HPTSA\{2\}\_PBC_{k,h} = \sum^{M,T} DAM\_LMP_h^z \times (\sum_S BCO_{s,k,h}^{m,t} - \sum_B BCO_{k,b,h}^{m,t})</math></p> <p>b. <math>LFDC_h = \frac{Real\_Time\ Purchase\ Cost\_Benefit_h + DAM\ Volume\ Factor\ Cost\_Benefit_h}{\sum_{K,h}^{M,T} (AQEW - AQEI)_{k,h}^{m,t}}</math></p> <p><b>and where:</b></p> <p>a. M2 = the set of all <i>hourly demand response resources</i> 'd' that are not associated with <i>load equipment</i> registered as <i>price responsive loads</i>;</p> <p>b. <i>Real-Time Purchase Cost-Benefit</i></p> $= \sum_{K,h}^{M,T} [RT\_LMP_h^{m,t} \times (AQEW_{k,h}^{m,t} - AQEI_{k,h}^{m,t} - DAM\_QSW_{k,h}^m)/12] - \sum_{K,h}^{M2,T} [RT\_LMP_h^{d,t} \times DAM\_QSW_{k,h}^d/12]$ <p>c. <i>DAM Volume Factor Cost-Benefit</i></p> $= DAM\_LMP_h^z \times \left[ \sum_{K,h}^{M,T} (DAM\_QSW_{k,h}^m - AQEW_{k,h}^{m,t} + AQEI_{k,h}^{m,t})/12 \right] + \sum_K^{M2} [DAM\_LMP_h^z \times DAM\_QSW_{k,h}^d]$ | Hourly                | Due IESO   | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name                             | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|--|--------------------------------------|---|-------------------------------------|--|----------|
| 1116<br>MRP new    | Internal Congestion and Loss Residual (ICLR) | MR Ch.9 s.4.7          | $ICLR_k = CRLR \times \sum_H^{M,T} AQEW_{k,h}^{m,t} / \sum_{K,H}^{M,T} AQEW_{k,h}^{m,t}$ <p><b>Where:</b></p> $CRLR = \sum_{K,H}^{M0} \left[ (DAM\_QSW_{k,h}^m - DAM\_QSI_{k,h}^m) \times DAM\_LMP_h^m \right. \\ + \sum^T \left( (AQEW_{k,h}^{m,t} - AQEI_{k,h}^{m,t}) - (DAM\_QSW_{k,h}^m - DAM\_QSI_{k,h}^m) \right) \times RT\_LMP_h^{m,t} / 12 \Big] \\ + \sum_{K,H}^V \left[ (DAM\_QVSW_{k,h}^v - DAM\_QVSI_{k,h}^v) \times \sum^T (DAM\_LMP_h^{vz,t} - RT\_LMP_h^{vz,t}) \right] \\ + \sum_{K,H}^{M1} \left[ (DAM\_LMP_h^z + LFDC_h) \times \sum^T AQEW_{k,h}^{m,t} \right] \\ + \sum_{K,H}^I \left[ (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \times DAM\_LMP_h^i \right. \\ + \sum^T \left( (SQEW_{k,h}^{i,t} - SQEI_{k,h}^{i,t}) - (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \right) \times RT\_LMP_h^{i,t} / 12 \Big] \\ - \sum_{K,H}^I (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \times DAM\_PEC_h^i \\ - \sum_{K,H}^I (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \times DAM\_PNISL_h^i \\ - \sum_{K,H}^{I,T} \left( (SQEW_{k,h}^{i,t} - SQEI_{k,h}^{i,t}) - (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \right) \times RT\_PEC_h^{i,t} / 12 \\ - \sum_{K,H}^{I,T} \left( (SQEW_{k,h}^{i,t} - SQEI_{k,h}^{i,t}) - (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \right) \times RT\_PNISL_h^{i,t} / 12$ <p><b>and where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of all <i>settlement hours</i> 'h' in the current <i>energy market billing period</i>;</li> <li>b. M1 = the set of all <i>delivery points</i> 'm' for <i>non-dispatchable loads</i>; and</li> <li>c. M0 = the set of all <i>delivery points</i> 'm' except those for <i>non-dispatchable loads</i>.</li> </ul> | Monthly               | Either Way                             | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1117<br>MRP new    | Day-Ahead Market Net External                | MR Ch.9 s.3.8.2        | $DAM\_NECR_h = \sum_K^I \left[ (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \times DAM\_PEC_h^i \right] - \sum_K [TRSC_{k,h}]$   | Hourly                | Accumulates in the TR Clearing Account | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Congestion Residual<br><br>(DAM_NECR)                          |                        | <p><b>Where:</b></p> <p>a. <math>TRSC_{k,h}</math> is the <i>transmission rights settlement credit settlement amount</i> calculated for <i>charge type</i> 104 in accordance with MR Ch.9 s.3.8.1.</p>   |                       |            |                                      |   |                                     |  |          |
| 1118<br>MRP new    | Real-Time External Congestion Residual Uplift<br><br>(RT_ECRU) | MR Ch.9 ss.4.8.1-4.8.4 | <p><b>For loads:</b></p> $RT\_ECRU_k = RT\_ECR_L \times \sum_H^{M,T} AQEW_{k,h}^{m,t} / \sum_{K,H}^{M,T} AQEW_{k,h}^{m,t}$ <p><b>For exporters:</b></p> $RT\_ECRU_k = RT\_ECR_E \times \sum_H^{I,T} SQEW_{k,h}^{i,t} / \sum_{K,H}^{I,T} SQEW_{k,h}^{i,t}$ <p><b>Where:</b></p> <p>a. <math>RT\_ECR_L = RT\_ECR \times \sum_K TD_C / \sum_K TD_{C,C1}</math></p> <p>b. <math>RT\_ECR_E = RT\_ECR \times \sum_K TD_{C1} / \sum_K TD_{C,C1}</math></p> <p>c. <math>RT\_ECR = \sum_{K,H}^{I,T} ((SQEW_{k,h}^{i,t} - SQEI_{k,h}^{i,t}) - (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i)) \times RT\_PEC_h^{i,t} / 12</math></p> <p>d. H = the set of all <i>settlement hours</i> 'h' in the current <i>energy market billing period</i>;</p> <p>e. <math>TD_C</math> = the total dollar value of monthly service <i>charge type</i> 'C' in the current <i>energy market billing period</i>;</p> <p>f. <math>TD_{C,C1}</math> = the total dollar value of monthly service <i>charge type</i> 'C' and 'C1' in the current <i>energy market billing period</i>;</p> <p>g. <math>TD_{C1}</math> = the total dollar value of monthly service <i>charge type</i> 'C1' in the current <i>energy market billing period</i>;</p> <p>h. C = the set of all monthly provincial <i>transmission services charge charge types</i> in the current <i>energy market billing period</i> as follows: 650,651,652;</p> <p>i. C1 = the set of all monthly export <i>transmission services charge charge types</i> in the current <i>energy market billing period</i> as follows: 653; and</p> <p>j. T = the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p> | Monthly               | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number      | Charge Type Name  | Market Rules Reference    | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|-------------------------|---|---------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
| 1119<br>MRP new         | Day-Ahead Market Net Interchange Scheduling Limit Residual Uplift<br><br>(DAM_NISLRU) | MR Ch.9 ss.4.8.5-4.8.7    | $DAM\_NISLU_k = DAM\_NISLR \times \left[ \frac{\sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})}{\sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b><br/>                     a. <math>DAM\_NISLR = \sum_{K,H}^I [(DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i) \times DAM\_PNISL_h^i]</math></p>  | Daily                 | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |  |
| 1120<br>MRP new         | Real-Time Net Interchange Scheduling Limit Residual Uplift<br><br>(RT_NISLRU)         | MR Ch.9 ss.3.11 and 4.8.8 | $RT\_NISLRU_h = RT\_NISLR_h \times \left[ \frac{\sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t})}{\sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b><br/>                     a. <math>RT\_NISLR_h = \sum_K^{I,T} ((SQEW_{k,h}^{i,t} - SQEI_{k,h}^{i,t}) - (DAM\_QSW_{k,h}^i - DAM\_QSI_{k,h}^i)) \times RT\_PNISL_h^{i,t} / 12</math></p> | Hourly                | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |  |
| 1138<br>MRP name change | Fuel Cost Compensation Credit<br><br>(FCC)  | MR Ch.9 s.4.11            | Manual entry as per MR Ch.9 s.4.11.  | Hourly                | Due MP     | 13                                   | N/A   | N/A                                 | N/A  |  |
| 1148                    | GA Energy Storage Injection Reimbursement   | N/A                       | $U_k \times GAR_B$   | Monthly               | Due MP     | 13                                   | N/A   | N/A                                 | N/A  | Eligibility and other implementation details subject to government regulation. |
| 1188<br>MRP updated +   | Fuel Cost Compensation Credit Uplift  | MR Ch.9 s.4.14.8          | $FCCU_k = -1 \times \sum_K^M FCC_k^m \times \frac{\sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})}{\sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})}$ <p><b>Where:</b></p>  | Monthly               | Due IESO   | 13                                   | N/A   | 0                                   | 13   |  |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| name change        | (FCCU)   |                        | a. $FCC_k^m$ is the fuel cost compensation <i>settlement amount</i> calculated for <i>charge type</i> 1138 in accordance with MR Ch.9 s.4.11 for <i>market participant</i> 'k' at <i>delivery point</i> 'm'; and<br>b. H = the set of all <i>settlement hours</i> 'h' in the <i>energy market billing period</i> .  |                       |          |                                      |   |                                     |  |          |
| 1314               | Capacity Obligation – Availability Payment<br><br>(CAAP) | MR Ch.9 s.4.13.1       | $CAAP_k^m = \sum^H CCO_{k,h}^m \times CACP_h^z$ <b>Where:</b><br>a. H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> of all <i>business days</i> in the relevant <i>energy market billing period</i> .  | Monthly               | Due MP   | 13                                   | 13  | N/A                                 | N/A  |          |
| 1315 MRP updated   | Capacity Obligation – Availability Charge<br><br>(CAAC)  | MR Ch.9 s.4.13.2       | In regards to a <i>capacity market participant</i> participating with an <i>hourly demand response resource</i> or a <i>capacity dispatchable load resource</i> :<br>$CAAC_k^m = \sum^H (-1) \times \text{Max}(0, CCO_{k,h}^m - DREBQ_{k,h}^m) \times CACP_h^z \times CNPF_{tm}$ <b>Where:</b><br>a. H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> during the relevant <i>trading day</i> ;<br>b. If the <i>capacity market participant</i> did not submit a <i>demand response energy bid</i> for its <i>hourly demand response resource</i> or <i>capacity dispatchable load resource</i> , as the case may be, for <i>settlement hour</i> 'h' in the <i>day-ahead market</i> or failed to maintain such <i>energy bid</i> through the <i>real-time market</i> , $DREBQ_{k,h}^m = 0$ ;<br>c. In regards to <i>hourly demand response resource</i> , if the <i>demand response energy bids</i> submitted for <i>settlement hour</i> 'h' in either the <i>day-ahead market</i> or the <i>real-time market</i> does not form part of <i>energy bids</i> spanning at least four consecutive <i>settlement hours</i> during the relevant <i>availability window</i> , $DREBQ_{k,h}^m = 0$ ;<br>d. If the <i>demand response energy bid</i> submitted in the <i>day-ahead market</i> for <i>settlement hour</i> 'h' is not equal to the <i>demand response energy bid</i> submitted in the <i>real-time market</i> for the same <i>settlement hour</i> , $DREBQ_{k,h}^m$ shall be equal to the lesser of the two <i>demand response energy bids</i> ; and<br>e. Notwithstanding any of the foregoing, $DREBQ_{k,h}^m$ shall not exceed the $CARC_k^m$ for the <i>hourly demand response resource</i> or <i>capacity dispatchable load resource</i> , as the case may be. | Daily                 | Due IESO | 13                                   | 13  | N/A                                 | N/A  |          |



| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p>In regards to a <i>capacity market participant</i> participating with a <i>capacity generation resource, system-backed capacity import resource, generator-backed capacity import resource</i> or <i>capacity storage resource</i>.</p> $CAAC_k^m = \sum^H (-1) \times \text{Max} (0, CCO_{k,h}^m - CAEO_{k,h}^m) \times CACP_h^z \times CNPF_{tm}$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> during the relevant <i>trading day</i>,</li> <li>If the <i>capacity market participant</i> did not submit an <i>energy offer</i> in the <i>day-ahead market</i> or failed to maintain such <i>energy offer</i> in accordance with the applicable <i>market manual</i> for <i>settlement hour</i> 'h', <math>CAEO_{k,h}^m = 0</math>;</li> <li>If the <i>energy offers</i> submitted in the <i>day-ahead market</i> for <i>settlement hour</i> 'h' is not equal to the <i>energy offer</i> submitted in the <i>pre-dispatch process</i> for the same <i>settlement hour</i>, <math>CAEO_{k,h}^m</math> shall be equal to the lesser of the two <i>energy offers</i>; and</li> <li>If a <i>capacity storage resource</i> receives a non-zero <i>energy dispatch instruction</i> within the relevant <i>availability window</i>, the <math>CAEO_{k,h}^m</math> for the remaining <i>settlement hours</i> of the <i>availability window</i> after receiving such non-zero <i>energy dispatch instruction</i> shall be equal to the <i>energy offer</i> applicable to the <i>settlement hour</i> in which they receive such non-zero <i>energy dispatch instruction</i>.</li> </ol> |                       |          |                                      |   |                                     |  |          |
| 1316               | Capacity Obligation – Administration Charge<br><br>(CAADM) | MR Ch.9 s.4.13.4       | $CAADM_k^m = (-1) \times CAAP_k^m$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li><math>CAAP_k^m</math> = the <i>capacity obligation availability payment settlement amount</i>, calculated in accordance with MR Ch.9 s.4.13.1, for <i>capacity market participant</i> 'k' at <i>delivery point</i> or <i>intertie metering point</i> 'm' for the relevant <i>energy market billing period</i>.</li> </ol>   | Monthly               | Due IESO | 13                                   | 13  | N/A                                 | N/A  |          |
| 1317               | Capacity Obligation – Dispatch Charge<br><br>(CADC)        | MR Ch.9 s.4.13.3       | $CADC_{k,h}^m = (-1) \times DRSQty_{k,h}^m \times CACP_h^z \times CNPF_{tm}$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>h = a <i>settlement hour</i> in which the <i>hourly demand response resource</i> failed to comply with its activation notice, as determined in accordance with the applicable <i>market manual</i>.</li> </ol>  | Hourly                | Due IESO | 13                                   | 13  | N/A                                 | N/A  |          |

| Charge Type Number  | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|---------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1318                | Capacity Obligation – Capacity Charge<br><br>(CACC)                          | MR Ch.9 s.4.13.5       | $CACC_k^m = (-1) \times CAAP_k^m$ <p><b>Where:</b></p> <p>a. <math>CAAP_k^m</math> = the <i>capacity obligation</i> availability payment <i>settlement amount</i>, calculated in accordance with MR Ch.9 s.4.13.1, for <i>capacity market participant</i> 'k' at <i>delivery point</i> or <i>intertie metering point</i> 'm' for the relevant <i>energy market billing period</i>.</p>  | Monthly               | Due IESO | 13                                   | 13  | N/A                                 | N/A  |          |
| 1319                | Capacity Obligation – Buy-Out Charge   | MR Ch.9 s.4.13.9       | $CABOC_k^m = 50\% \times \sum^H CBOC_k^m \times CACP_h^z \times (1 - CNPF_{tm})$ <p><b>Where:</b></p> <p>a. H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> of all <i>trading days</i> from the buy-out effective date to the end of the <i>commitment period</i>.</p>   | Monthly               | Due IESO | 13                                   | 13  | N/A                                 | N/A  |          |
| 1320<br>MRP updated | Capacity Obligation – Dispatch Test Payment and Emergency Activation Payment | MR Ch.9 s.4.13.11      | <p><b>For capacity obligation dispatch test activations</b></p> $CATAP_{k,h}^m = HDRTAPR \times HDRDC_{k,h}^m$ <p><b>For capacity obligation emergency operating state activations</b></p> <p>a. For <i>hourly demand response resource</i> that is not associated with <i>load equipment</i> registered as a <i>price responsive load</i></p> $CAEOP_{k,h}^m = \text{Max}(0, HDRBP_{k,h}^m - \text{Max}(0, DAM\_LMP_h^z)) \times HDRDC_{k,h}^m$ <p>b. For <i>hourly demand response resource</i> that is associated with <i>load equipment</i> registered as a <i>price responsive load</i></p> $CAEOP_{k,h}^m = \text{Max}(0, HDRBP_{k,h}^m - \text{Max}(0, RT\_LMP_{k,h}^m)) \times HDRDC_{k,h}^m$ | Hourly                | Due MP   | 13                                   | 13  | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1321               | Capacity Obligation – Capacity Import Call Failure Charge<br><br>(CACIF)      | MR Ch.9 s.4.13.6       | $CACIF_k^m = (-1) \times CAAP_k^m$ <p><b>Where:</b></p> <p>a. <math>CAAP_k^m</math> = the <i>capacity obligation</i> availability payment <i>settlement amount</i>, calculated in accordance with MR Ch.9 s.4.13.1, for <i>capacity market participant</i> 'k' at <i>delivery point</i> or <i>inertie metering point</i> 'm' for the relevant <i>energy market billing period</i>.</p>   | Monthly               | Due IESO | N/A                                  | 13  | N/A                                 | N/A  |          |
| 1322               | Capacity Obligation – Capacity Deficiency Charge<br><br>(CACD)                | MR Ch.9 s.4.13.7       | $CACD_k^l = \sum^H (-1.5) \times OCMW_k^l \times CACP_h^z$ <p><b>Where:</b></p> <p>a. H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> of all <i>trading days</i> within the relevant <i>energy market billing period</i>.</p>   | Monthly               | Due IESO | N/A                                  | 13  | N/A                                 | N/A  |          |
| 1323               | Capacity Obligation – In-Period Cleared UCAP Adjustment Charge<br><br>(CAIPA) | MR Ch.9 s.4.13.8       | $CAIPA_k^m = \left( -1 \times \text{Max}(0, \left( CAAP_k^m \times (\text{UCAP Adjustment}) + \sum^H CAAC_{k,h}^m \right) \right)$ <p><b>Where:</b></p> <p>a. <math>CAAP_k^m</math> = the <i>capacity obligation</i> availability payment <i>settlement amount</i> for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' for the relevant <i>energy market billing period</i>, calculated pursuant to MR Ch.9 s.4.13.1;</p> <p>b. <math>CAAC_{k,h}^m</math> = the <i>capacity obligation</i> availability charge <i>settlement amount</i> for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' for <i>settlement hour</i> 'h', as calculated pursuant to MR Ch.9 s.4.13.2;</p> <p>c. H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> of the relevant <i>energy market billing period</i>; and</p> <p>d. UCAP Adjustment = a de-rate (in %) based on the <i>hourly demand response resource's</i> delivered performance during a <i>capacity auction capacity test</i>, as determined in accordance with the applicable <i>market manual</i>. If the <i>capacity market participant</i> has filed a <i>notice of disagreement</i> in regards to the outcomes of the <i>capacity auction capacity test</i> in accordance with MR Ch.9 s.6.8, and but for filing such <i>notice of disagreement</i> the <i>capacity market participant</i> would have forfeited any of its <i>capacity obligation</i> pursuant to MR Ch.7 s.19.4.18, then the UCAP Adjustment shall equal 100%.</p> | Monthly               | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1324               | Capacity Obligation – Availability Charge True-up Payment<br><br>(CAACT)     | MR Ch.9 s.4.13.12      | $CAACT_k^m = \left( \text{Min} \left( (-1) \times \sum^{TM} \left( \sum^D CAAC_k^m \right) + UCAP \text{ Adjustment} \times CAAP_k^m + CAIPA_k^m \right), \sum^H \text{Max} \left( 0, (RAC_k - CCO_{k,h}) \times CACP_h \times CNPF_{tm} \right) \right)$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. <math>CAAC_k^m</math> = the <i>capacity obligation</i> availability charge <i>settlement amount</i> for <i>capacity market participant</i> 'k' at <i>delivery point</i> or <i>intertie metering point</i> 'm' for the relevant <i>trading day</i>, as calculated as the sum of the <i>capacity obligation</i> availability charge <i>settlement amount</i> of each <i>settlement hour</i> within the relevant <i>availability window</i> determined pursuant to MR Ch.9 s.14.13.2.1;</li> <li>b. UCAP Adjustment = a de-rate (in %) determined in accordance with MR Ch.9 s.4.13.8;</li> <li>c. <math>CAAP_k^m</math> = the <i>capacity obligation</i> availability payment <i>settlement amount</i> for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' for the relevant <i>energy market billing period</i>, as calculated pursuant to MR Ch.9 s.4.13.1;</li> <li>d. <math>CAIPA_k^m</math> = the <i>capacity obligation</i> in-period <i>cleared UCAP</i> adjustment charge <i>settlement amount</i> for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' for the relevant <i>energy market billing period</i>, as calculated pursuant to MR Ch.9 s.4.13.8;</li> <li>e. D = the set of all <i>trading days</i> within the relevant <i>energy market billing period</i>;</li> <li>f. TM = the set of all <i>energy market billing periods</i> within the relevant <i>obligation period</i>; and</li> <li>g. H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> of the relevant <i>obligation period</i>.</li> </ul> | TBD                   | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1325               | Capacity Obligation – Capacity Auction Charges True-up Payment<br><br>(CACT) | MR Ch.9 s.4.13.13      | $CACT_k^m = -1 \times \text{Min} \left( 0, \left( \sum_H TD_{C,k,h}^m + \sum_H TD_{P,k,h}^m \right) \right)$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. <math>TD_{C,k,h}^m</math> = the total dollar value of all <i>settlement amounts</i> 'C' for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' in the relevant <i>obligation period</i>, where: <ul style="list-style-type: none"> <li>i. 'C' is the set of the <i>settlement amounts</i> applied in accordance with MR Ch.9 ss. 4.13.2, 4.13.2.1, 4.13.4, 4.13.5, 4.13.6, 4.13.7 and 4.13.8.</li> </ul> </li> <li>b. <math>TD_{P,k,h}^m</math> = the total dollar value of all <i>settlement amounts</i> 'P' for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' in the relevant <i>obligation period</i>, where: <ul style="list-style-type: none"> <li>i. 'P' is the set of the <i>settlement amounts</i> applied in accordance with MR Ch.9 ss. 4.13.1 and 4.13.12.</li> </ul> </li> <li>c. H = the set of all <i>settlement hours</i> 'h' within the <i>availability window</i> of the relevant <i>obligation period</i>.</li> </ul>  | TBD                   | TBD      | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                                |
|--------------------|---|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
| 1350               | Capacity Based Recovery Amount for Class A Loads<br><br>(CAU) | MR Ch.9 s.4.13.14      | $CAU_k^m = \sum_{H,M} (TD_{C,k,h}^m \times PDF_k)$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of all <i>settlement hours</i> 'h' in the relevant <i>energy market billing period</i>;</li> <li>b. M = the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k';</li> <li>c. <math>TD_{C,k,h}^m</math> = the total dollar value of all <i>settlement amounts</i> 'C' for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' in the relevant <i>energy market billing period</i>, where                         <ul style="list-style-type: none"> <li>i. 'C' is the set of the <i>settlement amounts</i> applied in accordance with MR Ch.9 ss. 4.13.1, 4.13.2, 4.13.9, 4.13.11, 4.13.12, and 4.13.13; and</li> </ul> </li> <li>d. <math>PDF_k</math> = the Peak Demand Factor for 'Class A Market Participant' or Distributor 'k' for the relevant <i>energy market billing period</i>, as determined in accordance with <i>applicable law</i>, where if the 'Class A Market Participant' or Distributor 'k' ceases to be a 'Class A Market Participant' in respect of the relevant load facility during the relevant <i>energy market billing period</i>, the <math>PDF_k</math> shall be pro-rated accordingly.</li> </ul> | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Refer to comments under charge type 147 |
| 1351               | Capacity Based Recovery Amount for Class B Loads<br><br>(CAU) | MR Ch.9 s.4.13.14.2    | <p><b>For Fort Frances Power Corporation Distribution Inc.:</b></p> $CAU_k^m = (\sum_{H,M} TD_{C,k,h^m} - TD_{C1350,k,h^m}) \times \text{Max}((\sum_H^{M,T} AQEW_{k,h}^{m,t} + EGEL_k - EEQ), 0) / \text{Class B Load}$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. <math>TD_{C,k,h^m}</math> = total dollar value of all <i>settlement amounts</i> 'C' for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' in the relevant <i>energy market billing period</i>, where 'C' is the set of the <i>settlement amounts</i> applied in accordance with MR Ch.9 ss. 4.13.1, 4.13.2, 4.13.9, 4.13.11, 4.13.12, and 4.13.13;</li> <li>b. <math>TD_{C1350,k,h^m}</math> = total dollar value of <i>settlement amounts</i> applied pursuant to section 4.13.14.1 for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' in the relevant <i>energy market billing period</i>.</li> </ul> <p><b>For other Class B Market Participants and Distributors:</b></p> $CAU_k^m = (\sum_{H,M} TD_{C,k,h^m} - TD_{C1350,k,h^m}) \times \text{Max}((\sum_H^{M,T} AQEW_{k,h}^{m,t} + EGEL_k - GA\_AQEW_{g,k,h,M}^{m,t} - PGS_{h,M}), 0) / \text{Class B Load}$  | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Refer to comments under charge type 148 |

| Charge Type Number | Charge Type Name                                     | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
|                    |  |                        | <p><b>Where:</b></p> <p>a. <math>TD_{C,k,h}^m</math> = total dollar value of all <i>settlement amounts</i> 'C' for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' in the relevant <i>energy market billing period</i>, where 'C' is the set of the <i>settlement amounts</i> applied in accordance with MR Ch.9 ss. 4.13.1, 4.13.2, 4.13.9, 4.13.11, 4.13.12 and 4.13.13.</p> <p>b. <math>TD_{C1350,k,h}^m</math> = total dollar value of <i>settlement amounts</i> applied pursuant to MR Ch.9 s.4.13.14.1 for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' in the relevant <i>energy market billing period</i>;</p> <p>c. Class B load is calculated as follows:</p> $(\sum_K (\text{MAX}(\sum_H^{M,T} \text{AQEW}_{k,h}^{m,t} + \text{EGEI}_k - \text{EEQ} - \sum_H^{M,T} \text{GA\_AQEW}_{g,k,h,M}^{m,t} - \sum_H \text{PGS}_{h,M}, 0))) - \sum_K U_k$ <p><b>Where:</b></p> <p>i. H = the set of all <i>settlement hours</i> 'h' in the relevant <i>energy market billing period</i>.</p> <p>ii. M = the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'.</p> <p>iii. C = the set of the following <i>charge types</i> 'c': 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307 and 1308, 1309, 1310, 1311, 1312 and 1313 and 1314 to 1320, 1321, 1322.</p> |                       |          |                                      |   |                                     |  |   |
| 1400               | OPA Contract Adjustment Settlement Amount            | N/A                    | Manual entry based on the values submitted by the former OPA via On-line settlement form "Global Adjustment Amount Information", subject to Regulation.   | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation |
| 1401               | Incremental Loss Settlement Credit                   | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts.   | Hourly                | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service            |
| 1402               | Hourly Condense System Constraints Settlement Credit | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts.   | Hourly                | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service            |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                                     |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
| 1403               | Speed-no-load Settlement Credit                              | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts. | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service |
| 1404               | Condense Unit Start-up and OM&A Settlement Credit            | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts. | Hourly                | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service |
| 1405               | Hourly Condense Energy Costs Settlement Credit               | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts. | Hourly                | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service |
| 1406               | Monthly Condense Energy Costs Settlement Credit              | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts. | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service |
| 1407               | Condense Transmission Tariff Reimbursement Settlement Credit | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts. | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service |
| 1408               | Condense Availability Cost Settlement Credit                 | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts. | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service |
| 1409               | Monthly Condense System Constraints                          | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts. | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow            | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|---|-----------------------|---------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    | Settlement Credit  |                        |   |                       |                     |                                      |   |                                     |  |   |
| 1410               | Renewable Energy Standard Offer Program Settlement Amount                | N/A                    | Manual entry based on the values submitted by <i>market participants</i> via On-line settlement forms: "Licenced Distributor Claims for the Renewable Energy Standard Offer Program" and "Embedded Distributor Claims for the Renewable Energy Standard Offer Program". | Monthly               | Due LDCs Either way | 13                                   | N/A   | N/A                                 | N/A  |   |
| 1411               | Clean Energy Standard Offer Program Settlement Amount                    | N/A                    | Manual entry based on the values submitted by <i>market participants</i> via future On-line settlement form "Clean Energy Standard Offer Program".  | Monthly               | Due LDCs Either way | 13                                   | N/A   | N/A                                 | N/A  |   |
| 1412               | Feed-In Tariff Program Settlement Amount                                 | N/A                    | Manual entry based on the values submitted by <i>market participants</i> via On-line settlement form "Feed-In Tariff Program".  | Monthly               | Due LDCs Either way | 13                                   | N/A   | N/A                                 | N/A  |   |
| 1413               | Renewable Generation Connection – Monthly Compensation Settlement Credit | N/A                    | Manual entry based on the values submitted by the <i>OEB</i> .  | Monthly               | Due LDCs Either way | 13                                   | N/A   | N/A                                 | N/A  | Recipients, compensation amounts and other implementation details subject to <i>OEB</i> regulation. |
| 1414               | Hydroelectric Contract Initiative Settlement Amount                      | N/A                    | Manual entry based on the values submitted by the <i>market participant</i> .   | Monthly               | Due LDCs Either way | 13                                   | N/A   | N/A                                 | N/A  |   |
| 1416               | Conservation and Demand Management – Compensation                        | N/A                    | Manual entry based on the values submitted by the <i>OEB</i> and/or as stipulated by contracts held with the <i>IESO</i> .  | Monthly               | Due LDCs Either way | 13                                   | N/A   | N/A                                 | N/A  |   |



| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                              | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|---|-----------------------|---------------------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    | Settlement Credit  |                        |   |                       |                                       |                                      |   |                                     |  |   |
| 1417               | Daily Condense Energy Costs Settlement Credit              | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts.                                     | Monthly               | Due MP                                | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service                |
| 1418               | Biomass Non-Utility Generation Contracts Settlement Amount | N/A                    | Manual entry based on the values submitted by <i>market participants</i> via Online IESO. | Monthly               | Due LDCs Either way                   | 13                                   | N/A   | N/A                                 | N/A  |   |
| 1419               | Energy from Waste (EFW) Contracts Settlement Amount        | N/A                    | Manual entry based on the values submitted by <i>market participants</i> via Online IESO. | Monthly               | Due LDCs Either way                   | 13                                   | N/A   | N/A                                 | N/A  |   |
| 1420               | Ontario Electricity Support Program Settlement Amount      | N/A                    | Manual entry based on the values submitted by <i>market participants</i> via Online IESO. | Monthly               | Due LDCs, USMPs and service providers | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 314/15 |
| 1421               | Capacity Agreement Settlement Credit                       | N/A                    | Calculated as per capacity contracts.   | Monthly               | Either way                            | 13                                   | 13  | N/A                                 | 13   |   |
| 1422               | Capacity Agreement Penalty Settlement Amount               | N/A                    | Calculated as per capacity contracts.   | Monthly               | Either way                            | 13                                   | 13  | N/A                                 | 13   |   |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|------------------------|---|-----------------------|------------------------|--------------------------------------|---|-------------------------------------|--|--|
| 1423               | Energy Sales Agreement Settlement Credit                 | N/A                    | Calculated as per energy sales contracts.   | Monthly               | Either way             | 13                                   | 13  | N/A                                 | 13   |  |
| 1424               | Energy Sales Agreement Penalty Settlement Amount         | N/A                    | Calculated as per energy sales contracts.   | Monthly               | Either way             | 13                                   | 13  | N/A                                 | 13   |  |
| 1425               | Hydroelectric Standard Offer Program Settlement Amount   | N/A                    | Manual Entry.   | Monthly               | Due LDCs either way    | 13                                   | N/A   | N/A                                 | N/A  |  |
| 1450               | OPA Contract Adjustment Balancing Amount                 | N/A                    | $TD_{1400}$   | Monthly               | Due IESO               | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation                |
| 1451               | Incremental Loss Offset Settlement Amount                | MR Ch.9 s.4.2.4        | Calculated as per <i>ancillary service</i> contracts.   | Hourly                | Due IESO               | 13                                   | N/A   | N/A                                 | N/A  | Reactive Support and Voltage Control Service                           |
| 1457               | Ontario Electricity Rebate Balancing Amount              | N/A                    | $\sum_k TD_{k,9983}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,9983}$ is the <i>settlement amount of charge type 9983</i> for the month for <i>market participant</i> 'k'.       | Monthly               | Due Ministry of Energy | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 363/16 and 364/16 |
| 1460               | Renewable Energy Standard Offer Program Balancing Amount | N/A                    | $\sum_k TD_{k,1410}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1410}$ is the total <i>settlement amount of charge type 1410</i> for the month for <i>market participant</i> 'k'. | Monthly               | Due IESO               | 0                                    | N/A   | N/A                                 | N/A  |  |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
| 1461               | Clean Energy Standard Offer Program Balancing Amount                    | N/A                    | $\sum_k TD_{k,1411}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.<br/>                     Where <math>TD_{k,1411}</math> is the total <i>settlement amount</i> of <i>charge type</i> 1411 for the month for <i>market participant</i> 'k'.</p>  | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1462               | Feed-In Tariff Balancing Amount   | N/A                    | $\sum_k TD_{k,1412}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.<br/>                     Where <math>TD_{k,1412}</math> is the total <i>settlement amount</i> of <i>charge type</i> 1412 for the month for <i>market participant</i> 'k'.</p>  | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1463               | Renewable Generation Connection – Monthly Compensation Settlement Debit | N/A                    | $\sum_k TD_{k,1413} \times (\sum_{H^{M,T}} AQEW_{k,h}^{m,t} + EGEI_k) / (\sum_{K,H^{M,T}} AQEW_{k,h}^{m,t} + \sum_k EGEI_k)$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>                     Where 'K' is the set of all <i>market participants</i> 'k'.<br/>                     Where 'M' is the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'.<br/>                     Where <math>TD_{k,1413}</math> is the total <i>settlement amount</i> of <i>charge type</i> 1413 for the month for <i>market participant</i> 'k'.</p> | Monthly               | Due MPs  | 13                                   | N/A   | N/A                                 | N/A  | Cost recovery implementation details set out in Ontario Regulation 330/09 |
| 1464               | Hydroelectric Contract Initiative Balancing Amount                      | N/A                    | $\sum_k TD_{k,1414}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.<br/>                     Where <math>TD_{k,1414}</math> is the total <i>settlement amount</i> of <i>charge type</i> 1414 for the month for <i>market participant</i> 'k'.</p>  | Monthly               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  |   |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|------------------------|---|-----------------------|------------------------|--------------------------------------|---|-------------------------------------|--|---|
| 1466               | Conservation and Demand Management – Compensation Balancing Amount               | N/A                    | $\sum_k TD_{k,1416}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1416}$ is the <i>settlement amount of charge type 1416</i> for the month for <i>market participant</i> 'k'.       | Monthly               | Due IESO               | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1467               | Ontario Rebate for Electricity Consumers (8% Provincial Rebate) Balancing Amount | N/A                    | $\sum_k TD_{k,9982}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,9982}$ is the <i>settlement amount of charge type 9982</i> for the month for <i>market participant</i> 'k'.       | Monthly               | Due Ministry of Energy | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 363/16 |
| 1468               | Biomass Non-Utility Generation Contracts Balancing Amount                        | N/A                    | $\sum_k TD_{k,1418}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1418}$ is the total <i>settlement amount of charge type 1418</i> for the month for <i>market participant</i> 'k'. | Monthly               | Due IESO               | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1469               | Energy from Waste (EFW) Contracts Balancing Amount                               | N/A                    | $\sum_k TD_{k,1419}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1419}$ is the total <i>settlement amount of charge type 1419</i> for the month for <i>market participant</i> 'k'. | Monthly               | Due IESO               | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1471               | Capacity Agreement Balancing Amount  | N/A                    | $\sum_k TD_{k,1421}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.   | Monthly               | Either way             | 0                                    | N/A   | N/A                                 | N/A  |   |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow           | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|------------------------|--|-----------------------|--------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |   |                        | Where $TD_{k,1421}$ is the total <i>settlement amount</i> of <i>charge type</i> 1421 for the month for <i>market participant</i> 'k'.  |                       |                    |                                      |   |                                     |  |   |
| 1472               | Capacity Agreement Penalty Balancing Amount                 | N/A                    | $\sum_k TD_{k,1422}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1422}$ is the total <i>settlement amount</i> of <i>charge type</i> 1422 for the month for <i>market participant</i> 'k'. | Monthly               | Either way         | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1473               | Energy Sales Agreement Balancing Amount                     | N/A                    | $\sum_k TD_{k,1423}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1423}$ is the total <i>settlement amount</i> of <i>charge type</i> 1423 for the month for <i>market participant</i> 'k'. | Monthly               | Either way         | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1474               | Energy Sales Agreement Penalty Balancing Amount             | N/A                    | $\sum_k TD_{k,1424}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1424}$ is the total <i>settlement amount</i> of <i>charge type</i> 1424 for the month for <i>market participant</i> 'k'. | Monthly               | Either way         | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1475               | Hydroelectric Standard Offer Program Balancing Amount       | N/A                    | $\sum_k TD_{k,1425}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1425}$ is the total <i>settlement amount</i> of <i>charge type</i> 1425 for the month for <i>market participant</i> 'k'. | Monthly               | Due IESO           | 0                                    | N/A   | N/A                                 | N/A  |   |
| 1477               | COVID-19 Energy Assistance Program (CEAP) Settlement Amount | N/A                    | Manual entry based on the values submitted via the relevant on-line settlement form "COVID-19 Energy Assistance Program" for residential consumers.  | Monthly               | Due LDCs and USMPs | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to OEB order EB-2020-0186 and EB-2020-0163 |
| 1600               | Forecasting Service   |                        | Manual entry based on the values submitted by the forecasting entity.  | Monthly               | Due MP             | 13                                   | N/A   | N/A                                 | N/A  |   |

| Charge Type Number | Charge Type Name  | Market Rules Reference               | Equation  | Settlement Resolution | Cashflow               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|--------------------------------------|---|-----------------------|------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    | Settlement Amount   | MR Ch.9 s.4.12                       |   |                       |                        |                                      |   |                                     |  |   |
| 1650               | Forecasting Service Balancing Amount                                      | MR Ch.9 ss.4.12 and 4.14.12          | $= \sum_{H,C}^{M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'C' is charge type 'c' <b>1600</b>.<br/>                     Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>                     Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>   | Monthly               | Due IESO               | 13                                   | N/A   | 0                                   | 13   |   |
| 1750               | Dispute Resolution Balancing Amount (Market)                              | MR. Ch.9 s.6.10.4                    | $\sum_{H,C,M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ , where applicable<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.   | Monthly               | Due MP                 | 13                                   | N/A   | 0                                   | 13   |   |
| 1753               | MOE - Rural and Remote Settlement Debit                                   | N/A                                  | Manual entry based on:<br>(1) the values submitted via on-line settlement form "Rural or Remote Rate Protection (RRRP) – Fixed Rate Credit".  | Monthly               | Due Ministry of Energy | N/A                                  | N/A   | N/A                                 | N/A  | Implementation details subject to government and OEB regulations. |
| 1800<br>MRP new    | Day-Ahead Market Make-Whole Payment – Energy (DAM_MWP)<br><br>Component 1 | MR Ch.9 ss.3.4.7, 3.4.14, and 3.4.15 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $DAM\_COMP1_{k,h}^m = -1 \times [OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_BE_{k,h}^m)]$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_COMP1_{k,h}^c = -1 \times [OP(DAM\_LMP_h^c, DAM\_QSI_{k,h}^c, DAM\_DIPC_{k,h}^c) - OP(DAM\_LMP_h^c, DAM\_EOP_{k,h}^c, DAM\_DIPC_{k,h}^c)]$ | Hourly                | Due MP                 | TBD                                  | TBD   | TBD                                 | TBD  |   |

| Charge Type Number | Charge Type Name   | Market Rules Reference       | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                              | <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_COMP1_{k,h}^s = -1 \times [OP(DAM\_LMP_h^s, DAM\_DIGQ_{k,h}^s, DAM\_DIPC_{k,h}^s) - OP(DAM\_LMP_h^s, DAM\_EOP\_DIGQ_{k,h}^s, DAM\_DIPC_{k,h}^s)]$  |                       |          |                                      |   |                                     |  |          |
| 1800<br>MRP new    | Day-Ahead Market Make-Whole Payment – Energy<br><br>(DAM_MWP)<br><br>Component 1 | MR Ch.9 ss.3.4.13.1-3.4.13.4 | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Not Associated with Linked Forebays</b></p> <p><b>1. Hourly Basis Equation:</b></p> $DAM\_COMP1_{k,h}^m = (-1) \times [OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_BE_{k,h}^m) - FROP_{k,h}^m]$ <p><b>2. Per-Start Equation:</b></p> $DAM\_COMP1_{k,s}^m = (-1) \times \left\{ \left[ \sum_{Hp} OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m) - FROP_{k,h}^m \right] + \left[ \sum_{Hn} OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_BE_{k,h}^m) - FROP_{k,h}^m \right] \right\}$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. s = a start event consisting of a set of <i>settlement hours</i> for <i>market participant 'k'</i> at <i>delivery point 'm'</i>, as determined in accordance with the applicable <i>market manual</i>;</li> <li>b. Hp = the set of all <i>settlement hours</i> within start 's' where <math>OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m)</math> is positive, excluding those <i>settlement hours</i> in which the <i>resource</i> has a <i>reliability</i> constraint;</li> <li>c. Hn = the set of all <i>settlement hours</i> within a start 's' where <math>OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m)</math> is negative and <math>DAM\_QSI_{k,h}^m</math> is greater than <math>DAM\_EOP_{k,h}^m</math>, excluding those <i>settlement hours</i> in which the <i>resource</i> has a <i>reliability</i> constraint or a binding constraint referred to in MR Ch.9 s.3.4.2.3;</li> </ul> <p><b>and where</b> <math>FROP_{k,h}^m</math> shall be determined as follows under both the Hourly Basis Equation and Per-Start Equation:</p> | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference                     | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |  | <p>a. if <math>DAM\_QSI_{k,h}^m</math> is not equal to <math>FR\_UL_k^{m,f}</math>, or the <i>resource</i> does not have a <i>forbidden region</i>, then <math>FROP_{k,h}^m = 0</math></p> <p>b. otherwise:<br/> <math display="block">FROP_{k,h}^m = OP(DAM\_LMP_h^m, FR\_UL_k^{m,f}, DAM\_BE_{k,h}^m) - OP(DAM\_LMP_h^m, Max(DAM\_EOP_{k,h}^m, FR\_LL_k^{m,f}), DAM\_BE_{k,h}^m)</math></p> <p><b>Where:</b></p> <p>i. <math>FR\_UL_k^{m,f}</math> = the <i>forbidden region</i> upper limit from <i>forbidden region</i> set 'f' where <math>DAM\_QSI_{k,h}^m = FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>;</p> <p>ii. <math>FR\_LL_k^{m,f}</math> = the <i>forbidden region</i> lower limit from <i>forbidden region</i> set 'f' where <math>DAM\_QSI_{k,h}^m = FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>; and</p> <p>iii. f = (1...N) of the <i>forbidden region</i> set <math>\{FR\_UL_k^{m,f}, FR\_LL_k^{m,f}\}</math> and N is the maximum number of <i>forbidden regions</i> submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1800<br>MRP new    | Day-Ahead Market Make-Whole Payment – Energy<br><br>(DAM_MWP)<br><br>Component 1 | MR Ch.9 ss.3.4.13.2, 3.4.13.4 and 3.4.13.5 | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Associated with Linked Forebays</b></p> <p><b>1. The resource has:</b></p> <p>a. Attained Max Starts, then:</p> $DAM\_COMP1_{k,s}^m = (-1) \times \left\{ \left[ \sum_{Hp} OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m) - FROP_{k,h}^m \right] + \left[ \sum_{Hn} OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_BE_{k,h}^m) - FROP_{k,h}^m \right] \right\}$ <p><b>Where:</b></p>  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |



| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>a. <math>s</math> = a start event consisting of a set of <i>settlement hours</i> for <i>market participant</i> 'k' at <i>delivery point</i> 'm', as determined in accordance with the applicable <i>market manual</i>;</p> <p>b. <math>H_p</math> = the set of all <i>settlement hours</i> within start 's' where <math>OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m)</math> is positive, excluding those <i>settlement hours</i> in which the <i>resource</i> has a binding <i>reliability</i> constraint;</p> <p>c. <math>H_n</math> = the set of all <i>settlement hours</i> within a start 's' where <math>OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m)</math> is negative and <math>DAM\_QSI_{k,h}^m</math> is greater than <math>DAM\_EOP_{k,h}^m</math>, excluding those <i>settlement hours</i> in which the <i>resource</i> has a <i>reliability</i> constraint or a binding constraint referred to in MR Ch.9 s.3.4.2.3;</p> <p><b>and where</b> <math>FROP_{k,h}^m</math> shall be determined as follows:</p> <p>a. if <math>DAM\_QSI_{k,h}^m</math> is not equal to <math>FR\_UL_k^{m,f}</math>, or the <i>resource</i> does not have a <i>forbidden region</i>, then <math>FROP_{k,h}^m = 0</math></p> <p>b. otherwise:<br/> <math display="block">FROP_{k,h}^m = OP(DAM\_LMP_h^m, FR\_UL_k^{m,f}, DAM\_BE_{k,h}^m) - OP(DAM\_LMP_h^m, Max(DAM\_EOP_{k,h}^m, FR\_LL_k^{m,f}), DAM\_BE_{k,h}^m)</math></p> <p><b>Where:</b></p> <p>i. <math>FR\_UL_k^{m,f}</math> = the <i>forbidden region</i> upper limit from <i>forbidden region</i> set 'f' where <math>DAM\_QSI_{k,h}^m = FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>;</p> <p>ii. <math>FR\_LL_k^{m,f}</math> = the <i>forbidden region</i> lower limit from <i>forbidden region</i> set 'f' where <math>DAM\_QSI_{k,h}^m = FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>; and</p> <p>iii. <math>f = (1...N)</math> of the <i>forbidden region</i> set <math>\{FR\_UL_k^{m,f}, FR\_LL_k^{m,f}\}</math> and N is the maximum number of <i>forbidden regions</i> submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>.</p> <p><b>2. The resource has:</b></p> <p>a. Not Attained Max Starts; or</p> <p>b. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> with a <i>reliability</i> constraint; or</p> <p>c. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> that are not within a start event, as determined in accordance with the applicable <i>market manual</i>, then:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | $DAM\_COMP1_{k,h+TL_m}^m = (-1) \times \{OP[DAM\_LMP_{h+TL_m}^m, DAM\_QSI_{k,h+TL_m}^m, DAM\_BE_{k,h+TL_m}^m] - OP[DAM\_LMP_{h+TL_m}^m, DAM\_EOP_{k,h+TL_m}^m, DAM\_BE_{k,h+TL_m}^m] - FROP_{k,h+TL_m}^m\}$ <p><b>NOTE:</b> hydroelectric <i>generation resources</i> associated with <i>linked forebays</i>, which are subject to this calculation of the DAM_MWP, shall only receive a DAM_MWP <i>settlement amount</i> for a <i>settlement hour</i> when the condition as set out in MR Ch.9 s.3.4.13.5.3 is true for such <i>settlement hour</i>.</p> <p><b>Where</b> <math>FROP_{k,h+TL_m}^m</math> shall be determined as follows:</p> <p>a. if <math>DAM\_QSI_{k,h+TL_m}^m</math> is not equal to <math>FR\_UL_k^{m,f}</math>, or the <i>resource</i> does not have a <i>forbidden region</i>, then <math>FROP_{k,h+TL_m}^m = 0</math></p> <p>b. otherwise:</p> $FROP_{k,h+TL_m}^m = OP(DAM\_LMP_{h+TL_m}^m, FR\_UL_k^{m,f}, DAM\_BE_{k,h+TL_m}^m) - OP(DAM\_LMP_{h+TL_m}^m, Max(DAM\_EOP_{k,h+TL_m}^m, FR\_LL_k^{m,f}), DAM\_BE_{k,h+TL_m}^m)$ <p><b>Where:</b></p> <p>i. <math>TL_m</math> = the <i>time-lag</i>, for each <i>delivery point</i> 'm', equal to the number of hours downstream that the <i>delivery point</i> is from the furthest upstream <i>delivery point</i> determined by the <i>time-lag</i>, submitted by the <i>market participant</i> in the daily <i>dispatch data</i> for the <i>linked forebay</i>;</p> <p>ii. <math>FR\_UL_k^{m,f}</math> = the <i>forbidden region</i> upper limit from <i>forbidden region</i> set 'f' where <math>DAM\_QSI_{k,h+TL_m}^m = FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>;</p> <p>iii. <math>FR\_LL_k^{m,f}</math> = the <i>forbidden region</i> lower limit from <i>forbidden region</i> set 'f' where <math>DAM\_QSI_{k,h+TL_m}^m = FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>; and</p> <p>iv. <math>f = (1..N)</math> of the <i>forbidden region</i> set <math>\{FR\_UL_k^{m,f}, FR\_LL_k^{m,f}\}</math> and N is the maximum number of <i>forbidden regions</i> submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1800<br>MRP new    | Day-Ahead Market Make-Whole Payment – Energy<br><br>(DAM_MWP)<br><br>Component 1 | MR Ch.9 s.3.4.8        | <b>Dispatchable Loads</b><br><br>$DAM\_COMP1_{k,h}^m = OP(DAM\_LMP_h^m, DAM\_QSW_{k,h}^m, DAM\_BL_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_BL_{k,h}^m)$  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1800<br>MRP new    | Day-Ahead Market Make-Whole Payment – Energy<br><br>(DAM_MWP)<br><br>Component 1 | MR Ch.9 s.3.4.9        | <b>Non-HDR Price Responsive Loads</b><br><br>$DAM\_COMP1_{k,h}^m = OP(DAM\_LMP_h^m, DAM\_QSW_{k,h}^m, DAM\_BL_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_BL_{k,h}^m)$  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1800<br>MRP new    | Day-Ahead Market Make-Whole Payment – Energy<br><br>(DAM_MWP)<br><br>Component 1 | MR Ch.9 s.3.4.10       | <b>Physical Hourly Demand Response Price Responsive Loads</b><br><br>$DAM\_COMP1_{k,h}^m = Max\{0, [OP(DAM\_LMP_h^m, DAM\_QSW_{k,h}^m, DAM\_BL_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_BL_{k,h}^m)]\} + Max\{0, [OP(DAM\_LMP_h^m, DAM\_HDR\_QSW_{k,h}^m, DAM\_HDR\_BL_{k,h}^m) - OP(DAM\_LMP_h^m, DAM\_EOP_{k,h}^m, DAM\_HDR\_BL_{k,h}^m)]\}$ <p><b>Where:</b><br/>                     a. m = the <i>delivery point</i> for the <i>price responsive load</i> and the <i>physical hourly demand response resource</i> associated with such <i>price responsive load</i>, for <i>metered market participant 'k'</i>.</p> | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1800<br>MRP new    | Day-Ahead Market Make-Whole  | MR Ch.9 s.3.4.11       | <b>Boundary Entity Resources – Imports</b>   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference               | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Payment – Energy<br><br>(DAM_MWP)<br><br>Component 1   |                                      | $DAM\_COMP1_{k,h}^i = -1 \times [OP(DAM\_LMP_h^i, DAM\_QSI_{k,h}^i, DAM\_BE_{k,h}^i) - OP(DAM\_LMP_h^i, DAM\_EOP_{k,h}^i, DAM\_BE_{k,h}^i)]$   |                       |          |                                      |   |                                     |  |          |
| 1800<br>MRP new    | Day-Ahead Market Make-Whole Payment – Energy<br><br>(DAM_MWP)<br><br>Component 1                     | MR Ch.9 s.3.4.12                     | <p><b>Boundary Entity Resources – Exports</b></p> $DAM\_COMP1_{k,h}^i = OP(DAM\_LMP_h^i, DAM\_QSW_{k,h}^i, DAM\_BL_{k,h}^i) - OP(DAM\_LMP_h^i, DAM\_EOP_{k,h}^i, DAM\_BL_{k,h}^i)$   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1801<br>MRP new    | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 ss.3.4.7, 3.4.14, and 3.4.15 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r1,h}^m, DAM\_QSOR_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m) - OP(DAM\_PROR_{r1,h}^m, DAM\_OR\_EOP_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m)]$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_COMP2_{k,h}^c = -1 \times [OP(DAM\_PROR_{r1,h}^c, DAM\_QSOR_{r1,k,h}^c, DAM\_OR\_DIPC_{r1,k,h}^c) - OP(DAM\_PROR_{r1,h}^c, DAM\_OR\_EOP_{r1,k,h}^c, DAM\_OR\_DIPC_{r1,k,h}^c)]$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_COMP2_{k,h}^s = -1 \times [OP(DAM\_PROR_{r1,h}^s, DAM\_QSOR_{r1,k,h}^s, DAM\_OR\_DIPC_{r1,k,h}^s) - OP(DAM\_PROR_{r1,h}^s, DAM\_OR\_EOP_{r1,k,h}^s, DAM\_OR\_DIPC_{r1,k,h}^s)]$ | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference           | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|----------------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1801<br>MRP new    | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 ss.3.4.13.3 and 3.4.13.4 | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Not Associated with Linked Forebays</b></p> <p><b>1. Hourly Basis Equation:</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r1,h}^m, DAM\_QSOR_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m) - OP(DAM\_PROR_{r1,h}^m, DAM\_OR\_EOP_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m)]$ <p><b>2. Per-Start Equation:</b></p> $DAM\_COMP2_{k,s}^m = (-1) \times \sum_H [OP(DAM\_PROR_{r1,h}^m, DAM\_QSOR_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m) - OP(DAM\_PROR_{r1,h}^m, DAM\_OR\_EOP_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m)]$ <p><b>Where:</b></p> <p>a. s = a start event consisting of a set of <i>settlement hours</i> for <i>market participant 'k'</i> at <i>delivery point 'm'</i>, as determined in accordance with the applicable <i>market manual</i>; and</p> <p>b. H = the set of all <i>settlement hours</i> within start 's'.</p> | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1801<br>MRP new    | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 s.3.4.13.5               | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Associated with Linked Forebays</b></p> <p><b>1. The resource has:</b></p> <p>a. Attained Max Starts, then:</p> $DAM\_COMP2_{k,s}^m = (-1) \times \sum_H [OP(DAM\_PROR_{r1,h}^m, DAM\_QSOR_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m) - OP(DAM\_PROR_{r1,h}^m, DAM\_OR\_EOP_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m)]$ <p><b>Where:</b></p> <p>a. s = a start event consisting of a set of <i>settlement hours</i> for <i>market participant 'k'</i> at <i>delivery point 'm'</i>, as determined in accordance with the applicable <i>market manual</i>; and</p>   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                        | <p>b. H = the set of all <i>settlement hours</i> within start 's'.</p> <p><b>2. The resource has:</b></p> <ul style="list-style-type: none"> <li>a. Not Attained Max Starts; or</li> <li>b. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> with a binding <i>reliability</i> constraint; or</li> <li>c. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> that are not within a start event, as determined in accordance with the applicable <i>market manual</i>, then:</li> </ul> $DAM\_COMP2_{k,h+TL_m}^m = -1 \times [OP(DAM\_PROR_{r1,h+TL_m}^m, DAM\_QSOR_{r1,k,h+TL_m}^m, DAM\_BOR_{r1,k,h+TL_m}^m) - OP(DAM\_PROR_{r1,h+TL_m}^m, DAM\_OR\_EOP_{r1,k,h+TL_m}^m, DAM\_BOR_{r1,k,h+TL_m}^m)]$ <p><b>NOTE:</b> hydroelectric <i>generation resources</i> associated with <i>linked forebays</i>, which are subject to this calculation of the DAM_MWP, shall only receive a DAM_MWP <i>settlement amount</i> for a <i>settlement hour</i> when the condition as set out in MR Ch.9 s.3.4.13.5.3 is true for such <i>settlement hour</i>.</p> <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. <math>TL_m</math> = the <i>time-lag</i>, for each <i>delivery point</i> 'm', equal to the number of hours downstream that the <i>delivery point</i> is from the furthest upstream <i>delivery point</i> determined by the <i>time-lag</i>, submitted by the <i>market participant</i> in the daily <i>dispatch data</i> for the <i>linked forebay</i>.</li> </ul> |                       |          |                                      |   |                                     |  |          |
| 1801<br>MRP new    | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>(DAM_MWP) | MR Ch.9 s.3.4.8        | <p><b>Dispatchable Loads</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r1,h}^m, DAM\_QSOR_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m) - OP(DAM\_PROR_{r1,h}^m, DAM\_OR\_EOP_{r1,k,h}^m, DAM\_BOR_{r1,k,h}^m)]$   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference               | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Component 2  |                                      |  |                       |          |                                      |   |                                     |  |          |
| 1802<br>MRP new    | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 ss.3.4.7, 3.4.14, and 3.4.15 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r2,h}^m, DAM\_QSOR_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m) - OP(DAM\_PROR_{r2,h}^m, DAM\_OR\_EOP_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m)]$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_COMP2_{k,h}^c = -1 \times [OP(DAM\_PROR_{r2,h}^c, DAM\_QSOR_{r2,k,h}^c, DAM\_OR\_DIPC_{r2,k,h}^c) - OP(DAM\_PROR_{r2,h}^c, DAM\_OR\_EOP_{r2,k,h}^c, DAM\_OR\_DIPC_{r2,k,h}^c)]$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_COMP2_{k,h}^s = -1 \times [OP(DAM\_PROR_{r2,h}^s, DAM\_QSOR_{r2,k,h}^s, DAM\_OR\_DIPC_{r2,k,h}^s) - OP(DAM\_PROR_{r2,h}^s, DAM\_OR\_EOP_{r2,k,h}^s, DAM\_OR\_DIPC_{r2,k,h}^s)]$ | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1802<br>MRP new    | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 ss.3.4.13.3 and 3.4.13.4     | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Not Associated with Linked Forebays</b></p> <p><b>1. Hourly Basis Equation:</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r2,h}^m, DAM\_QSOR_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m) - OP(DAM\_PROR_{r2,h}^m, DAM\_OR\_EOP_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m)]$ <p><b>2. Per-Start Equation:</b></p> $DAM\_COMP2_{k,s}^m = (-1) \times \sum_H [OP(DAM\_PROR_{r2,h}^m, DAM\_QSOR_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m) - OP(DAM\_PROR_{r2,h}^m, DAM\_OR\_EOP_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m)]$ <p><b>Where:</b></p>  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | a. $s$ = a start event consisting of a set of <i>settlement hours</i> for <i>market participant 'k'</i> at <i>delivery point 'm'</i> , as determined in accordance with the applicable <i>market manual</i> ; and<br>b. $H$ = the set of all <i>settlement hours</i> within start ' $s$ '.   |                       |          |                                      |   |                                     |  |          |
| 1802<br>MRP new    | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 s.3.4.13.5     | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Associated with Linked Forebays</b></p> <p><b>1. The resource has</b></p> <p>a. Attained Max Starts, then:</p> $DAM\_COMP2_{k,s}^m = (-1) \times \sum_H [OP(DAM\_PROR_{r2,h}^m, DAM\_QSOR_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m) - OP(DAM\_PROR_{r2,h}^m, DAM\_OR\_EOP_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m)]$ <p><b>Where:</b></p> <p>a. <math>s</math> = a start event consisting of a set of <i>settlement hours</i> for <i>market participant 'k'</i> at <i>delivery point 'm'</i>, as determined in accordance with the applicable <i>market manual</i>; and<br/>                     b. <math>H</math> = the set of all <i>settlement hours</i> within start '<math>s</math>'.</p> <p><b>2. The resource has:</b></p> <p>a. Not Attained Max Starts; or<br/>                     b. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> with a binding <i>reliability</i> constraint; or<br/>                     c. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> that are not within a start event, as determined in accordance with the applicable <i>market manual</i>, then:</p> $DAM\_COMP2_{k,h+TL_m}^m = -1 \times [OP(DAM\_PROR_{r2,h+TL_m}^m, DAM\_QSOR_{r2,k,h+TL_m}^m, DAM\_BOR_{r2,k,h+TL_m}^m) - OP(DAM\_PROR_{r2,h+TL_m}^m, DAM\_OR\_EOP_{r2,k,h+TL_m}^m, DAM\_BOR_{r2,k,h+TL_m}^m)]$ | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |



| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p><b>NOTE:</b> hydroelectric <i>generation resources</i> associated with <i>linked forebays</i>, which are subject to this calculation of the DAM_MWP, shall only receive a DAM_MWP <i>settlement amount</i> for a <i>settlement hour</i> when the condition as set out in MR Ch.9 s.3.4.13.5.3 is true for such <i>settlement hour</i>.</p> <p><b>Where:</b></p> <p>a. <math>TL_m</math> = the <i>time-lag</i>, for each <i>delivery point</i> 'm', equal to the number of hours downstream that the <i>delivery point</i> is from the furthest upstream <i>delivery point</i> determined by the <i>time-lag</i>, submitted by the <i>market participant</i> in the daily <i>dispatch data</i> for the <i>linked forebay</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1802 MRP new       | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 s.3.4.8        | <p><b>Dispatchable Loads</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r2,h}^m, DAM\_QSOR_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m) - OP(DAM\_PROR_{r2,h}^m, DAM\_OR\_EOP_{r2,k,h}^m, DAM\_BOR_{r2,k,h}^m)]$  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1802 MRP new       | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 s.3.4.11       | <p><b>Boundary Entity Resources - Imports</b></p> $DAM\_COMP2_{k,h}^i = -1 \times [OP(DAM\_PROR_{r2,h}^i, DAM\_QSOR_{r2,k,h}^i, DAM\_BOR_{r2,k,h}^i) - OP(DAM\_PROR_{r2,h}^i, DAM\_OR\_EOP_{r2,k,h}^i, DAM\_BOR_{r2,k,h}^i)]$   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1802 MRP new       | Day-Ahead Market Make-Whole  | MR Ch.9 s.3.4.12       | <p><b>Boundary Entity Resources – Exports</b></p>   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference               | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Payment – 10-Minute Non-Spinning Reserve<br><br>(DAM_MWP)<br><br>Component 2                             |                                      | $DAM\_COMP2_{k,h}^i = -1 \times [OP(DAM\_PROR_{r2,h}^i, DAM\_QSOR_{r2,k,h}^i, DAM\_BOR_{r2,k,h}^i) - OP(DAM\_PROR_{r2,h}^i, DAM\_OR\_EOP_{r2,k,h}^i, DAM\_BOR_{r2,k,h}^i)]$  |                       |          |                                      |   |                                     |  |          |
| 1803<br>MRP new    | Day-Ahead Market Make-Whole<br>Payment – 30-Minute Operating Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 ss.3.4.7, 3.4.14, and 3.4.15 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r3,h}^m, DAM\_QSOR_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m) - OP(DAM\_PROR_{r3,h}^m, DAM\_OR\_EOP_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m)]$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_COMP2_{k,h}^c = -1 \times [OP(DAM\_PROR_{r3,h}^c, DAM\_QSOR_{r3,k,h}^c, DAM\_OR\_DIPC_{r3,k,h}^c) - OP(DAM\_PROR_{r3,h}^c, DAM\_OR\_EOP_{r3,k,h}^c, DAM\_OR\_DIPC_{r3,k,h}^c)]$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_COMP2_{k,h}^s = -1 \times [OP(DAM\_PROR_{r3,h}^s, DAM\_QSOR_{r3,k,h}^s, DAM\_OR\_DIPC_{r3,k,h}^s) - OP(DAM\_PROR_{r3,h}^s, DAM\_OR\_EOP_{r3,k,h}^s, DAM\_OR\_DIPC_{r3,k,h}^s)]$ | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1803<br>MRP new    | Day-Ahead Market Make-Whole<br>Payment – 30-Minute Operating Reserve<br><br>(DAM_MWP)                    | MR Ch.9 ss.3.4.13.3 and 3.4.13.4     | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Not Associated with Linked Forebays</b></p> <p><b>1. Hourly Basis Equation:</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r3,h}^m, DAM\_QSOR_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m) - OP(DAM\_PROR_{r3,h}^m, DAM\_OR\_EOP_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m)]$ <p><b>2. Per-Start Equation:</b></p>  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Component 2   |                        | $DAM\_COMP2_{k,s}^m = (-1) \times \sum_H [OP(DAM\_PROR_{r3,h}^m, DAM\_QSOR_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m) - OP(DAM\_PROR_{r3,h}^m, DAM\_OR\_EOP_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m)]$ <p><b>Where:</b></p> <p>a. <math>s</math> = a start event consisting of a set of <i>settlement hours</i> for <i>market participant 'k'</i> at <i>delivery point 'm'</i>, as determined in accordance with the applicable <i>market manual</i>; and</p> <p>b. <math>H</math> = the set of all <i>settlement hours</i> within start '<math>s</math>'.</p>  |                       |          |                                      |   |                                     |  |          |
| 1803<br>MRP new    | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9<br>s.3.4.13.5  | <p><b>Dispatchable Generation Resources – Hydroelectric Generation Resources Associated with Linked Forebays</b></p> <p><b>1. The resource has</b></p> <p>a. Attained Max Starts, then:</p> $DAM\_COMP2_{k,s}^m = (-1) \times \sum_H [OP(DAM\_PROR_{r3,h}^m, DAM\_QSOR_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m) - OP(DAM\_PROR_{r3,h}^m, DAM\_OR\_EOP_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m)]$ <p><b>Where:</b></p> <p>a. <math>s</math> = a start event consisting of a set of <i>settlement hours</i> for <i>market participant 'k'</i> at <i>delivery point 'm'</i>, as determined in accordance with the applicable <i>market manual</i>; and</p> <p>b. <math>H</math> = the set of all <i>settlement hours</i> within start '<math>s</math>'.</p> <p><b>2. The resource has:</b></p> <p>a. Not Attained Max Starts; or</p> <p>b. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> with a binding <i>reliability</i> constraint; or</p> <p>c. Attained Max Starts but has a <i>day-ahead schedule</i> with <i>settlement hours</i> that are not within a start event, as determined in accordance with the applicable <i>market manual</i>, then:</p> | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                        | $DAM\_COMP2_{k,h+TL_m}^m = -1 \times [OP(DAM\_PROR_{r3,h+TL_m}^m, DAM\_QSOR_{r3,k,h+TL_m}^m, DAM\_BOR_{r3,k,h+TL_m}^m) - OP(DAM\_PROR_{r3,h+TL_m}^m, DAM\_OR\_EOP_{r3,k,h+TL_m}^m, DAM\_BOR_{r3,k,h+TL_m}^m)]$ <p><b>NOTE:</b> hydroelectric <i>generation resources</i> associated with <i>linked forebays</i>, which are subject to this calculation of the DAM_MWP, shall only receive a DAM_MWP <i>settlement amount</i> for a <i>settlement hour</i> when the condition as set out in MR Ch.9 s.3.4.13.5.3 is true for such <i>settlement hour</i>.</p> <p><b>Where:</b></p> <p>a. <math>TL_m</math> = the <i>time-lag</i>, for each <i>delivery point</i> 'm', equal to the number of hours downstream that the <i>delivery point</i> is from the furthest upstream <i>delivery point</i> determined by the <i>time-lag</i>, submitted by the <i>market participant</i> in the daily <i>dispatch data</i> for the <i>linked forebay</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1803 MRP new       | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>(DAM_MWP)<br><br>Component 2 | MR Ch.9 s.3.4.8        | <p><b>Dispatchable Loads</b></p> $DAM\_COMP2_{k,h}^m = -1 \times [OP(DAM\_PROR_{r3,h}^m, DAM\_QSOR_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m) - OP(DAM\_PROR_{r3,h}^m, DAM\_OR\_EOP_{r3,k,h}^m, DAM\_BOR_{r3,k,h}^m)]$   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1803 MRP new       | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve                                     | MR Ch.9 s.3.4.11       | <p><b>Boundary Entity Resources – Imports</b></p> $DAM\_COMP2_{k,h}^i = -1 \times [OP(DAM\_PROR_{r3,h}^i, DAM\_QSOR_{r3,k,h}^i, DAM\_BOR_{r3,k,h}^i) - OP(DAM\_PROR_{r3,h}^i, DAM\_OR\_EOP_{r3,k,h}^i, DAM\_BOR_{r3,k,h}^i)]$  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference               | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|--------------------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | (DAM_MWP)<br>Component 2  |                                      |  |                       |            |                                      |   |                                     |  |          |
| 1803<br>MRP new    | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>(DAM_MWP)<br>Component 2 | MR Ch.9 s.3.4.12                     | <p><b>Boundary Entity Resources - Exports</b></p> $DAM\_COMP2_{k,h}^i = -1 \times [OP(DAM\_PROR_{r3,h}^i, DAM\_QSOR_{r3,k,h}^i, DAM\_BOR_{r3,k,h}^i) - OP(DAM\_PROR_{r3,h}^i, DAM\_OR\_EOP_{r3,k,h}^i, DAM\_BOR_{r3,k,h}^i)]$  | Hourly                | Due MP     | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1804<br>MRP new    | Day-Ahead Market Generator Offer Guarantee – Energy<br><br>(DAM_GOG)<br>Component 1               | MR Ch.9 ss.4.4.6, 4.4.15, and 4.4.22 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $DAM\_GOG\_COMP1_k^m = \sum^H [-1 \times (OP(DAM\_LMP_h^m, DAM\_QSI_{k,h}^m, DAM\_BE_{k,h}^m)) + (DAM\_BE\_SNL_{k,h}^m \times N_{k,h}^m / 12)] - \sum^{RH} [DAM\_LMP_h^m \times DAM\_QSI_{k,h}^m]$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>H = the set of <i>settlement hours</i> within the relevant <i>day-ahead commitment period</i>;</li> <li>RH = the set of contiguous <i>settlement hours</i> with <i>day-ahead schedules</i> for the ramp-up period;</li> <li><math>N_{k,h}^m</math> = the number of <i>metering intervals</i> in <i>settlement hour 'h'</i> during which <i>delivery point 'm'</i> for <i>market participant 'k'</i> was synchronized and injecting <i>energy</i> into the <i>IESO-controlled grid</i>; and</li> <li>if the combustion turbine <i>generation unit</i> or steam turbine <i>generation unit</i> is registered as a <i>pseudo-unit</i> but is not operating as a <i>pseudo-unit</i> and has a minimum constraint applied for combined cycle operation consistent with combustion turbine commitment, then <math>DAM\_QSI_{k,h}^m</math> will be replaced with <math>DAM\_EOP_{k,h}^m</math> for those <i>settlement hours</i> in which they have such constraint.</li> </ol> | Hourly                | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_GOG\_COMP1_k^c = \sum^H \left[ (-1) \times OP(DAM\_LMP_h^c, DAM\_QSI_{k,h}^c, DAM\_DIPC_{k,h}^c) + DAM\_BE\_SNL_{k,h}^p \times \frac{N_{k,h}^c}{12} \times (1 - ST\_Portion_{k,d1}^p) \right] - \sum^{RH} [DAM\_LMP_h^c \times DAM\_QSI_{k,h}^c]$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of <i>settlement hours</i> within the combustion turbine's relevant <i>day-ahead commitment period</i>;</li> <li>b. RH = the set of contiguous <i>settlement hours</i> that the combustion turbine has a <i>day-ahead schedule</i> for the ramp-up period, scheduled greater than zero but less than the combustion turbine's <i>minimum loading point</i>;</li> <li>c. p = the <i>pseudo-unit</i> associated with combustion turbine <i>delivery point</i> 'c'; and</li> <li>d. <math>N_{k,h}^c</math> = the number of <i>metering intervals</i> in <i>settlement hour</i> 'h' during which combustion turbine <i>delivery point</i> 'c' for <i>market participant</i> 'k' was synchronized and injecting <i>energy</i> into the <i>IESO-controlled grid</i>.</li> </ul> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_GOG\_COMP1_k^s = \sum^H \left[ (-1) \times OP(DAM\_LMP_h^s, DAM\_DIGQ_{k,h}^s, DAM\_DIPC_{k,h}^s) + \sum_{p=1}^M \left( DAM\_BE\_SNL_{k,h}^p \times \frac{N_{k,h}^p}{12} \times ST\_Portion_{k,d1}^p \right) \right] - \sum^{RH} [DAM\_LMP_h^s \times DAM\_QSI_{k,h}^s]$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of all <i>settlement hours</i> within the steam turbine's <i>day-ahead commitment period</i> when at least one of the <i>pseudo-units</i> associated with the steam turbine has a <i>day-ahead schedule</i> greater than or equal to its respective <i>pseudo-unit's minimum loading point</i>;</li> <li>b. M = the set of all <i>pseudo-units</i> 'p' associated with steam turbine <i>delivery point</i> 's' that have a <i>day-ahead schedule</i> greater than or equal to their respective <i>minimum loading point</i> in <i>settlement hour</i> 'h';</li> <li>c. RH = the set of all <i>settlement hours</i> in the steam turbine's <i>day-ahead operational commitment</i> when all of the <i>pseudo-units</i> associated with the steam turbine are scheduled less than their <i>minimum loading point</i>; and</li> </ul> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference               | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--------------------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                                      | d. $N_{k,h}^p$ = the number of <i>metering intervals</i> in the <i>settlement hour</i> 'h' during which the combustion turbine associated with <i>pseudo-unit</i> 'p' for <i>market participant</i> 'k' was synchronized and injecting energy into the <i>IESO-controlled grid</i> .  |                       |            |                                      |   |                                     |  |          |
| 1805<br>MRP new    | Day-Ahead Market Generator Offer Guarantee – Operating Reserve<br><br>(DAM_GOG)<br><br>Component 2 | MR Ch.9 ss.4.4.7, 4.4.16, and 4.4.23 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $DAM\_GOG\_COMP2_k^m = -1 \times \sum_R^H [OP(DAM\_PROR_{r,h}^m, DAM\_QSOR_{r,k,h}^m, DAM\_BOR_{r,k,h}^m)]$ <p><b>Where:</b></p> <p>a. H = the set of <i>settlement hours</i> within the relevant <i>day-ahead commitment period</i>.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_GOG\_COMP2_k^c = \sum^R \sum^H [(-1) \times OP(DAM\_PROR_{r,h}^c, DAM\_QSOR_{r,k,h}^c, DAM\_OR\_DIPC_{r,k,h}^c)]$ <p><b>Where:</b></p> <p>a. H = the set of <i>settlement hours</i> within the combustion turbine's relevant <i>day-ahead commitment period</i>.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_GOG\_COMP2_k^s = \sum^R \sum^H [(-1) \times OP(DAM\_PROR_{r,h}^s, DAM\_QSOR_{r,k,h}^s, DAM\_OR\_DIPC_{r,k,h}^s)]$ <p><b>Where:</b></p> <p>a. H = the set of all <i>settlement hours</i> within the steam turbine's <i>day-ahead commitment period</i> when at least one of the <i>pseudo-units</i> associated with the steam turbine has a <i>day-ahead schedule</i> greater than or equal to its respective <i>pseudo-unit's minimum loading point</i>.</p> | Hourly                | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1806<br>MRP new    | Day-Ahead Market Generator Offer Guarantee – Over Midnight   | MR Ch.9 ss.4.4.8, 4.4.17, and 4.4.24 | <b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger DAM_GOG equation within the <i>market rules</i> , in which this component would have been subtracted from the total <i>settlement amount</i> .   | Hourly                | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name         | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | (DAM_GOG)<br>Component 3 |                        | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $DAM\_GOG\_COMP3_k^m = -1 \times \sum^H [(-1) \times (OP(DAM\_LMP_h^m, MLP_k^m, DAM\_BE_{k,h}^m)) + DAM\_BE\_SNL_{k,h}^m \times \frac{N_{k,h}^m}{12}]$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>H = the set of <i>settlement hours</i> within the <i>day-ahead commitment period</i> that are required to complete the <i>resource's minimum generation block run-time</i> that began in Day 0;</li> <li><math>MLP_k^m</math> = the <i>minimum loading point</i> of the <i>GOG-eligible resource</i> for Day 0 for <i>market participant k'</i> for <i>delivery point 'm'</i>; and</li> <li><math>N_{k,h}^m</math> = the number of <i>metering intervals</i> in <i>settlement hour 'h'</i> during which <i>delivery point 'm'</i> for <i>market participant k'</i> was synchronized and injecting <i>energy</i> into the <i>IESO-controlled grid</i>.</li> </ol> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_GOG\_COMP3_k^c = -1 \times \sum^H \left[ (-1) \times OP(DAM\_LMP_h^c, MLP_k^c, DAM\_DIPC_{k,h}^c) + DAM\_BE\_SNL_{k,h}^p \times \frac{N_{k,h}^c}{12} \times (1 - ST\_Portion_{k,d1}^p) \right]$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>H = the set of <i>settlement hours</i> within the <i>day-ahead commitment period</i> that are required to complete the associated <i>pseudo-unit's minimum generation block run-time</i> that began in Day 0;</li> <li>p = the <i>pseudo-unit</i> associated with combustion turbine <i>delivery point 'c'</i>;</li> <li><math>MLP_k^c</math> = the <i>minimum loading point</i> of the combustion turbine associated with combustion turbine <i>delivery point 'c'</i>; and</li> <li><math>N_{k,h}^c</math> = the number of <i>metering intervals</i> in <i>settlement hour 'h'</i> during which combustion turbine <i>delivery point 'c'</i> for <i>market participant k'</i> was synchronized and injecting <i>energy</i> into the <i>IESO-controlled grid</i>.</li> </ol> |                       |          |                                      |   |                                     |  |          |



| Charge Type Number | Charge Type Name  | Market Rules Reference               | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|--------------------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                                      | <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_GOG\_COMP3_k^s = -1 \times \sum^V \sum^{MHR_p} \left[ (-1) \times OP(DAM\_LMP_h^s, MLP_k^s, DAM\_DIPC_{k,h}^s) + DAM\_BE\_SNL_{k,h}^p \times \frac{N_{k,h}^p}{12} \times ST\_Portion_{k,d1}^p \right]$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>V = the set of all <i>pseudo-units</i> 'p' associated with steam turbine <i>delivery point</i> 's' whose associated combustion turbine has a variant #2 (per MR Ch.9. s.4.4.13) <i>day-ahead operational commitment</i> that overlaps with the steam turbine <i>day-ahead operational commitment</i>;</li> <li>MHR<sub>p</sub> = the set of all <i>settlement hours</i> within the <i>day-ahead commitment period</i> that are required to complete <i>minimum generation block run-time</i> that began in Day 0 for <i>pseudo-unit</i> 'p' associated with the steam turbine;</li> <li>MLP<sub>k</sub><sup>s</sup> = the <i>minimum loading point</i> of steam turbine associated with <i>pseudo-unit</i> 'p' for <i>market participant</i> 'k'; and</li> <li>N<sub>k,h</sub><sup>p</sup> = the number of <i>metering intervals</i> in the <i>settlement hour</i> 'h' during which the combustion turbine associated with <i>pseudo-unit</i> 'p' for <i>market participant</i> 'k' was synchronized and injecting energy into the <i>IESO-controlled grid</i>.</li> </ol> |                       |          |                                      |   |                                     |  |          |
| 1807<br>MRP new    | Day-Ahead Market Generator Offer Guarantee – Start-up<br><br>(DAM_GOG)<br><br>Component 4 | MR Ch.9 ss.4.4.9, 4.4.18, and 4.4.25 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> <ol style="list-style-type: none"> <li>achieves <i>minimum loading point</i> within the first six <i>metering intervals</i> of the first <i>settlement hour</i> of its <i>day-ahead operational commitment</i>.<br/><math display="block">DAM\_GOG\_COMP4_{k,h}^m = DAM\_BE\_SU_{k,h}^m</math></li> <li>achieves <i>minimum loading point</i> after the first six <i>metering intervals</i> of the start of its <i>minimum generation block run-time</i> but before the 19<sup>th</sup> <i>metering interval</i> following the start of its <i>minimum generation block run-time</i>.<br/><math display="block">DAM\_GOG\_COMP4_{k,h}^m = DAM\_BE\_SU_{k,h}^m - (DAM\_BE\_SU_{k,h}^m \times N\_INT / 12)</math></li> </ol> <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>N_INT = the number of <i>metering intervals</i> after the first six <i>metering intervals</i> that the <i>GOG-eligible resource</i> took to achieve its <i>minimum loading point</i>.</li> </ol> <ol style="list-style-type: none"> <li>otherwise: <math>DAM\_GOG\_COMP4_{k,h}^m = 0</math></li> </ol>  | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> <p>1. achieves <i>minimum loading point</i> within the first six <i>metering intervals</i> of the first <i>settlement hour</i> of its <i>day-ahead operational commitment</i>:</p> $DAM\_GOG\_COMP4_{k,h}^c = DAM\_BE\_SU_{k,h}^p \times (1 - ST\_Portion_{k,d1}^p)$ <p>2. achieves <i>minimum loading point</i> after the first six <i>metering intervals</i> of the start of its <i>day-ahead operational commitment</i> but before the 19<sup>th</sup> <i>metering interval</i> following the start of its <i>day-ahead operational commitment</i>:</p> $DAM\_GOG\_COMP4_{k,h}^c = DAM\_BE\_SU_{k,h}^p \times \left(1 - \frac{N\_INT}{12}\right) \times (1 - ST\_Portion_{k,d1}^p)$ <p><b>Where:</b></p> <p>a. <i>N_INT</i> = the number of <i>metering intervals</i> after the first six <i>metering intervals</i> that the combustion turbine took to achieve its <i>minimum loading point</i></p> <p>3. otherwise: <math>DAM\_GOG\_COMP4_{k,h}^c = 0</math></p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_GOG\_COMP4_{k,h}^s = \sum_{c=1}^C \sum_{x=1}^{X_c} \left[ DAM\_GOG\_COMP4_{k,x}^c \times \frac{ST\_Portion_{k,d1}^p}{(1 - ST\_Portion_{k,d1}^p)} \right]$ <p><b>Where:</b></p> <p>a. <i>C</i> = the set of all combustion turbine <i>delivery points</i> 'c' associated with steam turbine <i>delivery point</i> 's'; and</p> <p>b. <i>X<sub>c</sub></i> = the set of all <i>day-ahead operational commitment periods</i> 'x' for combustion turbine <i>delivery point</i> 'c' that are entitled to a <i>day-ahead market generator offer guarantee settlement amount</i> pursuant to MR Ch.9 s.4.4.12 (variant #1) that overlap with the steam turbine's <i>day-ahead commitment period</i>.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference                | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1808<br>MRP new    | Day-Ahead Market Generator Offer Guarantee – DAM Make-Whole Payment Offset<br><br>(DAM_GOG)<br><br>Component 5 | MR Ch.9 ss.4.4.11, 4.4.20, and 4.4.26 | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger DAM_GOG equation within the <i>market rules</i>, in which this component would have been subtracted from the total <i>settlement amount</i>.</p> <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $DAM\_GOG\_COMP5^m_{k,h} = -1 \times \sum^H DAM\_MWP^m_{k,h}$ <p><b>Where:</b></p> <p>a. H = the set of <i>settlement hours</i> within the relevant <i>day-ahead commitment period</i>.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $DAM\_GOG\_COMP5^c_{k,h} = -1 \times \sum^H DAM\_MWP^c_{k,h}$ <p><b>Where:</b></p> <p>a. H = the set of <i>settlement hours</i> within the combustion turbine’s relevant <i>day-ahead commitment period</i>.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $DAM\_GOG\_COMP5^s_{k,h} = -1 \times \sum^H DAM\_MWP^s_{k,h}$ <p><b>Where:</b></p> <p>a. H = the set of all <i>settlement hours</i> within the steam turbine’s <i>day-ahead commitment period</i> when at least one of the <i>pseudo-units</i> associated with steam turbine <i>delivery point</i>’s has a <i>day-ahead schedule</i> greater than or equal to its respective <i>minimum loading point</i>.</p> | Hourly                | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1815<br>MRP new    | Day-Ahead Market Balancing Credit - Energy<br><br>(DAM_BCE)  | MR Ch.9 s.3.3                         | <p><b>GOG-eligible Resources</b></p> $DAM\_BCE^m_{k,h} = \sum^T Max \left[ 0, (RT\_LMP^m_{k,h} - DAM\_LMP^m_{k,h}) \times Max \left( 0, (DAM\_QSI^m_{k,h} - AQEI^m_{k,h}) \right) \right] / 12$  | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference       | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                              | <p><b>Boundary Entity Resources</b></p> <p>a. for an <b>import transaction</b>:</p> $DAM\_BCE_{k,h}^{i,t} = \text{Max}\{0, \sum^T OP(RT\_LMP_h^{i,t}, \text{Min}(RT\_LOC\_EOP_{k,h}^{i,t}, DAM\_QSI_{k,h}^i), BE_{k,h}^{i,t}) - OP(RT\_LMP_h^{i,t}, SQEI_{k,h}^{i,t}, BE_{k,h}^{i,t})\} / 12$ <p>b. for an <b>export transaction</b>:</p> $DAM\_BCE_{k,h}^{i,t} = -1 \times \text{Min}\{0, \sum^T OP(RT\_LMP_h^{i,t}, \text{Min}(RT\_LOC\_EOP_{k,h}^{i,t}, DAM\_QSW_{k,h}^i), BL_{k,h}^{i,t}) - OP(RT\_LMP_h^{i,t}, SQEW_{k,h}^{i,t}, BL_{k,h}^{i,t})\} / 12$ |                       |          |                                      |   |                                     |  |          |
| 1816<br>MRP new    | Day-Ahead Market Balancing Credit – Operating Reserve<br><br>(DAM_BCOR) | MR Ch.9 s.3.3                | <p><b>GOG-eligible Resources</b></p> $DAM\_BCOR_{k,h}^m = \sum^{R,T} \text{Max}(0, RT\_PROR_{r,h}^{m,t} - DAM\_PROR_{r,h}^m) \times \text{Max}(0, DAM\_QSOR_{r,k,h}^m - RT\_QSOR_{r,k,h}^{m,t}) / 12$ <p><b>Boundary Entity Resources</b></p> $DAM\_BCOR_{k,h}^i = \sum^R \text{Max}\{0, \sum^T OP(RT\_PROR_{r,h}^{i,t}, \text{Min}(RT\_OR\_LOC\_EOP_{r,k,h}^{i,t}, DAM\_QSOR_{r,k,h}^i), BOR_{r,k,h}^{i,t}) - OP(RT\_PROR_{r,h}^{i,t}, RT\_QSOR_{r,k,h}^{i,t}, BOR_{r,k,h}^{i,t})\} / 12$  | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1828<br>MRP new    | Day-Ahead Market Import Failure Charge<br><br>(DAM_IMFC)                | MR Ch.9 ss.3.7A.1 and 3.7A.2 | $DAM\_IMFC_{k,h}^i = \sum^T \text{Min}(0, RT\_PEC_h^{i,t} + RT\_PNISI_h^{i,t}) \times DAM\_ISD_{k,h}^{i,t} / 12$ <p><b>Where:</b></p> <p>a. <math>DAM\_ISD_{k,h}^{i,t} = \text{Max}(\text{Min}(DAM\_QSI_{k,h}^i, PD\_QSI_{k,h}^i) - SQEI_{k,h}^{i,t}, 0)</math>.</p>  | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference       | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1829<br>MRP new    | Day-Ahead Market Export Failure Charge<br><br>(DAM_EXFC)     | MR Ch.9 ss.3.7A.1 and 3.7A.3 | $DAM\_EXFC_{k,h}^i = \sum^T (-1) \times \text{Max} (0, RT\_PEC_h^{i,t} + RT\_PNISL_h^{i,t}) \times DAM\_ESD_{k,h}^{i,t} / 12$ <p><b>Where:</b></p> <p>a. <math>DAM\_ESD_{k,h}^{i,t} = \text{Max}(\text{Min}(DAM\_QSW_{k,h}^i, PD\_QSW_{k,h}^i) - SQEW_{k,h}^{i,t}, 0)</math>.</p>  | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1850<br>MRP new    | Day-Ahead Market Uplift<br><br>(DAM_UPL)                     | MR Ch.9 s.4.14.3             | $DAM\_UPL_k = -1 \times \left( \sum_H^M (DAM\_MWP_{k,h}^m + DAM\_GOG_k^m) - DAM\_P2\_PMT \right) \times \sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})$ <p><b>Where:</b></p> <p>a. <math>DAM\_MWP_{k,h}^m</math> = is the <i>day-ahead market make-whole payment settlement amount</i> for charge types 1800, 1801, 1802 and 1803, calculated in accordance with MR Ch.9 s.3.4 for <i>market participant 'k' at delivery point 'm' for settlement hour 'h'</i>;</p> <p>b. <math>DAM\_GOG_k^m</math> = is the <i>day-ahead market generator offer guarantee settlement amount</i> for charge types 1804, 1805, 1806, 1807 and 1808, calculated in accordance with MR Ch.9 s.4.4 for <i>market participant 'k' at delivery point 'm'</i>; and</p> <p>c. <math>DAM\_P2\_PMT</math> = calculated in accordance with MR Ch.9 s.4.14.5.</p> | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1851<br>MRP new    | Day-Ahead Market Reliability Scheduling Uplift<br><br>(DRSU) | MR Ch.9 s.4.14.4             | <p><b>Virtual Zonal Resources with Day-Ahead Schedules to Inject Energy</b></p> $V\_DRSU_k = DAM\_P2\_PMT \times \sum_H^V DAM\_QVSI_{k,h}^v / \left( \sum_{K,H}^V DAM\_QVSI_{k,h}^v + DAM\_NDL\_OF \right)$ <p><b>Where:</b></p> <p>a. <math>V</math> = the set of all <i>delivery points 'v' for virtual zonal resources</i>; and</p> <p>b. <math>DAM\_NDL\_OF = \sum_{H,K}^M \text{Max}(DAM\_QSW_{k,h}^m + DAM\_HDR\_QSW_{k,h}^{m1} - AQEW_{k,h}^{m,t}, 0)</math></p> <p><b>and where:</b></p> <p>i. <math>M</math> = the set of all <i>delivery points 'm' for non-dispatchable loads and physical hourly demand response resources that are not registered as price responsive loads</i>; and</p>  | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>ii. <math>m1 =</math> the set of all <i>delivery points</i> 'm' for physical <i>hourly demand response resources</i>.</p> <p><b>Load Resources and Boundary Entity Resources – Export Transactions</b></p> $EL\_DRSU_k = \left( DAM\_P2\_PMT - \sum_K V\_DRSU_k \right) \times \sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})$ <p><i>DAM_P2_PMT</i> is calculated as follows:</p> $DAM\_P2\_PMT = -1 \times \sum_{H,K}^M Max( Imp\_DAM\_MWP_{k,h}^{i,p2} - Imp\_DAM\_MWP_{k,h}^{i,p1}, 0 ) + DAM\_GOC_{k,h}^m$ <p><b>Where:</b></p> <p>a. <math>Imp\_DAM\_MWP_{k,h}^{i,p2} = Max[0, DAM\_COMP1_{k,h}^i + DAM\_COMP2_{k,h}^i]</math> and each component is determined as follows:</p> <ol style="list-style-type: none"> <li>i. <math>DAM\_COMP1_{k,h}^i = -1 \times [OP(DAM\_LMP_h^i, DAM\_QSI_{k,h}^{i,p2}, DAM\_BE_{k,h}^i) - OP(DAM\_LMP_h^i, DAM\_EOP_{k,h}^i, DAM\_BE_{k,h}^i)]</math></li> <li>ii. <math>DAM\_COMP2_{k,h}^i = -1 \times \sum_R [OP(DAM\_PROR_{r,h}^i, DAM\_QSOR_{r,k,h}^{i,p2}, DAM\_BOR_{r,k,h}^i) - OP(DAM\_PROR_{r,h}^i, DAM\_OR\_EOP_{r,k,h}^i, DAM\_BOR_{r,k,h}^i)]</math></li> </ol> <p>b. <math>Imp\_DAM\_MWP_{k,h}^{i,p1} = Max[0, DAM\_COMP1_{k,h}^i + DAM\_COMP2_{k,h}^i]</math> and each component is determined as follows:</p> <ol style="list-style-type: none"> <li>i. <math>DAM\_COMP1_{k,h}^i = -1 \times [OP(DAM\_LMP_h^i, DAM\_QSI_{k,h}^{i,p1}, DAM\_BE_{k,h}^i) - OP(DAM\_LMP_h^i, DAM\_EOP_{k,h}^i, DAM\_BE_{k,h}^i)]</math></li> <li>ii. <math>DAM\_COMP2_{k,h}^i = -1 \times \sum_R [OP(DAM\_PROR_{r,h}^i, DAM\_QSOR_{r,k,h}^{i,p1}, DAM\_BOR_{r,k,h}^i) - OP(DAM\_PROR_{r,h}^i, DAM\_OR\_EOP_{r,k,h}^i, DAM\_BOR_{r,k,h}^i)]</math></li> </ol> <p>c. <math>DAM\_GOC_{k,h}^m =</math> calculated in accordance with MR Ch.9 s.4.4.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|-------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1865<br>MRP new    | Day-Ahead Market Balancing Credit Uplift<br><br>(DAM_BCU)           | MR Ch.9 s.3.11                      | $= \sum_c^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 1815,1816.</p>   | Hourly                | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1900<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for Energy<br><br>(RT_MWP) | MR Ch.9 ss.3.5.6.1,3.5.9 and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_ELC_{k,h}^{m,t} = -1 \times \left[ \left[ OP(RT\_LMP_h^{m,t}, Max(DAM\_QSI_{k,h}^m, Min(RT\_QSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t})), BE_{k,h}^{m,t}) - OP(RT\_LMP_h^{m,t}, Max(RT\_LC\_EOP_{k,h}^{m,t}, DAM\_QSI_{k,h}^m), BE_{k,h}^{m,t}) \right] - RT\_FROP\_LC_{k,h}^{m,t} \right] / 12$ <p><b>Where:</b><br/>a. the <i>dispatchable generation resource</i> is registered as a hydroelectric <i>generation resource</i>, <math>RT\_QSI_{k,h}^{m,t}</math> is greater than <math>FR\_LL_k^{m,f}</math>, and <math>RT\_QSI_{k,h}^{m,t}</math> is less than or equal to <math>FR\_UL_k^{m,f}</math>, then</p> $RT\_FROP\_LC_{k,h}^{m,t} = OP(RT\_LMP_h^{m,t}, Max(DAM\_QSI_{k,h}^m, Min(RT\_QSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t})), BE_{k,h}^{m,t}) - OP(RT\_LMP_h^{m,t}, Max(FR\_LL_k^{m,f}, DAM\_QSI_{k,h}^m, RT\_LC\_EOP_{k,h}^{m,t}), BE_{k,h}^{m,t})$ <p><b>Where:</b><br/>i. <math>FR\_UL_k^{m,f}</math> = the <i>forbidden region</i> upper limit from <i>forbidden region</i> set 'f' where <math>RT\_QSI_{k,h}^{m,t} \leq FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>;<br/>ii. <math>FR\_LL_k^{m,f}</math> = the <i>forbidden region</i> lower limit from <i>forbidden region</i> set 'f' where <math>RT\_QSI_{k,h}^{m,t} &gt; FR\_LL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>; and<br/>iii. f = (1...N) of the <i>forbidden region</i> set <math>\{FR\_UL_k^{m,f}, FR\_LL_k^{m,f}\}</math> and N is the maximum number of <i>forbidden regions</i> submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>.<br/>b. Otherwise <math>RT\_FROP\_LC_{k,h}^{m,t}</math> shall equal zero.</p> | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_ELC_{k,h}^{c,t} = -1 \times [OP(RT\_LMP_h^{c,t}, \text{Max}(DAM\_QSI_{k,h}^c, \text{Min}(RT\_QSI_{k,h}^{c,t}, AQEI_{k,h}^{c,t})), RT\_DIPC_{k,h}^{c,t}) - OP(RT\_LMP_h^{c,t}, \text{Max}(RT\_LC\_EOP_{k,h}^{c,t}, DAM\_QSI_{k,h}^c), RT\_DIPC_{k,h}^{c,t})]/12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_ELC_{k,h}^{s,t} = -1 \times [OP(RT\_LMP_h^{s,t}, \text{Max}(DAM\_DIGQ_{k,h}^s, \text{Min}(RT\_QSI\_DIGQ_{k,h}^{s,t}, AQEI_{k,h}^{s,t})), RT\_DIPC_{k,h}^{s,t}) - OP(RT\_LMP_h^{s,t}, \text{Max}(RT\_LC\_EOP\_DIGQ_{k,h}^{s,t}, DAM\_DIGQ_{k,h}^s), RT\_DIPC_{k,h}^{s,t})]/12$                     |                       |          |                                      |   |                                     |  |          |
| 1900 MRP new       | Real-Time Make-Whole Payment – Lost Cost for Energy (RT_MWP) | MR Ch.9 s.3.5.7        | <p><b>Dispatchable Loads</b></p> $RT\_ELC_{k,h}^{m,t} = [OP(RT\_LMP_h^{m,t}, \text{Max}(DAM\_QSW_{k,h}^m, \text{Min}(RT\_QSW_{k,h}^{m,t}, AQEW_{k,h}^{m,t})), BL_{k,h}^{m,t}) - OP(RT\_LMP_h^{m,t}, \text{Max}(RT\_LC\_EOP_{k,h}^{m,t}, DAM\_QSW_{k,h}^m), BL_{k,h}^{m,t})]/12$  | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1900 MRP new       | Real-Time Make-Whole Payment – Lost Cost for Energy (RT_MWP) | MR Ch.9 s.3.5.8        | <p><b>Boundary Entity Resources – Exports</b></p> <p>Export transaction <i>dispatched</i> with a reason code associated with manual <i>dispatch</i> out-of-merit:</p> $RT\_ELC_{k,h}^{i,t} = \{OP(RT\_LMP_h^{i,t}, \text{Max}(SQEW_{k,h}^{i,t}, DAM\_QSW_{k,h}^i), BL_{k,h}^{i,t}) - OP(RT\_LMP_h^{i,t}, \text{Max}(RT\_LC\_EOP_{k,h}^{i,t}, DAM\_QSW_{k,h}^i), BL_{k,h}^{i,t})\}/12$ <p>Export transaction <i>dispatched</i> with a reason code associated with a pre-dispatch pricing discrepancy:</p> $RT\_ELC_{k,h}^{i,t} = \{OP(\text{Min}(RT\_LMP_h^{i,t}, PD\_LMP_h^i), \text{Max}(SQEW_{k,h}^{i,t}, DAM\_QSW_{k,h}^i), BL_{k,h}^{i,t}) - OP(\text{Min}(RT\_LMP_h^{i,t}, PD\_LMP_h^i), \text{Max}(RT\_LC\_EOP_{k,h}^{i,t}, DAM\_QSW_{k,h}^i), BL_{k,h}^{i,t})\}/12$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |



| Charge Type Number | Charge Type Name  | Market Rules Reference              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|-------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1901<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Spinning Reserve<br><br>(RT_MWP) | MR Ch.9 ss.3.5.6, 3.5.9, and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_OLC_{k,h}^{m,t} = -1 \times [OP(RT\_PROR_{r1,h}^{m,t}, Max(DAM\_QSOR_{r1,k,h}^m, RT\_QSOR_{r1,k,h}^{m,t}), BOR_{r1,k,h}^{m,t}) - OP(RT\_PROR_{r1,h}^{m,t}, Max(RT\_OR\_LC\_EOP_{r1,k,h}^{m,t}, DAM\_QSOR_{r1,k,h}^m, BOR_{r1,k,h}^{m,t}))]/12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_OLC_{k,h}^{c,t} = -1 \times [OP(RT\_PROR_{r1,h}^{c,t}, Max(DAM\_QSOR_{r1,k,h}^c, RT\_QSOR_{r1,k,h}^{c,t}, RT\_OR\_DIPC_{r1,k,h}^{c,t}) - OP(RT\_PROR_{r1,h}^{c,t}, Max(RT\_OR\_LC\_EOP_{r1,k,h}^{c,t}, DAM\_QSOR_{r1,k,h}^c, RT\_OR\_DIPC_{r1,k,h}^{c,t}))]/12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_OLC_{k,h}^{s,t} = -1 \times [OP(RT\_PROR_{r1,h}^{s,t}, Max(DAM\_QSOR_{r1,k,h}^s, RT\_QSOR_{r1,k,h}^{s,t}, RT\_OR\_DIPC_{r1,k,h}^{s,t}) - OP(RT\_PROR_{r1,h}^{s,t}, Max(RT\_OR\_LC\_EOP_{r1,k,h}^{s,t}, DAM\_QSOR_{r1,k,h}^s, RT\_OR\_DIPC_{r1,k,h}^{s,t}))]/12$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1901<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Spinning Reserve<br><br>(RT_MWP) | MR Ch.9 s.3.5.7                     | <p><b>Dispatchable Loads</b></p> $RT\_OLC_{k,h}^{m,t} = -1 \times [OP(RT\_PROR_{r1,h}^{m,t}, Max(DAM\_QSOR_{r1,k,h}^m, RT\_QSOR_{r1,k,h}^{m,t}), BOR_{r1,k,h}^{m,t}) - OP(RT\_PROR_{r1,h}^{m,t}, Max(RT\_OR\_LC\_EOP_{r1,k,h}^{m,t}, DAM\_QSOR_{r1,k,h}^m, BOR_{r1,k,h}^{m,t}))]/12$   | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1902<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve             | MR Ch.9 ss.3.5.6, 3.5.9, and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_OLC_{k,h}^{m,t} = -1 \times [OP(RT\_PROR_{r2,h}^{m,t}, Max(DAM\_QSOR_{r2,k,h}^m, RT\_QSOR_{r2,k,h}^{m,t}), BOR_{r2,k,h}^{m,t}) - OP(RT\_PROR_{r2,h}^{m,t}, Max(RT\_OR\_LC\_EOP_{r2,k,h}^{m,t}, DAM\_QSOR_{r2,k,h}^m, BOR_{r2,k,h}^{m,t}))]/12$  | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | (RT_MWP)  |                        | <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_OLC_{k,h}^{c,t} = -1 \times \left[ OP(RT\_PROR_{r2,h}^{c,t}, \text{Max}(DAM\_QSOR_{r2,k,h}^c, RT\_QSOR_{r2,k,h}^{c,t}), RT\_OR\_DIPC_{r2,k,h}^{c,t}) - OP(RT\_PROR_{r2,h}^{c,t}, \text{Max}(RT\_OR\_LC\_EOP_{r2,k,h}^{c,t}, DAM\_QSOR_{r2,k,h}^c, RT\_OR\_DIPC_{r2,k,h}^{c,t})) \right] / 12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_OLC_{k,h}^{s,t} = -1 \times \left[ OP(RT\_PROR_{r2,h}^{c,t}, \text{Max}(DAM\_QSOR_{r2,k,h}^c, RT\_QSOR_{r2,k,h}^{c,t}), RT\_OR\_DIPC_{r2,k,h}^{c,t}) - OP(RT\_PROR_{r2,h}^{c,t}, \text{Max}(RT\_OR\_LC\_EOP_{r2,k,h}^{c,t}, DAM\_QSOR_{r2,k,h}^c, RT\_OR\_DIPC_{r2,k,h}^{c,t})) \right] / 12$   |                       |          |                                      |   |                                     |  |          |
| 1902 MRP new       | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve<br><br>(RT_MWP) | MR Ch.9 s.3.5.7        | <p><b>Dispatchable Loads</b></p> $RT\_OLC_{k,h}^{m,t} = -1 \times \left[ OP(RT\_PROR_{r2,h}^{m,t}, \text{Max}(DAM\_QSOR_{r2,k,h}^m, RT\_QSOR_{r2,k,h}^{m,t}), BOR_{r2,k,h}^{m,t}) - OP(RT\_PROR_{r2,h}^{m,t}, \text{Max}(RT\_OR\_LC\_EOP_{r2,k,h}^{m,t}, DAM\_QSOR_{r2,k,h}^m, BOR_{r2,k,h}^{m,t})) \right] / 12$  | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1902 MRP new       | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve<br><br>(RT_MWP) | MR Ch.9 s.3.5.8        | <p><b>Boundary Entity Resources - Exports</b></p> <p>Export transaction <i>dispatched</i> with a reason code associated with manual <i>dispatch</i> out-of-merit:</p> $RT\_OLC_{k,h}^{i,t} = -1 \times \left\{ OP(RT\_PROR_{r2,h}^{i,t}, \text{Max}(RT\_QSOR_{r2,k,h}^{i,t}, DAM\_QSOR_{r2,k,h}^i, BOR_{r2,k,h}^{i,t})) - OP(RT\_PROR_{r2,h}^{i,t}, \text{Max}(RT\_OR\_LC\_EOP_{r2,k,h}^{i,t}, DAM\_QSOR_{r2,k,h}^i, BOR_{r2,k,h}^{i,t})) \right\} / 12$ <p>Export transaction <i>dispatched</i> with a reason code associated with a pre-dispatch pricing discrepancy:</p> $RT\_OLC_{k,h}^{i,t} = -1 \times \left[ OP(RT\_PROR_{r2,h}^{i,t}, \text{Max}(RT\_QSOR_{r2,k,h}^{i,t}, DAM\_QSOR_{r2,k,h}^i, BOR_{r2,k,h}^{i,t})) - OP(RT\_PROR_{r2,h}^{i,t}, \text{Max}(RT\_OR\_LC\_EOP_{r2,k,h}^{i,t}, DAM\_QSOR_{r2,k,h}^i, BOR_{r2,k,h}^{i,t})) \right] / 12$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|-------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1902<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve<br><br>(RT_MWP) | MR Ch.9 s.3.5.8                     | <p><b>Boundary Entity Resources – Imports</b></p> $RT\_OLC_{k,h}^{i,t} = -1 \times [OP(RT\_PROR_{r2,h}^{i,t}, Max(RT\_QSOR_{r2,k,h}^{i,t}, DAM\_QSOR_{r2,k,h}^i), BOR_{r2,k,h}^{i,t}) - OP(RT\_PROR_{r2,h}^{i,t}, Max(RT\_OR\_LC\_EOP_{r2,k,h}^{i,t}, DAM\_QSOR_{r2,k,h}^i), BOR_{r2,k,h}^{i,t})] / 12$  | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1903<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>(RT_MWP)    | MR Ch.9 ss.3.5.6, 3.5.9, and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_OLC_{k,h}^{m,t} = -1 \times [OP(RT\_PROR_{r3,h}^{m,t}, Max(DAM\_QSOR_{r3,k,h}^m, RT\_QSOR_{r3,k,h}^{m,t}), BOR_{r3,k,h}^{m,t}) - OP(RT\_PROR_{r3,h}^{m,t}, Max(RT\_OR\_LC\_EOP_{r3,k,h}^{m,t}, DAM\_QSOR_{r3,k,h}^m, BOR_{r3,k,h}^{m,t}))] / 12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_OLC_{k,h}^{c,t} = -1 \times [OP(RT\_PROR_{r3,h}^{c,t}, Max(DAM\_QSOR_{r3,k,h}^c, RT\_QSOR_{r3,k,h}^{c,t}, RT\_OR\_DIPC_{r3,k,h}^{c,t})) - OP(RT\_PROR_{r3,h}^{c,t}, Max(RT\_OR\_LC\_EOP_{r3,k,h}^{c,t}, DAM\_QSOR_{r3,k,h}^c, RT\_OR\_DIPC_{r3,k,h}^{c,t}))] / 12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_OLC_{k,h}^{s,t} = -1 \times [OP(RT\_PROR_{r3,h}^{s,t}, Max(DAM\_QSOR_{r3,k,h}^s, RT\_QSOR_{r3,k,h}^{s,t}, RT\_OR\_DIPC_{r3,k,h}^{s,t})) - OP(RT\_PROR_{r3,h}^{s,t}, Max(RT\_OR\_LC\_EOP_{r3,k,h}^{s,t}, DAM\_QSOR_{r3,k,h}^s, RT\_OR\_DIPC_{r3,k,h}^{s,t}))] / 12$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1903<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>(RT_MWP)    | MR Ch.9 s.3.5.7                     | <p><b>Dispatchable Loads</b></p> $RT\_OLC_{k,h}^{m,t} = -1 \times [OP(RT\_PROR_{r3,h}^{m,t}, Max(DAM\_QSOR_{r3,k,h}^m, RT\_QSOR_{r3,k,h}^{m,t}), BOR_{r3,k,h}^{m,t}) - OP(RT\_PROR_{r3,h}^{m,t}, Max(RT\_OR\_LC\_EOP_{r3,k,h}^{m,t}, DAM\_QSOR_{r3,k,h}^m, BOR_{r3,k,h}^{m,t}))] / 12$   | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference                | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1903<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>(RT_MWP) | MR Ch.9 s.3.5.8                       | <p><b>Boundary Entity Resources - Exports</b></p> <p>Export transaction <i>dispatched</i> with a reason code associated with manual <i>dispatch</i> out-of-merit:</p> $RT\_OLC_{k,h}^{i,t} = -1 \times \{OP(RT\_PROR_{r3,h}^{i,t}, \text{Max}(RT\_QSOR_{r3,k,h}^{i,t}, DAM\_QSOR_{r3,k,h}^i), BOR_{r3,k,h}^{i,t}) - OP(RT\_PROR_{r3,h}^{i,t}, \text{Max}(RT\_OR\_LC\_EOP_{r3,k,h}^{i,t}, DAM\_QSOR_{r3,k,h}^i), BOR_{r3,k,h}^{i,t})\} / 12$ <p>Export transaction <i>dispatched</i> with a reason code associated with a pre-dispatch pricing discrepancy:</p> $RT\_OLC_{k,h}^{i,t} = -1 \times [OP(RT\_PROR_{r3,h}^{i,t}, \text{Max}(RT\_QSOR_{r3,k,h}^{i,t}, DAM\_QSOR_{r3,k,h}^i), BOR_{r3,k,h}^{i,t}) - OP(RT\_PROR_{r3,h}^{i,t}, \text{Max}(RT\_OR\_LC\_EOP_{r3,k,h}^{i,t}, DAM\_QSOR_{r3,k,h}^i), BOR_{r3,k,h}^{i,t})] / 12$                                     | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1903<br>MRP new    | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>(RT_MWP) | MR Ch.9 s.3.5.8                       | <p><b>Boundary Entity Resources - Imports</b></p> $RT\_OLC_{k,h}^{i,t} = -1 \times [OP(RT\_PROR_{r3,h}^{i,t}, \text{Max}(RT\_QSOR_{r3,k,h}^{i,t}, DAM\_QSOR_{r3,k,h}^i), BOR_{r3,k,h}^{i,t}) - OP(RT\_PROR_{r3,h}^{i,t}, \text{Max}(RT\_OR\_LC\_EOP_{r3,k,h}^{i,t}, DAM\_QSOR_{r3,k,h}^i), BOR_{r3,k,h}^{i,t})] / 12$  | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1904<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for Energy<br><br>(RT_MWP)          | MR Ch.9 ss.3.5.6.2, 3.5.9, and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_ELOC_{k,h}^{m,t} = \{OP(RT\_LMP_h^{m,t}, RT\_LOC\_EOP_{k,h}^{m,t}, BE_{k,h}^{m,t}) - \text{Max}[0, OP(RT\_LMP_h^{m,t}, \text{Max}(RT\_QSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), BE_{k,h}^{m,t})] - RT\_FROP\_LOC_{k,h}^{m,t}\} / 12$ <p><b>Where:</b></p> <p>a. if the <i>dispatchable generation resource</i> is registered as a hydroelectric <i>generation resource</i>, <math>RT\_QSI_{k,h}^{m,t}</math> is greater than <math>FR\_LL</math>, and <math>RT\_QSI_{k,h}^{m,t}</math> is less than or equal to <math>FR\_UL</math>, then</p> $RT\_FROP\_LOC_{k,h}^{m,t} = OP(RT\_LMP_h^{m,t}, \text{Min}(FR\_UL_{k,h}^{m,t,f}, RT\_LOC\_EOP_{k,h}^{m,t}), BE_{k,h}^{m,t}) - \text{Max}[0, OP(RT\_LMP_h^{m,t}, \text{Max}(RT\_QSI_{k,h}^{m,t,f}, AQEI_{k,h}^{m,t}), BE_{k,h}^{m,t})]$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. <math>FR\_UL_k^{m,f}</math> = the <i>forbidden region</i> upper limit from <i>forbidden region</i> set 'f' where <math>RT\_QSI_{k,h}^m &lt; FR\_UL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>;</li> <li>ii. <math>FR\_LL_k^{m,f}</math> = the <i>forbidden region</i> lower limit from <i>forbidden region</i> set 'f' where <math>RT\_QSI_{k,h}^m &gt; FR\_LL_k^{m,f}</math>, as submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>; and</li> <li>iii. 'f' = (1...N) of the <i>forbidden region</i> set <math>\{FR\_UL_k^{m,f}, FR\_LL_k^{m,f}\}</math> and N is the maximum number of <i>forbidden regions</i> submitted by <i>market participant</i> 'k' for <i>delivery point</i> 'm' as daily <i>dispatch data</i>.</li> </ul> <p>b. Otherwise <math>RT\_FR\_LOC_{k,h}^{m,t}</math> shall equal zero.</p> <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_ELOC_{k,h}^{c,t} = \{OP(RT\_LMP_h^{c,t}, RT\_LOC\_EOP_{k,h}^{c,t}, RT\_DIPC_{k,h}^{c,t}) - Max[0, OP(RT\_LMP_h^{c,t}, Max(RT\_QSI_{k,h}^{c,t}, AQEI_{k,h}^{c,t}), RT\_DIPC_{k,h}^{c,t})]\}/12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_ELOC_{k,h}^{s,t} = \{OP(RT\_LMP_h^{s,t0}, RT\_LOC\_EOP\_DIGQ_{k,h}^{s,t0}, RT\_DIPC_{k,h}^{s,t0}) - Max[0, OP(RT\_LMP_h^{s,t0}, Max(RT\_QSI\_DIGQ_{k,h}^{s,t0}, AQEI_{k,h}^{s,t0}), RT\_DIPC_{k,h}^{s,t0})]\}/12 + \{OP(RT\_LMP_h^{s,t1}, RT\_LOC\_EOP\_DIGQ_{k,h}^{s,t1}, RT\_DIPC_{k,h}^{s,t1}) - Max[0, OP(RT\_LMP_h^{s,t1}, RT\_QSI\_DIGQ_{k,h}^{s,t1}, RT\_DIPC_{k,h}^{s,t1})]\}/12$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. <math>t_0</math> = <i>metering interval</i> 't' in <i>settlement hour</i> 'h' when none of the combustion turbine <i>generation units</i> associated with the steam turbine <i>generation unit</i> have a <i>real-time schedule</i> that is less than its respective <i>minimum loading point</i>; and</li> <li>b. <math>t_1</math> = <i>metering interval</i> 't' in <i>settlement hour</i> 'h' when (1) at least one combustion turbine <i>generation unit</i> associated with the steam turbine <i>generation unit</i> has a <i>real-time schedule</i> greater than or equal to its <i>minimum loading point</i>; and (2) at least one of the combustion turbine <i>generation units</i> associated with the steam turbine <i>generation unit</i> has a <i>real-time schedule</i> that is less than its respective <i>minimum loading point</i>.</li> </ul> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|-------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                                     | <p><b>Note:</b> For greater certainty, 't<sub>1</sub>' and 't<sub>0</sub>' <i>metering intervals</i> are mutually exclusive, and the calculation will be conducted using either the 't<sub>1</sub>' or 't<sub>0</sub>' variables, depending on whether the relevant <i>metering interval</i> meets the criteria of 't<sub>1</sub>' or 't<sub>0</sub>', respectively.</p>   |                       |          |                                      |   |                                     |  |          |
| 1904<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for Energy<br><br>(RT_MWP)                     | MR Ch.9 s.3.5.7                     | <p><b>Dispatchable Loads</b></p> $RT\_ELOC_{k,h}^{m,t} = -1 \times \{OP(RT\_LMP_h^{m,t}, RT\_LOC\_EOP_{k,h}^{m,t}, BL_{k,h}^{m,t}) - OP(RT\_LMP_h^{m,t}, Max(RT\_QSW_{k,h}^{m,t}, AQEW_{k,h}^{m,t}), BL_{k,h}^{m,t})\} / 12$   | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1905<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Spinning Reserve<br><br>(RT_MWP) | MR Ch.9 ss.3.5.6, 3.5.9, and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_OLOC_{k,h}^{m,t} = \{OP(RT\_PROR_{r1,h}^{m,t}, RT\_OR\_LOC\_EOP_{r1,k,h}^{m,t}, BOR_{r1,k,h}^{m,t}) - Max[0, OP(RT\_PROR_{r1,h}^{m,t}, RT\_QSOR_{r1,k,h}^{m,t}, BOR_{r1,k,h}^{m,t})]\} / 12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_OLOC_{k,h}^{c,t} = [OP(RT\_PROR_{r1,h}^{c,t}, RT\_OR\_LOC\_EOP_{r1,k,h}^{c,t}, RT\_OR\_DIPC_{r1,k,h}^{c,t}) - Max[0, OP(RT\_PROR_{r1,h}^{c,t}, RT\_QSOR_{r1,k,h}^{c,t}, RT\_OR\_DIPC_{r1,k,h}^{c,t})]] / 12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_OLOC_{k,h}^s = \{OP(RT\_PROR_{r1,h}^{s,t}, RT\_OR\_LOC\_EOP_{r1,k,h}^{s,t}, RT\_OR\_DIPC_{r1,k,h}^{s,t}) - Max[0, OP(RT\_PROR_{r1,h}^{s,t}, RT\_QSOR_{r1,k,h}^{s,t}, RT\_OR\_DIPC_{r1,k,h}^{s,t})]\} / 12$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|-------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1905<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Spinning Reserve<br><br>(RT_MWP)     | MR Ch.9 s.3.5.7                     | <p><b>Dispatchable Loads</b></p> $RT\_OLOC_{k,h}^{m,t} = \{OP(RT\_PROR_{r1,h}^{m,t}, RT\_OR\_LOC\_EOP_{r1,k,h}^{m,t}, BOR_{r1,k,h}^{m,t}) - Max[0, OP(RT\_PROR_{r1,h}^{m,t}, RT\_QSOR_{r1,k,h}^{m,t}, BOR_{r1,k,h}^{m,t})]\} / 12$   | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1906<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Non-Spinning Reserve<br><br>(RT_MWP) | MR Ch.9 ss.3.5.6, 3.5.9, and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_OLOC_{k,h}^{m,t} = \{OP(RT\_PROR_{r2,h}^{m,t}, RT\_OR\_LOC\_EOP_{r2,k,h}^{m,t}, BOR_{r2,k,h}^{m,t}) - Max[0, OP(RT\_PROR_{r2,h}^{m,t}, RT\_QSOR_{r2,k,h}^{m,t}, BOR_{r2,k,h}^{m,t})]\} / 12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_OLOC_{k,h}^{c,t} = [OP(RT\_PROR_{r2,h}^{c,t}, RT\_OR\_LOC\_EOP_{r2,k,h}^{c,t}, RT\_OR\_DIPC_{r2,k,h}^{c,t}) - Max[0, OP(RT\_PROR_{r2,h}^{c,t}, RT\_QSOR_{r2,k,h}^{c,t}, RT\_OR\_DIPC_{r2,k,h}^{c,t})]] / 12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_OLOC_{k,h}^s = \{OP(RT\_PROR_{r2,h}^{s,t}, RT\_OR\_LOC\_EOP_{r2,k,h}^{s,t}, RT\_OR\_DIPC_{r2,k,h}^{s,t}) - Max[0, OP(RT\_PROR_{r2,h}^{s,t}, RT\_QSOR_{r2,k,h}^{s,t}, RT\_OR\_DIPC_{r2,k,h}^{s,t})]\} / 12$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1906<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Non-                                 | MR Ch.9 s.3.5.7                     | <p><b>Dispatchable Loads</b></p> $RT\_OLOC_{k,h}^{m,t} = \{OP(RT\_PROR_{r2,h}^{m,t}, RT\_OR\_LOC\_EOP_{r2,k,h}^{m,t}, BOR_{r2,k,h}^{m,t}) - Max[0, OP(RT\_PROR_{r2,h}^{m,t}, RT\_QSOR_{r2,k,h}^{m,t}, BOR_{r2,k,h}^{m,t})]\} / 12$   | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|-------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Spinning Reserve<br><br>(RT_MWP)   |                                     |  |                       |          |                                      |   |                                     |  |          |
| 1907<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for 30-Minute Operating Reserve<br><br>(RT_MWP) | MR Ch.9 ss.3.5.6, 3.5.9, and 3.5.10 | <p><b>Dispatchable Generation Resources not associated with a Pseudo-Unit</b></p> $RT\_OLOC_{k,h}^{m,t} = \{OP(RT\_PROR_{r3,h}^{m,t}, RT\_OR\_LOC\_EOP_{r3,k,h}^{m,t}, BOR_{r3,k,h}^{m,t}) - Max[0, OP(RT\_PROR_{r3,h}^{m,t}, RT\_QSOR_{r3,k,h}^{m,t}, BOR_{r3,k,h}^{m,t})]\}/12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_OLOC_{k,h}^{c,t} = [OP(RT\_PROR_{r3,h}^{c,t}, RT\_OR\_LOC\_EOP_{r3,k,h}^{c,t}, RT\_OR\_DIPC_{r3,k,h}^{c,t}) - Max[0, OP(RT\_PROR_{r3,h}^{c,t}, RT\_QSOR_{r3,k,h}^{c,t}, RT\_OR\_DIPC_{r3,k,h}^{c,t})]]/12$ <p><b>Dispatchable Generation Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_OLOC_{k,h}^s = \{OP(RT\_PROR_{r3,h}^{s,t}, RT\_OR\_LOC\_EOP_{r3,k,h}^{s,t}, RT\_OR\_DIPC_{r3,k,h}^{s,t}) - Max[0, OP(RT\_PROR_{r3,h}^{s,t}, RT\_QSOR_{r3,k,h}^{s,t}, RT\_OR\_DIPC_{r3,k,h}^{s,t})]\}/12$ | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1907<br>MRP new    | Real-Time Make-Whole Payment – Lost Opportunity Cost for 30-Minute Operating Reserve<br><br>(RT_MWP) | MR Ch.9 s.3.5.7                     | <p><b>Dispatchable Loads</b></p> $RT\_OLOC_{k,h}^{m,t} = \{OP(RT\_PROR_{r3,h}^{m,t}, RT\_OR\_LOC\_EOP_{r3,k,h}^{m,t}, BOR_{r3,k,h}^{m,t}) - Max[0, OP(RT\_PROR_{r3,h}^{m,t}, RT\_QSOR_{r3,k,h}^{m,t}, BOR_{r3,k,h}^{m,t})]\}/12$   | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1908<br>MRP new    | Real-Time Make-Whole Payment - Operating Reserve Non-  | MRs Ch.9 ss.3.10.2, 3.10.4, 3.10.5, | <p><b>For Dispatchable Loads and Generation Resources that are not Pseudo-Units</b></p> $RT\_OLCRC_{k,h}^{m,t} = Min \left[ 0, Max \left( -1 \times (RT\_ELC_{k,h}^{m,t} + RT\_OLC_{k,h}^{m,t}), \sum_R OLC\_CB_{r,k,h}^{m,t} \right) \right]$   | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |



| Charge Type Number | Charge Type Name                                   | Market Rules Reference          | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Accessibility Lost Cost Reversal<br><br>(RT_OLCRC) | 3.10.18,<br>3.10.21,<br>3.10.24 | <p><b>Where:</b></p> <p>a. For synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR_{k,h}^{m,t} &lt; RT\_QSOR_{r1,k,h}^{m,t}</math> and if <math>RT\_OR\_LC\_EOP_{r1,k,h}^{m,t} &lt; RT\_QSOR_{r1,k,h}^{m,t}</math> then:</p> $OLC\_CB_{r1,k,h}^{m,t} = \{OP(RT\_PROR_{r1,h}^{m,t}, \text{Max}(DAM\_QSOR_{r1,k,h}^{m,t}, RT\_QSOR_{r1,k,h}^{m,t}), BOR_{r1,k,h}^{m,t}) - OP[RT\_PROR_{r1,h}^{m,t}, \text{Max}(TAOR_{k,h}^{m,t}, RT\_OR\_LC\_EOP_{r1,k,h}^{m,t}, DAM\_QSOR_{r1,k,h}^{m,t}), BOR_{r1,k,h}^{m,t}]/12$ <p>ii. otherwise, <math>OLC\_CB_{r1,k,h}^{m,t} = 0</math></p> <p>b. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} &lt; RT\_QSOR_{r2,k,h}^{m,t}</math> and if <math>RT\_OR\_LC\_EOP_{r2,k,h}^{m,t} &lt; RT\_QSOR_{r2,k,h}^{m,t}</math> then:</p> $OLC\_CB_{r2,k,h}^{m,t} = \{OP(RT\_PROR_{r2,h}^{m,t}, \text{Max}(DAM\_QSOR_{r2,k,h}^{m,t}, RT\_QSOR_{r2,k,h}^{m,t}), BOR_{r2,k,h}^{m,t}) - OP[RT\_PROR_{r2,h}^{m,t}, \text{Max}(TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}, RT\_OR\_LC\_EOP_{r2,k,h}^{m,t}, DAM\_QSOR_{r2,k,h}^{m,t}), BOR_{r2,k,h}^{m,t}]/12$ <p>ii. otherwise, <math>OLC\_CB_{r2,k,h}^{m,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>c. For thirty-minute operating reserve:</p> <p>i. if <math>TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t} &lt; RT\_QSOR_{r3,k,h}^{m,t}</math> and if <math>RT\_OR\_LC\_EOP_{r3,k,h}^{m,t} &lt; RT\_QSOR_{r3,k,h}^{m,t}</math> then:</p> $OLC\_CB_{r3,k,h}^{m,t} = \{OP(RT\_PROR_{r3,h}^{m,t}, Max(DAM\_QSOR_{r3,k,h}^{m,t}, RT\_QSOR_{r3,k,h}^{m,t}), BOR_{r3,k,h}^{m,t}) - OP[RT\_PROR_{r3,h}^{m,t}, Max(TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}, RT\_OR\_LC\_EOP_{r3,k,h}^{m,t}, DAM\_QSOR_{r3,k,h}^{m,t}), BOR_{r3,k,h}^{m,t}]/12$ <p>ii. otherwise, <math>OLC\_CB_{r3,k,h}^{m,t} = 0</math></p> <p><b>For Generation Resources that are Pseudo-Units</b></p> <p><b>1. Combustion turbine generation unit</b></p> $RT\_OLCRC_{k,h}^{c,t} = Min \left[ 0, Max \left( -1 \times (RT\_ELC_{k,h}^{c,t} + RT\_OLC_{k,h}^{c,t}), \sum_R OLC\_CB_{r,k,h}^{c,t} \right) \right]$ <p><b>Where:</b></p> <p>a. For synchronized ten-minute operating reserve:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} &lt; RT\_QSOR_{r1,k,h}^{c,t}</math> and if <math>RT\_OR\_LC\_EOP_{r1,k,h}^{c,t} &lt; RT\_QSOR_{r1,k,h}^{c,t}</math> then:</p> $OLC\_CB_{r1,k,h}^{c,t} = \{OP \left( RT\_PROR_{r1,h}^{c,t}, Max(DAM\_QSOR_{r1,k,h}^{c,t}, RT\_QSOR_{r1,k,h}^{c,t}), BOR_{r1,k,h}^{c,t} \right) - OP \left[ RT\_PROR_{r1,h}^{c,t}, Max \left( TAOR\_CT_{k,h}^{c,t}, RT\_OR\_LC\_EOP_{r1,k,h}^{c,t}, DAM\_QSOR_{r1,k,h}^{c,t} \right), BOR_{r1,k,h}^{c,t} \right] / 12$ <p>ii. otherwise, <math>OLC\_CB_{r1,k,h}^{c,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>b. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} &lt; RT\_QSOR_{r2,k,h}^{c,t}</math> and if <math>RT\_OR\_LC\_EOP_{r2,k,h}^{c,t} &lt; RT\_QSOR_{r2,k,h}^{c,t}</math> then:</p> $OLC\_CB_{r2,k,h}^{c,t} = \{OP \left( RT\_PROR_{r2,h}^{c,t}, \text{Max}(DAM\_QSOR_{r2,k,h}^{c,t}, RT\_QSOR_{r2,k,h}^{c,t}) \right), BOR_{r2,k,h}^{c,t} \} - OP \left[ RT\_PROR_{r2,h}^{c,t}, \text{Max} \left( TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}, RT\_OR\_LC\_EOP_{r2,k,h}^{c,t}, DAM\_QSOR_{r2,k,h}^{c,t} \right), BOR_{r2,k,h}^{c,t} \right] / 12$ <p>ii. otherwise, <math>OLC\_CB_{r2,k,h}^{c,t} = 0</math></p> <p>c. For <i>thirty-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t} &lt; RT\_QSOR_{r3,k,h}^{c,t}</math> and if <math>RT\_OR\_LC\_EOP_{r3,k,h}^{c,t} &lt; RT\_QSOR_{r3,k,h}^{c,t}</math> then:</p> $OLC\_CB_{r3,k,h}^{c,t} = \{OP \left( RT\_PROR_{r3,h}^{c,t}, \text{Max}(DAM\_QSOR_{r3,k,h}^{c,t}, RT\_QSOR_{r3,k,h}^{c,t}) \right), BOR_{r3,k,h}^{c,t} \} - OP \left[ RT\_PROR_{r3,h}^{c,t}, \text{Max} \left( TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}, RT\_OR\_LC\_EOP_{r3,k,h}^{c,t}, DAM\_QSOR_{r3,k,h}^{c,t} \right), BOR_{r3,k,h}^{c,t} \right] / 12$ <p>ii. otherwise, <math>OLC\_CB_{r3,k,h}^{c,t} = 0</math></p> <p><b>2. Steam turbine generation unit</b></p> $RT\_OLCRC_{k,h}^{s,t} = \text{Min} \left[ 0, \text{Max} \left( -1 \times (RT\_ELC_{k,h}^{s,t} + RT\_OLC_{k,h}^{s,t}), \sum_R OLC\_CB_{r,k,h}^{s,t} \right) \right]$ <p><b>Where:</b></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>a. For synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_ST_{k,h}^{s,t} &lt; RT\_QSOR_{r1,k,h}^{s,t}</math> and if <math>RT\_OR\_LC\_EOP_{r1,k,h}^{s,t} &lt; RT\_QSOR_{r1,k,h}^{s,t}</math> then:</p> $OLC\_CB_{r1,k,h}^{s,t} = \{OP \left( RT\_PROR_{r1,h}^{s,t}, \text{Max}(DAM\_QSOR_{r1,k,h}^{s,t}, RT\_QSOR_{r1,k,h}^{s,t}), BOR_{r1,k,h}^{s,t} \right) - OP \left[ RT\_PROR_{r1,h}^{s,t}, \text{Max}(TAOR\_ST_{k,h}^{s,t}, RT\_OR\_LC\_EOP_{r1,k,h}^{s,t}, DAM\_QSOR_{r1,k,h}^{s,t}), BOR_{r1,k,h}^{s,t} \right] \} / 12$ <p>ii. otherwise, <math>OLC\_CB_{r1,k,h}^{s,t} = 0</math></p> <p>b. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} &lt; RT\_QSOR_{r2,k,h}^{c,t}</math> and if <math>RT\_OR\_LC\_EOP_{r2,k,h}^{c,t} &lt; RT\_QSOR_{r2,k,h}^{c,t}</math> then:</p> $OLC\_CB_{r2,k,h}^{c,t} = \{OP \left( RT\_PROR_{r2,h}^{c,t}, \text{Max}(DAM\_QSOR_{r2,k,h}^{c,t}, RT\_QSOR_{r2,k,h}^{c,t}), BOR_{r2,k,h}^{c,t} \right) - OP \left[ RT\_PROR_{r2,h}^{c,t}, \text{Max}(TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}, RT\_OR\_LC\_EOP_{r2,k,h}^{c,t}, DAM\_QSOR_{r2,k,h}^{c,t}), BOR_{r2,k,h}^{c,t} \right] \} / 12$ <p>ii. otherwise, <math>OLC\_CB_{r2,k,h}^{c,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference  | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |   | <p>c. For thirty-minute operating reserve:</p> <p>i. if <math>TAOR_{k,h}^{s,t} - RT_{QSOR}_{r1,k,h}^{s,t} - RT_{QSOR}_{r2,k,h}^{s,t} &lt; RT_{QSOR}_{r3,k,h}^{s,t}</math> and if <math>RT_{OR\_LC\_EOP}_{r3,k,h}^{s,t} &lt; RT_{QSOR}_{r3,k,h}^{s,t}</math>, then:</p> $OLC_{CB}_{r3,k,h}^{s,t} = \{OP \left( RT_{PROR}_{r3,h}^{s,t}, \text{Max}(DAM_{QSOR}_{r3,k,h}^{s,t}, RT_{QSOR}_{r3,k,h}^{s,t}), BOR_{r3,k,h}^{s,t} \right) - OP \left[ RT_{PROR}_{r3,h}^{s,t}, \text{Max}(TAOR_{k,h}^{s,t} - RT_{QSOR}_{r1,k,h}^{s,t} - RT_{QSOR}_{r2,k,h}^{s,t}, RT_{OR\_LC\_EOP}_{r3,k,h}^{s,t}, DAM_{QSOR}_{r3,k,h}^{s,t}), BOR_{r3,k,h}^{s,t} \right] \} / 12$ <p>ii. otherwise, <math>OLC_{CB}_{r3,k,h}^{s,t} = 0</math></p>  |                       |          |                                      |   |                                     |  |          |
| 1909<br>MRP new    | Real-Time Make-Whole Payment - Operating Reserve Non-Accessibility Lost Opportunity Cost Reversal<br><br>(RT_OLOCRC) | MRs Ch.9 ss.3.10.2, 3.10.4, 3.10.5, 3.10.19, 3.10.22, 3.10.25 | <p><b>For Dispatchable Loads and Generation Resources that are not Pseudo-Units</b></p> $RT_{OLOCRC}_{k,h}^{m,t} = \text{Min} \left[ 0, \text{Max} \left( -1 \times (RT_{ELOC}_{k,h}^{m,t} + RT_{OLOC}_{k,h}^{m,t}), \sum_R OLOC_{CB}_{r,k,h}^{m,t} \right) \right]$ <p><b>Where:</b></p> <p>a. For synchronized ten-minute operating reserve:</p> <p>i. if <math>TAOR_{k,h}^{m,t} &lt; RT_{OR\_LOC\_EOP}_{r1,k,h}^{m,t}</math> and if <math>RT_{QSOR}_{r1,k,h}^{m,t} &lt; RT_{OR\_LOC\_EOP}_{r1,k,h}^{m,t}</math> then:</p> $OLOC_{CB}_{r1,k,h}^{m,t} = (-1) \times \left\{ OP \left( RT_{PROR}_{r1,h}^{m,t}, RT_{OR\_LOC\_EOP}_{r1,k,h}^{m,t}, BOR_{r1,k,h}^{m,t} \right) - OP \left[ RT_{PROR}_{r1,h}^{m,t}, \text{Max} \left( RT_{QSOR}_{r1,k,h}^{m,t}, TAOR_{k,h}^{m,t} \right), BOR_{r1,k,h}^{m,t} \right] \right\} / 12$ <p>ii. otherwise, <math>OLOC_{CB}_{r1,k,h}^{m,t} = 0</math></p> | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>b. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} &lt; RT\_OR\_LOC\_EOP_{r2,k,h}^{m,t}</math> and if <math>RT\_QSOR_{r2,k,h}^{m,t} &lt; RT\_OR\_LOC\_EOP_{r2,k,h}^{m,t}</math> then:</p> $OLOC\_CB_{r2,k,h}^{m,t} = (-1) \times \left\{ OP\left( RT\_PROR_{r2,h}^{m,t}, RT\_OR\_LOC\_EOP_{r2,k,h}^{m,t}, BOR_{r2,k,h}^{m,t} \right) - OP\left[ RT\_PROR_{r2,h}^{m,t}, \text{Max}\left( RT\_QSOR_{r2,k,h}^{m,t}, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} \right), BOR_{r2,k,h}^{m,t} \right] \right\} / 12$ <p>ii. otherwise, <math>OLOC\_CB_{r2,k,h}^{m,t} = 0</math></p> <p>c. For <i>thirty-minute operating reserve</i>:</p> <p>i. if <math>TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t} &lt; RT\_OR\_LOC\_EOP_{r3,k,h}^{m,t}</math> and if <math>RT\_QSOR_{r3,k,h}^{m,t} &lt; RT\_OR\_LOC\_EOP_{r3,k,h}^{m,t}</math> then:</p> $OLOC\_CB_{r3,k,h}^{m,t} = (-1) \times \left\{ OP\left( RT\_PROR_{r3,h}^{m,t}, RT\_OR\_LOC\_EOP_{r3,k,h}^{m,t}, BOR_{r3,k,h}^{m,t} \right) - OP\left[ RT\_PROR_{r3,h}^{m,t}, \text{Max}\left( RT\_QSOR_{r3,k,h}^{m,t}, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t} \right), BOR_{r3,k,h}^{m,t} \right] \right\} / 12$ <p>ii. otherwise, <math>OLOC\_CB_{r3,k,h}^{m,t} = 0</math></p> <p><b>For Generation Resources that are Pseudo-Units</b></p> <p><b>1. Combustion turbine <i>generation unit</i></b></p> $RT\_OLOCRC_{k,h}^{c,t} = \text{Min} \left[ 0, \text{Max} \left( -1 \times \left( RT\_ELOC_{k,h}^{c,t} + RT\_OLOC_{k,h}^{c,t} \right), \sum_R OLOC\_CB_{r,k,h}^{c,t} \right) \right]$ |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <p>a. For synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} &lt; RT\_OR\_LOC\_EOP_{r1,k,h}^{c,t}</math> and if <math>RT\_QSOR_{r1,k,h}^{c,t} &lt; RT\_OR\_LOC\_EOP_{r1,k,h}^{c,t}</math> then:<br/> <math display="block">OLOC\_CB_{r1,k,h}^{c,t} = (-1) \times \{OP(RT\_PROR_{r1,h}^{c,t}, RT\_OR\_LOC\_EOP_{r1,k,h}^{c,t}, BOR_{r1,k,h}^{c,t}) - OP[RT\_PROR_{r1,h}^{c,t}, Max(RT\_QSOR_{r1,k,h}^{c,t}, TAOR\_CT_{k,h}^{c,t}), BOR_{r1,k,h}^{c,t}]\}/12</math></p> <p>ii. otherwise, <math>OLOC\_CB_{r1,k,h}^{c,t} = 0</math></p> <p>b. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} &lt; RT\_OR\_LOC\_EOP_{r2,k,h}^{c,t}</math> and if <math>RT\_QSOR_{r2,k,h}^{c,t} &lt; RT\_OR\_LOC\_EOP_{r2,k,h}^{c,t}</math> then:<br/> <math display="block">OLOC\_CB_{r2,k,h}^{c,t} = (-1) \times \{OP(RT\_PROR_{r2,h}^{c,t}, RT\_OR\_LOC\_EOP_{r2,k,h}^{c,t}, BOR_{r2,k,h}^{c,t}) - OP[RT\_PROR_{r2,h}^{c,t}, Max(RT\_QSOR_{r2,k,h}^{c,t}, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}), BOR_{r2,k,h}^{c,t}]\}/12</math></p> <p>ii. otherwise, <math>OLOC\_CB_{r2,k,h}^{c,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>c. For <i>thirty-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t} &lt; RT\_OR\_LOC\_EOP_{r3,k,h}^{c,t}</math> and if <math>RT\_QSOR_{r3,k,h}^{c,t} &lt; RT\_OR\_LOC\_EOP_{r3,k,h}^{c,t}</math> then:</p> $OLOC\_CB_{r3,k,h}^{c,t} = (-1) \times \left\{ OP \left( RT\_PROR_{r3,h}^{c,t}, RT\_OR\_LOC\_EOP_{r3,k,h}^{c,t}, BOR_{r3,k,h}^{c,t} \right) - OP \left[ RT\_PROR_{r3,h}^{c,t}, \text{Max} \left( RT\_QSOR_{r3,k,h}^{c,t}, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t} \right), BOR_{r3,k,h}^{c,t} \right] \right\} / 12$ <p>ii. otherwise, <math>OLOC\_CB_{r3,k,h}^{c,t} = 0</math></p> <p><b>2. Steam turbine generation unit</b></p> $RT\_OLOCRC_{k,h}^{s,t} = \text{Min} \left[ 0, \text{Max} \left( -1 \times \left( RT\_ELOCR_{k,h}^{s,t} + RT\_OLOCR_{k,h}^{s,t} \right), \sum_R OLOC\_CB_{r,k,h}^{s,t} \right) \right]$ <p><b>Where:</b></p> <p>a. For synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_ST_{k,h}^{s,t} &lt; RT\_OR\_LOC\_EOP_{r1,k,h}^{s,t}</math> and if <math>RT\_QSOR_{r1,k,h}^{s,t} &lt; RT\_OR\_LOC\_EOP_{r1,k,h}^{s,t}</math> then:</p> $OLOC\_CB_{r1,k,h}^{s,t} = (-1) \times \left\{ OP \left( RT\_PROR_{r1,h}^{s,t}, RT\_OR\_LOC\_EOP_{r1,k,h}^{s,t}, BOR_{r1,k,h}^{s,t} \right) - OP \left[ RT\_PROR_{r1,h}^{s,t}, \text{Max} \left( RT\_QSOR_{r1,k,h}^{s,t}, TAOR\_ST_{k,h}^{s,t} \right), BOR_{r1,k,h}^{s,t} \right] \right\} / 12$ <p>ii. otherwise, <math>OLOC\_CB_{r1,k,h}^{s,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |



| Charge Type Number | Charge Type Name  | Market Rules Reference                        | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|---|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |   | <p>b. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} &lt; RT\_OR\_LOC\_EOP_{r2,k,h}^{s,t}</math> and if <math>z</math></p> $RT\_QSOR_{r2,k,h}^{s,t} < RT\_OR\_LOC\_EOP_{r2,k,h}^{s,t}$ then: $OLOC\_CB_{r2,k,h}^{s,t} = (-1) \times \left\{ OP\left( RT\_PROR_{r2,h}^{s,t}, RT\_OR\_LOC\_EOP_{r2,k,h}^{s,t}, BOR_{r2,k,h}^{s,t} \right) - OP\left[ RT\_PROR_{r2,h}^{s,t}, \text{Max}\left( RT\_QSOR_{r2,k,h}^{s,t}, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} \right), BOR_{r2,k,h}^{s,t} \right] \right\} / 12$ <p>ii. otherwise, <math>OLOC\_CB_{r2,k,h}^{s,t} = 0</math></p> <p>c. For <i>thirty-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t} &lt; RT\_OR\_LOC\_EOP_{r3,k,h}^{s,t}</math> and if</p> $RT\_QSOR_{r3,k,h}^{s,t} < RT\_OR\_LOC\_EOP_{r3,k,h}^{s,t}$ then: $OLOC\_CB_{r3,k,h}^{s,t} = (-1) \times \left\{ OP\left( RT\_PROR_{r3,h}^{s,t}, RT\_OR\_LOC\_EOP_{r3,k,h}^{s,t}, BOR_{r3,k,h}^{s,t} \right) - OP\left[ RT\_PROR_{r3,h}^{s,t}, \text{Max}\left( RT\_QSOR_{r3,k,h}^{s,t}, TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t} \right), BOR_{r3,k,h}^{s,t} \right] \right\} / 12$ <p>ii. otherwise, <math>OLOC\_CB_{r3,k,h}^{s,t} = 0</math></p> |                       |            |                                      |   |                                     |  |          |
| 1910<br>MRP new    | Real-Time Generator Offer Guarantee – Energy<br><br>(RT_GOG)<br><br>Component 1 | MR Ch.9<br>ss.4.5.6,<br>4.5.15, and<br>4.5.22 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $RT\_GOG\_COMP1_k^m = \sum^{T1} \left[ (-1) \times \text{Max}\left( OP\left( RT\_LMP_h^{m,t}, RT\_QSI_{k,h}^{m,t}, BE_{k,h}^{m,t} \right), OP\left( RT\_LMP_h^{m,t}, AQEI_{k,h}^{m,t}, BE_{k,h}^{m,t} \right) \right) + \frac{PD\_BE\_SNL_{k,h}^m}{12} \right] - \sum^{T0} [RT\_LMP_h^{m,t} \times AQEI_{k,h}^{m,t}] + \sum^{RH} [DAM\_LMP_h^m \times DAM\_QSI_{k,h}^m / 12]$   | Interval              | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. T1 = the set of contiguous <i>metering intervals</i> 't' within the <i>real-time commitment period</i> or the <i>real-time reliability commitment period</i>, as the case may be;</li> <li>b. T0 = the set of all <i>metering intervals</i> between the time when the <i>resource</i> is synchronized and injecting <i>energy</i> into the <i>IESO-controlled grid</i> and the time when the <i>resource</i> achieves its <i>minimum loading point</i>;</li> <li>c. RH = the set of contiguous <i>settlement hours</i> 'h' with <i>day-ahead schedules</i> for the ramp-up period in the <i>day-ahead market</i> that do not overlap with a <i>pre-dispatch operational commitment</i>; and</li> <li>d. if the combustion turbine <i>generation unit</i> or steam turbine <i>generation unit</i> is registered as a <i>pseudo-unit</i> but is not operating as a <i>pseudo-unit</i> and has a minimum constraint applied for combined cycle operation consistent with combustion turbine commitment, then <math>RT\_QSI_{k,h}^{m,t}</math> will be replaced with <math>RT\_LC\_EOP_{k,h}^{m,t}</math> for those <i>metering intervals</i> in which they have such constraint.</li> </ul> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_GOG\_COMP1_k^c = \sum^{T1} \left[ (-1) \times \text{Max} \left( OP(RT\_LMP_h^{c,t}, RT\_QSI_{k,h}^{c,t}, RT\_DIPC_{k,h}^{c,t}), OP(RT\_LMP_h^{c,t}, AQEI_{k,h}^{c,t}, RT\_DIPC_{k,h}^{c,t}) \right) + \frac{PD\_BE\_SNL_{k,h}^p}{12} \times (1 - ST\_Portion_{k,d1}^p) \right] - \sum^{T0} (RT\_LMP_h^{c,t} \times AQEI_{k,h}^{c,t}) + \sum^{RH} [DAM\_LMP_h^c \times DAM\_QSI_{k,h}^c / 12]$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. T1 = the set of contiguous <i>metering intervals</i> 't' within the <i>real-time commitment period</i> or the <i>real-time reliability commitment period</i>, as the case may be, for the combustion turbine;</li> <li>b. p = the <i>pseudo-unit</i> associated with combustion turbine <i>delivery point</i> 'c';</li> <li>c. T0 = the set of all <i>metering intervals</i> 't' between the time when the combustion turbine is synchronized and injecting <i>energy</i> into the <i>IESO-controlled grid</i> and the time when the combustion turbine achieves its <i>minimum loading point</i>; and</li> <li>d. RH = the set of contiguous <i>settlement hours</i> 'h' with <i>day-ahead schedules</i> for the ramp-up period in the <i>day-ahead market</i> that do not overlap with a <i>pre-dispatch operational commitment</i>.</li> </ul> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference                | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|---------------------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                                       | <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_GOG\_COMP1_k^s = \sum_{t \in T1} \left[ (-1) \times OP(RT\_LMP_h^{s,t}, RT\_CMT\_DIGQ_{k,h}^{s,t}, RT\_CMT\_DIPC_{k,h}^{s,t}) + \sum_{p=1}^N \left( \frac{PD\_BE\_SNL_{k,h}^p}{12} \times ST\_Portion_{k,d1}^p \right) + \sum_{p=1}^D \left( DAM\_LMP_h^s \times \frac{[DAM\_QSI_{k,h}^p \times (ST\_Portion_{k,d1}^p)]}{12} \right) \right] - \sum_{t \in T0} (RT\_LMP_h^{s,t} \times AQEI_{k,h}^{s,t})$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>T1 = the set of all <i>metering intervals</i> 't' in the steam turbine's <i>real-time commitment period</i> where at least one of the associated <i>pseudo-units</i>' <i>real-time schedule</i> is greater than or equal to its <i>minimum loading point</i> in accordance with a <i>pre-dispatch operational commitment</i>;</li> <li>N = the set of all <i>pseudo-units</i> 'p' associated with steam turbine <i>delivery point</i> 's' that are eligible for a real-time <i>generator offer guarantee settlement amount</i> in <i>metering interval</i> 't' of <i>settlement hour</i> 'h';</li> <li>D = the set of all <i>pseudo-units</i> 'p' associated with steam turbine <i>delivery point</i> 's' that have: (i) a <i>pre-dispatch operational commitment</i> greater than its <i>minimum loading point</i> in <i>metering interval</i> 't'; (ii) an associated combustion turbine that is injecting <i>energy</i> into the <i>IESO-controlled grid</i> in an amount greater than or equal to its <i>minimum loading point</i> in <i>metering interval</i> 't'; and (iii) a <i>day-ahead schedule</i> less than its <i>minimum loading point</i> in <i>metering interval</i> 't'; and</li> <li>T0 = the set of all <i>metering intervals</i> 't' in the steam turbine's <i>real-time commitment period</i> when: (i) the steam turbine is injecting <i>energy</i> into the <i>IESO-controlled grid</i> in an amount that is less than its 1-on-1 <i>minimum loading point</i>; and (ii) none of the associated <i>pseudo-units</i> have a <i>day-ahead schedule</i>.</li> </ol> |                       |            |                                      |   |                                     |  |          |
| 1911<br>MRP new    | Real-Time Generator Offer Guarantee – Operating Reserve | MR Ch.9 ss. 4.5.7, 4.5.16, and 4.5.23 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $RT\_GOG\_COMP2_k^m = (-1) \times \sum_{r \in T1} OP(RT\_PROR_{r,h}^{m,t}, RT\_QSOR_{r,k,h}^{m,t}, BOR_{r,k,h}^{m,t})$ <p><b>Where:</b></p> <ol style="list-style-type: none"> <li>T1 = the set of contiguous <i>metering intervals</i> 't' within the <i>real-time commitment period</i> or the <i>real-time reliability commitment period</i>, as the case may be.</li> </ol>   | Interval              | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference               | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--------------------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | (RT_GOG)<br>Component 2  |                                      | <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_GOG\_COMP2_k^c = \sum_R^{T1} [(-1) \times OP(RT\_PROR_{r,h}^{c,t}, RT\_QSOR_{r,k,h}^{c,t}, RT\_OR\_DIPC_{r,k,h}^{c,t})]$ <p><b>Where:</b></p> <p>a. T1 = the set of contiguous <i>metering intervals</i> 't' within the <i>real-time commitment period</i> or the <i>real-time reliability commitment period</i>, as the case may be, for the combustion turbine.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_GOG\_COMP2_k^s = \sum_R^{T1} [(-1) \times OP(RT\_PROR_{r,h}^{s,t}, RT\_OR\_CMT\_DIGQ_{r,k,h}^{s,t}, RT\_OR\_CMT\_DIPC_{r,k,h}^{s,t})]$ <p><b>Where:</b></p> <p>a. T1 = the set of all <i>metering intervals</i> 't' in the steam turbine's <i>real-time commitment period</i> where at least one of the associated <i>pseudo-units</i> is greater than or equal to its <i>minimum loading point</i> in accordance with a <i>pre-dispatch operational commitment</i>.</p> |                       |            |                                      |   |                                     |  |          |
| 1912<br>MRP new    | Real-Time Generator Offer Guarantee – Over Midnight<br>(RT_GOG)<br>Component 3 | MR Ch.9 ss.4.5.8, 4.5.17, and 4.5.24 | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger RT_GOG equation within the <i>market rules</i>, in which this component would have been subtracted from the total <i>settlement amount</i>.</p> <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $RT\_GOG\_COMP3_k^m = -1 \times \sum^{T2} [(-1) \times (OP(RT\_LMP_h^{m,t}, MLP_k^m, BE_{k,h}^{m,t})) + \frac{PD\_BE\_SNL_{k,h}^m}{12}]$ <p><b>Where:</b></p> <p>a. T2 = the set of contiguous <i>metering intervals</i> 't' beginning with the first <i>metering interval</i> of Day 1 and ending with the <i>metering interval</i> in Day 1 in which the <i>resource</i> completes its <i>minimum generation block run-time</i> that began in Day 0; and</p>   | Interval              | Either Way | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>b. <math>MLP_k^m</math> = the <i>minimum loading point</i> of the <i>resource</i> for Day 1 for <i>market participant</i> 'k' for <i>delivery point</i> 'm'.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_GOG\_COMP3_k^c = -1 \times \sum^{T2} \left[ (-1) \times \left( OP(RT\_LMP_h^{c,t}, MLP_k^c, RT\_DIPC_{k,h}^{c,t}) \right) + \frac{PD\_BE\_SNL_{k,h}^p}{12} \times (1 - ST\_Portion_{k,d1}^p) \right]$ <p><b>Where:</b></p> <p>a. T2 = the set of contiguous <i>metering intervals</i> 't' beginning with the first <i>metering interval</i> of Day 1 and ending with the <i>metering interval</i> in Day 1 in which the <i>resource</i> completes its <i>minimum generation block run-time</i> that began in Day 0;</p> <p>b. <math>MLP_k^c</math> = the <i>minimum loading point</i> of the combustion turbine associated with combustion turbine <i>delivery point</i> 'c'; and</p> <p>c. p = the <i>pseudo-unit</i> associated with combustion turbine <i>delivery point</i> 'c'.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_GOG\_COMP3_k^s = -1 \times \sum^U \sum^{T_p} \left[ (-1) \times \left( OP(RT\_LMP_h^{s,t}, (MLP_k^p \times ST\_Portion_{k,d1}^p), BE_{k,h}^{p,t}) \right) + \frac{PD\_BE\_SNL_{k,h}^p}{12} \times ST\_Portion_{k,d1}^p \right]$ <p><b>Where:</b></p> <p>a. U = the set of all <i>pseudo-units</i> 'p' associated with steam turbine <i>delivery point</i> 's' that have a <i>real-time schedule</i> in the first <i>settlement hour</i> of Day 1 to complete its <i>minimum generation block run-time</i> as part of a <i>pre-dispatch operational commitment</i> that began in Day 0 and forms part of the steam turbine's <i>real-time commitment period</i>;</p> <p>b. T<sub>p</sub> = the set of <i>metering intervals</i> 't' where: (i) the associated <i>pseudo-unit</i> had a <i>real-time schedule</i> in the first <i>settlement hour</i> of Day 1 to complete its <i>minimum generation block run-time</i>; and (ii) the</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|-------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                                     | combustion turbine associated with <i>pseudo-unit</i> 'p' actually injected <i>energy</i> into the <i>IESO-controlled grid</i> in an amount equal to or greater than its <i>minimum loading point</i> ; and<br>c. $MLP_k^p$ = the <i>minimum loading point</i> of <i>pseudo-unit</i> 'p' for <i>market participant</i> 'k' for Day 1.  |                       |          |                                      |   |                                     |  |          |
| 1913<br>MRP new    | Real-Time Generator Offer Guarantee – Start-up (RT_GOG)<br><br>Component 4 | MR Ch. ss.4.5.9, 4.5.18, and 4.5.25 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> <p>1. achieves <i>minimum loading point</i> within the first six <i>metering intervals</i> of the start of its <i>minimum generation block run-time</i>:<br/> <math display="block">RT\_GOG\_COMP4_{k,h}^m = RT\_GOG\_SU_{k,h}^m</math></p> <p>2. achieves <i>minimum loading point</i> after the first six <i>metering intervals</i> of the start of its <i>minimum generation block run-time</i> but before the 19<sup>th</sup> <i>metering interval</i> following the start of its <i>minimum generation block run-time</i>:<br/> <math display="block">RT\_GOG\_COMP4_{k,h}^m = RT\_GOG\_SU_{k,h}^m - (RT\_GOG\_SU_{k,h}^m \times N\_INT / 12)</math></p> <p><b>Where</b> N_INT = the number of <i>metering intervals</i> after the first six <i>metering intervals</i> that the <i>resource</i> took to achieve its <i>minimum loading point</i>.</p> <p>3. otherwise: <math>RT\_GOG\_COMP4_{k,h}^m = 0</math></p> <p>In determining <math>RT\_GOG\_SU_{k,h}^m</math> if the resource:</p> <p>a. has either (a) a <i>stand-alone pre-dispatch operational commitment</i>; or (b) an <i>advanced pre-dispatch operational commitment</i>, that extends for longer than or equal to the <i>resource's minimum generation block run-time</i> plus its <i>minimum generation block down-time</i> for the hot <i>thermal state</i>, then:<br/> <math display="block">RT\_GOG\_SU_{k,h}^m = PD\_BE\_SU_{k,h}^m</math></p> <p>b. receives an <i>advanced pre-dispatch operational commitment</i> that extends for a period that is less than the <i>resource's minimum generation block run-time</i> plus its <i>minimum generation block down-time</i> for the hot <i>thermal state</i>, then:<br/> <math display="block">RT\_GOG\_SU_{k,h}^m = \text{Max}(0, PD\_BE\_SU_{k,h}^m - DAM\_BE\_SU_{k,h}^m)</math></p> | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>c. otherwise, <math>RT\_GOG\_SU_{k,h}^m = 0</math></p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> <p>1. For a <i>pre-dispatch operational commitment</i> where the associated <i>pseudo-unit</i> has a <i>stand-alone pre-dispatch operational commitment</i> or where the associated <i>pseudo-unit</i> receives a <i>pre-dispatch operational commitment</i> in advance of an existing <i>day-ahead market operational commitment</i> by a period that is greater than or equal to the <i>resource's minimum generation block run-time</i> plus its <i>minimum generation block down-time</i> for the hot <i>thermal state</i>:</p> <p>a. if the combustion turbine achieved its <i>minimum loading point</i> within the first six <i>metering intervals</i> of the start of the <i>pre-dispatch operational commitment</i>:</p> $RT\_GOG\_COMP4_k^c = PD\_BE\_SU_{k,h}^p \times (1 - ST\_Portion_{k,d1}^p)$ <p>b. if the combustion turbine achieved its <i>minimum loading point</i> after the first six <i>metering intervals</i> of the start of its <i>pre-dispatch operational commitment</i> but before the 19th <i>metering interval</i> following the start of its <i>pre-dispatch operational commitment</i>:</p> $RT\_GOG\_COMP4_k^c = PD\_BE\_SU_{k,h}^p \times (1 - ST\_Portion_{k,d1}^p) \times \left(1 - \frac{N\_INT_k^c}{12}\right)$ <p><b>Where:</b> <math>N\_INT_k^c</math> = the number of <i>metering intervals</i> after the first six <i>metering intervals</i> that the combustion turbine took to achieve its <i>minimum loading point</i>.</p> <p>c. otherwise, <math>RT\_GOG\_COMP4_k^c = 0</math></p> <p>2. For a <i>pre-dispatch operational commitment</i> where the associated <i>pseudo-unit</i> has a <i>pre-dispatch operational commitment</i> in advance of an existing <i>day-ahead market operational commitment</i> by a period that is less than the <i>resource's minimum generation block run-time</i> plus its <i>minimum generation block down-time</i> for the hot <i>thermal state</i>:</p> <p>a. if the combustion turbine achieved its <i>minimum loading point</i> within the first six <i>metering intervals</i> of the start of the <i>pre-dispatch operational commitment</i>:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference                | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                                       | $RT\_GOG\_COMP4_k^c = \text{Max}(0, PD\_BE\_SU_{k,h}^p - DAM\_BE\_SU_{k,h}^p) \times (1 - ST\_Portion_{k,d1}^p)$ <p>b. if the combustion turbine achieved its <i>minimum loading point</i> after the first six <i>metering intervals</i> of the start of its <i>pre-dispatch operational commitment</i> but before the 19th <i>metering interval</i> following the start of its <i>pre-dispatch operational commitment</i>:</p> $RT\_GOG\_COMP4_k^c = \text{Max}(0, PD\_BE\_SU_{k,h}^p - DAM\_BE\_SU_{k,h}^p) \times (1 - ST\_Portion_{k,d1}^p) \times \left(1 - \frac{N\_INT_k^c}{12}\right)$ <p><b>Where:</b> <math>N\_INT_k^c</math> = the number of <i>metering intervals</i> after the first six <i>metering intervals</i> that the combustion turbine took to achieve its <i>minimum loading point</i>.</p> <p>c. otherwise, <math>RT\_GOG\_COMP4_k^c = 0</math></p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_GOG\_COMP4_k^s = \sum_{c=1}^C \sum_{x_c}^{X_c} \left[ RT\_GOG\_COMP4_{k,x}^c \times \frac{ST\_Portion_{k,d1}^p}{(1 - ST\_Portion_{k,d1}^p)} \right]$ <p><b>Where:</b></p> <p>a. <math>C</math> = the set of all combustion turbine <i>delivery points</i> 'c' associated with steam turbine <i>delivery point</i> 's'; and</p> <p>b. <math>X_c</math> = the set of all <i>pre-dispatch operational commitments</i> 'x' that are classified as variant 1 and were incurred by combustion turbine 'c' during the steam turbine's <i>real-time commitment period</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1914<br>MRP new    | Real-Time Generator Offer Guarantee – RT Make-Whole Payment Offset | MR Ch.9 ss.4.5.11, 4.5.20, and 4.5.26 | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger RT_GOG equation within the <i>market rules</i>, in which this component would have been subtracted from the total <i>settlement amount</i>.</p> <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $RT\_GOG\_COMP5_k^m = -1 \times \sum^{T1} RT\_MWP_{k,h}^m$  | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |



| Charge Type Number | Charge Type Name   | Market Rules Reference                              | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | (RT_GOG)<br>Component 5  |   | <p><b>Where:</b></p> <p>a. T1 = the set of contiguous <i>metering intervals</i> 't' within the <i>real-time commitment period</i> or the <i>real-time reliability commitment period</i>, as the case may be.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $RT\_GOG\_COMP5_k^c = -1 \times \sum^{T1} RT\_MWP_{k,h}^c$ <p><b>Where:</b></p> <p>a. T1 = the set of contiguous <i>metering intervals</i> 't' within the <i>real-time commitment period</i> or the <i>real-time reliability commitment period</i>, as the case may be, for the combustion turbine.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $RT\_GOG\_COMP5_k^s = -1 \times \sum^{T1} RT\_MWP_{k,h}^s$ <p><b>Where:</b></p> <p>a. T1 = the set of all <i>metering intervals</i> 't' in the steam turbine's <i>real-time commitment period</i> where at least one of the associated <i>pseudo-units</i> is greater than or equal to its <i>minimum loading point</i> in accordance with a <i>pre-dispatch operational commitment</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1915<br>MRP new    | Real-Time Generator Offer Guarantee – Operating Reserve Non-Accessibility Reversal (RT_GOG_CB) | MRs Ch.9 ss.3.10.3, 3.10.4, 3.10.5, 3.10.26-3.10.34 | <p><b>For Dispatchable Generation Resources that are not Pseudo-Units</b></p> $RT\_GOG\_CB_k^m = \text{Max} \left\{ (-1) \times RT\_GOG_k^m, \text{Min} \left[ 0, \sum_R^{T1} [ORSCB\_REV_{r,k,h}^{m,t} + COMP2\_CB_{r,k,h}^{m,t} - ORIA\_AMT_{r,k,h}^{m,t}] - \sum^{T1} RT\_MWP\_CB_{k,h}^{m,t} \right] \right\}$   | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <p>a. T1 = the set of all <i>metering intervals</i> 't' beginning from the first <i>metering interval</i> that the <i>generation unit</i> is at <i>minimum loading point</i> within a <i>real-time commitment period</i> or a <i>real-time reliability commitment period</i> until the last <i>metering interval</i> that the <i>generation unit</i> is at <i>minimum loading point</i> within such <i>real-time commitment period</i> or a <i>real-time reliability commitment period</i>, as applicable</p> <p>b. <math>ORSCB\_REV_{r,k,h}^{m,t} = (-1) \times ORSCB_{r,k,h}^{m,t}</math></p> <p>c. <math>COMP2\_CB_{r,k,h}^{m,t}</math> and <math>ORIA\_AMT_{r,k,h}^{m,t}</math> are calculated as follows:</p> <p style="padding-left: 40px;">A. For synchronized <i>ten-minute operating reserve</i>:</p> <p style="padding-left: 80px;">i. if <math>TAOR_{k,h}^{m,t} &lt; RT\_QSOR_{r1,k,h}^{m,t}</math>, then</p> $COMP2\_CB_{r1,k,h}^{m,t} = \{OP[RT\_PROR_{r1,h}^{m,t}, RT\_QSOR_{r1,k,h}^{m,t}, BOR_{r1,k,h}^{m,t}] - OP(RT\_PROR_{r1,h}^{m,t}, TAOR_{k,h}^{m,t}, BOR_{r1,k,h}^{m,t})\} / 12$ $ORIA\_AMT_{r1,k,h}^{m,t} = [RT\_PROR_{r1,h}^{m,t} \times (RT\_QSOR_{r1,k,h}^{m,t} - TAOR_{k,h}^{m,t})] / 12$ <p style="padding-left: 80px;">ii. otherwise, <math>COMP2\_CB_{r1,k,h}^{m,t} = 0</math> and <math>ORIA\_AMT_{r1,k,h}^{m,t} = 0</math></p> <p style="padding-left: 40px;">B. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p style="padding-left: 80px;">i. if <math>TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} &lt; RT\_QSOR_{r2,k,h}^{m,t}</math>, then</p> $COMP2\_CB_{r2,k,h}^{m,t} = \{OP[RT\_PROR_{r2,h}^{m,t}, RT\_QSOR_{r2,k,h}^{m,t}, BOR_{r2,k,h}^{m,t}] - OP(RT\_PROR_{r2,h}^{m,t}, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}, BOR_{r2,k,h}^{m,t})\} / 12$ $ORIA\_AMT_{r2,k,h}^{m,t} = [RT\_PROR_{r2,h}^{m,t} \times (RT\_QSOR_{r2,k,h}^{m,t} - Max(0, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t}))]$ <p style="padding-left: 80px;">ii. otherwise, <math>COMP2\_CB_{r2,k,h}^{m,t} = 0</math> and <math>ORIA\_AMT_{r2,k,h}^{m,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>C. For thirty-minute operating reserve:</p> <p>i. if <math>TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t} &lt; RT\_QSOR_{r3,k,h}^{m,t}</math>, then</p> $COMP2\_CB_{r3,k,h}^{m,t} = \{OP[RT\_PROR_{r3,h}^{m,t}, RT\_QSOR_{r3,k,h}^{m,t}, BOR_{r3,k,h}^{m,t}] - OP(RT\_PROR_{r3,h}^{m,t}, TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t}, BOR_{r3,k,h}^{m,t})\}$ $ORIA\_AMT_{r3,k,h}^{m,t} = [RT\_PROR_{r3,h}^{m,t} \times (RT\_QSOR_{r3,k,h}^{m,t} - TAOR_{k,h}^{m,t} - RT\_QSOR_{r1,k,h}^{m,t} - RT\_QSOR_{r2,k,h}^{m,t})] / 12$ <p>ii. otherwise, <math>COMP2\_CB_{r3,k,h}^{m,t} = 0</math> and <math>ORIA\_AMT_{r3,k,h}^{m,t} = 0</math></p> <p><b>For Dispatchable Generation Resources that are Pseudo-Units</b></p> <p><b>1. Combustion turbine generation unit associated with a pseudo-unit</b></p> $RT\_GOG\_CB_k^c = Max \left\{ (-1) \times RT\_GOG_k^c, Min \left[ 0, \sum_R^{T1} [ORSCB\_REV_{r,k,h}^{c,t} + COMP2\_CB_{r,k,h}^{c,t} - ORIA\_AMT_{r,k,h}^{c,t}] - \sum^{T1} RT\_MWP\_CB_{k,h}^{c,t} \right] \right\}$ <p><b>Where:</b></p> <p>a. T1 = the set of all metering intervals 't' beginning from the first metering interval that the combustion turbine generation unit is at minimum loading point within a real-time commitment period or a real-time reliability commitment period until the last metering interval that the combustion turbine generation unit is at minimum loading point within such real-time commitment period or a real-time reliability commitment period, as applicable</p> <p>b. <math>ORSCB\_REV_{r,k,h}^{c,t} = (-1) \times ORSCB_{r,k,h}^{c,t}</math></p> <p>c. <math>COMP2\_CB_{r,k,h}^{c,t}</math> and <math>ORIA\_AMT_{r,k,h}^{c,t}</math> are calculated as follows:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>A. For synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} &lt; RT\_QSOR_{r1,k,h}^{c,t}</math>, then</p> $COMP2\_CB_{r1,k,h}^{c,t} = \{OP[RT\_PROR_{r1,h}^{c,t}, RT\_QSOR_{r1,k,h}^{c,t}, BOR_{r1,k,h}^{c,t}] - OP(RT\_PROR_{r1,h}^{c,t}, TAOR\_CT_{k,h}^{c,t}, BOR_{r1,k,h}^{c,t})\}/12$ $ORIA\_AMT_{r1,k,h}^{c,t} = [RT\_PROR_{r1,h}^{c,t} \times (RT\_QSOR_{r1,k,h}^{c,t} - TAOR\_CT_{k,h}^{c,t})]/12$ <p>ii. otherwise <math>COMP2\_CB_{r1,k,h}^{c,t} = 0</math> and <math>ORIA\_AMT_{r1,k,h}^{c,t} = 0</math></p> <p>B. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} &lt; RT\_QSOR_{r2,k,h}^{c,t}</math>, then</p> $COMP2\_CB_{r2,k,h}^{c,t} = \{OP[RT\_PROR_{r2,h}^{c,t}, RT\_QSOR_{r2,k,h}^{c,t}, BOR_{r2,k,h}^{c,t}] - OP(RT\_PROR_{r2,h}^{c,t}, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}, BOR_{r2,k,h}^{c,t})\}/12$ $ORIA\_AMT_{r2,k,h}^{c,t} = [RT\_PROR_{r2,h}^{c,t} \times (RT\_QSOR_{r2,k,h}^{c,t} - Max(0, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t}))]/12$ <p>ii. otherwise <math>COMP2\_CB_{r2,k,h}^{c,t} = 0</math> and <math>ORIA\_AMT_{r2,k,h}^{c,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>C. For <i>thirty-minute operating reserve</i>:</p> <p>i. if <math>TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t} &lt; RT\_QSOR_{r3,k,h}^{c,t}</math>, then</p> $COMP2\_CB_{r3,k,h}^{c,t} = \{OP[RT\_PROR_{r3,h}^{c,t}, RT\_QSOR_{r3,k,h}^{c,t}, BOR_{r3,k,h}^{c,t}] - OP(RT\_PROR_{r3,h}^{c,t}, TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t}, BOR_{r3,k,h}^{c,t})\}/12$ $ORIA\_AMT_{r3,k,h}^{c,t} = [RT\_PROR_{r3,h}^{c,t} \times (RT\_QSOR_{r3,k,h}^{c,t} - TAOR\_CT_{k,h}^{c,t} - RT\_QSOR_{r1,k,h}^{c,t} - RT\_QSOR_{r2,k,h}^{c,t})]/12$ <p>ii. otherwise <math>COMP2\_CB_{r3,k,h}^{c,t} = 0</math> and <math>ORIA\_AMT_{r3,k,h}^{c,t} = 0</math></p> <p><b>2. Steam turbine generation unit associated with a pseudo-unit</b></p> $RT\_GOG\_CB_k^s = \text{Max}\left\{(-1) \times RT\_GOG_k^s, \text{Min}\left[0, \sum_R^{T1} [ORSCB\_REV_{r,k,h}^{s,t} + COMP2\_CB_{r,k,h}^{s,t} - ORIA\_AMT_{r,k,h}^{s,t}] - \sum^{T1} RT\_MWP\_CB_{k,h}^{s,t}\right]\right\}$ <p><b>Where:</b></p> <p>a. T1 = the set of all <i>metering intervals</i> 't' beginning from the first <i>metering interval</i> that the steam turbine generation unit is at <i>minimum loading point</i> within a <i>real-time commitment period</i> or a <i>real-time reliability commitment period</i> until the last <i>metering interval</i> that the steam turbine generation unit is at <i>minimum loading point</i> within such <i>real-time commitment period</i> or a <i>real-time reliability commitment period</i>, as applicable</p> <p>b. <math>RT\_GOG\_ORSCB_{k,h}^{s,t} = ORSCB_{k,h}^{s,t} \times \frac{\sum_R OR\_RT\_GOG\_DIGQ_{r,k,h}^{s,t}}{\sum_R RT\_QSOR_{r,k,h}^{s,t}}</math></p> <p>c. <math>RT\_GOG\_TAOR\_ST_{k,h}^{s,t} = TAOR\_ST_{k,h}^{s,t} \times \frac{\sum_R OR\_RT\_GOG\_DIGQ_{r,k,h}^{s,t}}{\sum_R RT\_QSOR_{r,k,h}^{s,t}}</math></p> <p>b. <math>COMP2\_CB_{r,k,h}^{s,t}</math> and <math>ORIA\_AMT_{r,k,h}^{s,t}</math> are calculated as follows:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>A. For synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>RT\_GOG\_TAOR\_ST_{k,h}^{s,t} &lt; RT\_QSOR_{r1,k,h}^{s,t}</math>, then</p> $COMP2\_CB_{r1,k,h}^{s,t} = \{OP[RT\_PROR_{r1,h}^{s,t}, RT\_QSOR_{r1,k,h}^{s,t}, BOR_{r1,k,h}^{s,t}] - OP(RT\_PROR_{r1,h}^{s,t}, RT\_GOG\_TAOR\_ST_{k,h}^{s,t}, BOR_{r1,k,h}^{s,t})\} / 12$ $ORIA\_AMT_{r1,k,h}^{s,t} = [RT\_PROR_{r1,h}^{s,t} \times (RT\_QSOR_{r1,k,h}^{s,t} - RT\_GOG\_TAOR\_ST_{k,h}^{s,t})] / 12$ <p>ii. otherwise <math>COMP2\_CB_{r1,k,h}^{s,t} = 0</math> and <math>ORIA\_AMT_{r1,k,h}^{s,t} = 0</math></p> <p>B. For non-synchronized <i>ten-minute operating reserve</i>:</p> <p>i. if <math>RT\_GOG\_TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} &lt; RT\_QSOR_{r2,k,h}^{s,t}</math>, then</p> $COMP2\_CB_{r2,k,h}^{s,t} = \{OP[RT\_PROR_{r2,h}^{s,t}, RT\_QSOR_{r2,k,h}^{s,t}, BOR_{r2,k,h}^{s,t}] - OP(RT\_PROR_{r2,h}^{s,t}, RT\_GOG\_TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}, BOR_{r2,k,h}^{s,t})\} / 12$ $ORIA\_AMT_{r2,k,h}^{s,t} = [RT\_PROR_{r2,h}^{s,t} \times (RT\_QSOR_{r2,k,h}^{s,t} - Max(0, RT\_GOG\_TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t}))] / 12$ <p>ii. otherwise <math>COMP2\_CB_{r2,k,h}^{s,t} = 0</math> and <math>ORIA\_AMT_{r2,k,h}^{s,t} = 0</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name                                       | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p>C. For thirty-minute operating reserve:</p> <p>i. if <math>RT\_GOG\_TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t} &lt; RT\_QSOR_{r3,k,h}^{s,t}</math>, then</p> $COMP2\_CB_{r3,k,h}^{s,t} = \{OP[RT\_PROR_{r3,h}^{s,t}, RT\_QSOR_{r3,k,h}^{s,t}, BOR_{r3,k,h}^{s,t}] - OP(RT\_PROR_{r3,h}^{s,t}, RT\_GOG\_TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t}, BOR_{r3,k,h}^{s,t})\}/12$ $ORIA\_AMT_{r3,k,h}^{s,t} = [RT\_PROR_{r3,h}^{s,t} \times (RT\_QSOR_{r3,k,h}^{s,t} - RT\_GOG\_TAOR\_ST_{k,h}^{s,t} - RT\_QSOR_{r1,k,h}^{s,t} - RT\_QSOR_{r2,k,h}^{s,t})]/12$ <p>ii. otherwise <math>COMP2\_CB_{r3,k,h}^{s,t} = 0</math> and <math>ORIA\_AMT_{r3,k,h}^{s,t} = 0</math></p>   |                       |          |                                      |   |                                     |  |          |
| 1917<br>MRP new    | Real-Time Ramp-Down Settlement Amount<br><br>(RT_RDSA) | MR Ch.9 s.4.6          | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> <p>1. receives a <i>real-time schedule</i> less than its <i>minimum loading point</i> during a period when the <i>GOG-eligible resource</i> has a <i>day-ahead schedule</i>:</p> $RT\_RDSA_k^m = \text{Max} \left( 0, \sum^T [(-1) \times OP(DAM\_LMP_h^m, AQEI_{k,h}^{m,t}, BE_{k,h}^{m,t}) - \text{Max} (0, (-1) \times OP(DAM\_LMP_h^m, AQEI_{k,h}^{m,t}, DAM\_BE_{k,h}^m))] \right)$ <p>2. receives a <i>real-time schedule</i> less than its <i>minimum loading point</i> during a period when the <i>GOG-eligible resource</i> does not have a <i>day-ahead schedule</i>:</p> $RT\_RDSA_k^m = \text{Max} \left( 0, \sum^T [(-1) \times OP(RT\_LMP_h^{m,t}, AQEI_{k,h}^{m,t}, BE_{k,h}^{m,t})] \right)$ <p><b>Where:</b></p> <p>a. T = ramp-down period determined as the set of all <i>metering intervals</i> 't' beginning with the first <i>metering interval</i> that the <i>GOG-eligible resource</i> is scheduled in the <i>real-time market</i> less than its <i>minimum loading point</i> and ends with the first <i>metering interval</i> following the start of 'T' in which the <i>real-time schedule</i> is zero or in which there is no <i>real-time schedule</i>; and</p> | Interval              | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

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|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>b. <math>BE_{k,h}^{m,t}</math> = the matrix of 'n' price-quantity pairs offered by market participant 'k' to supply energy during the settlement hour 'h' determined in accordance with the applicable market manual, where price is adjusted by being multiplied by the ramp-down factor specified in the applicable market manual.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> <p>1. receives a real-time schedule less than its minimum loading point during a period when the GOG-eligible resource has a day-ahead schedule:</p> $RT\_RDSA_k^c = \text{Max} \left( 0, \sum^T [(-1) \times OP(DAM\_LMP_h^c, AQEI_{k,h}^{c,t}, RT\_DIPC_{k,h}^{c,t}) - \text{Max} (0, (-1) \times OP(DAM\_LMP_h^c, AQEI_{k,h}^{c,t}, DAM\_DIPC_{k,h}^c))] \right)$ <p>2. receives a real-time schedule less than its minimum loading point during a period when the GOG-eligible resource does not have a day-ahead schedule:</p> $RT\_RDSA_k^c = \text{Max} \left( 0, \sum^T [(-1) \times OP(RT\_LMP_h^{c,t}, AQEI_{k,h}^{c,t}, RT\_DIPC_{k,h}^{c,t})] \right)$ <p><b>Where:</b></p> <p>a. T = ramp-down period determined as the set of all metering intervals 't' beginning with the first metering interval that the GOG-eligible resource is scheduled in the real-time market less than its minimum loading point and ends with the first metering interval following the start of 'T' in which the real-time schedule is zero or in which there is no real-time schedule; and</p> <p>b. <math>RT\_DIPC_{k,h}^{c,t}</math> = the matrix of 'n' price-quantity pairs during the settlement hour 'h' determined in accordance with the applicable market manual, where price is adjusted by being multiplied by the ramp-down factor specified in the applicable market manual.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> <p>1. receives a real-time schedule less than its 1-on-1 minimum loading point during a period when the GOG-eligible resource has a day-ahead schedule:</p> $RT\_RDSA_k^s = \text{Max} \left( 0, \sum^T [(-1) \times OP(DAM\_LMP_h^s, AQEI_{k,h}^{s,t}, RT\_DIPC_{k,h}^{s,t}) - \text{Max} (0, (-1) \times OP(DAM\_LMP_h^s, AQEI_{k,h}^{s,t}, DAM\_DIPC_{k,h}^s))] \right)$ |                       |          |                                      |   |                                     |  |          |



| Charge Type Number | Charge Type Name   | Market Rules Reference                         | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |  | <p>2. receives a <i>real-time schedule</i> less than its 1-on-1 <i>minimum loading point</i> during a period when the <i>GOG-eligible resource</i> does not have a <i>day-ahead schedule</i>:</p> $RT\_RDSA_k^s = \text{Max} \left( 0, \sum^T [(-1) \times OP(RT\_LMP_h^{s,t}, AQEI_{k,h}^{s,t}, RT\_DIPC_{k,h}^{s,t})] \right)$ <p><b>Where:</b></p> <p>a. T = ramp-down period determined as the set of all <i>metering intervals</i> 't' beginning with the first <i>metering interval</i> that the <i>GOG-eligible resource</i> is scheduled in the <i>real-time market</i> less than its 1-on-1 <i>minimum loading point</i> and ends with the first <i>metering interval</i> following the start of 'T' in which the <i>real-time schedule</i> is zero or in which there is no <i>real-time schedule</i>; and</p> <p>b. <math>RT\_DIPC_{k,h}^{s,t}</math> = the matrix of 'n' <i>price-quantity pairs</i>, during the <i>settlement hour</i> 'h' determined in accordance with the applicable <i>market manual</i>, where <i>price</i> is adjusted by being multiplied by the ramp-down factor specified in the applicable <i>market manual</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1920<br>MRP new    | Generator Failure Charge – Market Price Component<br><br>(GFC_MPC) | MR Ch.9<br>ss.4.10.5,<br>4.10.8, and<br>4.10.9 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> <p>1. if the <i>market participant</i> provides less than four hours of advance notice of a given <i>generator failure</i> or fails to provide such notice:</p> $GFC\_MPC_{k,h}^m = \sum^T \text{Min} [ 0, -1 \times (RT\_LMP_h^{m,t} - PD\_LMP_h^{m,pdm}) \times \text{Max} ( 0, PD\_QSI_{k,h}^{m,pdm} - \text{Max} ( AQEI_{k,h}^{m,t}, DAM\_QSI_{k,h}^m ) ) ] / 12$ <p>2. if the <i>market participant</i> provides four hours or greater advance notice of a given <i>generator failure</i>:</p> $GFC\_MPC_{k,h}^m = \sum^T \text{Min} [ 0, -1 \times ( \text{Min} ( RT\_LMP_h^{m,t}, PD\_LMP_h^{m,pd1} ) - PD\_LMP_h^{m,pdm} ) \times \text{Max} ( 0, PD\_QSI_{k,h}^{m,pdm} - \text{Max} ( AQEI_{k,h}^{m,t}, DAM\_QSI_{k,h}^m ) ) ] / 12$ <p><b>Where:</b></p> <p>a. T = the set of all <i>metering intervals</i> within <i>settlement hour</i> 'h' during which a <i>generator failure</i> is determined, in accordance with the applicable <i>market manual</i>, to have occurred at <i>delivery point</i> 'm'.</p>   | Hourly                | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> <p>1. if the <i>market participant</i> provides less than four hours of advance notice of a given <i>generator failure</i> or fails to provide such notice:</p> $GFC\_MPC_{k,h}^c = \sum^T \text{Min}[0, (-1) \times (RT\_LMP_h^{c,t} - PD\_LMP_h^{c,pdm}) \times \text{Max}(PD\_QSI_{k,h}^{c,pdm} - \text{Max}(AQEI_{k,h}^{c,t}, DAM\_QSI_{k,h}^c), 0)] / 12$ <p>2. if the <i>market participant</i> provides four hours or greater advance notice of a given <i>generator failure</i>:</p> $GFC\_MPC_{k,h}^c = \sum^T \text{Min}[0, (-1) \times (\text{Min}(RT\_LMP_h^{c,t}, PD\_LMP_h^{c,pd1}) - PD\_LMP_h^{c,pdm}) \times \text{Max}(PD\_QSI_{k,h}^{c,pdm} - \text{Max}(AQEI_{k,h}^{c,t}, DAM\_QSI_{k,h}^c), 0)] / 12$ <p><b>Where:</b></p> <p>a. T = the set of all <i>metering intervals</i> at within <i>settlement hour</i> 'h' during which a <i>generator failure</i> is determined, in accordance with the applicable <i>market manual</i>, to have occurred at combustion turbine <i>generation unit delivery point</i> 'c'.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $GFC\_MPC_{k,h}^s = \sum^T GFC\_MPC_{k,h}^{s,t}$ <p>1. if the <i>market participant</i> provides less than four hours of advance notice of a given <i>generator failure</i> or fails to provide such notice:</p> $GFC\_MPC_{k,h}^{s,t} = (-1) \times \text{Max}(RT\_LMP_h^{s,t} - \text{Min}\{c \in CT_F   PD\_LMP_h^{s,pdm}\}, 0) \times \text{Max}\left(\sum^{M_t} [RT\_STP\_QSI_{k,h}^{p,t}] + \sum^{N_t} [PD\_STP\_QSI_{k,h}^{p,pdm}] - AQEI_{k,h}^{s,t}, 0\right) / 12$ <p>2. if the <i>market participant</i> provides four hours or greater advance notice of a given <i>generator failure</i>:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference                  | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |   | $GFC\_MPC_{k,h}^{s,t} = (-1) \times \text{Max}(\text{Min}(RT\_LMP_h^{s,t}, PD\_LMP_h^{s,pd1}) - \text{Min}\{c \in CT_F   PD\_LMP_h^{s,pdm}\}, 0)$ $\times \text{Max}\left(\sum^{M_t} [RT\_STP\_QSI_{k,h}^{p,t}] + \sum^{N_t} [PD\_STP\_QSI_{k,h}^{p,pdm}] - AQEI_{k,h}^{s,t}, 0\right) / 12$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>b. T = the set of all <i>metering intervals</i> within <i>settlement hour</i> 'h' during which a <i>generator failure</i> is determined, in accordance with the applicable <i>market manual</i>, to have occurred at steam turbine <i>generation unit delivery point</i> 's'.</li> <li>c. CT<sub>F</sub> = the set of all combustion turbines associated with steam turbine <i>delivery point</i> 's' having a combustion turbine failure interval or are operating in <i>single cycle mode</i> during <i>metering interval</i> 't';</li> <li>d. M<sub>t</sub> = the set of all <i>pseudo-units</i> associated with the steam turbine <i>delivery point</i> 's' whose associated combustion turbine does not have a combustion turbine failure interval and are not operating in <i>single cycle mode</i> during <i>metering interval</i> 't'; and</li> <li>e. N<sub>t</sub> = the set of all <i>pseudo-units</i> associated with the steam turbine <i>delivery point</i> 's' whose associated combustion turbine has a combustion turbine failure interval or are operating in <i>single cycle mode</i> during <i>metering interval</i> 't'.</li> </ul> |                       |          |                                      |   |                                     |  |          |
| 1921<br>MRP new    | Generator Failure Charge – Guarantee Cost Component<br><br>(GFC_GCC) | MR Ch.9 ss.4.10.6, 4.10.10, and 4.10.11 | <p><b>GOG-eligible Resources not associated with a Pseudo-Unit</b></p> $GFC\_GCC_{k,f}^m = -1 \times \text{Max}\left[0, PD\_SU\_Ratio_{k,f}^m \times SU\_INCR_{k,f}^m + \sum^{T1} \frac{PD\_BE\_SNL_{k,h}^{m,pdm}}{12} - \sum^{T1} OP(PD\_LMP_h^{m,pdm}, PD\_QSI_{k,h}^{m,pdm}, PD\_BE_{k,h}^{m,pdm}) / 12\right] \times M1$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. T1 = the set of all contiguous <i>metering intervals</i> at <i>delivery point</i> 'm' of the relevant <i>generator failure</i>, determined in accordance with the applicable <i>market manual</i>;</li> <li>b. M1 = the prorating factor based on the quantity of <i>energy</i> that the <i>resource</i> failed to deliver and calculated as: <math display="block">M1 = \left[1 - \frac{\sum^{T1} \text{Min}(PD\_QSI_{k,h}^{m,pdm}, \text{Max}(AQEI_{k,h}^{m,t}, DAM\_QSI_{k,h}^m))}{(\sum^{T1} PD\_QSI_{k,h}^{m,pdm})}\right]</math> </li> <li>c. if the <i>pre-dispatch operational commitment</i> violated by the <i>generator failure</i> 'f':</li> </ul>  | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>i. advances a <i>day-ahead operational commitment</i>; and</p> <p>ii. the number of advancement hours of the <i>advanced pre-dispatch operational commitment</i> is less than its <i>minimum generation block run-time</i> plus its <i>minimum generation block down-time</i>, then</p> $SU\_INCR_{k,f}^m = \text{Max} (0, PD\_BE\_SU_{k,f}^{m,pdm} - DAM\_BE\_SU_{k,f}^m)$ <p>d. if the <i>pre-dispatch operational commitment</i> violated by the <i>generator failure</i> 'f':</p> <p>i. is an <i>extended pre-dispatch operational commitment</i>, then <math>SU\_INCR_{k,f}^m = 0</math></p> <p>ii. otherwise, <math>SU\_INCR_{k,f}^m = PD\_BE\_SU_{k,f}^{m,pdm}</math></p> <p>e. <math>PD\_SU\_Ratio_{k,f}^m</math> = prorating factor for <i>market participant</i> 'k' at <i>delivery point</i> 'm' for <i>generator failure</i> 'f', and calculated as:</p> <p>i. if the <i>pre-dispatch operational commitment</i> violated by the <i>generator failure</i> 'f' is an <i>extended pre-dispatch operational commitment</i>, then <math>PD\_SU\_RATIO_{k,f}^m = 0</math></p> <p>ii. otherwise, <math>PD\_SU\_Ratio_{k,f}^m = \text{Min} \left( 1, \frac{MLP\_INJ_{k,f}^m}{PD\_MGBRT_{k,f}^m} \right)</math></p> <p><b>Where:</b></p> <p>a. <math>MLP\_INJ_{k,f}^m</math> = the number of <i>metering intervals</i> where the <i>GOG-eligible resource</i> for <i>market participant</i> 'k' injects <i>energy</i> into the <i>IESO-controlled grid</i> at <i>delivery point</i> 'm' in an amount less than its <i>minimum loading point</i> during the <i>minimum generation block run-time</i> associated with the <i>pre-dispatch operational commitment</i> associated with <i>generator failure</i> 'f'; and</p> <p>b. <math>PD\_MGBRT_{k,f}^m</math> = the number of <i>metering intervals</i> of the <i>minimum generation block run-time</i> associated with the <i>pre-dispatch operational commitment</i> associated with <i>generator failure</i> 'f' for <i>market participant</i> 'k' at <i>delivery point</i> 'm'.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Combustion Turbine</b></p> $GFC\_GCC_{k,f}^c = (-1) \times \text{Max} \left[ 0, PD\_SU\_Ratio_{k,f}^c \times SU\_INCR_{k,f}^{p, pdm} \times (1 - ST\_Portion_{k,d1}^p) + \sum^{T1} \left( \frac{PD\_BE\_SNI_{k,h}^{p, pdm}}{12} \times (1 - ST\_Portion_{k,d1}^p) - \frac{OP(PD\_LMP_h^{c, pdm}, PD\_QSI_{k,h}^{c, pdm}, PD\_DIPC_{k,h}^{c,t})}{12} \right) \right] \times M1$ <p><b>Where:</b></p> <p>a. T1 = the set of all contiguous <i>metering intervals</i> at combustion turbine <i>generation unit delivery point</i> 'c' of the relevant <i>generator failure</i>, determined in accordance with the applicable <i>market manual</i>;</p> <p>b. M1 = the prorating factor based on the quantity of <i>energy</i> that the <i>resource</i> failed to deliver and calculated as:</p> $M1 = \left[ 1 - \frac{\sum^{T1} \text{Min} \left( PD\_QSI_{k,h}^{c, pdm}, \text{Max} \left( AQEI_{k,h}^{c,t}, DAM\_QSI_{k,h}^c \right) \right)}{\left( \sum^{T1} PD\_QSI_{k,h}^{c, pdm} \right)} \right]$ <p>c. if the <i>pre-dispatch operational commitment</i> violated by the failure 'f' bridges with a <i>day-ahead operational commitment</i> and the number of advancement hours of the <i>advanced pre-dispatch operational commitment</i> is less than its <i>minimum generation block run-time</i> plus its <i>minimum generation block down-time</i>:</p> $SU\_INCR_{k,f}^{p, pdm} = \text{Max} \left( 0, PD\_BE\_SU_{k,f}^{p, pdm} - DAM\_BE\_SU_{k,f}^p \right)$ <p>d. if the <i>pre-dispatch operational commitment</i> violated by the <i>generator failure</i> 'f':</p> <ol style="list-style-type: none"> <li>i. is an <i>extended pre-dispatch operational commitment</i>, then <math>SU\_INCR_{k,f}^{p, pdm} = 0</math></li> <li>ii. otherwise, <math>SU\_INCR_{k,f}^{p, pdm} = PD\_BE\_SU_{k,f}^{p, pdm}</math></li> </ol> <p>e. <math>PD\_SU\_Ratio_{k,f}^c</math> = prorating factor for <i>market participant</i> 'k' at combustion turbine <i>delivery point</i> 'c' for <i>generator failure</i> 'f', and calculated as:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>i. if the <i>pre-dispatch operational commitment</i> violated by the <i>generator failure</i> 'f' is an <i>extended pre-dispatch operational commitment</i>, then <math>PD\_SU\_Ratio_{k,f}^c = 0</math></p> <p>ii. otherwise, <math>PD\_SU\_Ratio_{k,f}^c = \text{Min} \left( 1, \frac{MLP\_INJ_{k,f}^c}{PD\_MGBRT_{k,f}^c} \right)</math></p> <p><b>Where:</b></p> <p>a. <math>MLP\_INJ_{k,f}^c</math> = the number of <i>metering intervals</i> where the <i>GOG-eligible resource</i> for <i>market participant</i> 'k' injects <i>energy</i> into the <i>IESO-controlled grid</i> at <i>combustion turbine delivery point</i> 'c' in an amount less than its <i>minimum loading point</i> during the <i>minimum generation block run-time</i> associated with the <i>pre-dispatch operational commitment</i> associated with <i>generator failure</i> 'f'; and</p> <p>b. <math>PD\_MGBRT_{k,f}^c</math> = for <i>market participant</i> 'k' at <i>combustion turbine delivery point</i> 'c', the number of <i>metering intervals</i> of the <i>minimum generation block run-time</i> associated with the <i>pre-dispatch operational commitment</i> associated with <i>generator failure</i> 'f'.</p> <p><b>GOG-eligible Resources Associated with a Pseudo-Unit: Steam Turbine</b></p> $GFC\_GCC_k^s = (-1) \times \text{Max} \left[ 0, \sum^F (PD\_SU\_Ratio_{k,f}^c \times SU\_INCR_{k,f}^{p,pdm} \times ST\_Portion_{k,d1}^p) + \sum^{T1} \sum^{CT_f} \left( \frac{PD\_BE\_SNI_{k,h}^{p,pdm}}{12} \times ST\_Portion_{k,d1}^p \right) - \sum^{T1} (OP[\text{Min}\{c \in CT_f   PD\_LMP_h^{s,pdm}\}, PD\_DIGQ_{k,h}^{s,t}, PD\_DIPC_{k,h}^{s,t}] / 12) \right] \times M1$ <p><b>Where:</b></p> <p>a. T1 = the set of all contiguous <i>metering intervals</i> at <i>steam turbine generation unit delivery point</i> 's' of the relevant <i>generator failure</i>, determined in accordance with the applicable <i>market manual</i>;</p> <p>b. M1 = the prorating factor based on the quantity of <i>energy</i> that the <i>resource</i> failed to deliver and calculated as:</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | $M1 = \left[ 1 - \frac{\sum^{T1} \text{Min}(\sum^{N_t} [PD\_STP\_QSI_{k,h}^{p,ddm}], \text{Max}(AQEI_{k,h}^{s,t} - \sum^{M_t} (RT\_STP\_QSI_{k,h}^{p,t}), \sum^{N_t} DAM\_STP\_QSI_{k,h}^p))}{\sum^{T1} \sum^{N_t} [PD\_STP\_QSI_{k,h}^{p,ddm}]} \right]$ <p>c. if the combustion turbine's <i>pre-dispatch operational commitment</i> violated by failure 'f' bridges with a <i>day-ahead operational commitment</i> and the number of pre-dispatch advancement hours is less than its <i>minimum generation block run-time</i> plus its <i>minimum generation block down-time</i>:</p> $SU\_INCR_{k,f}^{p,ddm} = \text{Max}(0, PD\_BE\_SU_{k,f}^{p,ddm} - DAM\_BE\_SU_{k,f}^p)$ <p>d. if the <i>pre-dispatch operational commitment</i> violated by the <i>generator failure</i> 'f':</p> <ol style="list-style-type: none"> <li>is an <i>extended pre-dispatch operational commitment</i>, then <math>SU\_INCR_{k,f}^{p,ddm} = 0</math></li> <li>otherwise, <math>SU\_INCR_{k,f}^{p,ddm} = PD\_BE\_SU_{k,f}^{p,ddm}</math></li> </ol> <p>e. <math>PD\_SU\_Ratio_{k,f}^c</math> = prorating factor for <i>market participant</i> 'k' at combustion turbine <i>delivery point</i> 'c' for <i>generator failure</i> 'f', and calculated as:</p> <ol style="list-style-type: none"> <li>if the <i>pre-dispatch operational commitment</i> violated by the <i>generator failure</i> 'f' is an <i>extended pre-dispatch operational commitment</i>, then <math>PD\_SU\_Ratio_{k,f}^c = 0</math></li> <li>otherwise, <math>PD\_SU\_Ratio_{k,f}^c = \text{Min}\left(1, \frac{MLP\_INJ_{k,f}^c}{PD\_MGBRT_{k,f}^c}\right)</math></li> </ol> <p><b>Where:</b></p> <ol style="list-style-type: none"> <li><math>CT_f</math> = the set of all combustion turbines associated with steam turbine <i>delivery point</i> 's' having a combustion turbine failure interval during <i>metering interval</i> 't';</li> <li><math>M_t</math> = the set of all <i>pseudo-units</i> associated with steam turbine <i>delivery point</i> 's' whose associated combustion turbine does not have a combustion turbine failure interval and are not operating in <i>single cycle mode</i> during <i>metering interval</i> 't';</li> <li><math>N_t</math> = the set of all <i>pseudo-units</i> associated with steam turbine <i>delivery point</i> 's' whose associated combustion turbine has a combustion turbine failure interval or are operating in <i>single cycle mode</i> during <i>metering interval</i> 't';</li> </ol> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name                                   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p>d. F = the set of all combustion turbine or steam turbine failures 'f' occurring during the period 'T1';</p> <p>e. <math>MLP\_IN_{k,f}^i</math> = the number of <i>metering intervals</i> where the <i>GOG-eligible resource</i> for <i>market participant 'k'</i> injects <i>energy</i> into the <i>IESO-controlled grid</i> at combustion turbine <i>delivery point 'c'</i> in an amount less than its <i>minimum loading point</i> during the <i>minimum generation block run-time</i> associated with the <i>pre-dispatch operational commitment</i> associated with <i>generator failure 'f'</i>; and</p> <p>f. <math>PD\_MGBRT_{k,f}^c</math> = for <i>market participant 'k'</i> at combustion turbine <i>delivery point 'c'</i>, the number of <i>metering intervals</i> of the <i>minimum generation block run-time</i> associated with the <i>pre-dispatch operational commitment</i> associated with <i>generator failure 'f'</i>.</p>  |                       |          |                                      |   |                                     |  |          |
| 1927<br>MRP new    | Real-Time Intertie Offer Guarantee<br><br>(RT_IOG) | MR Ch.9 s.3.6          | $RT\_IOG_{k,h}^i = \text{Max}[Potential\_IOG_{k,h}^i - IOG\_Offset_{k,h}^i, 0]$ <p><b>Where:</b></p> <p>a. <math>IOG\_Offset_{k,h}^i</math> = the real-time <i>intertie offer guarantee settlement amount</i> offset for <i>market participant 'k'</i> in <i>settlement hour 'h'</i> in respect of <i>intertie metering point 'i'</i>, and calculated as:</p> $IOG\_Offset_{k,h}^i = OFFSET\_MW_{k,h}^i \times IOG\_RATE_{k,h}^i$ <p><b>and where:</b></p> <p>i. <math>IOG\_RATE_{k,h}^i = \frac{Potential\_IOG_{k,h}^i}{(\sum^T SQEI_{k,h}^{i,t} - DAM\_QSI_{k,h}^i) / 12}</math></p> <p>ii. <math>IOG\_RATE_{k,h}^i</math> shall be zero if <math>DAM\_QSI_{k,h}^i</math> is greater than or equal to <math>SQEI_{k,h}^i</math>; and</p> <p>iii. <math>OFFSET\_MW_{k,h}^i</math> = the offset quantity of an eligible <i>energy import transaction</i> scheduled in the <i>real-time market</i>, as determined in accordance with MR Ch.9 s.3.6.5.</p> <p>b. <math>Potential\_IOG_{k,h}^i = (-1) \times \text{Min} [0, \sum^T OP (RT\_LMP_h^{i,t}, SQEI_{k,h}^{i,t}, BE_{k,h}^{i,t}) - \sum^T OP (RT\_LMP_h^{i,t}, \text{Min}[SQEI_{k,h}^{i,t}, DAM\_QSI_{k,h}^i], BE_{k,h}^{i,t})] / 12</math></p> | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |



| Charge Type Number | Charge Type Name   | Market Rules Reference                       | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|--|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1928<br>MRP new    | Real-Time Import Failure Charge<br><br>(RT_IMFC)                     | MR Ch.9<br>ss.3.7.1-3.7.4                    | $RT\_IMFC_{k,h}^i = \sum^T [(-1) \times \text{Min}(\text{Max}(0, (RT\_IBP_h^{i,t} + PB\_IM_h^i - PD\_IBP_h^i) \times RT\_ISD_{k,h}^{i,t}), \text{Max}(0, RT\_IBP_h^{i,t} \times RT\_ISD_{k,h}^{i,t})) + \text{Min}(0, RT\_PEC_h^{i,t} + RT\_PNISL_{k,h}^{i,t}) \times RT\_ISD_{k,h}^{i,t}] / 12$ <p><b>Where:</b><br/>                     a. <math>RT\_ISD_{k,h}^{i,t} = \text{Max}(PD\_QSI_{k,h}^i - \text{Max}(DAM\_QSI_{k,h}^i, SQEI_{k,h}^i), 0)</math>.</p> | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1929<br>MRP new    | Real-Time Export Failure Charge<br><br>(RT_EXFC)                     | MR Ch.9<br>ss.3.7.1-3.7.2, and 3.7.5 – 3.7.6 | $RT\_EXFC_{k,h}^i = \sum^T [(-1) \times \text{Min}(\text{Max}(0, (PD\_IBP_h^i - PB\_EX_h^i - RT\_IBP_h^{i,t}) \times RT\_ESD_{k,h}^{i,t}), \text{Max}(0, PD\_IBP_h^i \times RT\_ESD_{k,h}^{i,t})) - \text{Max}(0, RT\_PEC_h^{i,t} + RT\_PNISL_{k,h}^{i,t}) \times RT\_ESD_{k,h}^{i,t}] / 12$ <p><b>Where:</b><br/>                     a. <math>RT\_ESD_{k,h}^{i,t} = \text{Max}(PD\_QSW_{k,h}^i - \text{Max}(DAM\_QSW_{k,h}^i, SQEW_{k,h}^{i,t}), 0)</math>.</p> | Interval              | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1930<br>MRP new    | Day-Ahead Market Reference Level Settlement Charge<br><br>(DAM_RLSC) | MR Ch.9<br>s.5.2                             | $DAM\_RLSC_{k,h}^m = -1 \times DAM\_QSI_{k,h}^m \times (DAM\_LMP_h^m - DAM\_PLCP_{k,h}^m)$ <p><b>Where:</b><br/>                     a. <math>DAM\_PLCP_{k,h}^m</math> = the price component P<sub>n</sub> of N-by-2 matrix (<math>DAM\_RLL_{k,h}^m</math>) of price-quantity pairs where 'n' is the highest indexed row of the matrix such that <math>DAM\_QSI_{k,h}^m \leq Q_n</math>.</p>  | Hourly                | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1931<br>MRP new    | Real-Time Reference Level Settlement Charge                          | MR Ch.9<br>s.5.3                             | $RT\_RLSC_{k,h}^m = -1 \times \sum^T (RT\_QSI_{k,h}^{m,t} \times (RT\_LMP_h^{m,t} - RT\_PLCP_{k,h}^m))$   | Hourly                | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

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|--------------------|---|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | (RT_RLSC)   |                        | <p><b>Where:</b></p> <p>a. <math>RT\_PLCP_{k,h}^m</math> = the price component <math>P_n</math> of N-by-2 matrix <math>(RT\_RLL_{k,h}^m)</math> of <i>price-quantity pairs</i> where 'n' is the highest indexed row of the matrix such that <math>RT\_QSI_{k,h}^m \leq Q_n</math>.</p>  |                       |          |                                      |   |                                     |  |          |
| 1932<br>MRP new    | Mitigation Amount for Physical Withholding – Energy<br><br>(EXP_PWSC) | MR Ch.9<br>s.5.4.1.1   | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for physical withholding equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the <i>IESO</i>.</p> $PW\_E_k^m = -1 \times \sum^H \text{Max}(DAM\_PW_{k,h}^m, RT\_PW_{k,h}^m) \times PM\_PW_{mcepw}$ <p><b>Where:</b></p> <p>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in either the <i>day-ahead market</i> or the <i>real-time market</i>;</p> <p>b. <math>PM\_PW_{mcepw}</math> = the persistence multiplier applicable to the relevant <i>trading day</i> for the <i>market control entity</i> for <i>physical withholding</i> 'mcepw' that the <i>registered market participant</i> for the applicable <i>resource</i> designated, as determined with the applicable <i>market manual</i>; and</p> <p>c. <math>DAM\_PW_{k,h}^m = 1.5 \times (MWhs\ Failed_{k,h}^m) \times (DAM\_LMP_h^m)</math></p> <p><b>Where:</b></p> <p>i. h = the <i>settlement hour</i> in the relevant <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>day-ahead market</i>; and</p> <p>ii. <math>MWhs\ Failed_{k,h}^m</math> = the quantity of <i>energy</i> (in MWhs) for <i>market participant</i> 'k' at <i>delivery point</i> 'm' for <i>settlement hour</i> 'h', as determined in accordance with the following:</p> <p>a. if the <i>IESO</i> is assessing <i>physical withholding</i> in only the <i>real-time market</i>, it is deemed to be zero; and</p> <p>b. otherwise, it is determined by subtracting the <i>market participant's energy offer</i> from the <i>energy reference quantity value</i> or <i>alternative reference quantity value</i>, as the case may be, of the <i>resource</i> associated with the <i>offer</i>.</p> <p>d. <math>RT\_PW_{k,h}^m = 1.5 \times \sum^T (MWhs\ Failed_{k,h}^{m,t}) \times (RT\_LMP_h^{m,t})</math></p> | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. T = the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h' for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>real-time market</i>; and</li> <li>ii. <math>MWhs\ Failed_{k,h}^{m,t}</math> = the quantity of <i>energy</i> (in MWhs) for <i>market participant</i> 'k' at <i>delivery point</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h', as determined in accordance with the following: <ul style="list-style-type: none"> <li>a. if the <i>IESO</i> is assessing <i>physical withholding</i> in only the <i>day-ahead market</i>, it is deemed to be zero; and</li> <li>b. otherwise, it is determined by subtracting the <i>market participant's energy offer</i> from the <i>energy offer reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</li> </ul> </li> </ul>  |                       |          |                                      |   |                                     |  |          |
| 1933<br>MRP new    | Mitigation Amount for Physical Withholding – 10S Operating Reserve<br><br>(EXP_PWSC) | MR Ch.9 s.5.4.1.2      | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for physical withholding equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the <i>IESO</i>.</p> $PW\_OR_k^m = -1 \times \sum^H \text{Max}(DAM\_PW_{k,h}^m, RT\_PW_{k,h}^m) \times PM\_PW_{mce}$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in either the <i>day-ahead market</i> or the <i>real-time market</i>;</li> <li>b. <math>PM\_PW_{mce}</math> = the persistence multiplier applicable to the relevant <i>trading day</i> for the <i>market control entity</i> for <i>physical withholding</i> 'mce' for the applicable <i>resource</i> designated, as determined with the applicable <i>market manual</i>;</li> <li>c. <math>DAM\_PW_{k,h}^m = 1.5 \times (MWhs\ Failed_{r1,k,h}^m \times DAM\_PROR_{r1,h}^m)</math></li> </ul> <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. h = the <i>settlement hour</i> in the relevant <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>day-ahead market</i>; and</li> </ul> | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | ii. $MWs\ Failed_{r1,k,h}^m$ = the quantity of spinning <i>ten-minute operating reserve</i> (in MWs) for <i>market participant 'k'</i> at <i>delivery point 'm'</i> for <i>settlement hour 'h'</i> , as determined in accordance with the following: <ul style="list-style-type: none"> <li>a. if the <i>IESO</i> is assessing <i>physical withholding</i> in only the <i>real-time market</i>, it is deemed to be zero; and</li> <li>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</li> </ul> d. $RT\_PW_{k,h}^m = 1.5 \times \sum^T (MWs\ Failed_{r1,k,h}^{m,t} \times RT\_PROR_{r1,h}^{m,t})$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. T = the set of all <i>metering intervals 't'</i> in <i>settlement hour 'h'</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>real-time market</i>; and</li> <li>ii. <math>MWs\ Failed_{r1,k,h}^{m,t}</math> = the quantity of spinning <i>ten-minute operating reserve</i> (in MWs) for <i>market participant 'k'</i> at <i>delivery point 'm'</i> in <i>metering interval 't'</i> of <i>settlement hour 'h'</i>, as determined in accordance with the following:                             <ul style="list-style-type: none"> <li>a. if the <i>IESO</i> is assessing <i>physical withholding</i> in only the <i>day-ahead market</i>, it is deemed to be zero; and</li> <li>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</li> </ul> </li> </ul> |                       |          |                                      |   |                                     |  |          |
| 1934<br>MRP new    | Mitigation Amount for Physical Withholding – 10N Operating Reserve<br><br>(EXP_PWSC) | MR Ch.9 s.5.4.1.2      | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for physical withholding equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the <i>IESO</i>.</p> $PW\_OR_k^m = -1 \times \sum^H \text{Max}(DAM\_PW_{k,h}^m, RT\_PW_{k,h}^m) \times PM\_PW_{mce}$   | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in either the <i>day-ahead market</i> or the <i>real-time market</i>;</li> <li>b. <math>PM\_PW_{mce}</math> = the persistence multiplier applicable to the relevant <i>trading day</i> for the <i>market control entity</i> for <i>physical withholding</i> 'mce' for the applicable <i>resource</i> designated, as determined with the applicable <i>market manual</i>;</li> <li>c. <math>DAM\_PW_{k,h}^m = 1.5 \times (MWS\ Failed_{r2,k,h}^m \times DAM\_PROR_{r2,h}^m)</math></li> </ul> <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. h = the <i>settlement hour</i> in the relevant <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>day-ahead market</i>; and</li> <li>ii. <math>MWS\ Failed_{r2,k,h}^m</math> = the quantity of non-spinning <i>ten-minute operating reserve</i> (in MWs) for <i>market participant</i> 'k' at <i>delivery point</i> 'm' for <i>settlement hour</i> 'h', as determined in accordance with the following: <ul style="list-style-type: none"> <li>a. if the <i>IESO</i> is assessing <i>physical withholding</i> in only the <i>real-time market</i>, it is deemed to be zero; and</li> <li>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</li> </ul> </li> </ul> <p>d. <math>RT\_PW_{k,h}^m = 1.5 \times \sum^T (MWS\ Failed_{r2,k,h}^{m,t} \times RT\_PROR_{r2,h}^{m,t})</math></p> <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. T = the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h' for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>real-time market</i>; and</li> <li>ii. <math>MWS\ Failed_{r2,k,h}^{m,t}</math> = the quantity of non-spinning <i>ten-minute operating reserve</i> (in MWs) for <i>market participant</i> 'k' at <i>delivery point</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h', as determined in accordance with the following: <ul style="list-style-type: none"> <li>a. if the <i>IESO</i> is assessing <i>physical withholding</i> in only the <i>day-ahead market</i>, it is deemed to be zero; and</li> </ul> </li> </ul> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p>   |                       |          |                                      |   |                                     |  |          |
| 1935<br>MRP new    | Mitigation Amount for Physical Withholding – 30R Operating Reserve<br><br>(EXP_PWSC) | MR Ch.9<br>s.5.4.1.2   | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for physical withholding equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the <i>IESO</i>.</p> $PW\_OR_k^m = -1 \times \sum^H \text{Max}(DAM\_PW_{k,h}^m, RT\_PW_{k,h}^m) \times PM\_PW_{mce}$ <p><b>Where:</b></p> <p>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in either the <i>day-ahead market</i> or the <i>real-time market</i>;</p> <p>b. <math>PM\_PW_{mce}</math> = the persistence multiplier applicable to the relevant <i>trading day</i> for the <i>market control entity</i> for <i>physical withholding</i> 'mce' for the applicable <i>resource</i> designated, as determined with the applicable <i>market manual</i>;</p> <p>c. <math>DAM\_PW_{k,h}^m = 1.5 \times (MWS\ Failed_{r3,k,h}^m \times DAM\_PROR_{r3,h}^m)</math></p> <p><b>Where:</b></p> <p>i. h = the <i>settlement hour</i> in the relevant <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>day-ahead market</i>; and</p> <p>ii. <math>MWS\ Failed_{r3,k,h}^m</math> = the quantity of <i>thirty-minute operating reserve</i> (in MWs) for <i>market participant</i> 'k' at <i>delivery point</i> 'm' for <i>settlement hour</i> 'h', as determined in accordance with the following:</p> <p>a. if the <i>IESO</i> is assessing <i>physical withholding</i> in only the <i>real-time market</i>, it is deemed to be zero; and</p> <p>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p> <p>d. <math>RT\_PW_{k,h}^m = 1.5 \times \sum^T (MWS\ Failed_{r3,k,h}^{m,t} \times RT\_PROR_{r3,h}^{m,t})</math></p> | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                        | <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. T = the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h' for which the IESO determined that the <i>market participant</i> engaged in <i>physical withholding</i> in the <i>real-time market</i>; and</li> <li>ii. <math>MWs\ Failed_{r3,k,h}^{m,t}</math> = the quantity of <i>thirty-minute operating reserve</i> (in MWs) for <i>market participant</i> 'k' at <i>delivery point</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h', as determined in accordance with the following: <ul style="list-style-type: none"> <li>a. if the IESO is assessing <i>physical withholding</i> in only the <i>day-ahead market</i>, it is deemed to be zero; and</li> <li>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</li> </ul> </li> </ul>  |                       |          |                                      |   |                                     |  |          |
| 1936<br>MRP new    | Mitigation Amount for Intertie Economic Withholding – Energy<br><br>(EXP_EWSC) | MR Ch.9 s.5.5.1.1      | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for economic withholding on uncompetitive interties equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the IESO.</p> $EW\_E_k^i = -1 \times \sum^H \text{Max}(DAM\_EWUI_{k,h}^i, RT\_EWUI_{k,h}^i)$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the IESO determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>day-ahead market</i>, <i>real-time market</i>, or both;</li> <li>b. <math>DAM\_EWUI_{k,h}^i = (MWhs\ Failed_{k,h}^i) \times DAM\_LMP_h^i</math></li> </ul> <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>i. h = the <i>settlement hour</i> for which the IESO determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>day-ahead market</i>; and</li> <li>ii. <math>MWhs\ Failed_{k,h}^i</math> = the quantity of <i>energy</i> (in MWhs) for <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' for <i>settlement hour</i> 'h', as determined in accordance with the following: <ul style="list-style-type: none"> <li>a. if the IESO is assessing <i>intertie economic withholding</i> in only the <i>real-time market</i>, it is deemed to be zero; and</li> </ul> </li> </ul> | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                        | <p>b. otherwise, it is determined by subtracting the <i>market participant's energy offer</i> from the <i>energy reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p> <p>c. <math>RT\_EWUI_{k,h}^i = \sum^T (MWhs\ Failed_{k,h}^{i,t}) \times (RT\_LMP_h^{i,t})</math></p> <p><b>Where:</b></p> <p>i. T = the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h' for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>real-time market</i>; and</p> <p>ii. <math>MWhs\ Failed_{k,h}^{i,t}</math> = the quantity of <i>energy</i> (in MWhs) for <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' for <i>settlement hour</i> 'h', as determined in accordance with the following:</p> <p>a. if the <i>IESO</i> is assessing <i>intertie economic withholding</i> in only the <i>day-ahead market</i>, it is deemed to be zero; and</p> <p>b. otherwise, it is determined by subtracting the <i>market participant's energy offer</i> from the <i>energy reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1937<br>MRP new    | Mitigation Amount for Intertie Economic Withholding – 10N Operating Reserve<br><br>(EXP_EWSC) | MR Ch.9 s.5.5.1.3      | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for economic withholding on uncompetitive interties equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the <i>IESO</i>.</p> <p><math>EW\_OR_k^i = -1 \times \sum^H Max(DAM\_EWUI_{k,h}^i, RT\_EWUI_{k,h}^i)</math></p> <p><b>Where:</b></p> <p>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in either the <i>day-ahead market</i> or the <i>real-time market</i>;</p> <p>b. <math>DAM\_EWUI_{k,h}^i = (MWhs\ Failed_{r2,k,h}^i \times DAM\_PROR_{r2,h}^i)</math></p> <p><b>Where:</b></p> <p>i. h = the <i>settlement hour</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>day-ahead market</i>; and</p>  | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |



| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                        | <p>ii. <math>MWs\ Failed_{r2,k,h}^i</math> = the quantity of non-spinning <i>ten-minute operating reserve</i> (in MWs) for <i>market participant 'k'</i> at <i>intertie metering point 'i'</i> for <i>settlement hour 'h'</i>, as determined in accordance with the following:</p> <p>a. if the <i>IESO</i> is assessing <i>intertie economic withholding</i> in only the <i>real-time market</i>; it is deemed to be zero; and</p> <p>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p> <p>c. <math>RT\_EWUI_{k,h}^i = \sum^T (MWs\ Failed_{r2,k,h}^{i,t} \times RT\_PROR_{r2,h}^{i,t})</math></p> <p><b>Where:</b></p> <p>i. T = the set of all <i>metering intervals 't'</i> in <i>settlement hour 'h'</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>real-time market</i>; and</p> <p>ii. <math>MWs\ Failed_{r2,k,h}^{i,t}</math> = the quantity of non-spinning <i>ten-minute operating reserve</i> (in MWs) for <i>market participant 'k'</i> at <i>intertie metering point 'i'</i> for <i>metering interval 't'</i> in <i>settlement hour 'h'</i>, as determined in accordance with the following:</p> <p>a. if the <i>IESO</i> is assessing <i>intertie economic withholding</i> in only the <i>day-ahead market</i>; it is deemed to be zero; and</p> <p>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p> |                       |          |                                      |   |                                     |  |          |
| 1938<br>MRP new    | Mitigation Amount for Intertie Economic Withholding – 30R Operating Reserve<br><br>(EXP_EWSC) | MR Ch.9<br>s.5.5.1.3   | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for economic withholding on uncompetitive interties equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the <i>IESO</i>.</p> $EW\_OR_k^i = -1 \times \sum^H Max(DAM\_EWUI_{k,h}^i, RT\_EWUI_{k,h}^i)$ <p><b>Where:</b></p>  | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                        | <p>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in either the <i>day-ahead market</i> or the <i>real-time market</i>;</p> <p>b. <math>DAM\_EWUI_{k,h}^i = (MWS\ Failed_{r3,k,h}^i \times DAM\_PROR_{r3,h}^i)</math></p> <p><b>Where:</b></p> <p>i. h = the <i>settlement hour</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>day-ahead market</i>; and</p> <p>ii. <math>MWS\ Failed_{r3,k,h}^i</math> = the quantity of <i>thirty-minute operating reserve</i> (in MWs) for <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' for <i>settlement hour</i> 'h', as determined in accordance with the following:</p> <p>a. if the <i>IESO</i> is assessing <i>intertie economic withholding</i> in only the <i>real-time market</i>, it is deemed to be zero; and</p> <p>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p> <p>c. <math>RT\_EWUI_{k,h}^i = \sum^T (MWS\ Failed_{r3,k,h}^{i,t} \times RT\_PROR_{r3,h}^{i,t})</math></p> <p><b>Where:</b></p> <p>i. T = the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h' for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>real-time market</i>; and</p> <p>ii. <math>MWS\ Failed_{r3,k,h}^{i,t}</math> = the quantity of <i>thirty-minute operating reserve</i> (in MWs) for <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' for <i>metering interval</i> 't' in <i>settlement hour</i> 'h', as determined in accordance with the following:</p> <p>a. if the <i>IESO</i> is assessing <i>intertie economic withholding</i> in only the <i>day-ahead market</i>, it is deemed to be zero; and</p> <p>b. otherwise, it is determined by subtracting the <i>market participant's operating reserve offer</i> from the <i>operating reserve reference quantity value</i> of the <i>resource</i> associated with the <i>offer</i>.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|-----------------|--------------------------------------|---|-------------------------------------|--|----------|
| 1939<br>MRP new    | Mitigation Amount for Intertie Economic Withholding – Make-Whole Payment<br><br>(EXP_EWSC) | MR Ch.9 s.5.5.1.2      | <p><b>NOTE:</b> this <i>charge type</i> has -1 added before the summation sign as it has been separated from the larger ex-post mitigation for economic withholding on uncompetitive interties equation within the <i>market rules</i>, in which the total <i>settlement amount</i> is multiplied by -1 because it is an amount owing to the <i>IESO</i>.</p> $EW\_MWP_k^i = -1 \times \sum^H (DAM\_MWP_{k,h}^i - IRL\_DAM\_MWP_{k,h}^i) + (RT\_MWP_{k,h}^i - IRL\_RT\_MWP_{k,h}^i) + (RT\_IOG_{k,h}^i - IRL\_RT\_IOG_{k,h}^i)$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. H = the set of <i>settlement hours</i> 'h' of the <i>trading day</i> for which the <i>IESO</i> determined that the <i>market participant</i> engaged in <i>intertie economic withholding</i> in the <i>day-ahead market</i>, the <i>real-time market</i>, or both;</li> <li>b. <math>IRL\_DAM\_MWP_{k,h}^i</math> = the <i>day-ahead market</i> make-whole payment amount calculated in accordance with MR Ch.9 s.3.4 utilizing the <i>resource's intertie reference level value</i> that was used by the <i>IESO</i> to assess <i>intertie economic withholding</i> in accordance with MR Ch.7 s.22.18;</li> <li>c. <math>IRL\_RT\_MWP_{k,h}^i</math> = the real-time make-whole payment amount calculated in accordance with 9.3.5 utilizing the <i>resources intertie reference level value</i> that was used by the <i>IESO</i> to assess <i>intertie economic withholding</i> in accordance with MR Ch.7 s.22.18; and</li> <li>d. <math>IRL\_RT\_IOG_{k,h}^i</math> = the real-time <i>intertie offer</i> guarantee amount calculated in accordance with MR Ch.9 s.3.6 utilizing the <i>resource's intertie reference level value</i> that was used by the <i>IESO</i> to assess <i>intertie economic withholding</i> in accordance with MR Ch.7 s.22.18.</li> </ul> | Daily                 | Due <i>IESO</i> | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1950<br>MRP new    | Real-Time Make-Whole Payment Uplift<br><br>(RT_MWPU)                                       | MR Ch.9 s.3.11         | $= \sum_c^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b></p> <ul style="list-style-type: none"> <li>a. C = the set of all <i>charge types</i> 'c' as follows: 1900,1901,1902,1903,1904,1905,1906,1907,1908,1909.</li> </ul>   | Hourly                | Due <i>IESO</i> | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1960<br>MRP new    | Real-Time Generator Offer Guarantee Uplift   | MR Ch.9 s.4.14.2       | $RT\_GOGU_k = -1 \times \sum_{K,H}^{M,T} (RT\_GOG_{k,h}^m + RT\_GOG\_CB_{k,h}^m) \times \left[ \sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$  | Daily                 | Due <i>IESO</i> | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | (RT_GOGU)  |                        | <p><b>Where:</b></p> <p>a. <math>RT\_GOG_{k,h}^m</math> is the real-time <i>generator offer guarantee settlement amount</i> calculated for <i>charge types</i> 1910,1911,1912,1913, and 1914 in accordance with MR Ch.9 s.4.5 for <i>market participant</i> 'k' at <i>delivery point</i> 'm' for <i>settlement hour</i> 'h'; and</p> <p>b. <math>RT\_GOG\_CB_{k,h}^m</math> is the real-time <i>generator offer guarantee clawback settlement amount</i> calculated for <i>charge type</i> 1915 in accordance with MR Ch.9 ss.3.10.26-3.10.34 for <i>market participant</i> 'k' at <i>delivery point</i> 'm' for <i>settlement hour</i> 'h'.</p> |                       |          |                                      |   |                                     |  |          |
| 1967<br>MRP new    | Real-Time Ramp-Down Settlement Amount Uplift<br><br>(RT_RDSAU)               | MR Ch.9 s.4.14.11      | $RT\_RDSAU_k = -1 \times \sum_K^{M,T} RT\_RDSA_k^m \times \left[ \frac{\sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})}{\sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b></p> <p>a. <math>RT\_RDSA_k^m</math> is the real-time ramp-down <i>settlement amount</i> calculated for <i>charge type</i> 1927 in accordance with MR Ch.9 s.4.6 for <i>market participant</i> 'k' at <i>delivery point</i> 'm'.</p>   | Daily                 | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1970<br>MRP new    | Generator Failure Charge – Market Price Component Uplift<br><br>(GFC_MPCU)   | MR Ch.9 s.3.11         | $= \sum_c^{M,T} TD_{k,h,c} \times \left[ \frac{\sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t})}{\sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b></p> <p>a. C = the set of all <i>charge types</i> 'c' as follows: 1920.</p>   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1971<br>MRP new    | Generator Failure Charge – Guarantee Cost Component Uplift<br><br>(GFC_GCCU) | MR Ch.9 s.4.14.1       | $GFC\_GCCU_k = -1 \times \sum_{K,F}^M GFC\_GCC_{k,f}^m \times \left[ \frac{\sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})}{\sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b></p> <p>a. <math>GFC\_GCC_{k,f}^m</math> is the <i>generator failure charge – guarantee cost component</i> calculated for <i>charge type</i> 1921 in accordance with MR Ch.9 s.4.10 for <i>market participant</i> 'k' at <i>delivery point</i> 'm' for <i>generator failure</i> 'f'; and</p> <p>b. F = the set of all <i>generator failures</i> 'f'.</p>   | Daily                 | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1977<br>MRP new    | Real-Time Intertie Offer Guarantee Uplift<br><br>(RT_IOGU)                   | MR Ch.9 s.3.11         | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 1927.</p>   | Hourly                | Due IESO | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1980<br>MRP new    | Day-Ahead Market Reference Level Settlement Charge Uplift<br><br>(DAM_RLSCU) | MR Ch.9 s.3.11         | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 1930.</p>   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1981<br>MRP new    | Real-Time Reference Level Settlement Charge Uplift<br><br>(RT_RLSCU)         | MR Ch.9 s.3.11         | $= \sum_C^{M,T} TD_{k,h,c} \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. C = the set of all <i>charge types</i> 'c' as follows: 1931.</p>   | Hourly                | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |
| 1982<br>MRP new    | Mitigation Amount for Physical Withholding Uplift<br><br>(EXP_PWSU)          | MR Ch.9 s.4.14.9       | $EXP\_PWSU_k = -1 \times \sum_M^{M,T} (EXP\_PWSC_k^m) \times \left[ \sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$ <p><b>Where:</b><br/>a. <math>EXP\_PWSC_k^m</math> is the mitigation for <i>physical withholding settlement</i> amount calculated for <i>charge types</i> 1932, 1933, 1934 and 1935 in accordance with MR Ch.9 s.5.4 for <i>market participant</i> 'k' at <i>delivery point</i> 'm'; and<br/>b. H = the set of all <i>settlement hours</i> 'h' in the relevant <i>trading day</i>.</p> | Monthly               | Due MP   | TBD                                  | TBD   | TBD                                 | TBD  |          |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution     | Cashflow               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|------------------------|--|---------------------------|------------------------|--------------------------------------|---|-------------------------------------|--|---|
| 1986<br>MRP new    | Mitigation Amount for Intertie Economic Withholding Uplift<br><br>(EXP_EWSCU) | MR Ch.9 s.4.14.10      | $EXP\_EWSCU_k = \sum_k^M (EXP\_EWSC_k^i) \times \left[ \frac{\sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})}{\sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p><b>Where:</b></p> <p>a. <math>EXP\_EWSC_k^i</math> is the mitigation for <i>economic withholding</i> on uncompetitive interties <i>settlement</i> amount calculated for <i>charge types</i> 1936, 1937, 1938 and 1939 in accordance with MR Ch.9 s.5.5 for <i>market participant</i> 'k' at <i>intertie metering point</i> 'i'; and</p> <p>b. H = the set of all <i>settlement hours</i> 'h' in the relevant <i>trading day</i>.</p>  | Monthly                   | Due MP                 | TBD                                  | TBD   | TBD                                 | TBD  |   |
| 2148               | Class B Global Adjustment Prior Period Correction Settlement Amount           | N/A                    | Manual entry based on post-final changes to input data for <i>charge type</i> 148.   | Monthly                   | Due MP                 | 13                                   | N/A   | N/A                                 | N/A  |   |
| 2470               | MOE - Ontario Electricity Support Program Balancing Amount                    | N/A                    | $\sum_k TD_{k,1420}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.</p> <p>Where <math>TD_{k,1420}</math> is the <i>settlement amount of charge type</i> 1420 for the month for <i>market participant</i> 'k'.</p>   | Monthly                   | Due Ministry of Energy | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government and OEB regulations. |
| 9920               | Adjustment Account Credit (AAC)   | MR Ch.9 s.6.20.5.3     | $AAD \times \sum_H^{M,T} \left[ \frac{(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})}{\sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})} \right]$ <p>Where 'AAD' is the total dollar value of all disbursements from the <i>IESO adjustment account</i> authorized by the <i>IESO Board</i> in the current <i>energy market billing period</i>, in accordance with MR Ch.9 s.6 and expressed in up to 3 decimal places.</p> <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the <i>billing periods</i> immediately preceding the current <i>billing period</i>, as determined by <i>IESO Board</i>.</p> <p>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p> <p>Where 'M' is the set of all <i>delivery points</i> 'm' and <i>intertie metering points</i> 'i'</p> <p>Where 'K' is the set of all <i>market participants</i> 'k'.</p> | Monthly (when applicable) | Due MP                 | 13                                   | N/A   | 0                                   | 13   |   |

| Charge Type Number | Charge Type Name  | Market Rules Reference | Equation   | Settlement Resolution | Cashflow  | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| 9980               | Smart Metering Charge   | N/A                    | Manual entry based on the values submitted by the <i>Smart Metering Entity</i> .   | Monthly               | Due <i>IESO</i>                                     | 13                                   | N/A   | N/A                                 | N/A  | Subject to Ontario Regulation 453/06 and the applicable OEB rate order.   |
| 9982               | Ontario Rebate for Electricity Consumers (8% Provincial Rebate) Settlement Amount | N/A                    | Manual entry based on:<br>(1) the values submitted via on-line settlement form "Ontario Rebate for Electricity Consumers (OREC) – LDC and USMP";<br>and<br>(2) 8 per cent of the base invoice amount for <i>market participant consumers</i> who have an eligible account with the <i>IESO</i> | Monthly               | Due LDCs, Unit Sub-Meter Providers and eligible MPs | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 363/16               |
| 9983               | Ontario Electricity Rebate Settlement Amount                                      | N/A                    | Manual entry based on:<br>(1) the values submitted via on-line settlement forms "Ontario Electricity Rebate (OER) – LDC & USMP";<br>and<br>(2) 33.2 per cent of the base invoice amount for <i>market participant consumers</i> who have an eligible account with the <i>IESO</i>              | Monthly               | Due LDCs, Unit Sub-Meter Providers and eligible MPs | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 363/16 and 364/16    |
| 9984               | COVID-19 Energy Assistance Program (CEAP) Balancing Amount                        | N/A                    | $\sum_k TD_{k,1477}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where $TD_{k,1477}$ is the <i>settlement amount of charge type 1420</i> for the month for <i>market participant</i> 'k'.  | Monthly               | Due Ministry of Energy                              | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to OEB order EB-2020-0186 and EB-2020-0163 |
| 9990               | IESO Administration Charge  | MR Ch.9 s.4.3.1        | $\sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + EGEI_k) \times TP$<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.                                   | Monthly               | Due <i>IESO</i>                                     | 13                                   | N/A   | 0                                   | 13   | TP rate subject to OEB regulation.  |
| 9996               | Recovery of Costs   | MR Ch.2 App.3.4        | Manual entry as per MR Ch.2 App.3.4  | Monthly               | Due <i>IESO</i>                                     | 13                                   | N/A   | N/A                                 | N/A  |   |

## 2.3. Rounding Conventions – by Charge Type

### 2.3.1. General Notes

- All *settlement amounts* reported by the *IESO settlements* system are expressed in dollars and are rounded to the nearest cent (e.g. to two decimal places) on *settlement statements*, although some *settlement* calculations may only yield 1 significant digit to the right of the decimal place. In these instances, the financial amount is NOT further rounded to the nearest ten cents.
- **Table 2-5** provides a description of each of the column references for rounding conventions by *charge type*.
- **Table 2-6** lists all the rounding conventions by *charge type*. This table:
  - references significant digits to the right of the decimal place. This should NOT be confused with the number of decimal places allowable in some columns on the *settlement statements* and data files as set out in [Format Specifications for Settlement Statement Files and Data Files](#) document. This document is located on the [Technical Interfaces](#) webpage under 'Commercial Reconciliation';
  - does not include the final rounding step to the nearest cent, as this is done for ALL *settlement amounts*. Rather, it describes any intermediate calculations (particularly, those involving division) that involve rounding prior to the final calculation of the *settlement amount*.

**Table 2-5: Description of Column References for Rounding Conventions – by Individual Charge Type**

| Column Name   | Description   |
|---|---|
| <b>Charge Type Number</b>   | This table contains an entry for each active <i>charge type</i> listed in <a href="#">section 2.2</a> .   |
| <b>Charge Type Name</b>   | The name of each of the <i>charge types</i> .   |
| <b>INPUT VARIABLES</b><br><b>Least number of significant digits to the right of the decimal</b>   | In terms of assessing the accuracy of the final <i>settlement amount</i> , this column is derived from the <i>settlement</i> variable received by the <i>settlement</i> system with the LEAST number of significant digits to the right of the decimal place.   |
| <b>INPUT VARIABLES</b><br><b>Maximum number of significant digits to the right of the decimal</b> | In terms of assessing the accuracy of the final <i>settlement amount</i> , this column is derived from the <i>settlement</i> variable received by the <i>settlement</i> system with the MAXIMUM number of significant digits to the right of the decimal place. |



| Column Name  | Description   |
|--|---|
| <b>Intermediate Rounding done by Settlements?</b>                      | This column indicates whether or not any <b>INTERMEDIATE</b> rounding is done by the <i>IESO settlement process</i> . <b>This does <u>NOT</u> include the final rounding of settlement amounts to 2 decimal places as the last step in the calculation of ALL charge types.</b> |
| <b>INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs)</b> | This column ONLY describes an intermediate calculation of the <i>settlement amount</i> in which rounding occurs PRIOR to the final rounding of the <i>settlement amount</i> to the nearest cent.  |
| <b>DISPOSITION OF INTERMEDIATE CALCULATION 1</b>                       | This column describes the disposition of the rounded value resulting from Intermediate Calculation 1.   |
| <b>INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs)</b> | This column ONLY describes an intermediate calculation of the <i>settlement amount</i> in which rounding occurs PRIOR to the final rounding of the <i>settlement amount</i> to the nearest cent.  |
| <b>DISPOSITION OF INTERMEDIATE CALCULATION 2</b>                       | This column describes the disposition of the rounded value resulting from Intermediate Calculation 2.   |

**Table 2-6: Rounding Conventions – by Individual Charge Type**

| Charge Type Number | Charge Type Name                                    | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 52                 | Transmission Rights Auction Settlement Debit        | 0   | 2   | No   |  |   |  |   |
| 102                | TR Clearing Account Credit                          | 1   | 3   | No   |  |   |  |   |
| 104                | Transmission Rights Settlement Credit               | 0   | 2   | No   |  |   |  |   |
| 114                | Outage Cancellation/ Deferral Settlement Credit     | 2   | 2   | No   |  |   |  |   |
| 115                | Unrecoverable Testing Costs Credit                  | 2   | 2   | No   |  |   |  |   |
| 116                | Tieline Maintenance Reliability Credit              | 2   | 2   | No   |  |   |  |   |
| 118                | Emergency Energy Rebate                             | 1   | 3   | No   |  |   |  |   |
| 119                | Station Service Reimbursement Credit                | 2   | 3   | No   |  |   |  |   |
| 121                | Northern Energy Advantage Program Settlement Amount | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name                                     | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 123                | MACD Enforcement Activity Amount                     | 2   | 2   | No   |  |   |  |   |
| 142                | Regulated Price Plan Settlement Amount               | 1   | 3   | No   |  |   |  |   |
| 143                | NUG Contract Adjustment Settlement Amount            | 1   | 3   | No   |  |   |  |   |
| 144                | Regulated Nuclear Generation Adjustment Amount       | 1   | 3   | No   |  |   |  |   |
| 145                | Regulated Hydroelectric Generation Adjustment Amount | 1   | 3   | No   |  |   |  |   |
| 147                | Class A – Global Adjustment Settlement Amount        | 1   | 3   | No   |  |   |  |   |
| 148                | Class B – Global Adjustment Settlement Amount        | 1   | 3   | No   |  |   |  |   |
| 149                | Regulated Price Plan Retailer Settlement Amount      | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name                                   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 164                | Outage Cancellation/ Deferral Debit                | 1   | 3   | No   |  |   |  |   |
| 165                | Unrecoverable Testing Costs Debit                  | 1   | 3   | No   |  |   |  |   |
| 166                | Tieline Reliability Maintenance Debit              | 1   | 3   | No   |  |   |  |   |
| 167                | Emergency Energy Debit                             | 1   | 3   | No   |  |   |  |   |
| 168                | TR Market Shortfall Debit                          | 1   | 3   | No   |  |   |  |   |
| 169                | Station Service Reimbursement Debit                | 1   | 3   | No   |  |   |  |   |
| 171                | Northern Energy Advantage Program Balancing Amount | 1   | 3   | No   |  |   |  |   |
| 173                | MACD Enforcement Activity Balancing Amount         | 2   | 2   | No   |  |   |  |   |
| 186                | Intertie Failure Charge Uplift                     | 1   | 3   | No   |  |   |  |   |
| 192                | Regulated Price Plan Balancing Amount              | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name                                       | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 193                | NUG Contract Adjustment Balancing Amount               | 2   | 2   | No   |  |   |  |   |
| 194                | Regulated Nuclear Generation Balancing Amount          | 2   | 2   | No   |  |   |  |   |
| 195                | Regulated Hydroelectric Generation Balancing Amount    | 2   | 2   | No   |  |   |  |   |
| 196                | Global Adjustment Balancing Amount                     | 2   | 2   | No   |  |   |  |   |
| 197                | Global Adjustment-Special Programs Balancing Amount    | 2   | 2   | No   |  |   |  |   |
| 199                | Regulated Price Plan Retailer Balancing Amount         | 2   | 2   | No   |  |   |  |   |
| 201                | 10 Minute Spinning Reserve Market Shortfall Rebate     | 1   | 3   | No   |  |   |  |   |
| 203                | 10 Minute Non-spinning Reserve Market Shortfall Rebate | 1   | 3   | No   |  |   |  |   |
| 205                | 30 Minute Operating Reserve Market Shortfall Rebate    | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)                                       | DISPOSITION OF INTERMEDIATE CALCULATION 1   | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 206                | 10-Minute Spinning Non-Accessibility Settlement Amount            | 1   | 3   | Yes  | $REAH = TREAH_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{m,t}}{\sum^M EAH_{k,h}^{m,t}}$ Resulting Decimals: 3 | Used to calculate adjusted operating reserve provided for aggregated generation resources |  |   |
| 208                | 10-Minute Non-Spinning Non-Accessibility Settlement Amount        | 1   | 3   | Yes  | $REAH = TREAH_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{m,t}}{\sum^M EAH_{k,h}^{m,t}}$ Resulting Decimals: 3 | Used to calculate adjusted operating reserve provided for aggregated generation resources |  |   |
| 210                | 30-Minute Non-Accessibility Settlement Amount                     | 1   | 3   | Yes  | $REAH = TREAH_{r,k,h}^{M,t} \times \frac{EAH_{k,h}^{m,t}}{\sum^M EAH_{k,h}^{m,t}}$ Resulting Decimals: 3 | Used to calculate adjusted operating reserve provided for aggregated generation resources |  |   |
| 212                | Day-Ahead Market 10-Minute Spinning Reserve Settlement Credit     | 1   | 3   | No   |  |   |  |   |
| 213                | Real-Time 10-Minute Spinning Reserve Settlement Credit            | 1   | 3   | No   |  |   |  |   |
| 214                | Day-Ahead Market 10-Minute Non-Spinning Reserve Settlement Credit | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 215                | Real-Time Market 10-Minute Non-Spinning Reserve Settlement Credit | 1   | 3   | No   |  |   |  |   |
| 216                | Day-Ahead Market 30-Minute Operating Reserve Settlement Credit    | 1   | 3   | No   |  |   |  |   |
| 217                | Real-Time Market 30-Minute Operating Reserve Settlement Credit    | 1   | 3   | No   |  |   |  |   |
| 250                | 10-Minute Spinning Reserve Hourly Uplift                          | 1   | 3   | No   |  |   |  |   |
| 251                | 10 Minute Spinning Market Reserve Shortfall Debit                 | 1   | 3   | No   |  |   |  |   |
| 252                | 10-Minute Non-Spinning Reserve Hourly Uplift                      | 1   | 3   | No   |  |   |  |   |
| 253                | 10 Minute Non-spinning Market Reserve Shortfall Debit             | 1   | 3   | No   |  |   |  |   |
| 254                | 30 Minute Operating Reserve Hourly Uplift                         | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 255                | 30 Minute Operating Reserve Market Shortfall Debit            | 1   | 3   | No   |  |   |  |   |
| 400                | Black Start Capability Settlement Credit                      | 2   | 2   | No   |  |   |  |   |
| 404                | Regulation Service Settlement Credit                          | 2   | 2   | No   |  |   |  |   |
| 410                | IESO-Controlled Grid Special Operations Credit                | 2   | 2   | No   |  |   |  |   |
| 450                | Black Start Capability Settlement Debit                       | 1   | 3   | No   |  |   |  |   |
| 451                | Hourly Reactive Support and Voltage Control Settlement Debit  | 1   | 3   | No   |  |   |  |   |
| 452                | Monthly Reactive Support and Voltage Control Settlement Debit | 1   | 3   | No   |  |   |  |   |
| 454                | Regulation Service Settlement Debit                           | 1   | 3   | No   |  |   |  |   |
| 460                | IESO-Controlled Grid Special Operations Debit                 | 2   | 2   | No   |  |   |  |   |



| Charge Type Number | Charge Type Name                         | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 500                | Must Run Contract Settlement Credit      | 2   | 2   | No   |  |   |  |   |
| 550                | Must Run Contract Settlement Debit       | 1   | 3   | No   |  |   |  |   |
| 600                | Network Service Credit                   | 2   | 3   | No   |  |   |  |   |
| 601                | Line Connection Service Credit           | 2   | 3   | No   |  |   |  |   |
| 602                | Transformation Connection Service Credit | 2   | 3   | No   |  |   |  |   |
| 603                | Export Transmission Service Credit       | 1   | 2   | No   |  |   |  |   |
| 650                | Network Service Charge                   | 2   | 3   | No   |  |   |  |   |
| 651                | Line Connection Service Charge           | 2   | 3   | No   |  |   |  |   |
| 652                | Transformation Connection Service Charge | 2   | 3   | No   |  |   |  |   |
| 653                | Export Transmission Service Charge       | 1   | 2   | No   |  |   |  |   |
| 700                | Dispute Resolution Settlement Credit     | 2   | 2   | No   |  |   |  |   |
| 703                | Rural and Remote Settlement Credit       | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 705                | Ontario Fair Hydro Plan First Nations On-reserve Delivery Amount                 | 2   | 2   | No   |  |   |  |   |
| 706                | Ontario Fair Hydro Plan Distribution Rate Protection Amount                      | 2   | 2   | No   |  |   |  |   |
| 750                | Dispute Resolution Settlement Debit  | 2   | 2   | No   |  |   |  |   |
| 751                | Dispute Resolution Board Service Debit   | 2   | 2   | No   |  |   |  |   |
| 753                | Rural and Remote Settlement Debit  | 2   | 3   | No   |  |   |  |   |
| 755                | MOE - Ontario Fair Hydro Plan First Nations On-reserve Delivery Balancing Amount | 2   | 2   | No   |  |   |  |   |
| 756                | MOE - Ontario Fair Hydro Plan Distribution Rate Protection Balancing Amount      | 2   | 2   | No   |  |   |  |   |
| 850                | Market Participant Default Settlement Debit (recovery)                           | 2   | 2   | No   |  |   |  |   |
| 851                | Market Participant Default Interest Debit  | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1  | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|---|--|--|---|
| 900                | GST/HST Credit   | 2   | 2   | No   |   |  |  |   |
| 950                | GST/HST Debit  | 2   | 2   | No   |   |  |  |   |
| 1100               | Day-Ahead Market Energy Settlement Amount for Generators             | 1   | 3   | No   |   |  |  |   |
| 1101               | Real-Time Energy Settlement Amount for Generators                    | 1   | 3   | Yes  | AQEI multiplied by 12<br>AQEW multiplied by 12<br>Resulting Decimals: 3<br><br>Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3 | AQEI or AQEW multiplied by RT_LMP.<br><br>BCQ quantities multiplied by RT_LMP when applicable. |  |   |
| 1102               | Day-Ahead Market Energy Settlement Amount for Dispatchable Loads     | 1   | 3   | No   |   |  |  |   |
| 1103               | Real-Time Energy Settlement Amount for Dispatchable Loads            | 1   | 3   | Yes  | AQEI multiplied by 12<br>AQEW multiplied by 12<br>Resulting Decimals: 3<br><br>Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3 | AQEI or AQEW multiplied by RT_LMP.<br><br>BCQ quantities multiplied by RT_LMP when applicable. |  |   |
| 1104               | Day-Ahead Market Energy Settlement Amount for Price Responsive Loads | 1   | 3   | No   |   |  |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1   | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1105               | Real-Time Energy Settlement Amount for Price Responsive Loads              | 1   | 3   | Yes  | AQEW multiplied by 12<br>Resulting Decimals: 3<br><br>Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3 | AQEW quantity multiplied by RT_LMP.<br><br>BCQ quantities multiplied by RT_LMP when applicable. |  |   |
| 1106               | Day-Ahead Market Energy Settlement Amount for Virtual Transactions to Sell | 1   | 3   | No   |  |   |  |   |
| 1107               | Real-Time Energy Settlement Amount for Virtual Transactions to Sell        | 1   | 3   | No   |  |   |  |   |
| 1108               | Day-Ahead Market Energy Settlement Amount for Virtual Transactions to Buy  | 1   | 3   | No   |  |   |  |   |
| 1109               | Real-Time Energy Settlement Amount for Virtual Transactions to Buy         | 1   | 3   | No   |  |   |  |   |
| 1110               | Day-Ahead Market Energy Settlement Amount for Imports                      | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name                                      | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1  | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|---|--|--|---|
| 1111               | Real-Time Energy Settlement Amount for Imports        | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3  | BCQ quantities multiplied by RT_LMP when applicable.   |  |   |
| 1112               | Day-Ahead Market Energy Settlement Amount for Exports | 1   | 3   | No   |   |  |  |   |
| 1113               | Real-Time Energy Settlement Amount for Exports        | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3  | BCQ quantities multiplied by RT_LMP when applicable.   |  |   |
| 1115               | Non-Dispatchable Load Energy Settlement Amount        | 1   | 3   | Yes  | AQEI multiplied by 12<br>AQEW multiplied by 12<br>Resulting Decimals: 3<br><br>Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3 | AQEI or AQEW multiplied by DAM_LMP.<br><br>BCQ quantities multiplied by DAM_LMP when applicable. |  |   |
| 1116               | Internal Congestion and Loss Residual                 | 1   | 3   | Yes  | AQEI multiplied by 12<br>AQEW multiplied by 12<br><br>Resulting Decimals: 3   | AQEI or AQEW multiplied by RT_LMP.   |  |   |
| 1117               | Day-Ahead Market Net External Congestion Residual     | 1   | 3   | No   |   |  |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|---|---|--|---|
| 1118               | Real-Time External Congestion Residual Uplift                     | 1   | 3   | Yes  | RT_ECR <sub>L</sub><br>RT_ECR <sub>E</sub><br>Resulting Decimals: 2 | Distributed to either Loads or Exports.   |  |   |
| 1119               | Day-Ahead Market Net Interchange Scheduling Limit Residual Uplift | 1   | 3   | No   |   |   |  |   |
| 1120               | Real-Time Net Interchange Scheduling Limit Residual Uplift        | 1   | 3   | No   |   |   |  |   |
| 1138               | Fuel Cost Compensation Credit                                     | 2   | 2   | No   |   |   |  |   |
| 1148               | GA Energy Storage Injection Reimbursement                         | 2   | 2   | No   |   |   |  |   |
| 1188               | Fuel Cost Compensation Credit Uplift                              | 1   | 3   | No   |   |   |  |   |
| 1314               | Capacity Obligation – Availability Payment                        | 1   | 3   | No   |   |   |  |   |
| 1315               | Capacity Obligation – Availability Charge                         | 1   | 3   | No   |   |   |  |   |
| 1316               | Capacity Obligation – Administration Charge                       | 1   | 3   | No   |   |   |  |   |
| 1317               | Capacity Obligation – Dispatch Charge                             | 1   | 3   | No   |   |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1318               | Capacity Obligation – Capacity Charge  | 1   | 3   | No   |  |   |  |   |
| 1319               | Capacity Obligation – Buy-Out Charge   | 1   | 3   | No   |  |   |  |   |
| 1320               | Capacity Obligation – Dispatch Test Payment and Emergency Activation Payment | 1   | 3   | No   |  |   |  |   |
| 1321               | Capacity Obligation – Capacity Import Call Failure Charge                    | 1   | 3   | No   |  |   |  |   |
| 1322               | Capacity Obligation – Capacity Deficiency Charge                             | 1   | 3   | No   |  |   |  |   |
| 1323               | Capacity Obligation – In-Period Cleared UCAP Adjustment Charge               | 1   | 3   | No   |  |   |  |   |
| 1324               | Capacity Obligation – Availability Charge True-up Payment                    | 1   | 3   | No   |  |   |  |   |
| 1325               | Capacity Obligation – Capacity Auction Charges True-up Payment               | 1   | 3   | No   |  |   |  |   |
| 1350               | Capacity Based Recovery Amount for Class A Loads                             | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1351               | Capacity Based Recovery Amount for Class B Loads             | 1   | 3   | No   |  |   |  |   |
| 1400               | OPA Contract Adjustment Settlement Amount                    | 1   | 2   | No   |  |   |  |   |
| 1401               | Incremental Loss Settlement Credit                           | 1   | 6   | No   |  |   |  |   |
| 1402               | Hourly Condense System Constraints Settlement Credit         | 1   | 5   | No   |  |   |  |   |
| 1403               | Speed-no-load Settlement Credit                              | 1   | 2   | No   |  |   |  |   |
| 1404               | Condense Unit Start-up and OM&A Settlement Credit            | 1   | 2   | No   |  |   |  |   |
| 1405               | Hourly Condense Energy Costs Settlement Credit               | 1   | 2   | No   |  |   |  |   |
| 1406               | Monthly Condense Energy Costs Settlement Credit              | 1   | 2   | No   |  |   |  |   |
| 1407               | Condense Transmission Tariff Reimbursement Settlement Credit | 2   | 3   | No   |  |   |  |   |
| 1408               | Condense Availability Cost Settlement Credit                 | 1   | 2   | No   |  |   |  |   |



| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1409               | Monthly Condense System Constraints Settlement Credit                    | 1   | 2   | No   |  |   |  |   |
| 1410               | Renewable Energy Standard Offer Program Settlement Amount                | 1   | 3   | No   |  |   |  |   |
| 1411               | Clean Energy Standard Offer Program Settlement Amount                    | 1   | 3   | No   |  |   |  |   |
| 1412               | Feed-In Tariff Program Settlement Amount                                 | 1   | 3   | No   |  |   |  |   |
| 1413               | Renewable Generation Connection – Monthly Compensation Settlement Credit | 1   | 3   | No   |  |   |  |   |
| 1414               | Hydroelectric Contract Initiative Settlement Amount                      | 1   | 3   | No   |  |   |  |   |
| 1416               | Conservation and Demand Management - Compensation Settlement Credit      | 1   | 3   | No   |  |   |  |   |
| 1417               | Daily Condense Energy Costs Settlement Credit                            | 1   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1418               | Biomass Non-Utility Generation Contracts Settlement Amount | 1   | 3   | No   |  |   |  |   |
| 1419               | Energy from Waste (EFW) Contracts Settlement Amount        | 1   | 3   | No   |  |   |  |   |
| 1420               | Ontario Electricity Support Program Settlement Amount      | 2   | 2   | No   |  |   |  |   |
| 1421               | Capacity Agreement Settlement Credit                       | 0   | 2   | No   |  |   |  |   |
| 1422               | Capacity Agreement Penalty Settlement Amount               | 0   | 2   | No   |  |   |  |   |
| 1423               | Energy Sales Agreement Settlement Credit                   | 0   | 3   | No   |  |   |  |   |
| 1424               | Energy Sales Agreement Penalty Settlement Amount           | 0   | 2   | No   |  |   |  |   |
| 1425               | Hydroelectric Standard Offer Program Settlement Amount     | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1450               | OPA Contract Adjustment Balancing Amount                                | 2   | 2   | No   |  |   |  |   |
| 1451               | Incremental Loss Offset Settlement Amount                               | 2   | 2   | No   |  |   |  |   |
| 1457               | Ontario Electricity Rebate Balancing Amount                             | 2   | 2   | No   |  |   |  |   |
| 1460               | Renewable Energy Standard Offer Program Balancing Amount                | 2   | 2   | No   |  |   |  |   |
| 1461               | Clean Energy Standard Offer Program Balancing Amount                    | 2   | 2   | No   |  |   |  |   |
| 1462               | Feed-In Tariff Program Balancing Amount                                 | 2   | 2   | No   |  |   |  |   |
| 1463               | Renewable Generation Connection – Monthly Compensation Settlement Debit | 1   | 3   | No   |  |   |  |   |
| 1464               | Hydroelectric Contract Initiative Balancing Amount                      | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1466               | Conservation and Demand Management - Compensation Balancing Amount               | 2   | 2   | No   |  |   |  |   |
| 1467               | Ontario Rebate for Electricity Consumers (8% Provincial Rebate) Balancing Amount | 2   | 2   | No   |  |   |  |   |
| 1468               | Biomass Non-Utility Generation Contracts Balancing Amount                        | 2   | 2   | No   |  |   |  |   |
| 1469               | Energy from Waste (EFW) Contracts Balancing Amount                               | 2   | 2   | No   |  |   |  |   |
| 1471               | Capacity Agreement Balancing Amount  | 2   | 2   | No   |  |   |  |   |
| 1472               | Capacity Agreement Penalty Balancing Amount                                      | 2   | 2   | No   |  |   |  |   |
| 1473               | Energy Sales Agreement Balancing Amount  | 2   | 2   | No   |  |   |  |   |
| 1474               | Energy Sales Agreement Penalty Balancing Amount                                  | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1475               | Hydroelectric Standard Offer Program Balancing Amount       | 2   | 2   | No   |  |   |  |   |
| 1477               | COVID-19 Energy Assistance Program (CEAP) Settlement Amount | 2   | 2   | No   |  |   |  |   |
| 1600               | Forecasting Service Settlement Amount                       | 1   | 3   | No   |  |   |  |   |
| 1650               | Forecasting Service Balancing Amount                        | 1   | 3   | No   |  |   |  |   |
| 1750               | Dispute Resolution Balancing Amount (Market)                | 2   | 2   | No   |  |   |  |   |
| 1753               | MOE - Rural and Remote Settlement Debit                     | 2   | 2   | No   |  |   |  |   |

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|--------------------|---|---|---|--|--|---|--|---|
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSI, DAM_BE)<br>OP(DAM_LMP, DAM_EOP, DAM_BE)<br>Resulting Decimals: 2<br><br>For Combustion Turbines:<br>OP(DAM_LMP, DAM_QSI, DAM_DIPC)<br>OP(DAM_LMP, DAM_EOP, DAM_DIPC)<br>Resulting Decimals: 2<br><br>For Steam Turbines:<br>OP(DAM_LMP, DAM_DIGQ, DAM_DIPC)<br>OP(DAM_LMP, DAM_EOP_DIGQ, DAM_DIPC)<br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|---|---|--|---|
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Hydroelectric Generation Resources Not Associated with Linked Forebays | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSI, DAM_BE)<br><br>OP(DAM_LMP, DAM_EOP, DAM_BE)<br><br>Forbidden Region Operating Profit:<br>OP(DAM_LMP, FR_UL, DAM_BE)<br>OP(DAM_LMP, MAX(DAM_EOP, FR_LL), DAM_BE)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|---|---|--|---|
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Hydroelectric Generation Resources Associated with Linked Forebays | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSI, DAM_BE)<br>OP(DAM_LMP, DAM_EOP, DAM_BE)<br><br>Forbidden Region Operating Profit:<br>OP(DAM_LMP, FR_UL, DAM_BE)<br>OP(DAM_LMP, MAX(DAM_EOP, FR_LL), DAM_BE)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Dispatchable Loads   | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSW, DAM_BL)<br><br>OP(DAM_LMP, DAM_EOP, DAM_BL)<br><br>Resulting Decimals: 2   | Profits are compared as applicable.       |  |   |



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|--------------------|--|---|---|--|---|---|--|---|
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Non-HDR Price Responsive Loads                         | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSW, DAM_BL)<br><br>OP(DAM_LMP, DAM_EOP, DAM_BL)<br><br>Resulting Decimals: 2   | Profits are compared as applicable.       |  |   |
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Physical Hourly Demand Response Price Responsive Loads | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSW, DAM_BL)<br>OP(DAM_LMP, DAM_EOP, DAM_BL)<br><br>OP(DAM_LMP, DAM_HDR_QSW, DAM_HDR_BL)<br>OP(DAM_LMP, DAM_EOP, DAM_HDR_BL)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Boundary Entity Resource – Imports                     | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSI, DAM_BE)<br><br>OP(DAM_LMP, DAM_EOP, DAM_BE)<br><br>Resulting Decimals: 2   | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|---|---|--|---|
| 1800               | Day-Ahead Market Make-Whole Payment – Energy<br><br>Boundary Entity Resource – Exports | 1   | 3   | Yes  | OP(DAM_LMP, DAM_QSW, DAM_BL)<br><br>OP(DAM_LMP, DAM_EOP, DAM_BL)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|---|---|---|--|--|---|--|---|
| 1801               | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>For Combustion Turbines:<br>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_OR_DIPC)<br><br>For Steam Turbines:<br>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_OR_DIPC)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|---|---|--|---|
| 1801               | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>Hydroelectric Generation Resources not Associated with Linked Forebays | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1801               | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>Hydroelectric Generation Resources Associated with Linked Forebays     | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1801               | Day-Ahead Market Make-Whole Payment – 10-Minute Spinning Reserve<br><br>Dispatchable Loads   | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|---|---|---|--|--|---|--|---|
| 1802               | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>For Combustion Turbines:<br>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_OR_DIPC)<br><br>For Steam Turbines:<br>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_OR_DIPC)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|---|---|--|---|
| 1802               | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>Hydroelectric Generation Resources not Associated with Linked Forebays | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1802               | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>Hydroelectric Generation Resources Associated with Linked Forebays     | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1802               | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>Dispatchable Loads   | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|---|---|---|--|---|---|--|---|
| 1802               | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>Boundary Entity Resources - Imports | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1802               | Day-Ahead Market Make-Whole Payment – 10-Minute Non-Spinning Reserve<br><br>Boundary Entity Resources - Exports | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|--|---|--|---|
| 1803               | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>For Combustion Turbines:<br>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_OR_DIPC)<br><br>For Steam Turbines:<br>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_OR_DIPC)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |



| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)                                    | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|---|---|--|---|
| 1803               | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>Hydroelectric Generation Resources not Associated with Linked Forebays | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1803               | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>Hydroelectric Generation Resources Associated with Linked Forebays     | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1803               | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>Dispatchable Loads   | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br><br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)                            | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|---|---|--|---|
| 1803               | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>Boundary Entity Resources - Imports | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1803               | Day-Ahead Market Make-Whole Payment – 30-Minute Operating Reserve<br><br>Boundary Entity Resources - Exports | 1   | 3   | Yes  | OP(DAM_PROR, DAM_QSOR, DAM_BOR)<br>OP(DAM_PROR, DAM_OR_EOP, DAM_BOR)<br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|---|---|---|--|---|---|--|---|
| 1804               | Day-Ahead Generator Offer Guarantee – Energy            | 1   | 3   | Yes  | <p>OP(DAM_LMP, DAM_QSI, DAM_BE)</p> <p>(DAM_LMP x DAM_QSI)</p> <p>For Combustion Turbines:<br/>OP(DAM_LMP, DAM_QSI, DAM_DIPC)</p> <p>For Steam Turbines:<br/>OP(DAM_LMP, DAM_DIGQ, DAM_DIPC)</p> <p>Resulting Decimals: 2</p> | Profits are compared as applicable.       |  |   |
| 1805               | Day-Ahead Generator Offer Guarantee – Operating Reserve | 1   | 3   | Yes  | <p>OP(DAM_PROR, DAM_QSOR, DAM_BOR)</p> <p>For Combustion Turbines:<br/>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)</p> <p>For Steam Turbines:<br/>OP(DAM_PROR, DAM_QSOR, DAM_OR_DIPC)</p> <p>Resulting Decimals: 2</p>                | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|--|---|--|---|
| 1806               | Day-Ahead Market Generator Offer Guarantee – Over Midnight                 | 1   | 3   | Yes  | OP(DAM_LMP, MLP, DAM_BE)<br><br>For Combustion Turbines:<br>OP(DAM_LMP, MLP, DAM_DIPC)<br><br>For Steam Turbines:<br>OP(DAM_LMP, MLP, DAM_DIPC)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |
| 1807               | Day-Ahead Market Generator Offer Guarantee – Start-up                      | 1   | 2   | No   |  |   |  |   |
| 1808               | Day-Ahead Market Generator Offer Guarantee – DAM Make-Whole Payment Offset | 1   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name                                      | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)                                   | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|---|---|
| 1815               | Day-Ahead Market Balancing Credit - Energy            | 1   | 3   | Yes  | AQEI multiplied by 12<br>Resulting Decimals: 3   | Deduct from DAM_QSI                       | For import transactions:<br>OP(RT_LMP, Min(RT_LOC_EOP, DAM_QSI), BE)<br>OP(RT_LMP, SQEI, BE)<br><br>For export transactions:<br>OP(RT_LMP, Min(RT_LOC_EOP, DAM_QSW), BL)<br>OP(RT_LMP, SQEW, BL)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |
| 1816               | Day-Ahead Market Balancing Credit – Operating Reserve | 1   | 3   | Yes  | OP(RT_PROR, Min(RT_OR_LOC_EOP, DAM_QSOR), BOR)<br>OP(RT_PROR, RT_QSOR, BOR)<br>Resulting Decimals: 2 | Profits are compared as applicable.       |   |   |
| 1828               | Day-Ahead Market Import Failure Charge                | 1   | 3   | No   |  |   |   |   |
| 1829               | Day-Ahead Market Export Failure Charge                | 1   | 3   | No   |  |   |   |   |
| 1850               | Day-Ahead Market Uplift                               | 1   | 3   | No   |  |   |   |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1                              | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|---|--|---|---|
| 1851               | Day-Ahead Market Reliability Scheduling Uplift   | 1   | 3   | Yes  | Pass 1:<br>$OP(DAM\_LMP, DAM\_QSI, DAM\_BE)$<br>$OP(DAM\_LMP, DAM\_EOP\_OR, DAM\_BE)$<br><br>Pass 2:<br>$OP(DAM\_LMP, DAM\_QSI, DAM\_BE)$<br>$OP(DAM\_LMP, DAM\_EOP\_OR, DAM\_BE)$<br><br>Resulting Decimals: 2 | Subtracted from each other to calculate the DAM_MWP in Pass 1 & Pass 2 |   |   |
| 1865               | Day-Ahead Market Balancing Credit Uplift   | 1   | 3   | No   |   |  |   |   |
| 1900               | Real-Time Make-Whole Payment – Lost Cost for Energy<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | AQEI multiplied by 12<br>Resulting Decimals: 3  | Compare with RT_QSI  | $OP(RT\_LMP, Max(DAM\_QSI, MIN(RT\_QSI, AQEI)), BE)$<br>$OP(RT\_LMP, Max(RT\_LC\_EOP, DAM\_QSI), BE)$<br><br>Forbidden Region Operating Profit:<br>$OP(RT\_LMP, Max(DAM\_QSI, MIN(RT\_QSI, AQEI)), BE)$ | Profits are compared as applicable.       |

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|--------------------|------------------|---|---|--|--|---|---|---|
|                    |                  |   |   |  |  |   | <p>OP(RT_LMP, Max(FR_LL, RT_LC_EOP, DAM_QSI), BE)</p> <p>For Combustion Turbines:<br/>                     OP(RT_LMP, Max(DAM_QSI, MIN(RT_QSI,AQEI)), RT_DIPC)<br/>                     OP( RT_LMP, Max(RT_LC_EOP, DAM_QSI), RT_DIPC)</p> <p>For Steam Turbines:<br/>                     OP(RT_LMP, Max(DAM_DIGQ, MIN(RT_QSI_DIGQ, AQEI)), RT_DIPC)<br/>                     OP(RT_LMP, Max(RT_LC_EOP_DIGQ, DAM_DIGQ), RT_DIPC)</p> <p>Resulting Decimals: 2</p> |   |

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|--------------------|--|---|---|--|---|---|---|---|
| 1900               | Real-Time Make-Whole Payment – Lost Cost for Energy<br><br>Dispatchable Loads                  | 1   | 3   | Yes  | AQEW multiplied by 12<br>Resulting Decimals: 3  | Compare with RT_QSW                       | OP(RT_LMP, MAX(DAM_QSW, MIN(RT_QSW, AQEW)), BL)<br><br>OP(RT_LMP, Max(RT_LC_EOP, DAM_QSW), BL)<br><br>Resulting Decimals: 2 |   |
| 1900               | Real-Time Make-Whole Payment – Lost Cost for Energy<br><br>Boundary Entity Resources - Exports | 1   | 3   | Yes  | OP(RT_LMP, MAX(SQEW, DAM_QSW), BL)<br><br>OP(RT_LMP, Max(RT_LC_EOP, DAM_QSW), BL)<br><br>OP(MIN(RT_LMP, PD_LMP), MAX(SQEW, DAM_QSW), BL)<br><br>OP(MIN(RT_LMP, PD_LMP), Max(RT_LC_EOP, DAM_QSW), BL)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |   |   |



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|--------------------|--|---|---|--|--|---|--|---|
| 1901               | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Spinning Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | <p>OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), BOR)</p> <p>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), BOR)</p> <p>For Combustion Turbines:<br/>OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), RT_OR_DIPC)</p> <p>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), RT_OR_DIPC)</p> <p>For Steam Turbines:<br/>OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), RT_OR_DIPC)</p> <p>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), RT_OR_DIPC)</p> <p>Resulting Decimals: 2</p> | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|---|---|--|---|
| 1901               | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Spinning Reserve<br><br>Dispatchable Loads                    | 1   | 3   | Yes  | OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), BOR)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), BOR)<br><br>Resulting Decimals: 2  | Profits are compared as applicable.       |  |   |
| 1902               | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), BOR)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), BOR)<br><br>For Combustion Turbines:<br>OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), RT_OR_DIPC)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), RT_OR_DIPC)<br><br>For Steam Turbines: | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|--|---|--|---|
|                    |  |   |   |  | $OP(RT\_PROR, \text{Max}(DAM\_QSOR, RT\_QSOR), RT\_OR\_DIPC)$<br><br>$OP(RT\_PROR, \text{Max}(RT\_OR\_LC\_EOP, DAM\_QSOR), RT\_OR\_DIPC)$<br><br>Resulting Decimals: 2 |   |  |   |
| 1902               | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve<br><br>Dispatchable Loads                  | 1   | 3   | Yes  | $OP(RT\_PROR, \text{Max}(DAM\_QSOR, RT\_QSOR), BOR)$<br><br>$OP(RT\_PROR, \text{Max}(RT\_OR\_LC\_EOP, DAM\_QSOR), BOR)$<br><br>Resulting Decimals: 2                   | Profits are compared as applicable.       |  |   |
| 1902               | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve<br><br>Boundary Entity Resources - Exports | 1   | 3   | Yes  | $OP(RT\_PROR, \text{Max}(DAM\_QSOR, RT\_QSOR), BOR)$<br><br>$OP(RT\_PROR, \text{Max}(RT\_OR\_LC\_EOP, DAM\_QSOR), BOR)$<br><br>Resulting Decimals: 2                   | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|---|---|--|---|
| 1902               | Real-Time Make-Whole Payment – Lost Cost for 10-Minute Non-Spinning Reserve<br><br>Boundary Entity Resources - Imports | 1   | 3   | Yes  | OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), BOR)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), BOR)<br><br>Resulting Decimals: 2  | Profits are compared as applicable.       |  |   |
| 1903               | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>Dispatchable Generation Resources      | 1   | 3   | Yes  | OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), BOR)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), BOR)<br><br>For Combustion Turbines:<br>OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), RT_OR_DIPC)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), RT_OR_DIPC)<br><br>For Steam Turbines: | Profits are compared as applicable.       |  |   |

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|--------------------|---|---|---|--|--|---|--|---|
|                    |   |   |   |  | OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), RT_OR_DIPC)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), RT_OR_DIPC)<br><br>Resulting Decimals: 2 |   |  |   |
| 1903               | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>Dispatchable Loads                  | 1   | 3   | Yes  | OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), BOR)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), BOR)<br><br>Resulting Decimals: 2               | Profits are compared as applicable.       |  |   |
| 1903               | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>Boundary Entity Resources - Exports | 1   | 3   | Yes  | OP(RT_PROR, Max(DAM_QSOR, RT_QSOR), BOR)<br><br>OP(RT_PROR, Max(RT_OR_LC_EOP, DAM_QSOR), BOR)<br><br>Resulting Decimals: 2               | Profits are compared as applicable.       |  |   |

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|--------------------|---|---|---|--|--|---|--|---|
| 1903               | Real-Time Make-Whole Payment – Lost Cost for 30-Minute Operating Reserve<br><br>Boundary Entity Resources - Imports | 1   | 3   | Yes  | $OP(RT\_PROR, \text{Max}(DAM\_QSOR, RT\_QSOR), BOR)$ $OP(RT\_PROR, \text{Max}(RT\_OR\_LC\_EOP, DAM\_QSOR), BOR)$ Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|--|---|---|---|
| 1904               | Real-Time Make-Whole Payment – Lost Opportunity Cost for Energy<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | AQEI multiplied by 12<br>Resulting Decimals: 3                     | Compare with RT_QSI.                      | $OP(RT\_LMP, RT\_LOC\_EOP, BE)$<br>$OP(RT\_LMP, Max(RT\_QSI, AQEI), BE)$<br><br>$FROP = OP(RT\_LMP, Min(FR\_UL, RT\_LOC\_EOP), BE) - OP(RT\_LMP, Max(RT\_QSI, AQEI), BE)$<br><br>For Combustion Turbines:<br>$OP(RT\_LMP, RT\_LOC\_EOP, RT\_DIPC)$<br>$OP(RT\_LMP, Max(RT\_QSI, AQEI), RT\_DIPC)$<br><br>For Steam Turbines:<br>$OP(RT\_LMP, RT\_LOC\_EOP\_DIGQ, RT\_DIPC)$<br>$OP(RT\_LMP, Max(RT\_QSI\_DIGQ, AQEI), RT\_DIPC)$<br>$OP(RT\_LMP, RT\_QSI\_DIGQ, RT\_DIPC)$<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |

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|--------------------|--|---|---|--|---|---|--|---|
| 1904               | Real-Time Make-Whole Payment – Lost Opportunity Cost for Energy<br><br>Dispatchable Loads                                    | 1   | 3   | Yes  | AQEW multiplied by 12<br>Resulting Decimals: 3  | Compare with RT_QSW.                      | OP(RT_LMP, RT_LOC_EOP, BL)<br><br>OP(RT_LMP, Max(RT_QSW, AQEW), BL)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |
| 1905               | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Spinning Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(RT_PROR, RT_OR_LOC_EOP, BOR)<br><br>OP(RT_PROR, RT_QSOR, BOR)<br><br>For Combustion Turbines:<br>OP(RT_PROR, RT_OR_LOC_EOP, RT_OR_DIPC)<br><br>OP(RT_PROR, RT_QSOR, RT_OR_DIPC)<br><br>For Steam Turbines:<br>OP(RT_PROR, RT_OR_LOC_EOP, RT_OR_DIPC)<br><br>OP(RT_PROR, RT_QSOR, RT_OR_DIPC) | Profits are compared as applicable.       |  |   |



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|--------------------|--|---|---|--|---|---|--|---|
|                    |  |   |   |  | Resulting Decimals: 2   |   |  |   |
| 1905               | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Spinning Reserve<br><br>Dispatchable Loads                    | 1   | 3   | Yes  | OP(RT_PROR, RT_OR_LOC_EOP, BOR)<br><br>OP(RT_PROR, RT_QSOR, BOR)<br><br>Resulting Decimals: 2   | Profits are compared as applicable.       |  |   |
| 1906               | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Non-Spinning Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(RT_PROR, RT_OR_LOC_EOP, BOR)<br><br>OP(RT_PROR, RT_QSOR, BOR)<br><br>For Combustion Turbines:<br>OP(RT_PROR, RT_OR_LOC_EOP, RT_OR_DIPC)<br><br>OP(RT_PROR, RT_QSOR, RT_OR_DIPC)<br><br>For Steam Turbines:<br>OP(RT_PROR, RT_OR_LOC_EOP, RT_OR_DIPC) | Profits are compared as applicable.       |  |   |

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|--------------------|---|---|---|--|---|---|--|---|
|                    |   |   |   |  | OP(RT_PROR, RT_QSOR, RT_OR_DIPC)<br><br>Resulting Decimals: 2   |   |  |   |
| 1906               | Real-Time Make-Whole Payment – Lost Opportunity Cost for 10-Minute Non-Spinning Reserve<br><br>Dispatchable Loads             | 1   | 3   | Yes  | OP(RT_PROR, RT_OR_LOC_EOP, BOR)<br><br>OP(RT_PROR, RT_QSOR, BOR)<br><br>Resulting Decimals: 2   | Profits are compared as applicable.       |  |   |
| 1907               | Real-Time Make-Whole Payment – Lost Opportunity Cost for 30-Minute Operating Reserve<br><br>Dispatchable Generation Resources | 1   | 3   | Yes  | OP(RT_PROR, RT_OR_LOC_EOP, BOR)<br><br>OP(RT_PROR, RT_QSOR, BOR)<br><br>For Combustion Turbines:<br>OP(RT_PROR, RT_OR_LOC_EOP, RT_OR_DIPC)<br><br>OP(RT_PROR, RT_QSOR, RT_OR_DIPC)<br><br>For Steam Turbines:<br>OP(RT_PROR, RT_OR_LOC_EOP, RT_OR_DIPC) | Profits are compared as applicable.       |  |   |

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|--------------------|--|---|---|--|---|---|--|---|
|                    |  |   |   |  | OP(RT_PROR, RT_QSOR, RT_OR_DIPC)<br><br>Resulting Decimals: 2                                 |   |  |   |
| 1907               | Real-Time Make-Whole Payment – Lost Opportunity Cost for 30-Minute Operating Reserve<br><br>Dispatchable Loads | 1   | 3   | Yes  | OP(RT_PROR, RT_OR_LOC_EOP, BOR)<br><br>OP(RT_PROR, RT_QSOR, BOR)<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |  |   |

|      |   |   |   |     |   |                                    |  |  |
|------|---|---|---|-----|---|------------------------------------|--|--|
| 1908 | Real-Time Make-Whole Payment - Operating Reserve Non-Accessibility Lost Cost Reversal | 1 | 3 | Yes | <p>For 10S:<br/> <math>OP(RT\_PROR\_R1, \text{MAX}(DAM\_QSOR\_R1, RT\_QSOR\_R1), BOR\_R1)</math></p> <p><math>OP(RT\_PROR\_R1, \text{Max}(TAOR, RT\_OR\_LC\_EOP\_R1, DAM\_QSOR\_R1), BOR\_R1)</math></p> <p>Resulting Decimals: 2</p> <p>For 10N:<br/> <math>OP(RT\_PROR\_R2, \text{MAX}(DAM\_QSOR\_R2, RT\_QSOR\_R2), BOR\_R2)</math></p> <p><math>OP(RT\_PROR\_R2, \text{Max}(TAOR-RT\_QSOR\_R1, RT\_OR\_LC\_EOP\_R2, DAM\_QSOR\_R2), BOR\_R2)</math></p> <p>Resulting Decimals: 2</p> <p>For 30N:<br/> <math>OP(RT\_PROR\_R3, \text{MAX}(DAM\_QSOR\_R3, RT\_QSOR\_R3), BOR\_R3)</math></p> <p><math>OP(RT\_PROR\_R3, \text{Max}(TAOR-RT\_QSOR\_R1-RT\_QSOR\_R2, RT\_OR\_LC\_EOP\_R3, DAM\_QSOR\_R3), BOR\_R3)</math></p> | Profits are compared as applicable |  |  |
|------|---|---|---|-----|---|------------------------------------|--|--|

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|--------------------|------------------|---|---|--|--|---|--|---|
|                    |                  |   |   |  | Resulting Decimals: 2  |   |  |   |

|      |   |   |   |     |  |                                    |  |  |
|------|---|---|---|-----|--|------------------------------------|--|--|
| 1909 | Real-Time Make-Whole Payment - Operating Reserve Non-Accessibility Lost Opportunity Cost Reversal | 1 | 3 | Yes | <p>For 10S:<br/> <math>OP(RT\_PROR\_R1, RT\_OR\_LOC\_EOP\_R1, RT\_OR\_DIPC\_R1)</math></p> <p><math>OP(RT\_PROR\_R1, \text{Max}(RT\_QSOR\_R1, TAOR\_CT), RT\_OR\_DIPC\_R1)</math></p> <p>Resulting Decimals: 2</p> <p>For 10N:<br/> <math>OP(RT\_PROR\_R2, RT\_OR\_LOC\_EOP\_R2, RT\_OR\_DIPC\_R2)</math></p> <p><math>OP(RT\_PROR\_R2, \text{Max}(TAOR-RT\_QSOR\_R1, RT\_QSOR\_R2), RT\_OR\_DIPC\_R2)</math></p> <p>Resulting Decimals: 2</p> <p>For 30N:<br/> <math>OP(RT\_PROR\_R3, RT\_OR\_LOC\_EOP\_R3, RT\_OR\_DIPC\_R3)</math></p> <p><math>OP(RT\_PROR\_R3, \text{MAX}(RT\_QSOR\_R3, TAOR-RT\_QSOR\_R1-RT\_QSOR\_R2), BOR\_R3)</math></p> <p>Resulting Decimals: 2</p> | Profits are compared as applicable |  |  |
|------|---|---|---|-----|--|------------------------------------|--|--|

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|--------------------|--|---|---|--|--|---|---|---|
| 1910               | Real-Time Generator Offer Guarantee - Energy                       | 1   | 3   | Yes  | AQEI multiplied by 12<br>Resulting Decimals: 3                     | Operating profit calculation.             | OP(RT_LMP, RT_QSI, BE)<br><br>OP(RT_LMP, AQEI, BE)<br>RT_LMP x AQEI<br>DAM_LMP x DAM_QSI<br><br>Resulting Decimals: 2 | Profits are compared as applicable.       |
| 1911               | Real-Time Generator Offer Guarantee – Operating Reserve            | 1   | 3   | Yes  | OP(RT_PROR, RT_QSOR, BOR)<br>Resulting Decimals: 2                 |   |   |   |
| 1912               | Real-Time Generator Offer Guarantee – Over Midnight                | 1   | 3   | Yes  | OP(RT_LMP, MLP, BE)<br>Resulting Decimals: 2                       |   |   |   |
| 1913               | Real-Time Generator Offer Guarantee – Start-up                     | 1   | 2   | No   |  |   |   |   |
| 1914               | Real-Time Generator Offer Guarantee – RT Make-Whole Payment Offset | 1   | 2   | No   |  |   |   |   |

|      |  |   |   |     |   |                                     |  |  |
|------|--|---|---|-----|---|-------------------------------------|--|--|
| 1915 | Real-Time Generator Offer Guarantee – Operating Reserve Non-Accessibility Reversal | 1 | 3 | Yes | <p>For 10S:<br/> <math>OP(RT\_PROR\_R1, RT\_QSOR\_R1, BOR\_R1)</math></p> <p><math>OP(RT\_PROR\_R1, TAOR, BOR\_R1)</math><br/>                     Resulting Decimals: 2</p> <p>For 10N:<br/> <math>OP(RT\_PROR\_R2, RT\_QSOR\_R2, BOR\_R2)</math></p> <p><math>OP(RT\_PROR\_R2, TAOR-T\_QSOR\_R1, BOR\_R2)</math><br/>                     Resulting Decimals: 2</p> <p>For 30N:<br/> <math>OP(RT\_PROR\_R3, RT\_QSOR\_R3, BOR\_R3)</math></p> <p><math>OP(RT\_PROR\_R3, TAOR-T\_QSOR\_R1-RT\_QSOR\_R2, BOR\_R3)</math><br/>                     Resulting Decimals: 2</p> <p>For ST Case:<br/> <math>ORSCB\_REV = -1 \times ORSCB \times (RT\_OR\_CMT\_DIGQ/RT\_QSOR)</math><br/>                     Resulting Decimals: 2</p> <p><math>RT\_GOG\_TAOR\_ST = TAOR\_ST \times (RT\_OR\_CMT\_DIGQ/RT\_QSOR)</math><br/>                     Resulting Decimals: 3</p> | Profits are compared as applicable. |  |  |
|------|--|---|---|-----|---|-------------------------------------|--|--|



| Charge Type Number | Charge Type Name                      | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---------------------------------------|---|---|--|--|---|--|---|
|                    |                                       |   |   |  | ORIA_AMT<br>For 10S: RT_PROR_R1<br>(RT_QSOR_R1-TAOR)<br>Resulting Decimals: 2<br><br>For 10N:<br>RT_PROR_R2<br>(RT_QSOR_R2-MAX(0,<br>TAOR-RT_QSOR_R1))<br>Resulting Decimals: 2<br><br>For 30N:<br>RT_PROR_R3<br>(RT_QSOR_R3-MAX(0,<br>TAOR-RT_QSOR_R1-<br>RT_QSOR_R2))<br>Resulting Decimals: 2 |   |  |   |
| 1917               | Real-Time Ramp-Down Settlement Amount | 1   | 3   | Yes  | OP(DAM_LMP, AQEI, BE)<br><br>OP(DAM_LMP, AQEI,<br>DAM_BE)<br><br>OP(RT_LMP, AQEI, BE)<br><br>Resulting Decimals: 2   | Profits are compared as applicable.       |  |   |

| Charge Type Number | Charge Type Name                                    | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1920               | Generator Failure Charge – Market Price Component   | 1   | 3   | No   |  |   |  |   |
| 1921               | Generator Failure Charge – Guarantee Cost Component | 1   | 3   | Yes  | Numerator: PD_BE_SNL<br>Denominator: 12<br>Resulting Decimals: 2<br><br>PD_SU_Ratio<br>Resulting Decimals: 5 | Sum to the GCC amount.                    | M1<br>Resulting Decimals: 5  | Multiplied by the GCC amount.             |
| 1927               | Real-Time Intertie Offer Guarantee                  | 1   | 3   |  |  |   |  |   |
| 1928               | Real-Time Import Failure Charge                     | 1   | 3   | No   |  |   |  |   |
| 1929               | Real-Time Export Failure Charge                     | 1   | 3   | No   |  |   |  |   |
| 1930               | Day-Ahead Market Reference Level Settlement Charge  | 1   | 2   | No   |  |   |  |   |
| 1931               | Real-Time Reference Level Settlement Charge         | 1   | 2   | No   |  |   |  |   |
| 1932               | Mitigation Amount for Physical Withholding - Energy | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1933               | Mitigation Amount for Physical Withholding – 10S Operating Reserve          | 1   | 3   | No   |  |   |  |   |
| 1934               | Mitigation Amount for Physical Withholding – 10N Operating Reserve          | 1   | 3   | No   |  |   |  |   |
| 1935               | Mitigation Amount for Physical Withholding – 30R Operating Reserve          | 1   | 3   | No   |  |   |  |   |
| 1936               | Mitigation Amount for Intertie Economic Withholding - Energy                | 1   | 3   | No   |  |   |  |   |
| 1937               | Mitigation Amount for Intertie Economic Withholding – 10N Operating Reserve | 1   | 3   | No   |  |   |  |   |
| 1938               | Mitigation Amount for Intertie Economic Withholding – 30R Operating Reserve | 1   | 3   | No   |  |   |  |   |
| 1939               | Mitigation Amount for Intertie Economic Withholding – Make-Whole Payment    | 1   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1950               | Real-Time Make-Whole Payment Uplift                        | 1   | 3   | No   |  |   |  |   |
| 1960               | Real-Time Generator Offer Guarantee Uplift                 | 1   | 3   | No   |  |   |  |   |
| 1967               | Real-Time Ramp-Down Settlement Amount Uplift               | 1   | 3   | No   |  |   |  |   |
| 1970               | Generator Failure Charge – Market Price Component Uplift   | 1   | 3   | No   |  |   |  |   |
| 1971               | Generator Failure Charge – Guarantee Cost Component Uplift | 1   | 3   | No   |  |   |  |   |
| 1977               | Real-Time Intertie Offer Guarantee Uplift                  | 1   | 3   | No   |  |   |  |   |
| 1980               | Day-Ahead Market Reference Level Settlement Charge Uplift  | 1   | 3   | No   |  |   |  |   |
| 1981               | Real-Time Reference Level Settlement Charge Uplift         | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1982               | Mitigation Amount for Physical Withholding Uplift                   | 1   | 3   | No   |  |   |  |   |
| 1986               | Mitigation Amount for Intertie Economic Withholding Uplift          | 1   | 3   | No   |  |   |  |   |
| 2148               | Class B Global Adjustment Prior Period Correction Settlement Amount | 2   | 2   | No   |  |   |  |   |
| 2470               | MOE - Ontario Electricity Support Program Balancing Amount          | 2   | 2   | No   |  |   |  |   |
| 9920               | Adjustment Account Credit   | 1   | 1   | No   |  |   |  |   |
| 9980               | Smart Metering Charge   | 2   | 2   | No   |  |   |  |   |
| 9983               | Ontario Electricity Rebate Settlement Amount                        | 2   | 2   | No   |  |   |  |   |
| 9984               | COVID-19 Energy Assistance Program (CEAP) Balancing Amount          | 2   | 2   | No   |  |   |  |   |
| 9990               | IESO Administration Charge  | 2   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | <b>INPUT VARIABLES</b><br>Least number of significant digits to the right of the decimal | <b>INPUT VARIABLES</b><br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | <b>INTERMEDIATE CALCULATION 1</b><br>(where intermediate rounding occurs) | <b>DISPOSITION OF INTERMEDIATE CALCULATION 1</b> | <b>INTERMEDIATE CALCULATION 2</b><br>(where intermediate rounding occurs) | <b>DISPOSITION OF INTERMEDIATE CALCULATION 2</b> |
|--------------------|-------------------|--|--|--|---|--|---|--|
| 9996               | Recovery of Costs | 2  | 2  | No   |   |  |   |  |

## 2.4. Settlement of Physical Bilateral Contracts

### 2.4.1. Market Price of Energy Applied to Location of Physical Bilateral Contract

**(MR Ch.8 s. 2.1)**

The *settlement process* will apply the applicable *market price for energy* according to the location of the *physical bilateral contract* in accordance with **MR Ch.8 s.2.1.3.2** and is summarized in the following tables for each timeframe.

**Table 2-7: Day-Ahead Market: Market Price of Energy Applied to Location of Physical Bilateral Contract**

| Location of Physical Bilateral Contract  | Settlement of Selling Market Participant<br><br><u>Debit</u> the <i>physical bilateral contract quantity of energy sold at the...</i> | Settlement of Buying Market Participant<br><br><u>Credit</u> the <i>physical bilateral contract quantity of energy bought at the...</i> | Charge Type                        |
|--|---|---|------------------------------------|
| Non-dispatchable <i>delivery point – generation resource</i>   | N/A   | N/A   | N/A                                |
| Non-dispatchable <i>delivery point – load resource</i>   | N/A   | N/A   | N/A                                |
| <i>Price responsive loads</i><br><br><i>Self-scheduling electricity storage resources</i>  | DAM_LMP <sub>h</sub> <sup>m</sup>   | DAM_LMP <sub>h</sub> <sup>m</sup>   | <i>Charge Type</i><br>1104         |
| Dispatchable <i>delivery point</i><br><ul style="list-style-type: none"> <li>• <i>generation resource</i></li> <li>• <i>electricity storage resource (injecting or withdrawing)</i></li> <li>• <i>dispatchable load</i></li> </ul> | DAM_LMP <sub>h</sub> <sup>m</sup>   | DAM_LMP <sub>h</sub> <sup>m</sup>   | <i>Charge type</i><br>1100<br>1102 |
| <i>Intertie metering point</i>   | DAM_LMP <sub>h</sub> <sup>i</sup>   | DAM_LMP <sub>h</sub> <sup>i</sup>   | <i>Charge type</i>                 |

| Location of Physical Bilateral Contract | Settlement of Selling Market Participant<br><b>Debit</b> the <i>physical bilateral contract quantity of energy sold at the...</i> | Settlement of Buying Market Participant<br><b>Credit</b> the <i>physical bilateral contract quantity of energy bought at the...</i> | Charge Type |
|---|---|---|-------------|
|   |   |   | 1110        |
|   |   |   | 1112        |

**Table 2-8: Real-Time Market: Market Price of Energy Applied to Location of Physical Bilateral Contract**

| Location of Physical Bilateral Contract  | Settlement of Selling Market Participant<br><b>Debit</b> the <i>physical bilateral contract quantity of energy sold at the...</i> | Settlement of Buying Market Participant<br><b>Credit</b> the <i>physical bilateral contract quantity of energy bought at the...</i> | Charge Type                        |
|--|---|---|------------------------------------|
| Non-dispatchable <i>delivery point – generation resource</i>   | $RT\_LMP_h^{m,t}$   | $RT\_LMP_h^{m,t}$   | <i>Charge type</i><br>1114         |
| Non-dispatchable <i>delivery point – load resource</i>   | $DAM\_LMP_h^z$  | $DAM\_LMP_h^z$  | <i>Charge type</i><br>1115         |
| <i>Price responsive loads</i><br><br><i>Self-scheduling electricity storage resources</i>  | $RT\_LMP_h^{m,t}$   | $RT\_LMP_h^{m,t}$   | <i>Charge type</i><br>1105         |
| Dispatchable <i>delivery point</i><br><ul style="list-style-type: none"> <li>• <i>generation resource</i></li> <li>• <i>electricity storage resource (injecting or withdrawing)</i></li> </ul> | $RT\_LMP_h^{m,t}$   | $RT\_LMP_h^{m,t}$   | <i>Charge type</i><br>1101<br>1103 |



| <b>Location of Physical Bilateral Contract</b>                             | <b>Settlement of Selling Market Participant</b><br><br><u>Debit</u> the <i>physical bilateral contract quantity of energy sold at the...</i> | <b>Settlement of Buying Market Participant</b><br><br><u>Credit</u> the <i>physical bilateral contract quantity of energy bought at the...</i> | <b>Charge Type</b>                 |
|--|--|--|------------------------------------|
| <ul style="list-style-type: none"> <li><i>dispatchable load</i></li> </ul> |  |  |                                    |
| <i>Intertie metering point</i>   | $RT\_LMP_h^{i,t}$  | $RT\_LMP_h^{i,t}$  | <i>Charge type</i><br>1111<br>1113 |

These *settlement* debits and credits are included in the overall *settlement amounts* calculated for the *energy charge types* noted in the tables above under the two-*settlement* system, in accordance with **MR Ch.9 s.3.1-3.2.**

## 2.4.2. The Nature of the Bilateral Contract Quantity

(MR Ch.8 s.2.3)

*Physical bilateral contract data*, submitted by *selling market participants* to the IESO in the *day-ahead market* and/or *real-time market* must contain the information in accordance with MR Ch.8 s.2.2. *Selling market participants* shall submit *physical bilateral contract data* for the same *delivery point* or *intertie metering point* on the same *trading day* in one of the two following forms in accordance with **MR Ch.8 s.2.3**:

1. absolute quantities of *energy*, as described in **MR Ch.8 s.2.3.1.2**; and
2. derived quantity of *energy*, as described in **MR Ch.8 s.2.3.1.1**.

The derived quantity of *energy* option is only available for *real-time market physical bilateral contracts* and where one of the two parties to the *physical bilateral contract* is the *metered market participant* for the *registered wholesale meter* associated with the *delivery point*.

The following examples illustrate the submission of *physical bilateral contract data* using the derived quantity of *energy*, where:

- the *delivery point* chosen by the *selling market participant* must belong to either the *selling market participant* or the *buying market participant*;
- if the *delivery point* is designated as a sub-type 'I' (injection) *delivery point*, 100% of all injected *energy* for each *metering interval* in each applicable *settlement hour* shall be used regardless of any *physical allocation data*;
- if the *delivery point* is designated as a sub-type 'W' (withdrawal) *delivery point*, 100% of all withdrawn *energy* for each *metering interval* in each applicable *settlement hour* shall be used regardless of any *physical allocation data*; and
- quantities of *energy* in the *physical bilateral contract data* are total quantities of *energy* for each *settlement hour* and not quantities of *energy* for *metering intervals* within the *settlement hour*.

**Table 2-9: Derived Quantities Example 1**

| <b>Derived Quantities Example 1: <i>Delivery point belongs to the SELLING market participant and is a sub-type 'I' (injection) delivery point.</i></b><br>(note parity with EXAMPLE 3) |    |    |    |   |   |   |    |    |   |    |    |    |
|--|----|----|----|---|---|---|----|----|---|----|----|----|
| <i>metering interval</i>   | 1  | 2  | 3  | 4 | 5 | 6 | 7  | 8  | 9 | 10 | 11 | 12 |
| ENERGY QUANTITY  | 10 | 10 | 10 | 0 | 0 | 0 | 10 | 10 | 0 | 0  | 10 | 10 |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)   | I  | I  | I  | I | I | I | W  | W  | I | I  | I  | I  |
| BCQ value used for <i>settlement</i> purposes (for both the <i>buying</i> and <i>selling market participant</i> )  | 10 | 10 | 10 | 0 | 0 | 0 | 0  | 0  | 0 | 0  | 10 | 10 |
| Total Quantity for the hour  | 50 |    |    |   |   |   |    |    |   |    |    |    |

**Table 2-10: Derived Quantities Example 2**

| <b>Derived Quantities Example 2: <i>Delivery point belongs to the SELLING market participant and is a sub-type 'W' (Withdrawal) delivery point.</i></b><br>(note parity with EXAMPLE 4) |    |    |    |   |   |   |    |    |   |    |    |    |
|---|----|----|----|---|---|---|----|----|---|----|----|----|
| <i>metering interval</i>  | 1  | 2  | 3  | 4 | 5 | 6 | 7  | 8  | 9 | 10 | 11 | 12 |
| ENERGY QUANTITY   | 10 | 10 | 10 | 0 | 0 | 0 | 10 | 10 | 0 | 0  | 10 | 10 |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)  | I  | I  | I  | W | W | W | W  | W  | W | W  | I  | I  |
| BCQ value used for <i>settlement</i> purposes (for both the <i>buying</i> and <i>selling market participant</i> )   | 0  | 0  | 0  | 0 | 0 | 0 | 10 | 10 | 0 | 0  | 0  | 0  |
| Total Quantity for the hour   | 20 |    |    |   |   |   |    |    |   |    |    |    |

**Table 2-11: Derived Quantities Example 3**

| <b>Derived Quantities Example 3: Delivery point belongs to the BUYING market participant and is a sub-type 'I' (injection) delivery point.</b> |          |          |          |          |          |          |           |           |          |           |           |           |
|--|----------|----------|----------|----------|----------|----------|-----------|-----------|----------|-----------|-----------|-----------|
| <b>(note parity with EXAMPLE 1)</b>  |          |          |          |          |          |          |           |           |          |           |           |           |
| <i>metering interval</i>   | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b>  | <b>8</b>  | <b>9</b> | <b>10</b> | <b>11</b> | <b>12</b> |
| ENERGY QUANTITY  | 10       | 10       | 10       | 0        | 0        | 0        | <b>10</b> | <b>10</b> | 0        | 0         | 10        | 10        |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)   | I        | I        | I        | I        | I        | I        | <b>W</b>  | <b>W</b>  | I        | I         | I         | I         |
| BCQ value used for <i>settlement</i> purposes (for both the <i>buying</i> and <i>selling</i> market participant)                               | 10       | 10       | 10       | 0        | 0        | 0        | <b>0</b>  | <b>0</b>  | 0        | 0         | 10        | 10        |
| Total Quantity for the hour  | 50       |          |          |          |          |          |           |           |          |           |           |           |

**Table 2-12: Derived Quantities Example 4**

| <b>Derived Quantities Example 4: Delivery point belongs to the BUYING market participant and is a sub-type 'W' (Withdrawal) delivery point.</b> |           |           |           |          |          |          |          |          |          |           |           |           |
|---|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| <b>(note parity with EXAMPLE 2)</b>   |           |           |           |          |          |          |          |          |          |           |           |           |
| <i>metering interval</i>  | <b>1</b>  | <b>2</b>  | <b>3</b>  | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>10</b> | <b>11</b> | <b>12</b> |
| ENERGY QUANTITY   | <b>10</b> | <b>10</b> | <b>10</b> | 0        | 0        | 0        | 10       | 10       | 0        | 0         | <b>10</b> | <b>10</b> |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)  | <b>I</b>  | <b>I</b>  | <b>I</b>  | W        | W        | W        | W        | W        | W        | W         | <b>I</b>  | <b>I</b>  |
| BCQ value used for <i>settlement</i> purposes (for both the <i>buying</i> and <i>selling</i> market participant)                                | <b>0</b>  | <b>0</b>  | <b>0</b>  | 0        | 0        | 0        | 10       | 10       | 0        | 0         | <b>0</b>  | <b>0</b>  |
| Total Quantity for the hour   | 20        |           |           |          |          |          |          |          |          |           |           |           |

### 2.4.3. Allocation of Hourly Uplift Components Between Buying and Selling Market Participants

The *settlement process* will collect *physical bilateral contract data* in accordance with **MR Ch.9 s.2.7**, and for each *physical bilateral contract data*, the *settlement process* will allocate *hourly uplift* components assigned to the *selling market participant* and the *buying market participant* in accordance with **MR Ch.8 s.2.1.3.4** and **MR Ch.9 s.3.10**.

Each *hourly uplift* component (not the individual *charge types* themselves) may be selected in any combination when the *physical bilateral contract data* is submitted by the *selling market participant*. Confirmation of this selection is included within the *settlement statement* support data files as record type 'B'. Detailed information is provided in the document [Format Specifications for Settlement Statement Files and Data Files](#) document located on the [Technical Interfaces](#) webpage under 'Commercial Reconciliation'.

The *hourly uplift* components that may be allocated are included in Table 2-13.

**Table 2-13: Allocation of Hourly Uplift Components**

| Hourly Uplift Component Group                        | Associated Charge Types | Comments  |
|--|-------------------------|---|
| Operating Reserve Settlement Credit (ORSC)           | 250<br>252<br>254       | Separate <i>charge types</i> for recovery of HORSAs <i>settlement amounts</i> paid to <i>market participants</i> for each class of <i>operating reserve</i> .   |
| Intertie Failure Charge Rebate (IFCR)                | 186                     | Aggregation of the following <i>charge types</i> : <ul style="list-style-type: none"> <li><i>charge type</i> 135 Real-time Import Failure Charge</li> <li><i>charge type</i> 136 Real-time Export Failure Charge</li> </ul> |
| Intertie Offer Guarantee Settlement Credit (IOGSC)   | 1977                    | Recovery of <i>charge type</i> 1927 Real-Time Intertie Offer <i>settlement amount</i> paid to <i>market participants</i> .  |
| Operating Reserve Shortfall Settlement Debit (ORSSD) | 201<br>203<br>205       | Separate <i>charge types</i> for distribution of ORSSD <i>settlement amounts</i> received from <i>market participants</i> for shortfalls in the provision of each class of <i>operating reserve</i> .                       |
| Generator Failure Charge Rebate (GFCR)               | 1970                    | Distribution of <i>charge type</i> 1920 Generator Failure Charge – Market Price Component received from <i>market participants</i> .  |

| Hourly Uplift Component Group              | Associated Charge Types | Comments   |
|--|-------------------------|--|
| Day-Ahead Market Settlement Credit (DAMSC) | 1865                    | Aggregation of the following <i>charge types</i> : <ul style="list-style-type: none"> <li><i>charge type</i> 1815 Day-Ahead Market Balancing Credit – Energy</li> <li><i>charge type</i> 1816 Day-Ahead Market Balancing Credit – Operating Reserve</li> </ul> |
| Real-Time Market Settlement Credit (RTMSC) | 1950                    | Aggregation of the following <i>charge types</i> : <ul style="list-style-type: none"> <li><i>charge types</i> 1900 to 1907 for Real-Time Make-Whole Payment <i>settlement amounts</i></li> </ul>   |

### 2.4.3.1 Reallocate Quantity

The effect of selecting an *hourly uplift* component group within the *physical bilateral contract data*, is the creation of a “Reallocate Quantity (RQ)”.

The RQ is:

- specific to a single *physical bilateral contract* and is exactly equal to the quantity of *energy* involved in the *physical bilateral contract* itself;
- specific to a single *market participant* and is equal to the sum of all RQ quantities for which the *market participant* is the *selling market participant*, minus the sum of all RQ quantities for which the *market participant* is the *buying market participant*;
- specific to a single *market participant* for a particular *hourly uplift* component group and is equal to the sum of all RQ quantities designated to for that particular *hourly uplift* component group within the *physical bilateral contract data* for which the *market participant* is the *selling market participant*, minus the sum of all RQ quantities for which the *market participant* is the *buying market participant*.
- applied to the calculation of the *settlement amounts* for each *charge type* associated with the *hourly uplift* component group as per Table 2-4.

Therefore, when calculating the RQ quantity for a particular *hourly uplift charge type* for *market participant* ‘k’ at a *delivery point* ‘m’ and *intertie metering point* ‘i’ in *metering interval* ‘t’ of *settlement hour* ‘h’, the reallocate quantity is expressed according the **MR Ch.9 Appendix 9.2 s.6.1.9:**

$$RQ_{k,h}^{m,i,t} = \left[ \sum_B \frac{DAM\_BCQ_{k,b,h}^{m,i}}{12} - \sum_S \frac{DAM\_BCQ_{s,k,h}^{m,i}}{12} + \sum_B BCQ_{k,b,h}^{m,i,t} - \sum_S BCQ_{s,k,h}^{m,i,t} \right]$$

The RQ quantity is then used to either increase or decrease the *settlement amount* for the *hourly uplift charge type 'c'* in accordance with **MR Ch.9 s.3.10** as follows:

$$HUSA_{k,h} = HUSA_h \times \left[ \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) / \sum_K \sum^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \right]$$

**Note:**

In the event that the term  $(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,i,t}) < 0$

Where:

$$RQ_{k,h}^{m,i,t} < 0 \text{ and } |RQ_{k,h}^{m,i,t}| > |(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})| \text{ and } TD_{k,h,c} > 0$$

The calculation of the applicable *hourly uplift charge type 'c'* will yield a net credit to the *buying market participant* as a result of the reallocated quantity exceeding their actual/scheduled withdrawals of *energy* for the *metering interval 't'* in question.

The above mechanism applies to those "associated *charge types*" that are enumerated in the table at the beginning of this [section 2.4.3](#). Refer to [section 2.2](#) for specific listings of *charge types* and their respective equations.

- **End of Section** -

## 3. Inactive IESO Charge Types and Equations

The provisions of this section are applicable to those *IESO charge types* and equations that are no longer active, as further described in [section 1.2](#), and have been retained in the event that a re-calculation of the *charge type* is required.

All *market rule* and *market manual* references, in this section, are to those *market rules* and *market manuals* that were in effect prior to the MRP commencement date, unless otherwise stated.

### 3.1. Variable Descriptions

The following Table 3-1 contains descriptions of variables used within [section 3.2](#). Variables not defined in this table are as defined in section 2.1.

**Table 3-1: Variable Descriptions for Inactive Charge Types and Equations**

| Key to the Table Below           |   |  |                        |   |
|----------------------------------|---|--|------------------------|---|
| Variable used within Section 3   | Data Description  | Description  | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| BR <sub>r</sub>                  | Operating Reserve Offers  | A matrix of <i>n price-quantity pairs</i> offered by <i>market participant 'k'</i> to supply class <i>r operating reserve</i> during <i>settlement hour 'h'</i> .  | 9.3.5.2                | Same as <i>IESO market rules</i> .  |
| CAEO <sup>m</sup> <sub>h,k</sub> | Capacity Auction Energy Offer   | The quantity of <i>auction capacity</i> for <i>settlement hour 'h'</i> (in MW) made available by <i>capacity auction resource</i> for <i>capacity market participant 'k'</i> at <i>delivery point</i> or <i>inertie metering point 'm'</i> in the relevant <i>settlement hour</i> of the <i>availability window</i> determined as the lesser of the <i>resource's energy offers</i> submitted in the day-ahead commitment process, pre-dispatch, and <i>real-time energy market</i> , as applicable. | 9.3.1.10               | Same as <i>IESO market rules</i>  |
| CBMP <sub>k</sub>                | Total net volume of electricity withdrawn from the <i>IESO-controlled grid</i> by applicable Class B market participant or licensed | The total net volume of electricity withdrawn from the <i>IESO-controlled grid</i> by applicable Class B market participant (as that term is defined in the regulation) or licensed distributor that is a <i>market participant 'k'</i> for the month.   | N/A                    | N/A – Refer to regulations.   |



| Key to the Table Below              |   |  |                         |   |
|-------------------------------------|---|--|-------------------------|---|
| Variable used within Section 3      | Data Description  | Description  | Market Rules Reference  | Relation to the corresponding variable description within the IESO Market Rules |
|                                     | distributor that is also a <i>market participant</i> for the month                            |  |                         |   |
| CBRR                                | Global adjustment Class B recovery rate   | Global Adjustment Class B recovery rate for the month per Ontario Regulation 429/04.   | N/A                     | N/A – Refer to regulations.   |
| CGC                                 | Submitted Combined Guaranteed Costs   | A financial amount consisting of fuel cost components defined on a <i>per-start</i> basis for a given <i>generation unit</i> calculated in a manner consistent with the applicable <i>market manual</i> , and encompassing the following elements:<br><ol style="list-style-type: none"> <li>1) Fuel and operation and maintenance (O&amp;M) costs associated with unit synchronization to the <i>IESO-controlled grid</i> for a given start-up event (costs submitted via Online <i>IESO</i>).</li> <li>2) Fuel and O&amp;M costs associated with moving the <i>generation unit</i> from a valid start to its <i>minimum loading point</i> (costs submitted via Online <i>IESO</i>).</li> </ol> | 9.4.7B                  | Same as <i>IESO market rules</i> .  |
| DA_BE <sub>k,h</sub> <sup>m,t</sup> | <i>Energy Offer</i> submitted into the <i>schedule of record at a delivery point</i>          | <i>Energy offers</i> submitted in day-ahead, represented as an N by 2 matrix of <i>price-quantity pairs</i> for each <i>market participant</i> 'k' at <i>delivery point</i> 'm' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h' arranged in ascending order by the offered price in each <i>price-quantity pair</i> where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2.   | 9.3.1.2B.7              | Same as <i>IESO market rules</i> .  |
| DA_BE <sub>k,h</sub> <sup>i,t</sup> | <i>Energy Offer</i> submitted into the <i>schedule of record at a intertie metering point</i> | <i>Energy offers</i> submitted in day-ahead, represented as an N by 2 matrix of <i>price-quantity pairs</i> for each <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h' arranged in ascending order by the offered price in each <i>price-quantity pair</i> where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2.  | 9.3.8A.2B and 9.3.8B.2  | Same as <i>IESO market rules</i>  |
| DA_BL <sub>k,h</sub> <sup>i,t</sup> | <i>Energy Bids</i> submitted into the <i>schedule of record</i>                               | Energy bids submitted in day-ahead, represented as an N by 2 matrix of <i>price-quantity pairs</i> for each <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h' arranged in ascending order by the offered price in each <i>price-quantity pair</i> where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2.   | 9.3.1.2B.7 and 9.3.8D.2 | Same as <i>IESO market rules</i>  |

| Key to the Table Below                |   |   |                        |   |
|---------------------------------------|---|---|------------------------|---|
| Variable used within Section 3        | Data Description  | Description   | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| DA_CGC                                | Submitted Day-Ahead Combined Guaranteed Costs   | EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT.<br><br>A financial amount consisting of fuel cost components defined on a <i>per-start</i> basis for a given <i>generation unit</i> calculated in a manner consistent with the applicable <i>market manual</i> , and encompassing the following elements:<br>1) Fuel and operation and maintenance (O&M) costs associated with unit synchronization to the <i>IESO-controlled grid</i> for a given start-up event (costs submitted via <i>IESO Gateway</i> ).<br>2) Fuel and O&M costs associated with moving the <i>generation unit</i> from a valid start to its <i>minimum loading point</i> (costs submitted via <i>IESO Gateway</i> ). | 9.4.7D.1               | Same as <i>IESO market rules</i>  |
| DA_DQSI <sub>k,h</sub> <sup>m,t</sup> | <i>Schedule of Record</i> Dispatch Quantity of Energy Scheduled for Injection at a delivery point           | Day-ahead constrained quantity scheduled for injection by <i>market participant</i> 'k' at <i>delivery point</i> 'm' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.   | 9.3.1.2A               | Same as <i>IESO market rules</i> .  |
| DA_DQSI <sub>k,h</sub> <sup>i,t</sup> | <i>Schedule of Record</i> Dispatch Quantity of Energy Scheduled for Injection at an intertie metering point | Day-ahead constrained quantity scheduled for injection by <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2A               | Same as <i>IESO market rules</i> .  |
| DA_DQSW <sub>k,h</sub> <sup>i,t</sup> | <i>Schedule of Record</i> Dispatch Quantity of Energy Scheduled for Withdrawal                              | Day-ahead constrained quantity scheduled for withdrawal by <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.   | 9.3.1.2A               | Same as <i>IESO market rules</i> .  |
| DA_ELMP <sub>h</sub> <sup>m,t</sup>   | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the export zone     | Day-ahead constrained schedule intertie price at the <i>delivery point</i> 'm' of the sink for the export transaction during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2A               | Same as <i>IESO market rules</i> .  |
| DA_ILMP <sub>h</sub> <sup>m,t</sup>   | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the import zone     | Day-ahead constrained schedule intertie price at the <i>delivery point</i> 'm' of the source for the import transaction during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2A               | Same as <i>IESO market rules</i> .  |
| DA_SNLC <sub>k,h</sub> <sup>m</sup>   | Speed-no-load costs submitted into the <i>schedule of record</i> at a <i>delivery point</i>                 | As-offered <i>speed-no-load cost</i> associated with <i>three-part offers</i> for a given <i>settlement hour</i> 'h' for <i>market participant</i> 'k' at <i>delivery point</i> 'm'.  | 9.3.1.2B.7             | Same as <i>IESO market rules</i> .  |

| <b>Key to the Table Below</b>         |   |  |                               |  |
|---------------------------------------|---|--|-------------------------------|--|
| <b>Variable used within Section 3</b> | <b>Data Description</b>   | <b>Description</b>   | <b>Market Rules Reference</b> | <b>Relation to the corresponding variable description within the IESO Market Rules</b>   |
| DA_SNL <sub>k,h</sub> <sup>p</sup>    | Speed-no-load costs submitted into the <i>schedule of record at a pseudo-unit</i> | As-offered <i>speed-no-load cost</i> associated with <i>three-part offers</i> for a given <i>settlement hour</i> 'h' for <i>market participant</i> 'k' at <i>pseudo-unit</i> 'p'.  | 9.3.1.2B.7                    | Same as <i>IESO market rules</i> .   |
| DA_SUC <sub>k,h</sub> <sup>m</sup>    | Start-up costs submitted into the <i>schedule of record at a delivery point</i>   | As-offered <i>start-up cost</i> associated with <i>three-part offers</i> for a given <i>settlement hour</i> 'h' for <i>market participant</i> 'k' at <i>delivery point</i> 'm' where <i>settlement hour</i> 'h' is the initial hour in the DACP start event.   | 9.3.1.2B.7                    | Same as <i>IESO market rules</i> .   |
| DA_SUC <sub>k,h</sub> <sup>p</sup>    | Start-up costs submitted into the <i>schedule of record at a pseudo-unit</i>      | As-offered <i>start-up cost</i> associated with <i>three-part offers</i> for a given <i>settlement hour</i> 'h' for <i>market participant</i> 'k' at <i>pseudo-unit</i> 'p' where <i>settlement hour</i> 'h' is the initial hour in the DACP start event.  | 9.3.1.2B.7                    | Same as <i>IESO market rules</i> .   |
| DIPC <sub>k,h</sub> <sup>m,t</sup>    | Derived Interval Price Curve  | <i>Energy price curves</i> derived per interval from submitted hourly day-ahead PSU <i>energy offers</i> , represented as a N by 2 matrix of <i>price-quantity pairs</i> for each <i>market participant</i> 'k' at <i>delivery point</i> 'm' (where 'm' is a CT or ST delivery point) during <i>metering interval</i> 't' of <i>settlement hour</i> 'h' arranged in ascending order by the offered price in each <i>price quantity pair</i> where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2. | 9.3.1.11                      | Same as <i>IESO market rules</i> .<br><br>Refer to Market Manual 9.5, Appendix B for a detailed description of DIPC.   |
| DIGQ <sub>k,h</sub> <sup>m,t</sup>    | Derived Interval Guaranteed Quantity  | Portion of the day-ahead constrained quantity scheduled for injection that is eligible for DA-PCG for <i>market participant</i> 'k' at <i>pseudo unit</i> 'p' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'  | 9.3.1.11                      | Same as <i>IESO market rules</i> .<br><br>Refer to Market Manual 9.5, Appendix C for a detailed description of DIGQ.   |
| DQSI <sub>k,h</sub> <sup>m,t</sup>    | Dispatch Quantity of Energy Scheduled for Injection                               | Dispatch quantity of <i>energy</i> scheduled for injection in the <i>real-time schedule</i> by <i>market participant</i> 'k' at location 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.3 and 9.3.1.4A          | Same as <i>IESO market rules</i> .<br><br>N.B. Location m is further subject to the functional deferral described in section 3.1.4A of Chapter 9 of the <i>market rules</i> (ref. 9.3.1.4A). |
| DQSR <sub>r,k,h</sub> <sup>m,t</sup>  | Dispatch Quantity Schedule of Operating Reserve                                   | Dispatch quantity schedule of <i>class r reserve</i> for <i>market participant</i> 'k' at location 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.4 and 9.3.1.4A          | Same as <i>IESO market rules</i> .<br><br>N.B. Location m is further subject to the functional deferral described in section 3.1.4A of Chapter 9 of the <i>market rules</i> (ref. 9.3.1.4A). |

| Key to the Table Below         |  |  |                        |  |
|--------------------------------|--|--|------------------------|--|
| Variable used within Section 3 | Data Description                                     | Description  | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules  |
| $DQSW_{k,h}^{m,t}$             | Dispatch Quantity of Energy Scheduled for Withdrawal | Dispatch quantity of <i>energy</i> scheduled for withdrawal in the <i>real-time schedule</i> by <i>market participant</i> 'k' at location 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.   | 9.3.1.3 and 9.3.1.4A   | Same as <i>IESO market rules</i> .<br>N.B. Location m is further subject to the functional deferral described in section 3.1.4A of Chapter 9 of the <i>market rules</i> (ref. 9.3.1.4A). |
| DRACP                          | Demand Response Auction Clearing Price               | The <i>demand response auction clearing price</i> for the <i>commitment period</i> and zone.   | N/A                    | Refer to Market Manual 5.5   |
| $DRACP_h$                      | Hourly Demand Response Auction Clearing Price        | The <i>demand response auction clearing price</i> for the <i>commitment period</i> and zone divided by the hours of availability for a day.  | N/A                    | Refer to Market Manual 5.5   |
| $DREBQ_{k,h}^m$                | Demand Response Energy Bid Quantity                  | The quantity (in MW) of <i>auction capacity</i> made available by an <i>hourly demand response resource</i> or <i>capacity dispatchable load resource</i> for <i>capacity market participant</i> 'k' at <i>delivery point</i> 'm' in <i>settlement hour</i> 'h' of the <i>availability window</i> , determined as the lesser of the <i>resource's energy bids</i> submitted in the day-ahead commitment process, pre-dispatch, and <i>real-time energy market</i> , as applicable, and where such value exceeds the $CARC_k^m$ for the resource in the relevant <i>energy market billing</i> , the $DREBQ_{k,h}^m$ shall equal such $CARC_k^m$ . | 9.3.1.10               | Same as <i>IESO market rules</i>   |
| DRBOC <sub>k</sub>             | Demand Response Buy-Out Capacity                     | The buy-out capacity is an amount that is being reduced from the <i>demand response capacity obligation</i> for <i>demand response market participant</i> 'k'.   | N/A                    | Refer to Market Manual 5.5   |

| Key to the Table Below            |   |   |   |  |
|-----------------------------------|---|---|---|--|
| Variable used within Section 3    | Data Description  | Description   | Market Rules Reference  | Relation to the corresponding variable description within the IESO Market Rules  |
| DRCO <sub>k</sub>                 | Demand Response Capacity Obligation (MW)  | The <i>demand response capacity obligation</i> amount for the <i>commitment period</i> and zone for <i>demand response market participant</i> 'k'. The initial capacity obligation is acquired through the <i>demand response auction</i> and subject to being reduced via the buy-out process. | N/A   | Refer to Market Manual 5.5   |
| DRNPF                             | Demand Response Non-Performance Factor  | The non-performance factor as listed in section 7.1 of Market Manual 12 that corresponds and applies to the month being settled.  | N/A   | Refer to Market Manual 5.5   |
| EIM <sub>k,h</sub>                | Operating Profit Function for the IMPORT of Energy under the Intertie Offer/Bid Guarantee Settlement Credit | This Operating Profit function is used for the calculation of the Intertie Offer/Bid Guarantee Settlement Credit (IOBG) with respect the IMPORT of <i>energy</i> .  | 9.3.8A  | EIM <sub>k,h</sub> IS NOT A VARIABLE<br>EIM <sub>k,h</sub> is the output of a particular usage of the Operating Profit (OP) function defined within Chapter 9, section 3.8A.<br>EIM <sub>k,h</sub> Input variables into the Operating Profit (OP) Function include: MQSI, EMP, and BE. |
| EMP <sub>n</sub> <sup>i,t</sup>   | 5-minute Energy Market Price at the Interties   | Energy <i>market price</i> applicable to <i>intertie metering point</i> 'i' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.3   | Same as <i>IESO market rules</i> .   |
| EMP <sub>n</sub> <sup>m,t</sup>   | 5-minute Energy Market Price within Ontario   | Energy <i>market price</i> applicable to <i>RWM</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.3   | Same as <i>IESO market rules</i> .   |
| EMP <sub>n</sub> <sup>REF,t</sup> | 5-minute Energy Market Reference Price  | Reference energy <i>market price</i> used to value losses in the calculation of the <i>Transmission Charge Reduction Fund</i> <sup>3</sup> during in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.3 and 9.3.6.2   | Same as <i>IESO market rules</i> .   |
| FP <sub>n</sub> <sup>m</sup>      | Fixed Energy Rate   | A fixed <i>energy rate</i> for all <i>metering intervals</i> in <i>settlement hour</i> 'h'.   | N/A – subject to regulations made pursuant to <i>Ontario Energy Board Act, 1998</i> until March 31, 2005 and by the <i>OEB</i> under such regulations | N/A – Refer to regulations.  |

<sup>3</sup> *Market Rules* ref.: Section 3.6.2 of Chapter 9.

| Key to the Table Below             |   |   |   |   |
|------------------------------------|---|---|---|---|
| Variable used within Section 3     | Data Description  | Description   | Market Rules Reference  | Relation to the corresponding variable description within the IESO Market Rules   |
|                                    |   |   | commencing April 1, 2005.   |   |
| FPC <sub>h</sub> <sup>m</sup>      | Rate for a designated group of <i>charge types</i> (refer to description of <i>charge type</i> 141) | This variable is reserved for <i>charge type</i> 141 and applies with respect to charges for the period commencing December 1, 2002 and ending March 31, 2005. Refer to Ontario Regulation 436/02 and Ontario Regulation 98/05.   | N/A – subject to regulations made pursuant to <i>Ontario Energy Board Act, 1998</i> . | N/A – Refer to regulations  |
| HOEP <sub>h</sub>                  | Hourly Ontario Energy Price   | <i>Hourly Ontario Energy Price</i> in <i>settlement hour</i> 'h'.   | 9.3.1.3   | Same as <i>IESO market rules</i> .  |
| IOG_FV <sub>k,h</sub> <sup>i</sup> | IOG Floor Value   | <p>EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT.</p> <p>The IOG_FV<sub>k,h</sub><sup>i</sup> is a floor value (in dollars to the nearest cent) derived from:</p> <ul style="list-style-type: none"> <li>The day-ahead offer prices for the import transaction submitted by the <i>market participant</i> over the range of the <i>pre-dispatch of record</i> constrained quantity scheduled for that import transaction; and</li> <li><i>Real-time</i> offer prices for the import transaction at the corresponding location in the corresponding <i>settlement hour</i> for any additional <i>energy</i> scheduled above and beyond the <i>pre-dispatch of record</i> constrained quantity scheduled for that import transaction:</li> </ul> <p><b>NOTE:</b> The IOG_FV<sub>k,h</sub><sup>i</sup> is formulated in the manner described in Chapter 9, section 3.8A.8 of the <i>IESO market rules</i> and is used in the formulation of the <i>intertie offer guarantee adjustment</i> (refer to also, section 2.2 entry for <i>charge type</i> 1137 within this document).</p> | 9.3.8A.8  | <p>Same as <i>IESO market rules</i></p> <p>Refer to Chapter 9, section 3.8A.8 for details concerning its formulation.</p> |
| MDCAA                              | Monthly deferred Class A amount to be recovered   | The monthly deferred Class A amount to be recovered which equals one twelfth of the total Global Adjustment allocated to Class A customers that was deferred in April, May and June of 2020.  | N/A   | N/A – Refer to regulations.   |
| MDCBA                              | Monthly deferred Class B amount to be recovered   | The monthly deferred Class B amount to be recovered equals one twelfth of the total Global Adjustment   | N/A   | N/A – Refer to regulations.   |

| Key to the Table Below         |   |  |                        |   |
|--------------------------------|---|--|------------------------|---|
| Variable used within Section 3 | Data Description  | Description  | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules   |
|                                |   | allocated to Class B customers that was deferred in April, May and June of 2020.   |                        |   |
| $MC_h^m$                       | Minimum Consumption   | Used for the OR non-accessibility charges and the calculation of the self-induced dispatchable load CMSC clawback under Business Rule 2. The minimum consumption is equal to the quantity in the price quantity pair where the bidding price is MMCP (i.e., \$2000) at <i>RWM metering point</i> 'm' for settlement hour 'h'.  | 9.3.5.1A, 9.3.4.2      |   |
| MI                             | Ordered matrix of $MQSI_{k,h}^{i,t}$ and corresponding IOG <i>settlement amounts</i>                            | Used for the calculation of the IOG OFFSET <i>settlement amount</i> . A matrix of X pairs of <i>market schedule</i> quantities scheduled for injection by <i>market participant</i> 'k' at all <i>intertie metering points</i> 'i' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h' ( $MQSI_{k,h}^{i,t}$ ) paired with the corresponding component of the intertie offer guarantee settlement credit for each <i>intertie metering point</i> 'i'. Refer to equation in Chapter 9, section 3.8A.4 of the <i>IESO market rules</i> for further details. | 9.3.8A.4               | Same as <i>IESO market rules</i> .  |
| $MLP_{k,h}^{m,t}$              | Minimum Loading Point   | Minimum output of <i>energy</i> the <i>market participant</i> 'k' at <i>delivery point</i> 'm' can maintain without ignition support in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2B.7             | Same as <i>IESO market rules</i> .  |
| $MLP\_CONS_{k,h}^{m,t}$        | Minimum Loading Point for a steam turbine resource or a combustion turbine resource associated to a pseudo unit | Minimum output of <i>energy</i> the <i>market participant</i> 'k' at <i>delivery point</i> 'm' can maintain without ignition support in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2B.7             | Same as <i>IESO market rules</i> .<br>Refer to Market Manual 9.4, section 4.1.2.2 for a detailed description of constraints applied for PCG eligible combined cycle plants. |
| $MQSI_{k,h}^{m,t}$             | Market Quantity Scheduled for Injection   | Market quantity scheduled for injection in the <i>market schedule</i> by <i>market participant</i> 'k' at <i>RWM</i> or <i>intertie metering point</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.3                | Same as <i>IESO market rules</i> .  |
| $MQSI\{adj\}_{k,h}^{m,t}$      | Adjusted Market Quantity Scheduled for Injection  | EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT. Used for the calculation of the IOG OFFSET settlement amount. $MQSI\{adj\}_{k,h}^{m,t}$ is each (and where applicable, adjusted) quantity of energy scheduled for injection in the market schedule by market participant 'k' at an intertie metering point 'i' in metering interval 't' of   | 9.3.8A.4               | Same as <i>IESO market rules</i> .  |

| Key to the Table Below         |   |   |                            |  |
|--------------------------------|---|---|----------------------------|--|
| Variable used within Section 3 | Data Description                                      | Description   | Market Rules Reference     | Relation to the corresponding variable description within the IESO Market Rules  |
|                                |   | settlement hour 'h' corresponding with each quantity, $MQSI_{x^*,k,h}$ i,t in matrix MI, row $x^*$ .  |                            |  |
| $MQSW_{k,h}^{m,t}$             | Market Quantity Scheduled for Withdrawal              | Market quantity scheduled for withdrawal in the <i>market schedule</i> by <i>market participant</i> 'k' at <i>RWM</i> or <i>intertie metering point</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.3                    | Same as <i>IESO market rules</i> .   |
| ONPAO                          | Ontario Power Generation Non-Prescribed Assets Output | <p>OPG's Non-Prescribed Assets are those generation assets operated and controlled by Ontario Power Generation in service as of January 1, 2006, excluding Lennox Generating Station, that are not prescribed assets under section 78.1 of the <i>Ontario Energy Board Act, 1998</i> as amended by the "Electricity Restructuring Act, 2004".</p> <p>ONPAO refers to the generation output from OPG's Non-Prescribed Assets, over each hour of the quarter adjusted to take account of volumes sold through forward contracts in effect as of January 1, 2005. For greater certainty, any output from ONPA resulting from fuel conversion by Ontario Power Generation in ONPA, or incremental output from ONPA resulting from refurbishment or expansion is to be excluded from ONPAO.</p> <p>Incremental Output is defined as:<br/>generation output x (new total installed capacity – installed capacity as of January 1, 2006) / new total installed capacity.</p> | N/A                        | The formula for calculating the OPG Rebate is subject to Ministerial Directive made under Order-in-Council 1062/2006 (May 17, 2006).   |
| OP                             | Operating Profit Function                             | The Operating Profit function is used for the calculation of the Congestion Management Settlement Credit (CMSC) with respect to constrained on/off payments for <i>energy</i> , <i>operating reserve</i> . It is also used for the calculation of the Day-Ahead Production Cost Guarantee components, the Day-Ahead Generator Withdrawal Charge, the Day-Ahead Import and Export failure charges, and the Import Offer Guarantee Settlement Credit.   | 9.3.5.2<br>and<br>9.3.8A.2 | <p>OP IS NOT A VARIABLE</p> <p>OP is a mathematical function defined within Chapter 9, section 3.5.2. of the <i>IESO market rules</i></p> <p>Input variables include:<br/>MQSI, MQSW, SQROR<br/>and<br/>AQEI, AQEW, AQOR<br/>SQEI, SQEW,<br/>DSQI, DSQW, DSQR<br/>DA_DQSI, DA_DQSW, PD_DQSI, PD_DQSW</p> |



| Key to the Table Below              |   |   |                        |   |
|-------------------------------------|---|---|------------------------|---|
| Variable used within Section 3      | Data Description  | Description   | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules   |
|                                     |   |   |                        | <p>BE, BL, BR,<br/>PD_BE, PD_BL<br/>DA_BE, DA_BL<br/>EMP<br/>MLP, MLP CONS<br/>DIPC<br/>OPCAP</p> <p>OP is also used within Chapter 9, section 9.8A.2 of the <i>IESO market rules</i> to derive the Energy Import (EIM<sub>k,h</sub>) sub-component of the Intertie Offer Settlement Credit (IOG) using the following input variables:</p> <p>MQSI<br/>BE<br/>EMP</p> |
| OPCAP <sub>k,h<sup>m,t</sup></sub>  | Operating Capacity  | De-rating of the generation unit by <i>market participant</i> 'k' at <i>delivery point</i> 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.   | 9.3.1.2B.7             | Same as <i>IESO market rules</i> .  |
| OPE{adj} <sub>k,h<sup>i</sup></sub> | Adjusted CMSC component for energy used in the DA-Ahead IOG | <p>EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT.</p> <p>This congestion management <i>settlement credit settlement amount</i> (CMSC) component is specifically used in the calculation of the Day-Ahead IOG for import transactions that are subject to a <i>constrained-on event</i> in the <i>real-time market</i>.</p> <p>OPE{adj}<sub>k,h<sup>i</sup></sub> is an adjusted component of The congestion management <i>settlement credit settlement amount</i> (CMSC) for <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' for <i>settlement hour</i> 'h' in which the constrained</p> | 9.3.8A.2A              | 'OP' is a mathematical function used within Chapter 9, section 9.3.8A.2A of the <i>IESO market rules</i> to derive Day-Ahead Intertie Offer Guarantee. Please refer to the <i>market rules</i> for information regarding its formulation.   |

| Key to the Table Below         |  |  |                        |  |
|--------------------------------|--|--|------------------------|--|
| Variable used within Section 3 | Data Description                                     | Description  | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules  |
|                                |  | schedule is the lesser of $PDR\_DQSI_{k,h}^{i,t}$ or $DQSI_{k,h}^{i,t}$ but in all instances, greater than or equal to $MQSI_{k,h}^{i,t}$ .  |                        |  |
| ORL                            | Ontario Power Generation Revenue Limit               | For the period May 1, 2006 to April 30, 2007 ORL is equal to \$46/ MWh.<br>For the period May 1, 2007 to April 30, 2008 ORL is equal to \$47/ MWh.<br>For the period May 1, 2008 to April 30, 2009 ORL is equal to \$48/ MWh.  | N/A                    | The formula for calculating the OPG Rebate is subject to Ministerial Directive made under Order-in-Council 1062/2006 (May 17, 2006). |
| PAA                            | Pilot Auction Amount                                 | Refers to the Pilot Auction administered by the <i>Ontario Power Authority</i> in the first half of 2006.<br><br>The volume in MWh over each hour in the quarter that is sold by Ontario Power Generation through the PA.  | N/A                    | The formula for calculating the OPG Rebate is subject to Ministerial Directive made under Order-in-Council 1062/2006 (May 17, 2006). |
| PAORL                          | Pilot Auction Ontario Power Generation Revenue Limit | For the period May 1, 2006 to April 30, 2007 PAORL is equal to \$51/ MWh.<br>For the period May 1, 2007 to April 30, 2008 PAORL is equal to \$52/ MWh.<br>For the period May 1, 2008 to April 30, 2009 PAORL is equal to \$53/ MWh.  | N/A                    | The formula for calculating the OPG Rebate is subject to Ministerial Directive made under Order-in-Council 1062/2006 (May 17, 2006). |
| PAP                            | Pilot Auction Price                                  | The weighted average auction price in \$/ MWh over each hour of the quarter realized for the PAA by Ontario Power Generation.  | N/A                    | The formula for calculating the OPG Rebate is subject to Ministerial Directive made under Order-in-Council 1062/2006 (May 17, 2006). |
| $PD\_BE_{k,h}^{i,t}$           | <i>Energy Offer</i> submitted into the Pre-dispatch  | <i>Energy offers</i> submitted in Pre-dispatch, represented as an N by 2 matrix of <i>price-quantity pairs</i> for each <i>market participant 'k'</i> at <i>intertie metering point 'i'</i> during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> arranged in ascending order by the offered price in each <i>price quantity pair</i> where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2. | 9.3.1.2D               | Same as <i>IESO market rules</i> .   |
| $PD\_BL_{k,h}^{i,t}$           | <i>Energy Bid</i> submitted into the Pre-dispatch    | Energy bids submitted in <i>pre-dispatch</i> , represented as an N by 2 matrix of <i>price-quantity pairs</i> for each <i>market participant 'k'</i> at <i>intertie metering point 'i'</i> during <i>metering</i>  | 9.3.1.2D               | Same as <i>IESO market rules</i> .   |

| Key to the Table Below                 |  |   |                        |   |
|--|--|---|------------------------|---|
| Variable used within Section 3         | Data Description   | Description   | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
|  |  | <i>interval</i> 't' of <i>settlement hour</i> 'h' arranged in ascending order by the offered price in each <i>price quantity pair</i> where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2.  |                        |   |
| PD_DQSI <sub>k,h</sub> <sup>i,t</sup>  | <i>Pre-dispatch</i> quantity scheduled for injection at an <i>intertie metering point</i>                    | <i>Pre-dispatch</i> constrained quantity scheduled for injection by <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2C               | Same as <i>IESO market rules</i>  |
| PD_DQSW <sub>k,h</sub> <sup>i,t</sup>  | <i>Pre-dispatch</i> quantity scheduled for withdrawal at an <i>intertie metering point</i>                   | <i>Pre-dispatch</i> constrained quantity scheduled for withdrawal by <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.   | 9.3.1.2C               | Same as <i>IESO market rules</i>  |
| PD_ELMP <sub>h</sub> <sup>m,t</sup>    | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the export zone      | <i>Pre-dispatch</i> constrained schedule <i>intertie price</i> at the <i>delivery point</i> 'm' of the sink for the export transaction during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.   | 9.3.1.2C               | Same as <i>IESO market rules</i> .  |
| PD_EMP <sub>h</sub> <sup>m,t</sup>     | Pre-dispatch energy market price for Ontario   | <i>Pre-dispatch</i> projected <i>energy market price</i> applicable to all <i>delivery points</i> 'm' in the Ontario zone in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2C               | Same as <i>IESO market rules</i>  |
| PD_ILMP <sub>h</sub> <sup>m,t</sup>    | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the import zone      | <i>Pre-dispatch</i> constrained schedule <i>intertie price</i> at the <i>delivery point</i> 'm' of the source for the import transaction during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.   | 9.3.1.2C               | Same as <i>IESO market rules</i> .  |
| PDR_BE <sub>k,h</sub> <sup>i,t</sup>   | <i>Energy Offer</i> submitted into the <i>pre-dispatch of record</i>   | EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT.<br><br><i>Energy offers</i> submitted into the <i>pre-dispatch of record</i> , represented as an n by 2 matrix of <i>price-quantity pairs</i> for each <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h' arranged in ascending order by the offered price in each <i>price-quantity pair</i> , where <i>offered prices</i> are in column 1 and <i>offered quantities</i> are in column 2. | 9.3.1.2B               | Same as <i>IESO market rules</i>  |
| PDR_DQSI <sub>k,h</sub> <sup>i,t</sup> | <i>Pre-dispatch of record</i> dispatch quantity scheduled for injection at an <i>intertie metering point</i> | EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT.   | 9.3.1.2A               | Same as <i>IESO market rules</i>  |

| Key to the Table Below                 |  |   |                        |   |
|--|--|---|------------------------|---|
| Variable used within Section 3         | Data Description   | Description   | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
|  |  | <i>Pre-dispatch of record</i> constrained quantity scheduled for injection by <i>market participant</i> 'k' for an import transaction at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  |                        |   |
| PDR_DQSI <sub>k,h</sub> <sup>m,t</sup> | <i>Pre-dispatch of record</i> dispatch quantity scheduled for injection at a <i>delivery point</i> | EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT.<br><br><i>Pre-dispatch of record</i> constrained quantity scheduled for injection by <i>market participant</i> 'k' at <i>delivery point</i> 'm' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'.  | 9.3.1.2A               | Same as <i>IESO market rules</i>  |
| RPPVA <sub>k</sub>                     | Total volume of electricity distributed to prescribed Class B consumers                            | The total volume of electricity distributed to Class B consumers whose rates are determined under subsection 79.16 (1) of the <i>Ontario Energy Board Act, 1998</i> during the month by licensed distributor 'k'.   | N/A                    | N/A – Refer to regulations.   |
| SQROR <sub>r,k,h</sub> <sup>m,t</sup>  | Scheduled Quantity of Class r Operating Reserve  | Market Schedule quantity in MW of <i>class r</i> reserve for <i>market participant</i> 'k' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h' at <i>RWM</i> 'm'.   | 9.3.1.4                | Same as <i>IESO market rules</i> .  |
| X <sub>i</sub> <sup>m,t</sup>          | Settlement Floor Price for exports   | A <i>settlement</i> floor price for <i>energy</i> applicable to <i>intertie metering point</i> 'm' <i>metering interval</i> 't' in <i>settlement hour</i> 'h' as set in the applicable <i>market manual</i> . The need for a <i>settlement</i> floor price other than <i>MMCP</i> shall remain in effect only until floor prices for <i>energy offers</i> from <i>registered market participants</i> that are <i>variable generators</i> or nuclear <i>generators</i> go into effect. | 9.3.1.3                | Same as <i>IESO market rules</i>  |

### 3.2. Charge Types and Equations

The following Table 3-2 contains all inactive *charge types*. For a description of each column heading, refer to Table 2-1.

#### 3.2.1. Inactive – Physical Market Charge Types and Equations

**Table 3-2: Inactive Charge Types and Equations in the Physical Market**

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|---------------------------|------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|----------|
| 100                | Net Energy Market Settlement for Generators and Dispatchable Load | NEMSC <sub>k,h</sub>      | 9.3.3.2                | <p><b>**CALCULATIONS FOR CHARGE TYPE 100 END APRIL 30, 2023**</b></p> <p>For <i>dispatchable facilities</i> or an <i>intertie metering point</i> associated with:</p> <ul style="list-style-type: none"> <li>i) An injecting <i>boundary entity</i>;</li> <li>ii) A withdrawing <i>boundary entity</i> where the associated <i>intertie congestion price</i> is less than zero;</li> <li>iii) A withdrawing <i>boundary entity</i> conducting a wheeling through transaction that is linked as per Chapter 7, section 3.5.82 of the <i>market rules</i></li> </ul> $\sum_{t,m} (EMP_h^{m,t} \times ((AQEI_{k,h}^{m,t} + SQEI_h^i - AQEW_{k,h}^{m,t} - SQEW_h^i) + \sum_{s,b} (BCQ_{s,k,h}^{m,t} - BCQ_{k,b,h}^{m,t})))$ <p>For an <i>intertie metering point</i> associated with a withdrawing <i>boundary entity</i> where that <i>intertie congestion price</i> is not less than zero:</p> $\sum_{t,m} ((MAX(X_h^{m,t}, EMP_h^{m,t}) \times AQEI_{k,h}^{m,t})$ | Interval              | Either Way | 13                                   | 13  | 0                                   | 13   |          |

| Charge Type Number | Charge Type Name                                       | Settlement Amount Acronym | Market Rules Reference   | Equation  | Settlement Resolution | Cashflow                               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|--------------------------|---|-----------------------|--|--------------------------------------|---|-------------------------------------|--|--|
| 101                | Net Energy Market Settlement for Non-dispatchable Load | NEMSC <sub>k,h</sub>      | 9.3                      | <p><b>**CALCULATIONS FOR CHARGE TYPE 101 END APRIL 30, 2023**</b></p> $HOEP_h \times \sum_{t,m} (AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t} + \sum_s BCQ_{s,k,h}^{m,t}) - \sum_{n,b,t} (EMP_h^{m,t} \times BCQ_{k,b,h}^{n,t})$   | Hourly                | Either Way                             | 13                                   | N/A   | N/A                                 | N/A  |  |
| 103<br>MRP retired | Transmission Charge Reduction Fund                     | TCRF <sub>h</sub>         | 9.3.6.2<br>And<br>8.4.18 | $\sum_{t,m} (EMP_h^{m,t} - EMP_h^{REF,t}) \times \sum_k (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} - AQEI_{k,h}^{m,t} - SQEI_{k,h}^{i,t}) - \sum_k TRSC_{k,h}$  | Hourly                | Accumulates in the TR Clearing Account | N/A                                  | N/A   | N/A                                 | N/A  | Refer to IESO market rules, Chapter 8 section 4.18 for further details.  |
| 104<br>MRP updated | Transmission Rights Settlement Credit                  | TRSC <sub>k,h</sub>       | 9.3.6.1                  | $MAX((0), (\sum_{j,i} 1/12 \times QTR_{k,h}^{i,j} \times \sum_t (EMP_h^{i,t} - EMP_h^{t,i})))$  | Hourly                | Due MP                                 | 0                                    | 0   | 0                                   | 0  |  |
| 105<br>MRP retired | Congestion Management Settlement Credit for Energy     | CMSC <sub>k,h</sub>       | 9.3.5.2<br>to<br>9.3.5.7 | $OP(EMP_h^{m,t}, MQSI_{k,h}^{m,t}, BE) - MAX(OP(EMP_h^{m,t}, DQSI_{k,h}^{m,t}, BE), OP(EMP_h^{m,t}, AQEI_{k,h}^{m,t}, BE))$ <p>Subject to the mathematical sign of (DQSI-MQSI) being equal to the mathematical sign of (AQEI-MQSI). AQEI<sub>k,h</sub><sup>m,t</sup> and EMP<sub>h</sub><sup>m,t</sup> may be</p> | Interval              | Either Way                             | 13                                   | 13  | 13                                  | 13   | This charge type holds the market participant to the expected profits implied by the market schedule derived on dispatch data provided by that |

| Charge Type Number    | Charge Type Name                                      | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|-----------------------|---|---------------------------|------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
|                       |   |                           |                        | <p>substituted with <math>SQEI_{k,h}^{i,t}</math> and <math>EMP_h^{i,t}</math> respectively, where the application of this equation pertains to <i>intertie metering point</i> 'i'.</p> <p>or</p> $-1OP(EMP_h^{m,t}, MQSW_{k,h}^{m,t}, BL) - \text{MAX}(-1OP(EMP_h^{m,t}, DQSW_{k,h}^{m,t}, BL), -1OP(EMP_h^{m,t}, AQEW_{k,h}^{m,t}, BL))$ <p>Subject to the mathematical sign of (DQSW-MQSW) being equal to the mathematical sign of (AQEW-MQSW). <math>AQEW_{k,h}^{m,t}</math> and <math>EMP_h^{m,t}</math> may be substituted with <math>SQEW_{k,h}^{i,t}</math> and <math>EMP_h^{i,t}</math> respectively, where the application of this equation pertains to <i>intertie metering point</i> 'i'.</p> <p>or</p> <p>For <i>variable generators</i> that are registered <i>market participants</i> whose <i>registered facility</i> is operating under a release notification for any given <i>dispatch interval</i>, and the <i>facility's</i> market schedule quantity is less than the corresponding quantity in the constrained schedule for the same dispatch interval as a result of the <i>market participant's</i> offers being partially or fully uneconomic:</p> $OPE(EMP_h^{m,t}, MQSI_{k,h}^{m,t}, BE) - OP(EMP_h^{m,t}, AQEI_{k,h}^{m,t}, BE)$ <p>Refer to 9.3.5.2 for the definition of the Operating Profit (OP) function referenced above.</p> |                       |            |                                      |   |                                     |  | <p><i>market participant.</i></p> <p>Offer prices in matrix 'BE' may be revised down to a lower limit as described in 9.3.5.6. Refer to also: description of variable 'BE' in section 2.2.</p> <p>The bid prices in the matrix BL may be revised as described in Market Manual 5: Settlements Part 5.5: Physical Markets Settlement Statements, section 1.6.8.</p> |
| 106<br>MRP<br>retired | Congestion Management Settlement Credit for 10 Minute | CMSC <sub>r,k,h</sub>     | 9.3.5.2                | $OP(PROR_{r,h}^{m,t}, SQROR_{r,k,h}^{m,t}, BR_r) - \text{MAX}(OP(PROR_{r,h}^{m,t}, DQSR_{r,k,h}^{m,t}, BR_r), OP(PROR_{r,h}^{m,t}, AQOR_{r,k,h}^{m,t}, BR_r))$   | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  | This <i>charge type</i> holds the <i>market participant</i> to the expected profits implied by the   |

| Charge Type Number    | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|-----------------------|--|---------------------------|------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
|                       | Spinning Reserve   |                           |                        | Refer to 9.3.5.2 for the definition of the Operating Profit (OP) function referenced above.  |                       |            |                                      |   |                                     |  | <i>market schedule</i> derived on <i>dispatch data</i> provided by that <i>market participant</i> .  |
| 107<br>MRP<br>retired | Congestion Management Settlement Credit for 10 Minute Non-spinning Reserve | CMSC <sub>r,k,h</sub>     | 9.3.5.2                | $OP(\text{PROR}_{r,h}^{m,t}, \text{SQROR}_{r,k,h}^{m,t}, \text{BR}_r) - \text{MAX}(OP(\text{PROR}_{r,h}^{m,t}, \text{DQSR}_{r,k,h}^{m,t}, \text{BR}_r), OP(\text{PROR}_{r,h}^{m,t}, \text{AQOR}_{r,k,h}^{m,t}, \text{BR}_r))$ <p>Refer to 9.3.5.2 for the definition of the Operating Profit (OP) function referenced above.</p> | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  | This <i>charge type</i> holds the <i>market participant</i> to the expected profits implied by the <i>market schedule</i> derived on <i>dispatch data</i> provided by that <i>market participant</i> . |
| 108<br>MRP<br>retired | Congestion Management Settlement Credit for 30 Minute Operating Reserve    | CMSC <sub>r,k,h</sub>     | 9.3.5.2                | $OP(\text{PROR}_{r,h}^{m,t}, \text{SQROR}_{r,k,h}^{m,t}, \text{BR}_r) - \text{MAX}(OP(\text{PROR}_{r,h}^{m,t}, \text{DQSR}_{r,k,h}^{m,t}, \text{BR}_r), OP(\text{PROR}_{r,h}^{m,t}, \text{AQOR}_{r,k,h}^{m,t}, \text{BR}_r))$ <p>Refer to 9.3.5.2 for the definition of the Operating Profit (OP) function referenced above.</p> | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  | This <i>charge type</i> holds the <i>market participant</i> to the expected profits implied by the <i>market schedule</i> derived on <i>dispatch data</i> provided by that <i>market participant</i> . |
| 111                   | Northern Pulp and Paper Mill Electricity Transition Program                | N/A                       | N/A                    | $= \sum_{M,H} T (AQEW_{mh}^t) \times (Tprate)$ <p>Where:</p>   | Quarterly             | Due MP     | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to Ministry of Natural  |



| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference             | Equation   | Settlement Resolution         | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|---------------------------|------------------------------------|--|-------------------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
|                    | Settlement Amount   |                           |                                    | <p>Tprate is the transition program rate</p> <p>'M' is the set of all <i>delivery points</i> 'm' for all <i>market participant</i>-eligible facilities.</p> <p>'H' is the set of all <i>settlement hours</i> 'h' in the settlement period.</p> <p>'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p> <p>'AQEW' is limited to a maximum of 1,000,000 MWh annually per eligible <i>market participant</i>.</p> |                               |          |                                      |   |                                     |  | Resources specifications.<br><br>This program ends on September 30, 2010.   |
| 112                | Ontario Power Generation Rebate                           | N/A                       | N/A                                | <p><b>** CALCULATIONS FOR CHARGE TYPE 112 END April 30, 2009 **</b></p> $= TD_{162} \times [(AQEW_{k,h^t}) / \sum_{K,H^T} (AQEW_{k,h^t})]$ <p>Where:</p> <p>'K' is the set of all Ontario <i>market participants</i> 'k'</p> <p>'H' is the set of all <i>settlement hours</i> 'h' in the applicable quarter.</p> <p>'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>                                       | May 1, 2006 to April 30, 2009 | Due MP   | 13                                   | N/A   | N/A                                 | N/A  | The Ontario Power Generation Rebate payments will be based on the allocated quantity of <i>energy</i> withdrawn for the applicable quarter. |
| 113<br>MRP retired | Additional Compensation for Administrative Pricing Credit | N/A                       | 7.8.4A.16 or 7.8.4A.10 or 7.13.6.2 | Manual Entry as per 7.8.4A.16, or 7.8.4A.10, or 7.13.6.2.  | Monthly                       | Due MP   | 13                                   | 13  | 0                                   | 13   | This charge will still be used for market suspension events   |
| 119<br>MRP updated | Station Service Reimbursement Credit                      | N/A                       | 9.4.8.1.6 and 9.2.1A.9 - 2.1A14    | $= \{TD_{C,k,h}^{m,T} \times [\sum^{T^2} (AQEW_{k,h}^{M,t}) / \sum_{K,h^T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\} + \{TD_{C2,k,H}^{m,T} \times [\sum_{H^2}^{T^2} (AQEW_{k,h}^{M,t}) / \sum_{K,H^T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\} + \{TD_{C3,k,H}^{m,T} \times [\sum_{H^4}^{T^2} (AQEW_{k,h}^{M,t}) / \sum_{K,H^3} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\}$   | Monthly                       | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |   |

| Charge Type Number    | Charge Type Name            | Settlement Amount Acronym                  | Market Rules Reference | Equation  | Settlement Resolution | Cashflow        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|-----------------------|-----------------------------|--|------------------------|---|-----------------------|-----------------|--------------------------------------|---|-------------------------------------|--|----------|
|                       |                             |  |                        | <p>Where:</p> <p>'T' is the set of all <i>metering intervals</i> in <i>settlement hour</i> 'h'.</p> <p>'M' is the eligible generation station service delivery point 'm' of market participant 'k'</p> <p>'C' is the set of the following hourly uplift <i>charge type</i> 'c' as follows:<br/>150, 155, 186, 250, 252, 254, 451</p> <p>'T2' is the set of all <i>metering intervals</i> in <i>settlement hour</i> 'h' where the eligible <i>generation facility</i> was a net injector of <i>energy</i> into the <i>IESO-controlled grid</i>.</p> <p>'K' is the set of all <i>market participants</i></p> <p>'C2' is the set of the following non-hourly monthly <i>charge type</i> 'c' as follows:<br/>102, 163,164,165,166,167,168,170, 183, 184,450,452,454,460,550,1188, 1650, 9920</p> <p>'C3' is the set of the following daily <i>charge type</i> 'c' as follows:<br/>1550, 1560</p> <p>'H' is the set of all <i>settlement hours</i> 'h' in the <i>billing period</i></p> <p>'H2' is the set of all <i>settlement hours</i> 'h' in the <i>billing period</i> where the eligible <i>generation facility</i> was a net injector of <i>energy</i> into the <i>IESO-controlled grid</i>.</p> <p>'H3' is the set of all <i>settlement hours</i> 'h' in the day</p> <p>'H4' is the set of all <i>settlement hours</i> 'h' in the day where the eligible <i>generation facility</i> was a net injector of <i>energy</i> into the <i>IESO-controlled grid</i>.</p> |                       |                 |                                      |   |                                     |  |          |
| 120<br>MRP<br>retired | Local Market<br>Power Debit | 9.4.8.2.2<br>And<br>Ch. 7, Appendix<br>7.6 |                        |   | Monthly               | Due <i>IESO</i> | 13                                   | 13  | 0                                   | 13   |          |

| Charge Type Number    | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|-----------------------|--|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|---|
| 121                   | Northern Industrial Electricity Rate Program Settlement Amount | N/A                       | N/A                    | <p><b>** PROGRAM END APRIL 30, 2022 AND REPLACED BY NORTHERN ENERGY ADVANTAGE PROGRAM SETTLEMENT AMOUNT UNDER THE SAME CHARGE TYPE **</b></p> $= \sum_{M,H^T} (AQEW_{mh}^t) \times (\text{Rate})$ <p>Where:<br/>                     Rate is the program rate<br/>                     'M' is the set of all <i>delivery points</i> 'm' for all <i>market participant</i>-eligible <i>facilities</i>.<br/>                     'H' is the set of all <i>settlement hours</i> 'h' in the settlement period.<br/>                     'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>  | Quarterly             | Due MP     | 0                                    | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to Ministry of Northern Development, Mines, Natural Resources and Forestry specifications. |
| 122<br>MRP<br>retired | Ramp Down Settlement Amount                                    | RDSA <sub>k,h</sub>       | 9.3.5A.1               | <p>Let 'BE' be a matrix of n <i>price-quantity pairs</i> offered by <i>market participant</i> 'k' to supply <i>energy</i> during the <i>settlement hour</i> immediately before the hour in which ramp-down begins, adjusted by a ramp-down factor (RDF) as specified in the applicable <i>market manual</i>.</p> <p>Let OP(P,Q,B) be a function of Price (P), Quantity (Q) and an n x 2 matrix (B) of offered <i>price-quantity pairs</i>:</p> $OP(P,Q,B) = P \cdot Q - \sum_{i=1}^{s^*} P_i \cdot (Q_i - Q_{i-1}) - (Q - Q_{s^*}) \cdot P_{s^*+1}$ <p>Where:<br/>                     s* is the highest indexed row of BE such that <math>Q_{s^*} \leq Q \leq Q_n</math> and where, <math>Q_0=0</math></p> <p>Using the terms below, let <math>RDC_{k,h}^{m,t}</math> be expressed as follows:</p> $RDC_{k,h}^{m,t} = \text{MAX}[0, [\text{OP}(\text{EMP}_h^{m,t}, \text{MQSI}_{k,h}^{m,t}, \text{BE}) - \text{MAX}(\text{OP}(\text{EMP}_h^{m,t}, \text{DQSI}_{k,h}^{m,t}, \text{BE}), \text{OP}(\text{EMP}_h^{m,t}, \text{AQEI}_{k,h}^{m,t}, \text{BE}))]]$ | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  | The RDF is defined in Market Manual 5: Settlements Part 5.5: Physical Markets Settlement Statements, section 1.6.31.                                    |

| Charge Type Number    | Charge Type Name  | Settlement Amount Acronym                              | Market Rules Reference                   | Equation   | Settlement Resolution                       | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|-----------------------|---|--|--|--|---|------------|--------------------------------------|---|-------------------------------------|--|--|
|                       |   |  |  | $RDSA_{k,h}^{m,t} = \text{MIN}(-1 \times RDCB_{k,h}^{m,t}, RDC_{k,h}^{m,t})$   |   |            |                                      |   |                                     |  |  |
| 124<br>MRP<br>retired | SEAL<br>Congestion<br>Management<br>Settlement<br>Credit Amount | N/A  | N/A                                      | Manual entry based on the values submitted by MACD   | Monthly                                     | Due MP     | 13                                   | 13  | 13                                  | 13   |  |
| 130                   | Intertie Offer<br>Guarantee<br>Settlement<br>Credit – Energy    | IOG <sub>k,h</sub><br>and<br>IOG <sub>k,h</sub> OFFSET | 9.3.8A.1<br>9.3.8A.3<br>and<br>7.3.5.8.1 | <p><b>**CALCULATIONS FOR CHARGE TYPE 130 END OCTOBER 12, 2011. CHARGE TYPE 130 REPLACED BY CHARGE TYPE 1131 EFFECTIVE OCTOBER 13, 2011.**</b></p> <p>The Intertie Offer Guarantee <i>settlement amount</i> is derived from an hourly <i>Energy</i> Import sub component (EIM<sub>k,h</sub>) as follows:<br/> <math display="block">\sum_I (-1) \text{MIN}[0, \sum^T \text{OP}(\text{EMP}_{h,i}^{i,t}, \text{MQSI}_{k,h}^{i,t}, \text{BE})]</math>                     Refer to 9.3.8A.2 for the definition of the Operating Profit (OP) function referenced above.<br/>                     Where 'I' is the set of relevant <i>intertie metering points</i> 'i'.<br/>                     Where 'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     The IOG_OFFSET component of this <i>charge type</i> applied on a monthly basis and is calculated as follows:<br/> <math display="block">= \text{DA\_IOG}_{k,h} + \text{EIM}_{k,h} - \sum_I (-1) * \text{MIN}[0, \sum^T \text{OP}(\text{EMP}_{h,i}^{i,t}, \text{QSI}\{\text{adj}\}_{k,h}^{i,t}, \text{BE}_{k,h}^{i,t} \text{ or } \text{PDR\_BE}_{k,h}^{i,t}) + \sum^T \text{QSI}\{\text{adj}\}_{k,h}^{i,t} / \sum^T \text{MI}_{k,h}^t[n,1] * \text{OPE}'_{k,h}^t]</math>                     (Refer to 9.3.8A.4 for the derivation of the variable QSI{adj}<sub>k,h</sub><sup>i,t</sup>, OPE'<sub>k,h</sub><sup>i</sup> and the proper context of the matrix notation MI<sub>k,h</sub><sup>t</sup>[n,1] used above ).</p> | Hourly<br>(the IOG<br>Offset is<br>debited) | Either Way | N/A                                  | 13  | 13                                  | 13   | Compensation for cumulative, hourly financial losses as implied by the <i>market schedule</i> for Imports of <i>energy</i> at an <i>intertie metering point</i> .<br>This amount is reduced by the IOG Offset when the import is part of an implied "wheeling through" transaction as described in section 3.5.8.1 of Chapter 7. |

| Charge Type Number    | Charge Type Name                  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|-----------------------|-----------------------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 133<br>MRP<br>retired | Generation Cost Guarantee Payment | N/A                       | 9.4.7B                 | <p><u>Dispatchable <i>delivery points</i>:</u></p> $\text{MAX}[0, (\text{CGC} + \text{RT\_COST} - \sum^T \text{EMP}_h^{m,t} \times \text{AQEI}\{\text{limited}\}_{k,h}^{m,t} - \sum^T \text{CMSC\_REV}_{k,h}^{m,t})]$ <p><b>Subject to:</b></p> $\text{AQEI}\{\text{limited}\}_{k,h}^{m,t} = \text{MIN}[\text{AQEI}_{k,h}^{m,t}, \text{minimum loading point}]$ <p>Where 'CGC' is a <i>Submitted Combined Guaranteed Costs</i> variable, assessed in accordance with the applicable <i>market manual</i> (refer to also section 2.1 "Variable Description").</p> <p>Where 'm' is <i>delivery point</i> 'm' at which the <i>generation unit</i> incurring the relevant costs is located.</p> <p>Where 'T' is a set of <i>metering intervals</i> 't' from a valid start time until the earlier of:</p> <ul style="list-style-type: none"> <li>- the end of <i>minimum generation block run-time</i>; or</li> <li>- the end of the unit's <i>minimum run-time</i>.</li> </ul> <p>Where <math>\text{AQEI}\{\text{limited}\}_{k,h}^{m,t}</math> shall denote all allocated quantities in MWh of <i>energy injected at delivery point</i> 'm' irrespective of any submission of <i>physical allocation data</i> by <i>market participant</i> 'k' in metering interval 't' of <i>settlement hour</i> 'h', up to the <i>generation unit's minimum loading point</i>.</p> <p>Where RT_COST is fuel and O&amp;M cost component related to operation of the <i>generation unit</i> at its <i>minimum loading point</i> during its <i>minimum generation block run-time</i> (these costs are calculated based on the <i>offer price</i> associated with real-time dispatch).</p> $\text{RT\_COST}_k = \sum^T \mathbf{H1} \text{ COST}(\text{AQEI}\{\text{limited}\}_{k,h}^{m,t}, \text{BE})$ |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p>A. Where the COST function is defined as follows:</p> $COST(Q, B) = \sum_{i=1}^{s^*} P_i \cdot (Q_i - Q_{i-1})$ <p>where:</p> <ul style="list-style-type: none"> <li>B is the n x 2 matrix (B) of offered <i>price-quantity pairs</i> (<math>P_i, Q_i</math>)</li> <li><math>s^*</math> is the highest indexed row of B such that <math>Q_{s^*-1} \leq Q \leq Q_{s^*}</math> and where <math>Q_0=0</math></li> </ul> <p>B. Where 'H1' is the set of all settlement hours 'h' during the period from beginning of the <i>minimum generation block run-time</i> until the end of the calculated <i>minimum run time</i>. We consider that the <i>minimum generation block run-time</i> starts with the first hour after we add the submitted number of ramp intervals to the valid start-up hour.</p> <p>C. Where 'T*' is the set of <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H1'</p> <p>Where <math>CMSC\_REV_{k,h}^{m,t}</math> is any real-time <math>CMSC(TD_{k,h,105}^{m,t})</math> payment associated with allocated quantities in MWh of <i>energy</i> injected at <i>delivery point</i> 'm' irrespective of any submission of <i>physical allocation data</i> by <i>market participant</i> 'k' in metering interval 't' of <i>settlement hour</i> 'h' up to the <i>generation unit's minimum loading point</i>.</p> <p>CMSC_REV is calculated using the following rules:</p> <ol style="list-style-type: none"> <li>1) Real-time <math>CMSC(TD_{k,h,105}^{m,t})</math> for the same interval is greater than zero.</li> </ol> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name                | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---------------------------------|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |                                 |                           |                        | 2) If $MQSI_{k,h}^{m,t}$ and $\max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) \geq MLP$ , then $CMSC\_REV_{k,h}^{m,t} = 0$ .<br>3) In the case of a <i>constrained-off event</i> :<br>a. If $MQSI_{k,h}^{m,t} < MLP$ , then $CMSC\_REV_{k,h}^{m,t} = TD_{k,h,105}^{m,t}$<br>b. If $MQSI_{k,h}^{m,t} \geq MLP$ and $\max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) < MLP$ , then $CMSC\_REV_{k,h}^{m,t} = OP(EMP_{h}^{m,t}, MLP, BE) - OP(EMP, \max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), BE)$ .<br>4) In the case of a <i>constrained-on event</i> :<br>a. If $MQSI_{k,h}^{m,t} < MLP$ and $\min(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) < MLP$ , then $CMSC\_REV_{k,h}^{m,t} = TD_{k,h,105}^{m,t}$<br>b. If $MQSI_{k,h}^{m,t} \leq MLP$ and $\min(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) \geq MLP$ , then $CMSC\_REV_{k,h}^{m,t} = OP(EMP_{h}^{m,t}, MQSI_{k,h}^{m,t}, BE) - OP(EMP_{h}^{m,t}, MLP, BE)$<br><br>(Refer to applicable <i>market manual</i> ) |                       |            |                                      |   |                                     |  |   |
| 134 MRP retired    | Demand Response Credit          | N/A                       | 9.4.7C<br>9.4.7F       | Manual Entry for TDRP (Refer to "Market Manual 5: Settlements, Part 5.10: Transitional Demand Response Program".<br><br>Manual Entry for ELRP (Refer to "Market Manual 10: Emergency Load Reduction Program (ELRP)".  | Monthly               | Either way | 13                                   | N/A   | NA                                  | N/A  | TDRP and ELRP suspended by the IESO.                      |
| 135 MRP retired    | Real-time Import Failure Charge | RT_IFC <sub>k,h</sub>     | 9.3.8C.3               | $\sum_{I,T} (-1) * \text{MIN}[\text{MAX}[0, (EMP_h^{m,t} + PB\_IM_h^t - PD\_EMP_h^{m,t}) * RT\_ISD_{k,h}^{i,t}], (\text{MAX}(0, EMP_h^{m,t}) * RT\_ISD_{k,h}^{i,t})]$ Where:<br>'I' is the set of all <i>intertie metering points</i> 'I'.<br>'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br>$RT\_ISD_{k,h}^{i,t} = \text{MAX}(PD\_DQSI_{k,h}^{i,t} - DQSI_{k,h}^{i,t}, 0)$   | Hourly                | Due IESO   | N/A                                  | 13  | N/A                                 | N/A  | Subject to exemptions under the provisions of 9.3.8C.2.2. |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution  | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|------------------------|---|--|------------|--------------------------------------|---|-------------------------------------|--|--|
| 136<br>MRP retired | Real-time Export Failure Charge                                    | RT_EFC <sub>k,h</sub>     | 9.3.8C.5               | $\sum_{I,T}^{I,T} (-1) * \text{MIN}[\text{MAX}[0, (\text{PD\_EMP}_h^{m,t} - \text{EMP}_h^{m,t} - \text{PB\_EX}_h^t) * \text{RT\_ESD}_{k,h}^{i,t}], (\text{MAX}(0, \text{PD\_EMP}_h^{m,t}) * \text{RT\_ESD}_{k,h}^{i,t})]$ <p>Where:<br/>                     'I' is the set of all <i>intertie metering points</i> 'I'<br/>                     'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'<br/> <math>\text{RT\_ESD}_{k,h}^{i,t} = \text{MAX}(\text{PD\_DQSW}_{k,h}^{i,t} - \text{DQSW}_{k,h}^{i,t}, 0)</math></p>  | Hourly   | Due IESO   | N/A                                  | N/A   | 0                                   | 13   | Subject to exemptions under the provisions of 9.3.8C.4.2.                              |
| 137<br>MRP retired | Generation Cost Guarantee – Annual Carbon Charge Settlement Amount | N/A                       | 9.4.7B.1.2<br>7.2.2B   | Manual entry based on the calculations outlined in Market Manual 4: Market Operations Part 4.6: Real-Time Generation Cost Guarantee Program, section 5.4 Fuel Cost Recovery Methodology.  | Monthly  | Due MP     | 13                                   | N/A   | N/A                                 | N/A  |  |
| 140                | Fixed Energy Rate Settlement Amount                                | N/A                       | N/A                    | <p><b>** CHARGE TYPE 140 REPLACED BY CHARGE TYPE 142 EFFECTIVE JANUARY 1, 2005 **</b></p> <p><b>NOTE:</b> The equations identified below apply to low volume and designated consumers (as defined in <i>Ontario Energy Board Act, 1998</i> and associated regulations) in the <i>IESO-administered market</i>. For <i>distributors</i>, <i>charge type 140</i> is applied once a month based on the values submitted by the <i>distributor</i> on IMO_FORM_1562 (monthly adjustment) and IMO_FORM_1505 (May-Nov 2002 refund).</p> <p>For <i>IESO's</i> low volume and designated customers a fixed rate adjustment with a rate of 5.5 cents per kWh is applied on an interval basis using the equation below.</p> <p>A manual adjustment is applied at the end of the month to apply a rate of 4.7 cents per kWh for <i>energy</i> withdrawn up to 750 kWhs.</p> <p><b>Fixed Energy Rate Settlement Amount (dispatchable locations):</b><br/> <b>Where net uncovered consumption &gt; 0:</b><br/> <math display="block">\sum_{T,m} (\text{EMP}_h^{m,t} - \text{FP}_h^m) \times (\text{AQEW}_{k,h}^{m,t} - \text{AQEI}_{k,h}^{m,t} - \sum_s \text{BCQ}_{s,k,h}^{m,t})</math> <b>Where net uncovered consumption = 0:</b></p> | Hourly (type 'DP' records only.<br>Refer to <a href="#">Format Specifications for Settlement Statement Files and Data Files</a> for further details) | Either Way | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |



| Charge Type Number | Charge Type Name                              | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |   |                           |                        | $\sum_{T,m} (EMP_h^{m,t} - FP_h^m) \times (-AQEI_{k,h}^{m,t})$ <p><b>SUBJECT TO:</b> Net uncovered consumption = MAX [<math>\sum_{T,m} (AQEW_{k,h}^{m,t} - \sum_s BCQ_{s,k,h}^{m,t}), 0</math>]</p> <p><b>Fixed Energy Rate Settlement Amount (non-dispatchable locations):</b><br/> <b>Where net uncovered consumption &gt; 0:</b><br/> <math>(HOEP_h - FP_h^m) \times \sum_{m,T} (AQEW_{k,h}^{m,t} - AQEI_{k,h}^{m,t} - \sum_s BCQ_{s,k,h}^{m,t})</math><br/> <b>Where net uncovered consumption = 0:</b><br/> <math>(HOEP_h - FP_h^m) \times \sum_{m,T} (-AQEI_{k,h}^{m,t})</math></p> <p><b>SUBJECT TO:</b><br/>                     Net uncovered consumption = MAX [<math>\sum_{T,m} (AQEW_{k,h}^{m,t} - \sum_s BCQ_{s,k,h}^{m,t}), 0</math>]</p> <p><b>SUBJECT TO:</b><br/>                     Net uncovered consumption = MAX [<math>\sum_{T,m} (AQEW_{k,h}^{m,t} - \sum_s BCQ_{s,k,h}^{m,t}), 0</math>]</p> |                       |            |                                      |   |                                     |  |  |
| 141                | Fixed Wholesale Charge Rate Settlement Amount | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 141 END MARCH 31, 2005 **</b></p> <p><b>NOTE:</b> The equations identified below apply to <i>distributors</i>, low volume and designated consumers (as defined in Bill 4 and associated regulations) in the <i>IESO-administered market</i>. For <i>distributors</i> an additional <i>charge type</i> 141 record is provided to reflect any monthly submission of IMO_FORM_1562. Refer to IMO_FORM_1562 for further details.</p> $TD_{k,C} - \sum_{M,H} AQEW_{k,h}^{m,t} * (FPC)$ <p>Where:<br/>                     'H' is all <i>settlement hours</i> 'h' during the <i>billing period</i>; and,</p>  | Monthly               | Either Way | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |

| Charge Type Number | Charge Type Name                    | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|-------------------------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
|                    |                                     |                           |                        | 'C' is a designated group of <i>charge types</i> 'c' prescribed by government regulation (and associated rulings by the <i>Ontario Energy Board</i> ) and consisting of the cumulative sum of the following <i>charge types</i> :<br><b>150, 155, 168, 170, 182, 183, 184, 250, 252, 254, 450, 452, 454, 550, 753, 9990</b>  |                       |          |                                      |   |                                     |  |  |
| 146                | Global Adjustment Settlement Amount | N/A                       | N/A                    | <p><b>**<u>CALCULATIONS FOR CHARGE TYPE 146 END DECEMBER 31, 2010. CHARGE TYPE 146 REPLACED BY CHARGE TYPES 147 AND 148 EFFECTIVE JANUARY 1, 2011.</u>**</b></p> <p>For Fort Frances Power Corporation Distribution Inc.:</p> $\sum_{H,M,C} TD \times \frac{(\sum_{H^{M,T}} AQEW_{k,h}^{m,t} + EGEI_k - EEQ)}{(\sum_{K,H} AQEW_{k,h}^{m,t} + \sum_K EGEI_k - EEQ)}$ <p>For other market participants:</p> $\sum_{H,M,C} TD \times \frac{(\sum_{H^{M,T}} AQEW_{k,h}^{m,t} + EGEI_k)}{(\sum_{K,H} AQEW_{k,h}^{m,t} + \sum_K EGEI_k - EEQ)}$ <p>Where 'H' is the set of all settlement hours 'h' in the month.<br/>Where 'K' is the set of all market participants 'k'.<br/>Where 'M' is the set of all delivery points 'm' of market participant 'K'.<br/>Where 'C' is the set of the following charge types 'c':<br/><b>193, 194, 195, 197, 198, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1450, 1460, 1461, 1462 and 1464.</b></p> | Monthly               | Due MPs  | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |

| Charge Type Number    | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference    | Equation  | Settlement Resolution                         | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|-----------------------|--|---------------------------|---------------------------|---|---|------------|--------------------------------------|---|-------------------------------------|--|---|
| 150<br>MRP<br>retired | Net Energy Market Settlement Uplift  | N/A                       | 9.3.9.1                   | $\sum_C^{M,T} TD_{k,h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where:<br/>                     'C' is the set of the following <i>charge types</i> 'c' as follows:<br/> <b>1101, 1103, 1111, 1113, 1114, 1115, 103, 104, 1131</b><br/>                     'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     Where <math>RQ_{k,h}^{m,t}</math> is a reallocated quantity whereby <i>market participant</i> 'k' is a party to one or more <i>physical bilateral contracts</i> for <i>settlement hour</i> 'h' in which the NEMSC component of <i>hourly uplift</i> is to be reallocated between <i>market participant</i> 'k' and the other <i>market participant</i> that is a party to the contract in which:<br/> <math display="block">RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]</math></p> | Hourly  | Either Way | 13                                   | N/A   | 0                                   | 13   |   |
| 155<br>MRP<br>retired | Congestion Management Settlement Uplift                                      | N/A                       | 9.3.5.2<br>and<br>9.3.5.7 | $\sum_C^{M,T} TD_{k,h,(105, 106, 107, 108,122, 124, 1050, 1051)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     Where <math>RQ_{k,h}^{m,t}</math> is a reallocated quantity whereby <i>market participant</i> 'k' is a party to one or more <i>physical bilateral contracts</i> for <i>settlement hour</i> 'h' in which the CMSC component of <i>hourly uplift</i> is to be reallocated between <i>market participant</i> 'k' and the other <i>market participant</i> that is a party to the contract in which:<br/> <math display="block">RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]</math></p>  | Hourly<br>or<br>Monthly<br>(refer to 9.3.5.7) | Either Way | 13                                   | N/A   | 0                                   | 13   | Pursuant to market rules, section 9.3.5.7, during an interim period, the disbursements of charge type 105 amounts adjusted as per section 9.3.5.6 may be made on a monthly basis. |
| 161                   | Northern Pulp and Paper Mill Electricity Transition Program Balancing Amount | N/A                       | N/A                       | $\sum_k TD_{k,111}$ <p>Where 'k' is part of a subset of eligible <i>market participants</i> 'k'.</p>  | Quarterly                                     | Due IESO   | 0                                    | N/A   | N/A                                 | N/A  | This program ends on September 30, 2010.  |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference                        | Equation  | Settlement Resolution         | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|---|---|-------------------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
| 162                | Ontario Power Generation Rebate Debit                    | N/A                       | N/A   | <p><b>** CALCULATIONS FOR CHARGE TYPE 162 END April 30, 2009 **</b></p> <p>Payment (n) = <math>\sum_H [(HOEP_h - ORL) \times (ONPAO_h \times 0.85 - PAA) + (PAP - PAORL) \times PAA]</math></p> <p>OPG rebate (n) = <math>\text{Max} [ 0, \text{Payment} (n) - \text{Payment} (n-1) + \text{NCF} (n-1) ]</math></p> <p>Where:</p> <p>'H' is the set of all <i>settlement hours</i> 'h' from May 1, 2006 to the end of the applicable quarter.</p> <p>'n' is the current quarter.</p> <p>'n-1' is the previous quarter.</p> <p>NCF is the negative amount carried forward and calculated as <math>\text{NCF} (n) = \text{Min} [ 0, \text{Payment} (n) - \text{Payment} (n-1) + \text{NCF} (n-1) ]</math></p> | May 1, 2006 to April 30, 2009 | Due IESO | N/A                                  | N/A   | N/A                                 | N/A  | <p>The OPG rebate quarterly payment will be based on a cumulative calculation commencing May 1, 2006 to the end of each quarter less the same cumulative calculation to the end of the previous quarter.</p> <p>Where the payment formula results in an amount owing to OPG for any quarter, no such payment will be made to OPG and any such amount will be carried forward into subsequent quarters.</p> |
| 163<br>MRP retired | Additional Compensation for Administrative Pricing Debit | N/A                       | 7.8.4A.16 or 7.8.4A.10 or 7.13.6.2, and 9.4.8 | $\sum_{c,H}^{M,T} TD_{k,H,(113)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>   | Monthly                       | Due IESO | 13                                   | N/A   | 0                                   | 13   | This charge will still be used for market suspension events.   |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference  | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                             |
|--------------------|---|---------------------------|---|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--------------------------------------|
| 170<br>MRP retired | Local Market Power Rebate                                     | N/A                       | 9.4.8.2.2<br>9.4.8.2.3<br>9.3.8A.5<br>9.3.8A.6<br>and<br>Ch. 7,<br>Appendix 7.6 | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'c' denotes <i>charge type</i> 120 and that portion of <i>charge type</i> 130 related to the IOG OFFSET <i>settlement amount</i>.<br/>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p> | Monthly               | Due MP     | 13                                   | N/A   | 0                                   | 13   |                                      |
| 171                | Northern Industrial Electricity Rate Program Balancing Amount | N/A                       | N/A   | <p><b>** PROGRAM END APRIL 30, 2022 AND REPLACED BY NORTHERN ENERGY ADVANTAGE PROGRAM BALANCING AMOUNT UNDER THE SAME CHARGE TYPE **</b></p> $\sum_k TD_{k,121}$ <p>Where 'k' is part of a subset of eligible <i>market participants</i> 'k'.</p>   | Quarterly             | Due IESO   | 0                                    | N/A   | N/A                                 | N/A  |                                      |
| 183<br>MRP retired | Generation Cost Guarantee Recovery Debit                      | N/A                       | 9.4.8.1.9   | $= \sum_{H,c}^{M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where:<br/>'C' is the set of the following <i>charge types</i> 'c' as follows:<br/><b>133, 137</b><br/>'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p>  | Monthly               | Due IESO   | 13                                   | N/A   | 0                                   | 13   |                                      |
| 184                | Demand Response Debit   | N/A                       | 9.4.7C<br>9.4.7F  | $\sum_{k,H} (TD_{134}) \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where: 'H' is all <i>settlement hours</i> 'h' during the <i>billing period</i>.</p>  | Monthly               | Either way | 13                                   | N/A   | 0                                   | 5  | TDRP and ELRP suspended by the IESO. |

| Charge Type Number               | Charge Type Name                             | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution  | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|----------------------------------|--|---------------------------|------------------------|--|--|------------|--------------------------------------|---|-------------------------------------|--|--|
| 186<br>MRP updated + name change | Intertie Failure Charge Rebate               | HUSA <sub>k,h</sub>       | 9.3.9.1                | $\frac{\sum_{c \in C}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]}{}$ <p>Where:<br/>                     'C' is the set of the following <i>charge types</i> 'c' as follows:<br/> <b>135, 136, 1134, 1135, 1136</b><br/>                     'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     Where RQ<sub>k,h</sub><sup>m,t</sup> is a reallocated quantity whereby <i>market participant</i> 'k' is a party to one or more <i>physical bilateral contracts</i> for <i>settlement hour</i> 'h' in which the IFCR component of <i>hourly uplift</i> is to be reallocated between <i>market participant</i> 'k' and the other <i>market participant</i> that is a party to the contract in which:<br/> <math display="block">RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]</math></p> | Hourly   | Due MP     | 13                                   | N/A   | 0                                   | 13   |  |
| 190                              | Fixed Energy Rate Balancing Amount           | N/A                       | N/A                    | <p><b>** CHARGE TYPE 190 REPLACED BY CHARGE TYPE 192 EFFECTIVE JANUARY 1, 2005 **</b></p> $\sum_{k,H,c} (TD_{140})$ <p>Where:<br/>                     'H' is all <i>settlement hours</i> 'h' during the <i>trading day</i> for all <i>trading days</i> during the interim period beginning December 1, 2002.</p>  | Hourly (type 'DP' records only. Refer to: <a href="#">Format Specifications for Settlement Statement Files and Data Files</a> for further details) | Either Way | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |
| 191                              | Fixed Wholesale Charge Rate Balancing Amount | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 191 END MARCH 31, 2005 **</b></p> $\sum_{k,H,c} (TD_{141})$ <p>Where:</p>  | Monthly  | Either Way | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation. |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
|                    |   |                           |                        | 'H' is all <i>settlement hours</i> 'h' during the <i>billing period</i> .   |                       |          |                                      |   |                                     |  |  |
| 198                | Renewable Generation Balancing Amount                   | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 198 END DECEMBER 31, 2010. **</b></p> $\sum_K TD_{k,148}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.</p> <p>Where <math>TD_{k,148}</math> is the <i>settlement amount</i> of <i>charge type</i> 148 for the month for <i>market participant</i> 'k'.</p>  | Pending               | Due IESO | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation. |
| 200<br>MRP retired | 10 Minute Spinning Reserve Market Settlement Credit     | ORSC <sub>k,h</sub>       | 9.3.4.1                | $\sum_{m,t,r} AQOR_{r,k,h}^{m,t} \times PROR_{r,h}^{m,t}$   | Interval              | Due MP   | 13                                   | 13  | N/A                                 | N/A  |  |
| 202<br>MRP retired | 10 Minute Non-spinning Reserve Market Settlement Credit | ORSC <sub>k,h</sub>       | 9.3.4.1                | $\sum_{m,t,r} AQOR_{r,k,h}^{m,t} \times PROR_{r,h}^{m,t}$   | Interval              | Due MP   | 13                                   | 13  | N/A                                 | N/A  |  |
| 204<br>MRP retired | 30 Minute Operating Reserve Market Settlement Credit    | ORSC <sub>k,h</sub>       | 9.3.4.1                | $\sum_{m,t,r} AQOR_{r,k,h}^{m,t} \times PROR_{r,h}^{m,t}$   | Interval              | Due MP   | 13                                   | 13  | N/A                                 | N/A  |  |
| 206<br>MRP updated | 10-Minute spinning non-Accessibility Settlement Amount  | ORSCB <sub>r,k,h</sub>    | 9.3.4.2-9.3.4.3        | <p><b>For dispatchable loads and non-aggregated generators:</b></p> $\text{MIN}(0, (TAOR_{k,h}^{m,t} - AQOR_{r,1,k,h}^{m,t}) \times PROR_{r,1,h}^{m,t})$ <p>Where:<br/> <math>TAOR_{k,h}^{m,t} = \text{MAX}(0, AQEW_{k,h}^{m,t} - MC_h^{m,t})</math> for <i>dispatchable loads</i><br/>                     or,</p> | Interval              | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Please refer to MR-00467                                 |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--------------------------|
|                    |  |                           |                        | $MAX(0, MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t})$ for <i>generators</i><br><br><b>For aggregated generators:</b><br>$ORIA\_CA_{r1,k,h}^{M,t} \times ORCF_{r1,k,h}^{m,t} \times PROR_{r1,h}^{m,t}$<br><br>Where:<br>$ORIA\_CA_{r1,k,h}^{M,t} = MIN(0, TAOR\_CA_{k,h}^{M,t} - \sum_M AQOR_{r1,k,h}^{m,t})$<br><br>$TAOR\_CA_{k,h}^{M,t} =$<br>$MAX(0, \sum_M (MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t}))$<br><br>$ORCF_{r1,k,h}^{m,t} = ORIA_{r1,k,h}^{m,t} / (\sum_{M1} ORIA_{r1,k,h}^{m,t})$ , and M1 represents the set of all delivery points 'm' offering 10-minute synchronized OR<br><br>$ORIA_{r1,k,h}^{m,t} = MIN(0, (TAOR_{k,h}^{m,t} - AQOR_{r1,k,h}^{m,t}))$ |                       |          |                                      |   |                                     |  |                          |
| 208 MRP updated    | 10-Minute non-Spinning non-Accessibility Settlement Amount | ORSCB <sub>r,k,h</sub>    | 9.3.4.2-9.3.4.3        | <b>For dispatchable loads and non-aggregated generators:</b><br>$MIN(0, (MAX(0, TAOR_{k,h}^{m,t} - AQOR_{r1,k,h}^{m,t}) - AQOR_{r2,k,h}^{m,t}) \times PROR_{r2,h}^{m,t})$<br><br>Where:<br>$TAOR_{k,h}^{m,t} =$<br>$MAX(0, AQEW_{k,h}^{m,t} - MC_h^{m,t})$ for <i>dispatchable loads</i><br>or,<br>$MAX(0, MAX\_CAP_{k,h}^{m,t} - AQEI_{k,h}^{m,t})$ for <i>generators</i><br><br><b>For aggregated generators:</b><br>$ORIA\_CA_{r2,k,h}^{M,t} \times ORCF_{r2,k,h}^{m,t} \times PROR_{r2,h}^{m,t}$<br><br>Where:  | Interval              | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Please refer to MR-00467 |



| Charge Type Number | Charge Type Name                              | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--------------------------|
|                    |   |                           |                        | $ORIA\_CA_{r2,k,h}^{M,t} = \text{MIN}(0, TAOR\_CA_{k,h}^{M,t} - \sum_M AQOR_{r2,k,h}^{m,t})$ $TAOR\_CA_{k,h}^{M,t} = \text{MAX}(0, \sum_M (\text{MAX\_CAP}_{k,h}^{m,t} - AQEI_{k,h}^{m,t}))$ $ORCF_{r2,k,h}^{m,t} = ORIA_{r2,k,h}^{m,t} / (\sum_{M2} ORIA_{r2,k,h}^{m,t}), \text{ and } M2 \text{ represents the set of all delivery points 'm' offering 10-minute non-synchronized OR}$ $ORIA_{r2,k,h}^{m,t} = \text{MIN}(0, (TAOR_{k,h}^{m,t} - AQOR_{r2,k,h}^{m,t}))$   |                       |          |                                      |   |                                     |  |                          |
| 210<br>MRP updated | 30-Minute non-Accessibility Settlement Amount | ORSCB <sub>r,k,h</sub>    | 9.3.4.2-9.3.4.3        | <p><b>For dispatchable loads and non-aggregated generators:</b></p> $\text{MIN}(0, (\text{MAX}(0, TAOR_{k,h}^{m,t} - AQOR_{r1,k,h}^{m,t} - AQOR_{r2,k,h}^{m,t}) - AQOR_{r3,k,h}^{m,t}) \times PROR_{r3,h}^{m,t})$ <p>Where:<br/> <math display="block">TAOR_{k,h}^{m,t} = \text{MAX}(0, AQEW_{k,h}^{m,t} - MC_h^{m,t}) \text{ for dispatchable loads}</math>                     or,<br/> <math display="block">\text{MAX}(0, \text{MAX\_CAP}_{k,h}^{m,t} - AQEI_{k,h}^{m,t}) \text{ for generators}</math> </p> <p><b>For aggregated generators:</b></p> $ORIA\_CA_{r3,k,h}^{M,t} \times ORCF_{r3,k,h}^{m,t} \times PROR_{r3,h}^{m,t}$ <p>Where:<br/> <math display="block">ORIA\_CA_{r3,k,h}^{M,t} = \text{MIN}(0, TAOR\_CA_{k,h}^{M,t} - \sum_M AQOR_{r3,k,h}^{m,t})</math> <math display="block">TAOR\_CA_{k,h}^{M,t} = \text{MAX}(0, \sum_M (\text{MAX\_CAP}_{k,h}^{m,t} - AQEI_{k,h}^{m,t}))</math> </p> | Interval              | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Please refer to MR-00467 |

| Charge Type Number               | Charge Type Name                                    | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                 |
|----------------------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--------------------------|
|                                  |   |                           |                        | $ORCF_{r3,k,h}^{m,t} = ORIA_{r3,k,h}^{m,t} / (\sum_{M3} ORIA_{r3,k,h}^{m,t}),$ and M3 represents the set of all delivery points 'm' offering 30-minute OR<br><br>$ORIA_{r3,k,h}^{m,t} = \text{MIN}(0, (TAOR_{k,h}^{m,t} - AQOR_{r3,k,h}^{m,t}))$  |                       |          |                                      |   |                                     |  |                          |
| 250<br>MRP updated + name change | 10 Minute Spinning Market Reserve Hourly Uplift     | HUSA <sub>h</sub>         | 9.3.9.1                | $\sum_C^{M,T} TD_{k,h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where:<br/>                     'C' is the set of the following <i>charge types</i> 'c' as follows:<br/> <b>200, 206</b><br/>                     Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     Where RQ<sub>k,h</sub><sup>m,t</sup> is a reallocated quantity whereby <i>market participant</i> 'k' is a party to one or more <i>physical bilateral contracts</i> for <i>settlement hour</i> 'h' in which the <i>operating reserve</i> component of <i>hourly uplift</i> is to be reallocated between <i>market participant</i> 'k' and the other <i>market participant</i> that is a party to the contract in which:</p> $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | Hourly                | Due IESO | 13                                   | N/A   | 0                                   | 13   | Please refer to MR-00467 |
| 252<br>MRP updated + name change | 10 Minute Non-spinning Market Reserve Hourly Uplift | HUSA <sub>h</sub>         | 9.3.9.1                | $\sum_C^{M,T} TD_{k,h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where:<br/>                     'C' is the set of the following <i>charge types</i> 'c' as follows:</p>   | Hourly                | Due IESO | 13                                   | N/A   | 0                                   | 13   | Please refer to MR-00467 |

| Charge Type Number            | Charge Type Name                                 | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                               |
|-------------------------------|--|---------------------------|------------------------|--|-----------------------|-------------------------|--------------------------------------|---|-------------------------------------|--|--|
|                               |  |                           |                        | <p><b>202, 208</b></p> <p>Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> <p>Where <math>RQ_{k,h}^{m,t}</math> is a reallocated quantity whereby <i>market participant</i> 'k' is a party to one or more <i>physical bilateral contracts</i> for <i>settlement hour</i> 'h' in which the <i>operating reserve</i> component of <i>hourly uplift</i> is to be reallocated between <i>market participant</i> 'k' and the other <i>market participant</i> that is a party to the contract in which:</p> $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$   |                       |                         |                                      |   |                                     |  |  |
| 254 MRP updated + name change | 30 Minute Operating Reserve Market Hourly Uplift | HUSA <sub>h</sub>         | 9.3.9.1                | $\sum_C^{M,T} TD_{k,h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where:<br/>'C' is the set of the following <i>charge types</i> 'c' as follows:<br/><b>204, 210</b></p> <p>Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> <p>Where <math>RQ_{k,h}^{m,t}</math> is a reallocated quantity whereby <i>market participant</i> 'k' is a party to one or more <i>physical bilateral contracts</i> for <i>settlement hour</i> 'h' in which the <i>operating reserve</i> component of <i>hourly uplift</i> is to be reallocated between <i>market participant</i> 'k' and the other <i>market participant</i> that is a party to the contract in which:</p> $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | Hourly                | Due IESO                | 13                                   | N/A   | 0                                   | 13   | Please refer to MR-00467               |
| 406                           | Emergency Demand Response Program Credit         | N/A                       | 9.4.2.3A               | Manual Entry as per 9.4.2.3A   | Monthly               | Due MP                  | N/A                                  | N/A   | N/A                                 | N/A  | EDRP no longer contracted by the IESO. |
| 702                           | Debt Retirement Credit                           | N/A                       | 9.4.6                  | ** <b>CALCULATIONS FOR CHARGE TYPE 702 END MARCH 31, 2018</b> **   | Monthly               | Due Ministry of Finance | 0                                    | N/A   | N/A                                 | N/A  | Ontario Regulations                    |

| Charge Type Number | Charge Type Name          | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---------------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
|                    |                           |                           |                        | $\sum_{k,H,c} TD_{752}$   |                       |          |                                      |   |                                     |  | 493/01 and 494/01<br>Refer to Ministry of Energy website for details.                     |
| 704                | OPA Administration Credit | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 704 END DECEMBER 31, 2016 **</b></p> $\sum_K TD_{k,754}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.<br/>Where <math>TD_{k,754}</math> is the <i>settlement amount of charge type 754</i> for the month for <i>market participant</i> 'k'.</p>   | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation.                                  |
| 752                | Debt Retirement Charge    | N/A                       | 9.4.6                  | <p><b>** CALCULATIONS FOR CHARGE TYPE 702 END MARCH 31, 2018 **</b></p> $AQEW_{k,h}^{m,t} \times TP$ <p>Where 'k' is part of a subset of <i>market participants</i> meeting the criteria of any government regulation defining the ultimate <i>consumers of energy</i>.</p>   | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Ontario Regulations 493/01 and 494/01<br>Refer to Ministry of Energy website for details. |
| 754                | OPA Administration Charge | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 704 END DECEMBER 31, 2016 **</b></p> $\sum_H^T AQEW_{k,h}^{m,t} \times TP$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.<br/>Where 'T' is the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h'.<br/>Where TP is the rate (\$/MWh) for the <i>OPA Administration Charge</i> set by OEB.</p> | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government regulation.    |

| Charge Type Number     | Charge Type Name                             | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|------------------------|--|---------------------------|------------------------|---|-----------------------|-----------------|--------------------------------------|---|-------------------------------------|--|--|
| 1050<br>MRP<br>retired | Self-Induced Dispatchable Load CMSC Clawback | N/A                       | 9.3.5.1A               | <p><b>BUSINESS RULES</b> are used in conjunction with the definitions below to specify the criteria by which the <i>IESO</i> will recover <i>constrained off</i> CMSC paid to <i>dispatchable load</i> facilities.</p> <p><b>Business Rule 1 – Materiality:</b> <i>Constrained off</i> CMSC is allowed for an interval during a <i>constrained off</i> event if the total amount of CMSC paid for the trade day to that <i>dispatchable load</i> is less than \$4000. The daily total includes negative CMSC.</p> <p><b>**BUSINESS RULE 1 – MATERIALITY THRESHOLD END JUNE 1, 2019</b></p> <p><b>Business Rule 2 – Non-Dispatchable Portion of Load:</b> <i>Constrained off</i> CMSC is not allowed for an interval during a <i>constrained off</i> event if the CMSC is paid for portions of the dispatch where the load has bid greater than or equal to MMCP, indicating that it is a non-dispatchable in that range.</p> $[-1OP(EMP_{h,m,t}, MQSW_{k,h,m,t}, BL) - \text{MAX}(-1OP(EMP_{h,m,t}, DQSW_{k,h,m,t}, BL), -1OP(EMP_{h,m,t}, AQEW_{k,h,m,t}, BL))] - [-1OP(EMP_{h,m,t}, MQSW_{k,h,m,t}, BL) - \text{MAX}(-1OP(EMP_{h,m,t}, DQSW_{k,h,m,t}, BL), -1OP(EMP_{h,m,t}, AQEW_{k,h,m,t}, BL), -1OP(EMP_{h,m,t}, MC_h^m, BL))]$ <p>Where 'MC' is minimum consumption level and is equal to the quantity in the price quantity pair where the bidding price is MMCP (i.e., \$2000). This business rule applies unless CMSC is allowed because of materiality (defined by Business Rule 1).</p> <p><b>Business Rule 3 – Dispatch Deviation:</b> <i>Constrained off</i> CMSC is not allowed for an interval during a <i>constrained off</i> event if the current 5-minute constrained schedule exceeds the revenue meter value in the previous interval plus 2.5 minutes of ramping. This business rule applies unless CMSC is allowed because of:</p> | Interval              | Due <i>IESO</i> | 13                                   | N/A   | N/A                                 | N/A  | The decision rule for ramping up or down is described in Market Manual 5.5: Settlements Part 5.5: Physical Markets Settlement Statements, section 1.6.9.3. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <ul style="list-style-type: none"> <li>Materiality (defined by Business Rule 1); or</li> <li>The load has been <i>constrained off</i> economically (defined below – ‘Economically <i>constrained off</i> interval’); or</li> <li>Operating reserve has been activated (defined below – ‘Operating Reserve Activation interval’); or</li> <li>The load is ramping (defined below – ‘Ramping interval’); or</li> <li>The load has been manually dispatched down for reliability (defined below – ‘Manual Dispatch for Reliability’).</li> </ul> <p><b>Business Rule 4 – Facility off-line or unable to follow dispatch instructions:</b> <i>Constrained off</i> CMSC is not allowed for an interval during a <i>constrained off</i> event if the constrained schedule is 0 MW and the consumption is less than 1 MW, or if the consumption is 0 MW.</p> <p>This business rule applies unless CMSC is allowed because of:</p> <ul style="list-style-type: none"> <li>Materiality (defined by Business Rule 1); or</li> <li>The load has been <i>constrained off</i> economically (defined below – ‘Economically <i>constrained off</i> interval’); or</li> <li>Operating reserve has been activated (defined below – ‘Operating Reserve Activation interval’); or</li> <li>The load has been manually dispatched down for reliability (defined below – ‘Manual Dispatch for Reliability’).</li> </ul> <p>In addition to the Business Rules 1 to 4 described above, <i>constrained off</i> CMSC is not allowed for hour ‘h’ if a <i>dispatchable load</i> changes its <i>energy bid</i> that results in a change in the <i>facility’s market schedule</i> and the ramping up or down of the <i>dispatchable load</i>.</p> <p><b>DEFINITIONS</b> – There are a number of definitions that are used in the specification of criteria for recovery of <i>constrained off</i> CMSC paid to dispatchable load facilities. These are:</p> <p><b>Constrained-off event:</b> A <i>constrained off</i> event comprises one or more consecutive intervals where the <i>market schedule</i> is greater than the constrained schedule and the <i>market schedule</i> is greater than the actual</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number     | Charge Type Name               | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|------------------------|--------------------------------|---------------------------|------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|---|
|                        |                                |                           |                        | <p>quantity of energy withdrawn. Both conditions must exist to be considered a <i>constrained off</i> event.</p> <p><b>Economic Constrained–off interval:</b> A <i>dispatchable load</i> is considered to be 'economically <i>constrained off</i>' in an interval if the relevant nodal price is greater than or equal to the <i>bid</i> price for either the current interval, the next interval or the previous interval. The inequality should be applied to the last MW <i>constrained off</i>.</p> <p><b>Operating Reserve Activation Interval (ORA):</b> A <i>dispatchable load</i> is considered to be dispatched in an interval as part of an activation of <i>operating reserve</i> if one or more of the following conditions exist:</p> <ol style="list-style-type: none"> <li>The constrained schedule is labeled with the reason code 'ORA'.</li> <li>The interval is 1-3 intervals before an interval with the 'ORA' code.</li> <li>The interval is 1-3 intervals after an interval with the 'ORA' code.</li> </ol> <p><b>Ramping Interval:</b> A <i>generation unit</i> is considered to be ramping up or ramping down when the unconstrained schedule differs between consecutive hours. A <i>dispatchable load</i> is considered to be 'ramping' in an interval if one of the following exist:</p> <ol style="list-style-type: none"> <li>It is one of the first 3 intervals of the second hour when ramping up.</li> <li>It is one of the last 3 intervals of the first hour when ramping down.</li> </ol> <p><b>Manual Dispatch for Reliability:</b> A <i>dispatchable load</i> is considered to be a 'manually <i>constrained off</i> for reliability' if the <i>IESO</i> Control Room logs indicate that the <i>IESO</i> needed to constrain off the load for system or for local requirements.</p> |                       |            |                                      |   |                                     |  |   |
| 1051<br>MRP<br>retired | Ramp-Down<br>CMSC Claw<br>Back | RDCB <sub>k,h</sub>       | 9.3.5.1G               | $RDCB_{k,h}^{m,t} = -1 \times TD_{k,h,105}^{m,t}$ <p>(Refer to applicable <i>market manual</i>)</p>  | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  | Conditions for the Ramp-Down CMSC Claw Back are described in Market Manual 5: Settlements Part 5.5: Physical Markets Settlement |

| Charge Type Number    | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                    |
|-----------------------|--|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|-----------------------------|
|                       |  |                           |                        |   |                       |            |                                      |   |                                     |  | Statements, section 1.6.31. |
| 1101<br>MRP updated   | Real-Time Energy Settlement Amount for Dispatchable Generators     | NEMSC <sub>k,h</sub>      | 9.3.3.2                | $EMP_h^{m,t} \times ((AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t}) + \sum_{S,B} (BCQ_{s,k,h}^{m,t} - BCQ_{k,b,h}^{m,t}))$                                 | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  |                             |
| 1103<br>MRP updated   | Real-Time Energy Settlement Amount for Dispatchable Loads          | NEMSC <sub>k,h</sub>      | 9.3.3.2                | $EMP_h^{m,t} \times ((AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t}) + \sum_{S,B} (BCQ_{s,k,h}^{m,t} - BCQ_{k,b,h}^{m,t}))$                                 | Interval              | Either Way | 13                                   | N/A   | N/A                                 | N/A  |                             |
| 1111<br>MRP updated   | Real-Time Energy Settlement Amount for Imports                     | NEMSC <sub>k,h</sub>      | 9.3.3.2                | $EMP_h^{m,t} \times (SQEI_{k,h}^{i,t} + \sum_{S,B} (BCQ_{s,k,h}^{m,t} - BCQ_{k,b,h}^{m,t}))$  | Interval              | Either Way | N/A                                  | 13  | N/A                                 | N/A  |                             |
| 1113<br>MRP updated   | Real-Time Energy Settlement Amount for Exports                     | NEMSC <sub>k,h</sub>      | 9.3.3.2                | $EMP_h^{m,t} \times (((-1) \times SQEW_{k,h}^{i,t}) + \sum_{S,B} (BCQ_{s,k,h}^{m,t} - BCQ_{k,b,h}^{m,t}))$  | Interval              | Either Way | N/A                                  | N/A   | 0                                   | 13   |                             |
| 1114<br>MRP retired   | Real-Time Energy Settlement Amount for Non-Dispatchable Generators | NEMSC <sub>k,h</sub>      | 9.3                    | $(HOEP_h \times \sum_T (AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t} + \sum_S (BCQ_{s,k,h}^{m,t}))) - (\sum_{B,T} (EMP_h^{m,t} \times BCQ_{b,k,h}^{m,t}))$ | Hourly                | Either Way | 13                                   | N/A   | N/A                                 | N/A  |                             |
| 1115<br>MRP updated + | Real-Time Energy Settlement  | NEMSC <sub>k,h</sub>      | 9.3                    | $(HOEP_h \times \sum_T (AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t} + \sum_S (BCQ_{s,k,h}^{m,t}))) - (\sum_{B,T} (EMP_h^{m,t} \times BCQ_{b,k,h}^{m,t}))$ | Hourly                | Either Way | 13                                   | N/A   | N/A                                 | N/A  |                             |



| Charge Type Number | Charge Type Name                                     | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| name change        | Amount for Non-Dispatchable Loads                    |                           |                        |   |                       |          |                                      |   |                                     |  |          |
| 1130               | Day-Ahead Intertie Offer Guarantee Settlement Credit | DA_I OG <sub>k,h</sub>    | 9.3.8A.2A              | <p><b>**CALCULATIONS FOR CHARGE TYPE 1130 END OCTOBER 12, 2011. CHARGE TYPE 1130 REPLACED BY CHARGE TYPE 1131 EFFECTIVE OCTOBER 13, 2011.**</b></p> <p>The Day-Ahead Intertie Offer Guarantee <i>settlement amount</i> is derived as follows:<br/>                     For all day-ahead import transactions other than those that are subject to a <i>constrained on event</i> in the <i>real-time market</i>:</p> $\sum^I (-1) * \text{MIN}[0, \sum^T \text{OP}(\text{EMP}_{h,i,t}, \text{MIN}(\text{PDR\_DQSI}_{k,h,i,t}, \text{DQSI}_{k,h,i,t}), \text{PDR\_BE}_{k,h,i,t}) + \text{TD}_{k,h,105^I}]$ <p>Or, in the case of an import transaction subject to a <i>constrained on event</i> in the <i>real-time market</i>:</p> $\sum^I (-1) * \text{MIN}[0, \sum^T \text{OP}(\text{EMP}_{h,i,t}, \text{MIN}(\text{PDR\_DQSI}_{k,h,i,t}, \text{DQSI}_{k,h,i,t}), \text{PDR\_BE}_{k,h,i,t}) + \text{OPE}\{\text{adj}\}_{k,h,i,t}]$ <p>Refer to 9.3.8A.2A for the definition of the Operating Profit (OP) function referenced above.</p> <p>Where:<br/>                     'I' is the set of relevant <i>intertie metering points</i> 'i'.<br/>                     'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     TD<sub>k,h,105<sup>I</sup></sub> is that component of <i>charge type</i> 105 ("Congestion Management Settlement Credit for Energy") applicable to <i>market participant</i> 'k' at <i>intertie metering point</i> 'i' during <i>settlement hour</i> 'h'.</p> | Hourly                | Due MP   | N/A                                  | 13  | 13                                  | 13   |          |

| Charge Type Number     | Charge Type Name                           | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|------------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1131<br>MRP<br>retired | Intertie Offer Guarantee Settlement Credit | IOG <sub>k,h</sub>        | 9.3.8A                 | <p>The Day-Ahead Intertie Offer Guarantee <i>settlement amount</i> is derived as follows:</p> $\sum_i \text{MAX}[0, \sum^T (\text{DA\_IOG\_COMP1} + \text{DA\_IOG\_COMP2} - \text{DA\_IOG\_COMP3})]$ <p>Where</p> <p><b>DA_IOG_COMP1:</b></p> $-1 \times \text{OP}(\text{EMP}_{h,t}, \text{MIN}(\text{DA\_DQSI}_{k,h,t}, \text{DQSI}_{k,h,t}), \text{DA\_BE}_{k,h,t})$ <p><b>DA_IOG_COMP2:</b></p> $\text{XDA\_BE}_{k,h,t} - \text{MAX}(0, \text{XBE}_{k,h,t})$ <p><b>DA_IOG_COMP3:</b></p> <p>Component 3 is calculated when:</p> <p>the CMSC for energy (<math>\text{TD}_{k,h,105^{m,t}}</math>) for the same metering interval is a value other than zero.</p> <p>For Component 3 (DA_IOG_COMP3), the six scenarios of the possible orderings of the generator's DA_DQSI, DQSI and MQSI are as follows:</p> <ol style="list-style-type: none"> <li>DQSI &gt;= MQSI &gt;= DA_DQSI</li> <li>MQSI &gt;= DQSI &gt;= DA_DQSI</li> <li>DQSI &gt; DA_DQSI &gt; MQSI</li> <li>MQSI &gt; DA_DQSI &gt; DQSI</li> </ol> | Hourly                | Due MP   | N/A                                  | 13  | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | 5. $DA\_DQSI \geq DQSI > MQSI$<br>6. $DA\_DQSI \geq MQSI > DQSI$<br><br>Scenario 1 and 2:<br>$0$<br><br>Scenario 3:<br>$OP(EMP_h^{i,t}, MQSI_{k,h}^{i,t}, BE) - OP(EMP_h^{i,t}, DA\_DQSI_{k,h}^{i,t}, BE)$<br><br>Scenario 4:<br><br>$OP(EMP_h^{i,t}, DA\_DQSI_{k,h}^{i,t}, BE) - OP(EMP_h^{i,t}, DQSI_{k,h}^{i,t}, BE)$<br><br>Scenario 5 and 6:<br>$TD_{k,h,105}^{m,t}$<br><br>Where<br>'I' is the set of relevant <i>intertie metering points</i> 'i'.<br>'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br>'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8A.2.<br><br>$XDA\_BE_{k,h}^{i,t} = (-1) * [OP(EMP_h^{i,t}, DA\_DQSI_{k,h}^{m,t}, DA\_BE) - OP(EMP_h^{i,t}, \min(DA\_DQSI_{k,h}^{m,t}, DQSI_{k,h}^{m,t}, DA\_BE))]$<br><br>$XBE_{k,h}^{i,t} = (-1) * [OP(EMP_h^{i,t}, DA\_DQSI_{k,h}^{i,t}, BE) - OP(EMP_h^{i,t}, \min(DA\_DQSI_{k,h}^{i,t}, DQSI_{k,h}^{i,t}, BE))]$ |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p>Where <math>EMP_{h,t} = 0</math></p> <p>The Intertie Offer Guarantee <i>settlement amount</i> is derived from an hourly <i>Energy Import</i> sub component (<math>EIM_{k,h}</math>) as follows:</p> <p><math>RT-IOG_{k,h} = EIM_{k,h}</math></p> <p>The Real-Time Intertie Offer Guarantee (<math>RT-IOG_{k,h}</math>) <i>settlement amount</i> is derived as follows:</p> <p><math>\sum_I (-1) * \text{MIN}[0, \sum^{TOP}(EMP_{h,t}, MQSI_{k,h,t}, BE)]</math></p> <p>Where<br/>                     'I' is the set of relevant <i>intertie metering points</i> 'i'.<br/>                     'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8A.2.</p> <p>The IOG_OFFSET component of this <i>charge type</i> is calculated as follows:</p> <p><b>The Day-Ahead IOG rate:</b></p> <p><math>DA\_IOG\_RATE = \text{IF} [DA\_IOG \text{ is not NULL, } DA\_IOG / \text{min}(DA\_DQSI, DQSI), 0]</math></p> <p><b>The Real-Time IOG rate:</b></p> <p><math>RT\_IOG\_RATE = \text{IF}[RT\_IOG \text{ is NULL, } 0, RT\_IOG/DQSI]</math></p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p><b>The matrix is arranged in ascending order on DA_IOG_RATE and the day-ahead import quantities are offset against the day-ahead export schedule quantities:</b></p> <p>DA_DQSW_REM = [MAX[0, DA_OFFSET_DQSW]]<br/>                     DA_OFFSET_DQSW = MIN[DA_DQSI, DQSI, DA_DQSW_REM]</p> <p><b>The day-ahead IOG offset flag:</b><br/>                     DA_OFFSET_FLAG = IF(DA_OFFSET_DQSW &gt; [50% X MIN(DA_DQSI,DQIS)],Y,N)</p> <p><b>The IOG offset rate:</b><br/>                     IOG_SETTLEMENT_RATE = IF[DA_OFFSET_FLAG = 'Y', RT_IOG_RATE, MAX(RT_IOG_RATE, DA_IOG_RATE)]</p> <p>Subject to:<br/>                     MI[n,9] &gt;= MIN[n-1,9]<br/>                     MI[1,9] = MIN[MI[1 to N,9]]<br/>                     MI[1 to N,9] &lt;&gt; 0</p> <p><b>The Gross IOG amount:</b><br/>                     IOG = IOG dollar amount associated with the used to calculate IOG_SETTLEMENT_RATE</p> <p><b>The matrix is arranged in ascending order on IOG_SETTLEMENT_RATE and the real-time import quantities are offset against the real-time export schedule quantities:</b></p> <p>RT_DQSW_REM = [MAX[0, DQSW - RT_OFFSET_DQSW]]</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name                            | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                           |                        | $RT\_OFFSET\_DQSW = \text{MIN}[DQSI, RT\_DQSW\_REM]$<br><br><b>The IOG offset settlement amount:</b><br>$IOG\_OFFSET = (IOG\_SETTLEMENT\_RATE * RT\_OFFSET\_DQSW)$<br><br><b>The IOG settlement amount:</b><br><br>$NET\_IOG = (IOG - IOG\_OFFSET)$  |                       |          |                                      |   |                                     |  |          |
| 1133               | Day-Ahead Generation Cost Guarantee Payment | DA_GCG <sub>k,h</sub>     | 9.4.7D                 | <p><b>**<u>CALCULATIONS FOR CHARGE TYPE 1133 END OCTOBER 12, 2011.</u>**</b></p> <p><i>Dispatchable delivery points:</i></p> $\text{MAX}[0, (DA\_CGC + DA\_COST - \sum^T \text{EMP}_h^{m,t} \times \text{AQEI}\{\text{limited}\}_{k,h}^{m,t} - \sum^T \text{CMSC REV}_{k,h}^{m,t})]$ <p><b>Subject to:</b><br/> <math>\text{AQEI}\{\text{limited}\}_{k,h}^{m,t} = \text{MIN}[\text{AQEI}_{k,h}^{m,t}, \text{minimum loading point}]</math></p> <p>Where 'DA_CGC' is a Day-Ahead <i>Combined Guaranteed Costs</i> variable, assessed in accordance with the applicable <i>market manual</i> (refer to also section 2.1 "Variable Description").</p> <p>Where 'm' is <i>delivery point</i> 'm' at which the <i>generation unit</i> incurring the relevant costs is located.</p> <p>Where 'T' is a set of <i>metering intervals</i> 't' from a valid start time to the end of <i>minimum generation block run-time</i>.</p> <p>Where <math>\text{AQEI}\{\text{limited}\}_{k,h}^{m,t}</math> shall denote all allocated quantities in MWh of <i>energy injected</i> at <i>delivery point</i> 'm' irrespective of any submission of</p> | Hourly                | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p><i>physical allocation data by market participant 'k' in metering interval 't' of settlement hour 'h' up to the generation unit's minimum loading point.</i></p> <p>Where DA_COST is fuel and O&amp;M cost component related to operation of the <i>generation unit</i> at its <i>minimum loading point</i> during its <i>minimum generation block run-time</i> (these costs are calculated based on the <i>offer price</i> associated with Pre-dispatch of record).</p> $DA\_COST_k = \sum_{H2} T^* COST(AQEI\{limited\}_{k,h}^{m,t}, PDR\_BE_{k,h}^{m,t})$ <p>A. Where the COST function is defined as follows:</p> $COST(Q, B) = \sum_{i=1}^{s^*} P_i \cdot (Q_i - Q_{i-1})$ <p>where:</p> <ul style="list-style-type: none"> <li>B is the n x 2 matrix (B) of offered <i>price-quantity pairs</i> (P<sub>i</sub>, Q<sub>i</sub>)</li> <li>s* is the highest indexed row of B such that Q<sub>s*-1</sub> ≤ Q ≤ Q<sub>s*</sub> and where Q<sub>0</sub>=0</li> </ul> <p>B. Where H2 is the set of all <i>settlement hours 'h'</i> during the period from the <i>Pre-dispatch of Record 'start hour'</i> until the end of <i>minimum generation block run</i></p> <p>C. Where 'T*' is the set of metering intervals 't' in the set of all settlement hours 'H2'</p> <p>Where CMSC_REV<sub>k,h</sub><sup>m,t</sup> is any real-time CMSC(TD<sub>k,h,105</sub><sup>m,t</sup>) payment associated with allocated quantities in MWh of <i>energy</i> injected at <i>delivery point 'm'</i> irrespective of any submission of</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number     | Charge Type Name                            | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|------------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                        |   |                           |                        | <p><i>physical allocation data by market participant 'k' in metering interval 't' of settlement hour 'h' up to the generation unit's minimum loading point.</i></p> <p>CMSC_REV is calculated using the following rules:</p> <ol style="list-style-type: none"> <li>1) Real-time CMSC (<math>TD_{k,h,105^{m,t}}</math>) for the same interval is greater than zero.</li> <li>2) If <math>MQSI_{k,h^{m,t}}</math> and <math>\max(DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}}) \geq MLP</math>, then <math>CMSC\_REV_{k,h^{m,t}} = 0</math>.</li> <li>3) In the case of a <i>constrained-off event</i>:                         <ol style="list-style-type: none"> <li>a. If <math>MQSI_{k,h^{m,t}} &lt; MLP</math>, then <math>CMSC\_REV_{k,h^{m,t}} = TD_{k,h,105^{m,t}}</math></li> <li>b. If <math>MQSI_{k,h^{m,t}} \geq MLP</math> and <math>\max(DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}}) \leq MLP</math>, then <math>CMSC\_REV_{k,h^{m,t}} = OP(EMP_{h^{m,t}}, MLP, BE) - OP(EMP, \max(DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}}), BE)</math>.</li> </ol> </li> <li>4) In the case of a <i>constrained-on event</i>:                         <ol style="list-style-type: none"> <li>a. If <math>MQSI_{k,h^{m,t}} &lt; MLP</math> and <math>\min(DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}}) &lt; MLP</math>, then <math>CMSC\_REV_{k,h^{m,t}} = TD_{k,h,105^{m,t}}</math></li> <li>b. If <math>MQSI_{k,h^{m,t}} \leq MLP</math> and <math>\min(DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}}) \geq MLP</math>, then <math>CMSC\_REV_{k,h^{m,t}} = OP(EMP_{h^{m,t}}, MQSI_{k,h^{m,t}}, BE) - OP(EMP_{h^{m,t}}, MLP, BE)</math></li> </ol> </li> </ol> <p>(Refer to applicable <i>market manual</i>)</p> |                       |          |                                      |   |                                     |  |          |
| 1134<br>MRP<br>retired | Day-Ahead<br>Linked Wheel<br>Failure Charge | DA_LWFC <sub>k,h</sub>    | 9.3.8E                 | $\text{MAX}[(-1) * [(DA\_LWSD_{k,h^i}) * \text{MAX}[0, (DA\_PS_{k,h^i} - PD\_PS_{k,h^i})]], (RT\_IFC\_DALW_{k,h^i} + RT\_EFC\_DALW_{k,h^i})]$ <p>Where:</p>   | Hourly                | Due IESO | N/A                                  | 13  | 13                                  | 13   |          |



| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | $LWSD_{k,h}^{i,t} = \text{MAX}[\text{MAX}(DA\_DQSI_{k,h}^{i,t} - PD\_DQSI_{k,h}^{i,t}, DA\_DQSW_{k,h}^{i,t} - PD\_DQSW_{k,h}^{i,t}), 0]$ $RT\_IFC\_DALW_{k,h}^i = \sum_{t \in T} (-1) * \text{MIN}[\text{MAX}[0, (EMP_{h^{m,t}} + PB\_IM_{h^t} - PD\_EMP_{h^{m,t}}) * \text{MAX}(DA\_DQSI_{k,h}^{i,t} - PD\_DQSI_{k,h}^{i,t}, 0)], (\text{MAX}(0, EMP_{h^{m,t}}) * \text{MAX}(DA\_DQSI_{k,h}^{i,t} - PD\_DQSI_{k,h}^{i,t}, 0))]$ $RT\_EFC\_DALW_{k,h}^i = \sum_{t \in T} (-1) * \text{MIN}[\text{MAX}[0, (PD\_EMP_{h^{m,t}} - EMP_{h^{m,t}} - PB\_EX_{h^t}) * \text{MAX}(DA\_DQSW_{k,h}^{i,t} - PD\_DQSW_{k,h}^{i,t}, 0)], (\text{MAX}(0, PD\_EMP_{h^{m,t}}) * \text{MAX}(DA\_DQSW_{k,h}^{i,t} - PD\_DQSW_{k,h}^{i,t}, 0))]$ <p>Where:<br/>                     'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.<br/>                     'I' is the set of all <i>inertie metering points</i> 'i'.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number     | Charge Type Name                | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|------------------------|---------------------------------|---------------------------|------------------------|---|-----------------------|-----------------|--------------------------------------|---|-------------------------------------|--|--|
| 1135<br>MRP<br>retired | Day-Ahead Import Failure Charge | DA_IFC <sub>k,h</sub>     | 9.3.8B                 | $\sum_{t \in T} (-1) * \text{MIN}[\text{MAX}[0, \text{OP}(\text{PD\_EMP}_{h^m,t}, \text{DA\_DQSI}_{k,h^{i,t}}, \text{DA\_BE}_{k,k^{i,t}}) - \text{OP}(\text{PD\_EMP}_{h^m,t}, \text{PD\_DQSI}_{k,h^{i,t}}, \text{DA\_BE}_{k,k^{i,t}})], (\text{MAX}(0, \text{XPD\_BE}_{k,h^{i,t}} - \text{XDA\_BE}_{k,h^{i,t}})], (\text{MAX}(0, \text{PD\_EMP}_{h^m,t}) * \text{DA\_ISD}_{k,h^{i,t}})]$ <p>Where:<br/>                     'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8B.2.<br/>                     'T' is the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h'.<br/>                     'I' is the set of all <i>intertie metering points</i> 'i'.<br/> <math display="block">\text{DA\_ISD}_{k,h^{i,t}} = \text{MAX}(\text{DA\_DQSI}_{k,h^{i,t}} - \text{PD\_DQSI}_{k,h^{i,t}}, 0)</math><br/> <math display="block">\text{XDA\_BE}_{k,h^{i,t}} = (-1) * [\text{OP}(0, \text{DA\_DQSI}, \text{DA\_BE}) - \text{OP}(0, \text{PD\_DQSI}, \text{DA\_BE})]</math><br/> <math display="block">\text{XPD\_BE}_{k,h^{i,t}} = (-1) * [\text{OP}(0, \text{DA\_DQSI}, \text{PD\_BE}) - \text{OP}(0, \text{PD\_DQSI}, \text{PD\_BE})]</math></p> | Hourly                | Due <i>IESO</i> | N/A                                  | 13  | N/A                                 | N/A  | Subject to exemptions under the provisions of 9.3.8B.1.2 |

| Charge Type Number     | Charge Type Name                  | Settlement Amount Acronym  | Market Rules Reference              | Equation  | Settlement Resolution  | Cashflow  | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|------------------------|-----------------------------------|--|-------------------------------------|---|--|---|--------------------------------------|---|-------------------------------------|--|---|
| 1136<br>MRP<br>retired | Day-Ahead Export Failure Charge   | DA_EFC <sub>k,h</sub>  | 9.3.8D                              | $\sum_{I,T} (-1) * \text{MIN}[\text{MAX}[0, (-1) * \text{OP}(\text{PD\_EMP}_{h,m,t}, \text{DA\_DQSW}_{k,h,i,t}, \text{DA\_BL}_{k,k,i,t}) - (-1) * \text{OP}(\text{PD\_EMP}_{h,m,t}, \text{PD\_DQSW}_{k,h,i,t}, \text{DA\_BL}_{k,k,i,t})], (\text{MAX}(0, \text{XDA\_BL}_{k,h,i,t} - \text{XPD\_BL}_{k,h,i,t}), (\text{MAX}(0, \text{XDA\_BL}_{k,h,i,t}))]$ <p>Where:<br/>                     'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8B.2.<br/>                     'T' is the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h'.<br/>                     'I' is the set of all <i>intertie metering points</i> 'i'.</p> $\text{XDA\_BL}_{k,h,i,t} = [\text{OP}(0, \text{DA\_DQSW}, \text{DA\_BL}) - \text{OP}(0, \text{PD\_DQSW}, \text{DA\_BL})]$ $\text{XPD\_BL}_{k,h,i,t} = [\text{OP}(0, \text{DA\_DQSW}, \text{PD\_BL}) - \text{OP}(0, \text{PD\_DQSW}, \text{PD\_BL})]$ | Hourly   | Due <i>IESO</i>   | N/A                                  | N/A   | 0                                   | 13   |   |
| 1137                   | Intertie Offer Guarantee Reversal | <b>Context 1:</b><br>IOG_REV <sub>k,h</sub><br><b>Context 2:</b><br>DA_IOG {adj} <sub>k,h</sub> <sup>i</sup> | 9.3.8A.1.2 and 9.3.8A.7 to 9.3.8A.9 | <b>**CALCULATIONS FOR CHARGE TYPE 1137 END OCTOBER 12, 2011.**</b>  | <b>Context 1:</b><br>Hourly<br><b>Context 2:</b><br>Hourly, but reported on the last trading day of the billing period | <b>Context 1:</b><br>Due <i>IESO</i><br><b>Context 2:</b><br>Due MP | N/A                                  | 13  | 13                                  | 13   | <b>Note:</b><br>Context 1 and Context 2 can both be applied to the same import. |

| Charge Type Number      | Charge Type Name                        | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|-------------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                         |   |                           |                        | <p><b>NOTE:</b> This <i>charge type</i> is used in two separate contexts as follows:</p> <p><b>Context 1:</b><br/>When a day-ahead Intertie Offer Guarantee and a real-time Intertie Offer Guarantee apply to the same import transaction, the lower of the two is reversed by this <i>charge type</i>.<br/> <math>-1 \times TD_{k,h,c}^i</math></p> <p>Where:<br/>                     'c' is <i>charge type</i> 130 or 1130 as the case may be such that:<br/> <math>TD_{k,h,c}^i = \text{MIN}(TD_{k,h,130}^i, TD_{k,h,1130}^i)</math></p> <p><b>Context 2:</b><br/>In cases where this <i>charge type</i> is used for the purposes of applying the intertie offer guarantee adjustment (<math>DA\_IOG\{adj\}_{k,h}^i</math>), the <i>settlement amount</i> applied is <math>DA\_IOG\{adj\}_{k,h}^i</math> and is calculated as follows:<br/> <math>DA\_IOG\{adj\}_{k,h}^i = \text{MAX}[0, IOG\_FV_{k,h}^i - TD_{k,h,100}^i - \text{MAX}(TD_{k,h,1130}^i, TD_{k,h,130}^i) - TD_{k,h,105}^i]</math></p> <p>Where:<br/> <math>TD_{k,h,100}^i</math>, <math>TD_{k,h,1130}^i</math>, <math>TD_{k,h,130}^i</math> and <math>TD_{k,h,105}^i</math> are the <i>settlement amounts</i> for <i>charge types</i> 100, 1130, 130 and 105 respectively, that are applicable to <i>market participant</i> 'k' during <i>settlement hour</i> 'h' at <i>intertie metering point</i> 'i'.</p> |                       |          |                                      |   |                                     |  |          |
| 1138<br>MRP name change | Day-Ahead Fuel Cost Compensation Credit | DA_FCC <sub>k,h</sub>     | 9.4.7E                 | Manual entry as per 9.4.7E.2  | Hourly                | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|---------------------------|------------------------|---|-----------------------|--|--------------------------------------|---|-------------------------------------|--|---|
| 1139               | Intertie Failure Charge Reversal   | IFC_REV <sub>k,h</sub>    | 9.3.8C.6               | <p><b>**CALCULATIONS FOR CHARGE TYPE 1139 END OCTOBER 12, 2011.**</b></p> <p>When a Day-Ahead Import Failure Charge and a Real-time Import Failure Charge apply to the same import transaction, the lower of the two is reversed by this <i>charge type</i>.</p> $-1 \times TD_{k,h,c}^i$ <p>Where:<br/>                     'c' is <i>charge type</i> 135 or 1135 as the case may be such that:<br/> <math>TD_{k,h,c}^i = \text{MIN} (-1 \times TD_{k,h,135}^i, -1 * TD_{k,h,1135}^i)</math></p>   | Hourly                | Due IESO   | N/A                                  | 13  | N/A                                 | N/A  |   |
| 1142               | Ontario Fair Hydro Plan Eligible RPP Consumer Discount Settlement Amount | N/A                       | N/A                    | <p><b>** CHARGE TYPE 1142 REPLACED BY CHARGE TYPE 142 EFFECTIVE NOVEMBER 1, 2019.**</b></p> <p>Manual entry based on:</p> <p>(1) the values submitted via on-line settlement forms "Regulated Price Plan vs. Market Price – Variance for Conventional Meters", "Regulated Price Plan vs. Market Price – Variance for Smart Meters" and "Regulated Price Plan – Final Variance Settlement Amount";</p> <p style="text-align: center;">or</p> <p>(2) For eligible IESO market participant consumers:</p> $\text{NEMSCk,H} - \{ \text{MIN} [ \text{TLQ} , \sum_{H,M,T} (\text{AQEWk,hm,t} - \text{AQEI k,hm,t} - \sum_{S} \text{BCQs,k,hm,t}) ] \times \text{RPPI}=1 + \text{MAX} [ 0, \sum_{H,M,T} (\text{AQEWk,hm,t} - \text{AQEI k,hm,t} - \sum_{S} \text{BCQs,k,hm,t}) - \text{TLQ} ] \times \text{RPPI}=2 \}$ | Monthly               | Due LDCs, Unit Sub-Meter Providers and eligible MPs either way | 13                                   | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government and OEB regulations. |

| Charge Type Number             | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------------------|--|---------------------------|------------------------|---|-----------------------|--|--------------------------------------|---|-------------------------------------|--|----------|
| 1143                           | Ontario Fair Hydro Plan Eligible Non-RPP Consumer Discount Settlement Amount | N/A                       | N/A                    | <p><b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b></p> <p>Manual entry based on:</p> <p>(1) the values submitted via on-line settlement form "Ontario Fair Hydro Plan (OFHP) for Eligible Non-RPP Customers"</p>   | Monthly               | Due LDCs, Unit Sub-Meter Providers and eligible MPs either way | 13                                   | N/A   | N/A                                 | N/A  |          |
| 1144                           | Ontario Fair Hydro Plan Financing Entity Amount                              | N/A                       | N/A                    | <p><b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b></p> <p>Manual entry based on:</p> <p>(1) the values submitted via on-line settlement form "Ontario Fair Hydro Plan – Financing Entity Funding Expenses";</p>  | Monthly               | Due Financing Entity   | N/A                                  | N/A   | N/A                                 | N/A  |          |
| 1145                           | Ontario Fair Hydro Plan Financing Entity Interest                            | N/A                       | N/A                    | <p><b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b></p> <p>Manual entry based on:</p> <p>(1) the values submitted via on-line settlement form "Ontario Fair Hydro Plan – Financing Entity Funding Expenses";</p>  | Monthly               | Due Financing Entity   | N/A                                  | N/A   | N/A                                 | N/A  |          |
| 1188 MRP updated + name change | Day-Ahead Fuel Cost Compensation Debit                                       | DA_FCC_U <sub>k,h</sub>   | 9.4.8.1.12             | $= \sum_{K,H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where:<br/>                     'c' is <i>charge type</i> 1138.<br/>                     'K' is the set of all <i>market participants</i> 'k'.</p> | Monthly               | Due IESO   | 13                                   | N/A   | 0                                   | 13   |          |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
|                    |   |                           |                        | 'M' is the set of all <i>delivery points</i> 'm' and <i>inertie metering points</i> 'i'.<br>'H' is the set of all <i>settlement hours</i> 'h' in the month.<br>'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.   |                       |          |                                      |   |                                     |  |   |
| 1192               | Ontario Fair Hydro Plan Eligible RPP Consumer Discount Balancing Amount     | N/A                       | N/A                    | <b>** CHARGE TYPE 1192 REPLACED BY CHARGE TYPE 192 EFFECTIVE NOVEMBER 1, 2019 **</b><br><br>$\sum_k TD_{k,1142}$<br><br>Where 'K' is the set of all <i>market participants</i> 'k'.<br><br>Where TD <sub>k,1142</sub> is the total <i>settlement amount</i> of <i>charge type</i> 1142 for the month for <i>market participant</i> 'k'. | Monthly               | Due IESO | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government and OEB regulations. |
| 1193               | Ontario Fair Hydro Plan Eligible Non-RPP Consumer Discount Balancing Amount | N/A                       | N/A                    | <b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b><br><br>$\sum_k TD_{k,1143}$<br><br>Where 'K' is the set of all <i>market participants</i> 'k'.<br><br>Where TD <sub>k,1143</sub> is the total <i>settlement amount</i> of <i>charge type</i> 1143 for the month for <i>market participant</i> 'k'.                                       | Monthly               | Due IESO | N/A                                  | N/A   | N/A                                 | N/A  | Eligibility, rates, and other implementation details subject to government and OEB regulations. |
| 1194               | Ontario Fair Hydro Plan Financing Entity Balancing Amount                   | N/A                       | N/A                    | <b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b><br><br>$\sum_k TD_{k,1144}$<br><br>Where 'K' is the set of all <i>market participants</i> 'k'.   | Monthly               | Due IESO | N/A                                  | N/A   | N/A                                 | N/A  | Implementation details subject to government regulations  |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
|                    |  |                           |                        | Where TD <sub>k,1144</sub> is the total <i>settlement amount</i> of <i>charge type</i> 1144 for the month for <i>market participant</i> 'k'.   |                       |          |                                      |   |                                     |  |  |
| 1195               | Ontario Fair Hydro Plan Financing Entity Balancing Interest                      | N/A                       | N/A                    | <p><b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b></p> $\sum_k TD_{k,1145}$ <p>Where 'k' is the set of all <i>market participants</i> 'k'.</p> <p>Where TD<sub>k,1145</sub> is the total <i>settlement amount</i> of <i>charge type</i> 1145 for the month for <i>market participant</i> 'k'.</p>   | Monthly               | Due IESO | N/A                                  | N/A   | N/A                                 | N/A  | Implementation details subject to government regulations |
| 1300               | Capacity Based Demand Response Program Availability Payment Settlement Amount    | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1300 ENDED ON OCTOBER, 2018.**</b></p> $= HA_H \times MCMW_h \times AAR$ <p>Where:<br/>                     'AAR' means 'Adjusted Availability Rate'.<br/>                     'H' is the total hours a DRMP is available in a program month.<br/>                     'HA' means 'Hours of Availability'.<br/>                     'MCMW' means 'Monthly Contracted MW'.</p> | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |  |
| 1301               | Capacity Based Demand Response Program Availability Over-Delivery Settlement Amt | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1301 ENDED ON OCTOBER, 2018.**</b></p> $= \sum_H (CMW_h - MCMW_h) \times AODR_h$ <p>Applicable only in response to an 'Open Standby Notification'.</p>  | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |  |



| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |   |                           |                        | Where:<br>'AODR' means 'Availability Over-Delivery Rate'.<br>'CMW' means 'Confirmed MW'.<br>'H' is the set of all hours 'h' in the month where the 'CMW' exceeded the 'MCMW'.<br>'MCMW' means 'Monthly Contracted MW'.   |                       |          |                                      |   |                                     |  |          |
| 1302               | Capacity Based Demand Response Program Availability Set-Off Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1302 ENDED ON OCTOBER, 2018.**</b></p> <p>The charge to a DRMP is highest of A, B or C:<br/> <b>A: Availability Set-Off (Reliability)</b><br/> <math display="block">= \sum_H \text{PSO}_h \times \text{AAR} \times \text{MCMW}_h</math>                     This formula applies when the Reliability Rate for a given Demand Response Account is less than 85% during any interval of an Activation Hour, or where the Participant is not Fully Available for Curtailment.<br/>                     Where:<br/>                     'AAR' and 'MCMW' have the same meaning as in CT1300.<br/>                     'H' is the set of all activation hours 'h' for the activation period.<br/>                     'PSO' means 'Performance Set-Off Factor' as described in the market manual.</p> <p><b>B: Availability Set-Off (Timely Confirmation)</b><br/> <math display="block">= \text{PSO} \times \text{AAR} \times \text{MCMW}_h \times \text{CDP}</math>                     This formula applies when the Participant, regardless of Activation, has failed to deliver, or delivers late, a Confirmation that is required by the IESO.<br/>                     Where:<br/>                     'AAR' and 'MCMW' have the same meaning as in CT1300.</p> | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                           |                        | <p>'CDP' (Contracted Dispatch Period) means four consecutive hours. Each Contracted Dispatch Period shall occur within the hours of Availability, and shall occur within and no more than once in accordance with the Daily Schedule.</p> <p>'PSO' has the same meaning as defined above.</p> <p><b>C: Availability Set-Off (Low Confirmation)</b></p> $= \sum_H (PSO \times AAR \times (MCMW_h - CMW))$ <p>This formula applies when the Confirmed MW's are less than 95% of the Monthly Contracted MW for a Confirmed Hour of the Contracted Dispatch Period.</p> <p>Where:<br/>                     'AAR' and 'MCMW' have the same meaning as in CT1300.<br/>                     'CMW' has the same meaning as in CT1301.<br/>                     'H' is the set of all confirmed hours 'h' when the Confirmed MW's are less than 95% of the Monthly Contracted MW for the Contracted Dispatch Period.<br/>                     'PSO' has the same meaning as defined above.</p> |                       |          |                                      |   |                                     |  |          |
| 1303               | Capacity Based Demand Response Program Utilization Payment Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1303 ENDED ON OCTOBER, 2018.**</b></p> $= [\square_H (AAM_h \times UR_h)] - [\square_H (NG_h \times \text{MIN}(HOEP, UR_h))]$ <p>Where:<br/>                     'AAM' (Actual Activated MWh), means the number of MWh Curtailed by a Participant when requested by the IESO, as measured through the use of electricity meter(s). Curtailment shall not exceed the product of the Activation MW and the activation period requested by the IESO, plus the lesser of an additional 15% of the Activation MW per hour of the activation period, OR 15 MWh per hour of the activation period.</p>  | Monthly               | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                           |                        | <p>'H' is the total hours 'h' a DRMP is activated in a program month.<br/>                     'HOEP' means Hourly Ontario Energy Price.<br/>                     'NG' (Net Generation), means the MWh of net electricity generated by any contributor that is a behind the meter generator.<br/>                     'UR' (Utilization Rate), means the rates, expressed in \$/MWh, as specified in the Demand Response Schedule.</p>   |                       |          |                                      |   |                                     |  |          |
| 1304               | Capacity Based Demand Response Program Utilization Set-Off Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1304 ENDED ON OCTOBER, 2018.**</b></p> <p>The charge to a DRMP is highest of A, B or C:</p> <p><b>A: Utilization Set-Off (Reliability)</b></p> $= \sum_H \text{PSO}_h \times \text{UR} \times \text{MCMW}_h$ <p>This formula applies when the Reliability Rate for a given Demand Response Account is less than 85% during any interval of an Activation Hour.</p> <p>Where:<br/>                     'H' is the set of all activation hours 'h' for the activation period.<br/>                     'PSO' has the same meaning as in CT 1301.<br/>                     'UR' has the same meaning as in CT1303.<br/>                     'MCMW' has the same meaning as in CT1300.</p> <p><b>B: Utilization Set-Off (Timely Confirmation)</b></p> $= \text{PSO} \times \text{UR} \times \text{MCMW}_h \times \text{CDP}$ <p>This formula applies when the DRMP, regardless of Activation, has failed to deliver, or delivers late, a Confirmation that is required by the IESO.</p> | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |  |                           |                        | <p>Where:<br/>                     'CDP' (Contracted Dispatch Period) means four consecutive hours. Each Contracted Dispatch Period shall occur within the hours of Availability, and shall occur within and no more than once in accordance with the Daily Schedule.<br/>                     'MCMW' has the same meaning as defined above.<br/>                     'PSO' has the same meaning as defined above.<br/>                     'UR' has the same meaning as defined above.</p> <p><b>C: Utilization Set-Off (Low Confirmation)</b></p> $= \sum_H (PSO \times UR \times (MCMW_h - CMW))$ <p>This formula applies when the Confirmed MW's are less than 95% of the Monthly Contracted MW for a Confirmed Hour of the Contracted Dispatch Period.</p> <p>Where:<br/>                     'CMW' has the same meaning as in CT1301.<br/>                     'H' is the set of all confirmed hours 'h' when the Confirmed MW's are less than 95% of the Monthly Contracted MW for the Contracted Dispatch Period.<br/>                     'MCMW' has the same meaning as defined above.<br/>                     'PSO' has the same meaning as defined above.<br/>                     'UR' has the same meaning as defined above.</p> |                       |          |                                      |   |                                     |  |          |
| 1305               | Capacity Based Demand Response Program Planned Non-Performance | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1305 ENDED ON OCTOBER, 2018.**</b></p> <p>The Planned Non-Performance Availability Set-Off applies for any day for which a participant has requested a Non-Performance Event as part of either a Single Day Non-Performance Event or a part of an Extended Period Planned Non-Performance Event.</p>   | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|-------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    | Event Set-Off Amt |                           |                        | <p>The monthly set-off calculation is the sum of all:</p> <ol style="list-style-type: none"> <li>Non-Activation Day Non-Performance Availability Set-Off s and</li> <li>Activation Day Non-Performance Availability Set-Offs.</li> </ol> <p>For 1.) The Non-Activation Day Non-Performance Availability Set-Off amount is:</p> $= (AAR \times MCMW_n \times HANE_H)$ <p>Where:<br/>                     'AAR' has the same meaning as in CT1300.<br/>                     'HANE' (Hours of Availability for a Non-Performance Event), represents the Hours of Availability for all days in the contract month for which a planned Non-Performance Event is requested and for which an Activation Notice is not received by the participant.<br/>                     'MCMW' has the same meaning as in CT1300.</p> <p>For 2.) The Activation Day Non-Performance Availability Set-Off amount is:</p> $= (OH \times AAR \times MCMW_n \times NEWF_H)$ <p>Where:<br/>                     'AAR' and 'MCMW' have the same meaning as in CT1300.<br/>                     'OH' (Opportunity Hours), means 64 if Option A is applicable to the Demand Response Account; or 32 if Option B is applicable to the Demand Response Account.<br/>                     'NEWF' (Non-Performance Event Weighting Factor), means 10%, unless the Actual Activated MWh per interval, as averaged over all of the Intervals in the Contracted Dispatch Period for the Activation, is greater than or equal to the product of the Monthly Contracted MW and 1/12 of an hour in which case 'NEWF' means 50%.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
| 1306               | Capacity Based Demand Response Program Measurement Data Set-Off Settlement Amt | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1306 ENDED ON OCTOBER, 2018.**</b></p> $= \text{MDSF} \times (\text{HA}_H \times \text{MCMW}_h \times \text{AAR})$ <p>This formula applies when the complete set of weekly measurement data for a Demand Response Account are not received as per the CBDR Processing Timelines. The formula recovers a percentage of the availability payment for the applicable week.</p> <p>Where:<br/>                     'MDSF' (Measurement Data Set-Off Factor), is an increasing factor for every week that the full data remains undelivered. The factor is equal to:</p> <ul style="list-style-type: none"> <li>• 20% for the first week that the full data remains undelivered;</li> <li>• 33% for the second week that the full data remains undelivered;</li> <li>• 50% for the third week that the full data remains undelivered; and</li> <li>• 100% for the fourth week that the full data remains undelivered.</li> </ul> <p>'AAR', 'HA' and 'MCMW' have the same meaning as in CT1300.<br/>                     'H' is the total hours a DRMP is available for the applicable week.</p> | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |
| 1307               | Capacity Based Demand Response Program Buy-Down Settlement Amount              | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1307 ENDED ON OCTOBER, 2018.**</b></p> <p>Buy-Down means the act by the DRMP chooses to reduce its Monthly Contracted MW and/or remove up to three Daily Schedules from participation in CBDR.</p> <p>For the Buy-Down of Monthly Contracted MW the payment is:</p> $= (\text{MCMWR} \times \text{BDR} \times \text{HAE})$ <p>Where:</p>   | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments              |
|--------------------|---|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|-----------------------|
|                    |   |                           |                        | <p>'MCMWR' (Monthly Contracted MW Reduction), means the MW of demand reduction in the Monthly Contracted MWs.</p> <p>'BDR' (Buy-Down Rate), means the Buy-Down Rate, expressed in \$/MW.</p> <p>'HAE' (Hours of Availability Elapsed), means the number of Hours of Availability that have elapsed in the Schedule Term up to the date that the reduction takes effect.</p> <p>For the Buy-Down of the Daily Schedules the payment is:<br/>                     = (MCMW x RD x BDR x HAE)</p> <p>Where:<br/>                     'BDR' has the same meaning as defined above.<br/>                     'HAE' has the same meaning as defined above.<br/>                     'MCMW' has the same meaning as in CT1300.<br/>                     'RD' (Requested Days), means the number of Business Days per week from which the Hours of Availability are to be removed.</p> |                       |            |                                      |   |                                     |  |                       |
| 1308               | Capacity Based Demand Response Program Performance Breach Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1308 ENDED ON OCTOBER, 2018.**</b></p> <p>Performance breach amounts are calculated as defined in the market manual.</p>   | Monthly               | Either way | 13                                   | N/A   | N/A                                 | N/A  |                       |
| 1309               | Demand Response Pilot – Availability Payment                                | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1309 ENDED ON APRIL, 2018.**</b></p> <p>Calculated as per demand response pilot contracts.</p>   | Monthly               | Due MP     | 13                                   | N/A   | N/A                                 | N/A  | Demand Response Pilot |
| 1310               | Demand Response Pilot – Availability Clawback                               | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1310 ENDED ON APRIL, 2018.**</b></p> <p>Calculated as per demand response pilot contracts.</p>   | Hourly                | Due IESO   | 13                                   | N/A   | N/A                                 | N/A  | Demand Response Pilot |

| Charge Type Number  | Charge Type Name                                      | Settlement Amount Acronym     | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments              |
|---------------------|---|-------------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|-----------------------|
| 1311                | Demand Response Pilot – Availability Charge           | N/A                           | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1311 ENDED ON APRIL, 2018.**</b></p> <p>Calculated as per demand response pilot contracts.</p>   | Monthly               | Due IESO   | 13                                   | N/A   | N/A                                 | N/A  | Demand Response Pilot |
| 1312                | Demand Response Pilot – Availability Adjustment       | N/A                           | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1312 ENDED ON APRIL, 2018.**</b></p> <p>Calculated as per demand response pilot contracts.</p>   | Monthly               | Due IESO   | 13                                   | N/A   | N/A                                 | N/A  | Demand Response Pilot |
| 1313                | Demand Response Pilot – Demand Response Bid Guarantee | N/A                           | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1313 ENDED ON APRIL, 2018.**</b></p> <p>Calculated as per demand response pilot contracts.</p> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>- Bid guarantee as a payment is Due MP; bid guarantee as a clawback is Due IESO.</li> </ul> <p>Bid guarantee is calculated per unit commitment period/event.</p>  | Monthly               | Either Way | 13                                   | N/A   | N/A                                 | N/A  | Demand Response Pilot |
| 1315<br>MRP updated | Capacity Obligation – Availability Charge             | CAAC <sup>m<sub>k</sub></sup> | 4.7J.2.1               | <p>In regards to a <i>capacity market participant</i> participating with an <i>hourly demand response resource</i> or a <i>capacity dispatchable load resource</i>:</p> $\sum_H (-1) \times \text{Max}(0, (\text{CCO}^{m_{k,h}} - \text{DREBQ}^{m_{k,h}})) \times \text{CAC}P^z_h \times \text{CNPF}_{tm}$ <p>Where:</p> <ol style="list-style-type: none"> <li>'H' is the set of all <i>settlement hours</i> within the <i>availability window</i> during the relevant <i>trading day</i>;</li> <li>If the <i>capacity market participant</i> did not submit a <i>demand response energy bid</i> for its <i>hourly demand response resource</i> or <i>capacity dispatchable load resource</i>, as the case may be, for <i>settlement hour 'h'</i> in the day-ahead commitment process or failed to maintain such <i>energy bid</i> through the <i>real-time energy market</i>; <math>\text{DREBQ}^{m_{k,h}} = 0</math>;</li> <li>In regards to <i>hourly demand response resource</i>, if the <i>demand response energy bids</i> submitted for <i>settlement hour 'h'</i> does not form</li> </ol> | Daily                 | Due IESO   | 13                                   | 13  | N/A                                 | N/A  |                       |



| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p>part of <i>energy bids</i> spanning at least four consecutive <i>settlement hours</i>, <math>DREBQ^{m_{k,h}} = 0</math>;</p> <p>(d) If the <i>demand response energy bid</i> submitted in the day-ahead commitment process for <i>settlement hour 'h'</i> is not equal to the <i>demand response energy bid</i> submitted in the <i>real-time market</i> for the same <i>settlement hour</i>, <math>DREBQ^{m_{k,h}}</math> shall be equal to the lesser of the two <i>demand response energy bids</i>; and</p> <p>Notwithstanding any of the foregoing, <math>DREBQ^{m_{k,h}}</math> shall not exceed the <math>CARC^{m_k}</math> for the <i>hourly demand response resource</i> or <i>capacity dispatchable load resource</i>, as the case may be.</p> <p>In regards to a <i>capacity market participant</i> participating with a <i>capacity generation resource</i>, <i>system-backed capacity import resource</i>, <i>generator-backed capacity import resource</i> or <i>capacity storage resource</i>:</p> $\sum_H (-1) \times \text{Max}(0, (CCO^{m_{k,h}} - CAEO^{m_{k,h}})) \times CACP^z_h \times CNPF_{tm}$ <p>Where:</p> <p>(a) 'H' is the set of all <i>settlement hours</i> within the <i>availability window</i> during the relevant <i>trading day</i>;</p> <p>(b) If the <i>capacity market participant</i> did not submit an <i>energy offer</i> in the day-ahead commitment process or maintain such <i>energy offer</i> in accordance with the applicable <i>market manual</i> for <i>settlement hour 'h'</i>, <math>CAEO^{m_{h,k}} = 0</math>;</p> <p>(c) If the <i>energy offer</i> submitted in the day-ahead commitment process for <i>settlement hour 'h'</i> is not equal to the <i>energy offer</i> submitted in the <i>pre-dispatch hour</i> for the same <i>settlement hour</i>, <math>CAEO^{m_{h,k}}</math> shall be equal to the lesser of the two <i>energy offers</i>;</p> <p>(d) If a <i>capacity storage resource</i> receives a non-zero <i>energy dispatch instruction</i> within the relevant <i>availability window</i>, the <math>CAEO^{m_{h,k}}</math> for the remaining <i>settlement hours</i> of the <i>availability window</i> after receiving such non-zero <i>energy dispatch instruction</i> shall be equal to</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number  | Charge Type Name   | Settlement Amount Acronym   | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|---------------------|--|---|------------------------|---|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|--|
|                     |  |   |                        | the <i>energy offer</i> applicable to the <i>settlement hour</i> in which they receive such non-zero <i>energy dispatch instruction</i> .   |                       |                                 |                                      |   |                                     |  |  |
| 1320<br>MRP updated | Capacity Obligation – Dispatch Test Payment and Emergency Activation Payment             | CATAP <sup>m<sub>k,h</sub></sup> and CAEOP <sup>m<sub>k,h</sub></sup> | 9.4.7J.5               | <p><b>For capacity auction dispatch test activations:</b><br/> <math>HDRTAPR \times HDRDC^{m_{k,h}}</math></p> <p><b>For emergency operating state activations:</b><br/> <math>Max(0, HDRBP^{m_{k,h}} - Max(0, HOEP_h)) \times HDRDC^{m_{k,h}}</math></p>   | Hourly                | Due MP                          | 13                                   | 13  | N/A                                 | N/A  |  |
| 1330                | On behalf of the former OPA for the DR2 Program - Availability Payment Settlement Amount | N/A   | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1330 ENDED ON FEBRUARY 28, 2015.**</b></p> $= \sum_H CoMW_h \times AR \times ILSR$ <p>Where:<br/>                     'CoMW' (Contracted MW), means the MW specified in the DR2 Schedule(s) for a given Settlement Account which the Participant agrees to Load Shift in each On-Peak Contract hour.<br/>                     'AR' (Availability Rate), means the availability rate, expressed in \$/MW, in the amount as specified by the OPA from time to time on the OPA Website pursuant to the DR2 Program Rules.<br/>                     'H' is the total On-Peak contract hours in a Contract Month.<br/>                     'ILSR' (Implied Load Shift Ratio), has the meaning as defined in OPA's DR2 Program Rules and is calculated as follows:<br/> <math>ILSR = (-1) \times [Implied Load Shift - ((3/4)(Load Shift Credit))] / Implied Load Shift Requirement</math></p> | Monthly               | Due DR2-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|
| 1331               | On behalf of the former OPA for the DR2 Program - Availability Set-Off Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1331 ENDED ON FEBRUARY 28, 2015.**</b></p> <p>The charge to a DR participant is the highest of amounts A, B or C plus amount D; where A, B and C cannot occur within an on-peak period that was subject to D.</p> <p><b>A: Availability Set-Off (Reliability)</b><br/> <math>= \sum_H \text{PSO}_h \times \text{AR} \times \text{CoMW}_h \times \text{ILSR}</math></p> <p>This formula applies when the Actual MW Reliability Ratio for a given Settlement Account is less than 95% during the Summer and Winter seasons and less than 90% during the shoulder seasons. The Actual MW Reliability Ratio, which shall not be greater than 100%, shall be calculated as follows:</p> <ul style="list-style-type: none"> <li>- For each On-Peak Contract Hour, the Actual MW Reliability Ratio is defined as the result of the baseline MW minus the actual MW divided by the confirmed MW.</li> </ul> <p>'PSO' (Performance Set-Off Factor) refers to a set of factors defined in the OPA DR2 Program Rules.<br/>                     'AR' has the same meaning as in CT1330.<br/>                     'CoMW' has the same meaning as in CT1330.<br/>                     'H' is the set of all hours 'h' in the On-Peak Contract period where the required reliability is not met.<br/>                     'ILSR' has the same meaning as in CT1330.</p> <p><b>B: Availability Set-Off (Timely Confirmation)</b><br/> <math>= \text{PSO} \times \text{AR} \times \text{CoMW}_h \times \text{H} \times \text{ILSR}</math></p> | Monthly               | Due DR2-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA Program Rules. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p>This formula applies when the Participant has failed to deliver, or delivers late, a Confirmation that is required by the IESO pursuant to the DR2 Program Rules.</p> <p>Where:<br/>                     'PSO' has the same meaning as defined above.<br/>                     'AR' has the same meaning as in CT1330.<br/>                     'CoMW' has the same meaning as in CT1330.<br/>                     'H' is the set of all hours in the On-Peak Contract period.<br/>                     'ILSR' has the same meaning as in CT1330.</p> <p><b>C: Availability Set-Off (Low Confirmation)</b><br/> <math>= \sum_H \text{PSO} \times \text{AR} \times (\text{CoMW}_h - \text{CMW}) \times \text{ILSR}</math></p> <p>This formula applies when the Confirmed MW is less than the product of the Required Reliability Ratio and the Contracted MW for one or more On-Peak Contract hours.</p> <p>Where:<br/>                     'PSO' has the same meaning as defined above.<br/>                     'AR' has the same meaning as in CT1330.<br/>                     'CoMW' has the same meaning as in CT1330.<br/>                     'CMW' (Confirmed MW) means the number of MW available to shift by the Participant.<br/>                     'H' is the set of all confirmed hours 'h' when the Confirmed MW's are:</p> <ul style="list-style-type: none"> <li>- Less than 95% during the Summer and Winter seasons or</li> <li>- Less than 90% during the shoulder seasons</li> </ul> <p>of the Contracted MW.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |   |                           |                        | <p>'ILSR' has the same meaning as in CT1330.</p> <p><b>D: Availability Set-Off (Non-Performance)</b><br/> <math>= PSO \times AR \times CoMW_h \times H \times ILSR</math></p> <p>This formula applies when the Participant has taken an Extended Planned Non-Performance Event or Single Day Planned Non-Performance Event.</p> <p>Where:<br/>                     'PSO' has the same meaning as defined above.<br/>                     'AR' has the same meaning as in CT1330.<br/>                     'CoMW' has the same meaning as in CT1330.<br/>                     'H' is the set of all hours in the On-Peak Contract period.<br/>                     'ILSR' has the same meaning as in CT1330.</p> |                       |                                 |                                      |   |                                     |  |   |
| 1332               | On behalf of the former OPA for the DR2 Program - Utilization Payment Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1332 ENDED ON FEBRUARY 28, 2015.**</b></p> <p>The monthly Utilization Payment to a DR2 participant is the sum of the weekly utilization payments for the contract month and calculated as follows:<br/>                     Weekly Utilization payment<br/> <math>= \sum_P \text{Max}[(GHDiff - AHDiff), 0] \times \text{Min}[(CoMWh \times 1.15), (Curt_p)] \times ILSR</math></p> <p>Where:<br/>                     'GHDiff' (Guaranteed weekly HOEP Differential), means the weekly differential rate, expressed in \$/MWh, as specified by the OPA</p>  | Monthly               | Due DR2-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 settlement statements and invoice. |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |   |                           |                        | <p>'AHDiff' (Actual weekly HOEP Differential), is equal to the average actual HOEP for all hours of the useable On-Peak Contract Periods in the Week less the average actual HOEP for all hours in the Off-Peak Period for the same Week.</p> <p>'CoMWh' (Contracted MWh), means the MWh specified in the DR2 Schedule(s) for a given Settlement Account which the Participant agrees to Load Shift in each On-Peak Contract Period.</p> <p>'Curt' (Curtailed), means the number of MWh Curtailed by a Participant for each useable on-peak contract period, and shifted to the off-peak period as measured through the use of electricity meter(s).</p> <p>'P' is the total number of On-Peak Contract Periods 'p' for a Participant in a Contract Week</p> <p>'ILSR' has the same meaning as in CT1330.</p>   |                       |                                 |                                      |   |                                     |  |   |
| 1333               | On behalf of the former OPA for the DR2 Program - Utilization Set-Off Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1333 ENDED ON FEBRUARY 28, 2015.**</b></p> <p>The charge to a DR participant is highest of <b>A, B</b> or <b>C</b> where A, B and C cannot occur within an on-peak period that was subject to an Availability Set-Off (Non-Performance) event:</p> <p><b>A: Utilization Set-Off (Reliability)</b></p> $= \sum_p \text{PSO} \times \text{Max}[(\text{GHDiff} - \text{AHDiff}), 0] \times \text{CoMWh}_p \times \text{ILSR}$ <p>This formula applies when the Actual MWh Reliability Ratio for a given Settlement Account is less than 95% during the Summer and Winter seasons and less than 90% during the shoulder seasons.</p> <p>The Actual MWh Reliability Ratio, which shall not be greater than 100%, shall be calculated as follows:</p> <ul style="list-style-type: none"> <li>- For each On-Peak Contract Period, the Actual MWh Reliability Ratio is defined as the result of the baseline MWh minus the actual MWh</li> </ul> | Monthly               | Due DR2-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 settlement statements and invoice. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p>divided by the product of the confirmed MW and the On-Peak Contract Hours.</p> <p>Where:</p> <p>'PSO' (Performance Set-Off Factor) refers to a set of factors defined in the OPA's Program Rules.</p> <p>'GHDiff' has the same meaning as in CT1332.</p> <p>'AHDiff' has the same meaning as in CT1332.</p> <p>'CoMWh' has the same meaning as in CT1332.</p> <p>'P' is the total number of On-Peak Contract Periods 'p' for a Participant in a Contract Month.</p> <p>'ILSR' has the same meaning as in CT1330.</p> <p><b>B: Utilization Set-Off (Timely Confirmation)</b></p> $= \sum_p \text{PSO} \times \text{Max}[(\text{GHDiff} - \text{AHDiff}), 0] \times \text{CoMWh}_p \times \text{ILSR}$ <p>This formula applies when the Participant has failed to deliver, or delivers late, a Confirmation that is required by the IESO pursuant to the DR2 Program Rules.</p> <p>Where:</p> <p>'PSO' has the same meaning as defined above.</p> <p>'GHDiff' has the same meaning as in CT1332.</p> <p>'AHDiff' has the same meaning as in CT1332.</p> <p>'CoMWh' has the same meaning as in CT1332.</p> <p>'P' is the total such On-Peak Contract Periods 'p' for a Participant in a Contract Month when the Participant has failed to deliver, or delivers late, a Confirmation.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |  |                           |                        | <p>'ILSR' has the same meaning as in CT1330.</p> <p><b>C: Utilization Set-Off (Low Confirmation)</b><br/> <math>= \sum_P \text{PSO} \times \text{Max}[(\text{GHDiff} - \text{AHDiff}), 0] \times (\text{CoMWh} - \text{CMWh}_p) \times \text{ILSR}</math></p> <p>This formula applies when the Confirmed MWh are less than the product of the Required Reliability Ratio and the Contracted MWh for an On-Peak Contract Period.</p> <p>Where:</p> <p>'PSO' has the same meaning as defined above.<br/>                     'GHDiff' has the same meaning as in CT1332.<br/>                     'AHDiff' has the same meaning as in CT1332.<br/>                     'CoMWh' has the same meaning as in CT1332.<br/>                     'CMWh' (Confirmed MWh) means the MWh available confirmed for shifting by the Participant.<br/>                     'P' is the total such On-Peak Contract Periods 'p' for a Participant in a Contract Month.<br/>                     'ILSR' has the same meaning as in CT1330.</p> |                       |                                 |                                      |   |                                     |  |   |
| 1334               | On behalf of the former OPA for the DR2 Program – Meter Data Set-Off Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1334 ENDED ON FEBRUARY 28, 2015.**</b></p> $= \text{MDSF} \times (\text{TD}_{k,1330} / \text{NoW}_k)$ <p>This formula applies when the complete set of weekly meter data for a Settlement Account is not received by 15:00 EST on the first Business Day</p>  | Monthly               | Due DR2-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 settlement statements and invoice. |



| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |  |                           |                        | <p>of the following week. The formula recovers a percentage of the Availability Payment, as pro-rated for that week in question.</p> <p>Where:<br/>                     'MDSF' (Meter Data Set-Off Factor), is an increasing factor for every week that the full data remains undelivered. The factor is equal to:</p> <ul style="list-style-type: none"> <li>- 20% for the first week that the full data remains undelivered;</li> <li>- 33% for the second week that the full data remains undelivered;</li> <li>- 50% for the third week that the full data remains undelivered; and</li> <li>- 100% for the fourth week that the full data remains undelivered.</li> </ul> <p><math>TD_{k,1330}</math> is the <i>settlement amount of charge type 1330</i> for month 'k' for the DR2 participant.<br/>                     'NoW' (Number of Weeks) means the number of Weeks contained in the Contract month.<br/>                     'k' is the Contract month.</p> |                       |                                 |                                      |   |                                     |  |  |
| 1335               | On behalf of the former OPA for the DR2 Program - Buy-Down Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1335 ENDED ON FEBRUARY 28, 2015.**</b></p> <p>Buy-Down means the act by the Participant of reducing its Contracted MW and/or the number of On-Peak Contract hours from participation in DR2.</p> <p>For the Buy-Down of Seasonal Contracted MW the payment is:<br/>                     = (SCMWR x BDR x CHE)</p> <p>Where:</p>  | Monthly               | Due DR2-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |   |                           |                        | <p>'SCMWR' (Seasonal Contracted MW Reduction), means the MW of demand reduction in the Seasonal Contracted MWs.</p> <p>'BDR' (Buy-Down Rate), means the Buy-Down Rate, expressed in \$/MW.</p> <p>'CHE' (on-peak Contract Hours Elapsed), means the number of On-Peak Contract Hours that have elapsed in the Schedule Term up to the date that the reduction takes effect.</p> <p>For the Buy-Down of the number of On-Peak Contract hours, the payment is:<br/>                     = (CoMW x PRCH x BDR x CHE)</p> <p>Where:<br/>                     'CoMW' has the same meaning as in CT1330.<br/>                     'PRCH' (Percent Reduction in Contract Hours), means the percent reduction in On-Peak Contract Hours requested.<br/>                     'BDR' has the same meaning as defined above.<br/>                     'CHE' has the same meaning as defined above.</p> |                       |                                 |                                      |   |                                     |  |   |
| 1336               | On behalf of the former OPA for the DR2 Program - Miscellaneous Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1336 ENDED ON FEBRUARY 28, 2015.**</b></p> <p>Reserved for DR2 payments or charges of a miscellaneous nature not specifically covered under Charge Types 1330 through 1335.</p>   | Monthly               | Due DR2-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 settlement statements and invoice. |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|
| 1340               | On behalf of the former OPA for the DR3 Program – Availability Payment Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1340 ENDED ON APRIL 30, 2015.**</b></p> <p>= <math>H_A \times MCMW_h \times AAR</math></p> <p>Where:</p> <p>'HA' (Hours of Availability), means those hours within which a Participant shall maintain a Contracted Dispatch Period to be available for potential Curtailment of that Participant's Monthly Contracted MW.</p> <p>'MCMW' (Monthly Contracted MW), means the MW of demand reduction capacity for a specific Contract Month as identified in one or more DR3 Contact Schedule(s).</p> <p>'AAR' (Adjusted Availability Rate), means an amount equal to the Availability Rate, expressed in \$/MWh, as increased by the Availability Premium or as decreased by the Availability Discount, as the case may be.</p> <p>'H' is the total hours a Participant is available in a Contract Month.</p> | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|--|
| 1341               | On behalf of the former OPA for the DR3 Program – Availability Over-Delivery Settlement Amt | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1341 ENDED ON APRIL 30, 2015.**</b></p> $= \sum_H (CMW_h - MCMW_h) \times AODR_h$ <p>Applicable only in response to an open standby notification.</p> <p>Where:<br/>                     'CMW' (Confirmed MW), means the number of MW available for Curtailment by the Participant. 'CMW' is limited to the lesser of the Monthly Contracted MW plus 15 MW and 130% of the Monthly Contracted MW.<br/>                     'MCMW' has the same meaning as in CT1340.<br/>                     'AODR' (Availability Over-Delivery Rate), means the over-delivery rate as specified by the OPA.<br/>                     'H' is the set of all hours 'h' in the Contract month where the 'CMW' exceeded the 'MCMW'.</p> | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |
| 1342               | On behalf of the former OPA for the DR3 Program – Availability Set-Off Settlement Amount    | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1342 ENDED ON APRIL 30, 2015.**</b></p> <p>The charge to a DR participant is highest of <b>A, B</b> or <b>C</b>:</p> <p><b>A: Availability Set-Off (Reliability)</b></p> $= \sum_H PSO_h \times AAR \times MCMW_h$ <p>This formula applies when the Reliability Rate for a given Settlement Point is less than 85% during any meter interval of an Activation Hour, or where the Participant is not Fully Available for Curtailment as defined in the OPA DR3 Program Rules.</p>  | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p>Where:<br/>                     For each metered interval, the Reliability Rate at a settlement point is defined as the actual reduction divided by the requested reduction; however, the Reliability Rate cannot exceed 100%.<br/>                     'PSO' (Performance Set-Off Factor) refers to a set of factors defined in the OPA DR3 Program Rules.</p> <p>'AAR' has the same meaning as in CT1340.<br/>                     'MCMW' has the same meaning as in CT1340.<br/>                     'H' is the set of all activation hours 'h' for the activation period.</p> <p><b>B: Availability Set-Off (Timely Confirmation)</b><br/> <math>= PSO \times AAR \times MCMW_h \times CDP</math></p> <p>This formula applies when the Participant, regardless of Activation, has failed to deliver, or delivers late, a Confirmation that is required by the IESO pursuant to the DR3 Program Rules.</p> <p>Where:<br/>                     'CDP' (Contracted Dispatch Period) means four consecutive hours. Each Contracted Dispatch Period shall occur within the hours of Availability, and shall occur within and no more than once in accordance with the Daily Schedule.<br/>                     'PSO' has the same meaning as defined above.</p> <p>'AAR' has the same meaning as in CT1340.<br/>                     'MCMW' has the same meaning as in CT1340.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |   |                           |                        | <p><b>C: Availability Set-Off (Low Confirmation)</b><br/> <math>= \sum_H (PSO \times AAR \times (MCMW_h - CMW))</math></p> <p>This formula applies when the Confirmed MW's are less than 95% of the Monthly Contracted MW for a Confirmed Hour of the Contracted Dispatch Period.</p> <p>Where:<br/>                     'PSO' has the same meaning as defined above.<br/>                     'AAR' has the same meaning as in CT1340.<br/>                     'MCMW' has the same meaning as in CT1340.<br/>                     'CMW' has the same meaning as in CT1341.</p> <p>'H' is the set of all confirmed hours 'h' when the Confirmed MW's are less than 95% of the Monthly Contracted MW for the Contracted Dispatch Period.</p> |                       |                                 |                                      |   |                                     |  |  |
| 1343               | On behalf of the former OPA for the DR3 Program – Utilization Payment Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1343 ENDED ON APRIL 30, 2015.**</b></p> $= [\sum_H (Curt_h \times UR_h)] - [\sum_H (NG_h \times \text{MIN}(\text{HOEP}, UR_h))]$ <p>Where:<br/>                     'Curt' (Curtailment), means the number of MWh Curtailed by a Participant when requested by the IESO, as measured through the use of electricity meter(s). Curtailment shall not exceed the product of the Activation MW and the activation period requested by the IESO, plus the lesser of an additional 15% of the Activation MW per hour of the activation period, OR 15 MWh per hour of the activation period.</p>  | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |   |                           |                        | 'UR' (Utilization Rate), means the rates, expressed in \$/MWh, as specified by the <i>OPA</i> .<br>'NG' (Net Generation), means the MWh of net electricity generated by any contributor that is a behind the meter generator.<br>'H' is the total hours 'h' a Participant is activated in a Contract Month.  |                       |                                 |                                      |   |                                     |  |  |
| 1344               | On behalf of the former OPA for the DR3 Program – Utilization Set-Off Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1344 ENDED ON APRIL 30, 2015.**</b></p> <p>The charge to a DR participant is highest of <b>A, B</b> or <b>C</b>:</p> <p><b>A: Utilization Set-Off (Reliability)</b><br/> <math>= \sum_H \text{PSO}_h \times \text{UR} \times \text{MCMW}_h</math></p> <p>This formula applies when the Reliability Rate for a given Settlement Point is less than 85% during any meter interval of an Activation Hour.</p> <p>Where:<br/>                     For each metered interval, the Reliability Rate at a settlement point is defined as the actual reduction divided by the requested reduction; however, the Reliability Rate cannot exceed 100%.<br/>                     'PSO' (Performance Set-Off Factor) refers to a set of factors defined in the <i>OPA's</i> Program Rules.<br/>                     'UR' has the same meaning as in CT1343.<br/>                     'MCMW' has the same meaning as in CT1340.<br/>                     'H' is the set of all activation hours 'h' for the activation period.</p> <p><b>B: Utilization Set-Off (Timely Confirmation)</b><br/> <math>= \text{PSO} \times \text{UR} \times \text{MCMW}_h \times \text{CDP}</math></p> | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former <i>OPA</i> DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p>This formula applies when the Participant, regardless of Activation, has failed to deliver, or delivers late, a Confirmation that is required by the <i>IESO</i> pursuant to the DR3 Program Rules.</p> <p>Where:<br/>                     'CDP' (Contracted Dispatch Period) means four consecutive hours. Each Contracted Dispatch Period shall occur within the hours of Availability, and shall occur within and no more than once in accordance with the Daily Schedule.<br/>                     'PSO' has the same meaning as defined above.<br/>                     'UR' has the same meaning as in CT1343.<br/>                     'MCMW' has the same meaning as in CT1340</p> <p><b>C: Utilization Set-Off (Low Confirmation)</b><br/> <math>= \sum_H (PSO \times UR \times (MCMW_h - CMW))</math></p> <p>This formula applies when the Confirmed MW's are less than 95% of the Monthly Contracted MW for a Confirmed Hour of the Contracted Dispatch Period.</p> <p>Where:<br/>                     'PSO' has the same meaning as defined above.<br/>                     'UR' has the same meaning as in CT1343.<br/>                     'MCMW' has the same meaning as in CT1340.<br/>                     'CMW' has the same meaning as in CT1341.</p> <p>'H' is the set of all confirmed hours 'h' when the Confirmed MW's are less than 95% of the Monthly Contracted MW for the Contracted Dispatch Period.</p> |                       |          |                                      |   |                                     |  |          |



| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|--|
| 1345               | On behalf of the former OPA for the DR3 Program – Planned Non-Performance Event Set-Off Amt | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1345 ENDED ON APRIL 30, 2015.**</b></p> <p>The Planned Non-Performance Availability Set-Off applies for any day for which a participant has requested a Non-Performance Event as part of either a Single Day Non-Performance Event or a part of an Extended Period Planned Non-Performance Event.</p> <p>The monthly set-off calculation is the sum of all:</p> <ol style="list-style-type: none"> <li>Non-Activation Day Non-Performance Availability Set-Off s and</li> <li>Activation Day Non-Performance Availability Set-Offs.</li> </ol> <p>For 1.) The Non-Activation Day Non-Performance Availability Set-Off amount is:<br/> <math>= (AAR \times MCMW_h \times HANE_H)</math></p> <p>Where:<br/>                     'AAR' has the same meaning as in CT1340.<br/>                     'MCMW' has the same meaning as in CT1340.<br/>                     'HANE' (Hours of Availability for a Non-Performance Event), represents the Hours of Availability for all days in the contract month for which a planned Non-Performance Event is requested and for which an Activation Notice is not received by the participant.</p> <p>For 2.) The Activation Day Non-Performance Availability Set-Off amount is:<br/> <math>= (OH \times AAR \times MCMW_h \times NEWF_H)</math></p> <p>Where:</p> | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |  |                           |                        | 'OH' (Opportunity Hours), means 64 if Option A is applicable to the Settlement Account; or 32 if Option B is applicable to the Settlement Account.<br>'AAR' has the same meaning as in CT1340.<br>'MCMW' has the same meaning as in CT1340.<br>'NEWF' (Non-Performance Event Weighting Factor), means 50%, if the Actual Activated MWh per interval, as averaged over all of the Intervals in the Contracted Dispatch Period for the Activation, is greater than or equal to the product of the Monthly Contracted MW and 1/12 of an hour; or 100% otherwise. |                       |                                 |                                      |   |                                     |  |   |
| 1346               | On behalf of the former OPA for the DR3 Program – Meter Data Set-Off Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1346 ENDED ON APRIL 30, 2015.**</b></p> $= \text{MDSF} \times (\text{HA}_H \times \text{MCMW}_h \times \text{AAR})$ <p>This formula applies when the complete set of weekly meter data and proof of any Forced Outage(s) for a Settlement Account is not received by</p>   | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |  |                           |                        | <p>15:00 EST on the first Business Day of the following week. The formula recovers a percentage of the availability payment for the applicable week.</p> <p>Where:</p> <p>'MDSF' (Meter Data Set-Off Factor), is an increasing factor for every week that the full data remains undelivered. The factor is equal to:</p> <ul style="list-style-type: none"> <li>- 20% for the first week that the full data remains undelivered;</li> <li>- 33% for the second week that the full data remains undelivered;</li> <li>- 50% for the third week that the full data remains undelivered; and</li> <li>- 100% for the fourth week that the full data remains undelivered.</li> </ul> <p>'HA' has the same meaning as in CT1340.<br/>                     'MCMW' has the same meaning as in CT1340.<br/>                     'AAR' has the same meaning as in CT1340.<br/>                     'H' is the total hours a Participant is available for the applicable week.</p> |                       |                                 |                                      |   |                                     |  |  |
| 1347               | On behalf of the former OPA for the DR3 Program – Buy-Down Settlement Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1347 ENDED ON APRIL 30, 2015.**</b></p> <p>Buy-Down means the act by the Participant of reducing its Monthly Contracted MW and/or removing Daily Schedules from participation in DR3.</p> <p>For the Buy-Down of Monthly Contracted MW the payment is:<br/>                     = (MCMWR x BDR x HAE)</p> <p>Where:</p>   | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow                        | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |  |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---------------------------------|--------------------------------------|---|-------------------------------------|--|---|--|
|                    |   |                           |                        | <p>'MCMWR' (Monthly Contracted MW Reduction), means the MW of demand reduction in the Monthly Contracted MWs.</p> <p>'BDR' (Buy-Down Rate), means the Buy-Down Rate, expressed in \$/MW.</p> <p>'HAE' (Hours of Availability Elapsed), means the number of Hours of Availability that have elapsed in the Schedule Term up to the date that the reduction takes effect.</p> <p>For the Buy-Down of the Daily Schedules the payment is:<br/>= (MCMW x RD x BDR x HAE)</p> <p>Where:<br/>'MCMW' has the same meaning as in CT1340.<br/>'RD' (Requested Days), means the number of Business Days per week from which the Hours of Availability are to be removed.<br/>'BDR' has the same meaning as defined above.<br/>'HAE' has the same meaning as defined above.</p> |                       |                                 |                                      |   |                                     |  |   |  |
| 1348               | On behalf of the former OPA for the DR3 Program – Miscellaneous Settlement Amount | N/A                       | N/A                    | <p><b>**<u>CALCULATIONS FOR CHARGE TYPE 1348 ENDED ON APRIL 30, 2015.</u>**</b></p> <p>Reserved for DR3 payments or charges of a miscellaneous nature not specifically covered under Charge Types 1340 through 1347.</p>   | Monthly               | Due DR3-participants Either way | 13                                   | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice.    |  |
| 1380               | Demand Response 2 Availability Payment Balancing Amount                           | N/A                       | N/A                    | <p><b>**<u>CALCULATIONS FOR CHARGE TYPE 1380 ENDED ON FEBRUARY 28, 2015.</u>**</b></p> <p><math>\Sigma_k TD_{k,1330}</math></p>  | Monthly               | Due OPA                         | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 settlement statements and invoice. |  |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
|                    |   |                           |                        | <p>Where 'K' is the set of all DR2 participants 'k'.</p> <p>Where <math>TD_{k,1330}</math> is the <i>settlement amount of charge type 1330</i> for the month for DR2 participant 'k'.</p>  |                       |          |                                      |   |                                     |  |  |
| 1381               | Demand Response 2 Availability Set-Off Balancing Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1381 ENDED ON FEBRUARY 28, 2015.**</b></p> $\sum_k TD_{k,1331}$ <p>Where 'K' is the set of all DR2 participants 'k'.</p> <p>Where <math>TD_{k,1331}</math> is the <i>settlement amount of charge type 1331</i> for the month for DR2 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |
| 1382               | Demand Response 2 Utilization Payment Balancing Amount  | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1382 ENDED ON FEBRUARY 28, 2015.**</b></p> $\sum_k TD_{k,1332}$ <p>Where 'K' is the set of all DR2 participants 'k'.</p> <p>Where <math>TD_{k,1332}</math> is the <i>settlement amount of charge type 1332</i> for the month for DR2 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name                                       | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
| 1383               | Demand Response 2 Utilization Set-Off Balancing Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1383 ENDED ON FEBRUARY 28, 2015.**</b></p> $\sum_k TD_{k,1333}$ <p>Where 'K' is the set of all DR2 participants 'k'.</p> <p>Where <math>TD_{k,1333}</math> is the <i>settlement amount of charge type 1333</i> for the month for DR2 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |
| 1384               | Demand Response 2 Meter Data Set-Off Balancing Amount  | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1384 ENDED ON FEBRUARY 28, 2015.**</b></p> $\sum_k TD_{k,1334}$ <p>Where 'K' is the set of all DR2 participants 'k'.</p> <p>Where <math>TD_{k,1334}</math> is the <i>settlement amount of charge type 1334</i> for the month for DR2 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |
| 1385               | Demand Response 2 Buy-Down Balancing Amount            | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1385 ENDED ON FEBRUARY 28, 2015.**</b></p> $\sum_k TD_{k,1335}$ <p>Where 'K' is the set of all DR2 participants 'k'.</p> <p>Where <math>TD_{k,1335}</math> is the <i>settlement amount of charge type 1335</i> for the month for DR2 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
| 1386               | Demand Response 2 Miscellaneous Balancing Amount              | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1386 ENDED ON FEBRUARY 28, 2015.**</b></p> $\sum_k TD_{k,1336}$ <p>Where 'K' is the set of all DR2 participants 'k'.<br/>Where <math>TD_{k,1336}</math> is the <i>settlement amount of charge type 1336</i> for the month for DR2 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR2 Contract. The DR2 program was last settled on the February 2015 <i>settlement statements</i> and invoice. |
| 1390               | Demand Response 3 Availability Payment Balancing Amount       | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1390 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1340}$ <p>Where 'K' is the set of all DR3 participants 'k'.<br/>Where <math>TD_{k,1340}</math> is the <i>settlement amount of charge type 1340</i> for the month for DR3 participant 'k'.</p>    | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice.    |
| 1391               | Demand Response 3 Availability Over-Delivery Balancing Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1391 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1341}$ <p>Where 'K' is the set of all DR3 participants 'k'.<br/>Where <math>TD_{k,1341}</math> is the <i>settlement amount of charge type 1341</i> for the month for DR3 participant 'k'.</p>    | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice.    |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|--|
| 1392               | Demand Response 3 Availability Set-Off Balancing Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1392 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1342}$ <p>Where 'K' is the set of all DR3 participants 'k'.<br/>Where <math>TD_{k,1342}</math> is the settlement amount of charge type 1342 for the month for DR3 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |
| 1393               | Demand Response 3 Utilization Payment Balancing Amount  | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1393 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1343}$ <p>Where 'K' is the set of all DR3 participants 'k'.<br/>Where <math>TD_{k,1343}</math> is the settlement amount of charge type 1343 for the month for DR3 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |
| 1394               | Demand Response 3 Utilization Set-Off Balancing Amount  | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1394 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1344}$ <p>Where 'K' is the set of all DR3 participants 'k'.<br/>Where <math>TD_{k,1344}</math> is the settlement amount of charge type 1344 for the month for DR3 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 settlement statements and invoice. |



| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
| 1395               | Demand Response 3 Planned Non-Event Set-Off Balancing Amount | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1395 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1345}$ <p>Where 'K' is the set of all DR3 participants 'k'.</p> <p>Where <math>TD_{k,1345}</math> is the <i>settlement amount of charge type 1345</i> for the month for DR3 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice. |
| 1396               | Demand Response 3 Meter Data Set-Off Balancing Amount        | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1396 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1346}$ <p>Where 'K' is the set of all DR3 participants 'k'.</p> <p>Where <math>TD_{k,1346}</math> is the <i>settlement amount of charge type 1346</i> for the month for DR3 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice. |
| 1397               | Demand Response 3 Buy-Down Balancing Amount                  | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1397 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1347}$ <p>Where 'K' is the set of all DR3 participants 'k'.</p> <p>Where <math>TD_{k,1347}</math> is the <i>settlement amount of charge type 1347</i> for the month for DR3 participant 'k'.</p> | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement statements</i> and invoice. |
| 1398               | Demand Response 3 Miscellaneous Balancing Amount             | N/A                       | N/A                    | <p><b>**CALCULATIONS FOR CHARGE TYPE 1398 ENDED ON APRIL 30, 2015.**</b></p> $\sum_k TD_{k,1348}$   | Monthly               | Due OPA  | 0                                    | N/A   | N/A                                 | N/A  | Former OPA DR3 Contract. The DR3 program was last settled on the April 2015 <i>settlement</i>                         |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow               | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|--------------------|--|---------------------------|------------------------|---|-----------------------|------------------------|--------------------------------------|---|-------------------------------------|--|---|
|                    |  |                           |                        | Where 'K' is the set of all DR3 participants 'k'.<br>Where TD <sub>k,1348</sub> is the <i>settlement amount of charge type 1348</i> for the month for DR3 participant 'k'.  |                       |                        |                                      |   |                                     |  | statements and invoice.   |
| 1415               | Conservation Assessment Recovery                             | N/A                       | N/A                    | $\sum_{H,M} TD \times (\sum_{H^M,T} AQEW_{k,h^m,t} / (\sum_{K,H^M,T} AQEW_{k,h^m,t}))$<br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the year 2009.<br>Where 'K' is the set of all non-LDC load <i>market participants</i> 'k'.<br>Where 'M' is the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'.<br>Where 'TD' equals the value assessed by the <i>OEB</i> . | Monthly               | Due Non-LDC Load       | 13                                   | N/A   | N/A                                 | N/A  | Implementation details subject to government regulation.  |
| 1427               | Non-Hydro Renewables Funding Amount                          | N/A                       | N/A                    | <b>** CALCULATIONS FOR CHARGE TYPE 1427 END MARCH 31, 2022 **</b><br><br>Manual entry as per Ontario Transfer Payment Agreement.  | Monthly               | Due IESO               | 13                                   | N/A   | N/A                                 | N/A  | Ontario Regulation 735/20   |
| 1465               | Ontario Clean Energy Benefit (-10%) Program Balancing Amount | N/A                       | N/A                    | <b>** PROGRAM END DECEMBER 31, 2015 **</b><br><br>$\sum_K TD_{k,9992}$<br>Where 'K' is the set of all <i>market participants</i> 'k'.<br>Where TD <sub>k,9992</sub> is the <i>settlement amount of charge type 9992</i> for the month for <i>market participant</i> 'k'.  | Monthly               | Due Ministry of Energy | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 495/10.                                      |
| 1470               | Ontario Electricity Support Program Balancing Amount         | N/A                       | N/A                    | <b>** CHARGE TYPE 1470 REPLACED BY CHARGE TYPE 2470 EFFECTIVE FEBRUARY 1, 2018 **</b><br><br>$\sum_{H^M,T} (AQEW_{k,h^m,t} + EGEI_k) \times TP$<br><br>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.  | Monthly               | Due IESO               | 13                                   | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 314/15.<br>TP rate subject to OEB regulation |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |  |                           |                        | Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.  |                       |            |                                      |   |                                     |  |  |
| 1487               | Non-Hydro Renewables Funding Balancing Amount                                      | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 1427 END MARCH 31, 2022 **</b></p> <p>TD<sub>1427</sub></p>   | Monthly               | Due IESO   | 13                                   | N/A   | N/A                                 | N/A  | Ontario Regulation 735/20  |
| 1500 MRP retired   | Day-Ahead Production Cost Guarantee Payment – Component 1 and Component 1 Clawback | DA_PCG_COMP1              | 9.4.7D.4               | <p><math>\sum^T</math> (Component 1 – Component1 Clawback)</p> <p><b>Component 1:</b><br/> <math>-1 \times OP(EMP_h^{m,t}, \text{MIN}(DA\_DQSI_{k,h}^{m,t}, DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), DA\_BE) + DA\_SNLC_{k,h}^m/12</math></p> <p><b>Component 1 Clawback:</b><br/> <math>-1 \times OP(EMP_h^{m,t}, \text{MIN}(MLP_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), DA\_BE) + DA\_SNLC_{k,h}^m/12</math></p> <p>Where:<br/>                     T is the set of metering intervals in the settlement hour h.<br/>                     'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8B.2.</p> <p>For a combustion turbine resource associated to a pseudo unit:</p> <p><b>Component 1:</b><br/> <math>-1 \times OP(EMP_h^{m,t}, \text{MIN}(DA\_DQSI_{k,h}^{m,t}, DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), DIP_{k,h}^{m,t}) + (DA\_SNLC_{k,h}^m/12) * (1 - PST_{k,h}^{p,t})</math></p> <p><b>Component 1 Clawback:</b><br/> <math>-1 \times OP(EMP_h^{m,t}, \text{MIN}(MLP\_CONS_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), DIP_{k,h}^{m,t}) + (DA\_SNLC_{k,h}^m/12) * (1 - PST_{k,h}^{p,t})</math></p> | Hourly                | Either Way | 13                                   | N/A   | N/A                                 | N/A  | <p><b>Component 1</b> applies to Variants 1, 2 and 3.</p> <p><b>Component 1 Clawback</b> applies to Variant 2 only.</p> <p>For a description of Production Cost Guarantee Variants, refer to Market Rules 9.4.7D.2.1</p> |

| Charge Type Number     | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|------------------------|---|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|---|
|                        |   |                           |                        | <p>For a steam turbine resource associated to a pseudo unit:</p> <p><b>Component 1:</b><br/> <math>-1 \times OP(EMP_{h^{m,t}}, \min(DIGQ_{k,h^{m,t}}, DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}}), DIPC_{k,h^{m,t}}) + (DA\_SNLC_{k,h^m}/12) * PST_{k,h^{p,t}}</math></p> <p><b>Component 1 Clawback:</b><br/> <math>-1 \times OP(EMP_{h^{m,t}}, \min(MLP\_CONS_{k,h^{m,t}}, AQEI_{k,h^{m,t}}), DIPC_{k,h^{m,t}}) + (DA\_SNLC_{k,h^m}/12) * PST_{k,h^{p,t}}</math></p>  |                       |            |                                      |   |                                     |  |   |
| 1501<br>MRP<br>retired | Day-Ahead<br>Production<br>Cost Guarantee<br>Payment –<br>Component 2 | DA_PCG_COMP2              | 9.4.7D.4               | <p><math>\sum^T (XDA\_BE_{k,h^{m,t}} - \max(0, XBE_{k,h^{m,t}}))</math></p> <p>Where:<br/>                     T is the set of metering intervals in the settlement hour h.</p> <p><math>XDA\_BE_{k,h^{m,t}} = (-1) * [OP(EMP_{h^{m,t}}, \min(DA\_DQSI_{k,h^{m,t}}, OPCAP_{k,h^{m,t}}), DA\_BE) - OP(EMP_{h^{m,t}}, \min(DA\_DQSI_{k,h^{m,t}}, OPCAP_{k,h^{m,t}}, \max(DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}})), DA\_BE)]</math></p> <p><math>XBE_{k,h^{m,t}} = (-1) * [OP(EMP_{h^{m,t}}, \min(DA\_DQSI_{k,h^{m,t}}, OPCAP_{k,h^{m,t}}), BE) - OP(EMP_{h^{m,t}}, \min(DA\_DQSI_{k,h^{m,t}}, OPCAP_{k,h^{m,t}}, \max(DQSI_{k,h^{m,t}}, AQEI_{k,h^{m,t}})), BE)]</math></p> <p>Where:</p> | Hourly                | Either Way | 13                                   | N/A   | N/A                                 | N/A  | <p><b>Component 2</b><br/>                     applies to Variants 1, 2 and 3.</p> <p>For a description of Production Cost Guarantee Variants, refer to Market Rules 9.4.7D.2.1</p> |

| Charge Type Number     | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|------------------------|--|---------------------------|------------------------|--|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
|                        |  |                           |                        | <p>'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8B.2.</p> <p><math>EMP_{h^{m,t}} = 0.</math></p> <p>For a combustion turbine and a steam turbine resources associated to a pseudo unit:<br/>DA_BE is replaced with <math>DIPC_{k,h^{m,t}}</math>.</p> <p>For a steam turbine resource associated to a pseudo unit:<br/>DA_DQSI<math>_{k,h^{m,t}}</math> is replaced with the <math>DIGQ_{k,h^{m,t}}</math></p>  |                       |            |                                      |   |                                     |  |  |
| 1502<br>MRP<br>retired | Day-Ahead Production Cost Guarantee Payment – Component 3 and Component 3 Clawback | DA_PCG_COMP3              | 9.4.7D.4               | <p><math>\sum^T (-1) * (\text{Component 3} + \text{Component 3 Clawback})</math></p> <p>Where:<br/>T is the set of metering intervals in the settlement hour h.</p> <p>For Component 3, the six scenarios of the possible orderings of the generator's DA_DQSI, DQSI and MQSI are as follows:</p> <ul style="list-style-type: none"> <li>iv) DQSI &gt;= MQSI &gt;= DA_DQSI</li> <li>v) MQSI &gt;= DQSI &gt;= DA_DQSI</li> <li>vi) DQSI &gt; DA_DQSI &gt; MQSI</li> <li>vii) MQSI &gt; DA_DQSI &gt; DQSI</li> </ul> | Hourly                | Either Way | 13                                   | N/A   | N/A                                 | N/A  | <p><b>Component 3</b> applies to Variants 1, 2 and 3.</p> <p><b>Component 3 Clawback</b> applies to Variant 2 only.</p> <p>For a description of Production Cost Guarantee Variants, refer to Market Rules 9.4.7D.2.1</p> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | viii) $DA\_DQSI \geq DQSI > MQSI$<br>ix) $DA\_DQSI \geq MQSI > DQSI$<br><br><b>Component 3:</b><br><br>Component 3 is calculated when:<br><br>the CMSC for energy ( $TD_{k,h,105^{m,t}}$ ) for the same metering interval is a value other than zero; and<br><br>the mathematical sign of $(DQSI-MQSI)$ is equal to the mathematical sign of $(AQEI-MQSI)$ .<br><br>Scenario 1 and 2:<br>$0$<br><br>Scenario 3:<br>$OP(EMP_h^{m,t}, MQSI_{k,h^{m,t}}, BE) - \text{MAX}(OP(EMP_h^{m,t}, DA\_DQSI_{k,h^{m,t}}, BE), OP(EMP_h^{m,t}, AQEI_{k,h^{m,t}}, BE))$<br><br>Scenario 4:<br><br>$OP(EMP_h^{m,t}, DA\_DQSI_{k,h^{m,t}}, BE) - \text{MAX}(OP(EMP_h^{m,t}, DQSI_{k,h^{m,t}}, BE), OP(EMP_h^{m,t}, AQEI_{k,h^{m,t}}, BE))$<br><br>Scenario 5 and 6: |                       |          |                                      |   |                                     |  |          |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | <p><math>TD_{k,h,105^{m,t}}</math></p> <p>Refer to Market Rules for a description of Scenarios 1 through 6.</p> <p><b>Component 3 Clawback:</b></p> <p>Component 3 Clawback is calculated when:<br/>                     the event is a constrained-on event (i.e. Scenarios 3 and 5);<br/>                     the <i>minimum loading point</i> is greater than the real-time unconstrained schedule; and<br/>                     Component 3 (<math>PCG\_COMP3_{k,h^{m,t}}</math>) for the same interval is a value other than zero.</p> <p><math>MAX(OP(EMP_{h^{m,t}}, MLP_{k,h^{m,t}}, BE), OP(EMP_{h^{m,t}}, AQEI_{k,h^{m,t}}, BE)) - OP(EMP_{h^{m,t}}, MQSI_{k,h^{m,t}}, BE)</math></p> <p>For combustion turbine resources associated to a pseudo unit:<br/>                     DA_BE is replaced with <math>DIPC_{k,h^{m,t}}</math>; and<br/>                     MLP is replaced with MLP_CONS.</p> <p>For steam turbine resources associated to a pseudo unit:<br/>                     DA_BE is replaced with <math>DIPC_{k,h^{m,t}}</math>,<br/>                     MLP is replaced with MLP_CONS,<br/>                     and<br/>                     DA_DQSI<math>_{k,h^{m,t}}</math> is replaced with the <math>DIGQ_{k,h^{m,t}}</math>.</p> |                       |          |                                      |   |                                     |  |          |

| Charge Type Number     | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|------------------------|---|---------------------------|------------------------|---|-----------------------|------------|--------------------------------------|---|-------------------------------------|--|--|
|                        |   |                           |                        | Where<br><br>'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8B.2.  |                       |            |                                      |   |                                     |  |  |
| 1503<br>MRP<br>retired | Day-Ahead<br>Production<br>Cost Guarantee<br>Payment –<br>Component 4 | DA_PCG_COMP4              | 9.4.7D.4               | $\sum^T ((-1) \times [OP(PROR_{r1,h}^{m,t}, 30R\_SQROR_{r1,k,h}^{m,t}, BR_{r1,k,h}^{m,t}) + OP(PROR_{r2,h}^{m,t}, 10NS\_SQROR_{r2,k,h}^{m,t}, BR_{r2,k,h}^{m,t}) + OP(PROR_{r3,h}^{m,t}, 10S\_SQROR_{r3,k,h}^{m,t}, BR_{r3,k,h}^{m,t})])$ <p>Where<br/>T is the set of metering intervals in the settlement hour h.<br/>'OP' is the operating profit function defined in <i>IESO market rules</i> section 9.3.8B.2.</p> <p>r1 = 30-minute operating reserve<br/>r2 = 10-minute non-spinning operating reserve<br/>r3 = 10-minute spinning operating reserve</p> <p><math>30R\_SQROR_{r1,k,h}^{m,t} = \text{MAX}[0, \text{MIN}(\text{DA\_DQSI}_{k,h}^{m,t} - \text{MQSI}_{k,h}^{m,t}, \text{SQROR}_{r1,k,h}^{m,t})]</math></p> <p><math>10NS\_SQROR_{r2,k,h}^{m,t} = \text{MAX}[0, \text{MIN}(\text{DA\_DQSI}_{k,h}^{m,t} - \text{MQSI}_{k,h}^{m,t} - 30R\_SQROR_{r1,k,h}^{m,t}, \text{SQROR}_{r2,k,h}^{m,t})]</math></p> <p><math>10S\_SQROR_{r3,k,h}^{m,t} = \text{MAX}[0, \text{MIN}(\text{DA\_DQSI}_{k,h}^{m,t} - \text{MQSI}_{k,h}^{m,t} - 30R\_SQROR_{r1,k,h}^{m,t} - 10NS\_SQROR_{r2,k,h}^{m,t}, \text{SQROR}_{r3,k,h}^{m,t})]</math></p> | Hourly                | Either Way | 13                                   | N/A   | N/A                                 | N/A  | <p><b>Component 4</b> applies to Variants 1, 2 and 3.</p> <p>For a description of Production Cost Guarantee Variants, refer to Market Rules 9.4.7D.2.1</p> |



| Charge Type Number     | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments  |
|------------------------|---|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---|
|                        |   |                           |                        | For combustion turbine resources and steam turbine resources associated to a pseudo unit:<br>$DA\_DQSI_{k,h}^{m,t}$ is replaced with the $DIGQ_{k,h}^{m,t}$   |                       |          |                                      |   |                                     |  |   |
| 1504<br>MRP<br>retired | Day-Ahead Production Cost Guarantee Payment – Component 5 | DA_PCG_COMP5              | 9.4.7D.4               | <p>If first hour of the DACP start event is not HE24, then the start-up cost is calculated as follows:</p> <p>Scenario 1 (achieves MLP before the 7<sup>th</sup> interval):<br/> <math>DA\_SUC_{k,h}^m</math></p> <p>Scenario 2 (achieves MLP between the 7<sup>th</sup> and 18<sup>th</sup> interval):<br/> <math>DA\_SUC_{k,h}^m - (DA\_SUC_{k,h}^m \times 1/12 \times SUC\_INT)</math></p> <p>Where</p> <p>SUC_INT is the number of 5-minute intervals between and including Interval 7 and 18 the <i>market participant</i> takes to achieve MLP</p> <p>Scenario 3 (achieves MLP after the start of the 18<sup>th</sup> interval):<br/> <math>0</math></p> <p>For a combustion turbine resource associated to a pseudo unit:<br/>                     Scenario 1 (achieves MLP before the 7<sup>th</sup> interval):<br/> <math>DA\_SUC_{k,h}^p * (1 - PST_{k,h}^{p,t})</math></p> <p>Scenario 2 (achieves MLP between the 7<sup>th</sup> and 18<sup>th</sup> interval):</p> | Hourly                | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | <p><b>Component 5</b> applies to Variant 1 only.</p> <p>For a description of Production Cost Guarantee Variants, refer to Market Rules 9.4.7D.2.1</p> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                    |                  |                           |                        | $DA\_SUC_{k,h}^p * MLP\_MF * (1 - PST_{k,h}^{p,t})$<br><br>Scenario 3 (achieves MLP after the start of the 18 <sup>th</sup> interval):<br>0<br><br>Where<br>$MLP\_MF = 1/12 * (12 - SUC\_INT)$<br><br>For a steam turbine resource associated to a pseudo unit:<br><br>Scenario 1 (achieves MLP before the 7 <sup>th</sup> interval):<br><br>$DA\_SUC_{k,h}^p * (PST_{k,h}^{p,t})$<br><br>Scenario 2 (achieves MLP between the 7 <sup>th</sup> and 18 <sup>th</sup> interval):<br>$DA\_SUC_{k,h}^p * MLP\_MF * (PST_{k,h}^{p,t})$<br><br>Scenario 3 (achieves MLP after the start of the 18 <sup>th</sup> interval):<br>0.<br><br>If first hour of the DACP start event is HE24 and the resource has not achieved MLP before Interval 12, then the start-up cost is calculated as follows:<br><br>$DA\_SUC_{k,h}^m * 50\%$ |                       |          |                                      |   |                                     |  |          |

| Charge Type Number     | Charge Type Name                             | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|------------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                        |  |                           |                        | <p>For a combustion turbine resource associated to a pseudo unit:</p> $DA\_SUC_{k,h}^m * (1 - PST_{k,h^{p,t}}) * 50\%$ <p>For a steam turbine resource associated to a pseudo unit:</p> $DA\_SUC_{k,h}^m * (PST_{k,h^{p,t}}) * 50\%$  |                       |          |                                      |   |                                     |  |          |
| 1505<br>MRP<br>retired | Day-Ahead Production Cost Guarantee Reversal |                           | 9.4.7D.6               | <p>For each DACP start event</p> <p>If <math>\sum_{H,C} TD_{k,h,c} &lt; 0</math></p> <p>Then <math>\sum_{H,C} TD_{k,h,c}</math></p> <p>Else 0</p> <p>Where:<br/>'C' is the set of the following charge types 'c' as follows:<br/><b>1500, 1501, 1502, 1503, 1504</b><br/>'H' is the set of all <i>settlement hours</i> 'h' in the DACP start event.</p> | Hourly                | Due MP   | 13                                   | N/A   | N/A                                 | N/A  |          |
| 1510<br>MRP<br>retired | Day-Ahead Generator                          | DA_GWC                    | 9.3.8F.2               | The Day-Ahead Generator Withdrawal Charge is calculated as follows:   | Daily                 | Due IESO | 13                                   | N/A   | N/A                                 | N/A  |          |

| Charge Type Number     | Charge Type Name                                   | Settlement Amount Acronym | Market Rules Reference | Equation   | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|------------------------|--|---------------------------|------------------------|--|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|----------|
|                        | Withdrawal Charge                                  |                           |                        | <p>If notification of the withdrawal is received 4 or more hours prior to first withdrawal hour:<br/> <math>MIN(0, \sum_{i=1}^n (-1) * OP([MIN(PD\_EMP_{h,m,t}, EMP_{h,m,t}), MLP_{k,h,m,t}, DA\_BE_{k,h,m,t}]))</math></p> <p>Where:<br/>                     n is the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h' for the total number of hours with a committed day-ahead schedule for the DACP start event that are withdrawn</p> <p>If notification of the withdrawal is received less than 4 hours prior to first withdrawal hour:<br/> <math>MIN(0, \sum_{i=1}^n (-1) * OP(EMP_{h,m,t}, MLP_{k,h,m,t}, DA\_BE_{k,h,m,t}))</math></p> <p>Where:<br/>                     n is the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h' for the total number of hours with a committed day-ahead schedule for the DACP start event that are withdrawn</p> <p>For resources associated to a pseudo unit, the DA_BE is replaced with <math>DIPC_{k,h,m,t}</math>; and the MLP is replaced with MLP_CONS.</p> |                       |          |                                      |   |                                     |  |          |
| 1550<br>MRP<br>retired | Day-Ahead Production Cost Guarantee Recovery Debit |                           | 9.4.8.1.12             | $\sum_{H,c}^{M,T} TD_{k,h,c} \times [(AQEW_{k,h,m,t} + SQEW_{k,h,i,t}) / \sum_k^{M,T} (AQEW_{k,h,m,t} + SQEW_{k,h,i,t})]$<br>Where:<br>'C' is the set of the following charge types 'c' as follows:  | Daily                 | Due IESO | 13                                   | N/A   | 0                                   | 13   |          |

| Charge Type Number | Charge Type Name   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow             | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------------------|--------------------------------------|---|-------------------------------------|--|--|
|                    |  |                           |                        | <p><b>1500, 1501, 1502, 1503, 1504, 1505</b><br/>                     'K' is the set of all market participants 'k'.<br/>                     'M' is the set of all delivery points 'm' and intertie metering points 'i'.<br/>                     'H' is the set of all <i>settlement hours</i> 'h' in the day.<br/>                     'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p>   |                       |                      |                                      |   |                                     |  |  |
| 1560 MRP retired   | Day-Ahead Generator Withdrawal Rebate                                |                           | 9.4.8.2.14             | $\sum_{H,c}^{M,T} TD_{k,h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_K^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where:<br/>                     'c' is <i>charge type</i> 1510.<br/>                     'K' is the set of all market participants 'k'.<br/>                     'M' is the set of all delivery points 'm' and intertie metering points 'i'.<br/>                     'H' is the set of all <i>settlement hours</i> 'h' in the day.<br/>                     'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> | Daily                 | Due MP               | 13                                   | N/A   | 0                                   | 13   |  |
| 6000               | Ontario Fair Hydro Plan - Regulatory Asset Transfer Amount           | N/A                       | N/A                    | <p><b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b><br/>                     Manual Entry</p>   | Monthly               | Due Financing Entity | N/A                                  | N/A   | N/A                                 | N/A  | Implementation details subject to government regulations |
| 6050               | Ontario Fair Hydro Plan - Regulatory Asset Transfer Balancing Amount | N/A                       | N/A                    | <p><b>**REPEALED EFFECTIVE NOVEMBER 1, 2019**</b><br/>                     Manual Entry</p>   | Monthly               | Due IESO             | N/A                                  | N/A   | N/A                                 | N/A  | Implementation details subject to government regulations |
| 6147               | Class A Global Adjustment Deferral                                   | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 6147 END DECEMBER 31, 2021 **</b></p>   | Monthly               | Due IESO             | 13                                   | N/A   | N/A                                 | N/A  | Ontario Regulation 429/04                                |

| Charge Type Number | Charge Type Name                                   | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments                  |
|--------------------|--|---------------------------|------------------------|---|-----------------------|----------|--------------------------------------|---|-------------------------------------|--|---------------------------|
|                    | Recovery Amount                                    |                           |                        | $MDCAA \times (PDF_{k,m,d} / \sum_K PDF_{k,m,d})$ <p>Where 'K' is the set of all <i>market participants</i> 'K'.</p>  |                       |          |                                      |   |                                     |  |                           |
| 6148               | Class B Global Adjustment Deferral Recovery Amount | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 6148 END DECEMBER 31, 2021 **</b></p> $CBRR \times CBMzP_k$ <p>Where:<br/> <math display="block">CBRR = MDCBA / (\text{Class B Load} - \sum_K RPPVA_k)</math></p> <p>Class B Load =<br/> <math display="block">(\sum_{K,H}^{M,T} AQEW_{k,h}^{m,t} + \sum_K EGEI_k - \sum_K EEQ - \sum_K GA\_AQEW_{g,k,h,M}^{m,t} - \sum_K PGS_{h,M} - \sum_K U_k)</math></p> <p>For Fort Frances Power Corporation Distribution Inc.:</p> $CBMP_k = \sum_{H}^{M,T} AQEW_{k,h}^{m,t} + EGEI_k - EEQ - RPPVA_k$ <p>For other applicable Class B <i>market participants</i> or licensed <i>distributors</i> that are also <i>market participants</i>:</p> $CBMP_k = \sum_{H}^{M,T} AQEW_{k,h}^{m,t} + EGEI_k - GA\_AQEW_{g,k,h,M}^{m,t} - PGS_{h,M} - RPPVA_k$ <p>Where 'H' is the set of all settlement hours 'h' in the month.<br/>                     Where 'K' is the set of all market participants 'K'.</p> | Monthly               | Due IESO | 13                                   | N/A   | N/A                                 | N/A  | Ontario Regulation 429/04 |

| Charge Type Number | Charge Type Name  | Settlement Amount Acronym | Market Rules Reference | Equation  | Settlement Resolution | Cashflow   | HST Tax Treatment within Ontario (%) | HST Tax Treatment for U.S., Manitoba, and Quebec Generation (%) | HST Tax Treatment for U.S. Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments   |
|--------------------|---|---------------------------|------------------------|---|-----------------------|--|--------------------------------------|---|-------------------------------------|--|--|
|                    |   |                           |                        | Where 'M' is the set of all delivery points 'm' of market participant 'k'.  |                       |  |                                      |   |                                     |  |  |
| 9147               | Class A Global Adjustment Smoothing Balancing Amount          | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 9147 END DECEMBER 31, 2021 **</b></p> $\sum_k TD_{k,6147}$ <p>Where 'K' is the set of all market participants 'k'.<br/>Where TD<sub>k,6147</sub> is the settlement amount of charge type 6147 for the month for market participant 'k'.</p>         | Monthly               | Due IESO   | 0                                    | N/A   | N/A                                 | N/A  | Ontario Regulation 429/04                                    |
| 9148               | Class B Global Adjustment Smoothing Balancing Amount          | N/A                       | N/A                    | <p><b>** CALCULATIONS FOR CHARGE TYPE 9148 END DECEMBER 31, 2021 **</b></p> $\sum_k TD_{k,6148}$ <p>Where 'K' is the set of all market participants 'k'.<br/>Where TD<sub>k,6148</sub> is the settlement amount of charge type 6148 for the current month for market participant 'k'.</p> | Monthly               | Due IESO   | 0                                    | N/A   | N/A                                 | N/A  | Ontario Regulation 429/04                                    |
| 9992               | Ontario Clean Energy Benefit (-10%) Program Settlement Amount | N/A                       | N/A                    | <p><b>**PROGRAM END DECEMBER 31, 2015**</b></p> <p>Manual entry based on the values submitted by <i>market participants</i> via on-line settlement forms "Ontario Clean Energy Benefit (-10%) – LDC" and "Ontario Clean Energy Benefit (-10%) – Unit Sub-Meter Provider".</p>             | Monthly               | Due LDCs and Unit Sub-Meter Providers Either way | 0                                    | N/A   | N/A                                 | N/A  | Implementation details subject to Ontario Regulation 495/10. |

### 3.3. Rounding Conventions – by Settlement Variable

The following Table 3-3 describes the rounding conventions used in the *settlement process* for each *settlement* variable.

**Table 3-3: Rounding Conventions by Settlement Variable**

| Variable referenced in Section 3.2 | Data Description   | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments  |
|------------------------------------|--|---|---|--|---|
| AQOR <sub>r,k,h,m,t</sub>          | Allocated Quantity of Operating Reserve                          | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Refer to SQROR.</li> </ul>   |
| BR <sub>r</sub>                    | Operating Reserve Offers   | N/A   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Confirmations passed to <i>market participants</i> as <i>bids</i>/ offers (“<i>dispatch data</i>”) are received.</li> </ul> |
| CAEO <sup>m</sup> <sub>h,k</sub>   | Capacity Auction Energy Offer                                    | N/A   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> system</li> </ul>   |
| CGC                                | Combined Guaranteed Costs  | N/A   | 2   | 2  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>   |
| DA_BE <sub>k,h,i,t</sub>           | <i>Energy Offer</i> submitted into the <i>schedule of record</i> | N/A   | N/A   | N/A  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Confirmations passed to <i>market participants</i> as <i>bids</i>/ offers (“<i>dispatch data</i>”) are received.</li> </ul> |



| Variable referenced in Section 3.2    | Data Description  | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments   |
|---------------------------------------|---|---|---|--|--|
| DA_BE <sub>k,h</sub> <sup>m,t</sup>   | <i>Energy Offer</i> submitted into the <i>schedule of record at a delivery point</i>                      | N/A   | N/A   | N/A  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Confirmations passed to <i>market participants</i> as <i>bids</i> offers ("<i>dispatch data</i>") are received.</li> </ul> |
| DA_BL <sub>k,h</sub> <sup>i,t</sup>   | <i>Energy Bids</i> submitted into the <i>schedule of record</i>   | N/A   | N/A   | N/A  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Confirmations passed to <i>market participants</i> as <i>bids</i> offers ("<i>dispatch data</i>") are received.</li> </ul> |
| DA_DQSI <sub>k,h</sub> <sup>i,t</sup> | <i>Schedule of record</i> dispatch quantity scheduled for injection at an <i>intertie metering point</i>  | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul>  |
| DA_DQSI <sub>k,h</sub> <sup>m,t</sup> | <i>Schedule of record</i> dispatch quantity scheduled for injection at a <i>delivery point</i>            | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul>  |
| DA_DQSW <sub>k,h</sub> <sup>i,t</sup> | <i>Schedule of record</i> dispatch quantity scheduled for withdrawal at an <i>intertie metering point</i> | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul>  |
| DA_ELMP <sub>h</sub> <sup>m,t</sup>   | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the export zone   | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>   |

| Variable referenced in Section 3.2            | Data Description  | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments  |
|---|---|---|---|--|---|
| DA_ILMP <sub>h,m,t</sub>                      | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the import zone | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>  |
| DA_SNL <sub>C<sub>k,h</sub><sup>m</sup></sub> | Speed-no-load costs submitted into the <i>schedule of record</i>  | 1   | 2   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul> |
| DA_SNL <sub>C<sub>k,h</sub><sup>P</sup></sub> | Speed-no-load costs for pseudo units submitted into the <i>schedule of record</i>                       | 1   | 2   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul> |
| DA_SUC <sub>k,h<sup>m</sup></sub>             | Start-up costs submitted into the <i>schedule of record</i>   | 1   | 2   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul> |
| DA_SUC <sub>k,h<sup>P</sup></sub>             | Start-up costs for pseudo units submitted into the <i>schedule of record</i>                            | 1   | 2   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul> |
| DIPC <sub>k,h<sup>m,t</sup></sub>             | Derived Interval Price Curve  | 1   | 2   | 1  | <ul style="list-style-type: none"> <li>Derived price curve and therefore not published on <i>settlement statements</i>.</li> </ul>                                      |
| DIGQ <sub>k,h<sup>m,t</sup></sub>             | Derived Interval Guaranteed Quantity  | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Derived schedule quantity and therefore not published on <i>settlement statements</i>.</li> </ul>                                |

| Variable referenced in Section 3.2 | Data Description                                     | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments  |
|------------------------------------|--|---|---|--|---|
| DQSI <sub>k,h,m,t</sub>            | Dispatch Quantity of Energy Scheduled for Injection  | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul> |
| DQSR <sub>r,k,h,m,t</sub>          | Dispatch Quantity Schedule of Operating Reserve      | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul> |
| DQSW <sub>k,h,m,t</sub>            | Dispatch Quantity of Energy Scheduled for Withdrawal | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul> |
| DRACP                              | Demand Response Auction Clearing Price               | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>Published in post-auction report.</li> </ul>   |
| DRACP <sub>h</sub>                 | Hourly Demand Response Auction Clearing Price        | N/A   | 2   | 2  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>   |
| DRBOC <sub>k</sub>                 | Demand Response Buy-Out Capacity                     | N/A   | 3   | 3  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>   |

| Variable referenced in Section 3.2 | Data Description  | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments   |
|------------------------------------|---|---|---|--|--|
| DRCO <sub>k</sub>                  | Demand Response Capacity Obligation (MW)  | 1   | 3   | 3  | <ul style="list-style-type: none"> <li>Published in private post-auction report.</li> </ul>  |
| DREBQ <sub>k</sub>                 | Demand Response Energy Bid Quantity   | N/A   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>  |
| DRNPF                              | Demand Response Non-Performance Factor  | N/A   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>  |
| DRSQ <sub>ty</sub>                 | Demand Response Scheduled Quantity  | N/A   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>  |
| EIM <sub>k,h</sub>                 | Operating Profit Function for the IMPORT of Energy under the Intertie Offer/Bid Guarantee Settlement Credit | N/A<br>Refer to <a href="#">section 3.4</a>                     | N/A<br>Refer to <a href="#">section 3.4</a>   | N/A<br>Refer to <a href="#">section 3.4</a>  | <ul style="list-style-type: none"> <li>This acronym is associated with the energy import component of the Intertie Offer/Bid Guarantee Settlement Credit.</li> </ul> |
| EMP <sub>n</sub> <sup>i,t</sup>    | 5-minute Energy Market Price at the Interties   | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>   |
| EMP <sub>n</sub> <sup>m,t</sup>    | 5-minute Energy Market Price within Ontario   | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>   |
| EMP <sub>n</sub> <sup>REF,t</sup>  | 5-minute Energy Market Reference Price  | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>   |

| Variable referenced in Section 3.2 | Data Description  | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments   |
|------------------------------------|---|---|---|--|--|
| $FP_h^m$                           | Fixed Energy Rate   | N/A   | 2   | 2  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>  |
| $FPC_h^m$                          | Rate for a designated group of <i>charge types</i> (refer to description of <i>charge type</i> 141))            | N/A   | 2   | 2  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>  |
| $HOEP_h$                           | Hourly Ontario Energy Price   | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>   |
| $MAX\_CAP_{k,h,m,t}$               | Maximum Capacity  | 2   | 3   | 3  |  |
| $MC_h^m$                           | Minimum Consumption   | 1   | 1   | 1  |  |
| MI                                 | Ordered matrix of and corresponding IOG <i>settlement amounts</i>   | 1 and 2   | 2   | 2  | <ul style="list-style-type: none"> <li>Derived set of variables and therefore not published on <i>settlement statements</i>.</li> </ul>        |
| $MLP_{k,h,m,t}$                    | Minimum Loading Point   | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>  |
| $MLP\_CONS_{k,h,m,t}$              | Minimum Loading Point for a steam turbine resource or a combustion turbine resource associated to a pseudo unit | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream <i>IESO</i> systems.</li> </ul>  |
| $MQSI_{k,h,m,t}$                   | Market Quantity Scheduled for Injection   | 1   | 1   | 1  |  |
| $MQSI\{adj\}_{k,h,m,t}$            | Adjusted Market Quantity Scheduled for Injection  | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Derived variable and therefore not published on <i>settlement statements</i>.</li> </ul>                |
| $MQSW_{k,h,m,t}$                   | Market Quantity Scheduled for Withdrawal  | 1   | 1   | 1  |  |
| OP                                 | Operating Profit Function   | N/A<br>Refer to <a href="#">section 3.4</a>                     | N/A<br>Refer to <a href="#">section 3.4</a>   | N/A<br>Refer to <a href="#">section 3.4</a>  | <ul style="list-style-type: none"> <li>This acronym is associated with the operating profit equation used within the CMSC equation.</li> </ul> |

| Variable referenced in Section 3.2 | Data Description  | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments  |
|------------------------------------|---|---|---|--|---|
| OPCAP <sub>k,h,m,t</sub>           | Operating Capacity  | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream IESO systems.</li> </ul>  |
| PD_BE <sub>k,h,i,t</sub>           | <i>Energy Offer</i> submitted into the <i>Pre-dispatch</i>  | N/A   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream IESO systems.</li> <li>Confirmations passed to <i>market participants</i> as <i>bids/ offers</i> ("<i>dispatch data'</i>") are received.</li> </ul> |
| PD_BL <sub>k,h,i,t</sub>           | <i>Energy bids</i> submitted into the <i>Pre-dispatch</i>   | N/A   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream IESO systems.</li> <li>Confirmations passed to <i>market participants</i> as <i>bids/ offers</i> ("<i>dispatch data'</i>") are received.</li> </ul> |
| PD_DQSI <sub>k,h,i,t</sub>         | <i>Pre-dispatch</i> quantity scheduled for injection at an <i>intertie metering point</i>               | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream IESO systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul>  |
| PD_DQSW <sub>k,h,i,t</sub>         | <i>Pre-dispatch</i> quantity scheduled for withdrawal at an <i>intertie metering point</i>              | 1   | 1   | 1  | <ul style="list-style-type: none"> <li>Not published via upstream IESO systems.</li> <li>Passed to <i>market participants</i> via dispatch messaging.</li> </ul>  |
| PD_ELMP <sub>h,m,t</sub>           | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the export zone | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>  |
| PD_EMP <sub>h,m,t</sub>            | Pre-dispatch energy market price for Ontario  | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul>  |

| Variable referenced in Section 3.2 | Data Description  | Number of DECIMAL PLACES (values published by upstream systems) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (values received by CRS) | MAXIMUM Number of SIGNIFICANT DIGITS to the right of the decimal (externally passed from CRS in settlement statements or data files) | Comments   |
|------------------------------------|---|---|---|--|--|
| PD_ILMP <sub>h,m,t</sub>           | <i>Pre-dispatch</i> constrained schedule price for an <i>intertie metering point</i> in the import zone | 2   | 2   | 2  | <ul style="list-style-type: none"> <li>MIM Publication.</li> </ul> |
| SQEI <sub>k,h,i,t</sub>            | Scheduled Quantity of Energy Injected at an <i>intertie metering point</i>                              | 1   | 1   | 1  |  |
| SQEW <sub>k,h,i,t</sub>            | Scheduled Quantity of Energy Withdrawn at an <i>intertie metering point</i>                             | 1   | 1   | 1  |  |
| SQROR <sub>r,k,h,m,t</sub>         | Scheduled Quantity of class r <i>Operating Reserve</i>  | 1   | 1   | 1  |  |

### 3.4. Rounding Conventions – by Charge Type

Refer to [section 2.3](#) for general information regarding the contents of this Table 3-4 and a description of each column heading.

**Table 3-4: Rounding Conventions by Charge Type**

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1  | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|--|--|---|
| 100                | Net Energy Market Settlement for Generators and Dispatchable Load | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3   | BCQ quantities Multiplied by EMP when applicable.  |  |   |
| 101                | Net Energy Market Settlement for Non-dispatchable Load            | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3   | BCQ quantities Multiplied by EMP when applicable.  |  |   |
| 103                | Transmission Charge Reduction Fund                                | 2   | 3   | Yes  | Numerator: Difference between SQEW – SQEI by <i>intertie zone</i><br>Denominator: 12<br>Resulting Decimals: 3                  | Resulting value included with the TCRF calculation at that particular zone for the <i>metering interval</i> in question. |  |   |
| 104                | Transmission Rights Settlement Credit                             | 0   | 2   | Yes  | Numerator: Summation of the zonal price difference ( $EMP_{n,j,t} - EMP_{h,i,t}$ )<br>Denominator: 12<br>Resulting Decimals: 5 | Multiplied by QTR for the <i>settlement hour</i> .   |  |   |



| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1   | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 105                | Congestion Management Settlement Credit for Energy                         | 1   | 3   | Yes  | AQEI multiplied by 12 or<br>AQEW multiplied by 12<br><br>Resulting Decimals: 3   | Used in the calculation of OP(EMP, AQEI, BE) or OP(EMP, AQEW, BL) as the case may be. | Numerators<br>OP(EMP, MQSI, BE)<br>OP(EMP, DQSI, BE)<br>OP(EMP, AQEI, BE)<br>OP(EMP, MQSW, BL)<br>OP(EMP, DQSW, BL)<br>OP(EMP, AQEW, BL)<br>Denominator: 12<br>Resulting Decimals: 2 | Profits compared as applicable.           |
| 106                | Congestion Management Settlement Credit for 10 Minute Spinning Reserve     | 1   | 2   | Yes  | Numerators<br>OP(PROR, MQSR, BR)<br>OP(PROR, DQSR, BR)<br>OP(PROR, AQOR, BR)<br>Denominator: 12<br>Resulting Decimals: 2 | Profits compared as applicable.   |  |   |
| 107                | Congestion Management Settlement Credit for 10 Minute Non-spinning Reserve | 1   | 2   | Yes  | Numerators<br>OP(PROR, MQSR, BR)<br>OP(PROR, DQSR, BR)<br>OP(PROR, AQOR, BR)<br>Denominator: 12<br>Resulting Decimals: 2 | Profits compared as applicable.   |  |   |
| 108                | Congestion Management Settlement Credit for 30 Minute Operating Reserve    | 1   | 2   | Yes  | Numerators<br>OP(PROR, MQSR, BR)<br>OP(PROR, DQSR, BR)<br>OP(PROR, AQOR, BR)<br>Denominator: 12<br>Resulting Decimals: 2 | Profits compared as applicable.   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1  | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 2   |
|--------------------|---|---|---|--|--|--|---|---|
| 111                | Northern Pulp and Paper Mill Electricity Transition Program Settlement Amount | 1   | 3   | No   |  |  |   |   |
| 112                | Ontario Power Generation Rebate   | 2   | 3   | No   |  |  |   |   |
| 113                | Additional Compensation for Administrative Pricing Credit                     | 1   | 3   | Yes  | For the calculation outlined in 7.8.4A.16 only:<br>for dispatchable <i>facilities</i> located within Ontario only<br>AQEI multiplied by 12 or AQEW multiplied by 12<br><br>Resulting Decimals: 3 | (For the calculation outlined in 7.8.4A.16 only)<br>For dispatchable <i>facilities</i> located within Ontario only:<br>Used in the calculation of OP(EMP, AQEI, BE) or OP(EMP, AQEW, BL) as the case may be. | For the calculation outlined in 7.8.4A.16 only:<br>Numerators:<br>for dispatchable <i>facilities</i> located within Ontario:<br>OP(EMP, AQEI, BE)<br>OP(EMP, AQEW, BL)<br>for Imports or Exports:<br>OP(EMP, DQSI, BE)<br>OP(EMP, DQSW, BL)<br>Denominator: 12<br>Resulting Decimals: 2 | (For the calculation outlined in 7.8.4A.16 only)<br>The results are used in the final calculation |
| 119                | Station Service Reimbursement Credit  | 2   | 2   | No   |  |  |   |   |
| 120                | Local Market Power Debit  | 2   | 2   | No   |  |  |   |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)          | DISPOSITION OF INTERMEDIATE CALCULATION 1   | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|---|---|--|---|
| 121                | Northern Industrial Electricity Rate Program Settlement Amount | 1   | 3   | No   |   |   |  |   |
| 122                | Ramp Down Settlement Amount                                    | 1   | 3   | Yes  | AQEI multiplied by 12 or AQEW multiplied by 12<br><br>Resulting Decimals: 3 | Used in the calculation of OP(EMP, AQEI, BE) or OP(EMP, AQEW, BL) as the case may be. | Numerators<br>OP(EMP, MQSI, BE)<br>OP(EMP, DQSI, BE)<br>OP(EMP, AQEI, BE)<br>OP(EMP, MQSW, BL)<br>OP(EMP, DQSW, BL)<br>OP(EMP, AQEW, BL)<br>Denominator: 12<br>Resulting Decimals: 2 | Profits compared as applicable.           |
| 124                | SEAL Congestion Management Settlement Credit Amount            | 2   | 2   | No   |   |   |  |   |
| 130                | Intertie Offer Settlement Credit – Energy                      | 1   | 3   | Yes  | Numerators<br>OP(EMP, MQSI, BE)<br>Denominator: 12<br>Resulting Decimals: 2 | Profits compared as applicable.   |  |   |
| 133                | Generator Cost Guarantee Payment                               | 1   | 3   | No   |   |   |  |   |
| 134                | Demand Response Credit   | 2   | 2   | No   |   |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 135                | Real-time Import Failure Charge                                    | 1   | 3   | Yes  | <b>TERM 1 – Failure Charge</b><br>Numerator:<br>$EMP + PB\_IM - PD\_EMP$<br>Denominator: 12<br>Resulting Decimals: 2<br><b>TERM 2 – Price Cap</b><br>Numerator:<br>$MAX(0, EMP) * RT\_ISD$<br>Denominator: 12<br>Resulting Decimals: 2     | TERM 1 and TERM 2 compared as applicable. |  |   |
| 136                | Real-time Export Failure Charge                                    | 1   | 3   | Yes  | <b>TERM 1 – Failure Charge</b><br>Numerator:<br>$PD\_EMP - EMP - PB\_EX$<br>Denominator: 12<br>Resulting Decimals: 2<br><b>TERM 2 – Price Cap</b><br>Numerator:<br>$MAX(0, PD\_EMP) * RT\_ESD$<br>Denominator: 12<br>Resulting Decimals: 2 | TERM 1 and TERM 2 compared as applicable. |  |   |
| 137                | Generation Cost Guarantee – Annual Carbon Charge Settlement Amount | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name                                     | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 140                | Fixed Energy Rate Settlement Amount                  | 1   | 3   | No   |  |   |  |   |
| 141                | Fixed Wholesale Charge Rate Settlement Amount        | 1   | 3   | No   |  |   |  |   |
| 142                | Regulated Price Plan Settlement Amount               | 1   | 3   | No   |  |   |  |   |
| 144                | Regulated Nuclear Generation Adjustment Amount       | 1   | 3   | No   |  |   |  |   |
| 145                | Regulated Hydroelectric Generation Adjustment Amount | 1   | 3   | No   |  |   |  |   |
| 146                | Global Adjustment Settlement Amount                  | 1   | 3   | No   |  |   |  |   |
| 150                | Net Energy Market Settlement Uplift                  | 1   | 3   | No   |  |   |  |   |
| 155                | Congestion Management Settlement Uplift              | 1   | 3   | No   |  |   |  |   |

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|--------------------|--|---|---|--|--|---|--|---|
| 161                | Northern Pulp and Paper Mill Electricity Transition Program Balancing Amount | 1   | 3   | No   |  |   |  |   |
| 162                | Ontario Power Generation Rebate Debit  | 1   | 3   | No   |  |   |  |   |
| 163                | Additional Compensation for Administrative Pricing Debit                     | 1   | 3   | No   |  |   |  |   |
| 170                | Local Market Power Rebate  | 1   | 3   | No   |  |   |  |   |
| 171                | Northern Industrial Electricity Rate Program Balancing Amount                | 1   | 3   | No   |  |   |  |   |
| 183                | Generator Cost Guarantee Recovery Debit                                      | 1   | 3   | No   |  |   |  |   |
| 184                | Demand Response Debit  | 2   | 2   | No   |  |   |  |   |
| 186                | Intertie Failure Charge Rebate   | 1   | 3   | No   |  |   |  |   |
| 190                | Fixed Energy Rate Balancing Amount   | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 191                | Fixed Wholesale Charge Rate Balancing Amount               | 2   | 2   | No   |  |   |  |   |
| 198                | Renewable Generation Balancing Amount                      | 2   | 2   | No   |  |   |  |   |
| 200                | 10 Minute Spinning Reserve Market Settlement Credit        | 1   | 2   | No   |  |   |  |   |
| 202                | 10 Minute Non-spinning Reserve Market Settlement Credit    | 1   | 2   | No   |  |   |  |   |
| 204                | 30 Minute Operating Reserve Market Settlement Credit       | 1   | 2   | No   |  |   |  |   |
| 206                | 10-Minute spinning non-Accessibility Settlement Amount     | 1   | 3   | No   |  |   |  |   |
| 208                | 10-Minute non-Spinning non-Accessibility Settlement Amount | 1   | 3   | No   |  |   |  |   |
| 210                | 30-Minute non-Accessibility Settlement Amount              | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name                                    | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 250                | 10 Minute Spinning Market Reserve Hourly Uplift     | 1   | 3   | No   |  |   |  |   |
| 252                | 10 Minute Non-spinning Market Reserve Hourly Uplift | 1   | 3   | No   |  |   |  |   |
| 254                | 30 Minute Operating Reserve Market Hourly Uplift    | 1   | 3   | No   |  |   |  |   |
| 406                | Emergency Demand Response Credit                    | 2   | 2   | No   |  |   |  |   |
| 702                | Debt Retirement Credit                              | 2   | 2   | No   |  |   |  |   |
| 704                | OPA Administration Credit                           | 2   | 2   | No   |  |   |  |   |
| 752                | Debt Retirement Charge                              | 2   | 3   | No   |  |   |  |   |
| 754                | OPA Administration Charge                           | 1   | 3   | No   |  |   |  |   |



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|--------------------|--|---|---|--|--|--|--|---|
| 1050               | Self-Induced Dispatchable Load CMSC Clawback                   | 1   | 3   | Yes  | AQEW multiplied by 12<br>Resulting Decimals: 3                     | Used in the calculation of OP(EMP, AQEW, BL) as the case may be. | Numerators<br>OP(EMP, MQSW, BL)<br>OP(EMP, DQSW, BL)<br>OP(EMP, AQEW, BL)<br>OP(EMP, MC, BL)<br>Denominator: 12<br>Resulting Decimals: 2 | Profits compared as applicable.           |
| 1051               | Ramp-Down CMSC Claw Back                                       | 2   | 2   | No   |  |  |  |   |
| 1101               | Real-Time Energy Settlement Amount for Dispatchable Generators | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3         | BCQ quantities<br>Multiplied by EMP<br>when applicable.          |  |   |
| 1103               | Real-Time Energy Settlement Amount for Dispatchable Loads      | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3         | BCQ quantities<br>Multiplied by EMP<br>when applicable.          |  |   |
| 1111               | Real-Time Energy Settlement Amount for Imports                 | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3         | BCQ quantities<br>Multiplied by EMP<br>when applicable.          |  |   |
| 1113               | Real-Time Energy Settlement Amount for Exports                 | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3         | BCQ quantities<br>Multiplied by EMP<br>when applicable.          |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1  | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|--|--|---|
| 1114               | Real-Time Energy Settlement Amount for Non-Dispatchable Generators | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3   | BCQ quantities Multiplied by EMP when applicable.  |  |   |
| 1115               | Real-Time Energy Settlement Amount for Non-Dispatchable Load       | 1   | 3   | Yes  | Numerator: BCQ<br>Denominator: 12<br>Resulting Decimals: 3   | BCQ quantities Multiplied by EMP when applicable.  |  |   |
| 1130               | Day-Ahead Intertie Offer Guarantee Settlement Credit               | 1   | 3   | Yes  | <b>FOR EACH 5-MINUTE METERING INTERVAL:</b><br>Numerators<br>OP[EMP, MIN(DQSI, PDR_DQSI), PDR_BE]<br>Denominator: 12<br>Resulting Decimals: 2  | Results for each 5-minute <i>metering interval</i> are summed for the hour.<br>Profits compared as applicable.   |  |   |
| 1131               | Intertie Offer Guarantee Settlement Credit                         | 1   | 3   | Yes  | <b>For each 5 minute metering interval:</b><br><br><b>RT-IOG – Real Time IOG</b><br><br>Numerator<br>OP(EMP,MQSI,BE)<br>Denominator: 12<br>Resulting Decimal: 2<br><br><b>DA-IOG - Day-Ahead IOG</b> | <b>For DA-IOG,</b><br>Component 1,<br>Component 2 and<br>Component 3 are compared as applicable.<br><br>Results of RT-IOG and DA-IOG are compared in IOG OFFSET component. |  |   |

| Charge Type Number | Charge Type Name | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|------------------|---|---|--|---|---|--|---|
|                    |                  |   |   |  | <p><b>Component 1</b></p> <p>Numerator</p> <p>OP(EMP, Min(DA_DQSI,DQSI),DA_BE)</p> <p>Denominator: 12<br/>Resulting Decimal: 2</p> <p><b>Component 2</b></p> <p>Numerator</p> <p>XDA_BE – MAX(0,XBE)</p> <p>Denominator: 12<br/>Resulting Decimal: 2</p> <p><b>Component 3</b></p> <p>Numerator</p> <p>OP(EMP,MQSI,BE),<br/>OP(EMP,DA_DQSI,BE)<br/>OP(EMP,DQSI,BE)</p> <p>Denominator: 12</p> |   |  |   |

| Charge Type Number | Charge Type Name                            | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1         | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
|                    |   |   |   |  | Resulting Decimal: 2<br><br><b>IOG Rate</b><br><br>Resulting Decimal: 5  |   |  |   |
| 1133               | Day-Ahead Generation Cost Guarantee Payment | 1   | 3   | No   |  |   |  |   |
| 1134               | Day-Ahead Linked Wheel Failure Charge       | 1   | 3   | Yes  | <b>RT_EFC_DALW and RT_IFC_DALW for each 5-minute metering interval are summed for the hour.</b><br><br><b>Resulting Decimal: 2</b>   | <b>Results are compared as applicable.</b>        |  |   |
| 1135               | Day-Ahead Import Failure Charge             | 1   | 3   | Yes  | <b>TERM 1 – Operating Profit („OP”) Function used to calculate Failure Charge</b><br>OP(PD_EMP, DA_DQSI, DA_BE)<br>OP(PD_EMP, PD_DQSI, DA_BE)<br><br>Resulting Decimals: 2 | TERM 1, TERM 2 and TERM 3 compared as applicable. |  |   |

| Charge Type Number | Charge Type Name | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|------------------|---|---|--|---|---|--|---|
|                    |                  |   |   |  | <p><b>TERM 2 – Operating Profit („OP”) Function used to calculate Failure Charge</b><br/> <math>OP(PD\_EMP, DA\_DQSI, PD\_BE)</math><br/> <math>OP(PD\_EMP, PD\_DQSI, PD\_BE)</math></p> <p>Resulting Decimals: 2</p> <p><b>TERM 3 – Price cap</b></p> <p>Numerator</p> $\frac{Max(0, PD\_EMP) \times DA\_ISD}{Denominator: 12}$ <p>Resulting Decimals: 2</p> |   |  |   |

| Charge Type Number | Charge Type Name                        | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1         | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|---|---|--|---|
| 1136               | Day-Ahead Export Failure Charge         | 1   | 3   | Yes  | <p><b>TERM 1 – Operating Profit („OP”) Function used to calculate Failure Charge</b><br/>                     OP(PD_EMP, DA_DQSW, DA_BL)<br/>                     OP(PD_EMP, PD_DQSW, DA_BL)<br/>                     Resulting Decimals: 2</p> <p><b>TERM 2 – Operating Profit („OP”) Function used to calculate Failure Charge</b><br/>                     OP(PD_EMP, DA_DQSW, PD_BL)<br/>                     OP(PD_EMP, PD_DQSW, PD_BL)<br/>                     Resulting Decimals: 2</p> | TERM 1, TERM 2 and TERM 3 compared as applicable. |  |   |
| 1137               | Intertie Offer Guarantee Reversal       | 2   | 2   | No   |   |   |  |   |
| 1138               | Day-Ahead Fuel Cost Compensation Credit | 2   | 2   | No   |   |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1139               | Intertie Failure Charge Reversal   | 2   | 2   | No   |  |   |  |   |
| 1142               | Ontario Fair Hydro Plan Eligible RPP Consumer Discount Settlement Amount     | 2   | 2   | No   |  |   |  |   |
| 1143               | Ontario Fair Hydro Plan Eligible Non-RPP Consumer Discount Settlement Amount | 2   | 2   | No   |  |   |  |   |
| 1144               | Ontario Fair Hydro Plan Financing Entity Amount                              | 2   | 2   | No   |  |   |  |   |
| 1145               | Ontario Fair Hydro Plan Financing Entity Interest                            | 2   | 2   | No   |  |   |  |   |
| 1188               | Day-Ahead Fuel Cost Compensation Debit                                       | 1   | 3   | No   |  |   |  |   |
| 1192               | Ontario Fair Hydro Plan Eligible RPP Consumer Discount Balancing Amount      | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1193               | Ontario Fair Hydro Plan Eligible Non-RPP Consumer Discount Balancing Amount      | 2   | 2   | No   |  |   |  |   |
| 1194               | Ontario Fair Hydro Plan Financing Entity Balancing Amount                        | 2   | 2   | No   |  |   |  |   |
| 1195               | Ontario Fair Hydro Plan Financing Entity Balancing Interest                      | 2   | 2   | No   |  |   |  |   |
| 1300               | Capacity Based Demand Response Program Availability Payment Settlement Amount    | 1   | 3   | No   |  |   |  |   |
| 1301               | Capacity Based Demand Response Program Availability Over-Delivery Settlement Amt | 1   | 3   | No   |  |   |  |   |



| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1302               | Capacity Based Demand Response Program Availability Set-Off Settlement Amount    | 1   | 3   | No   |  |   |  |   |
| 1303               | Capacity Based Demand Response Program Utilization Payment Settlement Amount     | 1   | 3   | No   |  |   |  |   |
| 1304               | Capacity Based Demand Response Program Utilization Set-Off Settlement Amount     | 1   | 3   | No   |  |   |  |   |
| 1305               | Capacity Based Demand Response Program Planned Non-Performance Event Set-Off Amt | 1   | 3   | No   |  |   |  |   |
| 1306               | Capacity Based Demand Response Program Measurement Data Set-Off Settlement Amt   | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1307               | Capacity Based Demand Response Program Buy-Down Settlement Amount           | 1   | 3   | No   |  |   |  |   |
| 1308               | Capacity Based Demand Response Program Performance Breach Settlement Amount | 1   | 3   | No   |  |   |  |   |
| 1309               | Demand Response Pilot – Availability Payment                                | 1   | 3   | No   |  |   |  |   |
| 1310               | Demand Response Pilot – Availability Clawback                               | 1   | 3   | No   |  |   |  |   |
| 1311               | Demand Response Pilot – Availability Charge                                 | 1   | 3   | No   |  |   |  |   |
| 1312               | Demand Response Pilot – Availability Adjustment                             | 1   | 3   | No   |  |   |  |   |
| 1313               | Demand Response Pilot – Demand Response Bid Guarantee                       | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1315               | Capacity Obligation – Availability Charge   | 1   | 3   | No   |  |   |  |   |
| 1320               | Capacity Obligation – Dispatch Test Payment and Emergency Activation Payment                | 1   | 3   | No   |  |   |  |   |
| 1330               | On behalf of <i>Former</i> OPA for the DR2 Program – Availability Payment Settlement Amount | 1   | 3   | No   |  |   |  |   |
| 1331               | On behalf of <i>Former</i> OPA for the DR2 Program – Availability Set-Off Settlement Amount | 1   | 3   | No   |  |   |  |   |
| 1332               | On behalf of <i>Former</i> OPA for the DR2 Program – Utilization Payment Settlement Amount  | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1333               | On behalf of <i>Former</i> OPA for the DR2 Program – Utilization Set-Off Settlement Amount  | 1   | 3   | No   |  |   |  |   |
| 1334               | On behalf of <i>Former</i> OPA for the DR2 Program – Meter Data Set-Off Settlement Amount   | 1   | 3   | No   |  |   |  |   |
| 1335               | On behalf of <i>Former</i> OPA for the DR2 Program – Buy-Down Settlement Amount             | 1   | 3   | No   |  |   |  |   |
| 1336               | On behalf of <i>Former</i> OPA for the DR2 Program – Miscellaneous Settlement Amount        | 1   | 3   | No   |  |   |  |   |
| 1340               | On behalf of <i>Former</i> OPA for the DR3 Program – Availability Payment Settlement Amount | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1341               | On behalf of Former OPA for the DR3 Program – Availability Over-Delivery Settlement Amt | 1   | 3   | No   |  |   |  |   |
| 1342               | On behalf of Former OPA for the DR3 Program – Availability Set-Off Settlement Amount    | 1   | 3   | No   |  |   |  |   |
| 1343               | On behalf of Former OPA for the DR3 Program – Utilization Payment Settlement Amount     | 1   | 3   | No   |  |   |  |   |
| 1344               | On behalf of Former OPA for the DR3 Program – Utilization Set-Off Settlement Amount     | 1   | 3   | No   |  |   |  |   |
| 1345               | On behalf of Former OPA for the DR3 Program – Planned Non-Performance Event Set-Off Amt | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1346               | On behalf of Former OPA for the DR3 Program – Meter Data Set-Off Settlement Amount | 1   | 3   | No   |  |   |  |   |
| 1347               | On behalf of Former OPA for the DR3 Program – Buy-Down Settlement Amount           | 1   | 3   | No   |  |   |  |   |
| 1348               | On behalf of Former OPA for the DR3 Program – Miscellaneous Settlement Amount      | 1   | 3   | No   |  |   |  |   |
| 1380               | Demand Response 2 Availability Payment Balancing Amount                            | 2   | 2   | No   |  |   |  |   |
| 1381               | Demand Response 2 Availability Set-Off Balancing Amount                            | 2   | 2   | No   |  |   |  |   |
| 1382               | Demand Response 2 Utilization Payment Balancing Amount                             | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1383               | Demand Response 2 Utilization Set-Off Balancing Amount        | 2   | 2   | No   |  |   |  |   |
| 1384               | Demand Response 2 Meter Data Set-Off Balancing Amount         | 2   | 2   | No   |  |   |  |   |
| 1385               | Demand Response 2 Buy-Down Balancing amount                   | 2   | 2   | No   |  |   |  |   |
| 1386               | Demand Response 2 Miscellaneous Balancing amount              | 2   | 2   | No   |  |   |  |   |
| 1390               | Demand Response 3 Availability Payment Balancing Amount       | 2   | 2   | No   |  |   |  |   |
| 1391               | Demand Response 3 Availability Over-Delivery Balancing Amount | 2   | 2   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1392               | Demand Response 3 Availability Set-Off Balancing Amount                  | 2   | 2   | No   |  |   |  |   |
| 1393               | Demand Response 3 Utilization Payment Balancing Amount                   | 2   | 2   | No   |  |   |  |   |
| 1394               | Demand Response 3 Utilization Set-Off Balancing Amount                   | 2   | 2   | No   |  |   |  |   |
| 1395               | Demand Response 3 Planned Non-Performance Event Set-Off Balancing Amount | 2   | 2   | No   |  |   |  |   |
| 1396               | Demand Response 3 Meter Data Set-Off Balancing Amount                    | 2   | 2   | No   |  |   |  |   |
| 1397               | Demand Response 3 Buy-Down Balancing Amount                              | 2   | 2   | No   |  |   |  |   |



| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1      | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|--|--|---|
| 1398               | Demand Response 3 Miscellaneous Balancing Amount                                   | 2   | 2   | No   |  |  |  |   |
| 1415               | Conservation Assessment Recovery   | 1   | 3   | No   |  |  |  |   |
| 1427               | Non-Hydro Renewables Funding Amount  | 2   | 2   | No   |  |  |  |   |
| 1465               | Ontario Clean Energy Benefit (-10%) Program Balancing Amount                       | 2   | 2   | No   |  |  |  |   |
| 1470               | Ontario Electricity Support Program Balancing Amount                               | 2   | 3   | No   |  |  |  |   |
| 1487               | Non-Hydro Renewables Funding Balancing Amount                                      | 2   | 2   | No   |  |  |  |   |
| 1500               | Day-Ahead Production Cost Guarantee Payment – Component 1 and Component 1 Clawback | 1   | 3   | Yes  | AQEI is multiplied by 12<br>Resulting decimal: 3                   | Use in the calculation of OP(EMP,AQEI, DA_BE), | <b>For each 5 minute metering interval:</b><br><br>Numerator<br><br>OP(EMP,AQEI, DA_BE),<br>OP(EMP,DQSI, DA_BE), | Profits are compared as applicable.       |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1                          | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|--|--|---|
|                    |   |   |   |  |  |  | <p>OP(EMP,DA_DQSI, DA_BE)</p> <p>Denominator: 12<br/>Resulting Decimal: 2</p> <p>Numerator</p> <p>DA_SNLC</p> <p>Denominator: 12<br/>Resulting decimal: 2</p> <p>Results for each 5-minute metering interval are summed for the hour.</p>        |   |
| 1501               | Day-Ahead Production Cost Guarantee Payment – Component 2 | 1   | 3   | Yes  | AQEI is multiplied by 12<br>Resulting decimal: 3                   | Use in the calculation of OP(EMP,AQEI, DA_BE),<br>OP(EMP,AQEI, BE) | <p><b>For each 5 minute metering interval:</b></p> <p>Numerator</p> <p>OP(EMP,AQEI, DA_BE),<br/>OP(EMP,DQSI, DA_BE),<br/>OP(EMP,DA_DQSI, DA_BE)<br/>OP(EMP,OPCAP, DA_BE)<br/>OP(EMP,AQEI, BE),<br/>OP(EMP,DQSI, BE),<br/>OP(EMP,DA_DQSI, BE)</p> | Profits are compared as applicable.       |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1      | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|--|--|---|
|                    |  |   |   |  |  |  | OP(EMP,OPCAP, BE)<br><br>Resulting Decimal: 2  |   |
| 1502               | Day-Ahead Production Cost Guarantee Payment – Component 3 and Component 3 Clawback | 1   | 3   | Yes  | AQEI is multiplied by 12<br>Resulting decimal: 3                   | Use in the calculation of<br>OP(EMP,AQEI, BE), | <b>For each 5 minute metering interval:</b><br><br>Numerator<br>OP(EMP,AQEI, BE),<br>OP(EMP,DQSI, BE),<br>OP(EMP,DA_DQSI, BE)<br>OP(EMP,MLP, BE)<br><br>Results for each 5-minute metering interval are summed for the hour.<br><br>Resulting Decimal: 2 | Profits are compared as applicable.       |

| Charge Type Number | Charge Type Name  | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)   | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1503               | Day-Ahead Production Cost Guarantee Payment – Component 4 | 1   | 3   | Yes  | <p><b>For each 5 minute metering interval:</b></p> <p>Numerators<br/>                     OP(PROR,30R_SQROR,BR),<br/>                     OP(PROR,10NS_SQROR,BR),<br/>                     OP(PROR,10S_SQROR,BR),</p> <p>Denominator: 12<br/>                     Resulting Decimal: 2</p> | Profits are compared as applicable.       |  |   |
| 1504               | Day-Ahead Production Cost Guarantee Payment – Component 5 | 1   | 3   | No   |  |   |  |   |
| 1505               | Day-Ahead Production Cost Guarantee Reversal              | 1   | 3   | No   |  |   |  |   |

| Charge Type Number | Charge Type Name   | INPUT VARIABLES<br>Least number of significant digits to the right of the decimal | INPUT VARIABLES<br>Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1<br>(where intermediate rounding occurs)  | DISPOSITION OF INTERMEDIATE CALCULATION 1                            | INTERMEDIATE CALCULATION 2<br>(where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|---|--|--|---|
| 1510               | Day-Ahead Generator Withdrawal Charge                                | 1   | 3   | Yes  | <p><b>For each 5 minute metering interval:</b></p> <p>Numerators</p> <p>OP(EMP,MLP,DA_BE) or OP(PD_EMP,MLP,DA_BE)</p> <p>Denominator: 12<br/>Resulting Decimal: 2</p> | Results for each 5-minute metering interval are summed for the hour. |  |   |
| 1550               | Day-Ahead Production Cost Guarantee Recovery Debit                   | 1   | 3   | No   |   |  |  |   |
| 1560               | Day-Ahead Generator Withdrawal Rebate                                | 1   | 3   | No   |   |  |  |   |
| 6000               | Ontario Fair Hydro Plan - Regulatory Asset Transfer Amount           | 2   | 2   | No   |   |  |  |   |
| 6050               | Ontario Fair Hydro Plan - Regulatory Asset Transfer Balancing Amount | 2   | 2   | No   |   |  |  |   |
| 6147               | Class A Global Adjustment Deferral Recovery Amount                   | 1   | 3   | No   |   |  |  |   |

| <b>Charge Type Number</b> | <b>Charge Type Name</b>                                       | <b>INPUT VARIABLES<br/>Least number of significant digits to the right of the decimal</b> | <b>INPUT VARIABLES<br/>Maximum number of significant digits to the right of the decimal</b> | <b>Intermediate Rounding done by Settlements?</b> | <b>INTERMEDIATE CALCULATION 1<br/>(where intermediate rounding occurs)</b> | <b>DISPOSITION OF INTERMEDIATE CALCULATION 1</b> | <b>INTERMEDIATE CALCULATION 2<br/>(where intermediate rounding occurs)</b> | <b>DISPOSITION OF INTERMEDIATE CALCULATION 2</b> |
|---------------------------|---|---|---|---|--|--|--|--|
| 6148                      | Class B Global Adjustment Deferral Recovery Amount            | 1   | 3   | No  |  |  |  |  |
| 9147                      | Class A Global Adjustment Smoothing Balancing Amount          | 1   | 3   | No  |  |  |  |  |
| 9148                      | Class B Global Adjustment Smoothing Balancing Amount          | 1   | 3   | No  |  |  |  |  |
| 9992                      | Ontario Clean Energy Benefit (-10%) Program Settlement Amount | 2   | 2   | No  |  |  |  |  |

### 3.5. Settlement of Physical Bilateral Contracts

#### 3.5.1. Governing Rules

*Settlement of physical bilateral contracts* is discussed in section 2.1 of Chapter 8, of the *IESO market rules*. In summary this particular *market rules* section prescribes the prices to be applied to a *Physical Bilateral Contract Quantity of Energy Sold* ( $BCQ_{k,b,h}^{m,t}$ ) or a *Physical Bilateral Contract Quantity of Energy Bought* ( $BCQ_{s,k,h}^{m,t}$ ) at a *delivery point* or an *intertie metering point*. This treatment is summarized in the table below with respect to each *settlement* variable defined in [section 3.1](#) and *charge type* described in [section 3.2](#) of this document.

**Table 3-5: Energy Pricing – Location of Bilateral Contract**

| Location of Bilateral Contract         | Settlement of Selling Market Participant   | Settlement of Buying Market Participant   | Charge Type |
|--|--|---|-------------|
| Non-dispatchable <i>delivery point</i> | <ul style="list-style-type: none"> <li>Debit the Physical Bilateral Contract Quantity of Energy Sold (<math>BCQ_{k,b,h}^{m,t}</math>) at the 5-Minute Energy Market Price within Ontario (<math>EMP_h^{m,t}</math>).</li> </ul>          | <ul style="list-style-type: none"> <li>Credit the Physical Bilateral Contract Quantity of Energy Bought (<math>BCQ_{s,k,h}^{m,t}</math>) at the <i>Hourly Ontario Energy Price</i> (HOEP).</li> </ul>                                       | 101         |
| Dispatchable <i>delivery point</i>     | <ul style="list-style-type: none"> <li>Debit the Physical Bilateral Contract Quantity of Energy Sold (<math>BCQ_{k,b,h}^{m,t}</math>) at the 5-Minute Energy Market Price within Ontario (<math>EMP_h^{m,t}</math>).</li> </ul>          | <ul style="list-style-type: none"> <li>Credit the Physical Bilateral Contract Quantity of Energy Bought (<math>BCQ_{s,k,h}^{m,t}</math>) at the 5-Minute Energy Market Price within Ontario (<math>EMP_h^{m,t}</math>).</li> </ul>          | 100         |
| <i>Intertie Metering Point</i>         | <ul style="list-style-type: none"> <li>Debit the Physical Bilateral Contract Quantity of Energy Sold (<math>BCQ_{k,b,h}^{m,t}</math>) at the 5-minute Energy Market Price at the <i>Interties</i> (<math>EMP_h^{i,t}</math>).</li> </ul> | <ul style="list-style-type: none"> <li>Credit the Physical Bilateral Contract Quantity of Energy Bought (<math>BCQ_{s,k,h}^{m,t}</math>) at the 5-minute Energy Market Price at the <i>Interties</i> (<math>EMP_h^{i,t}</math>).</li> </ul> | 100         |

These financial credits and debits are then included the overall *settlement amounts* calculated for *charge types* 100 and 101 as per the equations in [section 3.2](#).

### 3.5.2. The Nature of the Bilateral Contract Quantity

**Table 3-6: Bilateral Contract Quantities**

| Variable            | Name   | Description   |
|---------------------|--|---|
| $BCQ_{s,k,h}^{m,t}$ | Physical Bilateral Contract Quantity of Energy bought. | Physical bilateral contract quantity of <i>energy</i> in MWh bought by <i>buying market participant</i> 'k' from <i>selling market participant</i> 's' at <i>RWM</i> or <i>intertie metering point</i> 'm' for each <i>metering interval</i> 't' in <i>settlement hour</i> 'h'. |
| $BCQ_{k,b,h}^{m,t}$ | Physical Bilateral Contract Quantity of Energy sold.   | Physical bilateral contract quantity of <i>energy</i> in MWh sold by <i>selling market participant</i> 'k' to <i>buying market participant</i> 'b' at <i>RWM</i> or <i>intertie metering point</i> 'm' for each <i>metering interval</i> 't' in <i>settlement hour</i> 'h'.     |

The submission of *physical bilateral contract data* is governed by section 2.4 of Chapter 8 of the *IESO market rules*. Furthermore, section 2.3 of Chapter 8 describes 2 distinct “forms” of *physical bilateral contract data* that may be submitted by the *selling market participant*. Specifically, the two forms of such data are as follows:

1. **Absolute quantities:** specifying the absolute quantity of *energy* in MWh sold by the *selling market participant* to the *buying market participant* for each *settlement hour* at a particular *delivery point* or *intertie metering point*; and
2. **Derived quantities\*\*\*:** specifying that the *physical bilateral contract quantity* shall be 100% of the *energy* sold by the *selling market participant* to the *buying market participant* for each *settlement hour* as derived from a particular *delivery point* value (i.e. NOT an *intertie metering point*).

Where:

- The *delivery point* chosen by the *selling market participant* must belong to either the *selling market participant* or the *buying market participant*.
- If the *delivery point* is designated as a sub-type 'I' (injection) *delivery point*, 100% of all injected *energy* for each *metering interval* in each applicable *settlement hour* shall be used regardless of any *physical allocation data*.
- If the *delivery point* is designated as a sub-type 'W' (withdrawal) *delivery point*, 100% of all withdrawn *energy* for each *metering interval* in each applicable *settlement hour* shall be used regardless of any *physical allocation data*.

**\*\*\* Refer to Table 3-6 to Table 3-9 for examples of derived quantities.**



**Table 3-7: Derived Quantities Example 1**

| <b>Derived Quantities Example 1: <i>Delivery point belongs to the SELLING market participant and is a sub-type 'I' (injection) delivery point.</i></b> |  |          |          |          |          |          |           |           |          |           |           |           |
|--|--|----------|----------|----------|----------|----------|-----------|-----------|----------|-----------|-----------|-----------|
| <b>(note parity with EXAMPLE 3)</b>  |  |          |          |          |          |          |           |           |          |           |           |           |
| <i>metering interval</i>   | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b>  | <b>8</b>  | <b>9</b> | <b>10</b> | <b>11</b> | <b>12</b> |
| ENERGY QUANTITY  | 10   | 10       | 10       | 0        | 0        | 0        | <b>10</b> | <b>10</b> | 0        | 0         | 10        | 10        |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)   | I  | I        | I        | I        | I        | I        | <b>W</b>  | <b>W</b>  | I        | I         | I         | I         |
| BCQ value used for settlement purposes (for both the <i>buying</i> and <i>selling market participant</i> )   | 10   | 10       | 10       | 0        | 0        | 0        | <b>0</b>  | <b>0</b>  | 0        | 0         | 10        | 10        |
| Total Quantity for the hour  | 50 (REFER TO <a href="#">SECTION 3.5.3</a> FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) |          |          |          |          |          |           |           |          |           |           |           |

**Table 3-8: Derived Quantities Example 2**

| <b>Derived Quantities Example 2: <i>Delivery point belongs to the SELLING market participant and is a sub-type 'W' (Withdrawal) delivery point.</i></b> |  |           |           |          |          |          |          |          |          |           |           |           |
|---|--|-----------|-----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| <b>(note parity with EXAMPLE 4)</b>   |  |           |           |          |          |          |          |          |          |           |           |           |
| <i>metering interval</i>  | <b>1</b>   | <b>2</b>  | <b>3</b>  | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>10</b> | <b>11</b> | <b>12</b> |
| ENERGY QUANTITY   | <b>10</b>  | <b>10</b> | <b>10</b> | 0        | 0        | 0        | 10       | 10       | 0        | 0         | <b>10</b> | <b>10</b> |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)  | <b>I</b>   | <b>I</b>  | <b>I</b>  | W        | W        | W        | W        | W        | W        | W         | <b>I</b>  | <b>I</b>  |
| BCQ value used for settlement purposes (for both the <i>buying</i> and <i>selling market participant</i> )  | <b>0</b>   | <b>0</b>  | <b>0</b>  | 0        | 0        | 0        | 10       | 10       | 0        | 0         | <b>0</b>  | <b>0</b>  |
| Total Quantity for the hour   | 20 (REFER TO <a href="#">SECTION 3.5.3</a> FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) |           |           |          |          |          |          |          |          |           |           |           |

**Table 3-9: Derived Quantities Example 3**

| <b>Derived Quantities Example 3: <i>Delivery point belongs to the BUYING market participant and is a sub-type 'I' (injection) delivery point.</i></b> |  |          |          |          |          |          |           |           |          |           |           |           |
|---|--|----------|----------|----------|----------|----------|-----------|-----------|----------|-----------|-----------|-----------|
| <b>(note parity with EXAMPLE 1)</b>   |  |          |          |          |          |          |           |           |          |           |           |           |
| <i>metering interval</i>  | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b>  | <b>8</b>  | <b>9</b> | <b>10</b> | <b>11</b> | <b>12</b> |
| ENERGY QUANTITY   | 10   | 10       | 10       | 0        | 0        | 0        | <b>10</b> | <b>10</b> | 0        | 0         | 10        | 10        |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)  | I  | I        | I        | I        | I        | I        | <b>W</b>  | <b>W</b>  | I        | I         | I         | I         |
| BCQ value used for settlement purposes (for both the <i>buying</i> and <i>selling market participant</i> )  | 10   | 10       | 10       | 0        | 0        | 0        | <b>0</b>  | <b>0</b>  | 0        | 0         | 10        | 10        |
| Total Quantity for the hour   | 50 (REFER TO <a href="#">SECTION 3.5.3</a> FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) |          |          |          |          |          |           |           |          |           |           |           |

**Table 3-10: Derived Quantities Example 4**

| <b>Derived Quantities Example 4: <i>Delivery point belongs to the BUYING market participant and is a sub-type 'W' (Withdrawal) delivery point.</i></b> |  |           |           |          |          |          |          |          |          |           |           |           |
|--|--|-----------|-----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| <b>(note parity with EXAMPLE 2)</b>  |  |           |           |          |          |          |          |          |          |           |           |           |
| <i>metering interval</i>   | <b>1</b>   | <b>2</b>  | <b>3</b>  | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> | <b>9</b> | <b>10</b> | <b>11</b> | <b>12</b> |
| ENERGY QUANTITY  | <b>10</b>  | <b>10</b> | <b>10</b> | 0        | 0        | 0        | 10       | 10       | 0        | 0         | <b>10</b> | <b>10</b> |
| ENERGY FLOW<br>Injection (I)<br>Withdrawal (W)   | <b>I</b>   | <b>I</b>  | <b>I</b>  | W        | W        | W        | W        | W        | W        | W         | <b>I</b>  | <b>I</b>  |
| BCQ value used for settlement purposes (for both the <i>buying</i> and <i>selling market participant</i> )   | <b>0</b>   | <b>0</b>  | <b>0</b>  | 0        | 0        | 0        | 10       | 10       | 0        | 0         | <b>0</b>  | <b>0</b>  |
| Total Quantity for the hour  | 20 (REFER TO <a href="#">SECTION 3.5.3</a> FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) |           |           |          |          |          |          |          |          |           |           |           |

### 3.5.3. Time Resolution of Bilateral Contract Quantities and Rounding

Where a *physical bilateral contract* takes place at a non-dispatchable *delivery point*, the *Physical Bilateral Contract Quantity* of Energy Bought is reported by *settlement hour* as per the *market rules* (because the *Hourly Ontario Energy Price* is applied to this quantity – refer to Chapter 9, section 3.3). At the same location however, the ‘Physical Bilateral Contract Quantity of Energy Sold’ is debited at the 5-minute energy market price. This latter, sold quantity must therefore be divided into 12, equal *metering intervals* (refer to Chapter 9, section 3.1.6 of the *market rules*) and rounded to the appropriate number of significant digits (refer to [section 3.4](#) of this document). As a result, the summation of these 12, equal quantities may not equal the original, hourly value submitted in some circumstances due to this intermediate rounding. The table below summarizes this phenomenon in terms of the location sub-type and the applicable *charge type* used. Refer to [section 3.4](#) of this document for further details.

**Table 3-11: Time Resolution of Bilateral Contract Quantities and Rounding**

|  |  | Location Type   | Charge Type | Time Resolution used for Settlements Purposes | Intermediate Rounding Applied within Settlements System? |
|--|--|---|-------------|---|--|
| <b>BCQ<sub>s,k,h<sup>m,t</sup></sub></b> | Physical Bilateral Contract Quantity of Energy bought. | Dispatchable <i>Delivery Point</i> (injection or withdrawal sub-type)     | 100         | by <i>metering interval</i>                   | Yes – Refer to <a href="#">section 3.4</a>               |
|  |  | Non-Dispatchable <i>Delivery Point</i> (injection or withdrawal sub-type) | 101         | by <i>settlement hour</i>                     | No   |
|  |  | <i>Intertie metering point</i>  | 100         | by <i>metering interval</i>                   | Yes – Refer to <a href="#">section 3.4</a>               |
| <b>BCQ<sub>k,b,h<sup>m,t</sup></sub></b> | Physical Bilateral Contract Quantity of Energy sold.   | Dispatchable <i>Delivery Point</i> (injection or withdrawal sub-type)     | 100         | by <i>metering interval</i>                   | Yes – Refer to <a href="#">section 3.4</a>               |
|  |  | Non-Dispatchable <i>Delivery Point</i> (injection or withdrawal sub-type) | 101         | by <i>metering interval</i>                   | Yes – Refer to <a href="#">section 3.4</a>               |
|  |  | <i>Intertie metering point</i>  | 100         | by <i>metering interval</i>                   | Yes – Refer to <a href="#">section 3.4</a>               |

### 3.5.4. Allocation of Hourly Uplift Components Between Buying and Selling Market Participants

*Hourly uplift* is defined in section 3.9.1 of Chapter 9 of the *IESO market rules* and may be “disaggregated” (sic) on *settlement statements* into its component parts as per section 3.9.2. The following components *hourly uplift* charges may be allocated from the

buying market participant to the selling market participant as per the physical bilateral contract data submitted by the selling market participant (refer to also, IESO market rules, Chapter 8, section 2.2.2).

**Table 3-12: Allocation of Hourly Uplift Components Between Buying and Selling Market Participants**

| Hourly Uplift Component Group  | Associated Charge Types | Comments  |
|--|-------------------------|---|
| Net Energy Market Settlement Credit (NEMSC) Hourly Uplift Component (also known as the "Losses" component) | 150                     | <ul style="list-style-type: none"> <li>This hourly uplift component is an aggregation of <i>charge types</i> 100 (NEMSC), 101 (NEMSC), 104 (TRSC), and 103 (TCRF). The aggregation of these <i>charge types</i> mathematically resolves down to the value of the difference between AQEI, AQEW, SQEW and SQEI quantities valued at the 5-minute Energy Market Reference Price (<math>EMP_n^{REF,t}</math>) for each <i>metering interval</i> in the <i>settlement hour</i>.</li> </ul>        |
| Operating Reserve Settlement Credit (ORSC) Hourly Uplift Component   | 250<br>252<br>254       | <ul style="list-style-type: none"> <li>Separate <i>charge types</i> for recovery of ORSC <i>settlement amounts</i> paid to <i>market participants</i> for each class of <i>operating reserve</i>.</li> </ul>  |
| Intertie Failure Charge Rebate (IFCR) Hourly Uplift Component  | 186                     | <p>Two components as follows:</p> <ol style="list-style-type: none"> <li><i>Charge type</i> 186: an aggregation of <i>charge types</i> 135 (Real-time Import Failure Charge), 136 (Real-time Export Failure Charge), 1134 (Day-Ahead Linked Wheel Failure Charge, 1135 (Day-Ahead Import Failure Charge) and 1136 (Day-Ahead Export Failure Charge). These <i>charge types</i> are primarily rebates back to <i>market participants</i> for amounts collected under these charges.</li> </ol> |
| Congestion Management Settlement Credit (CMSC) Hourly Uplift Component                                     | 155                     | <ul style="list-style-type: none"> <li>Includes recovery of CMSC payments for <i>energy</i> and each class of <i>operating reserve</i>.</li> </ul>  |
| Transmission Rights Settlement Credit (TRSC) Hourly Uplift Component                                       | NOT USED                | <ul style="list-style-type: none"> <li>INCLUDED WITH THE "NET ENERGY MARKET SETTLEMENT CREDIT (NEMSC) Hourly Uplift COMPONENT".</li> <li>REFER TO NOTE ABOVE.</li> </ul>  |
| Transmission Charge Reduction Fund (TCRF) Hourly Uplift Component  | NOT USED                | <ul style="list-style-type: none"> <li>INCLUDED WITH THE "NET ENERGY MARKET SETTLEMENT CREDIT (NEMSC) Hourly Uplift COMPONENT".</li> <li>REFER TO NOTE ABOVE.</li> </ul>  |

| Hourly Uplift Component Group  | Associated Charge Types | Comments   |
|--|-------------------------|--|
| Operating Reserve Shortfall Settlement Debit (ORSSD) Hourly Uplift Component | 201                     | <ul style="list-style-type: none"> <li>Separate <i>charge types</i> for distribution of ORSSD <i>settlement amounts</i> received from <i>market participants</i> for shortfalls in the provision of each class of <i>operating reserve</i>.</li> </ul> |
|  | 203                     |  |
|  | 205                     |  |

Each hourly uplift component group (i.e. not the individual *charge types* themselves) may be selected in any combination when the *physical bilateral contract data* is submitted by the *selling market participant*. Confirmation of this selection is included within the *settlement statement* supporting data files (type "B" records). A schematic overview of the format of type "B" records may be found within Table 3-2 of the *IESO's* Technical Interface Document entitled, "Format Specification for Settlement Statement Files and Data Files".

The effect of selecting an hourly uplift component group within *physical bilateral contract data*, is the creation of a "Reallocate Quantity (RQ)".

The RQ specific to a single *physical bilateral contract* is exactly equal to the quantity of *energy* involved in the contract itself.

The RQ specific to a single *market participant* is equal to the sum of all RQ quantities for which the *market participant* is the *selling market participant*, minus the sum of all RQ quantities for which the *market participant* is the *buying market participant*.

The RQ specific to a single *market participant* for a particular hourly uplift component group is equal to the sum of all RQ quantities designated to for that particular hourly uplift component group within *physical bilateral contract data* for which the *market participant* is the *selling market participant*, minus the sum of all RQ quantities for which the *market participant* is the *buying market participant*.

This RQ quantity is then applied to the calculation of the *settlement amounts* for each *charge type* associated with the hourly uplift component group as per the table above.

Therefore, when calculating the RQ quantity for a particular hourly uplift *charge type* for *market participant* 'k' at a particular location 'm' during a particular *metering interval* 't', the quantity may be expressed as follows:

$$RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$$

Where all variables are defined as per [section 3.1](#).

The RQ quantity is then used to either augment or decrease the *settlement amount* for the hourly uplift *charge type* "c" as follows:

$$\sum_c^{M,T} TD_{k,h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$$

Where all variables are defined as per [section 3.1](#).

In the event that the term,

$$(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) < 0$$

Where:

$$RQ_{k,h}^{m,t} < 0 \text{ and } |RQ_{k,h}^{m,t}| > |(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})| \text{ and } TD_{k,h,c} > 0$$

The calculation of the applicable hourly uplift charge type “c” will yield a net credit to the *buying market participant* as a result of the reallocated quantity exceeding their actual/scheduled withdrawals of *energy* for the *metering interval* ‘t’ in question.

**The above mechanism applies to those “associated charge types” that are enumerated in the table at the beginning of this section. Refer to [section 3.2](#) for specific listings of charge types and their respective equations.**

## 3.6. Exemptions from the Day-Ahead Import Failure Charge, Day-Ahead Export Failure Charge, and Day-Ahead Linked Wheel Failure Charge

### 3.6.1. Purpose of this Section

This section describes how Day-Ahead Import transactions are subject to an “Offer Price Test” in order to determine if they are exempt from the Day-Ahead Import Failure Charge (*charge type* 1135), Day-Ahead Export Failure Charge (*charge type* 1136) and Day-Ahead Linked Wheel Failure Charge (*charge type* 1134)<sup>4</sup>.

Generally speaking the applicability of the five Intertie Failure charges<sup>5</sup> is affected by the “Reason Codes” attached to the applicable *interchange schedule* received by the *settlement process*. The impact of these Reason Codes is outlined in Table 3-5 of the *IESO* Technical Interface document entitled, “Format Specifications for Settlement Statement Files and Data Files” (IMP\_SPEC\_0005). As noted in that table however, day-ahead import transactions arranged in the *pre-dispatch-of-record* that include the ‘AUTO’NY90’ or ‘ADQh’, or ‘ORA’ Reason Codes in the resulting real-time dispatch will be further subject to an “Offer Price Test” which determines whether or not the transaction in question is in fact exempt from the Day-Ahead Failure Charges.

### 3.6.2. Objective of the “Offer Price Test”

The main objective of the Offer Price Test is to grant an exemption from the DA-IFC, DA-EFC and DA-LWFC for those import and export transactions that make a best effort to ensure that they are scheduled in the *real-time market*. The Offer Price Test assesses “best effort” on the basis of the offer price of the transaction itself.

### 3.6.3. How the Offer Price Test Works

The Offer Price Test is a simple test that is performed on the first lamination of the *real-time market* import *offer*/or export *bid*. The “first lamination” is defined by the first two *price-quantity* (“p-q”) *pairs* in the *real-time market offer curve*, where:

- The first *price-quantity pair* contains an *offer* or *bid* price and a quantity of zero; and
- The second *price-quantity pair* contains the same *offer* or *bid* price as the first *price-quantity pair* and a non-zero quantity.

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<sup>4</sup> The price test for the Day-Ahead Linked Wheel Failure Charge (1134) is used to determine exemption from the RT-EFC-DALW and RT-IFC-DALW portions only.

<sup>5</sup> Specifically, the Real-time Import Failure Charge (*charge type* 135), the Real-time Export Failure Charge (*charge type* 136), the Day-Ahead Import Failure Charge (*charge type* 1135), the Day-Ahead Export Failure Charge (*charge type* 1136) and the Day-Ahead Linked Wheel Failure Charge (*charge type* 1134).

The Offer Price Test applies to any situation in which a day-ahead import or export transaction has a Reason Code, 'AUTO', 'NY90' 'ADQh', or 'ORA' assigned to the corresponding real-time import or export transaction at the same location. It is applicable to *any intertie metering point* where the underlying constrained scheduling point (CSP) is a "source" (i.e. applicable to imports only) or a "sink" (i.e. applicable to exports only).

If the transaction fails this test; it will not receive exemption status from the DA-IFC or DA-EFC. If the transaction passes this test, then it will be exempted from the DA-IFC or DA-EFC – without actually changing the Reason Code itself.

### 3.6.4. Input Data:

- DA\_DQSI<sub>k,h</sub><sup>i,t</sup> = Day-ahead constrained quantity scheduled for injection by *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h'
- PD\_DQSI<sub>k,h</sub><sup>i,t</sup> = *Pre-dispatch* constrained quantity scheduled for injection by *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h'.  
*Energy offers* submitted in Pre-dispatch, represented as an N by 2 matrix of *price-quantity pairs* for each *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h' arranged in ascending order by the offered price in each *price quantity pair* where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2
- PD\_BE<sub>k,h</sub><sup>i,t</sup> = *Energy offers* submitted in Pre-dispatch, represented as an N by 2 matrix of *price-quantity pairs* for each *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h' arranged in ascending order by the offered price in each *price quantity pair* where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2
- MMCP = The *Minimum Market Clearing Price*.
- DA\_DQSW<sub>k,h</sub><sup>i,t</sup> = Day-ahead constrained quantity scheduled for withdrawal by *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h'
- PD\_DQSW<sub>k,h</sub><sup>i,t</sup> = *Pre-dispatch* constrained quantity scheduled for withdrawal by *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h'.  
*Energy bids* submitted in *pre-dispatch*, represented as an N by 2 matrix of *price-quantity pairs* for each *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h' arranged in ascending order by the offered price in each *price quantity pair* where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2
- PD\_BL<sub>k,h</sub><sup>i,t</sup> = *Energy bids* submitted in *pre-dispatch*, represented as an N by 2 matrix of *price-quantity pairs* for each *market participant* 'k' at *intertie metering point* 'i' during *metering interval* 't' of *settlement hour* 'h' arranged in ascending order by the offered price in each *price quantity pair* where offered prices 'P' are in column 1 and offered quantities 'Q' are in column 2
- +MMCP = The *Maximum Market Clearing Price*.



### 3.6.5. Decision Logic Applied During the Offer Price Test for Import

#### **PART 1:**

The first part of the test ensures that the original *schedule-of-record* schedule ( $DA\_DQSI_{k,h}^{i,t}$ ) for the import transaction is indeed GREATER THAN the resulting *Pre-dispatch schedule* ( $PD\_DQSI_{k,h}^{i,t}$ ) over the course of *settlement hour* 'h'.

IF  $\sum^T DA\_DQSI_{k,h}^{i,t} > \sum^T PD\_DQSI_{k,h}^{i,t}$

THEN

    Proceed to PART 2

ELSE

    END of the test for this transaction.

#### **PART 2:**

The second part of the test ensures that the first lamination (i.e. as defined by the first 2 *price-quantity* pairs) of the offer curve submitted into the *pre-dispatch scheduling process*:

- 1) Was large enough to cover the entire quantity of the transaction originally scheduled by the *schedule-of-record* at the same *market participant/intertie metering point* combination (commonly referred to as a "MP/MSP/CSP triplet"); and,
- 2) Was offered at the *Minimum Market Clearing Price (-MMCP)*.

The test is as follows:

For each *metering interval* 't' at *intertie metering point* 'i' where the transaction passed PART 1 for *settlement hour* 'h':

    Let 'B' be matrix  $PD\_BE_{k,h}^{i,t}$  (refer to above for definition).

    IF  $B[2,2] \geq DA\_DQSI_{k,h}^{i,t}$  AND  $B[2,1] = -MMCP$

        THEN

            Allow Reason Code to remain as-is, but exempt the transaction from the DA-IFC.

        ELSE

            Allow Reason Code to remain as-is, and do NOT exempt the transaction from the DA-IFC.

**Implications:**

- A day-ahead import transaction must be constrained down to a level lower than its original *schedule-of-record* schedule in order to receive exemption status;
- The entire amount of the constrained portion of the transaction must have been offered into the *Pre-dispatch* at  $-MMCP$  in order to receive exemption status (compare Figures 3-1 and 3-2 to refer to examples where this condition is met and not met respectively); and
- Only the first lamination (i.e. the first 2 p-q pairs) of the Pre-dispatch offer curve for each import transaction are relevant in performing this test (due to the existing market rule requirement that offer prices must be monotonically increasing).

### 3.6.6. Decision Logic Applied During the Offer Price Test for Export Transactions:

**PART 1:**

The first part of the test ensures that the original *schedule-of-record* ( $DA\_DQSW_{k,h^{i,t}}$ ) for the export transaction is indeed GREATER THAN the resulting *Pre-dispatch schedule* ( $PD\_DQSW_{k,h^{i,t}}$ ) over the course of *settlement hour* 'h'.

IF  $\sum^T DA\_DQSW_{k,h^{i,t}} > \sum^T PD\_DQSW_{k,h^{i,t}}$

THEN

    Proceed to PART 2

ELSE

    END of the test for this transaction.

**PART 2:**

The second part of the test ensures that the first lamination (i.e. as defined by the first 2 *price-quantity pairs*) of the offer curve submitted into the *Pre-dispatch scheduling process*:

- 1) Was large enough to cover the entire quantity of the transaction originally scheduled by the *schedule-of-record* at the same *market participant/intertie metering point* combination (commonly referred to as a, "MP/MSP/CSP triplet"); and,
- 2) Was offered at the *Maximum Market Clearing Price (+MMCP)*.

The test is as follows:

For each *metering interval* 't' at *intertie metering point* 'i' where the transaction passed PART 1 for *settlement hour* 'h':

Let 'B' be matrix  $BL_{k,h}^{i,t}$  (refer to above for definition)

IF  $B[2,2] \geq DA\_DQSW_{k,h}^{i,t}$  AND  $B[2,1] = +MMCP$

THEN

Allow Reason Code to remain as-is, but exempt the transaction from the DA-EFC.

ELSE

Allow Reason Code to remain as-is, and do NOT exempt the transaction from the DA-EFC.

#### Implications:

- A day-ahead export transaction must be constrained down to a level lower than its original *schedule-of-record* in order to receive exemption status;
- The entire amount of the constrained portion of the transaction must have been offered into the *Pre-dispatch* at *+MMCP* in order to receive exemption status (compare Figures 3-1 and 3-2 to refer to examples where this condition is met and not met respectively); and
- Only the first lamination (i.e. the first 2 p-q pairs) of the Pre-dispatch offer curve for each export transaction are relevant in performing this test (due to the existing *market rule* requirement that *offer* prices must be monotonically decreasing).

#### 3.6.7. Decision Logic Applied During the Offer Price Test for Linked Wheel Transactions:

The test seeks to demonstrate a best efforts attempt to schedule both the import and export legs of a day-ahead linked wheel (DALW) transaction through both:

- A Pre-dispatch bid at positive maximum market clearing price (+MMCP) for a quantity at least equal to the day-ahead export quantity, and
- A Pre-dispatch offer at negative maximum market clearing price (–MMCP) for a quantity at least equal to the day-ahead import quantity.

For import leg of the linked wheel, the decision logic for the price test is described in section 3.6.5 with the following amendment:

For each *metering interval* 't' at *intertie metering point* 'i' where the transaction passed PART 1 for *settlement hour* 'h':

Let 'B' be matrix PD\_BE<sub>k,h</sub><sup>i,t</sup> (refer to above for definition).

IF B[2,2] ≥ DA\_DQSI<sub>k,h</sub><sup>i,t</sup> AND B[2,1] = -MMCP

THEN

Allow Reason Code to remain as-is, but exempt the transaction from the **RT-IFC-DALW**.

ELSE

Allow Reason Code to remain as-is, and do NOT exempt the transaction from the **RT-IFC-DALW**.

For export leg of the linked wheel, the decision logic for the price test is described in section 3.6.6 with the following amendment:

For each *metering interval* 't' at *intertie metering point* 'i' where the transaction passed PART 1 for *settlement hour* 'h':

Let 'B' be matrix BL<sub>k,h</sub><sup>i,t</sup> (refer to above for definition).

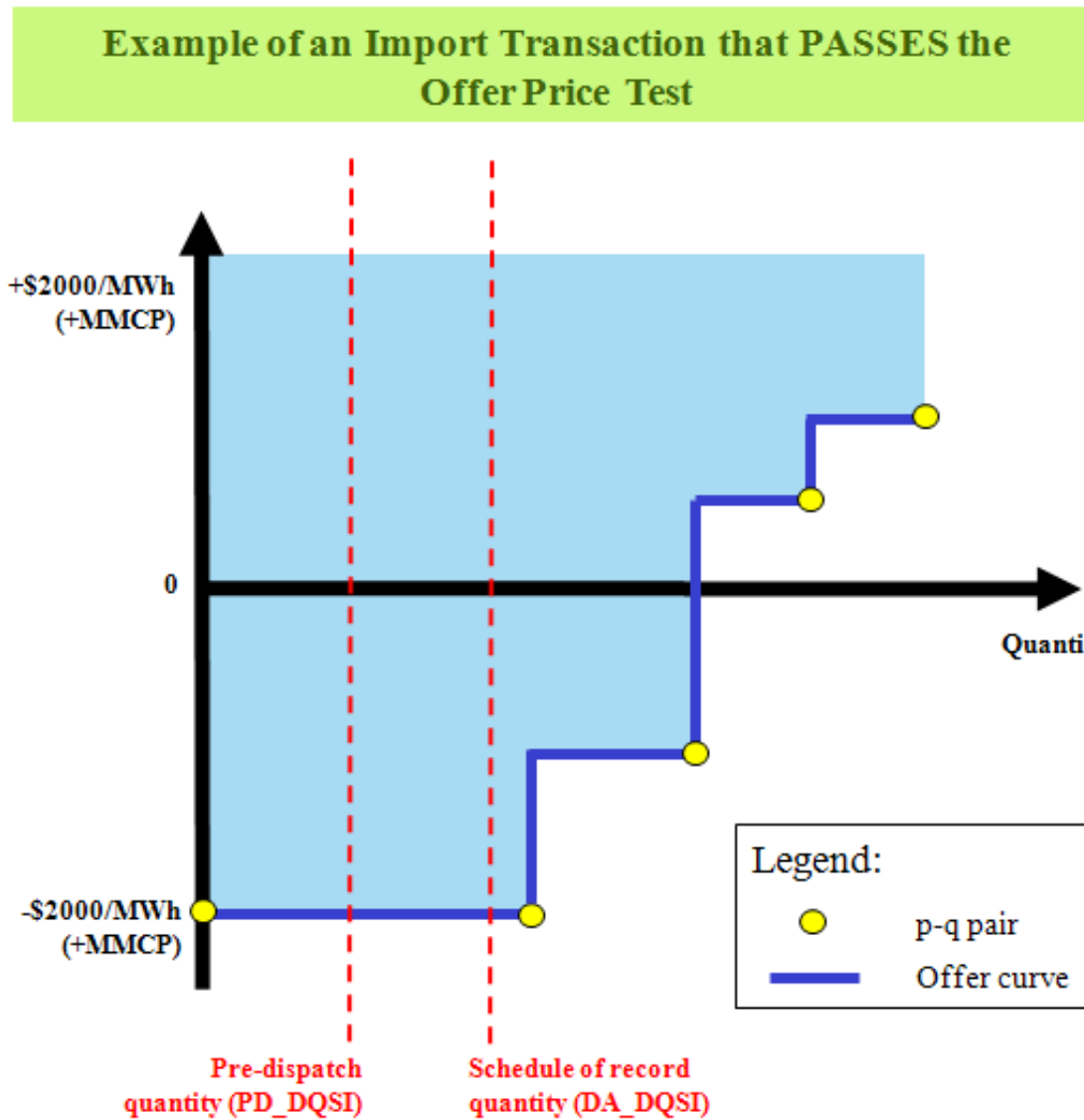
IF B[2,2] ≥ DA\_DQSW<sub>k,h</sub><sup>i,t</sup> AND B[2,1] = +MMCP

THEN

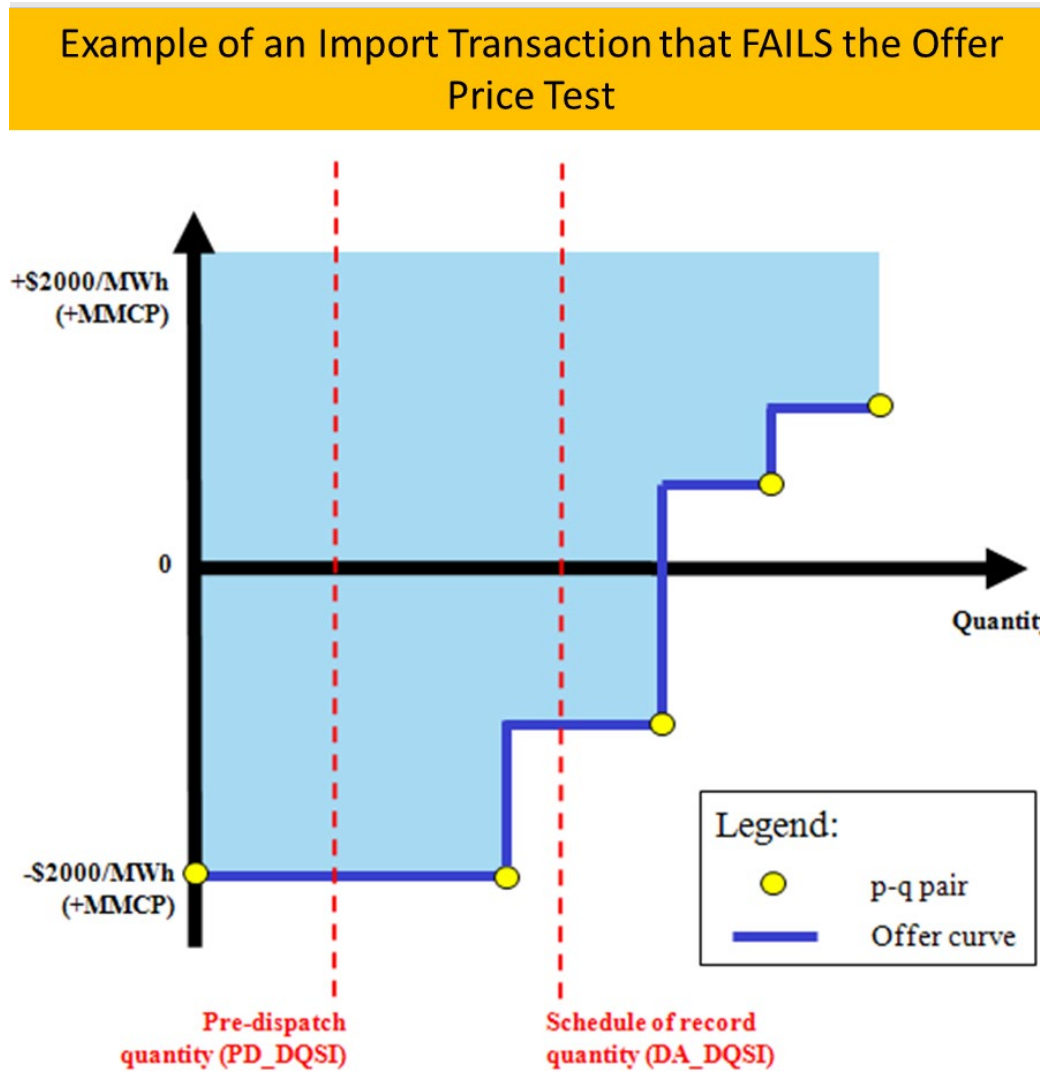
Allow Reason Code to remain as-is, but exempt the transaction from the **RT-EFC-DALW**.

ELSE

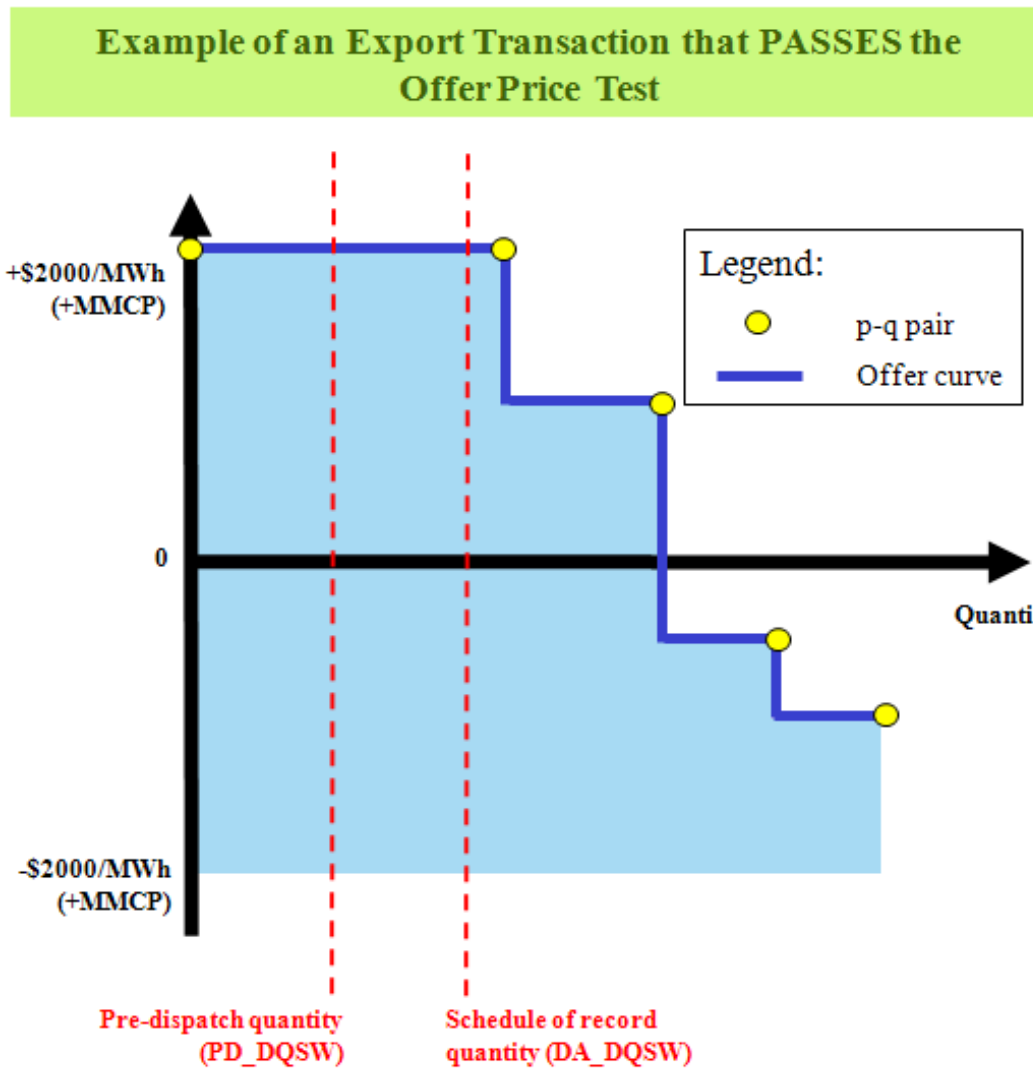
Allow Reason Code to remain as-is, and do NOT exempt the transaction from the **RT-EFC-DALW**.



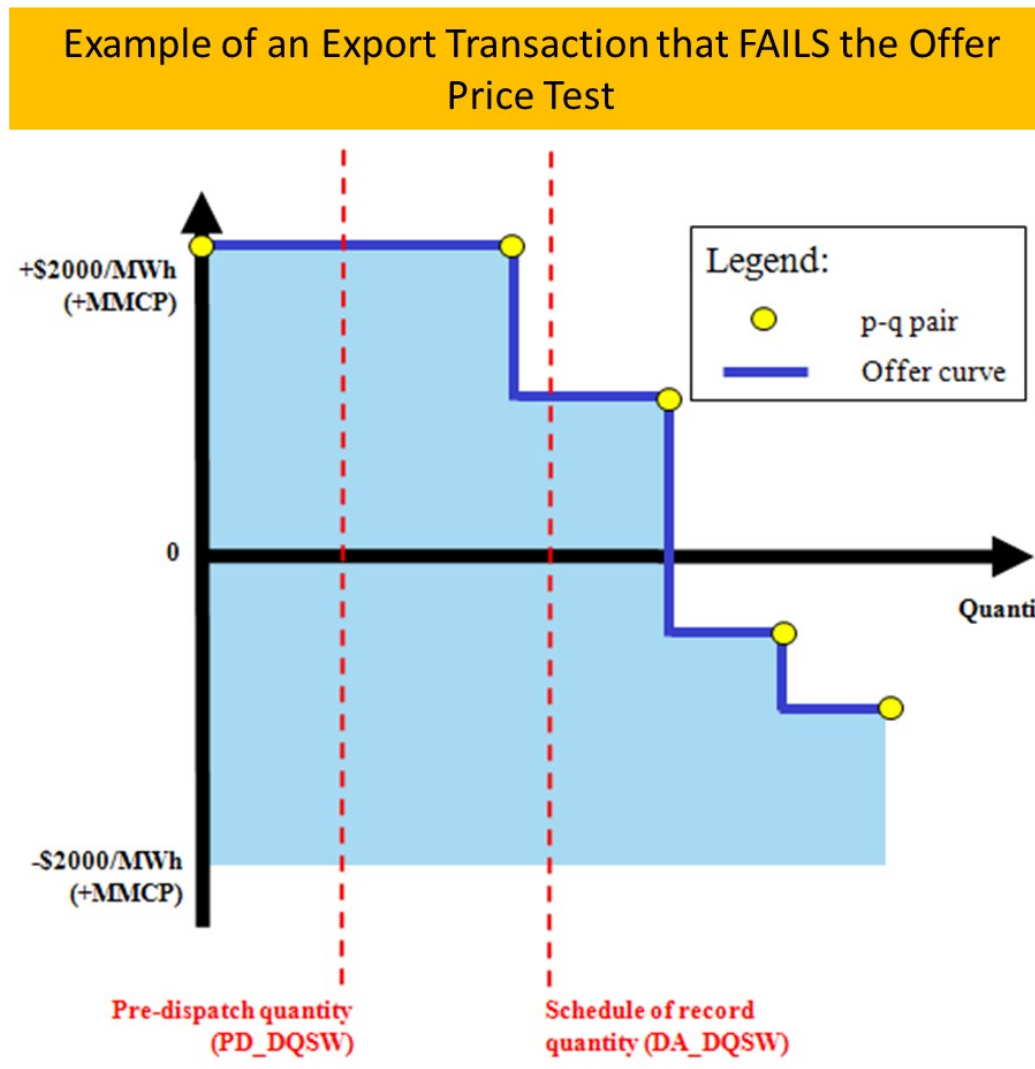
**Figure 3-1: Example of an Import Transaction that PASSES the “Offer Price Test”**



**Figure 3-2: Example of an Import Transaction that FAILS the “Offer Price Test”**



**Figure 3-3: Example of an Export Transaction that PASSES the “Offer Price Test”**



**Figure 3-4: Example of an Export Transaction that PASSES the "Offer Price Test"**



## References

| Document Name   | Doc ID        |
|---|---------------|
| Market Rules for the Ontario Electricity Market   | MDP_RUL_0002  |
| Market Manual 1: Connecting to Ontario's Power System, Part 1.5: Market Registration Procedures | PRO-408       |
| Market Manual 5: Settlements, Part 5.10: Settlement Disagreements                               | PRO-665       |
| Format Specifications for Settlement Statement Files and Data Files                             | IMP_SPEC_0005 |
| <b><u>Ontario Energy Board Act, 1998</u></b>  |               |
| Regulation 436/02   |               |
| Regulation 330/09   |               |
| Regulation 98/05  |               |
| Regulation 314/15   |               |
| Regulation 442/01   |               |
| <b><u>Electricity Act, 1998</u></b>   |               |
| Regulation 429/04   |               |
| Regulation 493/01   |               |
| Regulation 494/01   |               |
| <b><u>Ontario Rebate for Electricity Consumers Act, 2016</u></b>                                |               |
| Regulation 363/16   |               |
| Regulation 364/16   |               |
| <b><u>Electricity Restructuring Act, 2004</u></b>   |               |
| <b><u>Bill 4, Ontario Energy Board Amendment Act (Electricity pricing), 2003</u></b>            | Bill 4        |

– End of Document –