

UNDERTAKING

Undertaking

TO PROVIDE A LIST OF CONTROL ACTIONS THAT ARE TAKEN IN ADVANCE OF EXPORT CURTAILMENT THAT IMPACT DOMESTIC CUSTOMER SUPPLY.

Response

In the Technical Conference, the IESO expert referenced a control action which can be taken in advance of curtailing an export which would impact domestic customers. There are in fact two actions that can be taken in advance of curtailing an export which would impact domestic customers. These actions are a 3% voltage reduction and a 5% voltage reduction, which are listed as items #4 and #6 in Appendix E.2, Emergency Operating State Actions, (IESO and External Control Area Deficiency), of IESO Market Manual 7.4. This document was provided as part of the Exhibit I, Tab 23, Schedule 6.02 HQ 2.

UNDERTAKING

Undertaking

**TO PROVIDE LIST OF UPLIFT COMPONENTS AND HOW IT IS
CALCULATED.**

Response

Attachment 1 provides a list of all the uplift components with charge types. Provided as
Attachment 2, is the IESO Charge Types and Equations manual which includes the
equations for the uplift charge types.

| Charge ID | Charge Name |
|-----------|---|
| 120 | LOCAL MARKET POWER DEBIT |
| 163 | ADDITIONAL COMPENSATION FOR ADMINISTRATIVE PRICING DEBIT |
| 164 | OUTAGE CANCELLATION / DEFERRAL DEBIT |
| 165 | UNRECOVERABLE TESTING COSTS DEBIT |
| 166 | TIELINE MAINTENANCE RELIABILITY DEBIT |
| 167 | EMERGENCY ENERGY AND EDRP DEBIT |
| 168 | TR MARKET SHORTFALL DEBIT |
| 169 | STATION SERVICE REIMBURSEMENT DEBIT |
| 170 | LOCAL MARKET POWER REBATE |
| 183 | GENERATION COST GUARANTEE RECOVERY DEBIT |
| 184 | DEMAND RESPONSE DEBIT |
| 201 | 10-MINUTE SPINNING RESERVE MARKET SHORTFALL REBATE |
| 203 | 10-MINUTE NON-SPINNING RESERVE MARKET SHORTFALL REBATE |
| 205 | 30-MINUTE OPERATING RESERVE MARKET SHORTFALL REBATE |
| 450 | BLACK START CAPABILITY SETTLEMENT DEBIT |
| 452 | MONTHLY REACTIVE SUPPORT AND VOLTAGE CONTROL SETTLEMENT DEBIT |
| 454 | REGULATION SERVICE SETTLEMENT DEBIT |
| 460 | IESO-CONTROLLED GRID SPECIAL OPERATIONS DEBIT |
| 550 | MUST-RUN CONTRACT SETTLEMENT DEBIT |
| 850 | MARKET PARTICIPANT DEFAULT SETTLEMENT DEBIT |
| 1188 | DAY-AHEAD FUEL COST COMPENSATION DEBIT |
| 1650 | FORECASTING SERVICE BALANCING AMOUNT |



Power to Ontario.
On Demand.

IESO Charge Types and Equations

Issue 47.0

LIST

This document enumerates the various charge types and equations used in the IESO settlements process for IESO-Administered markets that are subject to a functional deferral, and those that are NOT subject to a functional deferral.

Disclaimer

The posting of documents on this Web site is done for the convenience of *market participants* and other interested visitors to the *IESO* Web site. Please be advised that, while the *IESO* attempts to have all posted documents conform to the original, changes can result from the original, including changes resulting from the programs used to format the documents for posting on the Web site as well as from the programs used by the viewer to download and read the documents. The *IESO* makes no representation or warranty, express or implied, that the documents on this Web site are exact reproductions of the original documents listed. In addition, the documents and information posted on this Web site are subject to change. The *IESO* may revise, withdraw or make final these materials at any time at its sole discretion without further notice. It is solely your responsibility to ensure that you are using up-to-date documents and information.

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

| | |
|-------------------------|---------------------------------|
| Document ID | IMP_LST_0001 |
| Document Name | IESO Charge Types and Equations |
| Issue | Issue 47.0 |
| Reason for Issue | Updated for Baseline 28.0 |
| Effective Date | September 12, 2012 |

Document Change History

| Issue | Reason for Issue | Date |
|-------|--|--------------------|
| | <ul style="list-style-type: none"> For change history prior to Issue 22.0, see Issue 29.0 of the CT&E. For change history for Issue 22.0 to Issue 29.0, see Issue 38.0 of the CT&E. | |
| 30.0 | Issue released for Baseline 20.0 | September 10, 2008 |
| 31.0 | Issue released for Baseline 20.1 | December 10, 2008 |
| 32.0 | Issue released for Baseline 21.0 | March 4, 2009 |
| 33.0 | Issue released for Baseline 21.1 | June 3, 2009 |
| 34.0 | Issue released for Baseline 22.0 | September 9, 2009 |
| 35.0 | Update for Baseline 22.1 | December 9, 2009 |
| 36.0 | Updates for Baseline 23.0 | March 3, 2010 |
| 37.0 | Issued release prior to Baseline 24.0. | July 1, 2010 |
| 38.0 | Issue released for Baseline 24.0 Implementation of urgent Market Rule Amendment MR-00373 Congestion Management – Suspend Constrained Off CMSC for Dispatchable Loads via IESO IMDC 0155 “Congestion Management – Suspend Constrained Off CMSC for Dispatchable Loads”. | September 8, 2010 |
| 39.0 | Updated for Baseline 24.1. Added changes associated with IMDC 0158, MR-00370 and MR-00374. Correction to equations for <i>charge types</i> 133 and 1133. | December 8, 2010 |
| 40.0 | Updates to document in advance of Baseline 25.0 to incorporate changes effective January 1, 2011 related to Ontario Regulation 398/10, Section 78.5 of the <i>OEB Act</i> , 1998 and <i>Market Rule Amendment</i> MR-00371. | January 14, 2011 |
| 41.0 | Updated for Baseline 25.0. Added changes associated with IMDC 0161 “Settlement of the Ontario Clean Energy Benefit”. | March 2, 2011 |
| 42.0 | Updated for Baseline 25.1. Added change associated with IMDC 0167 “HST and Settlement of the Northern Industrial Electricity Rate Program (NIERP)”. | June 1, 2011 |
| 43.0 | Updated for Baseline 26.0. | September 14, 2011 |
| 44.0 | Issued in advance of Baseline 26.1 for the implementation of EDAC. | October 12, 2011 |
| 45.0 | Updated for Baseline 26.1 | December 7, 2011 |
| 46.0 | Updated for Baseline 27.0 | March 7, 2012 |
| 47.0 | Updated for Baseline 28.0 | September 12, 2012 |

Related Documents

| Document ID | Document Title |
|---------------|--|
| IMO_GDE_0002 | HST Guide for IESO Transactions |
| IMP_SPEC_0005 | Format Specifications for Settlement Statement Files and Data Files |
| MDP_PRO_0033 | Market Manual 5: Settlements, Part 5.5: Physical Markets Settlement Statements |

Table of Contents

| | |
|--|------------|
| Table of Contents | i |
| List of Figures | iii |
| Table of Changes | iv |
| 1. Introduction | 1 |
| 1.1 Purpose..... | 1 |
| 1.2 Scope | 1 |
| 1.3 Who Should Use This Document | 1 |
| 1.4 Conventions | 1 |
| 1.5 How This Document is Organized..... | 2 |
| 2. IESO Charge Types and Equations that are Part of an Active IESO-Administered Market | 3 |
| 2.1 Variable Descriptions | 3 |
| 2.2 Charge Types and Equations..... | 29 |
| 2.3 Rounding Conventions – by Settlement Variable..... | 161 |
| 2.3.1 Key to the Table of Rounding Conventions for Individual Settlement Variables that are not of an Active IESO-Administered Market..... | 161 |
| 2.4 Rounding Conventions – by Charge Type | 174 |
| 2.4.1 General Notes | 174 |
| 2.4.2 Key to the Table of Rounding Conventions | 174 |
| 2.5 Settlement of Physical Bilateral Contracts | 206 |
| 2.5.1 Governing Rules..... | 206 |
| 2.5.2 The Nature of the Bilateral Contract Quantity | 207 |
| 2.5.3 Time Resolution of Bilateral Contract Quantities and Rounding | 211 |
| 2.5.4 Allocation of Hourly Uplift Components Between Buying and Selling Market Participants..... | 212 |
| 2.6 Exemptions from the Day-Ahead Import Failure Charge, Day-Ahead Export Failure Charge, and Day-Ahead Linked Wheel Failure Charge | 215 |
| 2.6.1 Purpose of this Section | 215 |
| 2.6.2 Objective of the “Offer Price Test” | 215 |
| 2.6.3 How the Offer Price Test Works..... | 215 |
| 2.6.4 Input Data:..... | 216 |
| 2.6.5 Decision Logic Applied During the Offer Price Test for Import Transactions:..... | 218 |
| 2.6.6 Decision Logic Applied During the Offer Price Test for Export Transactions:..... | 219 |

2.6.7 Decision Logic Applied During the Offer Price Test for Linked Wheel Transactions:..... 220

3. IESO Charge Types and Equations that are NOT Part of an Active IESO-Administered Market..... 226

3.1 Variable Descriptions 226

3.2 Charge Types and Equations 228

References..... 1

List of Figures

| | |
|--|-----|
| Figure 2-1 – Example of an Import Transaction that PASSES the “Offer Price Test” | 222 |
| Figure 2-2 – Example of an Import Transaction that FAILS the “Offer Price Test” | 223 |
| Figure 2-3 – Example of an Export Transaction that PASSES the “Offer Price Test” | 224 |
| Figure 2-4 – Example of an Export Transaction that PASSES the “Offer Price Test” | 225 |

Table of Changes

| Reference (Section and Paragraph) | Description of Change |
|---|--|
| Section 2.2 | <p>Charge Types and Equations:</p> <p><i>Charge type</i> 119 ‘Station Service Reimbursement Credit’ – added <i>charge type</i> 1650 ‘Forecasting Service Balancing Amount’ to the set of monthly <i>charge types</i> included in the calculation of CT119.</p> <p>Correction to typographical error in <i>charge types</i> 166, 167, 168 and 169 regarding HST Tax Treatment for Manitoba and Quebec Load.</p> |

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. 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.

1.2 Scope

This document provides the formulas for each *charge type* implemented in the *IESO Settlements* System and those *charge types* which are currently the subject of a Functional Deferral. 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, the reader is directed to the following Technical Interface Document - “Format Specification for Settlement Statement Files and Data Files”.

1.3 Who Should Use This Document

This document is intended for *market participants* in the *IESO-administered markets* who are seeking information regarding the calculations of *settlement amounts* related to each *charge type*. Depending on the activity of the *market participant* in the various *IESO-administered markets*, these *charge types* may have varying degrees of relevance to each *market participant* with respect to their financial settlements.

1.4 Conventions

Usage of an italicized term shall take on the meaning ascribed to that term in the *IESO market rules*.

Unless otherwise noted, usage of variable subscripts and superscripts within this document shall mirror the same usage with in Chapter 9 of the *IESO market rules*. One notable exception is the usage of notation to sum across *settlement amounts* for *charge type* “c”. This is further noted in Section 2.2 of this document.

1.5 How This Document is Organized

This document is divided in 6 major subsections as follows:

- Section 2.1:** A table containing a description of each variable used within **Section 2.2**.
- Section 2.2:** A table describing *IESO charge types* and equations that are part of an active *IESO-administered market*.
- Section 2.3:** This section contains a description of rounding conventions for variables described in **Section 2.1**.
- Section 2.4:** This section contains a description of rounding conventions for *charge type* calculations described in **Section 2.2**.
- Section 2.5:** This section provides 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 uplift*.
- Section 2.6:** This section 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).
- Section 3.1:** A table containing a description of each variable used within **Section 3.2**.
- Section 3.2:** A table describing *IESO charge types* and equations that are **not** part of an active *IESO-administered market*.

– End of Section –

2. IESO Charge Types and Equations that are Part of an Active IESO-Administered Market

2.1 Variable Descriptions

The following table contains descriptions of each variable used within Section 2.2, describing *IESO charge types* and equations that are part of an active *IESO-administered market*.

| Key to the Table Below | | | | |
|--|---|---|---|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| This column denotes the abbreviated name of each variable used within Section 2.2. | The full name of each variable used within Section 2.2. | A brief description of each variable used within the formulas illustrated within Section 2.2. | <p>The relevant reference to the variable in question within the <i>IESO market rules</i>.</p> <p>The format of each reference is:</p> <p>[Chapter] [Section no.]</p> <p>e.g. Chapter 9 Section 3.1.6 would appear as:</p> <p>9.3.1.6</p> | This section notes any aspects of the implementation of the variable within the <i>IESO settlements</i> process which are otherwise not described in the <i>IESO market rules</i> – OR – refers the reader to the appropriate documentation. |

| Key to the Table Below | | | | |
|--------------------------------|---|--|---------------------------------------|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $AQEI_{k,h}^{m,t}$ | Allocated Quantity of Energy Injected | Allocated quantity in MWh of <i>energy</i> injected by <i>market participant</i> 'k' at RWM 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'. | 9.3.1.9 | Represents only those quantities derived from loss-adjusted and totalized <i>metering data</i> . Quantities derived from <i>interchange schedule data</i> is captured in the variable SQEI (see below). |
| $AQEW_{k,h}^{m,t}$ | Allocated Quantity of Energy Withdrawn | Allocated quantity in MWh of <i>energy</i> withdrawn by <i>market participant</i> 'k' at RWM 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'. | 9.3.1.9 | Represents only those quantities derived from loss-adjusted and totalized <i>metering data</i> . Quantities derived from <i>interchange schedule data</i> is captured in the variable SQEW (see below). |
| $AQOR_{r,k,h}^{m,t}$ | Allocated Quantity of Operating Reserve | Allocated quantity in MW of <i>class r reserve</i> for <i>market participant</i> 'k' at RWM 'm' in <i>metering interval</i> 't' of <i>settlement hour</i> 'h'. | 9.3.1.9 | Same as <i>IESO market rules</i> and equivalent to DQSR (see below). |
| BE | Energy Offers | A matrix of 'n' <i>price-quantity</i> pairs offered by <i>market participant</i> 'k' to supply <i>energy</i> during <i>settlement hour</i> 'h'. <i>Offer prices</i> in this matrix may be altered to a " lower limit " for the purposes of calculating <i>charge type</i> 105 (Congestion Management Settlement Credit for Energy) where any such <i>offer price</i> : | 9.3.5.2, 9.3.5.6 and 9.3.5.7 | Same as <i>IESO market rules</i> . |

| Key to the Table Below | | | | |
|-------------------------------------|---|---|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | <p>1) Is associated with a <i>generation facility</i> located within Ontario; or imports and</p> <p>2) Is less than a specified “lower limit” where such limit is the lesser of \$0.00/MWh and the <i>energy market price</i> for the applicable <i>dispatch interval</i>.</p> <p>The situational criteria and threshold for applying such adjustments are further described in <i>IESO market rules</i> section 9.3.5.6. and 9.3.5.7.</p> | | |
| BL | Energy Bids | A matrix of ‘n’ <i>price-quantity pairs</i> bid by <i>market participant ‘k’</i> to withdraw <i>energy</i> by a <i>dispatchable load</i> during <i>settlement hour ‘h’</i> . | 9.3.5.2 | Same as <i>IESO market rules</i> . |
| BR _r | Operating Reserve Offers | A matrix of n <i>price-quantity pairs</i> offered by <i>market participant ‘k’</i> to supply class r <i>operating reserve</i> during <i>settlement hour ‘h’</i> . | 9.3.5.2 | Same as <i>IESO market rules</i> . |
| BCQ _{s,k,h} ^{m,t} | Physical Bilateral Contract Quantity of Energy bought | <i>Physical bilateral contract quantity</i> of <i>energy</i> in MWh bought by <i>buying market participant ‘k’</i> from <i>selling market participant ‘s’</i> at <i>RWM</i> or <i>intertie metering point ‘m’</i> for each <i>metering interval ‘t’</i> in <i>settlement hour ‘h’</i> . | 9.3.1.6 | Same as <i>IESO market rules</i> . |

| Key to the Table Below | | | | |
|--------------------------------|---|---|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $BCQ_{k,b,h}^{m,t}$ | Physical Bilateral Contract Quantity of Energy sold | <i>Physical bilateral contract quantity of energy in MWh sold by selling market participant 'k' to buying market participant 'b' at RWM or intertie metering point 'm' for each metering interval 't' in settlement hour 'h'.</i> | 9.3.1.6 | Same as <i>IESO</i> market rules. |

| Key to the Table Below | | | | |
|-------------------------------------|--|---|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| CGC | Submitted Combined Guaranteed Costs | <p>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:</p> <ol style="list-style-type: none"> 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</i> portal). 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</i> portal). | 9.4.7B | Same as <i>IESO</i> market rules. |
| DA_BE _{k,h} ^{m,t} | <i>Energy Offer</i> submitted into the <i>schedule of record</i> at a <i>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</i> market rules. |
| DA_BE _{k,h} ^{i,t} | <i>Energy Offer</i> submitted into the <i>schedule of record</i> at a <i>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</i> | 9.3.8A.2B and 9.3.8B.2 | Same as <i>IESO</i> market rules |

| Key to the Table Below | | | | |
|-------------------------------------|--|--|-------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | <i>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</i> | | |
| DA_BL _{k,h} ^{i,t} | Energy Bids 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 'k'</i> at <i>intertie metering point 'i'</i> during <i>metering interval 't' of 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 | 9.3.1.2B.7 and 9.3.8D.2 | Same as <i>IESO market rules</i> |
| DA_CGC | Submitted Day-Ahead Combined Guaranteed Costs | EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT. 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: 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 | 9.4.7D.1 | Same as <i>IESO market rules</i> |

| Key to the Table Below | | | | |
|--------------------------------|--|--|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | submitted via <i>IESO</i> portal). 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</i> portal). | | |
| $DA_DQSI_{k,h}^{m,t}$ | <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 'k'</i> at <i>delivery point 'm'</i> during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> | 9.3.1.2A | Same as <i>IESO</i> market rules. |
| $DA_DQSI_{k,h}^{i,t}$ | <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 'k'</i> at <i>intertie metering point 'i'</i> during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> | 9.3.1.2A | Same as <i>IESO</i> market rules. |
| $DA_DQSW_{k,h}^{i,t}$ | <i>Schedule of Record</i> Dispatch Quantity of Energy Scheduled for Withdrawal | Day-ahead constrained quantity scheduled for withdrawal by <i>market participant 'k'</i> at <i>intertie metering point 'i'</i> during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> | 9.3.1.2A | Same as <i>IESO</i> market rules. |
| $DA_ELMP_h^{m,t}$ | <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 'm'</i> of the sink for the export transaction during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> | 9.3.1.2A | Same as <i>IESO</i> market rules. |
| $DA_ILMP_h^{m,t}$ | <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 'm'</i> of the source for the import transaction during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> | 9.3.1.2A | Same as <i>IESO</i> market rules. |

| Key to the Table Below | | | | |
|--------------------------------|--|---|------------------------|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $DA_SNLC_{k,h}^m$ | Speed-no-load costs submitted into the <i>schedule of record at a 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 market participant 'k' at <i>delivery point</i> 'm' | 9.3.1.2B.7 | Same as <i>IESO market rules</i> . |
| $DA_SNLC_{k,h}^p$ | 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 market participant 'k' at <i>pseudo-unit</i> 'p' | 9.3.1.2B.7 | Same as <i>IESO market rules</i> . |
| $DA_SUC_{k,h}^m$ | 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 market participant '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> . |
| $DA_SUC_{k,h}^p$ | 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 market participant '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> . |
| $DIPC_{k,h}^{m,t}$ | 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 | 9.3.1.11 | Same as <i>IESO market rules</i> . Refer to Market Manual 9.5, Appendix B for a detailed description of DIPC. |

| Key to the Table Below | | | | |
|--------------------------------|--|---|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | prices 'P' are in column 1 and offered quantities 'Q' are in column 2 | | |
| $DIGQ_{k,h}^{m,t}$ | Derived Interval Guaranteed Quantity | Portion of the day-ahead constrained quantity scheduled for injection that is eligible for DA-PCG for <i>market participant 'k'</i> at <i>pseudo unit 'p'</i> during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> | 9.3.1.11 | Same as <i>IESO market rules</i> . Refer to Market Manual 9.5, Appendix C for a detailed description of DIGQ. |
| $DQSI_{k,h}^{m,t}$ | 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 'k'</i> at location ' <i>m</i> ' in <i>metering interval 't'</i> of <i>settlement hour 'h'</i> . | 9.3.1.3 and 9.3.1.4A | Same as <i>IESO market rules</i> . N.B. Location <i>m</i> 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). |
| $DQSR_{r,k,h}^{m,t}$ | Dispatch Quantity Schedule of Operating Reserve | Dispatch quantity schedule of <i>class r reserve</i> for <i>market participant 'k'</i> at location ' <i>m</i> ' in <i>metering interval 't'</i> of <i>settlement hour 'h'</i> . | 9.3.1.4 and 9.3.1.4A | Same as <i>IESO market rules</i> . N.B. Location <i>m</i> 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). |
| $DQSW_{k,h}^{m,t}$ | 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 'k'</i> at location ' <i>m</i> ' in <i>metering interval 't'</i> of <i>settlement hour 'h'</i> . | 9.3.1.3 and 9.3.1.4A | Same as <i>IESO market rules</i> . N.B. Location <i>m</i> 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 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| 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. | N/A – subject to regulations made pursuant to Bill 100. | N/A – See regulations. |
| E_{GEI_k} | 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</i> 'k' is the host <i>distributor</i> , adjusted for losses as required by the <i>OEB</i> , Retail Settlement Code. | N/A – subject to regulations made pursuant to Bill 100. | N/A – See regulations. |
| $EIM_{k,h}$ | 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 _{k,h} IS NOT A VARIABLE EIM _{k,h} is the output of a particular usage of the Operating Profit (OP) function defined within Chapter 9, Section 3.8A. EIM _{k,h} Input variables into the Operating Profit (OP) Function include: MQSI, EMP, and BE. |
| $EMP_{h,i,t}$ | 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> . |
| $EMP_{h,m,t}$ | 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> . |

| Key to the Table Below | | | | |
|--------------------------------|---|--|---|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $EMP_{h}^{REF,t}$ | 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> ¹ during in <i>metering interval 't' of settlement hour 'h'</i> . | 9.3.1.3 and 9.3.6.2 | Same as <i>IESO market rules</i> . |
| ETS | Export Transmission Service Tariff Rate | Export Transmission Service Tariff Rate in units of \$/MWh. | N/A | Subject to the OEB “Ontario Transmission Rate Order”. |
| FP_h^m | Fixed Energy Rate | A fixed <i>energy rate</i> for all <i>metering intervals</i> in <i>settlement hour 'h'</i> . | 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 commencing April 1, 2005. | N/A – See regulations. |
| FPC_h^m | Rate for a designated group of <i>charge types</i> (see description of <i>charge type 141</i>) | This variable is reserved for <i>charge type 141</i> and applies with respect to charges for the period commencing December 1, 2002 and ending March 31, 2005. See 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 – See regulations |

¹ *Market Rules* ref.: Section 3.6.2 of Chapter 9.

| Key to the Table Below | | | | |
|--|---|---|--|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| GA – AQEW _{g,k,h,M} ^{m,t} | 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” 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. | | |
| GRP | Generator Regulated Price | A regulated price (\$/MWh) with respect to output of OPG’s regulated generating stations, set by the <i>OEB</i> . | N/A – subject to regulation by the Ontario Energy Board. | N/A – See regulations |
| HOEP _h | 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 _{k,h} ⁱ | IOG Floor Value | EFFECTIVE OCTOBER 13, 2011, THIS VARIABLE IS NO LONGER USED IN THE CALCULATION OF ANY SETTLEMENT. The IOG_FV _{k,hi} is a floor value (in dollars to the nearest cent) derived from: <ul style="list-style-type: none"> 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 | 9.3.8A.8 | Same as <i>IESO market rules</i> See Chapter 9, Section 3.8A.8 for details concerning its formulation. |

| Key to the Table Below | | | | |
|--------------------------------|-----------------------------|---|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | <p>transaction; and</p> <ul style="list-style-type: none"> • <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: <p>NOTE: The $\text{IOG_FV}_{k,h}^i$ 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 intertie offer guarantee adjustment (see also, Section 2.2 entry for <i>charge type</i> 1137 within this document).</p> | | |
| $\text{LCD}_{k,h}^m$ | 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 $\text{LCD}_{k,h}^m$ denotes the non-coincident peak demand for the month. | N/A | Subject to the OEB "Ontario Transmission Rate Order". |
| MC_h^m | Minimum Consumption | 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 | |

| Key to the Table Below | | | | |
|--------------------------------|---|--|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| MI | Ordered matrix of $MQSI_{k,h}^{i,t}$ and corresponding IOG settlement amounts | Used for the calculation of the IOG OFFSET settlement amount. A matrix of X pairs of market schedule quantities scheduled for injection by market participant 'k' at all intertie metering points 'i' in metering interval 't' of settlement hour 'h' ($MQSI_{k,h}^{i,t}$) paired with the corresponding component of the intertie offer guarantee settlement credit for each intertie metering point 'i'. See equation in Chapter 9, Section 3.8A.4 of the IESO market rules for further details. | 9.3.8A.4 | Same as IESO market rules. |
| $MLP_{k,h}^{m,t}$ | Minimum Loading Point | Minimum output of energy the market participant 'k' at delivery point 'm' can maintain without ignition support in metering interval 't' of settlement hour 'h' | 9.3.1.2B.7 | Same as IESO market rules. |
| $MLP_CONS_{k,h}^{m,t}$ | Minimum Loading Point for a steam turbine resource or a combustion turbine resource associated to a pseudo unit | Minimum output of energy the market participant 'k' at delivery point 'm' can maintain without ignition support in metering interval 't' of settlement hour 'h' | 9.3.1.2B.7 | Same as IESO market rules. 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 market schedule by market participant 'k' at RWM or intertie metering point 'm' in metering interval 't' of settlement hour 'h'. | 9.3.1.3 | Same as IESO market rules. |

| Key to the Table Below | | | | |
|--------------------------------|--|--|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $MQSI\{adj\}_{k,h}^{m,t}$ | 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 <i>settlement amount</i> . $MQSI\{adj\}_{k,h}^{i,t}$ is each (and where applicable, adjusted) quantity of <i>energy</i> scheduled for injection in the <i>market schedule</i> by <i>market participant</i> ‘k’ at an <i>intertie metering point</i> ‘i’ in <i>metering interval</i> ‘t’ of <i>settlement hour</i> ‘h’ corresponding with each quantity, $MQSI_{x^*,k,h}^{i,t}$ in matrix MI, row x^* . | 9.3.8A.4 | Same as <i>IESO market rules</i> . |
| $MQSW_{k,h}^{m,t}$ | 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> . |
| $NSD_{k,h}^m$ | Network Service Demand (KW) | The Billing Demand for Network Transmission Service (KW) is defined as the higher of: 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 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> . | N/A | Subject to the OEB “Ontario Transmission Rate Order”. |

| Key to the Table Below | | | | |
|--------------------------------|---|--|------------------------|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | <p>For the purposes of determining business days for calculating transmission charges, the <i>IESO</i> 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> | | |
| 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</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). |

| Key to the Table Below | | | | |
|--------------------------------|---------------------------|---|------------------------|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | 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. Incremental Output is defined as: generation output x (new total installed capacity – installed capacity as of January 1, 2006) / new total installed capacity | | |
| 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 and 9.8A.2 | OP IS NOT A VARIABLE OP is a mathematical function defined within Chapter 9, section 3.5.2. of the <i>IESO market rules</i> Input variables include: MQSI, MQSW, SQROR AQEI, AQEW, AQOR SQEI, SQEW, DSQI, DSQW, DSQR DA_DQSI, DA_DQSW, PD_DQSI, PD_DQSW BE, BL, BR _r PD_BE, PD_BL DA_BE, DA_BL EMP MLP, MLP CONS |

| Key to the Table Below | | | | |
|--------------------------------|--|--|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | | | <p>DIPC</p> <p>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 ($EIM_{k,h}$) sub-component of the Intertie Offer Settlement Credit (IOG) using the following input variables:</p> <p>MQSI</p> <p>BE</p> <p>EMP</p> |
| $OPCAP_{k,h}^{m,t}$ | 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> . |
| $OPE\{adj\}_{k,h}^i$ | Adjusted CMSC component for <i>energy</i> 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>$OPE\{adj\}_{k,h}^i$ is an adjusted component of The</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 see the <i>market rules</i> for information regarding its formulation. |

| Key to the Table Below | | | | |
|--------------------------------|--|---|------------------------|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | 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 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. For the period May 1, 2007 to April 30, 2008 ORL is equal to \$47/ MWh. 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. 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. For the period May 1, 2007 to April 30, 2008 PAORL is equal to \$52/ 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). |

| Key to the Table Below | | | | |
|-------------------------------------|--|---|------------------------|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | For the period May 1, 2008 to April 30, 2009 PAORL is equal to \$53/ MWh. | | |
| 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). |
| PB_IM _h ^t | Price bias adjustment factor for import transactions | Price bias adjustment factor for import transactions in effect during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'. | 9.3.8C.3 | Same as <i>IESO market rules</i> |
| PB_EX _h ^t | Price bias adjustment factor for export transactions | Price bias adjustment factor for export transactions in effect during <i>metering interval</i> 't' of <i>settlement hour</i> 'h'. | 9.3.8C.5 | Same as <i>IESO market rules</i> |
| PD_BE _{k,h} ^{i,t} | Energy Offer 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</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 | 9.3.1.2D | Same as <i>IESO market rules</i> . |
| PD_BL _{k,h} ^{i,t} | Energy Bid 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</i> 'k' at <i>intertie metering point</i> 'i' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h' arranged in | 9.3.1.2D | Same as <i>IESO market rules</i> . |

| Key to the Table Below | | | | |
|---------------------------------------|---|---|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | 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 _{k,h} ^{i,t} | <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 _{k,h} ^{i,t} | <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 _h ^{m,t} | <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 _h ^{m,t} | 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 _h ^{m,t} | <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> . |

| Key to the Table Below | | | | |
|--------------------------------|--|---|--|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $PDF_{k,m,d}$ | Peak Demand Factor | The Peak Demand Factor for Class A Market Participant or Distributor 'k' for month 'm' with effectiveness ratio 'd'. | N/A – subject to regulation by the <i>Ontario Energy Board</i> | N/A – See regulations. |
| $PDR_BE_{k,h}^{i,t}$ | Energy Offer 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. <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 market participant 'k' at intertie metering point '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 <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> |
| $PDR_DQSI_{k,h}^{i,t}$ | <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. <i>Pre-dispatch of record</i> constrained quantity scheduled for injection by market participant 'k' for an import transaction at <i>intertie metering point 'i'</i> during <i>metering interval 't'</i> of <i>settlement hour 'h'</i> . | 9.3.1.2A | Same as <i>IESO market rules</i> |

| Key to the Table Below | | | | |
|--------------------------------|--|--|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $PDR_DQSI_{k,h}^{m,t}$ | <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. <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> |
| $PGS_{h,M}$ | 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'. | | |
| $PROR_{r,h}^{m,t}$ | 5-minute Operating Reserve Price | <i>Market price</i> in \$/MW of class <i>r</i> reserve in <i>metering interval</i> 't' of <i>settlement hour</i> 'h' at <i>RWM</i> 'm' or <i>intertie metering point</i> 'm'. | 9.3.1.4 | Same as <i>IESO market rules</i> . |
| $PST_{k,h}^{p,t}$ | Steam turbine portion from Daily Generator Data | The percentage of the <i>pseudo-unit</i> 's schedule that relates to the steam turbine in association with <i>offer k</i> for <i>market participant</i> 'k' at <i>pseudo unit</i> 'p' during <i>metering interval</i> 't' of <i>settlement hour</i> 'h' | 7.2.2.2 | Same as <i>IESO market rules</i> . |
| PTS-L | Provincial Transmission Service Line Connection Service Rate (\$/KW) | Line Connection Transmission Tariff Service Rate in units of dollars per kilowatt. | N/A | 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. | N/A | Subject to the OEB "Ontario Transmission Rate Order". |

| Key to the Table Below | | | | |
|--------------------------------|--|---|--|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| PTS-T | Provincial Transmission Service Transformation Connection Service Rate (\$/KW) | Transformation Connection Service Transmission Tariff Rate in units of dollars per kilowatt. | N/A | Subject to the OEB “Ontario Transmission Rate Order”. |
| $QTR_{k,h}^{i,j}$ | Quantity of Transmission Rights Owned | Quantity of TRs in MW assigned to <i>market participant ‘k’</i> for transmission from injection <i>TR zone ‘i’</i> to withdrawal <i>TR zone ‘j’</i> . | 9.3.1.8 and 8.4.2 | Same as <i>IESO market rules</i> . |
| RPP_l | Regulated Price Plan | A fixed <i>energy</i> rate for all <i>metering intervals</i> based on consumption level <i>l</i> . | N/A – subject to regulation by the <i>Ontario Energy Board</i> | N/A – See regulations. |
| RQ | Reallocate Quantity | A quantity derived from a <i>physical bilateral contract quantity</i> ($BCQ_{k,b,h}^{m,t}$ or $BCQ_{s,k,h}^{m,t}$) in order to reallocate a component of <i>hourly uplift</i> from the <i>buying market participant</i> to the <i>selling market participant</i> in direct proportion to the size of the <i>physical bilateral contract</i> . | N/A | See hourly uplift charge types in Section 2.2 |
| $SQEI_{k,h}^{i,t}$ | Scheduled Quantity of Energy Injected at an <i>intertie metering point</i> | Scheduled quantity in MWh of <i>energy</i> injected by <i>market participant ‘k’</i> at <i>intertie metering point ‘i’</i> for each <i>metering interval ‘t’</i> in <i>settlement hour ‘h’</i> . | 9.3.1.9 | This variable is a sub-set of variable AQEI described in Section 3.1.9 of Chapter 9 of the <i>market rules</i> , specifically referring to those quantities derived from <i>interchange schedule data</i> . |

| Key to the Table Below | | | | |
|--------------------------------|---|---|------------------------|---|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $SQEW_{k,h}^{i,t}$ | Scheduled Quantity of Energy Withdrawn at an <i>intertie metering point</i> | Scheduled quantity in MWh of <i>energy</i> withdrawn by <i>market participant ‘k’</i> at <i>intertie metering point ‘i’</i> for each <i>metering interval ‘t’</i> in <i>settlement hour ‘h’</i> . | 9.3.1.9 | This variable is a subset of variable AQEW described in Section 3.1.9 of Chapter 9 of the <i>market rules</i> , specifically referring to those quantities derived from <i>interchange schedule data</i> . |
| $SQROR_{r,k,h}^{m,t}$ | Scheduled Quantity of class <i>r</i> Operating Reserve | Market Schedule quantity in MW of <i>class r</i> reserve for <i>market participant ‘k’</i> in <i>metering interval ‘t’</i> of <i>settlement hour ‘h’</i> at <i>RWM ‘m’</i> . | 9.3.1.4 | Same as <i>IESO market rules</i> . |
| $TCD_{k,h}^m$ | Transformation Connection Demand (KW) | Billing Demand for Transformation Connection Transmission Service (KW) for <i>transmission customer ‘k’</i> at transmission delivery point <i>m</i> during <i>settlement hour ‘h’</i> in which $TCD_{k,h}^m$ denotes the non-coincident peak demand for the month. | N/A | 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 ‘k’</i> or <i>transmission customer ‘k’</i> during <i>settlement hour ‘h’</i> with respect to <i>charge type ‘c’</i> . | N/A | This is purely a notational term is used within the documentation to describe the aggregation of various <i>settlement amounts</i> . A summation across <i>charge type ‘c’</i> denotes an aggregation of all <i>settlement amounts</i> for that <i>charge type</i> for the time period concerned. e.g.: \sum_c^T indicates a summation of all <i>settlement amounts</i> for <i>charge</i> |

| Key to the Table Below | | | | |
|--------------------------------|-----------------------------------|--|--|--|
| Variable used within Section 2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| | | | | <i>type 'c' during all metering intervals 'T'.</i> |
| TLQ | Threshold Load Quantity | A threshold (kWh) with respect to monthly consumption of regulated customers, set by the <i>OEB</i> . | N/A – subject to regulation by the <i>Ontario Energy Board</i> . | N/A – See regulations. |
| TP _c | Tariff price | A stipulated rate (\$/MWh, \$/KW) used in the calculation of a specific <i>charge type 'c'</i> . | N/A | This is purely a notational term is 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> . |
| TRMP | TR Market Clearing Price | The price of each <i>transmission right</i> in a single round of a <i>TR auction</i> . | 8.4.15 | Same as <i>IESO market rules</i> . |
| TRCAD | TR Clearing Account Disbursements | The total dollar value of all disbursements from the <i>TR clearing account</i> authorized by the <i>IESO Board</i> in the current <i>energy market billing period</i> . | 9.4.7.2 | Same as <i>IESO market rules</i> . |

2.2 Charge Types and Equations

The following table contains the *IESO charge types* and equations that are part of an active *IESO-administered market*.

| Key to the Table Below | |
|----------------------------------|---|
| Charge Type Number | The designation number for each <i>charge type</i> enumerated below – which correspond to the <i>charge type</i> numbers used on <i>settlement statements</i> and <i>invoices</i> . |
| Charge Type Name | The name of the <i>charge type</i> . |
| Settlement Amount Acronym | The abbreviated name of the variable used to describe the <i>settlement amount</i> within the <i>IESO market rules</i> . |
| Market Rules Refer. | <p>The relevant reference to the variable in question within the <i>IESO market rules</i>. The format for each reference is:</p> <p>[Chapter] [Section number]</p> <p>For example:</p> <p>“Chapter 9 Section 3.1.6” would appear as:</p> <p>9.3.1.6</p> |
| Equation | The equation used by the <i>IESO settlements process</i> to calculate the <i>settlement amount</i> related to each <i>charge type</i> . |

| Key to the Table Below | |
|---|--|
| Settlement Resolution | <p>The level of granularity by which the <i>IESO settlements process</i> calculates the <i>settlement amount</i> (for which the <i>charge type</i> is related), and provides the supporting data in the settlement data file.</p> <p>Where:</p> <ul style="list-style-type: none"> • “Interval” means that the calculations are performed on the basis of each relevant, 5-minute <i>metering interval</i>; • “Hourly” means that the calculations are performed on the basis of each <i>settlement hour</i>; • “Daily” means that the calculations are performed on the basis of each calendar day; • “Monthly” means that the calculations are performed on the basis of a calendar month (equivalent to a real-time market <i>billing period</i>); • “Quarterly” means that the calculations are performed on the basis of 3 month intervals; • “Yearly” means that the calculations are performed on the basis of a calendar year. |
| Cashflow | <p>This column indicates whether or not the <i>settlement amount</i> (for which the <i>charge type</i> is related) is:</p> <ul style="list-style-type: none"> • “Due IESO” – which means, owed to the <i>IESO</i> by the <i>market participant</i>;*** or • “Due MP” – which means, owed to the <i>market participant</i> by the <i>IESO</i>;*** or • “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 “settlements resolution”). <p>***NOTE in cases where a Cashflow is designated as “Due IESO” or “Due MP” this should be read in the context of its intended use in the normal course of settlements. However, such cashflows can always be REVERSED in situations where an adjustment is applied to a market participant, or the application of a per-unit charge in order to offset an adjustment to another market participant.</p> |
| HST Tax Treatment within Ontario | <ul style="list-style-type: none"> • This column indicates the percentage levy as per the Harmonized Sales Tax (HST). • Zone used for Tax Basis is (ONZN) for Ontario. • The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “Detail Field Description”). • A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |

| Key to the Table Below | |
|---|--|
| HST Tax Treatment for U.S., Manitoba and Quebec Generation | <ul style="list-style-type: none"> • This column indicates the percentage levy as per the Harmonized Sales Tax (HST). • Zones used for Tax Basis are (NYSI) for US Generation, (MBSI) for Manitoba Generation and (PQSI) for Quebec Generation. • The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “Detail Field Description”). • A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |
| HST Tax Treatment for US Load | <ul style="list-style-type: none"> • This column indicates the percentage levy as per the Harmonized Sales Tax (HST). • Zone used for Tax Basis is (NYSI) for US Load. • The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “Detail Field Description”). • A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |
| HST Tax Treatment for Manitoba and Quebec Load | <ul style="list-style-type: none"> • This column indicates the percentage levy as per the Harmonized Sales Tax (HST). • Zones used for Tax Basis are (MBSI) for Manitoba Load and (PQSI) for Quebec Load. • The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “Detail Field Description”). • A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |
| Comments | This column notes any <i>charge types</i> that are governed by various documentation other than the <i>IESO market rules</i> . |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------------------------|---|---------------------------|------------------------|--|---------------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| Financial Market Charge Types | | | | | | | | | | | |
| 52 | Transmission Rights Auction Settlement Debit | N/A | 8.4.17 | $QTR_{k,h}^{i,j} \times TRMP$ | Daily | Due IESO | Exempt | Exempt | Exempt | Exempt | |
| Physical Market Charge Types | | | | | | | | | | | |
| 100 | Net Energy Market Settlement for Generators and Dispatchable Load | NEMSC _{k,h} | 9.3.3.2 | $\sum_{t,m} (EMP_h^{m,t} \times ((AQEI_{k,h}^{m,t} + SQEI_h^i - AQEW_{k,h}^{m,t} - SQEW_h^i) + \sum_{s,b} (BCQ_{s,k,h}^{m,t} - BCQ_{k,b,h}^{m,t})))$ | Interval | Either Way | 13 | 13 | 0 | 13 | Refer to HST Guide regarding tax treatment of negative priced imports and exports. |
| 101 | Net Energy Market Settlement for Non-dispatchable Load | NEMSC _{k,h} | 9.3 | $HOEP_h \times \sum_{t,m} (AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t} + \sum_s BCQ_{s,k,h}^{m,t}) - \sum_{n,b,t} (EMP_h^{m,t} \times BCQ_{k,b,h}^{n,t})$ | Hourly | Either Way | 13 | N/A | N/A | N/A | |
| 102 | TR Clearing Account Credit | TRCAC _k | 9.4.7.2 | $TRCAD \times \sum_H^{M,T} [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{K,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ Where 'H' is the set of all <i>settlement hours</i> 'h' in the month Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'. Where 'M' is the set of all <i>delivery points</i> 'm' and <i>intertie metering points</i> 'i' | Monthly (when applicable) | Due MP | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| 103 | Transmission Charge Reduction Fund | TCRF _h | 9.3.6.2 and 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 <i>TR Clearing Account</i> | N/A | N/A | N/A | N/A | See <i>IESO market rules</i> , Chapter 8 Section 4.18 for further details. |
| 104 | Transmission Rights Settlement Credit | TRSC _{k,h} | 9.3.6.1 | $MAX((0), (\sum_{j,i} 1/12 \times QTR_{k,h}^{i,j} \times \sum_t (EMP_h^{j,t} - EMP_h^{i,t})))$ | Hourly | Due MP | 0 | 0 | 0 | 0 | |
| 105 | Congestion Management Settlement Credit for Energy | CMSC _{k,h} | 9.3.5.2 to 9.3.5.7 | <p>$OP(EMP_h^{m,t}, MQSI_{k,h}^{m,t}, BE) - MAX(OP(EMP_h^{m,t}, DQSI_{k,h}^{m,t}, BE), OP(EMP_h^{m,t}, AQEI_{k,h}^{m,t}, BE))$</p> <p>Subject to the mathematical sign of (DQSI-MQSI) being equal to the mathematical sign of (AQEI-MQSI). AQEI_{k,h}^{m,t} and EMP_h^{m,t} may be substituted with SQEI_{k,h}^{i,t} and EMP_h^{i,t} respectively, where the application of this equation pertains to <i>intertie metering point 'i'</i>.</p> <p>or</p> <p>$-1OP(EMP_h^{m,t}, MQSW_{k,h}^{m,t}, BL) - MAX(-1OP(EMP_h^{m,t}, DQSW_{k,h}^{m,t}, BL), -1OP(EMP_h^{m,t}, AQEW_{k,h}^{m,t}, BL))$ Subject to the mathematical sign of (DQSW-MQSW) being equal to the mathematical sign of</p> | Interval | Either Way | 13 | 13 | 13 | 13 | <p>This charge type holds the market participant to the expected profits implied by the market schedule derived on dispatch data provided by that market participant.</p> <p>Offer prices in matrix 'BE' may be revised down to a lower limit as described in 9.3.5.6. See also: description of variable 'BE' in Section 2.2.</p> <p>The bid prices in the matrix BL may be revised as described in</p> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| | | | | (AQEW-MQSW). $AQEW_{k,h}^{m,t}$ and $EMP_h^{m,t}$ may be substituted with $SQEW_{k,h}^{i,t}$ and $EMP_h^{i,t}$ respectively, where the application of this equation pertains to <i>intertie metering point 'i'</i> . See 9.3.5.2 for the definition of the Operating Profit (OP) function referenced above. | | | | | | | Market Manual 5: Settlements Part 5.5: Physical Markets Settlement Statements, section 1.6.8. |
| 106 | Congestion Management Settlement Credit for 10 Minute Spinning Reserve | $CMSC_{r,k,h}$ | 9.3.5.2 | $OP(PROR_{r,h}^{m,t}, SQOR_{r,k,h}^{m,t}, BR_r) - \max(OP(PROR_{r,h}^{m,t}, DQSR_{r,k,h}^{m,t}, BR_r), OP(PROR_{r,h}^{m,t}, AQOR_{r,k,h}^{m,t}, BR_r))$ See 9.3.5.2 for the definition of the Operating Profit (OP) function referenced above. | Interval | Either Way | 13 | N/A | N/A | N/A | This charge type 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> . |
| 107 | Congestion Management Settlement Credit for 10 Minute Non-spinning Reserve | $CMSC_{r,k,h}$ | 9.3.5.2 | $OP(PROR_{r,h}^{m,t}, SQOR_{r,k,h}^{m,t}, BR_r) - \max(OP(PROR_{r,h}^{m,t}, DQSR_{r,k,h}^{m,t}, BR_r), OP(PROR_{r,h}^{m,t}, AQOR_{r,k,h}^{m,t}, BR_r))$ See 9.3.5.2 for the definition of the Operating Profit (OP) function referenced above. | Interval | Either Way | 13 | N/A | N/A | N/A | This charge type 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> . |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 108 | Congestion Management Settlement Credit for 30 Minute Operating Reserve | CMSC _{r,k,h} | 9.3.5.2 | $OP(PROR_{r,h}^{m,t}, SQROR_{r,k,h}^{m,t}, BR_r) - \max(OP(PROR_{r,h}^{m,t}, DQSR_{r,k,h}^{m,t}, BR_r), OP(PROR_{r,h}^{m,t}, AQOR_{r,k,h}^{m,t}, BR_r))$ <p>See 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 charge type holds the market participant to the expected profits implied by the market schedule derived on dispatch data provided by that market participant. |
| 111 | Northern Pulp and Paper Mill Electricity Transition Program Settlement Amount | N/A | N/A | $= \sum_{M \in H} (AQEW_{mh}^t) \times (Tprate)$ <p>Where: Tprate is the transition program rate ‘M’ is the set of all <i>delivery points</i> ‘m’ for all <i>market participant-eligible facilities</i>. ‘H’ is the set of all <i>settlement hours</i> ‘h’ in the settlement period. ‘T’ is the set of all <i>metering intervals</i> ‘t’ in the set of all <i>settlement hours</i> 5 H’. ‘AQEW’ is limited to a maximum of 1,000,000 MWh annually per eligible <i>market participant</i>.</p> | Quarterly | Due MP | 13 | N/A | N/A | N/A | Eligibility, rates, and other implementation details subject to Ministry of Natural Resources specifications. This program ends on September 30, 2010. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------------------|--|-------------------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| 112 | Ontario Power Generation Rebate | N/A | N/A | $= TD_{162} \times [(AQEW_{k,h}^t) / \sum_{K,H}^T (AQEW_{k,h}^t)]$ <p>Where: ‘K’ is the set of all Ontario <i>market participants</i> ‘k’ ‘H’ is the set of all <i>settlement hours</i> ‘h’ in the applicable quarter. ‘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 | 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 |
| 114 | Outage Cancellation/Deferral Settlement Credit. | N/A | 5.6.7.4 | Manual Entry as per 5.6.7.4. | Monthly | Due MP | 13 | N/A | N/A | N/A | |
| 115 | Unrecoverable Testing Costs Credit | N/A | 9.4.8.1.1 and 4.5.3.4 | Manual Entry as per 4.5.3.4. | Monthly | Due MP | 13 | 13 | 13 | 13 | |
| 116 | Tieline Maintenance Reliability Credit | N/A | 9.4.8.1.2 and 5.5.3.4 | Manual Entry as per 5.5.3.4. | Monthly | Due MP | 13 | 13 | 13 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--------------------------------------|---------------------------|---------------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| 118 | Emergency Energy Rebate | N/A | 9.4.8.2 and 5.4.4A.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.</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> | Monthly | Due MP | 13 | N/A | 0 | 13 | |
| 119 | Station Service Reimbursement Credit | N/A | 9.4.8.1.6 and 9.2.1A.9 - 2.1A14 | $= \{TD_{C,k,h}^{m,T} \times [\sum_{T2}^{T2} (AQEW_{k,h}^{M,t}) / \sum_{K,h}^T (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\} + \{TD_{C2,k,H}^{m,T} \times [\sum_{H2}^{T2} (AQEW_{k,h}^{M,t}) / \sum_{K,H}^T (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\} + \{TD_{C3,k,H}^{m,T} \times [\sum_{H4}^{T2} (AQEW_{k,h}^{M,t}) / \sum_{K,H3}^T (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]\}$ <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 <i>generation station service delivery point</i> ‘m’ of <i>market participant</i> ‘k’</p> <p>‘C’ is the set of the following hourly uplift <i>charge type</i> c as follows:</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 (See Note at Beginning of this Section) | 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>150, 155, 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:</p> <p>163,164,165,166,167,168,169,183, 184,450,452,454,460,550,1188, 1650</p> <p>‘C3’ is the set of the following daily <i>charge type</i> ‘c’ as follows:</p> <p>1550</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> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>‘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 | Local Market Power Debit | N/A | 9.4.8.2.2 and Ch. 7, Appendix 7.6 | | Monthly | Due IESO | 13 | 13 | 0 | 13 | |
| 121 | Northern Industrial Electricity Rate Program Settlement Amount | N/A | N/A | <p>$= \sum_{MH}^T (AQEW_{mh}^t) \times (\text{Rate})$</p> <p>Where:</p> <p>Rate is the program rate</p> <p>‘M’ is the set of all <i>delivery points</i> ‘m’ for all <i>market participant-eligible facilities</i>.</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> 5 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 and Forestry specifications. |
| 130 | Intertie Offer Guarantee Settlement | IOG _{k,h} and | 9.3.8A.1 9.3.8A.3 | <u>**CALCULATIONS FOR CHARGE TYPE 130 END</u> | Hourly (the IOG | Either Way | N/A | 13 | 13 | 13 | Compensation for cumulative, hourly financial |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|------------------|----------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| | Credit – Energy | IOG _{k,h} OFF SET | and 7.3.5.8.1 | <p><u>OCTOBER 12, 2011. CHARGE TYPE 130 REPLACED BY CHARGE TYPE 1131 EFFECTIVE OCTOBER 13, 2011.</u></p> <p>The Intertie Offer Guarantee <i>settlement amount</i> is derived from an hourly <i>Energy Import</i> sub component (EIM_{k,h}) as follows:</p> $\sum_I (-1) \text{MIN}[0, \sum^T \text{OP}(\text{EMP}_h^{i,t}, \text{MQSI}_{k,h}^{i,t}, \text{BE})]$ <p>See 9.3.8A.2 for the definition of the Operating Profit (OP) function referenced above.</p> <p>Where ‘I’ is the set of relevant <i>intertie metering points</i> ‘i’.</p> <p>Where ‘T’ is the set of all <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>The IOG_OFFSET component of this <i>charge type</i> applied on a monthly basis and is calculated as follows:</p> $= \text{DA_IOG}_{k,h} + \text{EIM}_{k,h} - \sum^I (-1) * \text{MIN}[0, \sum^T \text{OP}(\text{EMP}_h^{i,t}, \text{QSI}\{\text{adj}\}_{k,h}^{i,t}, \text{BE}_{k,h}^{i,t} \text{ or } \text{PDR_BE}$ | Offset is debited) | | | | | | losses as implied by the <i>market schedule</i> for Imports of <i>energy</i> at an <i>intertie metering point</i> . 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 (See Note at Beginning of this Section) | 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 |
|--------------------|-----------------------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | $\frac{\sum_{k,h}^{i,t} + \sum^T \text{QSI}\{\text{adj}\}_{k,h}^{i,t}}{\sum^T \text{MI}_{k,h}^t[n,1] * \text{OPE}'_{k,h}^i}$ <p>(See 9.3.8A.4 for the derivation of the variable $\text{QSI}\{\text{adj}\}_{k,h}^{i,t}$, $\text{OPE}'_{k,h}^i$ and the proper context of the matrix notation $\text{MI}_{k,h}^t[n,1]$ used above).</p> | | | | | | | |
| 133 | Generation Cost Guarantee Payment | N/A | 9.4.7B | <p><u>Dispatchable delivery points:</u> $\text{MAX}[0, (\text{CGC} + \text{RT_COST} - \sum^T \text{EMP}_h^{m,t} \times \text{AQEI}\{\text{limited}\}_{k,h}^{m,t} - \sum^T \text{CMSC_REV}_{k,h}^{m,t})]$</p> <p>Subject to: $\text{AQEI}\{\text{limited}\}_{k,h}^{m,t} = \text{MIN}[\text{AQEI}_{k,h}^{m,t}, \text{minimum loading point}]$</p> <p>Where ‘CGC’ is a <i>Submitted Combined Guaranteed Costs</i> variable, assessed in accordance with the applicable <i>market manual</i> (see 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</p> | Hourly | MP | 13 | N/A | N/A | N/A | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>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"> - the end of <i>minimum generation block run-time</i>; or - the end of the unit’s <i>minimum run-time</i>. <p>Where $AQEI\{limited\}_{k,h}^{m,t}$ shall denote all 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>Where RT_COST is fuel and O&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</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>with real-time dispatch).</p> $RT_COST_k = \sum_{H1}^{T^*} COST(AQEI\{limited\}_{k,h}^{m,t}, BE)$ <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"> B is the $n \times 2$ matrix (B) of offered <i>price-quantity pairs</i> (P_i, Q_i) s^* is the highest indexed row of B such that $Q_{s^*-1} \leq Q \leq Q_{s^*}$ and where $Q_0=0$ <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</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 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 $CMSC_REV_{k,h}^{m,t}$ is any real-time $CMSC(TD_{k,h,105}^{m,t})$ 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 market participant ‘k’ in metering interval ‘t’ of <i>settlement</i> hour ‘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"> 1) Real-time $CMSC(TD_{k,h,105}^{m,t})$ for the same interval is greater than zero. 2) If $MQSI_{k,h}^{m,t}$ and $\max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) \geq MLP$, then $CMSC_REV_{k,h}^{m,t} = 0$. 3) In the case of a <i>constrained-off</i> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>event:</i></p> <p>a. If $MQSI_{k,h}^{m,t} < MLP$, then $CMSC_REV_{k,h}^{m,t} = TD_{k,h,105}^{m,t}$</p> <p>b. If $MQSI_{k,h}^{m,t} \geq MLP$ and $\max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) \leq MLP$, then $CMSC_REV_{k,h}^{m,t} = OP(EMP_h^{m,t}, MLP, BE) - OP(EMP_{k,h}^{m,t}, \max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), BE)$.</p> <p>4) In the case of a <i>constrained-on event:</i></p> <p>a. If $MQSI_{k,h}^{m,t} < MLP$ and $\min(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) < MLP$, then $CMSC_REV_{k,h}^{m,t} = TD_{k,h,105}^{m,t}$</p> <p>b. If $MQSI_{k,h}^{m,t} \leq MLP$ and $\min(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) \geq MLP$, then $CMSC_REV_{k,h}^{m,t} = OP(EMP_h^{m,t}, MQSI_{k,h}^{m,t}, BE) - OP(EMP_h^{m,t}, MLP, BE)$</p> <p>(See applicable <i>market manual</i>)</p> | | | | | | | |
| 134 | Demand Response | N/A | 9.4.7C | Manual Entry for TDRP (Refer to | Monthly | Either way | 13 | N/A | | N/A | TDRP and ELRP suspended by the |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---------------------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| | Credit | | 9.4.7F | “Market Manual 5: Settlements, Part 5.10: Transitional Demand Response Program”. Manual Entry for ELRP (Refer to “Market Manual 10: Emergency Load Reduction Program (ELRP)”. | | | | | NA | | IESO. |
| 135 | Real-time Import Failure Charge | RT_IFC _{k,h} | 9.3.8C.3 | $\sum^{I,T} (-1) * \text{MIN}[\text{MAX}[0, (\text{EMP}_h^{m,t} + \text{PB_IM}_h^t - \text{PD_EMP}_h^{m,t}) * \text{RT_ISD}_{k,h}^{i,t}], (\text{MAX}(0, \text{EMP}_h^{m,t}) * \text{RT_ISD}_{k,h}^{i,t})]$ <p>Where: ‘I’ is the set of all <i>intertie metering points</i> ‘i’. ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’. $\text{RT_ISD}_{k,h}^{i,t} = \text{MAX}(\text{PD_DQSI}_{k,h}^{i,t} - \text{DQSI}_{k,h}^{i,t}, 0)$</p> | 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 (See Note at Beginning of this Section) | 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 | Real-time Export Failure Charge | RT_EFC _{k,h} | 9.3.8C.5 | $\sum^{I,T} (-1) * \text{MIN}[\text{MAX}[0, (\text{PD_EMP}_h^{m,t} - \text{EMP}_h^{m,t} - \text{PB_EX}_h^t) * \text{RT_ESD}_{k,h}^{i,t}], (\text{MAX}(0, \text{PD_EMP}_h^{m,t}) * \text{RT_ESD}_{k,h}^{i,t})]$ <p>Where: ‘I’ is the set of all <i>intertie metering points</i> ‘i’ ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’ $\text{RT_ESD}_{k,h}^{i,t} = \text{MAX}(\text{PD_DQSW}_{k,h}^{i,t} - \text{DQSW}_{k,h}^{i,t}, 0)$</p> | Hourly | Due IESO | N/A | N/A | 0 | 13 | Subject to exemptions under the provisions of 9.3.8C.4.2. |
| 140 | Fixed Energy Rate Settlement Amount | N/A | N/A | <p>** CHARGE TYPE 140 REPLACED BY CHARGE TYPE 142 EFFECTIVE JANUARY 1, 2005 **</p> <p>NOTE: 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). 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. A manual adjustment is applied at the end of the</p> | Hourly (type ‘DP’ records only. See: “Format Spec. for Settlement Statement Files and Data Files” for further details) | Either Way | | 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 (See Note at Beginning of this Section) | 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>month to apply a rate of 4.7 cents per kWh for <i>energy</i> withdrawn up to 750 kWhs.</p> <p>Fixed Energy Rate Settlement Amount (dispatchable locations):</p> <p>Where net uncovered consumption > 0:</p> $\sum_{T,m} (EMP_{h,m,t} - FP_{h,m}) \times (AQEW_{k,h,m,t} - AQEI_{k,h,m,t} - \sum_s BCQ_{s,k,h,m,t})$ <p>Where net uncovered consumption = 0:</p> $\sum_{T,m} (EMP_{h,m,t} - FP_{h,m}) \times (-AQEI_{k,h,m,t})$ <p>SUBJECT TO: Net uncovered consumption = MAX [$\sum_{T,m} (AQEW_{k,h,m,t} - \sum_s BCQ_{s,k,h,m,t})$, 0]</p> <p>Fixed Energy Rate Settlement Amount (non-dispatchable locations):</p> <p>Where net uncovered consumption > 0:</p> $(HOEP_h - FP_{h,m}) \times \sum_{m,T} (AQEW_{k,h,m,t} - AQEI_{k,h,m,t} - \sum_s BCQ_{s,k,h,m,t})$ <p>Where net uncovered consumption = 0:</p> $(HOEP_h - FP_{h,m}) \times \sum_{m,T} (-AQEI_{k,h,m,t})$ <p>SUBJECT TO:</p> <p>Net uncovered consumption = MAX [$\sum_{T,m} (AQEW_{k,h,m,t} - \sum_s BCQ_{s,k,h,m,t})$, 0]</p> <p>SUBJECT TO:</p> <p>Net uncovered consumption = MAX [$\sum_{T,m} (AQEW_{k,h,m,t} - \sum_s BCQ_{s,k,h,m,t})$, 0]</p> | | | N/A | | | | |
| 141 | Fixed Wholesale Charge Rate Settlement Amount | N/A | N/A | <p>** CALCULATIONS FOR CHARGE TYPE 141 END MARCH 31, 2005 **</p> <p>NOTE: The equations identified below apply to <i>distributors</i>, low volume and designated consumers (as</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 (See Note at Beginning of this Section) | 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>defined in Bill 4 and associated regulations) in <i>the 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. See IMO_FORM_1562 for further details.</p> $TD_{k,C} - \sum_{M,H} AQEW_{k,h}^{m,t} * (FPC)$ <p>Where:</p> <p>‘H’ is all <i>settlement hours</i> ‘h’ during the <i>billing period</i>; and,</p> <p>‘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>:</p> <p>150, 155, 168, 170, 182, 183, 184, 250, 252, 254, 450, 452, 454, 550, 753, 9990</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| 142 | Regulated Price Plan Settlement Amount | N/A | N/A | <p>NOTE: 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>, charge type 142 is applied once a month based on the values submitted by the <i>distributor</i> 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>Regulated Price Plan Settlement Amount:</p> $\text{NEMSC}_{k,h} - \{ \text{MIN} [\text{TLQ} , \sum_H^{M,T} (\text{AQEW}_{k,h}^{m,t} - \text{AQEI}_{k,h}^{m,t} - \sum_s \text{BCQ}_{s,k,h}^{m,t})] \times \text{RPP}_{l=1} + \text{MAX} [0, \sum_H^{M,T} (\text{AQEW}_{k,h}^{m,t} - \text{AQEI}_{k,h}^{m,t} - \sum_s \text{BCQ}_{s,k,h}^{m,t}) - \text{TLQ}] \times \text{RPP}_{l=2} \}$ | 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 | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 143 | NUG Contract Adjustment Settlement Amount | N/A | 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. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 144 | Regulated Nuclear Generation Adjustment Amount | N/A | N/A | <p>For dispatchable <i>delivery points</i>:</p> $(GRP - EMP_h^{m,t}) \times AQEI_{k,h}^{m,t}$ <p>For non-dispatchable <i>delivery points</i>:</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 | N/A | $NEMSC_{k,H} - \{ \sum_H^{M,T} [(MWAv_g_T \times GRP) + ((AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t}) - MWAv_g_T) \times EMP_h^{m,t}] \}$ <p>Where '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>MWAv_g 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 OEB regulation. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|-------------------------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 146 | Global Adjustment Settlement Amount | N/A | N/A | <p><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></p> <p>For Fort Frances Power Corporation Distribution Inc.:</p> $\Sigma_{H,M,C} TD \times (\Sigma_H^{M,T} AQEW_{k,h}^{m,t} + EGEI_k - EEQ) / (\Sigma_{K,H}^{M,T} AQEW_{k,h}^{m,t} + \Sigma_K EGEI_k - EEQ)$ <p>For other <i>market participants</i>:</p> $\Sigma_{H,M,C} TD \times (\Sigma_H^{M,T} AQEW_{k,h}^{m,t} + EGEI_k) / (\Sigma_{K,H}^{M,T} AQEW_{k,h}^{m,t} + \Sigma_K EGEI_k - EEQ)$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</p> <p>Where 'K' is the set of all <i>market</i></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 (See Note at Beginning of this Section) | 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>participants 'k'.</p> <p>Where 'M' is the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'.</p> <p>Where 'C' is the set of the following <i>charge types</i> 'c': 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.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 | N/A | $\Sigma_{H,M,C}TD * PDF_{k,m,d}$ Where ‘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 and ‘C’ is the set of the following <i>charge types</i> ‘c’: 193, 194, 195, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1416, 1450, 1460, 1461, 1462, and 1464. | Monthly | Due MPs | 13 | N/A | N/A | N/A | Eligibility, rates, and other implementation details subject to government regulation. |
| 148 | Class B – Global Adjustment Settlement Amount | N/A | N/A | For Fort Frances Power Corporation Distribution Inc.: $(\Sigma_{H,M,C}TD - TD_{147}) \times$ $(\Sigma_H^{M,T} AQEW_{k,h}^{m,t} + EGEI_k - EEQ) / \text{Class B Load}$ For other Class B <i>Market Participants</i> and Distributors: $(\Sigma_{H,M,C}TD - TD_{147}) \times$ | 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 (See Note at Beginning of this Section) | 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 |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | $(\sum_H^{M,T} AQEW_{k,h}^{m,t} + EGEI_k - GA - AQEW_{g,k,h,M}^{m,t} - PGS_{h,M}) / \text{Class B Load}$ <p>Class B Load =</p> $(\sum_{K,H}^{M,T} AQEW_{k,h}^{m,t} + \sum_K EGEI_k - \sum_K EEQ - \sum_K GA - AQEW_{g,k,h,M}^{m,t} - \sum_K PGS_{h,M})$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</p> <p>Where 'K' is the set of all <i>market participants</i> 'k'.</p> <p>Where 'M' is the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'.</p> <p>Where 'C' is the set of the following <i>charge types</i> 'c':</p> <p>193, 194, 195, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1416, 1450, 1460, 1461, 1462, and 1464.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 149 | Regulated Price Plan Retailer Settlement Amount | N/A | N/A | Manual entry based on the values submitted by <i>market participants</i> 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. |
| 150 | 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: ‘C’ is the set of the following <i>charge types</i> ‘c’ as follows: 100, 101, 103, 104, 1131 ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>Where $RQ_{k,h}^{m,t}$ 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</p> | Hourly | Either Way | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|---------------------------|---|--|---|--------------------------------------|---|-------------------------------------|--|---|
| | | | | party to the contract in which: $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | | | | | | | |
| 155 | Congestion Management Settlement Uplift | N/A | 9.3.5.2 and 9.3.5.7 | $\sum_c^{M,T} TD_{k,h,(105, 106, 107, 108, 1050)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>Where $RQ_{k,h}^{m,t}$ 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: $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$</p> | Hourly or Monthly (see 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 (See Note at Beginning of this Section) | 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>** CALCULATIONS FOR CHARGE TYPE 162 END April 30, 2009 **</p> $\text{Payment (n)} = \sum_H [(\text{HOEP}_h - \text{ORL}) \times (\text{ONPAO}_h \times 0.85 - \text{PAA}) + (\text{PAP} - \text{PAORL}) \times \text{PAA}]$ <p>OPG rebate (n) = Max [0, Payment (n) – Payment (n-1) + NCF (n-1)]</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 $\text{NCF (n)} = \text{Min} [0, \text{Payment (n)} - \text{Payment (n-1)} + \text{NCF (n-1)}]$</p> | May 1, 2006 to April 30, 2009 | Due <i>IESO</i> | 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> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|---|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 163 | 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. 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. |
| 164 | Outage Cancellation/Deferral Debit. | N/A | 5.6.7.4 and 9.4.8.1.3 | $\sum_{c,H}^{M,T} TD_{k,H,(114)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month. 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 | |
| 165 | Unrecoverable Testing Costs Debit | N/A | 9.4.8.1.1 and 4.5.3.4 | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month. 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 | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---------------------------------------|---------------------------|------------------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| 166 | Tieline Reliability Maintenance Debit | N/A | 9.4.8.1.2 and 5.5.3.4 | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</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> | Monthly | Due IESO | 13 | N/A | 0 | 13 | |
| 167 | Emergency Energy Debit | N/A | 9.4.8.1.5 9.4.2.3A and 5.2.3.3A | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</p> <p>Where 'c' is any payments made for <i>emergency energy</i> during the applicable period.</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> | Monthly | Due IESO | 13 | N/A | 0 | 13 | |
| 168 | TR Market Shortfall Debit | N/A | 9.4.8.1.7 and 9.6.14.5.2 | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</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 (See Note at Beginning of this Section) | 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'. | | | | | | | |
| 169 | Station Service Reimbursement Debit | N/A | 9.4.8.1.6 and 9.2.1A.12.2 (a) | $= \sum_{H,c}^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</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> | Monthly | Due IESO | 13 | N/A | 0 | 13 | |
| 170 | Local Market Power Rebate | N/A | 9.4.8.2.2 9.4.8.2.3 9.3.8A.5 9.3.8A.6 and Ch. 7, 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>.</p> <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</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> | Monthly | Due MP | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 Industrial Electricity Rate Program Balancing Amount | N/A | N/A | $\sum_k TD_{k,121}$ Where 'k' is part of a subset of eligible <i>market participants</i> 'k'. | Quarterly | Due IESO | 0 | N/A | N/A | N/A | |
| 183 | Generation Cost Guarantee Recovery Debit | N/A | 9.4.8.1.9 | $= \sum_{H,C}^{M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ Where: 'C' is the set of the following <i>charge types</i> 'c' as follows: 133 'H' is the set of all <i>settlement hours</i> 'h' in the month. 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'. | Monthly | IESO | 13 | N/A | 0 | 13 | |
| 184 | Demand Response Debit | N/A | 9.4.7C 9.4.7F | $\sum_{k,H} (TD_{134}) \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ Where: 'H' is all <i>settlement hours</i> 'h' during the <i>billing period</i> . | Monthly | Either way | 13 | N/A | 0 | 5 | TDRP and ELRP suspended by the IESO. |
| 186 | Intertie Failure Charge Rebate | HUSA _{k,h} | 9.3.9.1 | $\sum_C^{M,T} TD_c \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ | Hourly | Due MP | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>‘C’ is the set of the following <i>charge types</i> ‘c’ as follows: 135, 136, 1134, 1135, 1136</p> <p>‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>Where $RQ_{k,h}^{m,t}$ 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 CAPRSC 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> $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | | | | | | | |
| 190 | Fixed Energy Rate Balancing Amount | N/A | N/A | <p><u>** CHARGE TYPE 190 REPLACED BY CHARGE TYPE 192 EFFECTIVE JANUARY 1, 2005 **</u></p> $\sum_{k,H,c} (TD_{140})$ <p>Where:</p> <p>‘H’ is all <i>settlement hours</i> ‘h’ during the <i>trading day</i> for all</p> | Hourly (type ‘DP’ records only. See: “Format Spec. for Settlement Statement Files and Data Files” 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 (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| | | | | <i>trading days</i> during the interim period beginning December 1, 2002. | | | | | | | |
| 191 | Fixed Wholesale Charge Rate Balancing Amount | N/A | N/A | <p>** CALCULATIONS FOR CHARGE TYPE 191 END MARCH 31, 2005 **</p> $\sum_{k,H,c} (TD_{141})$ <p>Where: 'H' is all <i>settlement hours</i> 'h' during the <i>billing period</i>.</p> | Monthly | Either Way | N/A | N/A | N/A | N/A | Eligibility, rates, and other implementation details subject to government regulation. |
| 192 | Regulated Price Plan Balancing Amount | N/A | N/A | $\sum_K TD_{k,142}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.</p> <p>Where $TD_{k,142}$ is the total <i>settlement amount</i> of <i>charge type</i> 142 for the month for <i>market participant</i> 'k'.</p> | Monthly | Due OPA | 0 | N/A | N/A | N/A | Implementation details subject to government regulation. |
| 193 | NUG Contract Adjustment Balancing Amount | N/A | N/A | TD_{143} | Monthly | Due OPA | 0 | N/A | N/A | N/A | Implementation details subject to government regulation. |
| 194 | Regulated Nuclear Generation Balancing Amount | N/A | N/A | TD_{144} | Interval or Hourly | Due OPA | 0 | N/A | N/A | N/A | Implementation details subject to government regulation. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 195 | Regulated Hydroelectric Generation Balancing Amount | N/A | N/A | TD_{145} | Monthly | Due <i>OPA</i> | 0 | N/A | N/A | N/A | Implementation details subject to <i>OEB</i> regulation. |
| 196 | Global Adjustment Balancing Amount | N/A | N/A | $\sum_K TD_{k,147, 148} - \sum_{197}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,147, 148}$ 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 <i>OPA</i> | 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 | N/A | $\sum_K TD_{k,1416}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,1416}$ is the <i>settlement amount</i> of <i>charge type</i> 1416 for the month for <i>market participant</i> 'k'. | Monthly | Due <i>IESO</i> | 0 | N/A | N/A | N/A | Implementation details subject to government regulation. |
| 198 | Renewable Generation Balancing Amount | N/A | N/A | <u>** CALCULATIONS FOR CHARGE TYPE 198 END DECEMBER 31, 2010 **</u> $\sum_K TD_{k,148}$ | Pending | Due <i>OPA</i> | 0 | N/A | N/A | N/A | Implementation details subject to government regulation. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 <i>market participants</i> 'k'. Where $TD_{k,148}$ is the <i>settlement amount</i> of <i>charge type</i> 148 for the month for <i>market participant</i> 'k'. | | | | | | | |
| 199 | Regulated Price Plan Retailer Balancing Amount | N/A | N/A | $\sum_K TD_{k,149}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,149}$ is the <i>settlement amount</i> of <i>charge type</i> 149 for the month for <i>market participant</i> 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | Implementation details subject to government regulation. |
| 200 | 10 Minute Spinning Reserve Market Settlement Credit | ORSCK,h | 9.3.4.1 | $\sum_{m,t,r} AQOR_{r,k,hm,t} \times PROR_{r,hm,t}$ | Interval | Due MP | 13 | 13 | N/A | N/A | |
| 201 | 10 Minute Spinning Reserve Market Shortfall Rebate | HUSA _h | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(251)} \times [(AQEW_{k,h}^{m,t} + SQEW_h^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'. Where $RQ_{k,h}^{m,t}$ is a reallocated quantity whereby <i>market participant</i> 'k' is a party to one or more <i>physical bilateral contracts</i> | Hourly | Due MP | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 <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: $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | | | | | | | |
| 202 | 10 Minute Non-spinning Reserve Market Settlement Credit | ORSC _{k,h} | 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 | |
| 203 | 10 Minute Non-spinning Reserve Market Shortfall Rebate | HUSA _h | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(253)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'. Where $RQ_{k,h}^{m,t}$ 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 | Hourly | Due MP | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | between <i>market participant</i> 'k' and the other <i>market participant</i> that is a party to the contract in which: $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | | | | | | | |
| 204 | 30 Minute Operating Reserve Market Settlement Credit | ORSC _{k,h} | 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 | |
| 205 | 30 Minute Operating Reserve Market Shortfall Rebate | HUSA _h | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(255)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> <p>Where $RQ_{k,h}^{m,t}$ 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</p> | Hourly | Due MP | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>which:</p> $RQ_{k,h}^{m,t} = \sum_{s,b} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | | | | | | | |
| 250 | 10 Minute Spinning Market Reserve Hourly Uplift | HUSA _h | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(200)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>Where $RQ_{k,h}^{m,t}$ 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 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| 251 | 10 Minute Spinning Market Reserve Shortfall Debit | ORSSD _{k,r,h} | 9.3.8.2 | Manual Entry as per 9.3.8.2 | Interval | Due IESO | 13 | 13 | N/A | N/A | |
| 252 | 10 Minute Non-spinning Market Reserve Hourly Uplift | HUSA _n | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(202)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>Where $RQ_{k,h}^{m,t}$ 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 | |
| 253 | 10 Minute Non-spinning Market Reserve Shortfall Debit | ORSSD _{k,r,h} | 9.3.8.2 | Manual Entry as per 9.3.8.2 | Interval | Due IESO | 13 | 13 | N/A | N/A | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| 254 | 30 Minute Operating Reserve Market Hourly Uplift | HUSA _h | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(204)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> <p>Where $RQ_{k,h}^{m,t}$ 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 | |
| 255 | 30 Minute Operating Reserve Market Shortfall Debit | ORSSD _{k,r,h} | 9.3.8.2 | Manual Entry as per 9.3.8.2 | Interval | Due IESO | 13 | 13 | N/A | N/A | |
| 400 | Black Start Capability Settlement Credit | N/A | 9.4.2.2 | Manual Entry as per 9.4.2.2 | 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 (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 404 | Regulation Service Settlement Credit | N/A | 9.4.2.3 | Manual Entry as per 9.4.2.3 | Monthly | Due MP | 13 | N/A | N/A | N/A | |
| 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. |
| 410 | IESO-Controlled Grid Special Operations Credit | N/A | 5.8.2.6 | Manual Entry as per 5.8.2.6 | Monthly | Either way | 13 | N/A | N/A | N/A | |
| 450 | Black Start Capability Settlement Debit | N/A | 9.4.2.2 | $= \sum_{H,c}^{M,T} TD_{h,(400)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month. 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 | N/A | 9.4.2.4 | $= \sum_C^{M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'C' is the set of the following charge types 'c' as follows:</p> | Hourly | Due IESO | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | 1401, 1402, 1404, 1405, 1451 Where 'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'. | | | | | | | |
| 452 | Monthly Reactive Support and Voltage Control Settlement Debit | N/A | 9.4.2.4 | $= \sum_{H,C}^{M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'C' is the set of the following charge types 'c' as follows:</p> <p>1403, 1406, 1407, 1408, 1409, 1417</p> <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</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> | Monthly | Due IESO | 13 | N/A | 0 | 13 | |
| 454 | Regulation Service Settlement Debit | N/A | 9.4.2.3 | $= \sum_{H,c}^{M,T} TD_{h,(404)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</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> | Monthly | Due IESO | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| 460 | IESO-Controlled Grid Special Operations Debit | N/A | 5.8.2.6 | $= \sum_{H,c}^{M,T} TD_{h,(410)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where ‘H’ is the set of all <i>settlement hours</i> ‘h’ in the month. Where ‘T’ is the set of all <i>metering intervals</i> ‘t’ in the set of all <i>settlement hours</i> ‘H’.</p> | Monthly | Either way | 13 | N/A | 0 | 13 | |
| 500 | Must Run Contract Settlement Credit | N/A | 9.4.2.1 | Manual Entry as per 9.4.2.1 | Monthly | Due MP | 13 | N/A | N/A | N/A | |
| 550 | Must Run Contract Settlement Debit | N/A | 9.4.2.1 | $= \sum_{H,c}^{M,T} TD_{h,(500)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where ‘H’ is the set of all <i>settlement hours</i> ‘h’ in the month. 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 | |
| 600 | Network Service Credit | N/A | 9.4.1 / 9.4.3 | $\sum_{k,H,c} (TD_{650})$ <p>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</p> | 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 | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| | | | | Network Service charges. | | | | | | | |
| 601 | Line Connection Service Credit | N/A | 9.4.1 / 9.4.3 | $\sum_{k,H,c} (TD_{651})$ 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 | N/A | 9.4.1 / 9.4.3 | $\sum_{k,H,c} (TD_{652})$ 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. | Monthly | Due applicable transmitters | 13 | N/A | N/A | N/A | Subject to the OEB "Ontario Transmission Rate Order". |
| 603 | Export Transmission Service Credit | N/A | 9.4.1 / 9.4.3 | $\sum_{k,H,c} (TD_{653}^i)$ Where 'H' is the set of all <i>settlement hours</i> 'h' in the month. Where 'i' is an <i>intertie metering point</i> 'i' where an export transaction occurred during the | Monthly | Due applicable transmitter | 13 | N/A | N/A | N/A | Subject to the OEB "Ontario Transmission Rate Order". |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--------------------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| | | | | month Each <i>charge type</i> 603 line detail record line item is therefore totaled on the basis of TD_{653} per <i>intertie metering point</i> 'i' per month. | | | | | | | |
| 650 | Network Service Charge | N/A | 9.4.1 / 9.4.3 | $NSD_{k,h}^m \times PTS-N$ The Billing Demand for Network Transmission Service (kW) is defined as the higher of: 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 85% of the customer peak demand in any hour during the peak period. | Monthly | Due <i>IESO</i> | 13 | N/A | N/A | N/A | Subject to the OEB "Ontario Transmission Rate Order". |
| 651 | Line Connection Service Charge | N/A | 9.4.1 / 9.4.3 | $LCD_{k,h}^m \times PTS-L$ Where 'h' is the <i>settlement hour</i> of the current <i>billing period</i> in which $LCD_{k,h}^m$ denotes the non-coincident peak demand for the month. | Monthly | Due <i>IESO</i> | 13 | N/A | N/A | N/A | Subject to the OEB "Ontario Transmission Rate Order". |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 652 | Transformation Connection Service Charge | N/A | 9.4.1 / 9.4.3 | $TCD_{k,h}^m \times PTS-T$ 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. | Monthly | Due IESO | 13 | N/A | N/A | N/A | Subject to the OEB "Ontario Transmission Rate Order". |
| 653 | Export Transmission Service Charge | N/A | 9.4.1 / 9.4.3 | $\sum_H^T SQEW_{k,h}^{i,t} \times ETS$ Where 'H' is the set of all <i>settlement hours</i> 'h' in the month. Where 'T' is the set of all <i>metering intervals</i> 't' during the set of <i>settlement hours</i> 'H'. | Monthly | Due IESO | 13 | N/A | 0 | 13 | Subject to the OEB "Ontario Transmission Rate Order". |
| 700 | Dispute Resolution Settlement Credit | N/A | 3.2.7 | Manual Entry as per 3.2.7 | Monthly | Due MP | 13 | 13 | 0 | 5 | Note: tax would follow original disputed transaction |
| 702 | Debt Retirement Credit | N/A | 9.4.6 | $\sum_{k,H,c} TD_{752}$ | Monthly | Due Ministry of Finance | 0 | N/A | N/A | N/A | Ontario Regulations 493/01 and 494/01 See Ministry of Energy website for details. |
| 703 | Rural and Remote Settlement Credit | N/A | 9.4.4 | $\sum_{k,H,c} TD_{753}$ | Monthly | Due Hydro One | 13 | N/A | N/A | N/A | Ontario Regulation 442/01 See Ministry of Energy website for details. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 704 | OPA Administration Credit | N/A | N/A | $\sum_K TD_{k,754}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,754}$ is the <i>settlement amount</i> of <i>charge type 754</i> for the month for <i>market participant</i> 'k'. | Monthly | Due OPA | 13 | N/A | N/A | N/A | Implementation details subject to government regulation. |
| 750 | Dispute Resolution Settlement Debit | N/A | 3.2.7 | Manual Entry as per 3.2.7. | Monthly | Due IESO | 13 | 13 | 0 | 5 | Note: tax would follow original disputed transactions |
| 751 | Dispute Resolution Board Service Debit | N/A | | | | | 13 | 13 | 13 | 13 | |
| 752 | Debt Retirement Charge | N/A | 9.4.6 | $AQEW_{k,h}^{m,t} \times TP$ 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> . | Monthly | Due IESO | 13 | N/A | N/A | N/A | Ontario Regulations 493/01 and 494/01 See Ministry of Energy website for details. |
| 753 | Rural and Remote Settlement Debit | N/A | 9.4.4 | $AQEW_{k,h}^{m,t} \times TP$ | Monthly | Due IESO | 13 | N/A | N/A | N/A | Ontario Regulation 442/01 See Ministry of Energy website for details. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 754 | OPA Administration Charge | N/A | N/A | $\sum_H^T AQEW_{k,h}^{m,t} \times TP$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</p> <p>Where 'T' is the set of all <i>metering intervals</i> 't' in <i>settlement hour</i> 'h'.</p> <p>Where TP is the rate (\$/MWh) for the <i>OPA</i> Administration Charge set by <i>OEB</i>.</p> | Monthly | Due <i>IESO</i> | 13 | N/A | N/A | N/A | Eligibility, rates, and other implementation details subject to government regulation. |
| 850 | Market Participant Default Settlement Debit (recovery) | N/A | 2.8.6 | Manual Entry as per 2.8.6 | Monthly | Due <i>IESO</i> | 13 | 13 | 13 | 13 | |
| 900 | GST/HST Credit | N/A | 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'.</p> <p>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 | N/A | $\sum_C TD_{k,c}$ <p>A summation of all Goods and Services Tax Debits or Harmonized Sales Tax Debits</p> | | Due <i>IESO</i> | N/A | N/A | N/A | N/A | Only appear as "SC" record types. |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | payable by market participant 'k' across all charge types 'c'. Where 'C' is the set of all charge types 'c'. | | | | | | | |
| 1050 | Self-Induced Dispatchable Load CMSC Clawback | N/A | 9.3.5.1A | <p>BUSINESS RULES are used in conjunction with the definitions below to specify the criteria by which the IESO will recover <i>constrained off</i> CMSC paid to <i>dispatchable load</i> facilities.</p> <p>Business Rule 1 – Materiality: <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>Business Rule 2 – Non-Dispatchable Portion of Load: <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> | Interval | 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 (See Note at Beginning of this Section) | 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 |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | $[-1OP(EMP_h^{m,t}, MQSW_{k,h}^{m,t}, BL) - \text{MAX} (-1OP(EMP_h^{m,t}, DQSW_{k,h}^{m,t}, BL), -1OP(EMP_h^{m,t}, AQEW_{k,h}^{m,t}, BL))] - [-1OP(EMP_h^{m,t}, MQSW_{k,h}^{m,t}, BL) - \text{MAX} (-1OP(EMP_h^{m,t}, DQSW_{k,h}^{m,t}, BL), -1OP(EMP_h^{m,t}, AQEW_{k,h}^{m,t}, BL), -1OP(EMP_h^{m,t}, MC_h^m, BL))]$ <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).</p> <p>This business rule applies unless CMSC is allowed because of materiality (defined by Business Rule 1).</p> <p>Business Rule 3 – Dispatch Deviation: <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</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>unless CMSC is allowed because of:</p> <ul style="list-style-type: none"> Materiality (defined by Business Rule 1); or The load has been <i>constrained off</i> economically (defined below – ‘Economically <i>constrained off</i> interval’); or Operating reserve has been activated (defined below – ‘Operating Reserve Activation interval’); or The load is ramping (defined below – ‘Ramping interval’); or The load has been manually dispatched down for reliability (defined below – ‘Manual Dispatch for Reliability’). <p>Business Rule 4 – Facility off-line or unable to follow dispatch instructions: <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</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>CMSC is allowed because of :</p> <ul style="list-style-type: none">• Materiality (defined by Business Rule 1); or• The load has been <i>constrained off</i> economically (defined below – ‘Economically <i>constrained off</i> interval’); or• Operating reserve has been activated (defined below – ‘Operating Reserve Activation interval’); or• The load has been manually dispatched down for reliability (defined below – ‘Manual Dispatch for Reliability’). <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>DEFINITIONS – 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</p> | | | | | | | 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 (See Note at Beginning of this Section) | 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>are:</p> <p>Constrained-off event: 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 quantity of energy withdrawn. Both conditions must exist to be considered a <i>constrained off</i> event.</p> <p>Economic Constrained-off interval: 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>Operating Reserve Activation Interval (ORA): 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> <p>a. The constrained schedule is labeled with the reason code ‘ORA’.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 interval is 1-3 intervals before an interval with the 'ORA' code.</p> <p>c. The interval is 1-3 intervals after an interval with the 'ORA' code.</p> <p>Ramping Interval: 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> <p>a. It is one of the first 3 intervals of the second hour when ramping up.</p> <p>b. It is one of the last 3 intervals of the first hour when ramping down.</p> <p>Manual Dispatch for Reliability: A <i>dispatchable load</i> is considered to be a 'manually constrained off 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> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| 1130 | Day-Ahead Intertie Offer Guarantee Settlement Credit | DA_IOG _{k,h} | 9.3.8A.2A | <p><u>**CALCULATIONS FOR CHARGE TYPE 1130 END OCTOBER 12, 2011. CHARGE TYPE 1130 REPLACED BY CHARGE TYPE 1131 EFFECTIVE OCTOBER 13, 2011.</u></p> <p>The Day-Ahead Intertie Offer Guarantee <i>settlement amount</i> is derived as follows:</p> <p>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>See 9.3.8A.2A for the definition of the Operating Profit (OP) function referenced above.</p> <p>Where:</p> <p>‘I’ is the set of relevant <i>intertie</i></p> | Hourly | Due MP | N/A | 13 | 13 | 13 | Subject to IOG OFFSET process under the provisions of 9.3.8A.3 (see also, entry for <i>charge type 130</i> for further details) |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>metering points 'i'.</p> <p>'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> <p>$TD_{k,h,105}^i$ 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> | | | | | | | |
| 1131 | Intertie Offer Guarantee Settlement Credit | IOG _{k,h} | 9.3.8A | <p>The Day-Ahead Intertie Offer Guarantee <i>settlement amount</i> is derived as follows:</p> $\sum_l \text{MAX}[0, \sum^T (\text{DA_IOG_COMP1} + \text{DA_IOG_COMP2} - \text{DA_IOG_COMP3})]$ <p>Where</p> <p>DA_IOG_COMP1: $-1 \times \text{OP}(\text{EMP}_h^{it}, \text{MIN}(\text{DA_DQSI}_{k,h}^{it}, \text{DQSI}_{k,h}^{it}), \text{DA_BE}_{k,h}^{it})$</p> <p>DA_IOG_COMP2: $\text{XDA_BE}_{k,h}^{it} - \text{MAX}(0, \text{XBE}_{k,h}^{it})$</p> <p>DA_IOG_COMP3: Component 3 is calculated when:</p> <p>the CMSC for energy ($TD_{k,h,105}^{m,i}$) for the same metering interval is a value other than zero.</p> | 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 (See Note at Beginning of this Section) | 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 Component 3 (DA_I OG_COMP3), the six scenarios of the possible orderings of the generator’s DA_DQSI, DQSI and MQSI are as follows:</p> <p>1. DQSI >= MQSI >= DA_DQSI</p> <p>2. MQSI >= DQSI >= DA_DQSI</p> <p>3. DQSI > DA_DQSI > MQSI</p> <p>4. MQSI > DA_DQSI > DQSI</p> <p>5. DA_DQSI >= DQSI > MQSI</p> <p>6. DA_DQSI >= MQSI > DQSI</p> <p>Scenario 1 and 2:</p> <p>0</p> <p>Scenario 3:</p> <p>$OP(EMP_h^{i,t}, MQSI_{k,h}^{i,t}, BE) - OP(EMP_h^{i,t}, DA_DQSI_{k,h}^{i,t}, BE)$</p> <p>Scenario 4:</p> <p>$OP(EMP_h^{i,t}, DA_DQSI_{k,h}^{i,t}, BE) - OP(EMP_h^{i,t}, DQSI_{k,h}^{i,t}, BE)$</p> <p>Scenario 5 and 6:</p> <p>$TD_{k,h,105}^{m,t}$</p> <p>Where</p> <p>‘I’ is the set of relevant <i>intertie metering</i></p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>points 'i'.</p> <p>'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> <p>'OP' is the operating profit function defined in <i>IESO market rules</i> Section 9.3.8A.2.</p> $XDA_BE_{k,h}^{i,t} = (-1) * [OP(EMP_h^{i,t}, DA_DQSI_{k,h}^{m,t}, DA_BE) - OP(EMP_h^{i,t}, \min(DA_DQSI_{k,h}^{m,t}, DQSI_{k,h}^{m,t}, DA_BE))]$ $XBE_{k,h}^{i,t} = (-1) * [OP(EMP_h^{i,t}, DA_DQSI_{k,h}^{i,t}, BE) - OP(EMP_h^{i,t}, \min(DA_DQSI_{k,h}^{i,t}, DQSI_{k,h}^{i,t}, BE))]$ <p>Where $EMP_h^{i,t} = 0$</p> <p>The Intertie Offer Guarantee <i>settlement amount</i> is derived from an hourly <i>Energy</i> Import sub component ($EIM_{k,h}$) as follows: $RT-IOG_{k,h} = EIM_{k,h}$</p> <p>The Real-Time Intertie Offer Guarantee ($RT-IOG_{k,h}$) <i>settlement amount</i> is derived as follows:</p> $\sum_i (-1) * \min[0, \sum^T OP(EMP_h^{i,t}, MQSI_{k,h}^{i,t}, BE)]$ <p>Where</p> <p>'I' is the set of relevant <i>intertie metering points</i> 'i'.</p> <p>'T' is the set of all <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> <p>'OP' is the operating profit function defined in</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>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>The Day-Ahead IOG rate:</p> $DA_IOG_RATE = IF [DA_IOG \text{ is not NULL, } DA_IOG / \min(DA_DQSI, DQSI), 0]$ <p>The Real-Time IOG rate:</p> $RT_IOG_RATE = IF[RT_IOG \text{ is NULL, } 0, RT_IOG/DQSI]$ <p>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:</p> $DA_DQSW_REM = [MAX[0, DA_OFFSET_DQSW]]$ $DA_OFFSET_DQSW = MIN[DA_DQSI, DQSI, DA_DQSW_REM]$ <p>The day-ahead IOG offset flag:</p> $DA_OFFSET_FLAG = IF(DA_OFFSET_DQSW > [50\% \times MIN(DA_DQSI, DQSI)], Y, N)$ <p>The IOG offset rate:</p> $IOG_SETTLEMENT_RATE =$ | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>IF[DA_OFFSET_FLAG = 'Y', RT_IOG_RATE, MAX(RT_IOG_RATE, DA_IOG_RATE)]</p> <p>Subject to: $MI[n,9] \geq MIN[n-1,9]$ $MI[1,9] = MIN[MI[1 \text{ to } N,9]]$ $MI[1 \text{ to } N,9] < 0$</p> <p>The Gross IOG amount: IOG = IOG dollar amount associated with the used to calculate IOG_SETTLEMENT_RATE</p> <p>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:</p> <p>$RT_DQSW_REM = [MAX[0, DQSW -$ $RT_OFFSET_DQSW]]$</p> <p>$RT_OFFSET_DQSW = MIN[DQSI,$ $RT_DQSW_REM]$</p> <p>The IOG offset settlement amount: $IOG_OFFSET = (IOG_SETTLEMENT_RATE$ $* RT_OFFSET_DQSW)$</p> <p>The IOG settlement amount:</p> <p>$NET_IOG = (IOG - IOG_OFFSET)$</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| 1133 | Day-Ahead Generation Cost Guarantee Payment | DA_GCG _{k,h} | 9.4.7D | <p><u>**CALCULATIONS FOR CHARGE TYPE 1133 END OCTOBER 12, 2011.</u></p> <p><u>Dispatchable delivery points:</u></p> $\text{MAX}[0, (\text{DA_CGC} + \text{DA_COST} - \sum^T \text{EMP}_h^{m,t} \times \text{AQEI}\{\text{limited}\}_{k,h}^{m,t} - \sum^T \text{CMSC REV}_{k,h}^{m,t})]$ <p>Subject to: $\text{AQEI}\{\text{limited}\}_{k,h}^{m,t} = \text{MIN}[\text{AQEI}_{k,h}^{m,t}, \text{minimum loading point}]$</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> (see 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</i></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 (See Note at Beginning of this Section) | 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>block run-time.</i></p> <p>Where $AQEI\{limited\}_{k,h}^{m,t}$ shall denote all 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</i> hour ‘h’ up to the <i>generation unit’s minimum loading point</i>.</p> <p>Where DA_COST is fuel and O&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</i> price associated with Pre-dispatch of record).</p> $DA_COST_k = \sum_{H2}^{T*} COST(AQEI\{limited\}_{k,h}^{m,t}, PDR_BE_{k,h}^{m,t})$ | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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> $\text{COST}(\text{QB}) = \sum_{i=1}^{s^*} P_i \cdot (Q_i - Q_{i-1})$ <p>where:</p> <ul style="list-style-type: none"> B is the n x 2 matrix (B) of offered <i>price-quantity pairs</i> (P_i, Q_i) s* is the highest indexed row of B such that Q_{s*,1} ≤ Q ≤ Q_{s*} and where Q₀=0 <p>B. Where H2 is the set of all <i>settlement hours</i> 'h' during the period from the <i>Pre-dispatch of Record</i> 'start hour' until the end of <i>minimum generation block run</i></p> <p>C. Where 'T*' is the set of <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H2'</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 $CMSC_REV_{k,h}^{m,t}$ is any real-time $CMSC(TD_{k,h,105}^{m,t})$ 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</i> hour ‘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"> 1) Real-time $CMSC(TD_{k,h,105}^{m,t})$ for the same interval is greater than zero. 2) If $MQSI_{k,h}^{m,t}$ and $\max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) \geq MLP$, then $CMSC_REV_{k,h}^{m,t} = 0$. 3) In the case of a <i>constrained-off event</i>: <ol style="list-style-type: none"> a. If $MQSI_{k,h}^{m,t} < MLP$, then $CMSC_REV_{k,h}^{m,t} = TD_{k,h,105}^{m,t}$ b. If $MQSI_{k,h}^{m,t} \geq MLP$ and $\max(DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}) \leq MLP$, then | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---------------------------------------|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | $\text{CMSC_REV}_{k,h}^{m,t} = \text{OP}(\text{EMP}_{k,h}^{m,t}, \text{MLP}, \text{BE}) - \text{OP}(\text{EMP}_{k,h}^{m,t}, \max(\text{DQSI}_{k,h}^{m,t}, \text{AQEI}_{k,h}^{m,t}), \text{BE}).$ <p>4) In the case of a <i>constrained-on event</i>:</p> <p>a. If $\text{MQSI}_{k,h}^{m,t} < \text{MLP}$ and $\min(\text{DQSI}_{k,h}^{m,t}, \text{AQEI}_{k,h}^{m,t}) < \text{MLP}$, then $\text{CMSC_REV}_{k,h}^{m,t} = \text{TD}_{k,h,105}^{m,t}$</p> <p>b. If $\text{MQSI}_{k,h}^{m,t} \leq \text{MLP}$ and $\min(\text{DQSI}_{k,h}^{m,t}, \text{AQEI}_{k,h}^{m,t}) \geq \text{MLP}$, then $\text{CMSC_REV}_{k,h}^{m,t} = \text{OP}(\text{EMP}_{k,h}^{m,t}, \text{MQSI}_{k,h}^{m,t}, \text{BE}) - \text{OP}(\text{EMP}_{k,h}^{m,t}, \text{MLP}, \text{BE})$</p> <p>(See applicable <i>market manual</i>)</p> | | | | | | | |
| 1134 | Day-Ahead Linked Wheel Failure Charge | DA_LWFC _{k,h} | 9.3.8E | $\text{MAX} [(-1) * [(\text{DA_LWSD}_{k,h}^i) * \text{MAX} [0, (\text{DA_PS}_{k,h}^i - \text{PD_PS}_{k,h}^i)]], (\text{RT_IFC_DALW}_{k,h}^i + \text{RT_EFC_DALW}_{k,h}^i)]$ | Hourly | Due <i>IESO</i> | N/A | 13 | 13 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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> $DA_LWSD_{k,h}^{i,t} = \text{MAX}[\text{MAX}((DA_DQSI_{k,h}^{i,t} - PD_DQSI_{k,h}^{i,t}), DA_DQSW_{k,h}^{i,t} - PD_DQSW_{k,h}^{i,t}), 0]$ $RT_IFC_DALW_{k,h}^i = \sum^{I,T} (-1) * \text{MIN}[\text{MAX}[0, (EMP_h^{m,t} + PB_IM_h^t - PD_EMP_h^{m,t}) * \text{MAX}(DA_DQSI_{k,h}^{i,t} - PD_DQSI_{k,h}^{i,t}, 0)], (\text{MAX}(0, EMP_h^{m,t}) * \text{MAX}(DA_DQSI_{k,h}^{i,t} - PD_DQSI_{k,h}^{i,t}, 0))]$ $RT_EFC_DALW_{k,h}^i = \sum^{I,T} (-1) * \text{MIN}[\text{MAX}[0, (PD_EMP_h^{m,t} - EMP_h^{m,t} - PB_EX_h^t) * \text{MAX}(DA_DQSW_{k,h}^{i,t} - PD_DQSW_{k,h}^{i,t}, 0)], (\text{MAX}(0, PD_EMP_h^{m,t}) * \text{MAX}(DA_DQSW_{k,h}^{i,t} - PD_DQSW_{k,h}^{i,t}, 0))]$ <p>Where: ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’. ‘I’ is the set of all <i>intertie metering points</i> ‘i’.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 | Day-Ahead Import Failure Charge | DA_IFC _{k,h} | 9.3.8B | $\sum^{I,T} (-1) * \text{MIN}[\text{MAX}[0, \text{OP}(\text{PD_EMP}_h^{m,t}, \text{DA_DQSI}_{k,h}^{i,t}, \text{DA_BE}_{k,k}^{i,t}) - \text{OP}(\text{PD_EMP}_h^{m,t}, \text{PD_DQSI}_{k,h}^{i,t}, \text{DA_BE}_{k,k}^{i,t})], (\text{MAX}(0, \text{XPD_BE}_{k,h}^{i,t} - \text{XDA_BE}_{k,h}^{i,t}), (\text{MAX}(0, \text{PD_EMP}_h^{m,t}) * \text{DA_ISD}_{k,h}^{i,t})]$ <p>Where: ‘OP’ is the operating profit function defined in <i>IESO market rules</i> Section 9.3.8B.2. ‘T’ is the set of all <i>metering intervals</i> ‘t’ in <i>settlement hour</i> ‘h’. ‘I’ is the set of all <i>intertie metering points</i> ‘i’. $\text{DA_ISD}_{k,h}^{i,t} = \text{MAX}(\text{DA_DQSI}_{k,h}^{i,t} - \text{PD_DQSI}_{k,h}^{i,t}, 0)$</p> $\text{XDA_BE}_{k,h}^{i,t} = (-1) * [\text{OP}(0, \text{DA_DQSI}, \text{DA_BE}) - \text{OP}(0, \text{PD_DQSI}, \text{DA_BE})]$ $\text{XPD_BE}_{k,h}^{i,t} = (-1) * [\text{OP}(0, \text{DA_DQSI}, \text{PD_BE}) -$ | 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 (See Note at Beginning of this Section) | 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 |
|--------------------|---------------------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | OP(0,PD_DQSI,PD_BE)] | | | | | | | |
| 1136 | Day-Ahead Export Failure Charge | DA_EFC _{k,h} | 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: ‘OP’ is the operating profit function defined in <i>IESO market rules</i> Section 9.3.8B.2. ‘T’ is the set of all <i>metering intervals</i> ‘t’ in <i>settlement hour</i> ‘h’. ‘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 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|-----------------------------------|---|--|---|---|---|--------------------------------------|---|-------------------------------------|--|---|
| 1137 | Intertie Offer Guarantee Reversal | <p>Context 1: IOG_REV_{k,h}</p> <p>Context 2: DA_IOG{adj}_{k,h}ⁱ</p> | <p>9.3.8A.1.2 and 9.3.8A.7 to 9.3.8A.9</p> | <p>**CALCULATIONS FOR CHARGE TYPE 1137 END OCTOBER 12, 2011.</p> <p>NOTE: This <i>charge type</i> is used in two separate contexts as follows:</p> <p>Context 1: 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>. $-1 \times TD_{k,h,c}^i$ Where: ‘c’ is <i>charge type</i> 130 or 1130 as the case may be such that: $TD_{k,h,c}^i = \min(TD_{k,h,130}^i, TD_{k,h,1130}^i)$</p> <p>Context 2: In cases where this <i>charge type</i> is used for the purposes of applying the intertie offer guarantee adjustment (DA_IOG{adj}_{k,h}ⁱ), the <i>settlement amount</i> applied is DA_IOG{adj}_{k,h}ⁱ and is calculated as follows: $DA_IOG\{adj\}_{k,h}^i = \max[0, IOG_FV_{k,h}^i - TD_{k,h,100}^i - \max(TD_{k,h,1130}^i, TD_{k,h,130}^i) - TD_{k,h,105}^i]$ Where: $TD_{k,h,100}^i$, $TD_{k,h,1130}^i$, $TD_{k,h,130}^i$ and $TD_{k,h,105}^i$ are the <i>settlement amounts</i> for <i>charge types</i> 100, 1130, 130 and 105</p> | <p>Context 1: Hourly</p> <p>Context 2: Hourly, but reported on the last <i>trading day</i> of the <i>billing period</i></p> | <p>Context 1: Due IESO</p> <p>Context 2: Due MP</p> | N/A | 13 | 13 | 13 | <p>Note: Context 1 and Context 2 can both be applied to the same import.</p> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | respectively, that are applicable to <i>market participant</i> 'k' during <i>settlement hour</i> 'h' at <i>intertie metering point</i> 'i'. | | | | | | | |
| 1138 | Day-Ahead Fuel Cost Compensation Credit | DA_FCC _{k,h} | 9.4.7E | Manual entry as per 9.4.7E.2 | Hourly | Due MP | 13 | N/A | N/A | N/A | |
| 1139 | Intertie Failure Charge Reversal | IFC_REV _{k,h} | 9.3.8C.6 | <p><u>**CALCULATIONS FOR CHARGE TYPE 1139 END OCTOBER 12, 2011.</u></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: 'c' is <i>charge type</i> 135 or 1135 as the case may be such that:</p> $TD_{k,h,c}^i = \text{MIN} (-1 \times TD_{k,h,135}^i, -1 \times TD_{k,h,1135}^i)$ | Hourly | Due IESO | N/A | 13 | N/A | N/A | |
| 1188 | Day-Ahead Fuel Cost Compensation Debit | DA_FCC_U _{k,h} | 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: 'c' is <i>charge type</i> 1138. 'K' is the set of all <i>market</i></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 (See Note at Beginning of this Section) | 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>participants 'k'.</p> <p>'M' is the set of all <i>delivery points</i> 'm' and <i>intertie metering points</i> 'i'.</p> <p>'H' is the set of all <i>settlement hours</i> 'h' in the month.</p> <p>'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'.</p> | | | | | | | |
| 1330 | On behalf of OPA for the DR2 Program - Availability Payment Settlement Amount | N/A | N/A | <p>$= \sum_H CoMW_h \times AR \times ILSR$</p> <p>Where:</p> <p>'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.</p> <p>'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.</p> <p>'H' is the total On-Peak contract hours in a Contract Month.</p> <p>'ILSR' (Implied Load Shift Ratio),</p> | Monthly | Due DR2-participants Either way | 13 | N/A | N/A | N/A | OPA DR2 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|-------------------|
| | | | | has the meaning as defined in OPA's DR2 Program Rules and is calculated as follows: $\text{ILSR} = (-1) \times [\text{Implied Load Shift} - ((3/4)(\text{Load Shift Credit}))] / \text{Implied Load Shift Requirement}$ | | | | | | | |
| 1331 | On behalf of OPA for the DR2 Program - Availability Set-Off Settlement Amount | N/A | N/A | <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>A: Availability Set-Off (Reliability)</p> $= \sum_H \text{PSO}_h \times \text{AR} \times \text{CoMW}_h \times \text{ILSR}$ <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.</p> <p>The Actual MW Reliability Ratio, which shall not be greater than 100%, shall be calculated as</p> | Monthly | Due DR2-participants Either way | 13 | N/A | N/A | N/A | OPA Program Rules |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>follows:</p> <ul style="list-style-type: none"> - 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. <p>‘PSO’ (Performance Set-Off Factor) refers to a set of factors defined in the OPA DR2 Program Rules.</p> <p>‘AR’ has the same meaning as in CT1330.</p> <p>‘CoMW’ has the same meaning as in CT1330.</p> <p>‘H’ is the set of all hours ‘h’ in the On-Peak Contract period where the required reliability is not met.</p> <p>‘ILSR’ has the same meaning as in CT1330.</p> <p>B: Availability Set-Off (Timely Confirmation)</p> <p>$= \text{PSO} \times \text{AR} \times \text{CoMW}_h \times H \times \text{ILSR}$</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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: ‘PSO’ has the same meaning as defined above. ‘AR’ has the same meaning as in CT1330. ‘CoMW’ has the same meaning as in CT1330. ‘H’ is the set of all hours in the On-Peak Contract period. ‘ILSR’ has the same meaning as in CT1330.</p> <p>C: Availability Set-Off (Low Confirmation) $= \sum_H \text{PSO} \times \text{AR} \times (\text{CoMW}_h - \text{CMW}) \times \text{ILSR}$</p> <p>This formula applies when the Confirmed MW is less than the product of the Required Reliability Ratio and the Contracted MW for</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>one or more On-Peak Contract hours.</p> <p>Where:</p> <p>‘PSO’ has the same meaning as defined above.</p> <p>‘AR’ has the same meaning as in CT1330.</p> <p>‘CoMW’ has the same meaning as in CT1330.</p> <p>‘CMW’ (Confirmed MW) means the number of MW available to shift by the Participant.</p> <p>‘H’ is the set of all confirmed hours ‘h’ when the Confirmed MW’s are:</p> <ul style="list-style-type: none"> - Less than 95% during the Summer and Winter seasons or - Less than 90% during the shoulder seasons <p>of the Contracted MW.</p> <p>‘ILSR’ has the same meaning as in CT1330.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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: Availability Set-Off (Non-Performance)</p> $= \text{PSO} \times \text{AR} \times \text{CoMW}_h \times H \times \text{ILSR}$ <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:</p> <p>‘PSO’ has the same meaning as defined above.</p> <p>‘AR’ has the same meaning as in CT1330.</p> <p>‘CoMW’ has the same meaning as in CT1330.</p> <p>‘H’ is the set of all hours in the On-Peak Contract period.</p> <p>‘ILSR’ has the same meaning as in CT1330.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|-------------------------|
| 1332 | On behalf of OPA for the DR2 Program - Utilization Payment Settlement Amount | N/A | N/A | <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:</p> <p>Weekly Utilization payment</p> $= \sum_p \text{Max}[(\text{GHDiff} - \text{AHDiff}), 0] \times \text{Min}[(\text{CoMWh} \times 1.15), (\text{Curt}_p)] \times \text{ILSR}$ <p>Where:</p> <p>‘GHDiff’ (Guaranteed weekly HOEP Differential), means the weekly differential rate, expressed in \$/MWh, as specified by the <i>OPA</i></p> <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</p> | Monthly | Due DR2-participants Either way | 13 | N/A | N/A | N/A | <i>OPA</i> DR2 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>DR2 Schedule(s) for a given Settlement Account which the Participant agrees to Load Shift in each On-Peak Contract Period.</p> <p>‘Curt’ (Curtailment), 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 OPA for the DR2 Program - Utilization Set-Off Settlement Amount | N/A | N/A | The charge to a DR participant is highest of A , B or C where A, B and C cannot occur within an on-peak period that was subject to an Availability Set-Off (Non-Performance) event: | Monthly | Due DR2-participants Either way | 13 | N/A | N/A | N/A | OPA DR2 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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: Utilization Set-Off (Reliability)</p> <p>$= \sum_p \text{PSO} \times \text{Max}[(\text{GHDiff} - \text{AHDiff}), 0] \times \text{CoMWh}_p \times \text{ILSR}$</p> <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">- For each On-Peak Contract Period, the Actual MWh Reliability Ratio is defined as the result of the baseline MWh minus the actual MWh divided by the product of the confirmed MW and the On-Peak Contract Hours. | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>‘PSO’ (Performance Set-Off Factor) refers to a set of factors defined in the <i>OPA</i>’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: Utilization Set-Off (Timely Confirmation)</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</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>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> <p>‘ILSR’ has the same meaning as in CT1330.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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: Utilization Set-Off (Low Confirmation)</p> $= \sum_p \text{PSO} \times \text{Max}[(\text{GHDiff} - \text{AHDiff}), 0] \times (\text{CoMWh} - \text{CMWh}_p) \times \text{ILSR}$ <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.</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>‘CMWh’ (Confirmed MWh) means the MWh available confirmed for shifting by the Participant.</p> <p>‘P’ is the total such On-Peak Contract Periods ‘p’ for a</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| | | | | Participant in a Contract Month. 'ILSR' has the same meaning as in CT1330. | | | | | | | |
| 1334 | On behalf of OPA for the DR2 Program – Meter Data Set-Off Settlement Amount | N/A | N/A | $= \text{MDSF} \times (\text{TD}_{k,1330} / \text{NoW}_k)$ <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 of the following week. The formula recovers a percentage of the Availability Payment, as pro-rated for that week in question.</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"> - 20% for the first week that the full data remains undelivered; - 33% for the second week that the full data remains undelivered; - 50% for the third week that the full data remains undelivered ; | Monthly | Due DR2-participants Either way | 13 | N/A | N/A | N/A | OPA DR2 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>and</p> <ul style="list-style-type: none"> - 100% for the fourth week that the full data remains undelivered. <p>$TD_{k,1330}$ is the <i>settlement amount of charge type 1330</i> for month 'k' for the DR2 participant.</p> <p>'NoW' (Number of Weeks) means the number of Weeks contained in the Contract month.</p> <p>'k' is the Contract month.</p> | | | | | | | |
| 1335 | On behalf of OPA for the DR2 Program - Buy-Down Settlement Amount | N/A | N/A | <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: $= (SCMWR \times BDR \times CHE)$ </p> <p>Where: 'SCMWR' (Seasonal Contracted MW Reduction), means the MW of demand reduction in the </p> | Monthly | Due DR2-participants Either way | 13 | N/A | N/A | N/A | OPA DR2 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>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:</p> $= (\text{CoMW} \times \text{PRCH} \times \text{BDR} \times \text{CHE})$ <p>Where:</p> <p>‘CoMW’ has the same meaning as in CT1330.</p> <p>‘PRCH’ (Percent Reduction in Contract Hours), means the percent reduction in On-Peak Contract Hours requested.</p> <p>‘BDR’ has the same meaning as</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| | | | | defined above. 'CHE' has the same meaning as defined above. | | | | | | | |
| 1336 | On behalf of OPA for the DR2 Program - Miscellaneous Settlement Amount | N/A | N/A | Reserved for DR2 payments or charges of a miscellaneous nature not specifically covered under Charge Types 1330 through 1335. | Monthly | Due DR2-participants Either way | 13 | N/A | N/A | N/A | OPA DR2 Contract |
| 1340 | On behalf of OPA for the DR3 Program – Availability Payment Settlement Amount | N/A | N/A | $= HA_H \times MCMW_h \times AAR$ <p>Where: '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. '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). 'AAR' (Adjusted Availability Rate), means an amount equal to the Availability Rate, expressed in \$/MWh, as increased by the</p> | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| | | | | Availability Premium or as decreased by the Availability Discount, as the case may be. 'H' is the total hours a Participant is available in a Contract Month. | | | | | | | |
| 1341 | On behalf of OPA for the DR3 Program – Availability Over-Delivery Settlement Amt | N/A | N/A | $= \sum_H (CMW_h - MCMW_h) \times AODR_h$ <p>Applicable only in response to an open standby notification.</p> <p>Where:</p> <p>'CMW' (Confirmed MW), means the number of MW available for Curtailment by the Participant.</p> <p>'CMW' is limited to the lesser of the Monthly Contracted MW plus 15 MW and 130% of the Monthly Contracted MW.</p> <p>'MCMW' has the same meaning as in CT1340.</p> <p>'AODR' (Availability Over-Delivery Rate), means the over-delivery rate as specified by the OPA.</p> <p>'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 | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|-------------------------|
| 1342 | On behalf of OPA for the DR3 Program – Availability Set-Off Settlement Amount | N/A | N/A | <p>The charge to a DR participant is highest of A, B or C:</p> <p>A: Availability Set-Off (Reliability)</p> $= \sum_H \text{PSO}_h \times \text{AAR} \times \text{MCMW}_h$ <p>This formula applies when the Reliability Rate for a given Settlement Point is less than 95% during any meter interval of an Activation Hour, or where the Participant is not Fully Available for Curtailment as defined in the <i>OPA</i> DR3 Program Rules.</p> <p>Where:</p> <p>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%.</p> <p>‘PSO’ (Performance Set-Off Factor) refers to a set of factors defined in the <i>OPA</i> DR3 Program Rules.</p> | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | <i>OPA</i> DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>‘AAR’ has the same meaning as in CT1340.</p> <p>‘MCMW’ has the same meaning as in CT1340.</p> <p>‘H’ is the set of all activation hours ‘h’ for the activation period.</p> <p>B: Availability Set-Off (Timely Confirmation)</p> <p>= $PSO \times AAR \times MCMW_h \times CDP$</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 <i>IESO</i> pursuant to the DR3 Program Rules.</p> <p>Where:</p> <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</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>defined above.</p> <p>‘AAR’ has the same meaning as in CT1340.</p> <p>‘MCMW’ has the same meaning as in CT1340.</p> <p>C: Availability Set-Off (Low Confirmation)</p> <p>$= \sum_H (\text{PSO} \times \text{AAR} \times (\text{MCMW}_h - \text{CMW}))$</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:</p> <p>‘PSO’ has the same meaning as defined above.</p> <p>‘AAR’ has the same meaning as in CT1340.</p> <p>‘MCMW’ has the same meaning as in CT1340.</p> <p>‘CMW’ has the same meaning as</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| | | | | in CT1341. '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. | | | | | | | |
| 1343 | On behalf of OPA for the DR3 Program – Utilization Payment Settlement Amount | N/A | N/A | $= [\sum_H (\text{Curt}_h \times \text{UR}_h)] - [\sum_H (\text{NG}_h \times \text{MIN}(\text{HOEP}, \text{UR}_h))]$ <p>Where:</p> <p>'Curt' (Curtailment), means the number of MWh Curtailed by a Participant when requested by the <i>IESO</i>, 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 <i>IESO</i>, 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> <p>'UR' (Utilization Rate), means the rates, expressed in \$/MWh, as</p> | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| | | | | specified by the <i>OPA</i> . 'NG' (Net Generation), means the MWh of net electricity generated by any contributor that is a behind the meter generator. 'H' is the total hours 'h' a Participant is activated in a Contract Month. | | | | | | | |
| 1344 | On behalf of OPA for the DR3 Program – Utilization Set-Off Settlement Amount | N/A | N/A | <p>The charge to a DR participant is highest of A, B or C:</p> <p>A: Utilization Set-Off (Reliability)</p> $= \sum_H \text{PSO}_h \times \text{UR} \times \text{MCMW}_h$ <p>This formula applies when the Reliability Rate for a given Settlement Point is less than 95% during any meter interval of an Activation Hour.</p> <p>Where:</p> <p>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</p> | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>Rate cannot exceed 100%.</p> <p>‘PSO’ (Performance Set-Off Factor) refers to a set of factors defined in the <i>OPA’s</i> Program Rules.</p> <p>‘UR’ has the same meaning as in CT1343.</p> <p>‘MCMW’ has the same meaning as in CT1340.</p> <p>‘H’ is the set of all activation hours ‘h’ for the activation period.</p> <p>B: Utilization Set-Off (Timely Confirmation)</p> <p>= PSO x UR x MCMW_h x CDP</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 <i>IESO</i> pursuant to the DR3 Program Rules.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>‘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>‘UR’ has the same meaning as in CT1343.</p> <p>‘MCMW’ has the same meaning as in CT1340</p> <p>C: Utilization Set-Off (Low Confirmation)</p> $= \sum_H (\text{PSO} \times \text{UR} \times (\text{MCMW}_h - \text{CMW}))$ <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:</p> <p>‘PSO’ has the same meaning as</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>defined above.</p> <p>‘UR’ has the same meaning as in CT1343.</p> <p>‘MCMW’ has the same meaning as in CT1340.</p> <p>‘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> | | | | | | | |
| 1345 | On behalf of OPA for the DR3 Program – Planned Non-Performance Event Set-Off Amt | N/A | N/A | <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"> 1. Non-Activation Day Non-Performance Availability Set-Off s and | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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. Activation Day Non-Performance Availability Set-Offs.</p> <p>For 1.) The Non-Activation Day Non-Performance Availability Set-Off amount is:</p> $= (AAR \times MCMW_h \times HANE_H)$ <p>Where:</p> <p>‘AAR’ has the same meaning as in CT1340.</p> <p>‘MCMW’ has the same meaning as in CT1340.</p> <p>‘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:</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| | | | | $= (OH \times AAR \times MCMW_h \times NEWF_H)$ <p>Where: ‘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. ‘AAR’ has the same meaning as in CT1340. ‘MCMW’ has the same meaning as in CT1340. ‘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.</p> | | | | | | | |
| 1346 | On behalf of OPA for the DR3 Program – Meter Data Set-Off Settlement Amount | N/A | N/A | $= MDSF \times (HA_H \times MCMW_h \times AAR)$ <p>This formula applies when the complete set of weekly meter data</p> | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>and proof of any Forced Outage(s) for a Settlement Account is not received by 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"> - 20% for the first week that the full data remains undelivered; - 33% for the second week that the full data remains undelivered; - 50% for the third week that the full data remains undelivered ; and - 100% for the fourth week that the full data remains undelivered. | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>‘HA’ has the same meaning as in CT1340.</p> <p>‘MCMW’ has the same meaning as in CT1340.</p> <p>‘AAR’ has the same meaning as in CT1340.</p> <p>‘H’ is the total hours a Participant is available for the applicable week.</p> | | | | | | | |
| 1347 | On behalf of OPA for the DR3 Program – Buy-Down Settlement Amount | N/A | N/A | <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: $= (\text{MCMWR} \times \text{BDR} \times \text{HAE})$ Where: ‘MCMWR’ (Monthly Contracted MW Reduction), means the MW of demand reduction in the Monthly Contracted MWs. ‘BDR’ (Buy-Down Rate), means the Buy-Down Rate, expressed in</p> | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>\$/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: $= (\text{MCMW} \times \text{RD} \times \text{BDR} \times \text{HAE})$ Where: ‘MCMW’ has the same meaning as in CT1340. ‘RD’ (Requested Days), means the number of Business Days per week from which the Hours of Availability are to be removed. ‘BDR’ has the same meaning as defined above. ‘HAE’ has the same meaning as defined above.</p> | | | | | | | |
| 1348 | On behalf of OPA for the DR3 Program – Miscellaneous Settlement | N/A | N/A | Reserved for DR3 payments or charges of a miscellaneous nature not specifically covered under | Monthly | Due DR3-participants Either way | 13 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| | Amount | | | Charge Types 1340 through 1347. | | | | | | | |
| 1380 | Demand Response 2 Availability Payment Balancing Amount | N/A | N/A | $\sum_K TD_{k,1330}$ Where 'K' is the set of all DR2 participants 'k'. Where $TD_{k,1330}$ is the <i>settlement amount of charge type 1330</i> for the month for DR2 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR2 Contract |
| 1381 | Demand Response 2 Availability Set-Off Balancing Amount | N/A | N/A | $\sum_K TD_{k,1331}$ Where 'K' is the set of all DR2 participants 'k'. Where $TD_{k,1331}$ is the <i>settlement amount of charge type 1331</i> for the month for DR2 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR2 Contract |
| 1382 | Demand Response 2 Utilization Payment Balancing Amount | N/A | N/A | $\sum_K TD_{k,1332}$ Where 'K' is the set of all DR2 participants 'k'. Where $TD_{k,1332}$ is the <i>settlement amount of charge type 1332</i> for the month for DR2 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR2 Contract |
| 1383 | Demand Response 2 Utilization Set-Off Balancing Amount | N/A | N/A | $\sum_K TD_{k,1333}$ Where 'K' is the set of all DR2 participants 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR2 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 $TD_{k,1333}$ is the <i>settlement amount</i> of <i>charge type</i> 1333 for the month for DR2 participant 'k'. | | | | | | | |
| 1384 | Demand Response 2 Meter Data Set-Off Balancing Amount | N/A | N/A | $\sum_K TD_{k,1334}$ Where 'K' is the set of all DR2 participants 'k'. Where $TD_{k,1334}$ is the <i>settlement amount</i> of <i>charge type</i> 1334 for the month for DR2 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR2 Contract |
| 1385 | Demand Response 2 Buy-Down Balancing Amount | N/A | N/A | $\sum_K TD_{k,1335}$ Where 'K' is the set of all DR2 participants 'k'. Where $TD_{k,1335}$ is the <i>settlement amount</i> of <i>charge type</i> 1335 for the month for DR2 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR2 Contract |
| 1386 | Demand Response 2 Miscellaneous Balancing Amount | N/A | N/A | $\sum_K TD_{k,1336}$ Where 'K' is the set of all DR2 participants 'k'. Where $TD_{k,1336}$ is the <i>settlement amount</i> of <i>charge type</i> 1336 for the month for DR2 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR2 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|------------------|
| 1390 | Demand Response 3 Availability Payment Balancing Amount | N/A | N/A | $\sum_K TD_{k,1340}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1340}$ is the <i>settlement amount of charge type 1340</i> for the month for DR3 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |
| 1391 | Demand Response 3 Availability Over-Delivery Balancing Amount | N/A | N/A | $\sum_K TD_{k,1341}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1341}$ is the <i>settlement amount of charge type 1341</i> for the month for DR3 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |
| 1392 | Demand Response 3 Availability Set-Off Balancing Amount | N/A | N/A | $\sum_K TD_{k,1342}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1342}$ is the <i>settlement amount of charge type 1342</i> for the month for DR3 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |
| 1393 | Demand Response 3 Utilization Payment Balancing Amount | N/A | N/A | $\sum_K TD_{k,1343}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1343}$ is the <i>settlement amount of charge type 1343</i> for | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 month for DR3 participant 'k'. | | | | | | | |
| 1394 | Demand Response 3 Utilization Set-Off Balancing Amount | N/A | N/A | $\sum_K TD_{k,1344}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1344}$ is the <i>settlement amount</i> of <i>charge type</i> 1344 for the month for DR3 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |
| 1395 | Demand Response 3 Planned Non-Event Set-Off Balancing Amount | N/A | N/A | $\sum_K TD_{k,1345}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1345}$ is the <i>settlement amount</i> of <i>charge type</i> 1345 for the month for DR3 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |
| 1396 | Demand Response 3 Meter Data Set-Off Balancing Amount | N/A | N/A | $\sum_K TD_{k,1346}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1346}$ is the <i>settlement amount</i> of <i>charge type</i> 1346 for the month for DR3 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |
| 1397 | Demand Response 3 Buy-Down | N/A | N/A | $\sum_K TD_{k,1347}$ Where 'K' is the set of all DR3 | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| | Balancing Amount | | | participants 'k'. Where $TD_{k,1347}$ is the <i>settlement amount</i> of <i>charge type</i> 1347 for the month for DR3 participant 'k'. | | | | | | | |
| 1398 | Demand Response 3 Miscellaneous Balancing Amount | N/A | N/A | $\sum_K TD_{k,1348}$ Where 'K' is the set of all DR3 participants 'k'. Where $TD_{k,1348}$ is the <i>settlement amount</i> of <i>charge type</i> 1348 for the month for DR3 participant 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | OPA DR3 Contract |
| 1400 | OPA Contract Adjustment Settlement Amount | N/A | N/A | Manual entry based on the values submitted by OPA via On-line settlement form "Global Adjustment Amount Information", subject to Regulation. | Monthly | Due OPA | 13 | N/A | N/A | N/A | Implementation details subject to government regulation |
| 1401 | Incremental Loss Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Hourly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1402 | Hourly Condense System Constraints Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Hourly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1403 | Speed-no-load Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Monthly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 1404 | Condense Unit Start-up and OM&A Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Hourly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1405 | Hourly Condense Energy Costs Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Hourly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1406 | Monthly Condense Energy Costs Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Monthly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1407 | Condense Transmission Tariff Reimbursement Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Monthly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1408 | Condense Availability Cost Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Monthly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1409 | Monthly Condense System Constraints Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Monthly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1410 | Renewable Energy Standard Offer Program | N/A | N/A | Manual entry based on the values submitted by <i>market participants</i> via On-line settlement forms: | Monthly | Due LDCs 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 (See Note at Beginning of this Section) | 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 | | | “Licenced Distributor Claims for the Renewable Energy Standard Offer Program” and “Embedded Distributor Claims for the Renewable Energy Standard Offer Program”. | | | | | | | |
| 1411 | Clean Energy Standard Offer Program Settlement Amount | N/A | 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 | 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 | N/A | Manual entry based on the values submitted by the OEB. | Monthly | Due LDCs Either way | 13 | N/A | N/A | N/A | Recipients, compensation amounts and other implementation details subject to OEB regulation. |
| 1414 | Hydroelectric Contract Initiative Settlement Amount | N/A | 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 | |
| 1415 | Conservation Assessment Recovery | N/A | N/A | $\Sigma_{H,M}, TD \times (\Sigma_H^{M,T} AQEW_{k,h}^{m,t} /$ | Monthly | Due Non-LDC Load | 13 | N/A | N/A | N/A | Implementation details subject to government |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| | | | | $(\sum_{K,H}^{M,T} AQEW_{k,h}^{m,t})$ Where 'H' is the set of all <i>settlement hours</i> 'h' in the year 2009. Where 'K' is the set of all non-LDC load <i>market participants</i> 'k'. Where 'M' is the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'. Where 'TD' equals the value assessed by the <i>OEB</i> . | | | | | | | regulation. |
| 1416 | Conservation and Demand Management – Compensation Settlement Credit | N/A | N/A | Manual entry based on the values submitted by the OEB. | Monthly | Due LDCs Either way | 13 | N/A | N/A | N/A | |
| 1417 | Daily Condense Energy Costs Settlement Credit | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Monthly | Due MP | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |
| 1450 | OPA Contract Adjustment Balancing Amount | N/A | N/A | TD_{1400} | Monthly | Due OPA | 0 | N/A | N/A | N/A | Implementation details subject to government regulation |
| 1451 | Incremental Loss Offset Settlement Amount | N/A | 9.4.2.4 | Calculated as per ancillary service contracts. | Hourly | Due IESO | 13 | N/A | N/A | N/A | Reactive Support and Voltage Control Service |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|---|
| 1460 | Renewable Energy Standard Offer Program Balancing Amount | N/A | N/A | $\sum_K TD_{k,1410}$ Where 'K' is the set of all <i>market participants</i> 'k'. 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 OPA | 0 | N/A | N/A | N/A | |
| 1461 | Clean Energy Standard Offer Program Balancing Amount | N/A | N/A | $\sum_K TD_{k,1411}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,1411}$ is the total <i>settlement amount of charge type 1411</i> for the month for <i>market participant</i> 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | |
| 1462 | Feed-In Tariff Balancing Amount | N/A | N/A | $\sum_K TD_{k,1412}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,1412}$ is the total <i>settlement amount of charge type 1412</i> for the month for <i>market participant</i> 'k'. | Monthly | Due OPA | 0 | N/A | N/A | N/A | |
| 1463 | Renewable Generation Connection – Monthly | N/A | N/A | $\sum_K TD_{k,1413}$ x | Monthly | Due MPs | 13 | N/A | N/A | N/A | Cost recovery implementation details set out in Ontario |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|-------------------|
| | Compensation Settlement Debit | | | $(\sum_H^{M,T} AQEW_{k,h}^{m,t} + EGEI_k) / (\sum_{K,H}^{M,T} AQEW_{k,h}^{m,t} + \sum_K EGEI_k)$ <p>Where 'H' is the set of all <i>settlement hours</i> 'h' in the month.</p> <p>Where 'K' is the set of all <i>market participants</i> 'k'.</p> <p>Where 'M' is the set of all <i>delivery points</i> 'm' of <i>market participant</i> 'k'.</p> <p>Where $TD_{k,1413}$ is the total <i>settlement amount</i> of <i>charge type</i> 1413 for the month for <i>market participant</i> 'k'.</p> | | | | | | | Regulation 330/09 |
| 1464 | Hydroelectric Contract Initiative Balancing Amount | N/A | N/A | $\sum_K TD_{k,1414}$ <p>Where 'K' is the set of all <i>market participants</i> 'k'.</p> <p>Where $TD_{k,1414}$ 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 OPA | 0 | N/A | N/A | N/A | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|--|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| 1465 | Ontario Clean Energy Benefit (-10%) Program Balancing Amount | N/A | N/A | $\sum_K TD_{k,9992}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,9992}$ is the <i>settlement amount</i> of <i>charge type</i> 9992 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. |
| 1466 | Conservation and Demand Management – Compensation Balancing Amount | N/A | | $\sum_K TD_{k,1416}$ Where 'K' is the set of all <i>market participants</i> 'k'. Where $TD_{k,1416}$ is the <i>settlement amount</i> of <i>charge type</i> 1416 for the month for <i>market participant</i> 'k'. | Monthly | Due IESO | 0 | N/A | N/A | N/A | |
| 1500 | Day-Ahead Production Cost Guarantee Payment – Component 1 and Component 1 Clawback | DA_PCG_COMPI | 9.4.7D.4 | \sum^T (Component 1 – Component1 Clawback) Component 1: $-1 \times OP(EMP_h^{m,t}, MIN(DA_DQSI_{k,h}^{m,t}, DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), DA_BE) + DA_SNLC_{k,h}^{m/12}$ | Hourly | Either Way | 13 | N/A | N/A | N/A | Component 1 applies to Variants 1, 2 and 3. Component 1 Clawback applies to Variant 2 only. For a description of Production Cost Guarantee Variants, see |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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><u>Component 1 Clawback:</u> $-1 \times OP(EMP_{h,m,t}, \min(MLP_{k,h,m,t}, AQEI_{k,h,m,t}), DA_BE) + DA_SNLC_{k,h,m}/12$</p> <p>Where: T is the set of metering intervals in the settlement hour h. ‘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><u>Component 1:</u> $-1 \times OP(EMP_{h,m,t}, \min(DA_DQSI_{k,h,m,t}, DQSI_{k,h,m,t}, AQEI_{k,h,m,t}), DIPC_{k,h,m,t}) + (DA_SNLC_{k,h,m}/12) * (1 - PST_{k,h,p,t})$</p> <p><u>Component 1 Clawback:</u> $-1 \times OP(EMP_{h,m,t}, \min(MLP_CONS_{k,h,m,t}, AQEI_{k,h,m,t}), DIPC_{k,h,m,t}) +$</p> | | | | | | | Market Rules 9.4.7D.2.1 |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| | | | | $(DA_SNLC_{k,h}^m/12) * (1 - PST_{k,h}^{p,t})$ For a steam turbine resource associated to a pseudo unit: Component 1: $-1 \times OP(EMP_h^{m,t}, \min(DIGQ_{k,h}^{m,t}, DQSI_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), DIPC_{k,h}^{m,t}) + (DA_SNLC_{k,h}^m/12) * PST_{k,h}^{p,t}$ Component 1 Clawback: $-1 \times OP(EMP_h^{m,t}, \min(MLP_CONS_{k,h}^{m,t}, AQEI_{k,h}^{m,t}), DIPC_{k,h}^{m,t}) + (DA_SNLC_{k,h}^m/12) * PST_{k,h}^{p,t}$ | | | | | | | |
| 1501 | Day-Ahead Production Cost Guarantee Payment – Component 2 | DA_PCG – COMP2 | 9.4.7D.4 | $\sum^T (XDA_BE_{k,h}^{m,t} - \max(0, XBE_{k,h}^{m,t}))$ Where: T is the set of metering intervals in the settlement hour h. $XDA_BE_{k,h}^{m,t} = (-1) * [OP(EMP_h^{m,t}, \min(DA_DQSI_{k,h}^{m,t},$ | Hourly | Either Way | 13 | N/A | N/A | N/A | Component 2 applies to Variants 1, 2 and 3. For a description of Production Cost Guarantee Variants, see Market Rules 9.4.7D.2.1 |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|------------------|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | $\text{OPCAP}_{k,h}^{m,t}, \text{DA_BE}) - \text{OP}(\text{EMP}_h^{m,t}, \min(\text{DA_DQSI}_{k,h}^{m,t}, \text{OPCAP}_{k,h}^{m,t}, \max(\text{DQSI}_{k,h}^{m,t}, \text{AQEI}_{k,h}^{m,t})), \text{DA_BE})]$ $\text{XBE}_{k,h}^{m,t} = (-1) * [\text{OP}(\text{EMP}_h^{m,t}, \min(\text{DA_DQSI}_{k,h}^{m,t}, \text{OPCAP}_{k,h}^{m,t}), \text{BE}) - \text{OP}(\text{EMP}_h^{m,t}, \min(\text{DA_DQSI}_{k,h}^{m,t}, \text{OPCAP}_{k,h}^{m,t}, \max(\text{DQSI}_{k,h}^{m,t}, \text{AQEI}_{k,h}^{m,t})), \text{BE})]$ <p>Where: ‘OP’ is the operating profit function defined in <i>IESO market rules</i> Section 9.3.8B.2.</p> $\text{EMP}_h^{m,t} = 0.$ <p>For a combustion turbine and a steam turbine resources associated to a pseudo unit: DA_BE is replaced with $\text{DIPC}_{k,h}^{m,t}, .$</p> <p>For a steam turbine resource associated to a pseudo unit:</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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_DQSI _{k,h} ^{m,t} is replaced with the DIGQ _{k,h} ^{m,t} | | | | | | | |
| 1502 | Day-Ahead Production Cost Guarantee Payment – Component 3 and Component 3 Clawback | DA_PCG_COMP3 | 9.4.7D.4 | $\sum^T (-1) * (\text{Component 3} + \text{Component 3 Clawback})$ <p>Where: 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> <ol style="list-style-type: none"> 1. DQSI >= MQSI >= DA_DQSI 2. MQSI >= DQSI >= DA_DQSI 3. DQSI > DA_DQSI > MQSI 4. MQSI > DA_DQSI > DQSI 5. DA_DQSI >= DQSI > MQSI 6. DA_DQSI >= MQSI > DQSI | Hourly | Either Way | 13 | N/A | N/A | N/A | <p>Component 3 applies to Variants 1, 2 and 3.</p> <p>Component 3 Clawback applies to Variant 2 only.</p> <p>For a description of Production Cost Guarantee Variants, see Market Rules 9.4.7D.2.1</p> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>Component 3:</p> <p>Component 3 is calculated when:</p> <p>the CMSC for energy ($TD_{k,h,105}^{m,t}$) for the same metering interval is a value other than zero; and</p> <p>the mathematical sign of (DQSI-MQSI) is equal to the mathematical sign of (AQEI-MQSI).</p> <p>Scenario 1 and 2: 0</p> <p>Scenario 3: $OP(EMP_h^{m,t}, MQSI_{k,h}^{m,t}, BE) - \text{MAX}(OP(EMP_h^{m,t}, DA_DQSI_{k,h}^{m,t}, BE), OP(EMP_h^{m,t}, AQEI_{k,h}^{m,t}, BE))$ </p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>Scenario 4:</p> $OP(EMP_h^{m,t}, DA_DQSI_{k,h}^{m,t}, BE) - \max(OP(EMP_h^{m,t}, DQSI_{k,h}^{m,t}, BE), OP(EMP_h^{m,t}, AQEI_{k,h}^{m,t}, BE))$ <p>Scenario 5 and 6:</p> $TD_{k,h,105}^{m,t}$ <p>Refer to Market Rules for a description of Scenarios 1 through 6.</p> <p>Component 3 Clawback:</p> <p>Component 3 Clawback is calculated when:</p> <ul style="list-style-type: none"> the event is a constrained-on event (i.e. Scenarios 3 and 5); the <i>minimum loading point</i> is greater than the real-time unconstrained schedule; and <p>Component 3 ($PCG_COMP3_{k,h}^{m,t}$) for the same interval is a value</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>other than zero.</p> $\text{MAX}(\text{OP}(\text{EMP}_h^{m,t}, \text{MLP}_{k,h}^{m,t}, \text{BE}), \text{OP}(\text{EMP}_h^{m,t}, \text{AQEI}_{k,h}^{m,t}, \text{BE})) - \text{OP}(\text{EMP}_h^{m,t}, \text{MQSI}_{k,h}^{m,t}, \text{BE})$ <p>For combustion turbine resources associated to a pseudo unit: DA_BE is replaced with $\text{DIPC}_{k,h}^{m,t}$, and MLP is replaced with MLP_CONS.</p> <p>For steam turbine resources associated to a pseudo unit: DA_BE is replaced with $\text{DIPC}_{k,h}^{m,t}$, MLP is replaced with MLP_CONS, and $\text{DA_DQSI}_{k,h}^{m,t}$ is replaced with the $\text{DIGQ}_{k,h}^{m,t}$.</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 'OP' is the operating profit function defined in <i>IESO market rules</i> Section 9.3.8B.2. | | | | | | | |
| 1503 | Day-Ahead Production Cost Guarantee Payment – Component 4 | DA_PCG_COMP4 | 9.4.7D.4 | $\sum^T ((-1) \times [\text{OP}(\text{PROR}_{r1,h}^{m,t}, 30R_SQOR_{r1,k,h}^{m,t}, \text{BR}_{r1,k,h}^{m,t}) + \text{OP}(\text{PROR}_{r2,h}^{m,t}, 10NS_SQOR_{r2,k,h}^{m,t}, \text{BR}_{r2,k,h}^{m,t}) + \text{OP}(\text{PROR}_{r3,h}^{m,t}, 10S_SQOR_{r3,k,h}^{m,t}, \text{BR}_{r3,k,h}^{m,t})])]$ <p>Where T is the set of metering intervals in the settlement hour h. 'OP' is the operating profit function defined in <i>IESO market rules</i> Section 9.3.8B.2. r1 = 30-minute operating reserve r2 = 10-minute non-spinning operating reserve r3 = 10-minute spinning operating reserve</p> | Hourly | Either Way | 13 | N/A | N/A | N/A | <p>Component 4 applies to Variants 1, 2 and 3.</p> <p>For a description of Production Cost Guarantee Variants, see Market Rules 9.4.7D.2.1</p> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|--|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| | | | | $30R_SQROR_{r1,k,h}^{m,t} = \text{MAX}[0, \text{MIN}(\text{DA_DQSI}_{k,h}^{m,t} - \text{MQSI}_{k,h}^{m,t}, \text{SQROR}_{r1,k,h}^{m,t})]$ $10NS_SQROR_{r2,k,h}^{m,t} = \text{MAX}[0, \text{MIN}(\text{DA_DQSI}_{k,h}^{m,t} - \text{MQSI}_{k,h}^{m,t} - 30R_SQROR_{r1,k,h}^{m,t}, \text{SQROR}_{r2,k,h}^{m,t})]$ $10S_SQROR_{r3,k,h}^{m,t} = \text{MAX}[0, \text{MIN}(\text{DA_DQSI}_{k,h}^{m,t} - \text{MQSI}_{k,h}^{m,t} - 30R_SQROR_{r1,k,h}^{m,t} - 10NS_SQROR_{r2,k,h}^{m,t}, \text{SQROR}_{r3,k,h}^{m,t})]$ <p>For combustion turbine resources and steam turbine resources associated to a pseudo unit: DA_DQSI_{k,h}^{m,t} is replaced with the DIGQ_{k,h}^{m,t}</p> | | | | | | | |
| 1504 | 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</p> | Hourly | Due IESO | 13 | N/A | N/A | N/A | <p>Component 5 applies to Variant 1 only.</p> <p>For a description of Production Cost Guarantee Variants, see</p> |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>the 7th interval): DA_SUC_{k,h}^m</p> <p>Scenario 2 (achieves MLP between the 7th and 18th interval): DA_SUC_{k,h}^m – (DA_SUC_{k,h}^m x 1/12 x SUC_INT)</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 18th interval): 0</p> <p>For a combustion turbine resource associated to a pseudo unit: Scenario 1 (achieves MLP before the 7th interval):</p> | | | | | | | Market Rules 9.4.7D.2.1 |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|------------------|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| | | | | $DA_SUC_{k,h}^p * (1 - PST_{k,h}^{p,t})$ Scenario 2 (achieves MLP between the 7 th and 18 th interval): $DA_SUC_{k,h}^p * MLP_MF * (1 - PST_{k,h}^{p,t})$ Scenario 3 (achieves MLP after the start of the 18 th interval): 0 Where $MLP_MF = 1/12 * (12 - SUC_INT)$ For a steam turbine resource associated to a pseudo unit: Scenario 1 (achieves MLP before the 7 th interval): $DA_SUC_{k,h}^p * (PST_{k,h}^{p,t})$ | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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>Scenario 2 (achieves MLP between the 7th and 18th interval): $DA_SUC_{k,h}^p * MLP_MF * (PST_{k,h}^{p,t})$</p> <p>Scenario 3 (achieves MLP after the start of the 18th interval): 0.</p> <p>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:</p> $DA_SUC_{k,h}^m * 50\%$ <p>For a combustion turbine resource associated to a pseudo unit:</p> $DA_SUC_{k,h}^m * (1 - PST_{k,h}^{p,t}) * 50\%$ | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 a steam turbine resource associated to a pseudo unit: $DA_SUC_{k,h}^m * (PST_{k,h}^{p,t}) * 50\%$ | | | | | | | |
| 1505 | Day-Ahead Production Cost Guarantee Reversal | | 9.4.7D.6 | For each DACP start event If $\sum_{H,C} TD_{k,h,c} < 0$ Then $\sum_{H,C} TD_{k,h,c}$ Else 0 Where: 'C' is the set of the following charge types 'c' as follows: 1500, 1501, 1502, 1503, 1504 'H' is the set of all <i>settlement hours</i> 'h' in the DACP start event. | Hourly | Due MP | 13 | N/A | N/A | N/A | |
| 1510 | Day-Ahead Generator Withdrawal Charge | 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 (See Note at Beginning of this Section) | 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>If notification of the withdrawal is received 4 or more hours prior to first withdrawal hour:</p> $\text{MIN}(0, \sum_{i=1}^n (-1) * \text{OP}(\text{MIN}(\text{PD_EMP}_h^{m,t}, \text{EMP}_h^{m,t}), \text{MLP}_{k,h}^{m,t}, \text{DA_BE}_{k,h}^{m,t}))$ <p>Where: 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:</p> $\text{MIN}(0, \sum_{i=1}^n (-1) * \text{OP}(\text{EMP}_h^{m,t}, \text{MLP}_{k,h}^{m,t}, \text{DA_BE}_{k,h}^{m,t}))$ <p>Where: 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</p> | | | | | | | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 the DACP start event that are withdrawn For resources associated to a pseudo unit, the DA_BE is replaced with $DIPC_{k,h}^{m,t}$, and the MLP is replaced with MLP_CONS. | | | | | | | |
| 1550 | Day-Ahead Production Cost Guarantee Recovery Debit | | 9.4.8.1.12 | $\sum_{H,c}^{M,T} TD_{k,h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where: 'C' is the set of the following charge types 'c' as follows: 1500, 1501, 1502, 1503, 1504, 1505 'K' is the set of all market participants 'k'. 'M' is the set of all delivery points 'm' and intertie metering points 'i'. 'H' is the set of all <i>settlement hours</i> 'h' in the day. 'T' is the set of 12 <i>metering intervals</i> 't' during <i>settlement hour</i> 'h'.</p> | Daily | Due IESO | 13 | N/A | 0 | 13 | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Reference | Equation | Settlement Resolution | Cashflow (See Note at Beginning of this Section) | 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 |
|--------------------|---------------------------------------|---------------------------|--|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|----------|
| 1560 | 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: 'c' is <i>charge type</i> 1510. 'K' is the set of all market participants 'k'. 'M' is the set of all delivery points 'm' and intertie metering points 'i'. 'H' is the set of all <i>settlement hours</i> 'h' in the day. '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 | |
| 1600 | Forecasting Service Settlement Amount | N/A | 9.1.1.2.16, 9.4.7G, 9.4.7G.1, 9.4.8.1.16, 9.6.3.17, 9.6.11.5 | Manual entry based on the values submitted by the forecasting entity. | Monthly | Due MP | 13 | N/A | N/A | N/A | |
| 1650 | Forecasting Service Balancing Amount | N/A | 9.1.1.2.16, 9.4.7G, 9.4.7G.1, 9.4.8.1.16, 9.6.3.17, 9.6.11.5 | $= \sum_{H,C}^{M,T} TD_{h,c} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) / \sum_{k,H}^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where 'C' is charge type 'c' 1600. Where 'H' is the set of all</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 (See Note at Beginning of this Section) | 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 |
|--------------------|---|---------------------------|------------------------|---|-----------------------|---|--------------------------------------|---|-------------------------------------|--|--|
| | | | | <i>settlement hours</i> 'h' in the month. Where 'T' is the set of all <i>metering intervals</i> 't' in the set of all <i>settlement hours</i> 'H'. | | | | | | | |
| 9980 | Smart Metering Charge | N/A | N/A | Pending – See applicable regulation or OEB rate Order. | Monthly | Due <i>IESO</i> | 13 | N/A | N/A | N/A | Subject to external regulation and/or the applicable OEB rate order. |
| 9990 | IESO Administration Charge | N/A | 9.4.5.1 | $\sum_H^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t}) \times TP$ Where 'H' is the set of all <i>settlement hours</i> 'h' in the month. 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. |
| 9992 | Ontario Clean Energy Benefit (-10%) Program Settlement Amount | N/A | N/A | 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”. | 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. |

2.3 Rounding Conventions – by Settlement Variable

2.3.1 Key to the Table of Rounding Conventions for Individual Settlement Variables that are not of an Active IESO-Administered Market

| Column Name | Description |
|--|--|
| Variable referenced in Section 2.1 | This column provides the name of the variable listed in Section 2.1. |
| Data Description | The short name of the variable in question. |
| Number of decimal places (values published by upstream systems) | If this variable is available to <i>market participants</i> via another system besides <i>settlements</i> , this number of significant digits to the right of the decimal place in the published value. NOTE: “published” does not necessarily mean a public report or a report available to all <i>market participants</i> . E.g. <i>metering data</i> from the <i>metering database</i> . |
| Number of significant digits to the right of the decimal (values received by CRS) | This column discloses the accuracy of a settlement variable received by the <i>IESO</i> settlements system via an upstream system OR manually entered as the case may be. |
| Number of significant digits to the right of the decimal (externally passed from CRS in settlement statements or data files) | This column discloses the accuracy of a settlement variable appearing on a <i>settlement statement</i> . 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 Specification for Settlement Statements and Data Files.” |
| Comments | Any comments as to the availability of such variables. In some cases, variables are not made available to <i>market participants</i> via upstream systems and are noted as such. In other instances variables are not published in a report but are communicated in participant-specific messages (e.g. <i>bid/offer</i> confirmation). |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|--|
| $AQEI_{k,h}^{m,t}$ | Allocated Quantity of Energy Injected | 2 | 3 | 3 | <ul style="list-style-type: none"> RMS presentation is in units of KW to TWO decimal places. Unit change to MW to 3 decimal places occurs prior to transfer to CRS. |
| $AQEW_{k,h}^{m,t}$ | Allocated Quantity of Energy Withdrawn | 2 | 3 | 3 | <ul style="list-style-type: none"> RMS presentation is in units of KW to TWO decimal places. Unit change to MW to 3 decimal places occurs prior to transfer to CRS. |
| $AQOR_{r,k,h}^{m,t}$ | Allocated Quantity of Operating Reserve | 1 | 1 | 1 | <ul style="list-style-type: none"> See SQROR. |
| BE | Energy Offers | N/A | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants as bids/offers</i> (“dispatch data”) are received. |
| BL | Energy Bids | N/A | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants as bids/offers</i> (“dispatch data”) are received. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|--|
| BR_r | Operating Reserve Offers | N/A | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants</i> as <i>bids/offers</i> (“<i>dispatch data</i>”) are received. |
| $BCQ_{s,k,h}^{m,t}$ | Physical Bilateral Contract Quantity of Energy bought | N/A | 1 or 3 | 1 or 3 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. <i>Physical Bilateral Contract Data</i> is provided to the <i>IESO</i> by the <i>selling market participant</i>. Accuracy driven by the submission at the MIM interface and the method used (i.e. absolute quantities vs. 100% of <i>PBC</i>). |
| $BCQ_{k,b,h}^{m,t}$ | Physical Bilateral Contract Quantity of Energy sold | N/A | 1 or 3 | 1 or 3 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. <i>Physical Bilateral Contract Data</i> is provided to the <i>IESO</i> by the <i>selling market participant</i>. Accuracy driven by the submission at the MIM interface and the method used (i.e. absolute quantities vs. 100% of <i>PBC</i>). |

| Variable referenced in Section 2.1 | 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 |
|---------------------------------------|--|---|---|--|--|
| CGC | Combined Guaranteed Costs | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| DA_BE _{k,h} ^{i,t} | <i>Energy Offer</i> submitted into the <i>schedule of record</i> | N/A | N/A | N/A | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants</i> as <i>bids/offers</i> (“<i>dispatch data</i>”) are received. |
| DA_BE _{k,h} ^{m,t} | <i>Energy Offer</i> submitted into the <i>schedule of record</i> at a <i>delivery point</i> | N/A | N/A | N/A | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants</i> as <i>bids/offers</i> (“<i>dispatch data</i>”) are received. |
| DA_BL _{k,h} ^{i,t} | <i>Energy Bids</i> submitted into the <i>schedule of record</i> | N/A | N/A | N/A | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants</i> as <i>bids/offers</i> (“<i>dispatch data</i>”) are received. |
| DA_DQSI _{k,h} ^{i,t} | <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"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|---|
| $DA_DQSI_{k,h}^{m,t}$ | <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"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| $DA_DQSW_{k,h}^{i,t}$ | <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"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| $DA_ELMP_h^{m,t}$ | <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"> MIM Publication. |
| $DA_ILMP_h^{m,t}$ | <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"> MIM Publication. |
| $DA_SNLC_{k,h}^m$ | Speed-no-load costs submitted into the <i>schedule of record</i> | 1 | 2 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|---|
| $DA_SNLC_{k,h}^p$ | Speed-no-load costs for pseudo units submitted into the <i>schedule of record</i> | 1 | 2 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| $DA_SUC_{k,h}^m$ | Start-up costs submitted into the <i>schedule of record</i> | 1 | 2 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| $DA_SUC_{k,h}^p$ | Start-up costs for pseudo units submitted into the <i>schedule of record</i> | 1 | 2 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| $DIPC_{k,h}^{m,t}$ | Derived Interval Price Curve | 1 | 2 | 1 | <ul style="list-style-type: none"> Derived price curve and therefore not published on <i>settlement statements</i>. |
| $DIGQ_{k,h}^{m,t}$ | Derived Interval Guaranteed Quantity | 1 | 1 | 1 | <ul style="list-style-type: none"> Derived schedule quantity and therefore not published on <i>settlement statements</i>. |
| $DQSI_{k,h}^{m,t}$ | Dispatch Quantity of Energy Scheduled for Injection | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|---|
| $DQSR_{r,k,h}^{m,t}$ | Dispatch Quantity Schedule of Operating Reserve | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| $DQSW_{k,h}^{m,t}$ | Dispatch Quantity of Energy Scheduled for Withdrawal | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| EEQ | Excluded Energy Quantity | N/A | 3 | 3 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| $EGEI_k$ | Embedded Generator Energy Injection | N/A | 3 | 3 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| $EIM_{k,h}$ | Operating Profit Function for the IMPORT of Energy under the Intertie Offer/Bid Guarantee Settlement Credit | N/A See Section 2.4 | N/A See Section 2.4 | N/A See Section 2.4 | <ul style="list-style-type: none"> This acronym is associated with the energy import component of the Intertie Offer/Bid Guarantee Settlement Credit. |
| $EMP_h^{i,t}$ | 5-minute Energy Market Price at the Interties | 2 | 2 | 2 | <ul style="list-style-type: none"> MIM Publication. |
| $EMP_h^{m,t}$ | 5-minute Energy Market Price within Ontario | 2 | 2 | 2 | <ul style="list-style-type: none"> MIM Publication. |
| $EMP_h^{REF,t}$ | 5-minute Energy Market Reference Price | 2 | 2 | 2 | <ul style="list-style-type: none"> MIM Publication. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|--|
| ETS | Export Transmission Service Tariff Rate | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Subject to the OEB “Ontario Transmission Rate Order”. |
| FP_h^m | Fixed Energy Rate | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| FPC_h^m | Rate for a designated group of <i>charge types</i> (see description of <i>charge type</i> 141)) | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| GRP | Generator Regulated Price | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| $HOEP_h$ | Hourly Ontario Energy Price | 2 | 2 | 2 | <ul style="list-style-type: none"> MIM Publication. |
| $LCD_{k,h}^m$ | Line Connection Demand (KW) | 2 and 3 | 3 | 3 | <ul style="list-style-type: none"> RMS presentation is in units of KW to 2 decimal places. Unit changes to MW to 3 decimal places prior to transfer to the Transmission Tariff Demand Calculator (TTDC). Unit changes to KW to 3 decimal places prior to transfer to CRS. |
| MC_h^m | Minimum Consumption | 1 | 1 | 1 | |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|--|
| MI | Ordered matrix of and corresponding IOG <i>settlement amounts</i> | 1 and 2 | 2 | 2 | <ul style="list-style-type: none"> Derived set of variables and therefore not published on <i>settlement statements</i>. |
| $MLP_{k,h}^{m,t}$ | Minimum Loading Point | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| $MLP_CONS_{k,h}^{m,t}$ | 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"> Not published via upstream <i>IESO</i> systems. |
| $MQSI_{k,h}^{m,t}$ | 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"> Derived variable and therefore not published on <i>settlement statements</i>. |
| $MQSW_{k,h}^{m,t}$ | Market Quantity Scheduled for Withdrawal | 1 | 1 | 1 | |
| $NSD_{k,h}^m$ | Network Service Demand (KW) | 2 and 3 | 3 | 3 | <ul style="list-style-type: none"> RMS presentation is in units of KW to 2 decimal places. Unit changes to MW to 3 decimal places prior to transfer to the Transmission Tariff Demand Calculator (TTDC). Unit changes to KW to 3 decimal places prior to transfer to CRS. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|--|
| OP | Operating Profit Function | N/A See Section 2.4 | N/A See Section 2.4 | N/A See Section 2.4 | <ul style="list-style-type: none"> This acronym is associated with the operating profit equation used within the CMSC equation. |
| $OPCAP_{k,h}^{m,t}$ | Operating Capacity | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| $PB_IM_h^t$ | Price bias adjustment factor for import transactions | 2 | 2 | 2 | <ul style="list-style-type: none"> Published on by the <i>IESO</i> on a periodic basis. |
| $PB_EX_h^t$ | Price bias adjustment factor for export transactions | 2 | 2 | 2 | <ul style="list-style-type: none"> Published on by the <i>IESO</i> on a periodic basis. |
| $PD_BE_{k,h}^{i,t}$ | <i>Energy Offer</i> submitted into the <i>Pre-dispatch</i> | N/A | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants</i> as <i>bids/offers</i> (“<i>dispatch data</i>”) are received. |
| $PD_BL_{k,h}^{i,t}$ | <i>Energy bids</i> submitted into the <i>Pre-dispatch</i> | N/A | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Confirmations passed to <i>market participants</i> as <i>bids/offers</i> (“<i>dispatch data</i>”) are received. |
| $PD_DQSI_{k,h}^{i,t}$ | <i>Pre-dispatch</i> quantity scheduled for injection at an <i>intertie metering point</i> | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---|---|---|--|---|
| $PD_DQSW_{k,h}^{i,t}$ | <i>Pre-dispatch</i> quantity scheduled for withdrawal at an <i>intertie metering point</i> | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Passed to <i>market participants</i> via dispatch messaging. |
| $PD_ELMP_h^{m,t}$ | <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"> MIM Publication. |
| $PD_EMP_h^{m,t}$ | Pre-dispatch energy market price for Ontario | 2 | 2 | 2 | <ul style="list-style-type: none"> MIM Publication. |
| $PD_ILMP_h^{m,t}$ | <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"> MIM Publication. |
| $PROR_{r,h}^{m,t}$ | 5-minute Operating Reserve Price | 2 | 2 | 5 | <ul style="list-style-type: none"> MIM Publication. |
| $PST_{k,h}^{p,t}$ | Steam Turbine Portion from Daily Generator Data | 1 | 1 | 1 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |
| PTS-L | Provincial Transmission Service Line Connection Service Rate (\$/KW) | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Subject to the OEB “Ontario Transmission Rate Order”. |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|--|---|---|--|--|
| PTS-N | Provincial Transmission Service Network Service Rate (\$/KW) | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Subject to the OEB “Ontario Transmission Rate Order”. |
| PTS-T | Provincial Transmission Service Transformation Connection Service Rate (\$/KW) | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. Subject to the OEB “Ontario Transmission Rate Order”. |
| $QTR_{k,h}^{i,j}$ | Quantity of Transmission Rights Owned | PENDING | 0 | 0 | <ul style="list-style-type: none"> TR’s are in denominations to the nearest MW. Upstream publication accuracy currently being resolved. |
| $SQEI_{k,h}^{i,t}$ | Scheduled Quantity of Energy Injected at an <i>intertie metering point</i> | 1 | 1 | 1 | |
| $SQEW_{k,h}^{i,t}$ | Scheduled Quantity of Energy Withdrawn at an <i>intertie metering point</i> | 1 | 1 | 1 | |
| $SQROR_{r,k,h}^{m,t}$ | Scheduled Quantity of class <i>r</i> Operating Reserve | 1 | 1 | 1 | |

| Variable referenced in Section 2.1 | 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 |
|------------------------------------|---------------------------------------|---|---|--|--|
| $TCD_{k,h}^m$ | Transformation Connection Demand (KW) | 2 and 3 | 3 | 3 | <ul style="list-style-type: none"> RMS presentation is in units of KW to 2 decimal places. Unit changes to MW to 3 decimal places prior to transfer to the Transmission Tariff Demand Calculator (TTDC). Unit changes to KW to 3 decimal places prior to transfer to CRS. |
| $TD_{k,h,c}$ | Total Market Settlement Amount | N/A | N/A | N/A | <ul style="list-style-type: none"> N/A- notational description of an aggregated financial amount (reported to the nearest cent when applicable). |
| TP_c | Tariff price | N/A | N/A | N/A | <ul style="list-style-type: none"> N/A – notational description of tariff rate (reported to the nearest cent when applicable). |
| TRMP | TR Market Clearing Price | 2 | 2 | 2 | |
| TRCAD | TR Clearing Account Disbursements | N/A | 2 | 2 | <ul style="list-style-type: none"> Not published via upstream <i>IESO</i> systems. |

2.4 Rounding Conventions – by Charge Type

2.4.1 General Notes

- The table below 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 Specification for Settlement Statements and Data Files.”
- All **settlement amounts** reported by the *IESO* settlements system are rounded to the nearest cent (i.e. 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. **The table below 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*.**

2.4.2 Key to the Table of Rounding Conventions

| Column Name | Description |
|---|--|
| Charge Type Number | This table contains an entry for each <i>charge type</i> listed in Section 2.2 of this document (“IESO Charge Types and Equations”). |
| Charge Type Name | The name of each of the <i>charge types</i> . |
| INPUT VARIABLES Least number of significant digits to the right of the decimal | In terms of assessing the accuracy of the final <i>settlement amount</i> , this column is derived from the settlement variable received by the <i>settlement</i> system with the LEAST number of significant digits to the right of the decimal place. |
| INPUT VARIABLES Maximum number of significant digits to the right of the decimal | In terms of assessing the accuracy of the final <i>settlement amount</i> , this column is derived from the settlement 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 |
|--|--|
| INTERMEDIATE Rounding done by Settlements | This column indicates whether or not any INTERMEDIATE rounding is done by the <i>IESO settlement process</i> . This does NOT include the final rounding of settlement amounts to 2 decimal places as the last step in the calculation of ALL charge types. |
| INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | 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. |
| Disposition of INTERMEDIATE CALCULATION 1 | This column describes the disposition of the rounded value resulting from Intermediate Calculation 1. |
| INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | 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. |
| Disposition of INTERMEDIATE CALCULATION 2 | This column describes the disposition of the rounded value resulting from Intermediate Calculation 2. |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|--|--|---|
| 52 | Transmission Rights Auction Settlement Debit | 0 | 2 | No | | | | |
| 100 | Net Energy Market Settlement for Generators and Dispatchable Load | 1 | 3 | Yes | Numerator: BCQ Denominator: 12 Resulting Decimals: 3 | BCQ quantities Multiplied by EMP when applicable. | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|--|--|---|
| 101 | Net Energy Market Settlement for Non-dispatchable Load | 1 | 3 | Yes | Numerator: BCQ Denominator: 12 Resulting Decimals: 3 | BCQ quantities Multiplied by EMP when applicable. | | |
| 102 | TR Clearing Account Credit | 1 | 3 | No | | | | |
| 103 | Transmission Charge Reduction Fund | 2 | 3 | Yes | Numerator: Difference between SQEW – SQEI by <i>intertie zone</i> Denominator: 12 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 ($EMP_h^{i,t} - EMP_h^{i,t}$) Denominator: 12 Resulting Decimals: 5 | Multiplied by QTR for the <i>settlement hour</i> . | | |
| 105 | Congestion Management Settlement Credit for Energy | 1 | 3 | Yes | AQEI multiplied by 12 or AQEW multiplied by 12 Resulting Decimals: 3 | Used in the calculation of OP(EMP, AQEI, BE) or OP(EMP, AQEW, BL) as the case may be. | Numerators OP(EMP, MQSI, BE) OP(EMP, DQSI, BE) OP(EMP, AQEI, BE) OP(EMP, MQSW, BL) OP(EMP, DQSW, BL) OP(EMP, AQEW, BL) Denominator: 12 Resulting Decimals: 2 | Profits compared as applicable. |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 106 | Congestion Management Settlement Credit for 10 Minute Spinning Reserve | 1 | 2 | Yes | Numerators OP(PROR, MQSR, BR) OP(PROR, DQSR, BR) OP(PROR, AQOR, BR) Denominator: 12 Resulting Decimals: 2 | Profits compared as applicable. | | |
| 107 | Congestion Management Settlement Credit for 10 Minute Non-spinning Reserve | 1 | 2 | Yes | Numerators OP(PROR, MQSR, BR) OP(PROR, DQSR, BR) OP(PROR, AQOR, BR) Denominator: 12 Resulting Decimals: 2 | Profits compared as applicable. | | |
| 108 | Congestion Management Settlement Credit for 30 Minute Operating Reserve | 1 | 2 | Yes | Numerators OP(PROR, MQSR, BR) OP(PROR, DQSR, BR) OP(PROR, AQOR, BR) Denominator: 12 Resulting Decimals: 2 | Profits compared as applicable. | | |
| 111 | Northern Pulp and Paper Mill Electricity Transition Program Settlement Amount | 1 | 3 | No | | | | |
| 112 | Ontario Power Generation Rebate | 2 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|---|--|---|---|
| 113 | Additional Compensation for Administrative Pricing Credit | 1 | 3 | Yes | For the calculation outlined in 7.8.4A.16 only: for dispatchable <i>facilities</i> located within Ontario only AQEI multiplied by 12 or AQEW multiplied by 12 Resulting Decimals: 3 | (For the calculation outlined in 7.8.4A.16 only) For dispatchable <i>facilities</i> located within Ontario only: 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: Numerators: for dispatchable <i>facilities</i> located within Ontario: OP(EMP, AQEI, BE) OP(EMP, AQEW, BL) for Imports or Exports: OP(EMP, DQSI, BE) OP(EMP, DQSW, BL) Denominator: 12 Resulting Decimals: 2 | (For the calculation outlined in 7.8.4A.16 only) The results are used in the final calculation |
| 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 | 2 | No | | | | |
| 120 | Local Market Power Debit | 2 | 2 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 121 | Northern Industrial Electricity Rate Program Settlement Amount | 1 | 3 | No | | | | |
| 130 | Intertie Offer Settlement Credit – Energy | 1 | 3 | Yes | Numerators OP(EMP, MQSI, BE) Denominator: 12 Resulting Decimals: 2 | Profits compared as applicable. | | |
| 133 | Generator Cost Guarantee Payment | 1 | 3 | No | | | | |
| 134 | Demand Response Credit | 2 | 2 | No | | | | |
| 135 | Real-time Import Failure Charge | 1 | 3 | Yes | TERM 1 – Failure Charge Numerator: EMP + PB_IM – PD_EMP Denominator: 12 Resulting Decimals: 2 TERM 2 – Price Cap Numerator: MAX(0,EMP) * RT_ISD Denominator: 12 Resulting Decimals: 2 | TERM 1 and TERM 2 compared as applicable. | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 136 | Real-time Export Failure Charge | 1 | 3 | Yes | TERM 1 – Failure Charge Numerator: $PD_EMP - EMP - PB_EX$ Denominator: 12 Resulting Decimals: 2 TERM 2 – Price Cap Numerator: $MAX(0, PD_EMP) * RT_ESD$ Denominator: 12 Resulting Decimals: 2 | TERM 1 and TERM 2 compared as applicable. | | |
| 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 | | | | |
| 143 | NUG Contract Adjustment Settlement Amount | 1 | 3 | No | | | | |
| 144 | Regulated Nuclear Generation Adjustment Amount | 1 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 145 | Regulated Hydroelectric Generation Adjustment Amount | 1 | 3 | No | | | | |
| 146 | Global Adjustment Settlement 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 | | | | |
| 150 | Net Energy Market Settlement Uplift | 1 | 3 | No | | | | |
| 155 | Congestion Management Settlement Uplift | 1 | 3 | No | | | | |
| 161 | Northern Pulp and Paper Mill Electricity Transition Program Balancing Amount | 1 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 162 | Ontario Power Generation Rebate Debit | 1 | 3 | No | | | | |
| 163 | Additional Compensation for Administrative Pricing Debit | 1 | 3 | No | | | | |
| 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 and EDRP Debit | 1 | 3 | No | | | | |
| 168 | TR Market Shortfall Debit | 1 | 3 | No | | | | |
| 169 | Station Service Reimbursement 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 | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 184 | Demand Response Debit | 2 | 2 | No | | | | |
| 186 | Intertie Failure Charge Rebate | 1 | 3 | No | | | | |
| 190 | Fixed Energy Rate Balancing Amount | 2 | 2 | No | | | | |
| 191 | Fixed Wholesale Charge Rate Balancing Amount | 2 | 2 | No | | | | |
| 192 | Regulated Price Plan Balancing Amount | 2 | 2 | No | | | | |
| 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 | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 198 | Renewable Generation Balancing Amount | 2 | 2 | No | | | | |
| 199 | Regulated Price Plan Retailer Balancing Amount | 2 | 2 | No | | | | |
| 200 | 10 Minute Spinning Reserve Market Settlement Credit. | 1 | 2 | No | | | | |
| 201 | 10 Minute Spinning Reserve Market Shortfall Rebate | 1 | 3 | No | | | | |
| 202 | 10 Minute Non-spinning Reserve Market Settlement Credit | 1 | 2 | No | | | | |
| 203 | 10 Minute Non-spinning Reserve Market Shortfall Rebate | 1 | 3 | No | | | | |
| 204 | 30 Minute Operating Reserve Market Settlement Credit | 1 | 2 | No | | | | |
| 205 | 30 Minute Operating Reserve Market Shortfall Rebate | 1 | 3 | No | | | | |
| 250 | 10 Minute Spinning Market Reserve Hourly Uplift | 1 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 251 | 10 Minute Spinning Market Reserve Shortfall Debit | 1 | 3 | No | | | | |
| 252 | 10 Minute Non-spinning Market Reserve Hourly Uplift | 1 | 3 | No | | | | |
| 253 | 10 Minute Non-spinning Market Reserve Shortfall Debit | 1 | 3 | No | | | | |
| 254 | 30 Minute Operating Reserve Market Hourly Uplift | 1 | 3 | No | | | | |
| 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 | | | | |
| 406 | Emergency Demand Response Credit | 2 | 2 | No | | | | |
| 410 | IESO-Controlled Grid Special Operations Credit | 2 | 2 | No | | | | |
| 450 | Black Start Capability Settlement Debit | 1 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 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 | | | | |
| 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 | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 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 | | | | |
| 702 | Debt Retirement Credit | 2 | 2 | No | | | | |
| 703 | Rural and Remote Settlement Credit | 2 | 2 | No | | | | |
| 704 | OPA Administration Credit | 2 | 2 | No | | | | |
| 750 | Dispute Resolution Settlement Debit | 2 | 2 | No | | | | |
| 751 | Dispute Resolution Board Service Debit | 2 | 2 | No | | | | |
| 752 | Debt Retirement Charge | 2 | 3 | No | | | | |
| 753 | Rural and Remote Settlement Debit | 2 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|---|---|--|---|
| 754 | OPA Administration Charge | 1 | 3 | No | | | | |
| 850 | Market Participant Default Settlement Debit (recovery) | 2 | 2 | No | | | | |
| 900 | GST Credit | 2 | 2 | No | | | | |
| 950 | GST Debit | 2 | 2 | No | | | | |
| 1050 | Self-Induced Dispatchable Load CMSC Clawback | 1 | 3 | Yes | AQEW multiplied by 12 Resulting Decimals: 3 | Used in the calculation of OP(EMP, AQEW, BL) as the case may be. | Numerators OP(EMP, MQSW, BL) OP(EMP, DQSW, BL) OP(EMP, AQEW, BL) OP(EMP, MC, BL) Denominator: 12 Resulting Decimals: 2 | Profits compared as applicable. |
| 1130 | Day-Ahead Intertie Offer Guarantee Settlement Credit | 1 | 3 | Yes | FOR EACH 5-MINUTE METERING INTERVAL: Numerators OP[EMP, MIN(DQSI, PDR_DQSI), PDR_BE] Denominator: 12 Resulting Decimals: 2 | Results for each 5-minute <i>metering interval</i> are summed for the hour. Profits compared as applicable. | | |
| 1131 | Intertie Offer Guarantee Settlement Credit | 1 | 3 | Yes | For each 5 minute metering interval: RT-IOG – Real Time IOG Numerator OP(EMP, MQSI, BE) | For DA-IOG, Component 1, Component 2 and Component 3 are compared as applicable. Results of RT-IOG and DA-IOG are compared in IOG OFFSET | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|------------------|---|---|--|--|---|--|---|
| | | | | | Denominator: 12 Resulting Decimal: 2 DA-IOG - Day-Ahead IOG Component 1 Numerator $\frac{OP(EMP, \min(DA_DQSI, DQSI), DA_BE)}{Denominator: 12}$ Resulting Decimal: 2 Component 2 Numerator $XDA_BE - \max(0, XBE)$ Denominator: 12 Resulting Decimal: 2 Component 3 Numerator | component. | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|---|---|--|---|
| | | | | | $\frac{OP(EMP, MQSI, BE), OP(EMP, DA_DQSI, BE), OP(EMP, DQSI, BE)}{12}$ Denominator: 12 Resulting Decimal: 2 | | | |
| 1133 | Day-Ahead Generation Cost Guarantee Payment | 1 | 3 | No | | | | |
| 1134 | Day-Ahead Linked Wheel Failure Charge | 1 | 3 | Yes | RT_EFC_DALW and RT_IFC_DALW for each 5-minute metering interval are summed for the hour. Resulting Decimal: 2 | Results are compared as applicable. | | |
| 1135 | Day-Ahead Import Failure Charge | 1 | 3 | Yes | TERM 1 – Operating Profit („OP”) Function used to calculate Failure Charge $OP(PD_EMP, DA_DQSI, DA_BE)$ $OP(PD_EMP, PD_DQSI, DA_BE)$ Resulting Decimals: 2 | TERM 1, TERM 2 and TERM 3 compared as applicable. | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|------------------|---|---|--|---|---|--|---|
| | | | | | <p>TERM 2 – Operating Profit („OP”) Function used to calculate Failure Charge</p> <p>OP(PD_EMP, DA_DQSI, PD_BE)</p> <p>OP(PD_EMP, PD_DQSI, PD_BE)</p> <p>Resulting Decimals: 2</p> <p>TERM 3 – Price cap</p> <p>Numerator</p> <p>Max(0,PD_EMP) x DA_ISD</p> <p>Denominator: 12</p> <p>Resulting Decimals: 2</p> | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1136 | Day-Ahead Export Failure Charge | 1 | 3 | Yes | TERM 1 – Operating Profit („OP”) Function used to calculate Failure Charge OP(PD_EMP, DA_DQSW, DA_BL) OP(PD_EMP, PD_DQSW, DA_BL) Resulting Decimals: 2 TERM 2 – Operating Profit („OP”) Function used to calculate Failure Charge OP(PD_EMP, DA_DQSW, PD_BL) OP(PD_EMP, PD_DQSW, PD_BL) Resulting Decimals: 2 | 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 | | | | |
| 1139 | Intertie Failure Charge Reversal | 2 | 2 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1188 | Day-Ahead Fuel Cost Compensation Debit | 1 | 3 | No | | | | |
| 1330 | On behalf of OPA for the DR2 Program – Availability Payment Settlement Amount | 1 | 3 | No | | | | |
| 1331 | On behalf of OPA for the DR2 Program – Availability Set-Off Settlement Amount | 1 | 3 | No | | | | |
| 1332 | On behalf of OPA for the DR2 Program – Utilization Payment Settlement Amount | 1 | 3 | No | | | | |
| 1333 | On behalf of OPA for the DR2 Program – Utilization Set-Off Settlement Amount | 1 | 3 | No | | | | |
| 1334 | On behalf of OPA for the DR2 Program – Meter Data Set-Off Settlement Amount | 1 | 3 | No | | | | |
| 1335 | On behalf of OPA for the DR2 Program – Buy-Down Settlement Amount | 1 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1336 | On behalf of OPA for the DR2 Program – Miscellaneous Settlement Amount | 1 | 3 | No | | | | |
| 1340 | On behalf of OPA for the DR3 Program – Availability Payment Settlement Amount | 1 | 3 | No | | | | |
| 1341 | On behalf of OPA for the DR3 Program – Availability Over-Delivery Settlement Amt | 1 | 3 | No | | | | |
| 1342 | On behalf of OPA for the DR3 Program – Availability Set-Off Settlement Amount | 1 | 3 | No | | | | |
| 1343 | On behalf of OPA for the DR3 Program – Utilization Payment Settlement Amount | 1 | 3 | No | | | | |
| 1344 | On behalf of OPA for the DR3 Program – Utilization Set-Off Settlement Amount | 1 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 1345 | On behalf of OPA for the DR3 Program – Planned Non-Performance Event Set-Off Amt | 1 | 3 | No | | | | |
| 1346 | On behalf of OPA for the DR3 Program – Meter Data Set-Off Settlement Amount | 1 | 3 | No | | | | |
| 1347 | On behalf of OPA for the DR3 Program – Buy-Down Settlement Amount | 1 | 3 | No | | | | |
| 1348 | On behalf of 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 Availability Set-Off Balancing Amount | 2 | 2 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1383 | Demand Response 2 Utilization Payment 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 | | | | |
| 1392 | Demand Response 3 Availability Set-Off Balancing Amount | 2 | 2 | No | | | | |
| 1393 | Demand Response 3 Utilization Payment Balancing Amount | 2 | 2 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 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 | | | | |
| 1398 | Demand Response 3 Miscellaneous Balancing Amount | 2 | 2 | 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 | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|---|--|---|
| 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 | | | | |
| 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 | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1414 | Hydroelectric Contract Initiative Settlement Amount | 1 | 3 | No | | | | |
| 1415 | Conservation Assessment Recovery | 1 | 3 | No | | | | |
| 1416 | Conservation and Demand Management - Compensation Settlement Credit | 1 | 3 | No | | | | |
| 1417 | Daily Condense Energy Costs Settlement Credit | 1 | 2 | No | | | | |
| 1450 | OPA Contract Adjustment Balancing Amount | 2 | 2 | No | | | | |
| 1451 | Incremental Loss Offset Settlement 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 | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 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 | | | | |
| 1465 | Ontario Clean Energy Benefit (-10%) Program Balancing Amount | 2 | 2 | No | | | | |
| 1466 | Conservation and Demand Management - Compensation Balancing Amount | 2 | 2 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|--|--|---|
| 1500 | Day-Ahead Production Cost Guarantee Payment – Component 1 and Component 1 Clawback | 1 | 3 | Yes | AQEI is multiplied by 12 Resulting decimal: 3 | Use in the calculation of OP(EMP,AQEI, DA_BE), | <p>For each 5 minute metering interval:</p> <p>Numerator</p> <p>OP(EMP,AQEI, DA_BE), OP(EMP,DQSI, DA_BE), OP(EMP,DA_DQSI, DA_BE)</p> <p>Denominator: 12 Resulting Decimal: 2</p> <p>Numerator</p> <p>DA_SNLC</p> <p>Denominator: 12 Resulting decimal : 2</p> <p>Results for each 5-minute metering interval are summed for the hour.</p> | Profits are compared as applicable. |
| 1501 | Day-Ahead Production Cost Guarantee Payment – Component 2 | 1 | 3 | Yes | AQEI is multiplied by 12 Resulting decimal: 3 | Use in the calculation of OP(EMP,AQEI, DA_BE), OP(EMP,AQEI, BE) | <p>For each 5 minute metering interval:</p> <p>Numerator</p> | Profits are compared as applicable. |

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

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 1503 | Day-Ahead Production Cost Guarantee Payment – Component 4 | 1 | 3 | Yes | <p>For each 5 minute metering interval:</p> <p>Numerators $OP(PROR, 30R_SQROR, BR)$, $OP(PROR, 10NS_SQROR, BR)$, $OP(PROR, 10S_SQROR, BR)$,</p> <p>Denominator: 12 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 Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|--|---|---|--|--|--|--|---|
| 1510 | Day-Ahead Generator Withdrawal Charge | 1 | 3 | Yes | <p>For each 5 minute metering interval:</p> <p>Numerators</p> <p>OP(EMP,MLP,DA_BE) or OP(PD_EMP,MLP,DA_BE)</p> <p>Denominator: 12 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 | | | | |
| 1600 | Forecasting Service Settlement Amount | 1 | 3 | No | | | | |
| 1650 | Forecasting Service Balancing Amount | 1 | 3 | No | | | | |
| 9980 | Smart Metering Charge | 2 | 3 | No | | | | |

| Charge Type Number | Charge Type Name | INPUT VARIABLES Least number of significant digits to the right of the decimal | INPUT VARIABLES Maximum number of significant digits to the right of the decimal | Intermediate Rounding done by Settlements? | INTERMEDIATE CALCULATION 1 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 1 | INTERMEDIATE CALCULATION 2 (where intermediate rounding occurs) | DISPOSITION OF INTERMEDIATE CALCULATION 2 |
|--------------------|---|---|---|--|--|---|--|---|
| 9990 | IESO Administration Charge | 2 | 3 | No | | | | |
| 9992 | Ontario Clean Energy Benefit (-10%) Program Settlement Amount | 2 | 2 | No | | | | |

2.5 Settlement of Physical Bilateral Contracts

2.5.1 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 2.1** and *charge type* described in **Section 2.2** of this document.

| 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"> Debit the Physical Bilateral Contract Quantity of Energy Sold ($BCQ_{k,b,h}^{m,t}$) at the 5-Minute Energy Market Price within Ontario ($EMP_h^{m,t}$). | <ul style="list-style-type: none"> Credit the Physical Bilateral Contract Quantity of Energy Bought ($BCQ_{s,k,h}^{m,t}$) at the <i>Hourly Ontario Energy Price</i> (HOEP). | 101 |
| Dispatchable <i>delivery point</i> | <ul style="list-style-type: none"> Debit the Physical Bilateral Contract Quantity of Energy Sold ($BCQ_{k,b,h}^{m,t}$) at the 5-Minute Energy Market Price within Ontario ($EMP_h^{m,t}$). | <ul style="list-style-type: none"> Credit the Physical Bilateral Contract Quantity of Energy Bought ($BCQ_{s,k,h}^{m,t}$) at the 5-Minute Energy Market Price within Ontario ($EMP_h^{m,t}$). | 100 |
| <i>Intertie Metering Point</i> | <ul style="list-style-type: none"> Debit the Physical Bilateral Contract Quantity of Energy Sold ($BCQ_{k,b,h}^{m,t}$) at the 5-minute Energy Market Price at the <i>Interties</i> ($EMP_h^{i,t}$). | <ul style="list-style-type: none"> Credit the Physical Bilateral Contract Quantity of Energy Bought ($BCQ_{s,k,h}^{m,t}$) at the 5-minute Energy Market Price at the <i>Interties</i> ($EMP_h^{i,t}$). | 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 2.2**.

2.5.2 The Nature of the Bilateral Contract Quantity

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

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*.

*** See derived quantities examples that follow.

| Derived Quantities Example 1: <i>Delivery point</i> belongs to the <i>SELLING</i> market participant and is a sub-type ‘I’ (injection) <i>delivery point</i>. (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 Injection (I) Withdrawal (W) | I | I | I | I | I | I | W | W | 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 | 0 | 0 | 0 | 0 | 10 | 10 |
| Total Quantity for the hour | 50 (SEE SECTION 2.5.3 FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) | | | | | | | | | | | |

| Derived Quantities Example 2: <i>Delivery point belongs to the SELLING market participant and is a sub-type ‘W’ (Withdrawal) delivery point.</i> (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 Injection (I) Withdrawal (W) | I | I | I | W | W | W | W | W | W | W | I | I |
| BCQ value used for settlement 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 (SEE SECTION 2.5.3 FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) | | | | | | | | | | | |

| Derived Quantities Example 3: <i>Delivery point belongs to the BUYING market participant and is a sub-type ‘I’ (injection) delivery point.</i> (note parity with EXAMPLE 1) | | | | | | | | | | | | |
|--|---|----------|----------|----------|----------|----------|-----------|-----------|----------|-----------|-----------|-----------|
| <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 Injection (I) Withdrawal (W) | I | I | I | I | I | I | W | W | 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 | 0 | 0 | 0 | 0 | 10 | 10 |
| Total Quantity for the hour | 50 (SEE SECTION 2.5.3 FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) | | | | | | | | | | | |

| Derived Quantities Example 4: <i>Delivery point</i> belongs to the <i>BUYING market participant</i> and is a sub-type ‘W’ (Withdrawal) <i>delivery point</i>. (note parity with EXAMPLE 2) | | | | | | | | | | | | |
|---|---|-----------|-----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| <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 Injection (I) Withdrawal (W) | I | I | I | W | W | W | W | W | W | W | I | I |
| BCQ value used for settlement 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 (SEE SECTION 2.5.3 FOR THE DATA PRESENTATION OF THE BILATERAL CONTRACT QUANTITY) | | | | | | | | | | | |

2.5.3 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 – see 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* (see Chapter 9, Section 3.1.6 of the *market rules*) and rounded to the appropriate number of significant digits (see Section 2.4 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. The reader is directed to Section 2.4 of this document for further details.

| | | Location Type | Charge Type | Time Resolution used for settlements purposes | Intermediate Rounding Applied within Settlements System? |
|---------------------|--|---|-------------|---|--|
| $BCQ_{s,k,h}^{m,t}$ | Physical Bilateral Contract Quantity of Energy bought. | Dispatchable <i>Delivery Point</i> (injection or withdrawal sub-type) | 100 | by <i>metering interval</i> | Yes – See Section 2.4 |
| | | 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 – See Section 2.4 |
| $BCQ_{k,b,h}^{m,t}$ | Physical Bilateral Contract Quantity of Energy sold. | Dispatchable <i>Delivery Point</i> (injection or withdrawal sub-type) | 100 | by <i>metering interval</i> | Yes – See Section 2.4 |
| | | Non-Dispatchable <i>Delivery Point</i> (injection or withdrawal sub-type) | 101 | by <i>metering interval</i> | Yes – See Section 2.4 |
| | | <i>Intertie metering point</i> | 100 | by <i>metering interval</i> | Yes – See Section 2.4 |

2.5.4 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* (see also, *IESO market rules*, Chapter 8, Section 2.2.2).

| 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"> 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 ($EMP_h^{REF,t}$) for each <i>metering interval</i> in the <i>settlement hour</i>. |
| Operating Reserve Settlement Credit (ORSC) Hourly Uplift Component | 250 252 254 | <ul style="list-style-type: none"> 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>. |
| Capacity Reserve Settlement Credit (CAPRSC) Hourly Uplift Component | 350 186 | <p>Two components as follows:</p> <ol style="list-style-type: none"> 1) DEFERRED <i>charge type</i> 350: Capacity Reserve Settlement Credit (see <i>IESO market rules</i>, Chapter 1, Section 4.4A for further details); and 2) <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. |

| Hourly Uplift Component Group | Associated Charge Types | Comments |
|--|-------------------------|--|
| Congestion Management Settlement Credit (CMSC) Hourly Uplift Component | 155 | <ul style="list-style-type: none"> Includes recovery of CMSC payments for <i>energy</i> and each class of <i>operating reserve</i>. |
| Transmission Rights Settlement Credit (TRSC) Hourly Uplift Component | NOT USED | <ul style="list-style-type: none"> INCLUDED WITH THE “NET ENERGY MARKET SETTLEMENT CREDIT (NEMSC) Hourly Uplift COMPONENT”. SEE NOTE ABOVE. |
| Transmission Charge Reduction Fund (TCRF) Hourly Uplift Component | NOT USED | <ul style="list-style-type: none"> INCLUDED WITH THE “NET ENERGY MARKET SETTLEMENT CREDIT (NEMSC) Hourly Uplift COMPONENT”. SEE NOTE ABOVE. |
| Capacity Reserve Shortfall Settlement Debit (CRSSD) Hourly Uplift Component | 301 | <ul style="list-style-type: none"> DEFERRED. |
| Operating Reserve Shortfall Settlement Debit (ORSSD) Hourly Uplift Component | 201 203 205 | <ul style="list-style-type: none"> 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>. |

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 2.1**.

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 2.1**.

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. See Section 2.2 for specific listings of *charge types* and their respective equations.

2.6 Exemptions from the Day-Ahead Import Failure Charge, Day-Ahead Export Failure Charge, and Day-Ahead Linked Wheel Failure Charge

2.6.1 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)².

Generally speaking the applicability of the five Intertie Failure charges³ 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.

2.6.2 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.

2.6.3 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:

² 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.

³ 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 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.

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.

2.6.4 Input Data:

| | | |
|------------------------|---|---|
| $DA_DQSI_{k,h}^{i,t}$ | = | Day-ahead constrained quantity scheduled for injection by <i>market participant ‘k’</i> at <i>intertie metering point ‘i’</i> during <i>metering interval ‘t’</i> of <i>settlement hour ‘h’</i> |
| $PD_DQSI_{k,h}^{i,t}$ | = | <i>Pre- dispatch</i> constrained quantity scheduled for injection by <i>market participant ‘k’</i> at <i>intertie metering point ‘i’</i> during <i>metering interval ‘t’</i> of <i>settlement hour ‘h’</i> . |
| $PD_BE_{k,h}^{i,t}$ | = | <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 |
| - MMCP | = | The <i>Minimum Market Clearing Price</i> . |
| $DA_DQSW_{k,h}^{i,t}$ | = | Day-ahead constrained quantity scheduled for withdrawal by <i>market participant ‘k’</i> at <i>intertie metering point ‘i’</i> during <i>metering interval ‘t’</i> of <i>settlement hour ‘h’</i> |
| $PD_DQSW_{k,h}^{i,t}$ | = | <i>Pre- dispatch</i> constrained quantity scheduled for withdrawal by <i>market participant ‘k’</i> at <i>intertie metering point ‘i’</i> during <i>metering interval ‘t’</i> of <i>settlement hour ‘h’</i> . |

= The *Maximum Market Clearing Price*.

2.6.5 Decision Logic Applied During the Offer Price Test for Import Transactions:

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 $PD_BE_{k,h}^{i,t}$ (see 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 2-1 and 2-2 to see 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).

2.6.6 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* ($DA_DQSW_{k,h^{it}}$) for the export transaction is indeed GREATER THAN the resulting *Pre-dispatch schedule* ($PD_DQSW_{k,h^{it}}$) over the course of *settlement hour* 'h'.

IF $\sum^T DA_DQSW_{k,h^{it}} > \sum^T PD_DQSW_{k,h^{it}}$

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 $BL_{k,h}^{i,t}$ (see 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 2-1 and 2-2 to see 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).

2.6.7 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 2.6.5 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 $PD_BE_{k,h}^{i,t}$ (see 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 **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 2.6.6 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 $BL_{k,h}^{i,t}$ (see 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 **RT-EFC-DALW**.

ELSE

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

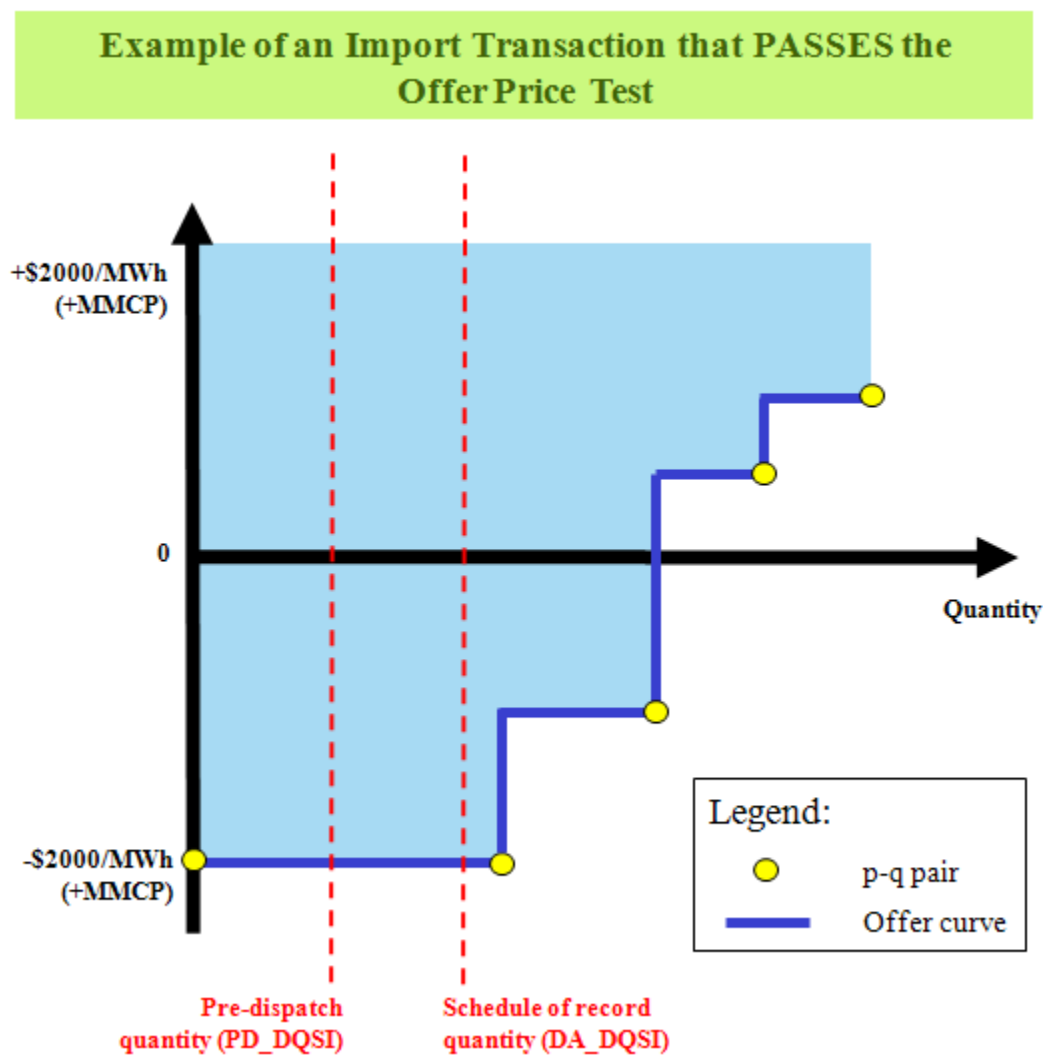
Figure 2-1 – Example of an Import Transaction that PASSES the “Offer Price Test”

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

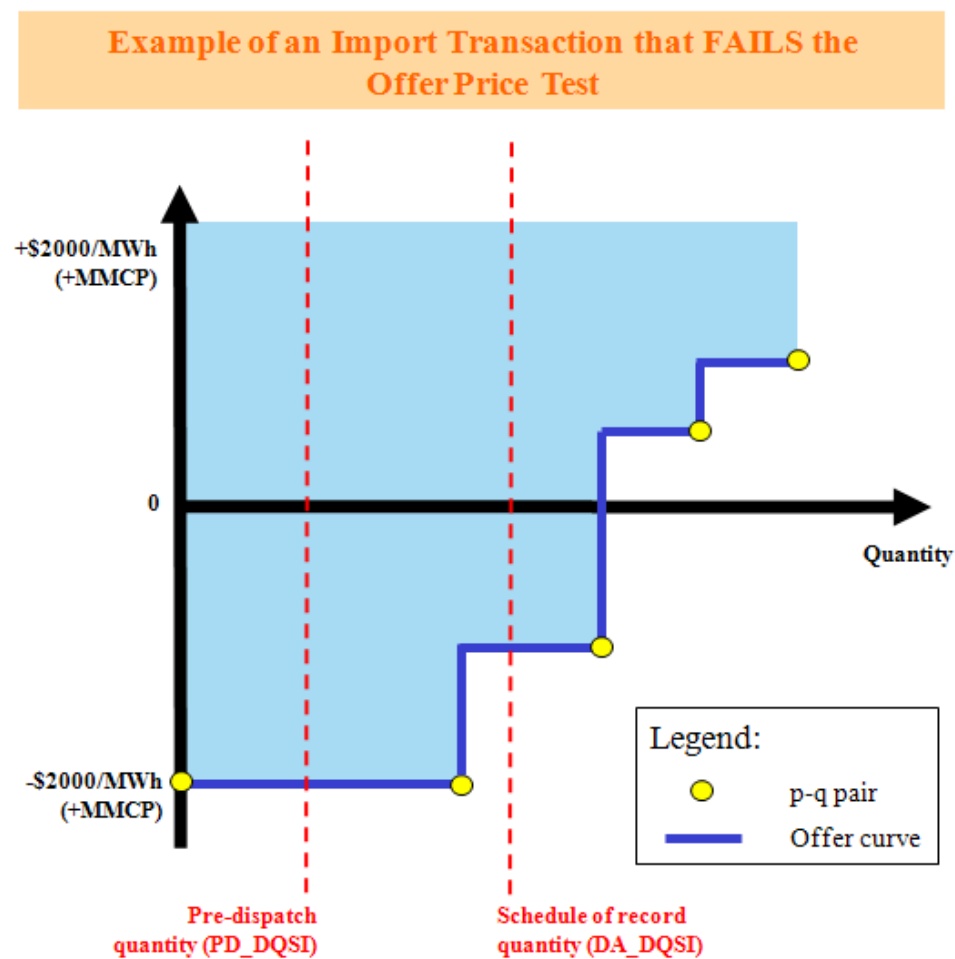


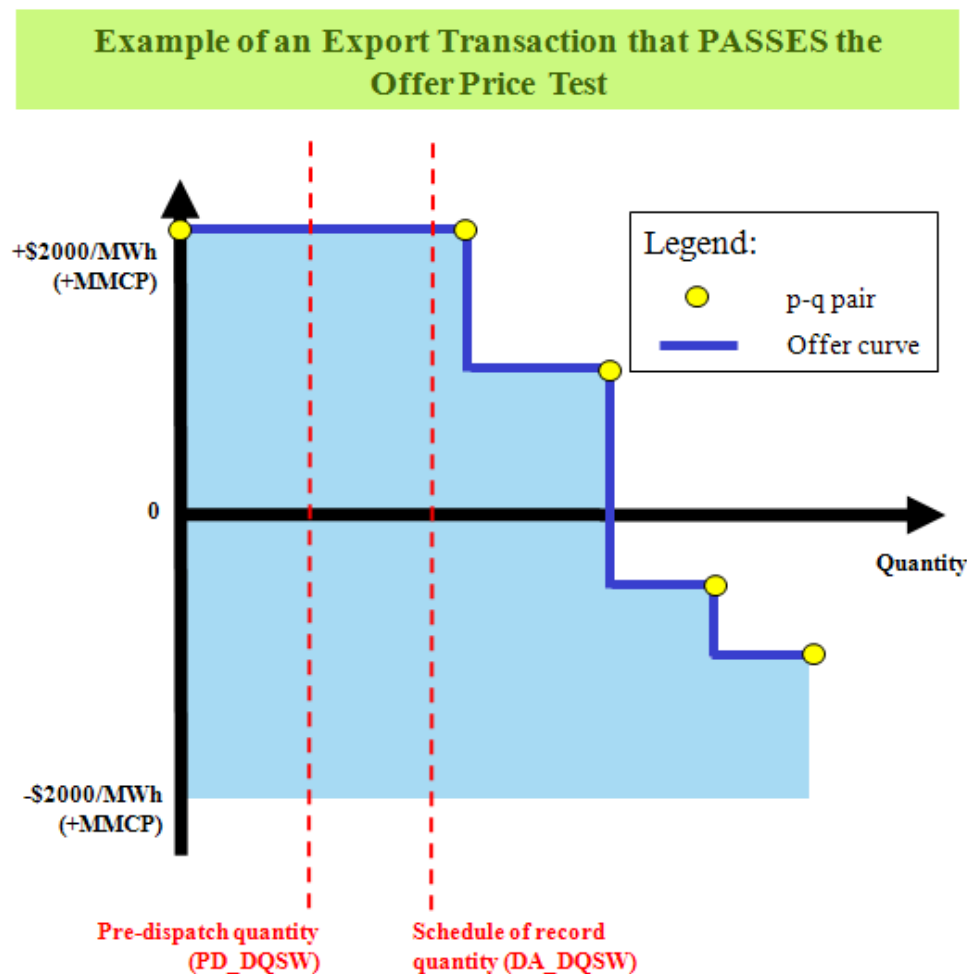
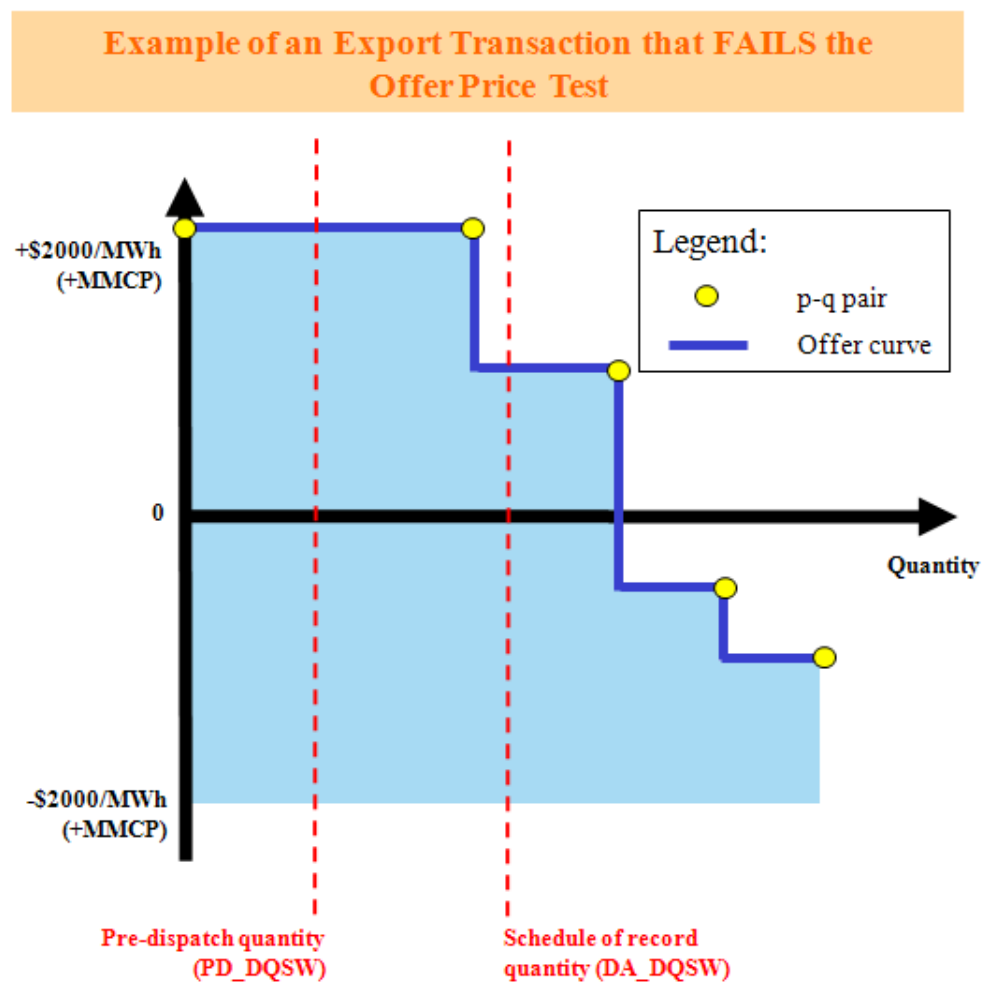
Figure 2-3 – Example of an Export Transaction that PASSES the “Offer Price Test”

Figure 2-4 – Example of an Export Transaction that PASSES the “Offer Price Test”



- End of Section -

3. IESO Charge Types and Equations that are NOT Part of an Active IESO-Administered Market

3.1 Variable Descriptions

The following table contains descriptions of each variable used within Section 3.2, describing *IESO charge types* and equations that are part of an *IESO-administered market* that is the subject of a Functional Deferral.

| Key to the Table Below | | | | |
|--|---|---|---|---|
| Variable used within Section 3.2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| This column denotes the abbreviated name of each variable used within Section 3.2. | The full name of each variable used within the formulas illustrated within Section 3.2. | A brief description of each variable used within the formulas illustrated within Section 3.2. | <p>The relevant reference to the variable in question within the <i>IESO market rules</i>.</p> <p>The format of each reference is: [Chapter].[Section no] e.g. Chapter 9 Section 3.1.6 would appear as: 9.3.1.6</p> | This section notes any aspects of the implementation of the variable within the <i>IESO settlement process</i> which are otherwise not described in the <i>IESO market rules</i> – OR – refers the reader to the appropriate documentation. |

| Key to the Table Below | | | | |
|----------------------------------|---|---|------------------------|---|
| Variable used within Section 3.2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $AQCR_{k,h}^{m,t}$ | Allocated Quantity of Capacity Reserve | Allocated <i>capacity reserve quantity</i> in MW for <i>market participant ‘k’</i> at RWM or <i>intertie metering point m</i> in <i>metering interval ‘t’</i> of <i>settlement hour ‘h’</i> . | 9.3.1.9 | Same as <i>IESO market rules. Capacity Reserve Market</i> subject to a Functional Deferral (ref. Chapter 1 Section 4.4A.1). |
| $CROSF_{k,h}^{m,t}$ | Capacity Reserve Offer Shortfall Fraction | Constant – Capacity reserve offer shortfall fraction for <i>registered facility ‘k/m’</i> in <i>metering interval ‘t’</i> of <i>settlement hour ‘h’</i> . | 9.3.8.4.1 | Same as <i>IESO market rules. Capacity Reserve Market</i> subject to a Functional Deferral (ref. Chapter 1 Section 4.4A.1). |
| FMP_h | Energy Forward Market Clearing Price | Energy forward <i>market price</i> , in \$/MWh in <i>settlement hour ‘h’</i> . | 9.3.1.2 | Same as <i>IESO market rules. Energy Forward Market</i> is subject to a Functional Deferral (<i>IESO market rules</i> ref. Chapter 1, Section 4.4A.3). |
| $FMQS_{k,h}$ | Forward Market Quantity Sold (purchased, if negative) | Energy forward market quantity sold (purchased, if negative) in MWh by <i>market participant ‘k’</i> for <i>settlement hour ‘h’</i> . | 9.3.1.2 | Same as <i>IESO market rules. Energy Forward Market</i> is subject to a Functional Deferral (<i>IESO market rules</i> ref. Chapter 1, Section 4.4A.3). |
| $PCAPR_h^m$ | Market Clearing Capacity Reserve Prices | <i>Capacity reserve price</i> in \$/MW/hr at RWM ‘m’ in <i>settlement hour ‘h’</i> . | 9.3.1.5 | Same as <i>IESO market rules. Capacity Reserve Market</i> subject to a Functional Deferral (ref. Chapter 1, Section 4.4A.1). |

| Key to the Table Below | | | | |
|----------------------------------|--|--|------------------------|---|
| Variable used within Section 3.2 | Data Description | Description | Market Rules Reference | Relation to the corresponding variable description within the IESO Market Rules |
| $QCAPR_{k,h}^m$ | Capacity Reserve Market Clearing Schedules | Capacity reserve quantity in MW sold by market participant 'k' at RWM 'm' for settlement hour 'h'. | 9.3.1.5 | Same as IESO market rules. Capacity Reserve Market subject to a Functional Deferral (ref. Chapter 1, Section 4.4A.1). |

3.2 Charge Types and Equations

The following table contains the *IESO charge types* and equations that **are** part of an *IESO-administered market* that is the subject of a Functional Deferral.

| Key to the Table Below | |
|----------------------------------|---|
| Charge Type Number | The designation number for each <i>charge type</i> enumerated below – which correspond to the <i>charge type</i> numbers used on <i>settlement</i> statements and <i>invoices</i> . |
| Charge Type Name | The name of the <i>charge type</i> . |
| Settlement Amount Acronym | The abbreviated name of the variable used to describe the <i>settlement amount</i> within the <i>IESO market rules</i> . |

| Key to the Table Below | |
|-------------------------------|---|
| Market Rules Refer. | <p>The relevant reference to the variable in question within the <i>IESO market rules</i>.</p> <p>The format for each reference is:</p> <p>[Chapter].[Section number]</p> <p>For example:</p> <p>“Chapter 9 Section 3.1.6” would appear as:</p> <p>9.3.1.6</p> |
| Equation | The equation used by the <i>IESO settlement process</i> to calculate the <i>settlement amount</i> related to each <i>charge type</i> . |
| Settlement Resolution | <p>The level of granularity by which the <i>IESO settlement process</i> calculates the <i>settlement amount</i> (for which the <i>charge type</i> is related), and provides the supporting data in the settlement data file.</p> <p>Where:</p> <ul style="list-style-type: none"> • “Interval” means that the calculations are performed on the basis of each relevant, 5-minute <i>metering interval</i>; • “Hourly” means that the calculations are performed on the basis of each <i>settlement hour</i>; • “Daily” means that the calculations are performed on the basis of each calendar day; • “Monthly” means that the calculations are performed on the basis of a calendar month (equivalent to a real-time market <i>billing period</i>); • “Quarterly” means that the calculations are performed on the basis of 3 month intervals; • “Yearly” means that the calculations are performed on the basis of a calendar year. |

| Key to the Table Below | |
|---|---|
| Cashflow | <p>This column indicates whether or not the <i>settlement amount</i> (for which the <i>charge type</i> is related) is:</p> <ul style="list-style-type: none"> • “Due <i>IESO</i>” – which means, owed to the <i>IESO</i> by the <i>market participant</i>; or • “Due MP” – which means, owed to the <i>market participant</i> by the <i>IESO</i>; or • “Either Way” – which indicates that the settlement amount in question could be either owed to the IESO by the market participant or owed to the market participant by the IESO in any given time period (according to the applicable “settlements resolution”). |
| HST Tax Treatment within Ontario | <ul style="list-style-type: none"> • This column indicates the percentage levy as per the Harmonized Sales Tax (HST). • Zone used for Tax Basis is (ONZN) for Ontario. • The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “<i>Format Specification for Settlement Statement Files and Data Files</i> (IMP_SPEC_0015”). • A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |
| HST Tax Treatment for U.S., Manitoba and Quebec Generation | <ul style="list-style-type: none"> • This column indicates the percentage levy as per the Harmonized Sales Tax (HST). • Zones used for Tax Basis are (NYSI) for US Generation, (MBSI) for Manitoba Generation and (PQSI) for Quebec Generation. • The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “Detail Field Description”). • A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |
| HST Tax Treatment for U.S. Load | <ul style="list-style-type: none"> • This column indicates the percentage levy as per the Harmonized Sales Tax (HST). • Zone used for Tax Basis is (NYSI) for US Load. • The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “<i>Format Specification for Settlement Statement Files and Data Files</i> (IMP_SPEC_0015”). • A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |

| Key to the Table Below | |
|---|---|
| HST Tax Treatment for Manitoba and Quebec Load | <ul style="list-style-type: none">• This column indicates the percentage levy as per the Harmonized Sales Tax (HST).• Zones used for Tax Basis are (MBSI) for Manitoba Load and (PQSI) for Quebec Load.• The applicable Zone ID may be found in column 7 of the applicable settlement statement detail record (see also, the Technical Interface Document entitled, “Detail Field Description”).• A complete list of Zones may be found in the Technical Interface Document entitled, “Standing Data”. |
| Comments | This column notes any <i>charge types</i> that are governed by various documentation other than the <i>IESO market rules</i> . |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Refer. | Equation | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for US, Manitoba, and Quebec Generation (%) | HST Tax Treatment for US Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--|---|---------------------------|---------------------|---|-----------------------|----------|--------------------------------------|---|-----------------------------------|--|----------|
| DEFERRED CHARGE TYPES RELATED TO THE REAL TIME MARKET | | | | | | | | | | | |
| 1 | Energy Forward Settlement Credit | NFMSC _{k,h} | 9.3.2.1 | $FMQS_{k,h} \times (FMP_h - HOEP_h)$ | Hourly | Due MP | Exempt | Exempt | Exempt | Exempt | |
| 51 | Energy Forward Settlement Debit | NFMSD _{k,h} | 9.3.2.1 | $FMQS_{k,h} \times (FMP_h - HOEP_h)$ | Hourly | Due IESO | Exempt | Exempt | Exempt | Exempt | |
| DEFERRED CHARGE TYPES RELATED TO THE REAL TIME MARKET | | | | | | | | | | | |
| 300 | Capacity Reserve Market Settlement Credit | CAPRSC _{k,h} | 9.3.7.2 | $\sum_m QCAPR_{k,h}^m \times PCAPR_h^m$ | Hourly | Due MP | N/A | N/A | N/A | N/A | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Refer. | Equation | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for US, Manitoba, and Quebec Generation (%) | HST Tax Treatment for US Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|--|---------------------------|---------------------|---|-----------------------|----------|--------------------------------------|---|-----------------------------------|--|----------|
| 301 | Capacity Reserve Market Shortfall Rebate | HUSA _h | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(351)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>Where $RQ_{k,h}^{m,t}$ is a reallocated quantity whereby <i>market participant</i> ‘k’ is a party to one or more physical bilateral contracts for <i>settlement hour</i> ‘h’ in which the capacity reserve 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> $RQ_{k,h}^{m,t} = \sum_{s,b}^{M,T} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | Hourly | Due MP | N/A | N/A | N/A | N/A | |

| Charge Type Number | Charge Type Name | Settlement Amount Acronym | Market Rules Refer. | Equation | Settlement Resolution | Cashflow | HST Tax Treatment within Ontario (%) | HST Tax Treatment for US, Manitoba, and Quebec Generation (%) | HST Tax Treatment for US Load (%) | HST Tax Treatment for Manitoba and Quebec Load (%) | Comments |
|--------------------|---|---------------------------|---------------------|---|-----------------------|----------|--------------------------------------|---|-----------------------------------|--|----------|
| 350 | Capacity Reserve Market Uplift | HUSA _h | 9.3.9.1 | $\sum_c^{M,T} TD_{k,h,(300)} \times [(AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t} + RQ_{k,h}^{m,t}) / \sum_k^{M,T} (AQEW_{k,h}^{m,t} + SQEW_{k,h}^{i,t})]$ <p>Where ‘T’ is the set of 12 <i>metering intervals</i> ‘t’ during <i>settlement hour</i> ‘h’.</p> <p>Where RQ_{k,h}^{m,t} is a reallocated quantity whereby <i>market participant</i> ‘k’ is a party to one or more physical bilateral contracts for <i>settlement hour</i> ‘h’ in which the <i>capacity 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> $RQ_{k,h}^{m,t} = \sum_{s,b}^{M,T} [BCQ_{k,b,h}^{m,t} - BCQ_{s,k,h}^{m,t}]$ | Hourly | Due IESO | N/A | N/A | N/A | N/A | |
| 351 | Capacity Reserve Market Shortfall Debit | CRSSD _{k,h} | 9.3.8.4.3 | Manual Entry as per 9.3.8.4.3 | Hourly | Due IESO | N/A | N/A | N/A | N/A | |

– End of Section –

References

| Document Name | Doc ID |
|---|----------------|
| Market Rules | MDP_RUL_0002 |
| Format Specification for Settlement Statement Files and Data Files | IMP_SPEC_0005 |
| Ontario Energy Board: Ontario Transmission Rate Schedules EB-2007-0759 | EB-2007-0759 |
| Order-in-Council 137/2008 Ontario Power Generation Rebate | OIC 137/2008 |
| Ontario Regulation 442/01 “Rural or Remote Electricity Rate Protection | 442/01 |
| Ontario Regulation 493/01 “Debt Retirement Charge – Rates and Exemptions” | 493/01 |
| Ontario Regulation 494/01 “Debt Retirement Charge Administration” | 494/01 |
| Legislative Assembly of Ontario S.O. 2003, Chapter 8 “Bill 4, An Act to amend the <i>Ontario Energy Board Act, 1998</i> with respect to electricity pricing.” Royal Assent: December 18, 2003 | Bill 4 |
| Regulations made pursuant to Bill 4 Ontario Regulation 42/04 made under the <i>Ontario Energy Board Act, 1998</i> . Ontario Regulation 43/04 made under the <i>Ontario Energy Board Act, 1998</i> . | 42/04 43/04 |
| Legislative Assembly of Ontario, Bill 210 – “Electricity Pricing, Conservation and Supply Act, 2002.” S.O. 2002, Chapter 23 Formal Title: “An Act to amend various Acts in respect of pricing, conservation and supply of electricity an in respect of other matters related to electricity.” Royal Assent: December 9, 2002 | Bill 210 |

| Document Name | Doc ID |
|---|--|
| <p>Regulations made pursuant to BILL 210 “Electricity Pricing, Conservation and Supply Act, 2002.”</p> <p>Regulation 339/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Electricity Pricing” – amended by regulation 433/02</p> <p>Regulation 341/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Compensation and Set-Offs Under Part V of the Act” – amended by regulation 434/02</p> <p>Regulation 342/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Payments to the IMO” – revoked by regulation 432/02</p> <p>Regulation 432/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Revoking Ontario Regulation 342/02 (Payments to the IMO)”</p> <p>Regulation 433/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Amending Ontario Regulation 339/02 (Electricity Pricing)”</p> <p>Regulation 434/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Amending Ontario Regulation 341/02 (Compensation and Set-Offs Under Part V of the Act)”</p> <p>Regulation 435/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Payments re Section 79.4 of the Act”</p> <p>Regulation 436/02 (Under the <i>Ontario Energy Board Act, 1998</i>) “Payments re Various Electricity-Related Charges”</p> <p>Regulation 330/09 (Under the <i>Ontario Energy Board Act, 1998</i>) “Cost recovery re section 79.1 of the Act”</p> | <p>339/02 (amended by 433/02)</p> <p>341/02 (amended by 434/02)</p> <p>342/02 (revoked by 432/02)</p> <p>433/02</p> <p>434/02</p> <p>435/02</p> <p>436/02</p> <p>330/09</p> |
| <p>Ontario Energy Board, Independent Electricity Market Operator Licence EI-2003-0088, issued on July 30, 2003</p> | <p>EI-2003-0088</p> |
| <p>Legislative Assembly of Ontario, Bill 100 – “Electricity Restructuring Act, 2004”</p> <p>Royal Assent: December 9, 2004</p> <p>Subject to regulations made pursuant to the “Electricity Restructuring Act, 2004” once proclaimed into force:</p> <p>Ontario regulation 427/04 “Payments to the Financial Corp. re Section 78.2 of the Act”</p> <p>Ontario regulation 428/04 “Payments re Section 79.4 of the Act”</p> <p>Ontario regulation 398/10 Amending Ontario regulation 429/04 “Adjustments Under Section 25.33 of the Act”</p> <p>Ontario regulation 430/04 “Payments re Section 25.33 of the</p> | <p>BILL 100</p> <p>See also, Ontario e-laws website for official Ontario Government Regulation ID numbers at:</p> <p>http://www.e-laws.gov.on.ca</p> |

| Document Name | Doc ID |
|---|--|
| <p>Act”</p> <p>Ontario regulation 431/04 “Payments re Section 25.34 of the Act”</p> <p>Section 78.3 of the (Ontario Energy Board) Act</p> <p>Section 78.4 of the (Ontario Energy Board) Act</p> <p>Section 78.5 of the (Ontario Energy Board) Act</p> | |
| <p>Ontario regulation 53/05 made under <i>OEB Act, 1998</i> re “Payments under Section 78.1 of the Act”</p> <p>Ontario regulation 98/05 made under <i>OEB Act, 1998</i> re “Payments re Various Electricity-Related Charges”</p> <p>Ontario Regulation 66/10 made under <i>OEB Act, 1998</i> re “Assessments for Ministry of Energy and Infrastructure Conservation and Renewable Energy Program Costs”</p> | <p>BILL 100</p> <p>See also, Ontario e-laws website for official Ontario Government Regulation ID numbers at:</p> <p>http://www.e-laws.gov.on.ca/</p> |
| <p>Ontario Clean Energy Benefit Act, 2010, Ontario Regulation 495/10.</p> | |

– End of Document –

UNDERTAKING

Undertaking

**TO EXPLAIN WHY ISO NEW ENGLAND DOES NOT DISTINGUISH
BETWEEN FIRM AND NON-FIRM TRANSMISSION SERVICES**

Response

New England ISO does not have firm transmission service. The most economic resources get access to the lines which will, in general, ensure that the transmission system is used fully and used most efficiently. One can hedge transactions financially through Financial Transmission Rights (FTRs), but cannot be guaranteed that that power will flow over a given interface at any particular time.

UNDERTAKING

Undertaking

TO CONFIRM AMPCO'S SAMPLE CALCULATIONS

Response

The Transenergie Tariff is expressed as:

- Annual firm service per kW reserved
- Monthly firm service for per kW reserved
- Weekly firm service per MW reserved
- Daily firm service per MW reserved
- Daily non-firm service per MW reserved
- Hourly non-firm service per MW reserved

There is no separate capacity and energy portion. These are the charges to reserve transmission for different lengths of time. The hourly rate is simply one hour of service instead of daily (24 hours).

The patterns are (approximately):

- Annual => monthly: divide by 12
- Monthly => weekly: divide by 4.3 (and multiply by 1000 to change units from kW to MW)
- Monthly => weekly non-firm: divide by 7
- Weekly non-firm => hourly non-firm: divide by 24

The Transenergie tariff is expressed to two decimal places as reported by CRA.

The table below shows AMPCO's table recast in terms of four different ways to buy service to move 100 MWh.

| Sample | Reservation Charge (\$6.71/MW) | Reservation Charge (\$0.29/MW) | Total | Notes |
|--|-----------------------------------|-----------------------------------|----------|--|
| 100 MWh, even at 50 MW, daily reservation | \$335.50 | | \$335.50 | reserve 50 MW for the day; can move 50*24=1200 MWh |
| 100 MWh, even at 100 MW daily reservation | \$671.00 | | \$671.00 | reserve 100 MW for the day; can move 100*24=2400 MWh |
| 100 MWh, even at 50 MW, hourly reservation | | \$29.00 | \$29.00 | reserve 50 MW for two hour; can move 100 MWh |
| 100 MWh, even at 100 MW hourly reservation | | \$29.00 | \$29.00 | reserve 100 MW for one hour; can move 100 MWh |

UNDERTAKING

Undertaking

TO PROVIDE CURRENT ACTUAL CAPACITY OF HYDRO ONE TRANSMISSION LINE SERVING SOUTH CENTRAL GUELPH; TO ADVISE WHICH ORTEC STANDARD THE TRANSMISSION LINE OR SYSTEM IS NOT COMPLIANT WITH.

Response

The capability of the transmission system serving South-Central Guelph is determined based on the application of the Independent Electricity System Operator's Ontario Resource and Transmission Assessment Criteria (ORTAC). The ORTAC identifies the mandatory technical criteria to be used in the assessments of the adequacy and security of the transmission system and to clarify how the IESO implements and applies relevant NPCC and NERC standards within Ontario. The ORTAC is used to assess the current and future adequacy of the transmission system and to identify the need for system enhancements.

Based on the ORTAC, the transmission system must be planned with sufficient capability to withstand the specific outages identified, under peak demand conditions. Following an outage to a single transmission circuit, apart from those loads that are supplied exclusively from the faulted circuit, ORTAC does not allow for the interruption of any load. Consequently, the existing transmission supply to the South-Central Guelph area has a capability of approximately 100 MW.

Since the total load in South-Central Guelph has exceeded, and is forecast to continue to exceed the 100 MW limit, the IESO has been required to implement temporary operational measures whenever the 100 MW threshold is expected to be exceeded. These measures involve opening the bus-tie breakers at each of the transformer stations in the area so that the load is supplied solely from one circuit or the other. Because these loads are no longer supplied from two sources, a contingency involving either of these circuits will automatically result in load being interrupted. This effectively results in a degradation of the level of supply security to the area.

Based on the peak demand in the South-Central Guelph area today, the existing supply is not compliant with ORTAC, specifically Section 7.1, and therefore reinforcement is required.

Although work on the Guelph Area Transmission Refurbishment (GATR) project has been underway for a number of years, the project was put on hold while the impacts of the economic downturn were monitored. Work by the KWCG working group updated area demand forecasts and confirmed the need to proceed with the GATR project at this time. Hydro One is striving to complete the GATR project as soon as possible, and has been examining its schedule in regards to timing. Based on the necessary regulatory and

Filed: October 19, 2012

EB-2012-0031

Exhibit KT1.5

Page 2 of 2

- 1 environmental approvals, as well as the time required for construction, the earliest
- 2 projected in-service date for the GATR project is the end of 2015 (an advancement from
- 3 the previously planned Q2 2016).

UNDERTAKING

Undertaking

**TO PROVIDE BREAKOUT BETWEEN ACTUAL AND ESTIMATED NUMBERS
IN VECC INTERROGATORY No. 17(A).**

Response

The requested information is provided below:

| Year | Embedded generation bypass (MW) | Embedded generation bypass (MW) with metered data | Embedded generation bypass (MW) without metered data |
|------|--|--|--|
| 2009 | 211 | 30 | 181 |
| 2010 | 275 | 78 | 197 |
| 2011 | 346 | 131 | 215 |

UNDERTAKING

Undertaking

TO PROVIDE OPA REPORT REFERRED TO IN VECC INTERROGATORY No. 18 AND PROVIDE RECONCILIATION WITH 2011 FORECAST.

Response

The requested OPA 2011 final results for OPA funded, LDC-delivered programs are provided below. Reconciliation with 2011 forecast cannot be done because Hydro One did not get the annual numbers from the OPA pertaining to OPA funded, LDC-delivered programs.

Summary - Provincial Progress

Table P3: Province-Wide Net Peak Demand Savings at the End User Level (MW)

| Implementation Period | Annual | | | |
|--|--------|-------|-------|-------|
| | 2011 | 2012 | 2013 | 2014 |
| 2011 | 204.5 | 136.4 | 135.7 | 128.9 |
| 2012 | | | | |
| 2013 | | | | |
| 2014 | | | | |
| Verified Net Annual Peak Demand Savings in 2014: | | | | 128.9 |
| 2014 Annual CDM Capacity Target | | | | 1,330 |
| Verified Peak Demand Savings Target Achieved - 2011 (%): | | | | 9.69% |

Table P4: Province-Wide Net Energy Savings at the End-User Level (GWh)

| Implementation Period | Annual | | | | Cumulative |
|--|--------|-------|-------|-------|------------|
| | 2011 | 2012 | 2013 | 2014 | 2011-2014 |
| 2011 | 605.5 | 601.6 | 599.6 | 580.9 | 2,388 |
| 2012 | | | | | 0 |
| 2013 | | | | | 0 |
| 2014 | | | | | 0 |
| Verified Net Cumulative Energy Savings 2011-2014: | | | | | 2,388 |
| 2011-2014 Cumulative CDM Energy Target: | | | | | 6,000 |
| Verified Portion of Energy Target Achieved - 2011 (%): | | | | | 39.79% |

UNDERTAKING

Undertaking

TO PROVIDE A RESPONSE TO VECC INTERROGATORY No. 22, PART (E).

Response

The OPA advises Hydro One that DR1 was a demand management program that was launched in the fall of 2006 and was active every month in 2007 until February 2009.

DR2 is a contractual load shifting program where participants respond on a daily basis in accordance with the terms of the contract. DR2 is active in every month since its launch in November 2009.

DR3 is a dispatchable load curtailment program. Data is not available prior to 2010. In 2010, DR3 was activated in the months of May, July, August, September and December. In 2011, DR 3 was activated in the months of May, June, July, August and November.

Peaksaver is a dispatchable residential load curtailment program. In 2009 Peaksaver was dispatched in August. In 2010 the dispatch months were May, July and August. In 2011, Peaksaver was dispatched in July.

UNDERTAKING

Undertaking

TO PROVIDE CORRESPONDING TARGETS FOR 2009 TO 2011.

Response

The 2012 Transmission Unit Cost measure, “Capital plus OM&A per Asset (%)” was not utilized in 2009 to 2011, however, the following definitions were:

| Year | Transmission Unit Cost | Unit | Actual | Target |
|------|---------------------------------------|------|--------|--------|
| 2009 | Capital* plus O&M per Asset | % | 10.1 | 10.6 |
| 2010 | Sustaining Capital plus O&M per Asset | % | 4.6 | 4.8 |
| 2011 | Sustaining Capital plus O&M per Asset | % | 4.9 | 5.0 |

* Includes Sustainment, Development and Operational Capital

UNDERTAKING

Undertaking

**TO EXPLAIN WHETHER GROSS FIXED ASSETS IN THE DENOMINATOR
THE OPENING BALANCE OF GROSS FIXED ASSETS FOR THE YEAR, THE
MID-YEAR BALANCE, OR SOMETHING ELSE.**

Response

The Gross Fixed Assets (GFA) for the yearly Unit Cost estimate is based on the
forecasted year end GFA value.

UNDERTAKING

Undertaking

TO PROVIDE TOTAL PAYOUT OF 2011 RETIREMENT BONUSES.

Response

The amount of Retirement Bonus paid out in 2011 was \$1,313,366 (for all employees – MCP/PWU/SEP).

The amount paid only for PWU/SEP represented employees was \$878,487.

UNDERTAKING

Undertaking

TO PROVIDE AN EXPLANATION BETWEEN WHAT IS DRIVING THE DECREASE IN 2011 AND 2012, AND WHY IT INCREASES UP AGAIN IN THE TEST YEARS, WITH REFERENCE TO VECC NO. 3 AND VECC NO. 4.

Response

From 2011 to 2012, the costs allocated to the subsidiaries for the services shown in the response filed for Exhibit I, Tab 2, Schedule 5.04 VECC 4 decrease based on new allocations developed by Black and Veatch in their study 'Review of Shared Services Cost Allocation (Transmission) – 2012'. From 2012 to 2014, the costs allocated to the subs for these services decrease slightly. The driver of the increase in Total Fees Payable by Affiliates to Networks from 2012 to 2013 is the new Transfer Price Charge for HONI Assets.

UNDERTAKING

Undertaking

TO EXPLAIN WHAT "AGING HARDWARE" INCLUDES.

Response

Hardware includes components such as U-bolts, conductor clamps, dampers, ground wires and connections. These are components that are associated with structures such as a wood pole or a steel lattice tower. The results of some recent patrols have identified aging hardware that is no longer functioning as designed. Some examples are:

- Worn U-bolts, which connect the insulator string to the structure and upon failure would result in conductor dropping to the ground.
- Damaged dampers, which control vibration on the conductors, and can result in conductor damage and potentially conductor failure at or under the clamps.

UNDERTAKING

Undertaking

TO PROVIDE DETAILED INFORMATION ON COMPOSITE POLES.

Response

This information supplements the information provided in JT1.1 question 10.

Although the material cost of composite poles are higher, they have a longer expected life (~80 years vs. 40-50 years for wood poles) along with many additional benefits that include:

- Modular construction and reduced weight for easier storage and installation, particularly for locations with limited access (modules are nested together and can be assembled into poles on site). See pictures below of nested modules and assembled composite structure.
- More environmentally friendly – composite poles can be ground down and recycled whereas traditional wood poles cannot due to chemical treatments
- Increased design strength
- High strength to weight ratio
- Does not corrode
- Resistant to Insects/Pests/Woodpeckers
- Fire resistant
- High dielectric strength
- Doesn't leach hazardous chemicals



UNDERTAKING

Undertaking

CLARIFY COMPONENTS OF SAIFI EXPENDITURES.

Response

In the pie chart, provided on page 6 of Exhibit C1, Tab2, Schedule 2, when an outage occurs and the specific component can be identified as the contributing factor, the outage cause is reported in one of the seven (7) following categories: Structure, Skywire, Surge arrester, Conductor, Cross-arm, Insulator, Hardware.

The “Other” category in the pie chart would capture any remaining causes that are not clearly defined by the established categories, or when the details of the cause are not provided i.e. undetermined or unknown.

1 **UNDERTAKING**

2
3 **Undertaking**

4
5 **TO DEFINE "MARKET PENSION."**

6
7 **Response**

8
9 The "market" is the peer group in the Mercer Compensation Cost Benchmarking study.

UNDERTAKING

Undertaking

**FOR VECC IR NO. 22, PAGE 3, TO EXPLAIN THE DIFFERENCE BETWEEN
THE FIGURES UNDER THE HEADING "ONTARIO DEMAND"**

Response

Mr. But provided an oral response to this undertaking at TR 119 lines 12 – 15. The difference is due to the removal of the demand response estimates in response to Exhibit I, Tab 3, Schedule 5.08 VECC 22.

UNDERTAKING

Undertaking

TO EXPLAIN VARIANCES IN EACH YEAR WITH RESPECT TO CCC No. 6, I4, 10.01.

Response

Restatement of Table in I4-CCC 6:

| \$M | 2009 | | 2010 | | 2011 | | 2012 | |
|----------------------------|----------|----------------|----------|----------------|----------|----------------|--------|----------------|
| | Historic | Board Approved | Historic | Board Approved | Historic | Board Approved | Bridge | Board Approved |
| Secondary Land Use | 14.2 | 11.4 | 17.4 | 11.3 | 20.6 | 12.6 | 13.3 | 12.5 |
| Stations Maintenance | 14.6 | 3.4 | 14.7 | 2.9 | 11.3 | 4.6 | 10.2 | 3 |
| Engineering & Construction | 3.2 | 1.5 | 6.5 | 1.5 | 3.6 | 11 | 11.8 | 6 |
| Other External Revenues | 3.2 | 2.3 | 3.8 | 2.3 | 6.1 | 3.2 | 3.3 | 3.2 |
| Totals | 35.2 | 18.6 | 42.4 | 18.0 | 41.6 | 31.3 | 38.6 | 24.7 |

Please find below an explanation of the material variances between the Board Approved External revenue forecasts and actual amounts.

Secondary Land Use

Higher revenues from Secondary Land Use, in particular one-time land sales, such as TTC Subway Finch West, and City of Mississauga. One-time release of easement rights to Toronto Hydro.

Higher revenues from Secondary Land Use for one timing granting of easement rights to the Municipality of York and the City of Toronto for trunk sewer lines.

Stations Maintenance

The Stations Maintenance budget had forecast lower revenues from OPG and Bruce Power given that both organizations had indicated an expectation to reduce the volume of contracting work with Hydro One and to use other service providers for portions of their station maintenance work. To date, OPG and Bruce Power have continued to engage Hydro One for maintenance support at approximately the same levels and consequently revenue has remained near historic levels resulting in higher actuals than budgeted.

Engineering & Construction

The volume of external metering projects has proven difficult to forecast. In 2010, Hydro One saw an increase in external metering projects as compared to forecast whereas the volume in 2011 was lower than expected during the year.

Filed: October 19, 2012

EB-2012-0031

Exhibit KT1.23

Page 2 of 2

1 **Other External Revenue**

2

3 The increase in 2011 is mainly due to higher revenue for Health Safety and Environment

4 Programs and additional work for Remotes and Telecom.

UNDERTAKING

Undertaking

TO PROVIDE BREAKDOWN OF THE TABLES ON PAGE 9 AND PAGE 19 OF THE ORIGINAL EVIDENCE, WITH REFERENCE TO STAFF 29, I5, 1.07.

Response

Breakdown of the Asset at a Glance tables on pages 9 and 19 of Exhibit C1, Tab 2, Schedule 2 is provided in Tables 1 and 2 below by type of breaker and type of transformer respectively.

**Table 1
Breakdown of Circuit Breakers at Glance**

| Breaker Type | Nominal Voltage Category (kV) | Total # Replaced 2009-2011 | Total # Replaced 2012-2014 | Typical Cost Range (\$M) |
|---------------------|--------------------------------------|-----------------------------------|-----------------------------------|---------------------------------|
| AIR BLAST | <50kV | 2 | 0 | 0.3 - 0.7 |
| | 230 | 14 | 51 | 1.0 - 2.5 |
| | 500 | 0 | 3 | 1.5 - 3.0 |
| BULK OIL | <50kV | 45 | 47 | 0.3 - 0.7 |
| | 115 | 7 | 22 | 0.4 - 0.8 |
| | 230 | 16 | 12 | 0.5 - 0.9 |
| METALCLAD | <50kV | 52 | 77 | 0.1 - 1.8 |
| SF6 | <50kV | 47 | 48 | 0.3 - 0.7 |
| | 115 | 18 | 6 | 0.3 - 0.8 |
| | 230 | 1 | 6 | 0.5 - 0.9 |
| | 500 | 0 | 3 | 1.0 - 3.0 |
| VACUUM | <50kV | 8 | 10 | 0.3 - 0.7 |
| GIS SF6 | 230 | 4 | 0 | 2.0 - 3.0 |

**Table 2
Breakdown of Transformers at a Glance**

| Transformer Type | Total # Replaced 2009-2011 | Total # Replaced 2012-2014 | Typical Cost Range (\$M) |
|--------------------------------|-----------------------------------|-----------------------------------|---------------------------------|
| STEP DOWN (42 – 125MVA) | 26 | 44 | 4.0 - 10.0 |
| AUTOTRANSFORMER (250 – 750MVA) | 4 | 9 | 5.0 - 25.0 |
| REACTOR | 0 | 2 | 1.0 - 3.0 |
| REGULATOR | 0 | 1 | 2.0 - 3.0 |

UNDERTAKING

Undertaking

**TO ADVISE IF OTHER UTILITIES ARE USING COMPOSITE POLES, AND
PROVIDE ANY FEEDBACK, WITH REFERENCE TO STAFF 33, I5, 1.11.**

Response

Similar to Hydro One, other utilities are currently installing and evaluating the use of composite poles. Some of these utilities are Great Lakes Power, Enmax, BC Hydro, AltaLink, Epcor Power, Cornwall Electric, and Nova Scotia Power.

UNDERTAKING

Undertaking

**TO EXPLAIN VARIANCES IN TRANSFORMER SWITCH YARD
MAINTENANCE COSTS BETWEEN 2011 AND 2013 WITH REFERENCE TO
SEC 15, I5, 9.08.**

Response

The Tx Switchyard Maintenance costs presented in the table within Exhibit I, Tab 5, Schedule 9.08 SEC 15 include both preventive and corrective maintenance costs. Corrective maintenance costs involve demand work which fluctuates from year to year in order to adequately sustain the transmission system assets. Therefore, variations in the actual costs from year to year can be expected.

The decrease in the bridge year (2012) cost is partially attributed to sustainment work program adjustments to accommodate the overall Transmission business OM&A budget reductions as referenced in Exhibit I, Tab 5, Schedule 1.01 Staff 23.

The costs presented in the test years (2013/2014) reflect the costs expected to sustain the transmission switchyards which are further described in Exhibit C1, Tab 3, Schedule 2, Section 3.6 pages 36-39.

UNDERTAKING

Undertaking

TO PROVIDE BREAKDOWN OF ANSWER TO ENERGY PROBE 31, PART (E).

Response

As stated in Exhibit D1, Tab 4, Schedule 3, the Cornerstone Savings have been developed as a part of each major implementation phase.

Within each Phase of the Cornerstone Program financial benefits are identified up front as part of the discovery and business case process. The benefits are validated with the applicable business leads in each Hydro One Line of Business, and reflected in applicable business plans and budgets with associated allocation to Capital/OM&A and Transmission and Distribution. Once the project is live and in service, benefits are tracked by Hydro One staff. The Business Transformation Sub-Committee of Hydro One's Board of Directors receives regular updates on the benefits realized by the Cornerstone Program. Benefits are also further validated by Hydro One's Internal Audit team.

Cornerstone Phase 1 and Phase 2 and in-service portions of Phase 3 have been implemented within an integrated SAP solution of EAM, ERP and BI; savings are tracked based on the integrated solution. Phase 1 and Phase 2 Savings have an end target of \$250M over 7 years and Phase 3 has an end target in the range of \$160-\$200M of savings. These savings are being realized across 3 primary areas: Strategic Sourcing and Discount Capture; Headcount reductions relative to the EB-2010-0002 filing; and through the rationalization of legacy IT systems. For specific details on these three primary savings areas, please refer to Tables 1-3 as well as the preceding descriptions in Exhibit D1, Tab 4, Schedule 3. Cornerstone Phase 4 savings are solely for Hydro Distribution, more details of which can be found in the EB-2012-0136 evidence.

As noted in Table 2 of Exhibit D1, Tab 4, Schedule 3, the actual benefits achieved to the end of 2011 total \$93M with a forecast of \$183M for 2012 through 2014. Savings beyond 2014 are forecasted at \$399M to \$439M for an overall program total savings of \$582M to \$622M.

UNDERTAKING

Undertaking

TO PROVIDE THE REVENUE REQUIREMENT IMPACT OF DRAFT PROTECTING PUBLIC SERVICES ACT IF IT WAS IMPLEMENTED FOR JANUARY 1ST, 2013, FOR EACH OF 2013 AND 2014; TO BREAK DOWN BY SALARY CAP MEASURE, THE GENERAL RATE FREEZE, THE PERFORMANCE PAY MEASURES AND PROVISIONS REGARDING BENEFITS PREREQUISITES; WITH REGARD TO SCHEDULE 2 OF THE DRAFT RESPECTING COLLECTIVE BARGAINING ACT FOR 2012, TO PROVIDE THE REVENUE REQUIREMENT IMPACT FOR THE POWER WORKERS AND THE SOCIETY DURING THE NINE MONTHS OF 2013, AND 2014; TO PROVIDE THE REVENUE IMPACT FOR THOSE TEST YEARS AND THE INCREASE OF WAGES FOR ZERO PERCENT, AND THEN IN INCREMENTS OF QUARTER PERCENT TO 3 PERCENT.

Response

**Revenue Requirement Impact of Draft
Protecting Public Services Act - Schedule 1**

\$ Millions

| MCP | 2013 | 2014 |
|-----------------------|---------------|---------------|
| Wage Freeze | (0.68) | (0.77) |
| Salary Cap | (0.15) | (0.18) |
| Performance Pay | (0.07) | (0.16) |
| Provision of Benefits | 0.00 | 0.00 |
| | <u>(0.90)</u> | <u>(1.10)</u> |

1

**Revenue Requirement Impact of Draft Protecting Public Services Act -
Schedule 2**

| \$ Millions | | | | | | |
|-------------|---------|--------|--------|--------|--------|--------|
| Escalation | Society | | PWU | | Total | |
| | 2013 | 2014 | 2013 | 2014 | 2013 | 2014 |
| 0.00% | (1.20) | (1.35) | (2.56) | (2.87) | (3.76) | (4.21) |
| 0.25% | (1.10) | (1.23) | (2.35) | (2.63) | (3.45) | (3.86) |
| 0.50% | (1.00) | (1.12) | (2.13) | (2.39) | (3.13) | (3.51) |
| 0.75% | (0.90) | (1.01) | (1.92) | (2.15) | (2.82) | (3.16) |
| 1.00% | (0.80) | (0.90) | (1.71) | (1.91) | (2.51) | (2.81) |
| 1.25% | (0.70) | (0.79) | (1.49) | (1.67) | (2.19) | (2.46) |
| 1.50% | (0.60) | (0.67) | (1.28) | (1.43) | (1.88) | (2.11) |
| 1.75% | (0.50) | (0.56) | (1.07) | (1.19) | (1.57) | (1.76) |
| 2.00% | (0.40) | (0.45) | (0.85) | (0.96) | (1.25) | (1.40) |
| 2.25% | (0.30) | (0.34) | (0.64) | (0.72) | (0.94) | (1.05) |
| 2.50% | (0.20) | (0.22) | (0.43) | (0.48) | (0.63) | (0.70) |
| 2.75% | (0.10) | (0.11) | (0.21) | (0.24) | (0.31) | (0.35) |
| 3.00% | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |

2

UNDERTAKING

Undertaking

TO ADVISE HOW MANY ABCB PROJECTS WERE PLANNED FOR 2011 AND 2012.

Response

Please see the table below for the 2011 and 2012 actual vs planned number of air blast circuit breaker (ABCB) replacements under the Sustainment capital work program.

| Project | EB-2010-0002 ISD# | 2011 Planned | 2011 Actual | 2012 Planned | 2012 Actual |
|----------------|--------------------------|-------------------------|------------------------|-------------------------|------------------------|
| Beck #1 SS | S4 | 1 | 0 | 2 | 0 |
| Nanticoke TS | S6 | 1 | 1 | 0 | 0 |
| Orangeville TS | S7 | 2 | 0 | 2 | 3 |
| Richview TS | S8 | 1 | 0 | 2 | 0 |
| Hanmer TS | S9 | 2 | 0 | 3 | 0 |
| Pickering SS | S10 | 1 | 1 | 1 | 1 |
| Total | | 8 | 2 | 10 | 4 |

UNDERTAKING

Undertaking

**EXPLAIN DELAY FOR PROJECT DESCRIBED IN EXHIBIT I, TAB 12,
SCHEDULE 1.12 STAFF 65**

Response

The evidence filed May 28, 2012 had a planned 2014 in-service date for this project to replace the metalclad switchgear at Albion TS. This in-service date was subsequently updated to 2015 in the August 15th update due to delays associated with complexity around coordination of the work with the affected LDC. Updates to the in-service additions in the test years were also made and are outlined in Exhibit I, Tab 12, Schedule 1.03 Staff 56 Table 4.

UNDERTAKING

Undertaking

**EXPLAIN ADDITIONAL ASSUMPTIONS REFERRED TO IN RESPONSE TO
BOARD STAFF TECHNICAL CONFERENCE QUESTION 12 (C).**

Response

The projection assumptions referred to in the response to Board Staff Technical Conference Question 12 (c) are the same projection assumptions that are identified in the table of assumptions and projection assumptions, that is also included as part of the response to Board Staff Technical Conference Question 12 part c) (refer to page 4 of 5).

UNDERTAKING

Undertaking

TO PROVIDE AN ESTIMATE OF 2013 CORPORATE PENSION EXPENSE AND 2014 CORPORATE PENSION EXPENSE ON THE ACCRUAL METHOD USING THE MOST UP-TO-DATE ACTUARIAL ASSUMPTIONS.

Response

In the Technical Conference, OEB Staff questioned the projected increase in the 2013 and 2014 US GAAP pension expense on an accrual basis compared to the 2011 expense. In particular, an approximation of the impact on accrued pension expense from changing interest rates was presented and a request was made to reconcile the estimate to the projected 2013 and 2014 accrual expense.

The Company has the following comments on the calculation presented by the Staff:

- The OEB Staff calculation attempts to relate the \$68 million amortization of actuarial losses in 2011 to the decrease in market interest rates during 2011. However, the \$68 million amount is an amortization of accumulated unrecognized amounts at the beginning of 2011. The unrecognized amounts at the beginning of 2011 are in respect of several prior years' experience losses for the plan's obligations and the pension fund investment experience.
- The OEB Staff calculation makes reference to the \$293 million dollar interest rate sensitivity provided in Hydro One's response to question 12c of the Staff Questions for the Technical Conference. In particular, the \$293 million is used as the impact on plan obligations resulting from a 100 basis point decrease in the US GAAP discount rate. However, the \$293 million is the total projected 2013 accrual expense resulting from a 100 basis point decrease in the discount rate from December 31, 2011 interest rate levels. The \$293 million figure recognizes the impact on all components of the accrual expense, in particular the plan's current service cost, interest cost, and the amortization of accumulated unrecognized actuarial losses. This figure cannot be used to approximate the impact of interest rate changes on the plan's obligations.
- The OEB Staff calculation underestimates the impact of a decrease in the US GAAP discount rate on the accrual expense. The OEB calculation does not recognize the significant impact on the employer current service cost resulting from a decrease in the discount rate and underestimates the actuarial loss on the plan's past service obligation resulting from a decrease in the discount rate.

In connection with the projected US GAAP accrual expense, OEB Staff also asked the Company to comment on the impact on the projected accrual expense if the calculations reflected financial market conditions at the time the Cost of Service Application was prepared (i.e. February 2012). We note the following regarding the key financial market experience through the end of February for purposes of the projected US GAAP accrual expense:

- Investment returns (net of expenses) on the Hydro One Pension Plan fund were roughly 3.7% for the first two months of 2012.
- Market yields on high-quality Canadian corporate bonds with a duration similar to the pension plan obligations decreased by roughly 20 basis points.

The net impact of these two financial market changes would not materially impact the projected pension costs. Gains on the pension fund resulting from the strong investment return to the end of February would be offset by the increase in plan obligations and service cost resulting from the decrease in the US GAAP discount rate.

The following table compares the projected 2013 and 2014 US GAAP accrual expense under the alternative economic scenario which recognizes financial market experience up to the end of February 2012 (i.e. a decrease of 20 basis points in the US GAAP discount rate and actual pension fund investment returns to the end of February).

| | Base | Reflecting February 2012 Market Conditions |
|--------------------------|---------------|---|
| 2013 accrual. expense | \$194 million | \$193 million |
| 2014 accrual. expense | \$182 million | \$180 million |

UNDERTAKING

Undertaking

TO EXPLAIN INCREASED OPEB COSTS.

Response

OPRB expense over the 2011-2014 period has increased as a result of the growth in payroll, health care inflation, and the interest cost on the unfunded liability.

Specifically:

- Salary growth assumption: The salary growth assumption used in the expense projection is based on the age and service of the employees. The salary growth assumption increases the retiree life insurance and retirement bonus related to the accumulated postretirement benefit obligation (APBO) and the service cost component of the expense.
- Health care inflation assumption: The weighted health care inflation assumption used in the expense projection is 7.12% per annum grading down to 4.5% per annum over 20 years. The health care inflation assumption increases the retiree health care related APBO and the service cost component of the expense.
- Financing cost of unfunded liability: As the APBO grows, the financing cost component of the expense also increases. The interest rate used to determine the financing cost component of the expense is 5.25% per annum.
- As a result of year-over-year changes in the forecast Networks work programs, a larger proportion of labour costs (including OPRB) has been directed to Transmission in the 2012 business plan compared to the 2010 plan.
- In addition, headcount in the plans increased from 2012 to 2013 and discount rates decreased.

UNDERTAKING

Undertaking

TO CONFIRM IF OM&A PENSION EXPENSE ACTUAL IS ALLOCATED IN THE SAME MANNER AS UNDERLYING REVENUE REQUIREMENT, IN TERMS OF THE DIFFERENCE BETWEEN OM&A AND CAPITAL.

Response

The 2011 number of \$34.4 million is the transmission expense portion of 2011's annual pension cost (i.e. contribution). As this amount is itself the transmission OM&A portion of the pension contribution, no component of it is allocated to OM&A.

UNDERTAKING

Undertaking

**EXPLAIN THE \$20.4-MILLION DEBIT BALANCE REFERRED TO IN BOARD
STAFF IR NO. 77 DEFERRAL AND VARIANCE ACCOUNT CONTINUITY
SCHEDULE.**

Response

The \$20.4 million in this column represents the Board-approved drawdown/amortisation
of regulatory account balances amounts during 2010.

UNDERTAKING

Undertaking

TO EXPLAIN REASON FOR STANDARD COST ESCALATION OF 6.2 PERCENT FOR 2013.

Response

The escalation rates provided in the response to OEB Staff Technical Conference Question 8 were the percentage changes year over year in the Operations Support program and do not represent a rate that is applied to specific program, labour or contract increases. The derivation of the 6.2% increase for 2013 is shown in the table below.

The “cost escalation” rates which underpin this application are found in Exhibit A, Tab 13, Schedule 1, Appendix A.

The 6.2 percent increase in 2013, which equates to an overall increase of \$1.5 million is attributed to the following program changes:

| Program | \$ Change Year over Year | Rationale |
|--|--------------------------|--|
| Load Transfer Studies | \$0.6M | This increase is attributed to a decreased requirement in funding in 2012. 2013 funding level is consistent with historic levels. |
| Operating/Control Facilities Support & Maintenance | \$0.7M | Consists of Service Contracts escalated at 3% and Labour cost which was escalated at 5%. 5% was used in lieu of the 3% corporate standard to reflect the effect of the increase in capital work. |
| Field Switching – Stations | \$0.2M | This increase is attributed to the increase in the capital work program as well as the increase in generation connections. |
| Total | \$1.5M | |