DECEMBER 15, 2023

Market Renewal – Energy Project Implementation Market Settlements

Denise Myers – Supervisor, Market Settlements
Shirley Gu – Senior Settlement Analyst, Market Settlements

ieso
Connecting Today. Powering Tomorrow.

Agenda

1. Summary of stakeholder feedback on Settlements implementation design modifications

2. Sample Intertie Failure Charge calculations

3. Changes to non-dispatchable generation resources equation

Webinar Participation

- Ways to interact in today's webinar:
  - Raise your hand (click the "Raise hand" button in the top right corner) to let the host know you'd like to verbally ask a question or make a comment. The host will let you know when to unmute
  - Enter a written question/comment in the chat. The host will read it out for you
- Microphones should be muted at all times, unless the host has called on you to unmute yourself

Stakeholder Feedback on Settlements Implementation Design Modifications - Summary

Feedback on Settlements Implementation Modifications

- Recall that during the September 21, 2023 engagement webinar, the IESO presented proposed modifications to the following three charges:
  - Corrections to DAM Balancing Credit formulas to align with design intent
  - Modified Intertie Failure Charges to address potential gaming issues
  - Alignment of ORA with MRP design
- The IESO received feedback from three stakeholders on these changes, and a summary of significant items is provided on the following slides

Stakeholder Feedback and IESO Responses – DAM Balancing Credit and Intertie Failure Charges

Stakeholder Feedback:

- Both Scenario 1 and 2 are situations where DAM QSI is greater than SQEI/SQEW. Please confirm if the DAM Balancing Credit can ever negatively impact a Market Participant
- Could you please provide a simple scenario in the slides for DAM Intertie failure charge, similar to how an OR claw back example was demonstrated, for the new formulas?

IESO Response:

- DAM Balancing Credit will not negatively impact a market participant as it is always a payment
- New scenarios for Intertie Failure charges are provided below

Stakeholder Feedback and IESO Responses – ORA design

Stakeholder Feedback:

- We are concerned by how ex-ante Market Power Mitigation, which can change a MP's offer and replace it with a reference level quantity, might cause a MP's total OR offers to be inconsistent with their total accessible OR quantity (e.g., resulting in over-commitment)

IESO Response:

- Ex-ante mitigation does not replace offered quantities with reference quantities. The assessment of physical withholding, which uses reference quantities as an input, is carried out after-the-fact and does not alter schedules or prices

Stakeholder Feedback and IESO Responses – ORA design

Stakeholder Feedback:

- Please confirm if information regarding the determination and reallocating of excess available headroom (REAH) are published. If yes, in which report?

IESO Response:

- The Reallocating of excess available headroom (REAH) will be provided as an attribute of the ORA clawback charges on the settlement statement for the applicable resource

Stakeholder Feedback and IESO Responses – ORA design

Stakeholder Feedback:

- Has there been an assessment to determine if the implementation efforts to be undertaken by the IESO and MPs for at least 8 new charge codes (including DAM Import/Export Failure charge, RT MWP, and GOG claw back for each OR class) are justified in terms of cost versus projected savings?

IESO Response:

- The new DAM intertie failure charges are necessary because traders may have information of the potential RT intertie price prior to the transaction flowing which may incentivize the traders to purposefully fail the transaction
- The RT MWP and RT GOG claw backs are based on the principle that a market participation should not receive compensation for energy it was not capable of providing. This principle is consistent with the principles of the ORA clawback in the current market

Intertie Failure Charge

Intertie Failure Charge - Recap

- Discourages market participants from failing transactions by applying a financial charge
- Transactions that failed in day-ahead will be charged RT external congestion and RT NISL
- Transactions that failed in real-time will be charged RT Intertie border price as well as the impact to RT external congestion and RT NISL
- The new day-ahead import and export failure charges will be settled under charge type 1828 and 1829 respectively
- The real-time import and export failure charges (CT 135,136) will be retired and replaced with new charge types 1928 and 1929

Intertie Failure Charge Sample Calculations

Import Scenario

- Day-ahead: An import transaction is scheduled in DAM for HE 10 for 100MW
- Pre-dispatch: PD engine increases the transaction to 150 MW
- Real-time: the transaction fails to flow in real-time with a curtailment code of “OTH”

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$5	$55	-$20	-$30

RT Price and Schedule HE10 Interval 1					
RT_SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

Energy Settlement - Import

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

DAM Energy Settlement for HE10:

HPTSA(1) = DAM_QSI x DAM_LMP

HPTSA(1) = 100MW x $35 = **$3500**

Import receives $3500 of energy payment in DAM

RT Price and Schedule HE10					
SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

** Assumption: All real-time calculations should be done on an interval level as per the Market Rule. The calculations in this presentation are done on an hourly basis for demonstration purpose.*

Real-time Balancing Settlement for HE10:

HPTSA(2) = (SQEI - DAM_QSI) x RT_LMP

HPTSA(2) = (0MW-100MW) x 5$ = **-$500**

Import buys back energy at -$500 in RT

DAM Import Failure Charge

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$5	$55	-$20	-$30

RT Price and Schedule HE10					
SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

DAM Failed Imports MW:

$$DAM\_ISD_{k,h}^{i,t} = MAX\left(MIN\left(DAM\_QSI_{k,h}^{i}, PD\_QSI_{k,h}^{i}\right) - SQEI_{k,h}^{i,t}, 0\right)$$

DAM Failed Imports MW for HE10:

DAM_ISD = MAX(MIN(DAM_QSI, PD_QSI) – SQEI,0)

DAM_ISD = MAX(MIN(100, 150) – 0,0)

DAM_ISD = MAX(100 – 0,0) = **100**

DAM Import Failure Charge

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$5	$55	-$20	-$30

RT Price and Schedule HE10					
SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

DAM Import Failure Charge:

$$DAM\_IMFC_{k,h}^{i} = \sum^{T} MIN\left(0, \left(RT\_PEC_{h}^{i,t} + RT\_PNISL_{h}^{i,t}\right) \times DAM\_ISD_{k,h}^{i,t}/12\right)$$

DAM Import Failure Charge for HE10:

DAM_IMFC = MIN(0,(RT_PEC + RT_PNISL) x DAM_ISD)

DAM_IMFC = MIN(0,(-$33 + (-$22)) x 100)

DAM_IMFC = MIN(0,(-$55 x 100))

DAM_IMFC = **-$5500**

Import is charged with **-$5500** for failed DAM MW of 100MW.

RT Import Failure Charge - Formula

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$5	$55	-$20	-$30

RT Price and Schedule HE10					
SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

RT Failed Import MW:

$$RT\_ISD_{k,h}^{i,t} = MAX\left(PD\_QSI_{k,h}^{i} - MAX\left(DAM\_QSI_{k,h}^{i}, SQEI_{k,h}^{i,t}\right), 0\right)$$

RT Failed Imports MW for HE 10:

RT_ISD = MAX(PD_QSI - MAX(DAM_QSI,SQEI),0)

RT_ISD = MAX(150 - MAX(100,0),0)

RT_ISD = MAX(150 - 100,0) = **50**

** Assumption: All real-time calculations should be done on an interval level as per the Market Rule. The calculations in this presentation are done on an hourly basis for demonstration purpose.*

RT Import Failure Charge - Formula

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$5	$55	-$20	-$30

RT Price and Schedule HE10					
SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

RT Import Failure Charge:

$$RT\_IMFC_{k,h}^{i}$$
$$= \sum^{T} \Big[(-1)$$
$$\times MIN\Big(MAX\big(0, \big(RT\_IBP_{h}^{i,t} + PB\_IM_{h}^{t} - PD\_IBP_{h}^{i}\big) \times RT\_ISD_{k,h}^{i,t}\big),$$
$$MAX\big(0, RT\_IBP_{h}^{i,t} \times RT\_ISD_{k,h}^{i,t}\big)\Big)$$
$$+ MIN\big(0, \big(RT\_PEC_{h}^{i,t} + RT\_PNISL_{h}^{i,t}\big) \times RT\_ISD_{k,h}^{i,t}\big)\Big] / 12$$

RT Import Failure Charge - Formula

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$5	$55	-$20	-$30

RT Price and Schedule HE10					
SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

RT Import Failure Charge for HE 10:

RT_IMFC = ***-1 x MIN(MAX(0,(RT_IBP + PB_IM - PD_IBP) x RT_ISD), MAX(0, RT_IBP x RT_ISD))*** + MIN(0,(RT_PEC + RT_PNISL) x RT_ISD)

RT_IMFC = ***-1 x MIN(MAX(0, ($60 + 2 - $55) x 50), MAX(0, $60 x 50))***

+ MIN(0,(RT_PEC + RT_PNISL) x RT_ISD)

RT_IMFC = ***-1 x MIN(MAX(0, ($7) x 50), MAX(0, $3000))***

+MIN(0,(RT_PEC + RT_PNISL) x RT_ISD)

RT_IMFC = ***-1 x MIN($350, $3000)*** + MIN(0,(RT_PEC + RT_PNISL) x RT_ISD)

RT_IMFC = ***-$350*** + MIN(0,(RT_PEC +RT_PNISL) x RT_ISD)

RT Import Failure Charge

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$35	$60	-$10	-$15

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$5	$55	-$20	-$30

RT Price and Schedule HE10					
SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$5	$60	-$33	-$22	2

RT Import Failure Charge for HE 10 continued:

RT_IMFC = *-$350* ***+ MIN(0,(RT_PEC + RT_PNISL) x RT_ISD)***

RT_IMFC = *-$350* ***+ MIN(0, (-$33 + (-$22)) x 50)***

RT_IMFC = *-$350* ***+ MIN(0, -$55 x 50)***

RT_IMFC = *-$350* ***- $2750***

RT_IMFC = -$3100

Import is charged with **-$3100** for failed RT MW of 50MW

Settlement Statement Amount

The following amounts will appear on the settlement statement for the import:

Settlement Amount on Settlement Statement (HE10)		
CT	***Charge Type Name***	***Amount***
1110	Day-Ahead Market Energy Settlement for Imports	$3500
1111	Real-Time Energy Settlement for Imports	-$500
1828	Day-Ahead Market Import Failure Charge	-$5500
1928	Real-Time Import Failure Charge	-$3100

Export Scenario

- Day-ahead: An export transaction is scheduled in DAM for HE 10 for 100MW
- Pre-dispatch: PD engine increases the transaction to 150 MW
- Real-time: the transaction fails to flow in real-time with a curtailment code of “OTH”

DA Price and Schedule HE10				
DAM_QSI	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

PD Price and Schedule HE10				
PD_QSI	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$395	$250	$75	$70

RT Price and Schedule HE10 Interval 1					
RT_SQEI	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_IM***
0	$210	$65	$75	$70	2

Energy Settlement for Export

DA Price and Schedule HE10				
DAM_QSW	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

RT Price and Schedule HE10					
SQEW	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_EX***
0	$210	$65	$75	$70	2

** Assumption: All real-time calculations should be done on an interval level as per the Market Rule. The calculations in this presentation are done on an hourly basis for demonstration purpose.*

DAM Energy Settlement for HE10:

HPTSA(1) = -DAM_QSW x DAM_LMP

HPTSA(1) = -100MW x $80 = **-$8000**

Export is charged with **-$8000** of energy in DAM

Real-time Balancing Settlement for HE10

HPTSA(2) = -(SQEW - DAM_QSW) x RT_LMP

HPTSA(2) = -(0MW - 100MW) x $210 = **$21000**

Export is paid **$21000** of unfilled energy in RT

DAM Export Failure Charge - Formula

DA Price and Schedule HE10				
DAM_QSW	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

PD Price and Schedule HE10				
PD_QSW	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$395	$250	$75	$70

RT Price and Schedule HE10					
SQEW	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_EX***
0	$210	$65	$75	$70	2

DAM Failed Export MW:

$$DAM\_ESD_{k,h}^{i,t} = MAX\left(MIN\left(DAM\_QSW_{k,h}^{i}, PD\_QSW_{k,h}^{i}\right) - SQEW_{k,h}^{i,t}, 0\right)$$

DAM Failed Exports MW for HE10:

DAM_ESD = MAX(MIN(DAM_QSW, PD_QSW) – SQEW,0)

DAM_ESD = MAX(MIN(100, 150) – 0,0)

DAM_ESD = MAX(100 – 0,0) = **100**

DAM Export Failure Charge - Formula

DA Price and Schedule HE10				
DAM_QSW	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

PD Price and Schedule HE10				
PD_QSW	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$395	$250	$75	$70

RT Price and Schedule HE10					
SQEW	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_EX***
0	$210	$65	$75	$70	2

DAM Export Failure Charge:

$$DAM\_EXFC_{k,h}^{i} = \sum^{T} (-1) \times MAX\left(0, \left(RT\_PEC_{h}^{i,t} + RT\_PNISL_{h}^{i,t}\right) \times DAM\_ESD_{k,h}^{i,t}/12\right)$$

DAM Export Failure Charge for HE10:

DAM_EXFC = -1 x MAX(0, (RT_PEC + RT_PNISL) x DAM_ESD)

DAM_EXFC = -1 x MAX(0, ($75 + $70) x 100)

DAM_EXFC = -1 x MAX(0, $145 x 100)

DAM_EXFC = **-$14500**

Export is charged with **-$14500** for failed DAM MW of 100MW.

RT Export Failure Charge - Formula

DA Price and Schedule HE10				
DAM_QSW	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

PD Price and Schedule HE10				
PD_QSW	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$395	$250	$7	$70

RT Price and Schedule HE10					
SQEW	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_EX***
0	$210	$65	$75	$70	2

RT Failed Export MW:

$$RT\_ESD_{k,h}^{i,t} = MAX\left(PD\_QSW_{k,h}^{i} - MAX\left(DAM\_QSW_{k,h}^{i}, SQEW_{k,h}^{i,t}\right), 0\right)$$

RT Failed Exports for HE 10:

RT_ESD = *MAX(PD_QSW - MAX(DAM_QSW, SQEW), 0)*

RT_ESD = *MAX(150 - MAX(100, 0), 0)*

RT_ESD = MAX(150 - 100, 0) = **50**

** Assumption: All real-time calculations should be done on an interval level as per the Market Rule. The calculations in this presentation are done on an hourly basis for demonstration purpose.*

RT Export Failure Charge - Formula

DA Price and Schedule HE10				
DAM_QSW	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

PD Price and Schedule HE10				
PD_QSW	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$395	$250	$7	$70

RT Price and Schedule HE10					
SQEW	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_EX***
0	$210	$65	$75	$70	2

RT Export Failure Charge:

$$RT\_EXFC_{k,h}^{i} = \sum^{T} \Big[(-1) \times MIN\Big(MAX\big(0, \big(PD\_IBP_{h}^{i} - PB\_EX_{h}^{t} - RT\_IBP_{h}^{i,t}\big) \times RT\_ESD_{k,h}^{i,t}\big), MAX\big(0, PD\_IBP_{h}^{i} \times RT\_ESD_{k,h}^{i,t}\big)\Big) - MAX\big(0, \big(RT\_PEC_{h}^{i,t} + RT\_PNISL_{h}^{i,t}\big) \times RT\_ESD_{k,h}^{i,t}\big)\Big] / 12$$

RT Export Failure Charge

DA Price and Schedule HE10				
DAM_QSW	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

PD Price and Schedule HE10				
PD_QSW	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$395	$250	$7	$70

RT Price and Schedule HE10					
SQEW	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_EX***
0	$210	$65	$75	$70	2

RT Export Failure Charge for HE 10 :

RT_EXFC = ***-1 x MIN(MAX(0, (PD_IBP - PB_EX - RT_IBP) x RT_ESD), MAX(0,PD_IBP x RT_ESD))*** - MAX(0,(RT_PEC + RT_PNISL) x RT_ESD)

RT_EXFC = ***-1 x MIN(MAX(0, ($250 - 2 - $65) x 50), MAX(0, $250 x 50))***

- MAX(0,(RT_PEC + RT_PNISL) x RT_ESD)

RT_EXFC = ***-1 x MIN(MAX(0, ($183) x 50), MAX(0, $12500))***

- MAX(0,(RT_PEC + RT_PNISL) x RT_ESD)

RT_EXFC = ***-1 x MIN($9150, $12500)*** - MAX(0,(RT_PEC + RT_PNISL) x RT_ESD)

RT_EXFC = ***-$9150*** - MAX(0,(RT_PEC + RT_PNISL) x RT_ESD)

RT Export Failure Charge

DA Price and Schedule HE10				
DAM_QSW	***DAM_LMP***	***DAM_IBP***	***DA_PEC***	***DA_PNISL***
100	$80	$20	$50	$10

PD Price and Schedule HE10				
PD_QSW	***PD_LMP***	***PD_IBP***	***PD_PEC***	***PD_PNISL***
150	$395	$250	$7	$70

RT Price and Schedule HE10					
SQEW	***RT_LMP***	***RT_IBP***	***RT_PEC***	***RT_PNISL***	***PB_EX***
0	$210	$65	$75	$70	2

RT Export Failure Charge for HE 10 continued :

RT_EXFC = -$9150 **- *MAX(0, (RT_PEC + RT_PNISL) x RT_ESD)***

RT_EXFC = -$9150 - ***MAX(0, ($75 + $70) x 50)***

RT_EXFC = -$9150 - ***MAX(0, $145 x 50)***

RT_EXFC = -$9150 - ***$7250***

RT_EXFC = -$16400

Export is charged with **-$16400** for failed RT MW of 50MW.

Settlement Statement Amount

The following amounts will appear on the settlement statement for the export:

Settlement Amount on Settlement Statement (HE 10)		
CT	***Charge Type Name***	***Amount***
1112	Day-Ahead Market Energy Settlement for Exports	-$8000
1113	Real-Time Energy Settlement for Exports	$21000
1829	Day-Ahead Market Export Failure Charge	-$14500
1929	Real-Time Export Failure Charge	-$16400

Changes to non-dispatchable generator resources equation (HPTSA_NDG)

Non-dispatchable Generators and Self-scheduling Electricity Resources

- Non-dispatchable generation resources and self-scheduling electricity storage resources participate in day-ahead market by submitting dispatch data indicating the amount of energy expected to be provided to the day-ahead market
- The IESO's initial proposed implementation did not account for MWs scheduled in the day-ahead market for these resources, and as such, they would be settled based on actual injection at RT LMP. This would be inconsistent with the design intent
- Non-dispatchable resources and self-scheduling electricity storage resources that are injecting should be subjected to two-settlement in order to account for the MWs scheduled in day-ahead market

Changes to Non-dispatchable Generators Formula

- The hourly physical transaction settlement amount for non-dispatchable generation resources in Chapter 9, section 3.2.4.1 and shown below will be deleted from the market rules.

$$HPTSA\_NDG_{k,h} = RT\_LMP_{h}^{m,t} \times \left(AQEI_{k,h}^{m,t} - AQEW_{k,h}^{m,t}\right)$$

- Charge code 1114 will also be deleted from Market Manual 5.5 and the IESO Charge Types and Equations document

Changes to Non-dispatchable Generator Formula

- Non-dispatchable generation resources and self-scheduling electricity storage resources that are injecting will be added to the two-settlement equations under Chapter 9, section 3.1.3 and 3.1.6 as shown below:

$$HPTSA\{1\}_{k,h} = \sum^{M} [(DAM\_QSI^{m}_{k,h} - DAM\_QSW^{m}_{k,h})\ x\ DAM\_LMP^{m}_{h} + (DAM\_QSI^{i}_{k,h} - DAM\_QSW^{i}_{k,h})\ x\ DAM\_LMP^{i}_{h}]$$

$$HPTSA\{2\}_{k,h} = \sum^{M,T} RT\_LMP^{m,t}_{h}\ x \frac{((AQEI^{m,t}_{k,h} - DAM\_QSI^{m}_{k,h}) - (AQEW^{m,t}_{k,h} - DAM\_QSW^{m}_{k,h}))}{12} + RT\_LMP^{i,t}_{h}\ x \frac{((SQEI^{i,t}_{k,h} - DAM\_QSI^{i}_{k,h}) - (SQEW^{i,t}_{k,h} - DAM\_QSW^{i}_{k,h}))}{12}$$

- Non-dispatchable generation resources and self-scheduling electricity storage resources will be settled under charge codes 1100 and 1101 respectively

Next Steps

Next Steps:

Q1 2024 : Updates to the relevant documents will be posted for stakeholder review, and ultimately incorporated into the Final Alignment batch

Please send any further questions to engagement@ieso.ca