Stakeholder Feedback Form: MRP Energy Detailed Design

Design Document: Market Settlement

Date Submitted: 2020/08/07

Feedback Due: July 31, 2020

Feedback provided by:

- Company Name: Ontario Power Generation
- Contact Name: Greg Schabas

The IESO is posting a series of detailed design documents which together comprise the detailed design of the MRP energy stream.

This design document is posted to the following engagement webpage: http://ieso.ca/en/Market-Renewal/Energy-Stream-Designs/Detailed-Design.

Stakeholder feedback for this design document is due on July 31, 2020 to engagement@ieso.ca.

Please let us know if you have any questions.

IESO Engagement

General feedback on the Detailed Design Document

OPG's detailed review comments for the IESO Market Settlements draft detailed level design (DLD) are provided in the table below. The following list provides a brief summary of the main themes in our comments. OPG looks forward to working with the IESO to address/mitigate the issues we've identified so the final design can maximize market efficiency and minimize costs to ratepayers. Additional details on each of the following items is included in the detailed review comments.

- Details around a "settlement floor" were not included in this design document but were discussed at a previous negative pricing stakeholder session and a different value than the value discussed, included in the IESO's Day Ahead Calculation Engine Detailed Design Document. OPG would like clarification on the proposed changes to this design element.
- OPG would like the opportunity to re-review and provide additional comments on the Market Settlements detailed design document, as needed, following the review of the day ahead, pre-dispatch, and real-time calculation engine detailed design documents and any other fundamental changes that may be made through the Market Renewal Project when these design documents are integrated.
- It is critical for Market Participants to have complete and accurate market and settlement data from the IESO to properly reconcile settlement amounts. With the objective of providing increased data transparency, completeness, and timely availability, OPG has made recommendations within this table. This includes all variables used to calculate components for energy with detailed breakdowns for each type of operating reserve and new eligibility indicators for settlement amounts.
- Outputs from day-ahead, pre-dispatch, and real-time calculation engines will need to be assessed from a settlement perspective to determine which outputs are required to be included in private market reports and/or settlement data files.
- For Market Participants to have a better understanding of the new settlement mechanism designed as part of the Market Renewal Project, the IESO should provide examples of settlement calculations which show the data available for reconciliation, formulas used, eligibility criteria, etc... This could be delivered by the IESO, as Day in the Life scenarios for each type of facility registered to participate in the IESO market from Day Ahead offer submission to final settlement.
- The IESO needs to provide calculation examples and clarification for a number of items detailed in our comments below. OPG suggests the IESO should consider hosting webinars/workshops highlighting various calculation examples to provide clarity to Market Participants. OPG requests the IESO arrange workshops to demonstrate some Settlement Amount Calculation samples and end-to-end data flow from Market Calculation Engine to Settlement Modules. In the following comments, OPG has identified 6 new settlement amounts in 16 operational scenarios, which also require a list of newly introduced data elements, for IESO to expand upon through examples or workshops.

Section General: Linkages with other DLD Documents

Detailed Comment: Need to review in tandem with Caluclation enegive DLD documents

- There are many linkages between market settlements and the day ahead (DA), pre-dispatch (PD), and realtime (RT) calculation engines. A comprehensive review of the settlement detailed design cannot be complete without the opportunity to review the calculation engine designs. OPG would like the opportunity to review and provide additional comments on settlements, as needed, following the review of the DA, PD, and RT calculation engine detailed design documents.
- The IESO's response to the Publishing & Reporting Detailed Design comments indicated that market participants will be given a second opportunity for comments following the release/review of the calculation engine design documents. OPG further suggests the IESO augments these comments with stakeholder sessions for market participants to discuss their recommendations and/or proposals with each other and the IESO.

Section General: Omission

Detailed Comment: Settlement Floor

The application of "Settlement Floor Price" discussed at the Negative Pricing stakeholder session on February 13th, 2020 appears to be omitted from this design document. It is OPG's view that it should be included. At the Negative Pricing Stakeholder session the IESO stated:

"To address this, the IESO is proposing a settlement floor of -$20/MWh. This settlement floor would define the minimum price that a market participant can pay or be paid for its injection or withdrawal of energy in the IESO-administered market. The settlement floor price would be used in all timeframes, meaning an hourly basis in the Day-Ahead Market and a five minute interval basis in the Real-Time Market."

However, in the recently released Day Ahead Calculation Engine Detailed Design Document it states:

"$EngyPrcFlr$ shall designate the settlement floor price and be set equal to -$100/MWh;"

This is inconsistent with the value that the IESO had proposed at the Negative Pricing stakeholdering session, and if the IESO is imposing a settlement floor price of -$100/MWh it should be appropriately stakeholdered with MPs. Please provide the rationale for this new amount and the reason for the change from the initial proposed figure.

Section General: Settlements

Detailed Comment: Clarification between calculation of settlements at the resource or facility level

There are many instances in the document where it is stated that a settlement amount is calculated for a facility. It is OPG's understanding that settlement amounts will always be calculated at the resource level as they are in today's market. Are there any situations where settlement amounts are calculated at the facility level? If so, examples or scenarios should be provided.

Section General: Compliance Aggregation

Detailed Comment: Clarification required on settlement of compliance aggregation

The IESO should provide more information on how compliance aggregation will impact settlement amounts, such as but not limited to, real time make-whole payments and real time generator offer guarantee calculations.

Section 3.2: Transparency

Detailed Comment: Include Complete Information on Settlement Amounts in New Market for Better Transparency #1

Under the current system, settlement data provided to market participants does not always include all the data necessary for Market Participants to adequately verify the amounts. For example, IESO statements do not include a line item when market clearing price (MCP) is equal to zero, which means the statement does not have complete records for energy injection and withdrawal quantities.

For better transparency in the future market, OPG recommends future settlement statements include a detailed breakdown of calculations including all the necessary data for market participants to verify statement correctness. This should include line items when locational marginal prices are equal to zero.

Section 3.5: Transparency

Detailed Comment: Include Complete Information on Settlement Amounts in New Market for Better Transparency #2

As per the design, settlement-ready Dispatch Data including Prices and Schedules have three categories:

- As-offered,
- Mitigated and
- Enhanced Mitigated.

To allow for proper reconciliation of settlement amounts, it is important for Market Participants to have all three categories of data and the logic for when each type of data is to be used to calculate the settlement amount.

OPG recommends the IESO update the variable definitions, in section 3.5, to include an indicator to categorize dispatch data variables (like price, schedule, and offer/bid) and provide all three categories of data to market participants.

Section 3.7.1/3.7.2/3.7.5: Transparency

Detailed Comment: Include Complete Information on Settlement Amounts in New Market for Better Transparency #3

Settlement Amount vs Charge Types

The IESO should continue the current market solution to apply multiple charge types for those settlement amounts that have multiple components. Such breakdown details will allow Market Participants to perform financial reconciliation and reporting.

For example in section 3.7.1:

$$DAM\_MWPk,hm = Max[0, DAM\_COMP1k,hm + DAM\_COMP2k,hm]$$

Where

$$DAM\_COMP1k,hm = -1\ x\ Min\{0, [OP(DAM\_LMPhm, DAM\_QSIk,hm, DAM\_BEk,hm) -$$

$$OP(DAM\_LMPhm, DAM\_EOPk,hm, DAM\_BEk,hm)]\ \}$$

And

$$DAM\_COMP2k,hm = -1\ x$$

$$\Sigma Min\{0, [OP(DAM\_PRORr,hm, DAM\_QSORr,k,hm, DAM\_BORr,k,hm)R -$$

$$OP(DAM\_PRORr,hm, DAM\_EOPr,k,hm, DAM\_BORr,k,hm)]\}$$

DAM COMP1 and DAM COMP2 contain variables for energy, the three classes of operating reserve, outputs from the operating profit function, and the economic operating point. For proper reconciliation, all the variables should be provided to market participants and the components should have separate charge types.

Some of the other calculations where this comment applies are:

- RT_MWP which contains variables for lost cost and lost opportunity components for energy and operating reserve. These variables should be provided to the market participant
- $RT\_MWPk,hm = Max(0, ELCk,hm + ELOCk,hm) + Max(0, OLCk,hm + OLOCk,hm)$
- DAM_GOG & RT_GOG each have 5 components that should have separate charge types. The applicability of each variant should also be provided to market participants.

Detailed Comment: Include Complete Information on Settlement Amounts in New Market for Better Transparency #4

Per the design, the IESO has introduced new dispatch data, calculation engines, and mitigation processes; this consequently introduces a new and large set of settlement data and variables.

- OPG requests publishing timelines and further details on the format of new private reports and settlement data files for the new data and variables. Some examples of new data and variables requiring clarification are: mitigation test results produced by DA/PD/RT calculation engines Eligibility variables, results for settlement amounts like: DAM-MWP, RT-MWP, DAM-GOG, RT-GOG,

GFC and etc. For example, settlement data files should contain eligibility validation results in the form of an eligibility indicator (Y/N) to allow settlement amount reconciliation.

- Variant: defined for DAM_GOG and RT_GOG.
- Persistence Multiplier: used for settlement amounts like: RLSC and EXP_PWSC
- Ramp-up and Ramp-down indication information in DAM and RT produced NQS unit schedules

OPG also suggests the IESO include complete transaction lines in a statement or statement data file with eligibility indicator for settlement amounts like: DAM-MWP, RT-MWP, DAM-GOG, RT-GOG, GFC and etc.

Section 3.3.1/3.7.4: Transparency

Detailed Comment: DAM DRSU request for reports to allow reconciliation

On page 15 the design states:

“The day-ahead market will also introduce a new type of uplift payment known as the DAM Reliability Scheduling Uplift (DRSU). This uplift will recover the cost of committing additional registered facilities in the reliability scheduling pass of the DAM calculation engine from virtual supply transactions, loads and exports.”

On page 117 the design states:

”The detailed description of reliability scheduling pass of the DAM calculation engine is provided in the DAM Calculation Engine detailed design document. Schedules in this pass will be compared to either the as-offered scheduling pass or, if applicable, the mitigated scheduling pass to identify the new or incremental schedules that are caused by the reliability scheduling pass. The DAM_MWP and DAM_GOG being generated by these schedules will be uplifted on a cost causation basis because resources that are committed in the reliability scheduling pass and might be uneconomic in subsequent passes because of the change in inputs from the reliability scheduling pass. The cost causation will allocate the uplift costs to those market participants specifically responsible for causing resources that are eligible for a make-whole payment to be scheduled.”

OPG requests the IESO provide reports that will allow Market Participants to understand and reconcile the components of DRSU and how it applies to our resources. For example: public reports identifying the new or incremental schedules that are caused by the reliability scheduling pass and their associated DAM_MWP and DAM_GOG (aggregated to avoid confidentiality provisions), and private reports that identify resources that are specifically responsible for the increased uplift.

Section 3.4: Transition Period

Detailed Comment: IESO proposed transitional period for settlements poses challenges for MPs

Paragraph 2 of Section 3.4 of the design states:

"There will be a period of time where market participants will continue to see existing settlement amounts on their settlement statements that will not be required in the future market as the IESO transitions from the current market to the future market".

The concept of a transitional period is of concern to OPG because this could add complexity to its development of tools for managing settlements in the future market. OPG and other market participants require specific details on how this transitional period would work so it can be factored into the development of new settlement tools.

Per review of existing IESO-Administered Market Charge Types (Page 293 of 305) which will be retired upon Market Renewal implementation, OPG believes the IESO should arrange a complete one-time switch rather than multi-phase implementation as all of these charge types are key changes between current and new market (e.g. Energy/OR, eliminating CMSC, DA-PCG, RT-GCG as well related uplifts). This would avoid the need for Market Participants to implement additional settlement calculation tools for managing settlements during a transition phase.

Section 3.4: Transmission Rights

Detailed Comment: Need to re-review Table 3.-6 following completion of Transmission Rights Engagement

OPG notes we may have additional comments on Transmission Rights Settlements Amounts as the separate Transmission Rights Auction Review Stakeholder Engagement Process evolves. OPG would like more details and clarity on how the IESO plans on integrating the Transmission Rights Auction Review process with MRP. The improvements/changes to the Transmission Rights Auction should be implemented in tandem with MRP.

Section 3.5.1: Omission

Detailed Comment: Need details on timing for MPs to receive settlement-ready data

The business requirements of settlement-ready data processing (section 3.5.1) does not address timelines for publishing the data.

The IESO should publish the settlement-ready data with adequate time for market participants to check for completeness and address any inconsistencies with the IESO to avoid the administrative burden of the Notice of Disagreement (NoD) process.

Section 3.5.2: Omission

Detailed Comment: Elapsed Time to Dispatch

In "Table 3-8: Facility Registration Data Used for Settlement", the design identifies the elapsed time to dispatch for use in settlements. After further review of the design, it appears the elapsed time to dispatch only impacts the eligibility for Generator Offer Guarantees. An explanation of the terms and their application when introduced in the design documents would be beneficial.

Section 3.5.3: Forbidden Region Make-whole Payments

Detailed Comment: Clarification required on DAM schedules within forbidden regions

Table 3-9: Forbidden regions states:

"DAM schedules which are at or within the boundary of a forbidden region will be adjusted prior to calculating the DAM make-whole payments."

OPG believes DAM schedules within a forbidden region should not occur and requests the IESO provide clarification on the circumstances a resource would receive a DAM schedule within their forbidden region.

Section 3.5.3 Units of Measure

Detailed Comment: Clarification on Units of Measure Required

In "Table 3-9: Non-Financial Hourly and Daily Dispatch Data Used for Settlement" the following design parameters require clarification on units of measure:

- Hourly Must Run
- Minimum Hourly Output
- Ramp Up Energy to MLP
- Linked Resources, Time Lag, MWh

These parameters are listed as MWh while MLP is listed as MW. The IESO should clarify the units of measure for each of these parameters.

Section 3.5.4: Day Ahead Calculation Engine

Detailed Comment: Collection of Day-Ahead Market Data

In section 3.5.4 the design states:

"This also avoids the possibility that any intermediate modifications made to DAM bid or offer data within the DAM calculation engine for optimization purposes to be accidentally submitted to the settlement process."

What intermediate modifications is the DAM calculation engine performing on DAM bid or offer data? Will this intermediate modification be transparent to impacted market participants?

Section 3.5.4: Virtual Transactions

Detailed Comment: Omission

OPG requests clarification on whether the IESO is applying administrative fees for virtual transactions. OPG notes that during the HLD stakeholder session held July 18, 2018 the DA presentation deck, slide 27 stated:

"An admin fee will be applied to each virtual transaction submitted and/or cleared in the DAM"

Section 3.5.4/3.5.5/3.5.6: Additional Reporting

Detailed Comment: Records of All DAM / PD/ RT MPM tests should be provided to MPs

The design includes the following mitigation test results for the Day Ahead, Pre-dispatch, and Real-time calculation engines: pass or fail of conduct and impact tests, mitigated dispatch data, and resource constrained area mitigated test condition in Tables 3-12, 3-21, and 3-29 respectively.

OPG recommends the IESO publish private reports that provide all records of market mitigation test results and subsequent enhanced mitigated data for all resources regardless of whether they pass or fail the conduct and impact tests. This would provide transparency in the market mitigation process for market participants. The design currently requires market participants to infer enhanced mitigated data for hours that did not fail testing, which impacts settlement amounts for, but not limited to, DA_GOG and RT_GOG.

Section 3.5.4: Additional Reporting

Detailed Comment: Table 3-14 Reporting Results for All three DAM Engine Passes

Table 3-14 contains DAM Unit Commitment Events for:

- Latest DAM pass prior to the Reliability Scheduling Pass of DAM Quantity of Energy Scheduled for Injection at a Delivery Point,
- Reliability Scheduling Pass of DAM Quantity of Energy Scheduled for Injection at a Delivery Point,
- Latest DAM pass prior to the Reliability Scheduling Pass of DAM Quantity of Energy Scheduled for Injection at a Intertie Metering Point,
- Reliability Scheduling Pass of DAM Quantity of Energy Scheduled for Injection at an Intertie Metering Point, Latest DAM pass prior to the Reliability Scheduling Pass of DAM Scheduled Quantity of Operating Reserve at a Delivery Point,
- Reliability Scheduling Pass DAM Scheduled Quantity of Operating Reserve at a Delivery Point,
- Latest DAM pass prior to the Reliability Scheduling Pass of DAM Scheduled Quantity of Operating Reserve at an Intertie Metering Point,

- Reliability Scheduling Pass DAM Scheduled Quantity of Operating Reserve at an Intertie Metering Point, Import DAM Make-Whole Payment Prior to the Reliability Scheduling Pass,
- Import DAM Make-Whole Payment from the Reliability Scheduling Pass, and
- DAM Generator Offer Guarantee from the Reliability Scheduling Pass

OPG recommends the IESO publish private detailed reports with hourly results for all three DAM passes to provide information necessary for settlement amount reconciliation.

Section 3.5.4: Clarification

Detailed Comment: Clarification of DAM Commitment vs. Financially Binding Schedule

The design for Table 3-14 "DAM Unit Commitment Events" requires clarification on the difference between DAM Unit Commitment Events and DAM Financially Binding Schedules. From review of the table, it appears the design is referring to financially binding schedules for all types of facilities (e.g. hydroelectric, nuclear, NQS, etc...), however, the title of the table is inconsistent with this.

Section 3.5.4: Energy Storage

Detailed Comment: Table 3-15 Pumped Hydro Dispatch Data

The design for Table 3-15 "Financial Dispatch Data for Physical Transactions Submitted to the DAM" for "DAM Energy Offer at a Delivery Point" is limited to generating facilities.

OPG recommends the IESO consider extending this to energy storage facilities for both physical energy and OR transactions. IESO's Interim SDP (Storage Design Project) will allow for resources to register as Energy Storage Resources (ESRs). Pumped hydroelectric resources may opt to register as an energy storage facility in the soon to be implemented Market Rules and Manual updates. OPG recognizes the SDP is not part of the MRP scope, but believes it is worth considering sooner rather than later.

Section 3.5.4: Additional Reporting

Detailed Comment: Table 3-15 Include Unit Start-up state in Settlement Statements

In Table 3-15: Financial Dispatch Data for Physical Transactions Submitted to the DAM, the design states:

"DAM start-up offer associated with financial offers for the first settlement hour 'h' of the DAM commitment period at delivery point 'm' for market participant 'k' per-start".

OPG recommends the IESO include the inferred state of the unit (e.g. hot, warm, or cold) used by the IESO in determining the start-up costs in settlement data files. OPG notes in the Grid and Market Operations design, the IESO infers the start-up costs instead of obtaining them directly from as-offered data.

Section 3.5.4: Omission/Requires Examples

Detailed Comment: Table 3-15 DAM Start-Up Offer for a Delivery Point Failure

In Tables 3-15 and 3-24, the design has provisions for DAM Start-Up Offer for a Delivery Point Failure and states:

"DAM start-up offer associated with financial offers, subject to mitigation, at delivery point 'm' for market participant 'k' committed by the DAM calculation engine for the DAM commitment that bridges with the PD commitment that has a failure 'f'."

This design element demonstrates the need for private reports for DAM and PD commitments, as well as, any failure event. IESO should provide detailed examples on when this applies and how it is settled.

Section 3.5.4 Additional Reporting

Detailed Comment: Settlement Input Valued Derived from DAM Data

The design for Settlement Input Values Derived from DAM Data states:

"The DAM calculation engine will use both dispatch data submitted in the day-ahead market and associated registration data. However, the settlement process will not receive these data elements directly from the DAM calculation engine in their final form. The settlement process will derive settlement input values from a combination of bid or offer data and DAM calculation engine data. "

OPG recommends the IESO publish the settlement input values derived from DAM calculation engine solutions. This comment also applies to settlement input values derived from Pre-dispatch and Real-time calculation engines. In later comments, OPG provides an example of economic operating point as one type of derived data that should be published.

Section 3.5.4 Reconciliation of Settlement Amount(s)

Detailed Comment: Settlement Input Values Derived from Data-Economic Operating Point

The design for Settlement Input Values Derived from DAM Data states:

"Economic Operating Point: The implementation of a single schedule market will introduce a new concept of the economic operating point (EOP). The EOP indicates the optimum operating point of a generation facility or dispatchable load that is implied by the day-ahead market price. A generation or load facility's EOP is a point on its offer or bid curve that is a function of the day-ahead LMP and the generation facility's or dispatchable load's day-ahead financial binding schedule."

OPG requests additional information about the economic operating point (EOP) concept as this will impact how make-whole payments are calculated. The IESO should hold stakeholder sessions to outline the methodology for deriving the EOP and subsequent impact on market participant's ability to reconcile settlement amounts.

Section 3.5.4: Additional Reporting

Detailed Comment: Reporting of Economic Operating Point (EOP) for Energy and OR

The IESO should publish reports for DAM, PD, and RT Economic Operating Point for energy and for all three OR classes. The EOP is required for reconciliation of make whole payments.

Section 3.5.6/3.5.7: Additional Reporting

Detailed Comment: Table 3-31 Commitment Information form the RT Calculation Engine – Notice of Failure for PD Commitment

In Table 3-31, Commitment Information from the RT calculation engine includes Notice of Failure for PD Commitment. The IESO should provide more details on how market participants will be informed of a notice of failure for PD commitment. As previously mentioned, the design requires private reports published for DAM and PD commitments, as well as, any failure event.

As failure events occur in RT, they will likely need different treatment then DA and PD commitments

Some settlement amount calculations require various elements like:

- Component
- Variant
- Eligibility Criteria and
- Failure Event.

OPG suggests the IESO use reason codes to identify failure events, similar to the methodology used in Section 3.5.7 to identify when import/export schedules are manually altered. These reason codes for failure events should be included in settlement statement data files to allow a market participant to reconcile settlement amounts, such as Generator Failure Charge (GFC) and Real Time Generator Offer Guarantee (RT GOG).

Section 3.5.7: Additional Reporting

Detailed Comment: 3.5.7 Collection of Market Integration Data

In section 3.5.7 the design states:

“To derive the correct settlement outcomes for market participants, the settlement process needs to take into account the reasons why a given resource or import/export transaction that was scheduled in the DAM or committed in pre-dispatch deviated from its DAM schedule or PD commitment in the real-time market. Depending on the reasons, the market participant may or may not be entitled to a DAM_MWP, DAM_GOG, RT_GOG, RT_MWP or RT_IOG. This is particularly relevant in situations where the facility is subject to operational constraints, in which case the settlement amount may need to be adjusted. In other situations, a facility may be ineligible for payments. When a facility with a DAM financially binding schedule is dispatched down, the IESO will adjust the first settlement and second settlement accordingly. “

The IESO should include settlement data with a field to indicate when a facility is eligible or ineligible for payments. This is required for market participants to reconcile the settlement amounts.

Further explanations are required regarding the circumstances when the IESO would adjust the first settlement for a facility that is dispatched below its DAM financially binding schedule. This may require a scenario(s) to explain.

Section 3.6: Additional Reporting

Detailed Comment: Breakdown of First Settlement Calculation: Hourly Physical Transaction Settlement Amount

For the first formula for HPTSA {1}, to what level of detail will this calculation be broken down on settlement statements? For transparency and the ability to fully reconcile and report on settlement amounts, all variables that are used to calculate these amounts should be published PBC}, {variant 1} and {variant 2}.

Section 3.6.2: Clarification

Detailed Comment: Should First Settlement HPTSA – Formula Variant 2 be Negative

The formula for First Settlement HPTSA – Formula Variant 2 is shown as a positive value but given this is a load withdrawing energy from the system, should it be negative? The formula for the Second Settlement HTSA on page 90 is negative as we would expect for a load withdrawal.

Section 3.6.2: Clarification/Require Examples

Detailed Comment: Second Settlement Calculation: Hourly Operating Reserve Settlement Amount (HORSA{2})

The second paragraph on page 91 states the following:

"The first and second settlement amounts will be matched to the same facility or intertie transaction, which will result in an HORSA of a level of granularity described in the next sub-section."

It is OPG's understanding that settlement amounts should always be at the resource level i.e. EDP level, not at the facility level. Please provide an example of when a settlement amount would be at the facility level.

Section 3.6.3: Additional Reporting

Detailed Comment: Include Complete Information on Settlement Amounts in New Market for Better Transparency #5

A new public report for Load Forecast Deviation Charge (LFDC) should be published at the earliest available time similar to other Market Price Reports. LFDC is required to reconcile settlement amounts for non- dispatchable loads.

Section 3.7.1: Settlements

Detailed Comment: DAM_MWP Formulation Settlement Statements need to include detailed information

The settlement statement for DAM_MWP should include a detailed breakdown of each variable used in the calculations of Component 1 and Component 2. Component 2 should have detailed breakdowns for each type of OR (i.e. 10S, 10N, and 30R).

Section 3.7.1: MWP

Detailed Comment: DAM_MWP Formulation – Detailed Breakdown of Components

Detailed breakdowns of each variable used for the calculation of each Component in the make whole payment on settlement statements is required for improved transparency. This would allow market participants to verify and confirm amounts.

Section 3.7.1: Settlements

Detailed Comment: DAM_MWP Formulation for cascade hydroelectric – time lag crossing trade dates

On page 100, the DAM MWP formula for cascade hydroelectric is:

"$\Sigma[DAM\_COMP1k,h+TLmm+DAM\_COMP2k,h+TLmm]M>0$"

It does not include how make-whole payments are calculated across multiple trade dates. Please provide the methodology to settle any make-whole payments resulting from hydroelectric time lag across two trade dates.

Section 3.7.1: MWP

Detailed Comment: Eligibility for MWP for Hydro Parameters

Please provide further information on the process (es) the IESO will follow to determine if hydroelectric resources are eligible for make whole payments related to Min DEL, Minimum Hourly Output, and Hourly Must Run. OPG recommends the IESO include eligibility indicators on settlement data files to allow for reconciliation of settlement amounts.

Section 3.7.1: Hydro Parameters

Detailed Comment: Eligibility for a Generation Facility with Minimum Daily Energy Limit - Schedules within Forbidden Regions

In regards to the following statement on Page 100:

"Furthermore, such a generation facility will not be compensated for the hours where it received a schedule to supply energy at its minimum hourly must run; at its minimum hourly output; or within

or at the boundary of a forbidden region such parameters provided by the market participant as part of submitted dispatch data."

OPG notes that hydro facilities should not receive a schedule within a forbidden region. The IESO should provide an example of a situation where a schedule could be received within a forbidden region. Refer to Comment #14 for additional information.

Section 3.7.1: MWP

Detailed Comment: DAM_MWP Formulation

For Component 2 of the DAM_MWP calculation, the IESO should provide more details on how this is split between the 3 OR classes. This comment also applies to all OR related settlement charges in the design, i.e. they should be broken down by OR class.

Section 3.7.1: Require Examples

Detailed Comment: DAM_MWP Examples

OPG requests the IESO provide DAM_MWP calculations examples for at least the two scenarios below:

- A dispatchable NQS unit offered energy and 30-minute OR, and entitle both DAM_MWP energy and OR compensations
- Two cascade hydro resources with a one hour time lag, how is the DAM_MWP calculated for both units, and how to calculate for the period cross trading date in the mid-night

Please also explain how the EOPs are calculated and used in MWP calculation.

Section 3.7.2: Clarification

Detailed Comment: DAM GOG eligibility for NQS (Nuclear)

In Section 3.7.2, the design states:

“An NQS generation unit not associated with a pseudo-unit will be eligible for a DAM_GOG if it meets all of the following criteria:

- the generation unit is not a quick-start unit;
- the generation unit has a minimum loading point (MLP) greater than 0 MW;
- the generation unit has a minimum generation block run-time (MGBRT) greater than one hour; and
- the generation unit has an elapsed time to dispatch greater than one hour as recorded during the Facility Registration process.”

These eligibility criteria are inconsistent with Table 3-5 of the Facility Registration Detailed Design, where the Generation Resource Registration Parameter for Generation Offer Guarantee Status

indicate NQS (Nuclear) units are eligible for GOG, however, they cannot register for MLP or MGBRT. The IESO should address this discrepancy.

Section 3.7.2/3.7.9: Require Examples

Detailed Comment: DAM/RT-GOG Cost recovery following De-Commitment of a NQS Generation Unit

In section 3.7.2, the design states:

“generation unit may be de-committed by the IESO for reliability, security or adequacy reasons after the unit receives a DAM commitment. In the event that a generation unit is de-committed: ...

prior to the start of its DAM commitment, DAM_GOG will not be assessed. However, in addition to DAM_MWP, the generation unit will be able to recover any negative buyback, which is described in Section 3.7.7: DAM Balancing Credit (DAM_BC)."

The IESO should provide specific details on the cost components that are recoverable in this situation. OPG notes that some costs for start-up are incurred prior to the start of the DAM/PD commitment and OPG suggests the IESO ensure there is a process to allow these costs to be assessed/recovered by MPs. Please provide a detailed example(s) of how a de-committed NQS unit is compensated.

Section 3.7.2: Require Examples

Detailed Comment: Eligibility for Recovery of Implied Cost of Start-Up Offers-Time to reach MLP

In section 3.7.2 the design states:

“An NQS generation unit not associated with a pseudo-unit will be eligible to recover the implied costs of any start-up offer if:”... “the generation unit attains the MLP within the first 90 minutes of its DAM schedule or earlier as a result of being advanced by PD;”

OPG requests the IESO confirm that the requirement is to attain MLP within 90 minutes of the DAM MLP schedule (i.e. not to reach MLP within 90 minutes of the DAM schedule). Please provide an example with 2 hours of ramp up energy to MLP to demonstrate the eligibility for implied costs of start-up offers.

Section 3.7.2: MPM

Detailed Comment: End of Trading Day Commitment of NQS Generation Units

In regards to the second sentence of this section on Page 107:

"Registered market participants must submit escalating start-up offers at the end of the DAM trading day to capture costs of the start-up offer, speed no-load offer and energy offer to the MLP for each possible commitment hour in the next trading day."

Additional information is required on how escalating start-up costs will be considered for market power mitigation reference levels.

Section 3.7.2/3.7.9: Require Examples

Detailed Comment: DAM/RT-GOG Settlement Amount Calculation Examples

OPG would like the IESO provide DAM_GOG and RT_GOG calculation examples for at least the below scenarios:

- Variant 1: start at HE10, ramp-up by HE11, achieve MGBRT by HE15, extension to HE20, ramp-down to off-line at HE21, dispatch generate above MLP between HE14 to HE 16.
- Variant 2: start at HE20, ramp-up by HE21, achieve MGBRT by HE01 of next day, then ramp-down to off-line at HE02, dispatch generate above MLP between HE22 to HE24.
- Variant 3: unit was started plus achieved in previous day, and run at/above MLP from HE01 to HE04, then ramp-down to off-line at HE05

The examples should also demonstrate scenarios like:

- MWP was compensated and then off-set through DAM_GOG and RT_GOG
- Eligibility evaluation results, and how the data is presented

Detailed Comment: DAM & RT GOG Settlement Calculations - need example calculations for better clarity

The calculations for both DAM-GOG & RT-GOG are complex, the IESO should provide example calculations for each variant and including all variables within the components. This would allow market participants to assess whether the calculations are appropriate in all situations.

Section 3.7.5: MWP

Detailed Comment: Lost Cost Component of RT-MWP calculation

In regards to the first sentence of the second paragraph under RT_MWP Formulation (Page 122):

"If a facility deviates in the opposite direction of both its lost cost economic operating point and real-time schedule, the lost cost component will be set to zero."

Followed on Page 123 by:

“During any metering interval ‘t’ within settlement hour ‘h’ in which the mathematical sign RT_QSIk,hm,t - RT_LC_EOPk,hm,t is not equal to the mathematical sign $AQEIk,hm,t$ - RT_LC_EOPk,hm,t, the component $ELCk,hm$ shall be set to zero.”

And

“‘ELCk,hm’ is the total lost cost component of the RT_MWP for market participant ‘k’ at delivery point ‘m’ during settlement hour ‘h’ for energy attributed to the facility as a result of being dispatched up relative to its real-time lost cost economic operating point. “

The equation as currently written will cause the component ELC to be set to zero almost all of the time. This may not be the appropriate settlement, as there are a number of reasons why RT schedules are different than the allocated quantity of energy injected and these should not set the entire lost cost component to zero, such as:

- Differences between operational and revenue meters
- Use of compliance aggregation
- When a dispatch is sent by the IESO, the generator is to achieve it by the end of the interval.
- Ramp rate considerations and existing slow-mover logic for following dispatch.

The ELC is intended to compensate for the lost cost when a facility is dispatched up relative to its real-time lost economic operating point. The IESO should revise the equation to allow facilities to recover their lost costs.

Section 3.7.5: Require Examples

Detailed Comment: RT-MWP Formulation – ELOC / OLOC for a Generator

It is unclear whether it is a generator's ELOC to be negative. If it can be negative, the IESO should provide an example of when this occurs.

Similarly for OR, it is unclear whether the OLOC for a generator or export be negative. If it can be negative, please provide an example of when this occurs.

Section 3.7.1/3.7.5: Require Examples

Detailed Comment: RT-MWP Calculation Examples

The IESO should provide DAM_MWP calculation examples in below scenarios:

- A dispatchable NQS unit offered energy and 30-minute OR, and entitle both RT_MWP energy and OR compensations
- Two cascade hydro resources with a ne hour time lag, how the RT_MWP is calculated for both units, and how to calculate for the period cross trading date in the mid-night

The examples also need to demonstrate:

- how ELC, ELOC, OLC and OLOC are calculated
- how EOPs are calculated and used in MWP calculation
- how eligibility is evaluated and determined

Section 3.7.1/3.7.5: Require Examples

Detailed Comment: CAM & RT MWP Settlement Calculations – need examples/sample calculations for better clarity

The calculations for both DAM-MWP & RT-MWP are complex and the IESO should provide example/sample calculations including all variables within components and demonstrate the scenarios that both DA and RT MWP are applied for a delivery point. This would allow market participants to assess whether the calculations are appropriate in all situations.

Detailed Comment: RT-MWP Formulation – ELOC / OLOC for a Generator

The description of the ELOC calculation is not consistent within the design. Two examples are provided below:

In page 122, the 3rd paragraph under RT_MWP Formulation:

"For the purpose of calculating the lost opportunity cost, market participant offers and bids will be adjusted. The energy offers associated with a generation facility and operating reserve offers will be adjusted to the greater of the offer price and the associated real-time market price."

However, in page 123, 2nd paragraph, "In order to calculate the component $ELOCk,hm$ for a generation facility, the IESO will adjust any energy offer price that is greater than the real-time energy price to the lesser of the energy offer price and the real- time energy price."

Since the intent of ELOC is to compensate market participants for lost opportunity cost, the IESO should assess whether the greater of the offer price and the associate real-time price accomplishes this objective.

Section 3.7.7: Require Examples

Detailed Comment: DAM_BC Formulation and Examples

DAM_BC calculation examples are required for the scenarios below:

- IESO cancels a DAM commitment (due to reliability need) after a dispatchable NQS unit received DAM Commitment, and the unit does not submit a Real-time offer i.e. not eligible for RT-MWP
- An intertie resource incurs a negative buyback as a result of system reliability

The examples also need to demonstrate how above calculations are triggered.

Section 3.7.9: GOG

Detailed Comment: Real-Time Generator Offer Guarantee (RT_GOG)

For RT-GOG eligibility, OPG recommends that units receive similar treatment for proration if they trip during their MGBRT as they get under the existing DACP.

Section 3.7.9: NQS

Detailed Comment: Extension Due to Late Reach of MLP

Please clarify if Generator Failure Charges are applied when a NQS unit reaches MLP late. The design should ensure the interaction between Generator Offer Guarantee and Generator Failure Charge does not create a doubling effect on the penalty for reaching MLP late.

Section 3.7.9: NQS

Detailed Comment: Extension Due to Late Reach of MLP-IESO extension to fulfill MGBRT

The first sentence on this section on Page 136 states:

"When a generation unit reaches MLP late, the IESO may extend the unit's operational constraint beyond its initial commitment to ensure the generation unit completes its MGBRT."

OPG is concerned about the use of the word "may" in this statement. In order to fulfill SEAL obligations, the IESO would have to extend the commitment to ensure MGBRT is met. The word "may" should be changed to "will".

Section 3.7.9: Clarification/Additional Reporting

Detailed Comment: De-commitment of an NQS Generation Unit

In section 3.7.9 the design states:

"In the event that a generation unit is de-committed subsequent to receiving a binding start-up instruction, the generation unit will be compensated for any lost opportunity during the de-committed period through RT_MWP."

Additional details on the definition of the "de-committed" period are required to include ramp up energy to MLP, minimum generation block run time, and ramp down from MLP.

Consistent with earlier comments, the IESO should provide additional reports or settlement data files that indicate commitment and de-commitment periods. This could be accomplished using reason codes.

Section 3.7.9: Clarification

Detailed Comment: Component 1 – applicable to Variants 1, 2 and 3 - RT_GOG_COMP1 Calculation

In Section 3.7.9, Paragraph #1 the design states:

"The IESO will provide the RT_GOG payment to compensate market participants for any loss they incur relative to costs implied by their offers for the period in which their resource is committed by the pre-dispatch calculation engine."

Based on the above statement, OPG thinks applying “Min(OP(RT_LMP, RT_QSI, BE) , OP(RT_LMP, AQEI, BE))” function (instead of “Max”) in the RT_GOG_COMP1 calculation on page 139 is more appropriate as it is the worst case loss.

Section 3.7.11: Clarification

Detailed Comment: Applicability of Failure Charges beyond NQSs

Table 3-64 implies that generator failure charges apply to "applicable generation unit within Ontario". OPG suggests the IESO add the "NQS receiving a PD commitment" to this statement for clarity. It is OPG's understanding that failure charges will only apply to NQS generators.

Section 3.7.11: Units of Measure

Detailed Comment: Inconsistency with PD_SU_MLP Variable

There are at least two instances of inconsistent units of measure as defined in Tables and later used in formulas. All units of measure need to be reviewed to ensure consistency in their definition and use.

Two such instances are provided below:

In Table 3-24, the MLP_INJ variable defines measurement in MW. However, in the formula at the bottom of Page 153, the MLP_INJ is shown to be the number of intervals. Table 3-24 requires a correction.

Similarly, in Table 3-24, the PD_SU_MLP is defined as a price variable with measurement unit in $ amount , but in the formula at the bottom of Page 153, it appears to be a proration factor. Table 3-24 requires a correction.

Section 3.7.12: Clarification

Detailed Comment: Allocation of Failure Charges across Multiple Trade dates

If a failure charge is incurred for a PD commitment that crosses multiple dispatch days, how is the charge allocated to each day? The formula at the top of Page 161 for GFG_MPCU should provide details on commitments that cross over to the next trade day.

Section 3.7.14: Additional Reporting

Detailed Comment: Transparency for Congestion Rent and Loss Residuals

OPG would like the IESO to clarify how Congestion Rent and Loss Residuals Disbursements (CRLRD) will be calculated and published to market participants.

In section 3.7.14, the formula for CRLR is defined as:

“CRLR = [term1] + [term2] + [term3] + [term4] – [term5]

[term1] congestion rent and marginal loss accrued in the DAM and the real-time market to settle all generators, dispatchable loads and price responsive loads

+ [term 2] congestion rent and marginal loss accrued in the DAM and the real-time market to settle virtual transactions

+ [term 3] congestion rent and marginal loss accrued to settle NDLs

+ [term 4] congestion rent and marginal loss to settle boundary entities

- [term 5] congestion rent collected on interties when interties are either import-congested or export-congested"

For increased transparency, the IESO should publish all terms of the formula, as well as, the total.

Detailed Comment: Estimates of Congestion rent and loss residuals disbursements rate (CRLRD)

The IESO should publish estimates of the monthly Congestion Rent and Loss Residual Disbursements (CRLRD) rate as first estimates, second estimates, and actual values similarto how the IESO currently publishes Class A/B Global Adjustment rate estimates and actual values.

Detailed Comment: Changes to Generation Station Service Rebate (GSSR)

In future settlement statements with GSSR, the IESO should flag or indicate the hours where each resource is eligible for GSSR. This would improve transparency and make it easier for market participants to reconcile settlement statements.

Detailed Comment: Changes to Ramp-Down Settlement Amount

The IESO should include a clear indicator of a generator's ramp-down period on its settlement (schedule) data. This would improve market transparency and make it easier for MPs to reconcile their settlement statements.

The IESO also needs to clarify how the ramp-down period is settled if it crosses over to the next day (i.e. crosses midnight).

Section 3.8: Transparency

Detailed Comment: Day-Ahead Market Remediation

The design states:

“The IESO will not retroactively correct DAM prices and schedules. The incorrect input data will be received by the settlement process and settlement amounts calculated using this data. A dispatch scheduling error may be declared and after-the-fact settlement corrections will be required to any transaction(s) that were a direct result of that error. The settlement process will be provided with the dispatch day, dispatch hour and impacted transaction(s).”

The IESO should develop a transparent process and methodology that allows market participants to understand the after-the-fact settlement corrections and which transactions are directly impacted.

This should include whether the corrections only apply to physical/virtual transactions or extend to facilities such as generators. There should also be a Notice of Disagreement (NoD) process that market participants can use to either dispute or request these corrections.

Section 3.8: Omission

Detailed Comment: Administrative Pricing

In the second last paragraph on Page 174 the design states:

"In the current market, market prices and the corresponding market schedules for those affected dispatch intervals are administered. In the future single schedule market, only the real-time market price will be administered."

Please provide details on why market schedules are omitted from administrative pricing events. How will operating reserve and intertie schedules be administered?

Section 3.12.3: Market Opening

Detailed Comment: Timelines during initial implementation of new market

During the early transition to the new market, the timeline for Notice of Disagreement (NoD) submissions should be extended, e.g. extend NoD submission window from 4 business days to 6 business days. This would provide MPs with more time to review IESO preliminary statements and reconcile the more complex settlement data introduced by the new Market solutions.

OPG also notes that during the early phases of the new market it would be beneficial if the IESO could respond within a reasonable period of time (e.g. 6 business days, in reflection with the timeframe that is given to MPs) with NoD decisions or feedback on submissions as this would allow MPs to determine and resolve potential system implementation issues as well improve processes for future settlements.

Section 3.13.1: Require Examples

Detailed Comment: Market Power Mitigation-Settlement Process Examples

Please provide a Market Power Mitigation example to demonstrate an end-to-end settlement amount calculation process:

- Trigger of mitigation in DAM/RT Calculation Engine
- Determine Constrained Area for delivery point: e.g. NCA/DCA/BCA
- Perform ex-ante validation and mitigation
- Define the mitigation time-period for a NQS generator: e.g. from ramp-up, MGBRT, extension period and ramp-down to off-line
- Produce price and schedule by using reference level information

- Perform Make-Whole-Payment Impact Test
- Calculate six settlement amounts including: DAM_MWP, DAM_GOG, RT_MWP, RT_GOG, DAM_BC and RT_RDSA

The IESO should provide all settlement data (e.g. Variables for calculations of each component and all data required for market participants to perform shadow settlements and reconciliation.

Section 3.13.1/3.7.7: Require Examples

Detailed Comment: DAM Balancing Credit Make-Whole Payment should not be mitigated

In Section 3.7.7, the design states:

"Under certain circumstances, a market participant with a DAM financially binding schedule may incur a financial loss as a result of an IESO control action on energy and operating reserve in real time. When this occurs, the IESO will provide a DAM Balancing Credit (DAM_BC) to cover any operating loss incurred as a result of following dispatch instructions. DAM_BC provides an offset against any negative impact of real- time balancing due to a system reliability need."

In section 3.13.1, the design imposes make-whole payment mitigation on a settlement amount that is designed to compensate a market participant for financial losses incurred after following a reliability dispatch is not reasonable. Please provide an example on when it would be appropriate to mitigate the DAM_BC make-whole payment.

Section 3.13.2: Dual-Fuel

Detailed Comment: Avoid Reference Level Settlement Charges for Dual-Fuel Resources

In Market Power Mitigation Detailed Design DES-26, the design states:

"After the market participant places a request to use the higher-cost fuel in either of the timeframes, they must provide evidence to the IESO that the higher-cost fuel was used. This evidence must be provided within two business days after the trading day in which the higher-cost fuel was used.

The settlement process should provide at least one week for market participants to provide information on expenses incurred. It can take more than two days for market participants to identify expenses incurred. For example market participants may not know the amount of their storage expenses for non-firm gas contracts within two days."

In section 3.13.2, the design states:

“The reference level settlement charges (RLSC) are settlement amounts that apply to dual-fuel resources where the resource can use two types of fuel to generate electricity. The assessment of the RLSC may be triggered when the market participant requests to use the more expensive fuel through the mitigation process7 but fails to provide satisfactory supporting evidence of the fuel consumption.”

This settlement process would not be required if the IESO in collaboration with market participants develops reference level curves that capture the unique challenges of dual-fueled resources. The

IESO should enhance its tools to support reporting of fuel availability either through the outage process or the offer submission process. Developing IESO tools to take into account unique characteristics of dual-fuel resources fuel availability would simplify the market power mitigation process and reduce the administrative burden on both market participants and the IESO of providing evidence after-the-fact.

If the IESO is unable to enhance their processes, OPG suggests the settlement process should use timelines similar to the current RT-GCG program which allows expense information to be submitted within a reasonable number of days after the fact.

Section 3.13.2: Require Examples

Detailed Comment: Market Power Mitigation – Reference Level Settlement Charge (RLSC) Examples

The IESO should provide example calculations to demonstrate a RLSC settlement amount process:

- Trigger of RLSC mitigation process
- Perform conduct test
- Calculate RLSC

The IESO should also provide the settlement data for all variables required to perform the calculation. This is important as it will allow market participants to reconcile the settlement amounts.

Section 3.13.1: MPM

Detailed Comment: Make-Whole Payment Impact Test

Secion 3.13.1 Make-Whole Payment Impact Test should be addressed by the Market Power Mitigation DES- 26 for further stakeholdering. Each type of make-whole payment requires its own impact test threshold and the one size threshold does not fit every make-whole payment.

In section 3.13.1 the design states:

"The settlement amounts subject to the make-whole payment impact test are: DAM_MWP; DAM_GOG; RT_MWP;· RT_GOG;· DAM_BC; and· RDSA." It appears that DAM_MWP, RT_MWP, DAM_BC, and RDSA are hourly settlement amounts while DAM_GOG and RT_GOG are assessed for each commitment."

Where, DAM_MWP is a component of DAM_GOG and RT_MWP is a component of RT_GOG.

And "When a resource meets the conditions to carry out a make-whole payment mitigation impact test, the IESO will determine what the settlement amount would have been, if the dispatch data had been subject to mitigation based on the set of conduct and impact thresholds that apply to the most restrictive constrained area. The most restrictive set of thresholds for the dispatch data will be determined over the period that the settlement amount is calculated. Therefore, if the settlement amount is calculated over multiple hours, the hour with the most restrictive set of thresholds will determine the set of thresholds used in all hours of the calculation."

The practicality of this approach is questionable as the new day-ahead and pre-dispatch calculation engines evaluate hourly mitigated offers over the entire commitment period and subsequently issues commitment schedules. It seems reasonable, that during settlement mitigation, each of these hours remains independent prior to being summed to a total make-whole payment. The extra step of performing ex-post mitigation for all hours of the commitment period (instead of hourly by constrained area) prior to comparing to the settlement amount seems to be an overly complex solution to a problem that does not exist.

OPG recommends the IESO define a make-whole payment impact test for each of the make-whole payment amounts which sets the thresholds as hourly or commitment based and considers that DAM_MWP and RT- MWP are components of DAM_GOG and RT-GOG.

Section 5.1: IESO Charge Types

Detailed Comment: Market Manual Documentation

The IESO should publish the market manual documents identified below as early as possible:

- IESO Charge Types and Equations
- Format Specification for Settlement Statement Files and Data Files

This will help Market Participants understand the calculation rules for new settlement amounts, and to determine if all required information will be available for MPs to perform shadow settlement and settlement statement reconciliation.

Section 5.1: Omission

Detailed Comment: Market Manual – Updates

In Table 5-1 (page 245), the IESO should include changes required to update Section 1.6.1 in the Market Manual 5: Settlements, Part 5.5 – Physical Markets Settlement Statement, to clarify which new uplift settlement amounts and charge types will be included in Generation Station Service Rebate.

Section 5.1: Market Manual

Detailed Comment: Market Manual – Updates

As per the design in sections 3.7 and 3.8, the Replacement Energy Offer Program and Administrative Pricing Event will still occur after market renewal, as such, the IESO should revisit whether their subsequent market manual sections should be updated rather than deleted.

As CMSC is no longer valid, the IESO should assess how make-whole payments apply for both replacement energy and administrative price events. Table 5-1 (page 245) needs to be revised to "Update section" instead of "Delete section".

Section 5.1: Require Examples

Detailed Comment: Market Manual – Updates

As stated in Page 247, the IESO proposes to add new sections for a list of new Settlement Amounts in Market Manual 5: Settlements, Part 5.5 – Physical Markets Settlement Statement. OPG suggests the IESO add specific examples to illustrate: (1) how eligibility is determined and (2) how these new settlement amounts and charge types, e.g. MWP, GOG, Failure Charge and etc. are calculated (similar to current section 1.6.10 with both descriptions and demonstration examples for real-time import failure charges and export failure charges). This would allow Market Participants to understand the IESO design and design settlement systems that are able to reconcile and verify settlement amounts.

Section 5.1: Market Manual

Detailed Comment: Market Manual – Updates

- In pages 248/249, in addition to IESO listed items, the IESO should consider adding specification for below components in IMP_SPEC_0005 Format Specification for Settlement Statement Files and Data Files:
  - Market Power Mitigation results, e.g. indicators for dispatch data (price and schedule) was produced upon ex-ante mitigation functions.
  - Eligibility and Variant indicators information for new Settlement Amounts are calculated upon (1) eligible/ineligible criteria, (2) applicable Variant scenario and (3) applicable persistence multipliers
- All Appendix sections in Market Manual 5: Settlements, Part 5.5 – Physical Markets Settlement Statement need to be updated to reflect the Market Renewal solutions.

Section 6.1.1: Process

Detailed Comment: Process P1: Calculate Energy and OR Settlement Amounts

The IESO should add Process P1 specification for:

- The price and schedule information used in Process P1 could have ex-ante mitigation results produced by DAM and RT calculation engines [in page 254 & 255]
- LFDC (Load Forecast Deviation Charge) is part of Non-dispatchable Load Settlement Amount

Section 6.1.2: Process

Detailed Comment: Process P2: Calculate Credits, Charges, Uplifts Settlement Amounts

- Please clarify: DAM Commitments: (1) Last DAM Calculation Engine pass and (2) Reliability Scheduling Pass. vs. DAM_SQI i.e. DAM Schedule [in page 264]

- how the three set Dispatch Data are used in Settlement Amount calculations: (1) As-offer, (2) mitigated and (3) enhanced mitigated [in page 271]

Section 6.1.5: Process

Detailed Comment: Process P5: Procedure Settlement Statement and Data Files

The IESO should add P7 and P8 data as inputs to Process P5, this would show how P5 would take into account P7 and P8 produced results.

Section 6.1.7: Process

Detailed Comment: Process P7: Notice of Disagreement Process

In Section 6.1.7, page 283, the first paragraph states:

“However, in the case of settlement amounts from the settlement process, the market participant can raise a NoD only after the settlement amount has appeared on a preliminary settlement statement from Process P5.”

The IESO should allow market participants to submit a NoD for expected settlement amounts which were not paid by IESO and did not appear on preliminary statement.