Minutes of the IESO Technical Panel Meeting

Meeting date: 12/July/2022
Meeting time: 9:00 a.m.
Meeting location: IESO Office, Toronto, MS Teams

Chair/Sponsor: Michael Lyle
Scribe: Luisa Da Rocha, IESO

Please report any suggested comments/edits by email to engagement@ieso.ca.

Invitees	Representing	Attendance Status Attended, Regrets
David Brown	Ontario Energy Board (Observer)	Attended
Jason Chee-Aloy	Renewable Generators	Attended
Ron Collins	Energy Related Businesses & Services	Attended
Rob Coulbeck	Importers/Exporters	Attended
Emma Coyle	Market Participant Generators	Attended
Dave Forsyth	Market Participant Consumers	Attended
Sarah Griffiths	Demand Response	Attended
Jennifer Jayapalan	Energy Storage	Attended
Indra Maharjan	Market Participant Consumers	Attended
Nick Papanicolaou	Market Participant Consumers	Attended
Forrest Pengra	Residential Consumers	Attended
Robert Reinmuller	Transmitters	Attended
Joe Saunders	Distributors	Attended
Vlad Urukov	Market Participant Generators	Attended
David Short	IESO	Attended

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Invitees	Representing	Attendance Status Attended, Regrets
Michael Lyle	Chair	Attended
Secretariat		
Agatha Pyrka	IESO	Attended
IESO Presenters		
Adam Cumming Darren Matsugu Jessica Tang Mark Gojmerac Tim Cary Vipul Agrawal		

Agenda Item 1: Introduction and Administration

Agatha Pyrka, IESO, welcomed everyone joining the meeting both in-person and online.

The meeting agenda was approved on a motion by Robert Reinmuller.

The minutes of the last meeting were approved on a motion by Joe Saunders with revisions from Sarah Griffiths on minor grammatical corrections and to indicate that the activities attributed to Ms. Griffiths in the June meeting minutes are to be shown as those of Enel X.

Agenda Item 2: Engagement Update

Ms. Pyrka drew participants' attention to the Prospective Technical Panel Schedule, reviewing that today's agenda includes two votes to recommend for the Enhancements to the 2022 Capacity Auction and Adjustments to Intertie Flow Limits, as well as an educational item on the Market Renewal Program (MRP) Calculation Engine Batch. Ms. Pyrka noted that there will not be a Technical Panel meeting in August and the second half of 2022 is looking quieter than usual, with more details to follow.

Ms. Pyrka noted that the monthly engagement update will be posted shortly and sent to the Technical Panel members, and reviewed the agenda for the upcoming monthly engagement days. Ms. Pyrka also highlighting the creation of an MRP Implementation Working Group to look at implementation issues, readiness timelines and other topics, with further information to follow.

Agenda Item 3: Enhancements to the 2022 Capacity Auction

Adam Cumming, IESO, noted that since the last Technical Panel meeting, the Enhancements to the 2022 Capacity Auction materials and Teccnical Panel member rationale was discussed with the IESO Board of Directors. Upon their review of the members' rationale, and in discussion with IESO staff, the Board directed the IESO to return to the Technical Panel with the portions of the market rules that seemed to have broad support from Panel members and stakeholders, including enabling participation by generator-backed capacity imports and two minor administrative updates for the zonal group constraints and the revised point-in-time rule provisions.

Vipul Agrawal, IESO, reviewed that the capacity auction amendments originally included three proposals: (1) Capacity Qualification, (2) Performance Assessment Modifications, and (3) Enabling Generator-backed Capacity Imports. While the IESO continues to work on the first two items, the focus of today's meeting is on the generator-backed capacity imports and the two administrative updates where all concerns have been addressed.

Mr. Cumming shared that minor corrections were received from Teccnical Panel members on the draft rules prior to the meeting which have been incorporated into the draft. These included minor changes to the definitions of overcommitted capacity, generator-backed import contributor, and capacity import call, as well as a restructuring of sentences related to the generator-backed capacity auction eligible import resource and the addition of italization in section 19.9B.8.

David Forsyth asked if agreements are in place for neighbouring resources to bid into the market. Mr. Agrawal indicated that there are currently two operating agreements with non-recallable obligations in place with NYISO and facilities in Quebec.

On a motion by Mr. Reinmuller, Technical Panel voted to recommend the package of market rule amendments to the IESO Board of Directors. Members were advised that they could provide their rationale in writing following the meeting.

Agenda Item 4: Adjustments to Intertie Flow Limits

Devon Huber, IESO, recapped that at the February meeting, Technical Panel members voted to post the proposed market rule amendments for broader stakeholder feedback and shared that no comments were received. Also at the February meeting, Technical Panel members asked for a Market Assessment and Compliance Division (MACD) review of the proposed amendments in light of the compliance investigation that MACD had commenced. Included in today's meeting package was a letter from MACD advising that it had concluded that the IESO did not have the authority to incorporate internal transmission constraints in setting intertie flow limits in the northwest under the existing market rules. As noted in the letter, MACD's review is in respect to the existing market rules, not the proposed amendments.

The proposed amendments are needed for the IESO to have the authority to incorporate internal constraints in setting intertie limits moving forward. No other changes are required to the rule language in light of the findings.

Darren Matsugu, IESO, noted that the purpose of the proposed amendments is to specify when internal transmission constraints will be considered for intertie flow limits, applicable in both the constrained and unconstrained schedules and that the changes will come into force prospectively. The need for these changes arises when system conditions become challenging given the availability of supply in a zone. This was recently experienced in northwest Ontario where low water conditions and the limited transfer capability between the northwest and the rest of the province created a situation under the current two-schedule market where the unconstrained schedule accepted exports that could not be supplied by Ontario resources. As a result, under the two-schedule system, the constrained schedule will constrain on high-priced import transactions to supply those exports generating high Congestion Management Settlement Credit (CMSC) payments for those transactions. Under the current market, the export transactions do not pay the full cost of the imports above the unconstrained market price, but rather the CMSC payments are borne by all consumers, which can be significant. The MACD letter is clear that the market rule amendments are needed for the IESO to have the authority moving forward to incorporate the internal constraints in setting the intertie limits.

Emma Coyle asked whether the MACD letter does in fact make clear that the amendments are needed for the IESO. Mr. Matsugu clarified that the MACD letter did not comment on the proposed market rule amendment, but instead is clear on the decision, and subsequently there is a need for the market rule amendment to provide that authority.

Rob Coulbeck indicated that Technical Panel asked MACD to comment on the proposed market rules, not whether the IESO's actions are contrary to the current market rules, further noting that the response letter does not provide insight into whether the proposed rules will satisfy the requirement and ensure that the IESO does not enter into the same situation. Mr. Coulbeck indicated he would have preferred that MACD comment on the proposed market rules instead of historic operations. Referencing the February meeting minutes, the Chair noted that it was stated at that time that the request would be made of MACD, but they do not usually comment on proposed market rule amendments and that it was unlikely they would comment on the amendments in this situation. Mr. Coulbeck noted that this was unfortunate. In relation to this, Mr. Reinmuller added that the IESO is proposing changes to market rules to ensure it can work with this condition, however MACD will only compare actions to existing market rules, it will not tell the IESO what to do to ensure the situation does not happen again. MACD will also not tell Technical Panel whether the proposed market rules are the correct solution, but instead will comment on whether the rules were met in the past, adding that MACD comments on existing rules while the Technical Panel is looking forward to new rules. Mr. Reinmuller also noted that with the proposed amendments, the IESO will have another tool to use in the future. Mr. Coulbeck responded that he would have preferred that MACD comment on IESO's actions in relation to the fines, and whether the proposed rules would negate similar future actions by the IESO. Mr. Coulbeck shared another concern that the MACD letter comments only on the northwest situation, which indicated that the rules should be confined to certain areas and have limitations on when they will be implemented and released, noting that there is nothing new on these items.

Vlad Urukov noted that the original changes were categorized as a clarification and not an amendment. In light of the MACD letter, the changes now seem more like a market rule amendment where language is adding additional powers to the IESO, and it was asked whether this was the correct request of the Technical Panel. The Chair indicated that at the February Technical Panel meeting, it was known that MACD had issued a public notification that it was reviewing the IESO's action from August to determine if the IESO had the authority. At the time, the IESO proposed moving forward with the market rule amendments regardless of the MACD ruling in that if MACD determined the IESO did have authority, the IESO's position was that there was value in clarifying the language, and if MACD determined that the IESO did not have authority, it was necessary to make the market rule amendments to give the IESO the authority moving forward. Mr. Urukov indicated that since this is a market rule amendment, it should be subject to stakeholder review, as per the Technical Panel decision making process. Since it was discussed with stakeholders without the MACD determination, it was asked if any stakeholders have provided feedback that it is inappropriate to considered this as a market rule amendment rather than a clarification. Mr. Matsugu indicated that no feedback has been received on the merits of the need to discuss the issue.

Ms. Coyle, referencing her written communication to Ms. Pyrka, noted that the materials on this item were provided less than 24 hours before the meeting and asked if the MACD letter had been communicated to stakeholders registered in the engagement process on the market rule amendment. Mr. Huber indicated that the letter will be posted to the IESO website, but has not yet been communicated beyond since it was being shared as a follow-up to a Technical Panel request. Ms. Coyle indicated that it is relevant that stakeholders have the benefit of the MACD findings prior to providing informed feedback through the engagement process, adding that since the proposal is before Technical Panel, it is clear that the IESO's position is that the findings are not relevant to stakeholders. Capital Power's position is that the findings are relevant to stakeholders given that the IESO has communicated to stakeholders their view that this authority has always existed and that this is simply a clarification of the existing authority under the market rules. However, without the benefit of the full MACD report, it would be interesting to know why MACD found that this action fell outside of the IESO's existing authority under the market rules. In response, the Chair noted that this question was discussed at the February meeting, as reflected in the meeting minutes, where the IESO indicated that there were two potential routes based on MACD's determination, but regardless the IESO wished to proceed with this set of market rule amendments. Given that the MACD determination is on the existing market rules and not the proposed market rule amendments, the Chair asked Ms. Coyle to elaborate on why the determination is relevant in the consideration of amendments. Ms. Coyle indicated that Technical Panel members need to consider informed stakeholder feedback on the market rule amendments, explaining that while stakeholders had an opportunity to comment, they also communicated to the IESO that at the stakeholder engagement level, they would like the benefit of the MACD review before considering what the IESO was putting forward. Stakeholders have numerous priorities to balance and it would not be surprising if this was a lower priority given that it was communicated to stakeholders as a clarification of existing authority. It was noted that the MACD findings are relevant to stakeholders for them to consider the proposed rule amendment in light of those findings. Ms. Coyle summarized that the nature of her concern is whether stakeholders have been able to review all of the information prior to providing final comments to the IESO. Mr. Matsugu noted that when the item was first brought to Technical Panel in the fall, it was characterized as a clarification. In December, the IESO posted communication from Glenn McDonald (MACD) indicated that while the IESO has a perspective that is not necessarily adopted by MACD, it became publicly known that the amendments may not be just a clarification. Since that time, these changes have not been characterized by the IESO as clarifying, but rather a prospective change.

David Short asked whether the IESO's design approach would change with MACD's ruling. Mr. Matsugu indicated that the market rule amendment language would not change since the language gives the IESO the necessary authority to take the actions it has been taking, further explaining that the need and the solution have not changed in light of the MACD decision.

Mr. Reinmuller, to address Ms. Coyle's concern, indicated that the only reason to go back to stakeholders would be if the proposed amendments were different, however unless a fundamental change was being proposed, the stakeholdering process would not need to be revisited since it would not change the outcome. Mr. Matsugu agreed and added that the IESO believes the actions are appropriate, the amendments grant the necessary authority and revisiting the stakeholdering would delay the implementation of the IESO taking these actions with the potential of generating CMSC payments in the interim.

The Chair asked Mr. Matsugu to elaborate on the interim period. Mr. Matsugu indicated that if Technical Panel votes to recommend, the proposed market rule amendments will be presented to the Board in August, followed by a 21-day posting period. If the item returns to stakeholders, it would return to the September meeting, then the October Board meeting, followed by a 21-day posting period, placing the implementation in November which would add several additional months where the IESO cannot take the required actions. The Chair added that the impact of this would be CMSC payments during this timeframe.

Ms. Coyle noted that the MACD letter does not indicate whether stakeholders can expect an additional report. Mr. Huber shared that historically when there is a MACD finding and the matter has concluded with the party, a summary of the findings is posted to the sanctions page on the IESO website. Typically, the website posting is not a detailed report, but rather a summary of the findings and any resulting sanction, financial penalty or otherwise.

Mr. Urukov shared his surprise that MACD cited section 4.5.1.1 since he considers this as a clarification, noting that section 4.4.4.3 contradicts the permissive nature of 4.5.1.1. Mr. Huber indicated that the amendment is for an appropriate cross reference. Mr. Urukov also noted a minor change to section 4.4.4.3 regarding italicization.

Ron Collins sought clarification that the proposed amendments are not part of MRP, noting that Technical Panel will not be able to revisit these amendments as part of the MRP package as this vote is binding. Mr. Matsugu confirmed that the amendments are not related to MRP, further noting that this will no longer be relevant under MRP because there will no longer be a two schedule system. The Chair added that there are authorities in the market rules for Technical Panel to come forward with proposed amendments and any concerns about the operation of this rule can be tabled with the IESO.

On a motion by Mr. Short, the Technical Panel voted to recommend the package of market rule amendments to the IESO Board of Directors. Members were instructed that they could provide their rationale in writing following the meeting.

In favour: Mr. Chee-Aloy, Mr. Collins, Mr. Forsyth, Ms. Griffiths, Ms. Jayapalan, Mr. Maharjan, Mr. Papanicolaou, Mr. Pengra, Mr. Reinmuller, Mr. Saunders, Mr. Short, Mr. Urukov

Against: Mr. Coulbeck, Ms. Coyle

Agenda Item 5: MRP – Calculation Engine Batch (Education item)

Jessica Tang, IESO, introduced the MRP Calculation Engine Batch education item noting that the purpose of the presentation is to provide an overview of the draft market rules for the day-ahead market (DAM), pre-dispatch (PD) and real-time (RT) calculation engines. Information was also provided on the structure and content of the proposed market rules for the calculation engines, as well as a summary of stakeholder feedback on the draft market rules.

Ms. Tang provided several updates and reminders:

- The team is always available to discuss the proposed calculation engine rules and answer questions
- Official feedback can be submitted on the rules, even though there is no vote until later in the process
- The Technical Panel will vote on the calculation engine market rule changes with the Market and System Operations batch of market rules; members are encouraged to read the changes between now and this last batch of rules
- Market Power Mitigation market manual updates will be discussed at engagement days on July 21
- The next batch of rules and manuals, noted as interim alignment, will be presented as part of the September engagement days and a reminder will be sent to Technical Panel members to participate; the first Q&A session for this batch will take place at the October Technical Panel meeting

- A new schedule for the remaining batches of market rule amendments will be provided at the September Technical Panel meeting

Presentation Questions and Discussion

Mr. Forsyth noted that all of the new information to be used by the calculation engine shown on slide 11 is financially bound with the exception of the item related to the four area demand forecasts. Mr. Forsyth asked if the IESO will be preparing the demand forecast, whether there is an onus on the IESO with regards to accuracy, and whether the IESO is financially bound or fiscally responsible for the forecast, offering the comparison to load serving entities (LSEs) that are financially bound in US day ahead markets. Mr. Gojmerac confirmed that the IESO will be preparing the demand forecasts, that the forecasts will be prepared through existing mechanisms and that the IESO produces as accurate a forecast as possible. There are also other in-market mechanisms to drive greater accuracy through the introduction of virtual transactions in the DAM. The IESO wants to be as accurate as possible, send the right signals to market participants and strive to have day-ahead to real-time convergence, with mechanisms in place to drive accuracy.

Mr. Collins added to Mr. Forsyth's comments that the Ontario Energy Board (OEB) has penalized the gas industry because of forecasting errors and asked whether the OEB will be reviewing the IESO's forecast methodology, expressing concern that there is a financial impact if the IESO forecast is incorrect. Mr. Collins also asked if there will be any assurances that the forecast will be reviewed to see if changes are needed to the model or whether there can be an outside mechanism to review any harm that has been done because of the forecast, such as a grievance process. The Chair made the distinction that the gas industry consists of for-profit organizations where profits are tied to throughput and when the gas industry under forecasts they have the potential for a windfall which is what drives scrutiny by the regulator. Mr. Collins noted that in the view of the OEB, the reason for the penalty was not based on profit, but rather on the industry's failure to provide a competitive price to the market and to plan effectively. It was further explained that the view was that the industry should have been able to forecast and thus harmed the ratepayer, therefore the shareholder will be penalized. In this case, it is not the ratepayer that will be harmed, but rather the provider through either a lost opportunity or an un-optimized dispatch of the system. Ms. Tang noted that the IESO has key performance indicators and third-parties that provide inputs that are required to be within a certain tolerance. There is no third party that is used to check the accuracy of the IESO forecast. Mr. Gojmerac added that the IESO has been forecasting since the market opened and strives for accuracy, but there are inaccuracies that drive uplift in today's market which will not change in tomorrow's market. Mechanisms are being added to drive greater accuracy recognizing that there is another market mechanism coming with the day-ahead market. Ms. Tang indicated that while this is not part of the MRP scope, it will be taken back to the team for discussion to see what can be done to ensure there is more transparency in forecasting, if possible.

Mr. Chee-Aloy, in reference to the previous comments, added that the governing structure for the IESO and the wholesale market is different than the gas utilities and the OEB. In the wholesale markets, these items are vetted in stakeholder engagements depending on the outcomes of the market. If prices are set in a certain way and one of the main drivers is an erroneous forecast, it affects price. Mr. Chee-Aloy expressed support for Ms. Tang's position with regards to more transparency in forecasting and being prepared to engage with stakeholders as issues arise.

Mr. Urukov asked for clarification on the new initialization features listed on slide 13 as to whether they are examples instead of an exhaustive list. Mr. Gojmerac indicated that it is not an exhaustive list, but rather a highlight of key points.

Mr. Urukov asked whether the blue box shown at the bottom of slide 19 labelled "security constrained resource commitments and schedules" represents the same information as the yellow box at the top of slide 20 labelled "resource commitments and schedules from the scheduling algorithm" because that would indicate that there is a direct connection between the output of one algorithm and the input into another. Mr. Gojmerac noted that there are additional details and offered that another descriptor for the box could have been "a subset of commitments and schedules feed as inputs into pricing".

Mr. Forsyth, in reference to the pricing algorithm shown on slide 20, asked whether the losses component of congestion will be published. Mr. Gojmerac confirmed that the information will be published, indicating that all of the components are published with the locational marginal price.

Mr. Urukov, in reference to the "impact tests to support the application ex-ante" on slide 21, asked whether a sensitivity analysis will be undertaken between dispatch and pre-dispatch to ensure there is no toggling between one ex-ante price correction and another in a different dispatch, so that it will not continually change what is seen as the correct price. Tim Cary indicated that pre-dispatch prices will continue to be updated with new inputs. With respect to mitigation, since pre-dispatch iterates hour over hour, due to time constraints any mitigation decisions made by the pre-dispatch engine will be incremental and every run will evaluate whether it needs to add more mitigation results. Once a resource is mitigated in a pre-dispatch run for a particular dispatch hour, the pre-dispatch will not change the decision as it rolls forward, and this should mitigate the concern that it will be like flipping a switch on and off.

Mr. Forsyth noted that with the current day-ahead commitment process (DACP) there is a re-submission window and energy limited resources move positions to maximize revenue and reduce cost, asking what happens in the DAM as there is no window to do this. Mr. Gojmerac noted that this is correct, that the re-submission window has been removed from the DAM and replaced with new parameters that participants can use to inform the IESO about their energy limited resource constraints in a single submission.

Mr. Urukov connected the reference on slide 28 of the IESO-centralized forecast to be used in pass 2 of the DAM calculation engine with the information noted on slide 11 of market participant submitted forecast quantities for dispatchable wind and solar to be used in pass 1, and asked if anything was changing. Mr. Gojmerac indicated that for pass 1, the market participant will have new capability to submit their own forecast or use the IESO-centralized forecast as they do today. There are no changes to pass 2 and the IESO-centralized forecast will continue be used to assess whether there is enough commitment. It was also noted that this is the approach used by all ISOs in US markets.

Mr. Forsyth, in reference to slides 31/32, asked whether the PD engine will run for all of the DAM, and once DAM runs for the day, if it will start to forecast for tomorrow. Mr. Gojmerac indicated yes, the PD engine will run during the DAM and forecast schedules for the balance of the current day. Then after the DAM runs, the first run of the PD engine for tomorrow will start at 20:00 and looks at the last hours of the current day and the next 24 hours of the next day. It was noted that there will be educational sessions on this topic which will include illustrated timelines for the market systems operations batch.

Mr. Chee-Aloy, in reference to slides 31/32, indicated that if wind and solar decide to use their own forecast that it is then part of their offer submitted into DAM, noting that he does not believe a lot of wind and solar resources will do this. Taking the opposite case, if the IESO loads its centralized forecast as an input into DAM for wind and solar generators, this will carry over into PD. With the 28-hour look ahead period where you are optimizing for the continuous hours to some time up to real-time dispatch, the inputs to the calculation engine are changing every hour. Is it correct to assume that the centralized forecast input for wind and energy production will change hour by hour in pre-dispatch given that this is the nature of forecasting wind and solar energy output. Mr. Gojmerac confirmed that this is correct. Mr. Chee-Aloy also asked if it was correct that the outcome could be the potential need to change the commitment of non-quick start resources and some hydro depending on rules and constraints in the tool and the capabilities of the facility. Mr. Gojmerac indicated both statements were correct. Based on this, Mr. Chee-Aloy indicated that there could be lots of changes hour-to-hour in pre-dispatch. Mr. Gojmerac noted that as inputs change, the outputs from one hour to the next can also change. Mr. Chee-Aloy indicated that there will be lots of hydro and gas-fired generators that will be going back and forth with the IESO on what is feasible. Mr. Gojmerac noted that this is currently dealt with in today's PD process and that the IESO will use the same levers for tomorrow's process.

Mr. Forsyth, in reference to slide 32, asked how many hours ahead the "binding intertie schedules and prices" will be. Mr. Gojmerac indicated that the binding intertie schedules will happen on the hour prior to the dispatch hour, same as today.

Mr. Urukov, in reference to the impact tests noted on slide 37, asked about the scenario when there are two resources, one that has failed the impact test in energy and one that has failed in Operating Reserve (OR) runs, and whether the subsequent step applies the corrections to both resources in both of the markets and then runs with the new inputs at the same time. Mr. Cary indicated that each of the conditions in the rules outlines which dispatch data results in testing. If a resource meets the condition for BCA for energy, the rules state the dispatch data parameters that are tested, and for the most part it maps energy to energy and OR to OR. There is one exception for OR where commitment costs need to be assessed under certain circumstances if a resource meets certain OR conditions. The rules outline the mapping, the list of dispatch data parameters that are tested and the conduct thresholds that are applied. Mr. Urukov asked if one resource fails a number of energy related data parameters that requires replacement with reference levels and another resource fails in OR, whether all of these will be replaced at the same time during the next step. Mr. Cary indicated that this was correct. When the reference level schedule and pricing run is entered, the energy offer for the first resource will be replaced with the energy reference level, and the OR offer for the second resource will be replaced with the OR reference level and then the reference level scheduling and pricing will be run with all of the inputs. Since there is only one opportunity to determine the reference level scheduling and pricing, everything is done simultaneously.

Mr. Urukov, in reference to slide 38, asked if a mitigation decision in pre-dispatch is ever taken off. Mr. Cary indicated it would not be removed. Mr. Urukov further asked if system conditions change materially in a way that the initial submitted offer was not problematic, it will not undo this mitigation decision. Mr. Cary indicated that in the DAM there is time to do this assessment, however in pre-dispatch there is not. If at the time the decision was made to mitigate for a particular dispatch hour the resource was identified to have market power and offer significantly above its marginal costs and was driving an impact to price, given these conditions and the fact that there is functionally no time to reset, then the condition is passed forward. Mr. Urukov asked if this will be for energy and OR. Mr. Cary confirmed this was correct and noted that on the backend there will be a list of all mitigation decisions, and the list will be appended as each decision is made.

Mr. Reinmuller, in reference to slide 38, noted that in DAM there are the most opportunities to mitigate and adjust and asked if the opportunities to recalibrate are less as we move to pre-dispatch and real-time. Mr. Cary indicated that the opportunities to recalibrate the inputs are significantly less in the pre-dispatch timeframe, however the logic of the application of mitigation is identical between DAM and the pre-dispatch. The functional aspect and the iterative nature of pre-dispatch means that a decision is needed for pre-dispatch that is not needed for DAM because DAM only happens once where everything is run then finished for one set of outputs, whereas for pre-dispatch the schedules, prices and commitments are continually being reassessed. Mr. Urukov noted that it is possible that the market conditions can change so that none of the mitigation is required if the analysis had been done at that point in time. Mr. Cary indicated that participants are free to update their offers, outside of any offer change restrictions, and that market participant submitted offers are an important input into the assessment of mitigation decisions. Given that there is no restriction, it is not possible to guarantee that there will be no changes to conditions within that time frame. One consideration is that if a participant is submitting an energy offer price before its reference level value, the IESO will update the reference level value to be equal to the low offer. This pre-processing is done even after a decision to mitigate a resource has been applied; this pre-processing continues to be carried out. For example, if a resource has been mitigated in the 10-hour ahead pre-dispatch, they have the freedom to submit a very low offer price and that low offer price will be considered as pre-dispatch continues to schedule across the hours, so there is some ability to continue to encourage the dispatch scheduling optimizer (DSO) to schedule that resource for that dispatch hour, and it is not being forced into the higher reference level. Mr. Urukov noted that this is trading off accuracy for certainty which can potentially present issues. Mr. Cary indicated that mitigation is about using different inputs, it is not a restriction or price administration and while the offer price may be changed for a reference level, there is nothing restricting the LMP at a resource from responding to the new market conditions.

Mr. Reinmuller, in reference to the second line on slide 42, asked if a participants' reference level would ever be removed if the mitigation is not needed. Mr. Cary indicated that once the reference level value is inserted for a particular dispatch hour, the original submitted offer will never be used in future runs of the DSO as there is not sufficient processing time to re-evaluate if the conditions continue and if the submitted dispatch data is continuing to drive a price impact. Mr. Reinmuller summarized that the worst case for a market participant is that they will have reference level values, which are based on costs, instead of their offers. Mr. Cary confirmed that mitigation will replace submitted dispatch data with reference values which are based on short-run marginal costs.

Mr. Urukov, in reference to slide 44, noted that the approach seems to be conservative, and one that increasingly locks resources down into incremental mitigation. When looking at this level of implementation details, it was asked what kind of analysis the IESO will undertake to indicate that this process is appropriate, noting that this analysis could look at the kinds of changes that could have taken place before getting to the real-time. It was also noted that this could give comfort that resources will not be frequently over-mitigated, as well as show whether a different solution could have been developed if there were no time constraints where resources would not need to be mitigated. It was suggested that the analysis could be run between the day-ahead and the last pre-dispatch to see how often there is a difference. Mr. Cary indicated that there is no existing plan to construct alternate potential calculation engine formulations and test performance against the actual calculation engine, further adding that there is no connection between the day-ahead and the pre-dispatch mitigation decisions and that mitigation decisions are not being passed from DAM to pre-dispatch. Mr. Urukov noted that when assessing the appropriateness of the approach, it is reasonable that the IESO should be able to demonstrate that the mitigation process is correct. For example, the non-constraint area (NCA) could become not binding and then the mitigation would not need to have been applied and asked if it could be demonstrated that this will not be a problem, or if it is, that it is a small one. Mr. Cary explained that there are some challenges in doing such an analysis in that assumptions would need to be made on behalf of the market participants and how they would react, for example, would the assumption be that under the alternate formulation the market participant would leave the offer unchanged? Because if a mitigation decision is not binding, a participant may choose to reduce their offer to a penny below the relevant conduct threshold, which is not the desired outcome the IESO is looking for as the conduct thresholds are not intended to represent an acceptable degree of exercise of market power. This approach of non-binding mitigation decisions, could lead to this type of outcome which is a risk. Mr. Cary further noted that participant behaviour is an important input into the mitigation decisions made by the engine. In terms of assessing the appropriateness of a mitigation decision, the calculation engine will follow the market rules and therefore the mitigation decision made within the engine are consistent with the obligations under the market rules and thus are appropriate. There is a risk that a different decision would be made with a different set of inputs or if some of the inputs changed, but this does not undermine the appropriateness of the decision that was made at the time with a given set of inputs. Participants will have clarity into how the pre-dispatch will work and can keep this in mind as they are determining their dispatch data. They will also know the relevant conduct thresholds and reference levels and can make a decision on the level of risk they will take on. Ms. Tang added that there will be a continuous assessment at how market power mitigation is functioning. Mr. Urukov questioned whether this is uncertainty at the expense of accuracy, which would be hurtful to participants and asked what can be done ahead of time to assess this and provide comfort that this will not happen very often. Mr. Cary noted that while decision making is one direction, applying mitigation decisions but never removing them in pre-dispatch, the fact that the pre-dispatch is forced to make mitigation decisions two hours in advance, means that changing system conditions could go either way. There could be problems that manifest within the two-hour look ahead period close to real time that because mitigation is being assessed two hours in advance, goes past the checks since all of the decisions have been made. It was described that this is not a one-way street to disadvantage one type of participant, and that these are solution-level decisions that were required because of the realities of processing time. Ms. Tang noted that this feedback would be taken back for discussion.

Mr. Coulbeck, building on Mr. Urukov's feedback, noted that when looking out at hour 24 etc., there are no imports/exports beyond the day ahead imports/exports. If something were to change in the resource mix, the potential for imports/exports would not be evaluated beyond the locked-in hours which could change the constrained areas and has the potential to reduce price. Mr. Coulbeck indicated that there needs to be a way to evaluate the implications once a mitigation decision is made. Mr. Cary noted that the commitment decisions made by pre-dispatch will be based on the inputs it has available to it and because the calculation engine will be taking inputs that exclude incremental intertie transactions, commitment decisions will be made based on the set of inputs and supply that is available. It is important that the mitigation assessments are made on the same basis and that there is consistency between the two. Mr. Coulbeck noted that this reiterates the concerns raised by participants that import/exports are not being evaluated outside of the locked in timeframe.

Mr. Collins, in reference to slide 48, asked how the PSU modelling will handle units in Ontario that are single and combined cycle. Mr. Gojmerac indicated that single cycle operation can be managed through a flag where the participant can leverage the PSU model by telling the IESO that they are operating in single cycle mode. Mr. Collins related this to the modelling where the IESO is using assumptions to optimize the system, where it will be optimized on 'what the inputs are' not 'what the inputs could be'. Based on this, Mr. Collins summarized that if it is better for pricing that a participant operates in single cycle, the IESO would not direct them to do that, and would run the model on how the participant chose to operate. Mr. Gojmerac confirmed this was correct.

Mr. Forsyth, in relation to the PSU modelling, asked why the IESO is adding the information instead of the generation owner. Mr. Gojmerac noted that the PSU model simply allows the calculation engine to recognize that a proportional relationship exists between the gas and steam units at a combined cycle facility. The generator owner provides all of the offer inputs to the model knowing a relationship exists. Alternatively, the participant can opt not to use the PSU model and try to manage the gas and steam unit relationships in structuring their offers for each gas and steam resource separately.

Mr. Forsyth, in reference to slides 51/52, asked whether the DAM will still schedule resources on an outage or whether this will be taken into account. Mr. Gojmerac indicated that outage coordination will remain the same and there could be a day-ahead schedule that may not articulate as expected if the outage coordination did not take place. Mr. Cary added that from a withholding perspective for mitigation, outages are factored in when the IESO is looking at reference quantities to assess whether a participant is providing all available supply. If there is a circumstance where the participant did not provide offers on OR because of an outage plan, this will be factored into the mitigation. Mr. Forsyth shared that he could see a dispatchable load on a scheduled outage ending up on a schedule which means they would then be bound to the day-ahead schedule potentially having an impact on energy and OR, which could affect price. Mr. Gojmerac added that for outages not within their control, there is a risk that they could end up having to balance against the day-ahead schedule that meant a certain price. On average, this could be a risk or an opportunity. The day-ahead is intended to provide financial and scheduling certainty through price and they could be buying out at a profit or loss because of changes.

Mr. Urukov, in reference to slide 51/52, asked about the existing shadow pricing and how islanding is reflected in the creation of the price. Mr. Gojmerac indicated that this would be taken back for discussion.

Mr. Urukov asked whether incremental changes will be identified when the Market Power Mitigation Market Manual is published for review. Ms. Tang confirmed that changes will be identified.

Other Business

No other business.

The meeting adjourned at 12:05 p.m. The next meeting will be held on September 13.

Action Item Summary

Date	Action	Status	Comments
March 23, 2021	In relation to MR-0448-R00 market rule amendments, the IESO will periodically review the availability of error and omissions insurance for negligence.	Open	Update provided during November 2021 meeting.