

Minutes of the IESO Technical Panel Meeting

Meeting date: 14/December/2021
Meeting time: 09:00 a.m.
Meeting location: Video conference

Chair/Sponsor: Michael Lyle
Scribe: Mitchell Beer / Smarter Shift Inc.

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

Invitees	Representing	Attendance Status Attended, Regrets, Teleconference
David Brown	Ontario Energy Board (Observer)	Attended
Jason Chee-Aloy	Renewable Generators	Attended
Ron Collins	Energy Related Businesses and 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
Wendy Payne	Market Participant Consumers	Attended
Forrest Pengra	Residential Consumers	Attended

Invitees	Representing	Attendance Status Attended, Regrets, Teleconference
Robert Reinmuller	Transmitters	Regrets
Joe Saunders	Distributors	Attended
Vlad Urukov	Market Participant Generators	Attended
David Short	IESO	Attended
Michael Lyle	Chair	Attended
Secretariat		
Agatha Pyrka	IESO	Attended
IESO Presenters		
Khaqan Khan	IESO	Attended
Stephen Nusbaum	IESO	Attended

Agenda Item 1: Introduction and Administration

Agatha Pyrka, IESO, welcomed participants and reminded everyone of the standard rules of participation for online meetings.

The agenda was approved on a motion by Joe Saunders.

The minutes of the previous meeting were approved on a motion by Sarah Griffiths.

Chair's Remarks:

The Chair recalled his hope last year that the Technical Panel would be able to meet in person in 2021. That wasn't the way the year went, but he expressed the same continuing hope for 2022.

The Chair thanked Technical Panel members for their hard work in the course of a very busy year. He recalled that the Panel had welcomed three new members and started work on new Market Rules under the Market Renewal Program, with more batches to follow in the new year. Panel members also reviewed and recommended Market Rule amendments on operational requirements, the capacity auction, and corporate priorities, among other topics.

Agenda Item 2: Engagement Update

Ms. Pyrka reviewed the prospective Technical Panel schedule and the engagement update in members' meeting packages. She noted that the prospective schedule had begun to progress into early 2022, with some items shifting around to help balance the work load without changing the effective dates for specific rule changes. She asked Panel members to watch for calendar invitations for the 2022 meeting dates.

Ms. Pyrka reported that the engagement on Intertie Flow Limits had been launched during the November Engagement Days, with stakeholders submitting questions on the actual equations, the need to clarify language, the interpretation of the rules, and the impact on interties, including emergency agreements and wheel-through transactions. The IESO received written comments from three stakeholders, and will post responses prior to the Panel's January meeting. A recording of the Engagement Days session is available on the engagement web page. Ms. Pyrka noted that the vote to post on Intertie Flow Limits was scheduled for January, with a vote to recommend in February.

The day's education session on Synchrophasor Monitoring Requirements was expected to lead to a vote to post in January and a vote to recommend in February. The prospective Technical Panel schedule also reflected new engagements on a replacement for the current IESO Settlement System, and enhancements to the 2022 Capacity Auction.

On Market Renewal, Ms. Pyrka reminded the Panel of the email she had circulated in November, with links to a list of items carried over from the detailed design phase to the implementation phase, as requested by members. She said an MRP public engagement session coming up December 15 would cover solutions to practical issues arising from Market Renewal implementation, reference levels for pseudo units, and integration of storage design. The IESO was also planning to post an MRP Readiness Plan by the end of the year, incorporating input from the Technical Advisory Group.

The December Engagement Days were set to take place December 15-16, with sessions on MRP and Resource Adequacy, Enabling Resources, and the Hybrid Integration Project.

Ms. Pyrka thanked Vlad Urukov for the keen eye he brought to his comments at the November meeting, noting that the optional engagement update document would now be dated to reflect the lag between the distribution to Panel members and the date on which updates are posted.

Mr. Urukov asked for a status update on the engagement on Replacement of the IESO Settlement System. Ms. Pyrka said the engagement had not officially closed and agreed to report back to the Panel with further details. Mr. Urukov said past stakeholder rounds have been closed out with formal documentation reflecting takeaways from the engagement process. Ms. Pyrka said the IESO's past practice has been to keep engagements open until proposed rule changes have been adopted by Technical Panel, and suggested considering that stage as the official closure point.

Emma Coyle stressed the importance of ensuring all market rules and related issues are fully stakeholdered before they're brought to Technical Panel. She recalled a couple of agenda items where it wasn't clear to her whether rule amendments had been closed off before the Panel's deliberations began. On Intertie Flow Limits, she noted that a review was under way to clarify the IESO's actions, and said it would be useful for the Panel to see the results of that investigation to better understand the urgency around the item. The Chair said the timing of that decision was not within the IESO's control, but agreed to discuss the implications of the investigation at the Panel's January meeting.

Agenda Item 3: Updates to Synchrophasor Monitoring Requirements

Stephen Nusbaum, IESO, reported on the upcoming Market Rule amendment for Real-Time Monitoring Changes. As the Ontario electricity system continues to evolve, he explained, it has become increasingly dynamic, and more dependent on new technologies and attributes. To fulfill its mandate, the IESO needs new tools to maintain reliability and resilience, and Phasor Management Units (PMUs) are essential to ensure situational awareness, delivering a comprehensive view of the system that includes voltage and current, phase angles, and local time stamps. PMUs provide 60 samples per second, compared to the one every two to six seconds that the IESO currently receives, delivering more robust visibility into the power system and a better understanding of how external events affect the Ontario grid.

With PMU deployments increasing under the North American Synchrophasor Initiative in other jurisdictions, Mr. Nusbaum said it's important for Ontario to catch up. So the proposed Market Rule amendments will require transmitters and applicable generators to provide synchrophasor data to the IESO, by creating or leveraging existing real-time data links and either installing new PMUs or using existing equipment. The IESO is proposing a vote to post the draft amendments for further stakeholder comment in the first quarter of 2022, with a vote to recommend to the Board in Q2.

In response to a question from Mr. Urukov, Mr. Nusbaum said Ontario currently has a number of PMUs, all of them installed by Hydro One, that meet the current expectation for data quality. Khaqan Khan, IESO, said the eleven PMUs installed by Hydro One are a part of a pilot project used for off-line analysis and that the system now needs more data points to support power system assessments. Mr. Urukov said he had hoped the system would be able to leverage the PMUs that are already in place.

Ms. Griffiths asked whether the impact of the proposed amendments would be limited to Hydro One and Ontario Power Generation, as opposed to smaller market participants. Mr. Nusbaum said the vast majority of the new PMUs will be required from the three market participants with single generator units or aggregated generator facilities with name-plate ratings of at least 100 megavolt-amperes (MVA), along with 10 or 11 other facilities.

Ms. Coyle asked how the IESO would assess whether a facility's capacity factor was sufficiently low to make the PMU requirement not applicable. Mr. Nusbaum said the IESO's operations and planning group was working on that question, aiming to set a variable threshold of a few percent based on a facility's location and type, as well as the longer-term plan for the region. Ms. Coyle said some facilities with historically low capacity factors may change over time, and encouraged the IESO to engage actively with market participants as the new rules go into implementation. Mr. Nusbaum said the IESO was planning another update early in the new year.

Dave Forsyth asked whether the IESO foresaw any synchrophasor requirements for onsite generation at industrial facilities. Mr. Nusbaum said the discussion to date was limited to generators and transmitters, and Mr. Khan said he wasn't aware of any affected Market Participants outside of generators and transmitters.

Ron Collins asked what steps would be taken to secure proprietary information within the new system. Mr. Nusbaum said the IESO's IT and information security group would leverage best practices across North America in the course of implementation. Specific cybersecurity requirements

will show up in the Market Manuals, not the Market Rules, but he said the IESO places top priority on secure management of the high volume of sensitive data it will be receiving.

Mr. Forsyth asked what the new units would cost. Mr. Nusbaum referred him to a new white paper on the IESO website, adding that costs vary from \$25,000 to \$200,000 per station for generators, a bit less for transmitters. As a “conceptual estimate”, he said the new installations required across the province would cost about \$10 million.

Agenda Item 4: Technical Panel and Markets Committee

The Chair said the agenda item arose from discussion at the Technical Panel’s virtual lunch with the IESO Board in October, concerning greater interaction and engagement between the Panel and the Markets Committee of the IESO Board. He invited broader discussion among Panel members as a listening exercise to help IESO staff understand the problem to be addressed, what enhanced engagement or access would look like, and whether the topic pointed to a broader concern about stakeholders’ access to the Board of Directors.

Jason Chee-Aloy, who originally introduced the issue in October, said Technical Panel members and all stakeholders share an interest in seeing Market Renewal implemented effectively. As the entity responsible for voting on draft Market Rule amendments, he said the Panel would be confronted with the volume of activity, the nature of amendments that will effectively redesign the province’s wholesale electricity market, and the certain probability of dissenting votes, all pointing to the need for a forum to get ahead of those challenges.

Ms. Griffiths recalled the time and effort that had gone into the discussion of the Transitional Capacity Auction two or three years ago, noting that there had been no public reporting to gauge how that deliberative process had been reported to the Board. She asked whether a more transparent process would have saved time and increased efficiency for all concerned, and why Board materials and meeting dates are kept confidential. Ms. Griffiths stressed the professionalism of IESO staff and said she intended no accusations, but suggested a more transparent process might have made it possible to address outstanding issues through the Board, the Technical Panel, or the stakeholder engagement process itself, with no need for recourse to the Ontario Energy Board or, potentially, the courts.

The Chair said materials on Market Rule amendments submitted to the Markets Committee and the Board are in the public domain, barring exceptional circumstances, and the rulemaking process itself is transparent.

Ms. Coyle said it was sometimes difficult to separate qualitative statements from IESO staff in support of proposed Market Rule amendments from assessments of whether those rules will function as drafted. It helps that Panel members have the opportunity to state the reasoning behind their votes, but the process still makes it difficult to keep track of claims that have not been proven when a recommendation goes to the Board. While the IESO staff will certainly have an opinion on the effects of proposed Market Rule amendments, she recommended clear, neutral language to the extent that specific claims are not supported by detailed analysis.

The Chair noted that the Technical Panel's mandate is limited to market design, not whether Market Rules as written actually implement that design. Ms. Coyle agreed and said that distinction should always be made clear to the Markets Committee and the Board.

Mr. Chee-Aloy pointed to the high stakes around the discussion, given the significant level of uncertainty on how the system's resource adequacy mechanisms will be applied. The heightened risk has stakeholders pushing back on some aspects of RFPs, and there are major uncertainties around the implementation of Market Renewal, what will happen during testing, and how future amendments will work their way through the system. Asset owners and developers don't know what LMPs will look like or how they will be dispatched, but are being told that payments will be structured to only procure certain types of supply, with the result that some entities are now looking at tearing down generation due to the uncertainty. Renewable generators are counting on the Market Rules, but then the information flowing from stakeholder engagements raises pressure on Technical Panel members to anticipate how specific rules will address broader issues. Despite all the effort the IESO is putting in to lead stakeholder engagements and convey key points to the Markets Committee and the Board, he said the risk in the system still rests on investors and asset owners, and with a lot of change about to take place over a short time span, it will be essential for stakeholders to address that concern while trying to avoid appeals to the OEB.

Mr. Urukov asked whether the Markets Committee had questions that were not being answered through the current process, and whether a lack of information was impeding decisions by market participants. He suggested more in-depth discussion with the Markets Committee to address overarching issues that go beyond a single vote on a batch of proposed Market Rule amendments, noting that there is currently no mechanism for the Technical Panel to communicate with the committee at that level.

Candice Trickey, IESO, said it might be possible to make better use of the Stakeholder Advisory Committee (SAC) to ensure that concerns are brought forward in a public forum. Mr. Forsyth expressed concern that the information flow between the Panel and the SAC might not be entirely accurate and complete, adding that the Panel could convey technical issues more clearly if it had direct access to the Markets Committee. He cited compensation for demand response as a topic where the policy position put forward by staff was fully communicated to the Board, but the Panel's feedback was not.

Ms. Trickey said the IESO was open to discussion on information flows, but distinguished between the technical issues within the Panel's purview and the policy debates that occur at the level of the OEB. On the matter of the Transitional Capacity Auction, she said the IESO and stakeholders did have distinct perspectives, and it was appropriate to talk out those differences before the OEB. She acknowledged Panel members' interest in more effective dialogue with the Markets Committee, to ensure that market participants' views are heard and understood.

Rob Coulbeck cited stakeholders' concerns about the impact of Market Rule amendments under the Market Renewal Program and suggested educating the Markets Committee on upcoming batches at the same time as the Technical Panel. Jessica Tang, IESO, said the IESO already educates Market Committee members before the vote to post on each batch of amendments. She affirmed that the Board relies on the Technical Panel to dig in on the specifics of proposed amendments.

Mr. Coulbeck said much of the discussion so far under Market Renewal had been administrative, but that the more in-depth operational issues would require greater understanding by all concerned. Ms. Tang said the IESO had plans for a stakeholdering process to ensure that everyone understands the issues, beyond just reading the documentation. She predicted longer engagement sessions in the future, noting that the team currently had internal reviews in progress on calculation engines and will adjust the stakeholder approach if required.

The Chair asked what an enhanced dialogue between the Technical Panel and the Markets Committee might look like. Mr. Chee-Aloy suggested regular touchpoints, in the form of quarterly meetings or threshold criteria that would allow specific discussions to take place. He acknowledged Mr. Urukov's point that the discussion is a two-way street and referred to the added transparency that occurred with market opening in the United States. While Ontario stakeholders aren't asking for the same structure, he reiterated a common interest in an efficient, seamless process.

Mr. Coulbeck suggested identifying points of concern or confusion in proposed Market Rule and Market Manual amendments to ensure that both the Technical Panel and the Markets Committee understand the specific issues involved. The Chair suggested a more ad hoc process to address topics as they arise.

Ms. Griffiths asked how the Markets Committee had responded to the Panel's concern. The Chair said the issue had not yet been raised with the committee, but would likely be included in a larger discussion on stakeholder access to the Board, likely in March.

On that basis, Ms. Griffiths asked whether the discussion would conclude in time to have an impact on the Market Renewal process. The Chair said he couldn't anticipate where the discussion would go beyond the initial discussion in March. Ms. Griffiths said Market Renewal was obviously a primary concern for all, and the Chair acknowledged the point.

Agenda Item 5: Annual Review of Panel Effectiveness

The Chair invited discussion on the Technical Panel's process and administration, including the decision over the last year to add Market Renewal education to meetings. He acknowledged members' feedback on the need for more examples in education items on proposed Market Rule amendments and invited comment on any administrative issues, including:

- The sequencing of background materials, and whether Panel members would prefer to receive documentation in a single batch or as it becomes available;
- The Panel's minute-taking requirements, and whether it would be appropriate to begin recording meetings;
- How the IESO can support members' efforts to keep up with the large number of engagements in progress.

Ms. Griffiths said the meeting minutes are a useful tool in their current form, and far more efficient than having to review a three-hour recording. She said she appreciated seeing a single email referring her to materials available online, but would prefer receiving notice as individual items are posted.

Mr. Urukov agreed that the minutes in their current form are useful, and said the year had raised some interesting challenges, including recommended Market Rule amendments that had been brought to the Panel with no prior consideration by stakeholders. He said the Technical Panel is sometimes challenged to process incoming comments at the very end of a stakeholdering process, then add its own perspectives and contend with new input following a vote to post. He suggested extending those processes so that they occur in sequence, rather than in parallel.

Mr. Saunders said he found the minutes helpful and would appreciate more time to review materials as they are available.

Forrest Pengra said he saw potential value in recording meetings and would appreciate more training opportunities and educational sessions.

The Chair said he was hearing strong interest in continuing the meeting minutes in their current form. He said the IESO would attempt to procure those services, though cost could be an issue. He asked whether Panel members had any concerns about recording sessions.

Mr. Collins asked where the information would be stored, noting that some stakeholders would object to using storage servers based in the United States. He also asked how long the information would be retained, and for what purposes.

The Chair said the IESO already records other stakeholder sessions. Ms. Pyrka said those files are stored for several years, but for the Technical Panel it might be sufficient to retain the recordings only until the official minutes are finalized.

Ms. Coyle asked whether meetings would be recorded with video as well as audio, and whether the IESO's current minute-taking service uses audio. Ms. Pyrka said Microsoft Teams would provide both, other engagement platforms offer audio only, and the current minute-taking service uses no form of audio or video recording.

Ms. Coyle said the purpose of the Technical Panel is quite different from stakeholder engagement, and asked whether electronic recording in any form would impede open discussion. Mr. Urukov agreed that the current minute-taking process allows members to keep specific comments off the record, but that becomes more challenging with a recording.

The Chair noted that Technical Panel meetings are public, with observers in attendance, unless members opt to move in camera. Ms. Griffiths agreed, adding that Technical Panel deliberations are supposed to be transparent, just as Panel members had said under the previous agenda item. She said she would prefer audio but not video if the IESO opts for recording.

Indra Maharjan asked whether Panel meetings would still be recorded if and when sessions move back to an in-person format. Ms. Pyrka said options would be available for combined audio and video or audio only. Mr. Maharjan asked whether video recordings would be posted on public platforms like YouTube. Ms. Pyrka said live meetings before the pandemic were open to observers in the room and by phone, but the Panel could revisit the process following a return to in-person gatherings. Ms. Griffiths said she was a member of another regulatory body that had found it cost-effective to post meeting recordings on YouTube.

The Chair asked whether video recordings via Microsoft Teams focus on the speaker or all participants. Ms. Pyrka said video would capture all participants who use the camera feature.

The Chair said participants had expressed a fairly strong consensus for retaining the current approach to minute-taking, along with concerns about how a recording system would work, where the files would be stored, and for how long. He acknowledged Mr. Urukov's point that the IESO should closely follow its own processes, Mr. Forrest's interest in maximizing opportunities for member education, and the general consensus that notice of meeting materials should be circulated as they become available.

Other Business

Ms. Tang reported that the IESO's responses to stakeholder feedback on the Market Power Mitigation batch had been posted to the engagement website December 13, and updated documents were expected to follow by the end of the week. She acknowledged the time and effort stakeholders had put into their excellent feedback and advised that none of the comments resulted in significant design changes, so that most of the heavy redlining in the updates reflected editorial changes and clarifications. She said the IESO would issue an outline of the changes to help Panel members navigate the latest versions, then invited further Technical Panel discussion in January ahead of a vote to post.

Mr. Chee-Aloy asked when the next batch of proposed amendments would be published. Ms. Tang said proposals on calculation engines would be presented to the broader stakeholder community during the February Engagement Days, with Technical Panel education scheduled for May and June.

The Chair wished Panel Members a good holiday and encouraged everyone to get some rest, have some fun, and come back refreshed for a busy 2022.

The meeting adjourned at 10:37. The next meeting will be held on January 18, 2022.

Action Item Summary

Date	Action	Status	Comments
October 5, 2021	In relation to MR-00468 – Intertie Scheduling Limit, specify if the proposed amendments refer back to the appendix rather than the equation governing intertie limits.	Open	Update to be provided after the stakeholder engagement process.
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 TP meeting.