Minutes of the IESO Technical Panel Meeting

Meeting date: March 3, 2026
Meeting time: 9:00 a.m. – 9:35 a.m.
Meeting location: Virtual

Chair/Sponsor: Michael Lyle

Scribe: Trisha Hickson, IESO

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

Invitees	Representing	Attendance Status Attended, Regrets
Jason Chee-Aloy	Renewable Generators	Attended
Rob Coulbeck	Importers/Exporters	Attended
Dave Forsyth	Market Participant Consumers	Attended
Jennifer Jayapalan	Energy Storage	Attended
Forrest Pengra	Residential Consumers	Attended
Robert Reinmuller	Transmitters	Attended
Vlad Urukov	Market Participant Generators	Attended
Michael Pohlod	Demand Response	Attended
Matthew China	Energy Related Businesses and Service	Regrets
David Short	IESO	Attended
Michael Lyle	Chair	Attended
Secretariat		
Trisha Hickson	IESO	Attended

IESO Presenters/Attendees	
Presenters:	**Attendees:**
Dame Jankuloski	Jo Chung
	Darren Byers

Agenda Item 1: Introduction and Administration

Trisha Hickson welcomed everyone joining the meeting.

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

The February 10th meeting minutes were approved on a motion by Vlad Urukov.

Introductory Remarks from the Chair:

Michael Lyle, Chair welcomed everyone and noted one update regarding an action item from the February meeting minutes. Mr. Lyle noted that in February, the IESO indicated that it would report back on a timeline with respect to the IESO sharing analysis on lost opportunity costs and forbidden regions. Mr. Lyle shared that the analysis would be brought forward at the September meeting.

Agenda Item 2: Engagement Update

Ms. Hickson provided an update on the prospective schedule which is posted on the Technical Panel webpage and identified upcoming sessions and noted that the March engagement days agenda would be included in the IESO bulletin.

Agenda Item 3: Updates to IESO Monitoring Requirements

Dame Jankuloski outlined that the discussion and presentation would cover proposed updates to IESO monitoring requirements, with a focus on obtaining phasor data from the field, primarily for electricity storage facilities. Mr. Jankuloski noted that while reviewing the storage related requirements, some minor updates were also identified for other facility types with existing requirements. The presentation included background and introductory context for the updates, a summary of the proposed market rule

changes and corresponding market manual changes, as well as a summary of stakeholder feedback received during the engagement session held in December 2025. Mr. Jankuloski emphasized that the system is becoming more dynamic as more inverter-based technologies are installed, and therefore monitoring requirements need to stay ahead of these developments.

The presentation and associated materials are available on the Technical Panel webpage.

- Michael Pohlod asked if this applies to behind the meter resources or only directly connected facilities.

Mr. Jankuloski noted that the proposed amendments are for directly connected facilities for now and the IESO is evaluating whether this would be applied for behind the meter resources in the future.

- Mr. Pohlod acknowledged and asked if future discussions would take place through a separate market rule amendment process to go behind the meter?

Mr. Jankuloski noted it would go through as a separate market rule amendment as the current wording is for directly connected facility units and facilities only.

- Mr. Pohlod acknowledged.

- Robert Reinmuller, Hydro One noted that most phasor measurement units (PMUs) currently in service were installed by Hydro One and asked how closely the increase from approximately 80 units to over 200 had been coordinated with Hydro One. Mr. Reinmuller emphasized that while new infrastructure projects (e.g., LT1, LT2, and future LT procurements) will include PMU requirements more easily, there is more concern with existing stations and facilities that would require upgrades. Mr. Reinmuller added the importance of ensuring these costs are included in Hydro One's upcoming rate applications with the Ontario Energy Board and noted that if new installations are not properly accounted for in their current rate application, it will be difficult to secure funding later. Mr. Reinmuller emphasized the need for clear year over year implementation planning and strong coordination between Hydro One and the IESO and added that he would check internally with Hydro One.

Mr. Jankuloski confirmed active coordination with Hydro One and noted that prior to presenting these changes to stakeholders, the IESO engaged with Hydro One to ensure the increased PMU reporting rate would be tested and supported from a network infrastructure perspective, and no major concerns were raised. Mr. Jankuloski acknowledged that storage on Hydro One's side may be impacted by moving from 30 to 60 samples per second, and that local storage requirements could affect costs, which would need further investigation. He stated that on the IESO side, the system has been sized based on anticipated PMU volumes, initially accounting for up to 400 PMUs and a sampling rate of 60 samples per second,

leaving spare capacity to manage different technologies and requirements as they evolve, and noted that the current proposed requirements represent about half of the system capacity that was planned.

- Vlad Urukov asked for more information regarding the decision to move certain sections from the market manuals to the market rules.

Mr. Jankuloski noted that the change was primarily due to requirements to follow certain templates and layout standards. The shift was described as mostly cosmetic, including adjustments to numbering to align with the required format. It was noted that there were no major technical changes to the wording; the update was largely a cosmetic alignment with the new standards.

Darren Byers added that the initial explanation was accurate. He noted that through the MRP process there was a clear delineation established regarding what belongs in a market rule versus a market manual, with market rules intended to contain higher-level obligations. Based on that view, when reviewing this file, the team identified areas where additional references should be made at the rules level rather than in the manuals.

- Mr. Urukov acknowledged the answer.

- Dave Forsyth asked for clarification on the value of the proposed change, noting they currently have 86 units that may all need to be upgraded to 60 cycles per second. Mr. Forsyth stated that he does not have a sense of the cost impact and asked what the value is, indicating that understanding the scale, whether it is $1 million or $100 million, would be helpful.

Mr. Jankuloski explained that the previous requirement of 30 samples per second was the minimum, while 60 samples per second was the preferred rate under the original market rule and market manual amendments. The current update adds electricity storage facilities to these requirements. He noted that due to the type of technology used by storage facilities, oscillation phenomena may occur, and these oscillations cannot be monitored in real time using SCADA because of its lower sampling rate. PMUs can detect these issues, and increasing the sampling rate to 60 samples per second allows monitoring of oscillations between 0 and 15 Hz in the field, whereas a 30 sample rate is too low. Mr. Jankuloski added that the move to a higher sampling rate is a proactive step and aligns with what other North American jurisdictions are already doing.

Mr. Lyle clarified that Mr. Forsyth’s question is more around the impact to ratepayers and cost.

Mr. Jankuloski acknowledged the point and noted that from a reliability perspective, the goal is to avoid an outage. If an oscillation were to cause an outage, not having PMU data would prevent the ability to either detect it in advance or understand what actions need to be taken. He explained that this is a challenging question because previously PMU data was not available, and now that the IESO has it

in-house, more detailed analysis can be performed. He added that moving from 30 to 60 samples per second should not create a significant financial increase, as the devices are already installed and the change only involves increasing the sampling rate.

- Mr. Forsyth added that his understanding is that all existing units are currently operating at 30 samples per second and would need to move to 60. He further noted that under the new requirements, battery storage units that are 20 MVA or higher would also be required to have this in place.

Mr. Jankuloski clarified that when connecting existing or traditional generators, they had already been advising proponents to increase the sampling rate from 30 to 60, as 60 was the preferred rate and a formal change was anticipated soon. As a result, most, if not all, of those generators have already moved to 60 samples per second in preparation for this update. The remaining work involves coordinating with Hydro One during their implementation phase to determine an appropriate timeline for moving their units from 30 to 60. For all new PMUs that Hydro One installs going forward, the target will be 60 samples per second.

- Mr. Forsyth noted that his question was prompted by Mr. Reinmuller's earlier concerns about Hydro One's costs. He stated that he was also be concerned about who will pay for the upgrades and how much they will cost. Mr. Forsyth asked if Mr. Reinmuller would comment on this.

- Mr. Reinmuller added that the overall program is not cheap, noting that Hydro One has spent tens of millions of dollars so far installing PMUs. While the PMU devices are not expensive, the infrastructure required to collect and transmit the data is significant. He explained that with SCADA, ICCP, telecom requirements, and the need to move to fiber in many locations, substantial upgrades are needed to ensure data can be collected and sent back to central hubs and ultimately to the IESO. Mr. Reinmuller emphasized that this behind-the-scenes infrastructure is not trivial, which is why coordination and awareness of requirements are essential, along with sufficient implementation time. He noted that even if the effective date is December 2026, that does not mean the system can be ready immediately; implementation will take time. He stated that the overall cost is in the millions of dollars. Mr. Reinmuller added that as the system incorporates more inverter-based resources that create disturbances in microseconds or cycles too small to detect, more data will be required. While he could not comment on the exact level of data density needed, he stressed the importance of a balanced and organized approach, spending money gradually over a longer-term plan and obtaining the data required, with strong coordination throughout. He concluded that this was the reason he raised the topic.

- Mr. Forsyth acknowledged these points.

Other Business

No other business was brought forward.

Adjournment

The meeting adjourned at 9:35 a.m.

The next regular TP meeting will be held on April 14, 2026.

Action Item Summary

Date	Action	Status	Comments
Oct. 7, 2025	The IESO to report back to the Technical Panel on possible changes to enhance the market manual process once the assessment is complete.	Open	
Feb. 10, 2026	MR-00490-R00: Adjustments to RT-MWPs For item 1: OR Lost Opportunity Cost and forbidden regions, the IESO will provide the Technical Panel with a post freshet update at the September 15, 2026 Technical Panel meeting.	Open	