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Updates to IESO Monitoring Requirements: Synchrophasor Data

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Webinar Participation (including audio)

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Purpose

- Introduction and Background
- Salient updates in Market Manual
- Assessment criteria for excluding Generators with low Capacity Factor
- Revised Implementation Schedule

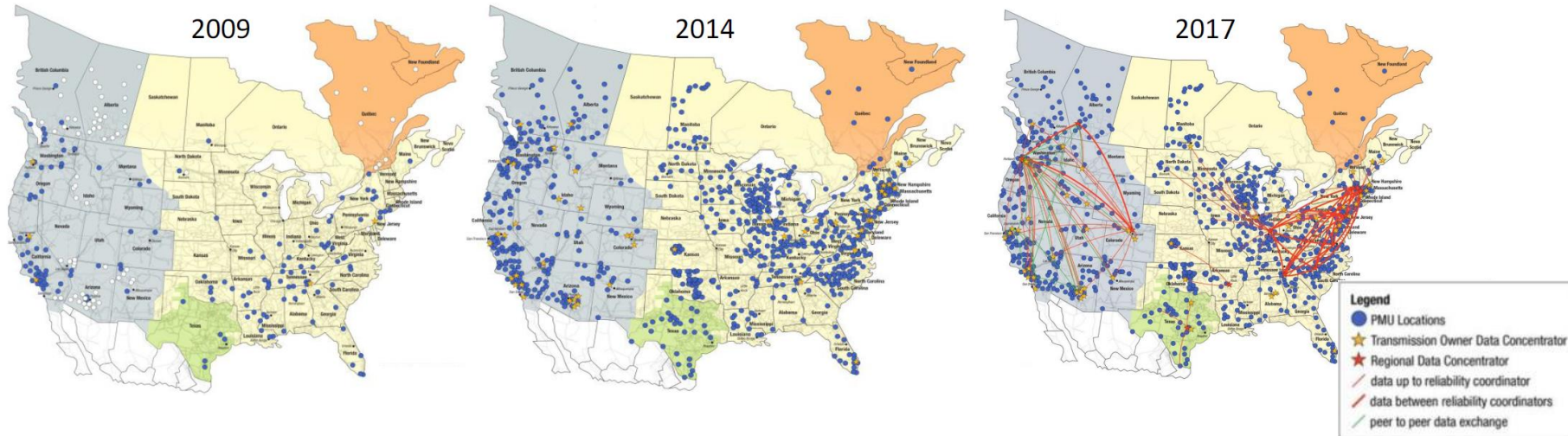
Introduction and Background

Phasor Measurement Unit (PMU)/Synchrophasor Data in the Broader Context

- Enhances the IESO's situational awareness – critical to maintaining reliability and resiliency with an increasingly dynamic power system
 - Increasing applications of synchrophasor data in off-line, near-term and real-time systems
- Facilitates sharing and viewing wider portion of the interconnected grid for both Ontario & neighbouring jurisdictions - more accurately and consistently
- Improves IESO's ability to demonstrate reliability standards compliance
 - NERC reliability guideline for synchrophasor data placement published, future synchrophasor data related reliability standard anticipated

Introduction and Background

Growth of PMU Deployment in North America



Source: [North American Synchrophasor Initiative \(NASPI\)](#)

Introduction and Background

Proposed Market Rules Changes and Requirements

- Proposed Market Rule (MR) changes will require Transmitters and Generators to provide synchrophasor data to the IESO
 - Appendix 4.15 – IESO Monitoring Requirements: Generators
 - Appendix 4.16 – IESO Monitoring Requirements: Transmitters
- IESO Stakeholder Engagement (SE) process (Jun 2020 – Feb 2022)
 - SE sessions and continued individual meetings with highly impacted stakeholders
 - Developed reports on synchrophasor data qualitative benefits and quantitative cost analysis
 - Provided response to stakeholders' feedback throughout the SE process

Salient Updates in Market Manual

- Latest revisions in Market Manual (MM) aim to provide more flexibility for Market Participants (MPs), thereby allowing existing measurement infrastructure to be utilized for providing synchrophasor data, where applicable, while maintaining the reliability of the IESO controlled grid.
 - Synchrophasor data accuracy requirement
 - Instrumentation channel accuracy requirement
- Inclusion of Low Capacity Factor (CF) assessment criteria
- * Minor edits in Market Rules (MR) by removing duplicates between MR and MM

Synchrophasor Data Accuracy Requirement

Revised Market Manual wording:

Data provided to the IESO shall comply with the IEEE Std 60255-118-1-2018. For Market Participants connected to the IESO-controlled grid with synchrophasor data measurement infrastructure meeting IEEE Std C37.118 (2005, 2011, or 2014) and existing before the implementation date of the synchrophasor data Market Rules requirements, the IESO will accept utilization of such measurement infrastructure. The IESO will work with these Market Participants to assess the need for any future upgrades in their synchrophasor data measurement infrastructure, and if necessary, develop a staged implementation plan.

Instrumentation Channel Accuracy Requirement

Revised Market Manual wording:

Provide instrument transformers and its corresponding instrumentation channel components with accuracy high enough to be appropriately utilized in IESO real-time applications ()*

() This requirement intends to provide flexibility to market participants to utilize their current Instrumentation Channel infrastructure with minimum accuracy equal or better than those used for SCADA measurements. Should Instrumentation Channel specifications be prescribed in the future, the IESO will stakeholder them with Market Participants in advance and support reasonable staged implementation plans to deploy any resulting required equipment upgrades to comply with such specifications.*

Excluding Low Capacity Factor Generation Facilities

- The average Capacity Factor (CF) of generation facilities is calculated using historical data for the last 3 years or since the In-Service date (whichever is less).
- Only facilities with $CF < 10\%$ are excluded from the obligation to meet synchrophasor requirements.
- The IESO will develop the list of excluded facilities and notify the facility owners.
- The assessment is performed annually by the IESO for excluded facilities only.

Excluding Low Capacity Factor Generation Facilities (cont.)

- Upon performing the annual assessment, if $CF \geq 10\%$, the IESO will notify the facility owner that:
 - The exclusion from synchrophasor requirements is no longer valid.
 - The facility will no longer be included for future CF assessments.
 - Synchrophasor data must be provided to the IESO within 3 years from the notification date. Market Participants having multiple facilities, may provide synchrophasor data via mutually agreed staged implementation plan, if required.
- Future generation projects will be assessed to determine if they qualify for exclusion from the synchrophasor requirements.
- Regardless of generators CF, the IESO may require generation facilities to provide synchrophasor data for reliability and system awareness purposes. Such need will be informed by considerations such as proximity to other synchrophasor measurement units, criticality of the facility from system stability perspective, etc.

Revised Implementation Plan

- Draft Market Rules presented to IESO Technical Panel in **Q4 2021**
 - Education session completed on Dec 14, 2021
 - Vote to post expected on March 22, 2022
 - MRs expected to be implemented in Q2 2022
- Facilities connected to the IESO-controlled grid "**pre-Market Rules**":
 - Market Participants having one facility, provide data on or before **Dec 31, 2023 2024**
 - Market Participants having multiple facilities, provide data via mutually agreed staged implementation plan
- Facilities connecting to the IESO-controlled grid "**post-Market Rules**"⁽¹⁾:
 - Provide data on latter of the time of connection or **Dec 31, 2023 2024**

(1) Any exceptions will be managed on a case-by-case basis

Thank You

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