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Technical Panel Vote to Post: Updates to IESO Monitoring Requirements: Synchrophasor Data

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Recap of Impacted Facilities

- With proposed MR Amendment MR-00487-R00, installation of PMUs will be needed at storage facilities at about 20 facilities over the next few years
- Generators and Transmitters must currently install PMUs and provide the data to the IESO as per MR Ch. 4 App. 4.15 and 4.16 through a phased approach
 - The proposed changes primarily affect PMU device-level configuration and introduce negligible incremental costs relative to PMU installation. Any backend or network upgrades are utility-specific and driven by existing infrastructure rather than the proposed changes themselves
- For existing generators and transmitters, infrastructure investments would have been made following market rule amendments introduced under MR-00471 in 2022.

Typical Unit costs of PMUs

Upfront cost for each new PMU installation:

- Enable PMU on existing relays = \$15k
- Upgrade protection relays to provide PMU = \$50k
- Install separate PMU device = \$167k

Note:

Most facilities can provide necessary data to the IESO with 1-2 PMUs.

Most storage facilities are expected to be in the \$15k category.

Prices are from 2021.

Ongoing costs: ~**\$2k – \$3k** annually for each facility

- Maintenance and calibration
- Communications, Network, IT support

What are the benefits?

Early detection and characterization of **power system oscillations**, including those:

- Introduced by inverter-based resources (IBRs)
- Improved ability to localize the source of oscillation

Supports validation and tuning of:

- Generator and IBR dynamic models under various and evolving operating conditions

Summary

PMU costs are modest relative to facility capital base

- Typically \ll 0.1% of a facility asset value

Benefits accrue over multiple dimensions:

- Reliability – reduced likelihood and impact of blackouts
- Operational efficiency
- Improved compliance reporting
- Monitoring of equipment and exposure to system conditions