

Item 5.2: ERCOT Updates and Future Plans for PMU and WAMS

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Technology and Security Committee

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Existing ERCOT PMU Application Overview

2010~2013

- ~75 PMUs streaming to ERCOT
- First PMU application installation (in test environment)
- Through a DOE funded project

2014-2020

- Offline support and application enhancement
- ERCOT PMU application in production in 2020
- Support up to 300 PMUs

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Current

- 273 PMUs streaming to ERCOT from three Transmission Operators (Oncor, AEP, and LCRA)
- Use cases: operational situation awareness and post event analysis
- Issued a Request for Proposal (RFP) in 2024 to enhance the PMU applications

2013-2014

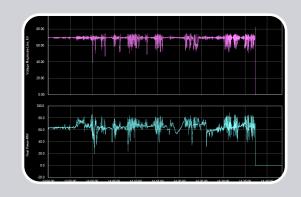
- ERCOT Synchrophasor
 Task Force
- Established PMU requirements (local storage only; streaming voluntary)
- Defined use cases

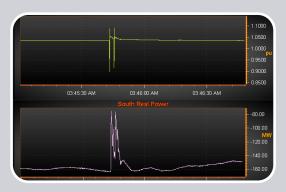
2023-2024

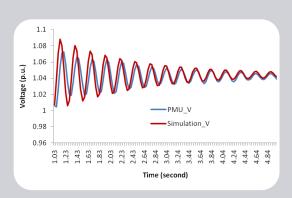
 Expanded the PMU requirements, including all IBRs and identified large load (local storage only, streaming voluntary)



Current ERCOT PMU Use Cases







Oscillation
Detection and
Mitigation

Event Detection and Analysis

Model Validation



Barriers and Future Plans

Barriers and Needs	Future Plans	Status
Enhance existing use cases and add new use cases	 Expand the PMU streaming capability to allow for > 2,000 PMUs with corresponding storage Improve existing real-time PMU application and use cases oscillation detection and mitigation event detection and analysis Post-event model validation, and New PMU application features system inertia and system strength monitoring and measurements, advanced model validation, linear state estimation 	Issued RFP in 2024 (with projected implementation by 2026)
Limited geographic coverage in PMU streaming	Rules and requirements	TBD
PMU data quality and maintenance	Rules and requirements	TBD
Limited use of PMU data for real-time operation	Rules and requirements, including CIP requirements.	TBD

