



Engineering Analysis Task Team (EATT) Report Out

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Agenda

- Setting Thresholds for the RMS-Energy Oscillation Detector – Jim Follum, Pacific Northwest National Laboratory
- Update and discussion on the IBR Performance Response and Analytics Monitoring (IPRAM) Task Force – Priya Mana, Pacific Northwest National Laboratory
- Discussion on oscillation report update
- Open discussion on potential new topics

Setting Thresholds for the RMS-Energy Oscillation Detector

- Jim Follum, PNNL, james.follum@pnnl.gov
- RMS-energy threshold: Avoid false alarming and nuisance alarming, has predictable performance
- Introduced bootstrap-based RMS-energy threshold
 - Use information from a statistic sample to generate new realizations
 - Determine the threshold by considering the probability of detecting oscillations of various amplitudes
- Software ArchiveWalker demo
- Field deployment at Southern Company
 - Thresholds validated using oscillation events gathered throughout 2024

IBR Performance Response and Analytics Monitoring Task Force (IPRAM)

- IPARAM Lead: Priya Mana (PNNL) priya.mana@pnnl.gov
- Need for monitoring
- Monitoring application and consideration
- Case study: ISO-NE, ERCOT, and Dominion (Looking for input)
- Theorized methods for IBR performance monitoring (Looking for input)

Report Update: Bulk Power System Oscillation Terms



Bulk Power System Oscillation Terms

Oscillation Analysis Working Group

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August 10, 1996 Breakup of the Western Interconnection	6
August 4, 2000 WECC Inter-Area Natural Oscillations.....	8
October 2014 Hydro Rough-Zone Forced Oscillation.....	9
January 11, 2019 Florida Forced Oscillation Event.....	10
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Report Update: Bulk Power System Oscillation Terms

- Purpose: Facilitate the communication by explaining many of the terms used in discussing power system oscillations
- It was a WECC report by Oscillation Analysis Working Group in 2020
- To add terms of renewable-induced sub-synchronous oscillations
- To add event examples for sub-synchronous oscillations
- Potential collaboration with IEEE IBR SSO task force

Open Discussion on Potential New Topics

- IBR-induced wide-band frequency oscillations event analysis
- Inertia estimation/monitoring using synchrophasor measurements
- WMU (Waveform Measurement Unit) requirements
- Artificial Intelligence/Machine Learning + synchrophasor
- Large load modeling: data center, industrial load, and electric vehicle
- IBR model validation using synchronized waveform measurement

Thank you for participating!