



Operational Use Cases for Time-Synchronized Measurements

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Time-Synched Measurements – Training Recap



TRS and PNNL collaborated to develop a *Use of Time-Synchronized Measurements in the Real-time Ops Horizon* training course (8 CEH).

Course Summary: Provide an introduction to synchrophasor technology, describe the value it can provide in the Real-time Ops Horizon, and demonstrate how synchrophasor-based apps can be used by grid operators and electric utilities to improve wide-area situational awareness and grid reliability.

Intended Audience: RC, BA and TOP System Operators and Ops Support staff tasked with monitoring and controlling the BES.

Why Did We Develop Training?



Current State of Synchrophasor-Based Applications:

- Widely deployed for use in the Operations Planning and Operations Assessment Horizons.
- Limited integration into the control room environment for use in the Same-day and Real-time Operations Horizon.

Solution: Develop training for System Operators and Operations Support staff to demonstrate how synchrophasor measurements can be used to support the performance of reliability-related tasks.

What Lessons Did We Learn?



- **Demonstrating Value in the Control Room** – Developing content that will help entities build business cases.
- **Strong Operational Use Cases** – Defining specific uses of time-synched measurements to perform operational tasks.
- **Flexible Assessment Methods** – Designing a training course that allows for different assessment methods.
- **Advanced Training Options** – Considering additional training classes to address more advanced uses of the technology (enhanced state estimation, system islanding/blackstart restoration)

Difficulties Encountered While Developing Ops Use Cases



- **Gaining Access to Event Info** – Entities often hesitant to share event info due to compliance and confidentiality concerns.
- **Presenting Info in Operator-Friendly Manner** – Data typically presented in spreadsheets, graphs, and simplified trends rather than control room displays and application interfaces.
- **Demonstrating Value Add** – Minimal entities currently using synchrophasor data to inform operational decision-making.

Why Do We Need to Develop New Ops Use Cases?



- **Improve Operator Training** – Incorporate new operational scenarios to improve effectiveness of training.
- **Demonstrating Value Add** – Clearly define safety, reliability and economic benefits provided by synchrophasor data.
- **Highlight Commercially Available Apps** – Show industry how early adopters are using commercially available apps in control room environment.

General Strategy & Approach



- **Engage Industry** – Collaborate with grid operators and electric utilities, vendors and others to develop cases.
- **Focus on Reliability-Related Tasks** – Build cases that highlight use of synchrophasor technology to perform reliability-related tasks.
- **Apply Consistent Structure** – Create a common framework for presenting cases.
- **Present All Pertinent Info** – Expand beyond sub-set of PMU data trends presented in most current cases.
- **Introduce Enhanced Visualizations** – Make it easier access info and understand how it can be used to inform operational decisions.

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