

NASPI Control Room Solutions Task Team [CRSTT] Update

James Kleitsch

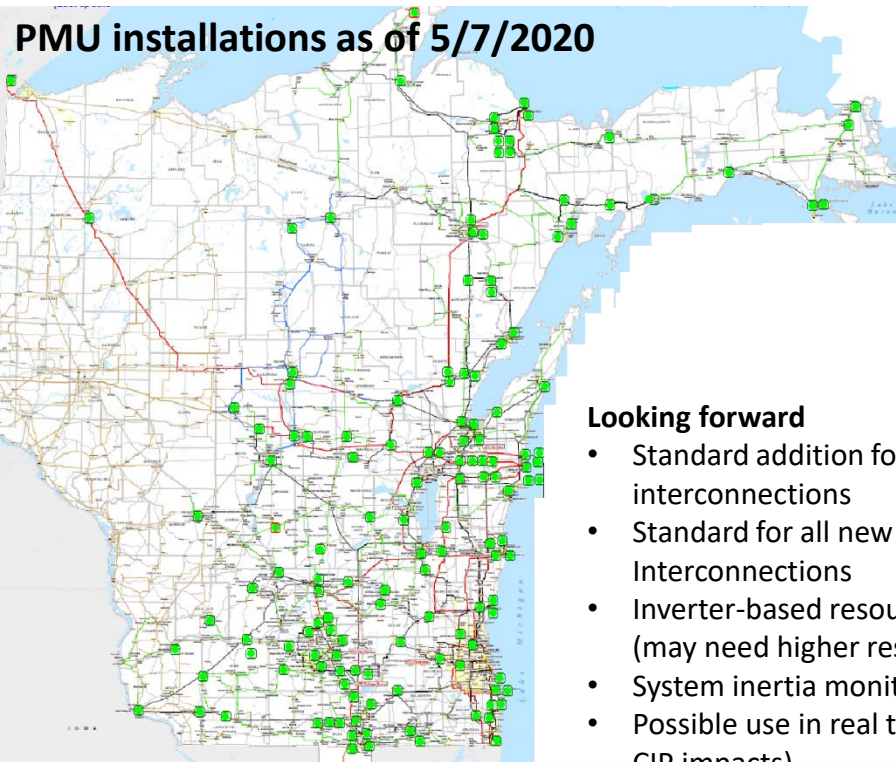
American Transmission Company, System Operations - EMS, United States



The 2nd IEEE International Conference on Smart Grid Synchronized Measurements and Analytics (SGSMA) *Virtual Event* | May 24-27, 2021

ATC Phasor Measurement Unit Project Information

PMU installations as of 5/7/2020

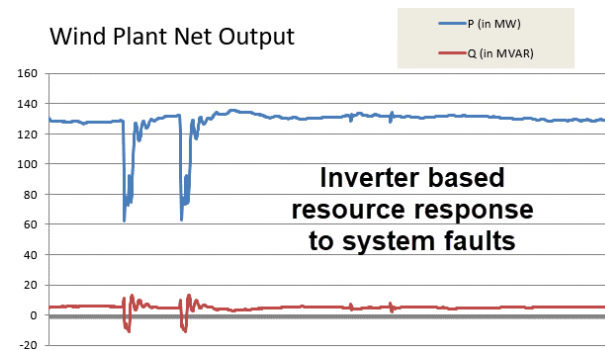


Current status

- 140 PMUs in service
- Monitor response of 37 generators and special equipment
 - Coal and Gas Plants (28)
 - Renewable Plants (7 wind plants and 2 solar plants)
 - Back-to-back HVDC and SVC facilities
- 500+ impactful system events captured since 2017
 - Understand system behavior (local and Eastern Interconnection wide)
 - Evaluate model behavior versus actual response

Looking forward

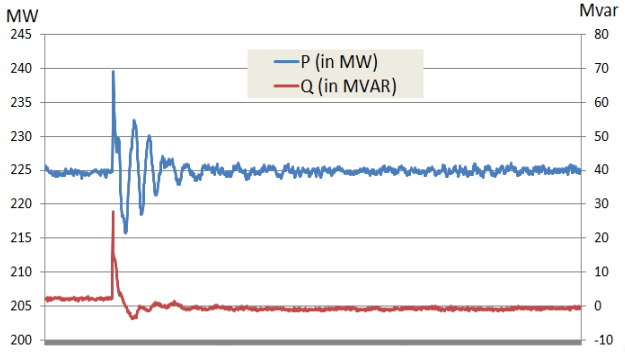
- Standard addition for all new G-T interconnections
- Standard for all new Battery Storage Interconnections
- Inverter-based resource (IBR) challenges (may need higher resolution data)
- System inertia monitoring
- Possible use in real time for SCOs (address CIP impacts)



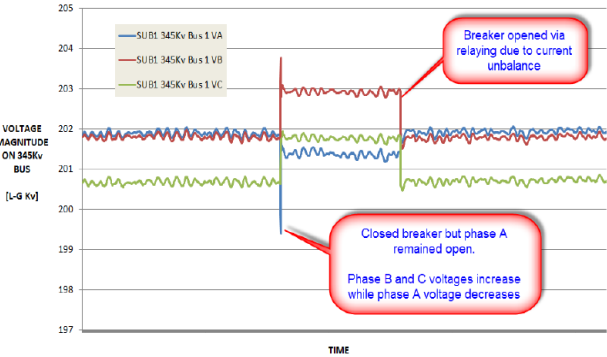
ATC – Analyzing Grid Operations with Synchronized Measurement Data

- Data scanned at 30 samples per second
- Data used to fill in the gaps when relay and DFR records are not available.
- Seeing dynamic system response we could not easily see before
- Analyzing generator dynamics response to actual events – sharing data with generator owners
- Responding to customer inquiries on voltage events with certainty (we aren't guessing what happened between the 4 second SCADA scans)

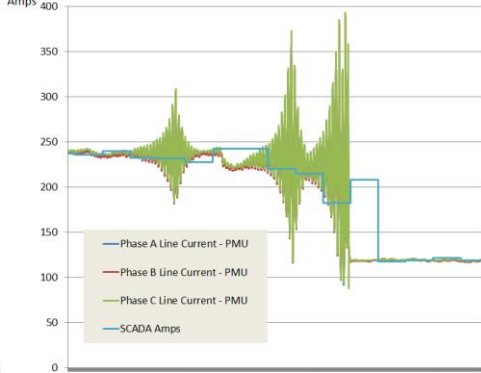
Unit Response to 345Kv Fault and Large Unit Trip



Synchrophasor Data For Stuck/Open Phase On 345 Kv Breaker On Close Attempt [345 Kv Bus Volts]



Oscillations on Line Currents Due To Plant Control Issues



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Our Mission

- The NASPI CRSTT's mission is to work collectively with other NASPI task teams to advance the use of real-time synchrophasor applications for the purpose of improving control room operations and grid reliability. The CRSTT will use its experience and regional diversity to provide advice, direction, support and guidance to NASPI stakeholders and other organizations involved in the development and implementation of real-time synchrophasor applications.

Co Chairs

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- Use Case Documents
 - Short (2-3 page) documents describing value added by implementing synchronized measurement technology
- Synchrophasor Training Support and Development
- Video Event Library
 - Events showing SCADA versus synchronized measurement data traces to help others see the value of the data
- Documentation on uses (planned and implemented) of different synchronized measurement applications
 - Phase angle monitoring, oscillation detection, voltage stability assessment, and islanding identification and restoration support tools



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