



DOE/OE Transmission Reliability Program

Advanced Synchrophasor Metrology

Mark Buckner and Stan Hadley

Oak Ridge National Laboratory

bucknerma@ornl.gov

hadleysw@ornl.gov

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Project objective

- Identify emerging metrology needs and develop solutions in the forms of tools, techniques, procedures, and standards.
 - A critical part of this project is developing a working relationship with NIST and NERC which is under way.
 - Teleconferences have been on going with one last week and another this week.
 - Coordinating with PNNL (Harold Kirkham)



Major Technical Accomplishments

Note: Advanced synchro metrology tasks will be adjusted based on ongoing coordination with NIST and PNNL.

- Task 1: Review and comment on NIST Technical Plan (Inter-Agency Agreement)
 - NIST/PNNL/ORNL telecon held 12 June; followup meeting imminent.
- Task 2: Participate in NIST Round Robin
 - ORNL is on NIST's schedule. Equipment is in place to participate in test.
- Task 4: Support upgrade of IEEE Std. 1588 in collaboration with NIST
 - Steve Smith of ORNL is on the committee.
 - IEEE committee activities are on hold for now until PAR is approved.

Note: Task 3 was cancelled.



Major Technical Accomplishments (cont)

- Task 5: Identify needs for field equipment calibration
 - ORNL is evaluating options for field calibration of installed PMUs.
- Task 6: Assess synchrophasor accuracy on applications.
 - ORNL will prioritize applications based on uses identified by SGIG grantees.
 - In a sister activity, ORNL is supporting DOE in evaluating the value proposition of the SGIG PMU/PDC applications.
- Task 7: GPS spoofing and impact on grid applications (ORNL LDRD)
 - ORNL LDRD activity.
- Task 8: Real-time model calculation/validation
 - ORNL is collecting real-time synchrophasor data on its campus distribution system and has developed a routine for calculating measurement-based line parameters.



Milestones and Deliverables

Note: Advanced synchro metrology Milestones & Deliverables will be adjusted based on ongoing coordination with NIST and PNNL.

- Task 1: Review and comment on NIST Technical Plan (Inter-Agency Agreement)
 - Informal document and comments on NIST IAA.
 - The document was the subject of our joint NIST/ORNL/PNNL discussion last week.
- Task 2: Participate in NIST Round Robin
 - Report on test results.
- Task 4: Support upgrade of IEEE Std. 1588 in collaboration with NIST
 - TBD when committee re-activates.



Note: Task 3 was cancelled.

Milestones and Deliverables (cont)

- Task 5: Identify needs for field equipment calibration
 - Technical report on options for field calibration
 - Technical report on results achieved (future)
- Task 6: Assess synchrophasor accuracy on applications.
 - Technical report on application impacts.
 - Technical briefings to interested audiences
- Task 7: GPS spoofing and impact on grid applications (ORNL LDRD)
 - Technical report on findings (LDRD report)
- Task 8: Real-time model calculation/validation
 - Technical report on calculation methods, performance or accuracy, testing and analysis approach, and findings.

Note: Task 3 was cancelled.



Risk Factors

- *Risk factors affecting timely completion of planned activities as well as movement through RD&D cycle*
 - There are no technical, fiscal, logistical, or organizational risk factors. While work was late in starting, the team is now in place to achieve the objectives of this project.



Follow-on

- *Early thoughts on follow-on work that should be considered for funding in FY14*
 - Additional analyses of effects of PMU errors on application results
 - Follow-on work in field equipment calibration
 - Additional support for IEEE Std. 1588 committee work

