



DOE/OE Transmission Reliability Program

Technology Assessment for Next Generation PMU

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Project objective

- Identify PMU technology migration paths
- Develop an understanding of possible next-generation phasor-measurement devices
- Develop a plan for designing and building a prototype next-generation PMU



Major Technical Accomplishments

- Requirements Assessment Phase
 - Review current PMU functionality during normal and off-normal system operating conditions.
 - Identify limitations and deficiencies of current technologies.
 - Identify requirements for next generation PMUs (“If we could make things better, what would we improve?”).
 - Brainstorm options for next generation PMU. Identify top three candidates.
 - Convene a web conference call with technical review team to:
 - Identify a review team.
 - Present the requirements for next generation PMU.
 - Present options and top three candidates.
 - Discuss the advantages and disadvantages of each. Adjust “top three” accordingly.
 - Discuss specific next steps.



Major Technical Accomplishments

- Technology Assessment Phase
 - Develop technical specifications for top candidate (up to 3) PMUs identified above.
 - Build LabVIEW model for top candidate next generation PMU options.
 - Simulate performance of current generation and next generation PMUs under various operating conditions (system events, environmental conditions, installation anomalies, etc.).
 - Document similarities and differences in PMU performance. Identify top candidate(s) for next generation PMU.
 - Convene a web conference call with technical review team to:
 - Present findings of simulations.
 - Discuss specific next steps.
 - Develop a plan/proposal for designing and building a prototype next-generation PMU.



Milestones and Deliverables

- Report documenting work performed and findings.
- Plan for designing and building a prototype next generation PMU.



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*
 - Update requirements assessment based on experience of SGIG grantees
 - Update technology assessment based on European and Chinese experience with process-bus technology
 - Design and build prototype of next-generation PMU
 - Document performance improvement (or risk reduction) of next-gen over incumbent technology

