

Proposed Agreement between California Energy Commission and Electric Power Group

Title: CAISO SynchroPhasor Technology Investment & Implementation
Amount: \$999,743.00
Term: 33 months
Contact: Avtar Bining
Committee Meeting: 9/1/2010

Funding

FY	Program	Area	Initiative	Budget	This Project	Remaining Balance
09	Electric	ETSI	ARRA	\$7,170,389	\$999,743	\$0 0%

Recommendation

Approve this agreement with Electric Power Group for \$999,743.00. Staff recommends placing this item on the discussion agenda of the Commission Business Meeting.

Issue

Synchrophasor technology implementation must be seamlessly integrated with the WECC to provide coordination across the Western United States and Canada. This is critical to deliver the promises of this technology through improved grid reliability, integration of renewable resources, efficient operation and utilization of the grid through congestion mitigation and remedial action schemes, improved state estimation, grid dynamics and stability monitoring in real time and other applications. CAISO's efforts on synchrophasor technology implementation must be seamlessly integrated with the WECC synchrophasor project to produce benefits for California and the interconnected Western grid.

Background

The CAISO has developed a 5-year roadmap for continued synchrophasor research, implementation into operations control, and integration with the Western Interconnection. The WISP, with ARRA funds, will make this 5-year roadmap a reality via a successful completion of the EPG project with CAISO. The current project builds on six prior phasor technology research projects which the Energy Commission funded.

The WECC is deploying a large-scale synchronized phasor measurement system in collaboration with public and private partners throughout the WECC, including the CAISO. The CAISO has made significant investments and commitments to continue collaborating on research initiatives to advance the use of this next generation synchrophasor technology and provide leadership within California, the WECC and nationally. It is critical that synchrophasor research effort continue to transfer the results into operating environments without interruption.

Federal Funding

Under the provisions of the American Recovery and Reinvestment Act of 2009 (ARRA) and the DE-FOA-0000058, the WECC, along with EPG as a key partner, was awarded \$54 million. The WECC project is called Western Interconnection Synchrophasor Program (WISP) and will use \$32 million in ARRA funds for its key tasks such as infrastructure investments, applications for situational awareness,

wide area control and protection, model validation and system performance and event analysis. EPG will participate in this project as a key partner, and concurrently work on the Energy Commission funded project.

Energy Commission Cost Share

This phasor project builds upon research from six prior Energy Commission funded projects totaling \$6,398,115. EPG submitted an application to PIER for cost share funding under PON-09-002, Addendum 2, for WECC's ARRA FOA-0000058 project and was awarded \$999,743 in accordance with the terms of PON-09-002.

Relationship to WECC-WISP

This research effort is part of WECC's Western Interconnection Synchrophasor Program (WISP) along with CAISO. This effort will provide the benefits of WISP to California.

Proposed Work

Electric Power Group (EPG) proposes to work with the CAISO for CAISO's Synchrophasor Technology Investments and Implementation Project. This includes working on the necessary infrastructure investments for production grade hardware, interfaces to integrate with CAISO PI historian, analysis, applications, and research to operationalize synchrophasor technology at CAISO. This project also addresses synchrophasor data adequacy and quality, transitioning to a production environment, and advanced applications.

The overall focus of this project is for EPG to work with the CAISO's production quality hardware infrastructure investment, data integration, applications, analysis and research to implement various aspects of phasor technology. These are deemed as necessary steps towards adopting and operationalizing this technology to bring the benefits of improved reliability, integration of renewable, improved use of existing transmission assets, and market efficiency to consumers in California. These steps include installation of production quality computer hardware to run synchrophasor software at CAISO, improving existing prototype and test applications for visualization, baselining analysis and integration of new phasor monitoring unit (PMU) devices, additional research on dynamic equivalents and parameter estimation necessary for operationalizing synchrophasor technology, and integration of synchrophasor data bases with CAISO existing PI historian.

Justification and Goals

This project "[has] the potential to enhance transmission and distribution capabilities" (Public Resources Code 25620.1.(c)(3)).

This project also addresses SB 1250.

This will be accomplished by:

- Facilitating integration of intermittent renewable resources.
- Improving grid reliability and stability.
- Improving the use of existing transmission assets