Proposed Amendment between California Energy Commission and The Regents of the University of California, - CIEE

Title: Enabling Technologies Development
Amount: $2,522,048.00
Term: 30 months
Contact: Pedro Gomez
Committee Meeting: 4/25/2011

Funding

FY	Program	Area	Initiative	Budget	This Project	Remaining Balance	
09	Electric	ETSI	Smart Grid	$4,705,211	$1,717,797	$0	0%
09	Electric	ETSI	Transmission Research Program (TRP)	$1,000,000	$204,251	$0	0%
09	Electric	ETSI	Distribution System	$200,000	$200,000	$0	0%
09	Electric	ETSI	Storage	$1,500,000	$400,000	$0	0%

Recommendation

Approve this agreement with The Regents of the University of California, - CIEE for $2,522,048.00. Staff recommends placing this item on the discussion agenda of the Commission Business Meeting.

Issue

There is a need to conduct mid-term (3-5 years) to long-term (5-8 years) research of technologies that will move the smart grid onto the distribution system to improve the integration of renewables, Electric vehicles, and demand response. Some example research topics are:

Smart Grid Applications:
- Low cost and high quality power monitoring technologies.
- Smart devices in the distribution grid that can self-diagnose and self-heal.
- Technologies that can automatically re-synch a power island with the surrounding power grid.

Renewable Energy Integration Applications:
- Storage technologies that range in operating voltages across the distribution system.
- Models and control algorithms to ehance the integration of intermittent renewable energy resources.

Background

Amendment 5 of this Agreement directs the Contractor to develop an amended Program Managment Manual (PPM) that will have a new grants selection process specific to researchers at California's public universities. The amended PMM must be approved by the Commission Contract Manager before awards are made to researchers.

Amendment 5 of this Agreement directs the Contractor to develop two new Research Opportunity Notice (RON) topics. One RON topic will address technology research with smart grid related

applications. The other RON topic will address technology research with renewable energy integration related applications.

For the calendar years from 2011 to 2014, it is anticipated the Contractor will solicit proposals, from researchers at California's public universities, in the RON topic areas of Demand Response, electric distribution, energy efficiency in buildings, smart grid applications, and renewable energy integration applications. Between 6 to 8 grants per year will be awarded following the grant selection process described in the amended PMM.

Proposed Work

This contract amendment will research topics that include, but are not limited to:

Smart Grid Applications:
•Low cost and high quality power monitoring technologies.
•Smart devices in the distribution grid that can self-diagnose and self-heal.
•Technologies that can automatically re-synch a power island with the surrounding power grid.
Renewable Energy Integration Applications:
•Storage technologies that range from operating voltages in 100's volts, 10K's volts, and 100K's volts.
•Models and control algorithms to facilitate the integration of intermittent renewable energy resources.

Justification and Goals

This project "[will develop, and help bring to market] increased energy efficiency in buildings, appliances, lighting, and other applications beyond applicable standards, and that benefit electric utility customers" (Public Resources Code 25620.1.(b)(2)), (Chapter 512, Statues of 2006)).

This project also addresses PRC 25620.1(c)(3) Includes projects that have the potential to enhance transmission and distribution capabilities.

This project "[will develop, and help bring to market] advanced electricity technologies that reduce or eliminate consumption of water or other finite resources, increase use of renewable energy resources, or improve transmission or distribution of electricity generated from renewable energy resources"

This will be accomplished by:

- Improve the energy cost/value of California's electricity by providing real-time information and a means to automatically respond to supply-side problems.
- Maximize market connection by reducing the installed cost of energy-related information, communication, and control technologies.
- Improve the reliability/quality of California's electricity by reducing service interruptions through expanded service options and new system-wide capabilities.