***NEW -- CERC employee list:***

CERC Directors:

* Lee Stefanakos, Director
* Yogi Goswami, Co-Director

CERC Staff:

* Virginia Castry Cosmides, Office Coordinator
* Charles Garretson, Laboratory Coordinator
* Barbara Graham, Publications Coordinator

Post Doctoral Fellows

* Subramanian Krishnan
* Sarada Kuravi

Scientist Researchers:

* Chand Jotshi
* Burton Krakow

Affiliate Faculty:

* Shekhar Bhansali, Electrical Engineering
* Vehkat Bhethanabotla, Chemical and Biomedical Engineering
* Lingling Fan, Electrical Engineering
* Chris Ferekides, Electrical Engineering
* Xiaomei Jian, Physics
* Babu Joseph, Chemical and Biomedical Engineering
* Ashok Kumar, Mechanical Engineering
* Zhixin Miau, Electrical Engineering
* Don Morel, Electrical Engineering
* Muhammad Rahman, Mechanical Engineering
* Manoj Ram, Mechanical Engineering
* Stan Russell, Architecture
* Mark Stewart, Geology
* John Wolan, Chemical and Biomedical Engineering
* Yu Zhang, Civil and Environmental Engineering

***New TEXT***

**Hydrogen Storage**

**Design and Development of Advanced Hydrogen Storage Systems using Novel Materials:** The objectives are to design and develop composite metal hydrides and novel conducting polymeric nano-materials for on-board hydrogen storage with a system gravimetric capacity of 5.5 wt.% or greater and completely reversible hydrogen storage characteristics. The successful outcome of this research will meet or exceed the U.S. Department of Energy 2010 and 2015 system-level targets of hydrogen storage. In addition, this R+D will advance hydrogen/fuel cell university level educational programs such as Research Experience for Undergraduates and Integrated Graduate Education, Research and Training.

**SMART-GRIDS**

The objectives of the **smart grid** research are: (a) facilitate efficient energy delivery and management through state-of-the-art high power electronics; and (b) incorporate and advance communication and automation technologies. Three major research directions are currently pursued in the area of **smart grids**:

1. **High Power Electronic Applications in Smart Grids**. The research focuses on the application of FACTs, HVDC in flexible power routing in smart grids and the application of voltage source converters for renewable grid integration.
2. **Energy storage technology and energy management of smart microgrids**. This research includes battery and super-capacitor applications in grids for storing renewable energy and enhancing system reliability, energy management system development for systems with hybrid resources to reliably supply loads.
3. **Smart grid automation**. The research includes smart grid protection and control through real time monitoring and control devices and advanced communication systems. Demonstration and response, solar power/ energy storage aggregate control and electric vehicle smart grid integration are some of the research topics emphasized in this area.

The advanced power system simulation and computing lab is equipped with academic and commercial software packages including PSCAD/EMTDC, Matlab/SimPowerSystems and high speed computer clusters. The electric drive lab is equipped with a dSpace control toolkit and machine test beds, and is capable of rapid controller prototyping. A real time simulation based smart grid lab capable of high speed simulation and hardware-in-the-loop tests is currently under construction.