

## Leadership in Energy Research

The Florida Energy Systems Consortium is a state resource that performs research and development on innovative energy systems that lead



*CERC's 20,000 watt solar / electric charging station at the USF in Tampa.*

to alternative energy strategies, improved energy efficiencies, and expanded economic development for the State. The Consortium supports the Florida Energy and Climate Commission in developing and implementing the State's energy and climate agenda.

*The FESC SUS-wide  
administration is provided by the  
University of Florida.  
<http://floridaenergy.ufl.edu>*

Florida Energy Systems Consortium (FESC). . .  
Bringing energy solutions to serve Florida,  
the nation and the world.

*FESC was created by Florida Statute to share energy related expertise and to promote collaboration among the energy experts at Florida's 11 public universities.*

### FESC at the University of South Florida is administered by:

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Clean Energy Research Center

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# Energy Currents

*A systems approach for  
Florida's energy future.*



AT THE



*Florida universities innovating for  
sustainable energy generation,  
distribution and usage systems.*

## USF and FESC

The Florida State University System provides the backbone of renewable energy expertise for the Florida Energy Systems Consortium. FESC member universities include:

- Florida Atlantic University
- Florida Gulf Coast University
- Florida International University
- Florida State University
- New College of Florida
- University of Central Florida
- University of Florida
- University of North Florida
- University of South Florida
- University of West Florida

Centers and Colleges involved within the FESC at the University of South Florida include:

- Clean Energy Research Center
- Center for Urban Transportation Research
- Dr. Kiran C. Patel Center for Global Solutions
- College of the Arts (School of Architecture and Community Design)
- College of Arts and Sciences
- College of Engineering
- Power Center for Utility Explorations
- Nanomaterials and Nanomanufacturing Research Center

## USF FESC RESEARCH

### Task 1: Power Generation Expansion

*Tapas Das, PI (Industrial Engineering):* Developing a comprehensive generation technology portfolio to expand educational resources and train a workforce.

### Task 2: Liquid Fuels from Biomass

*Babu Joseph, PI (Chemical Engineering):* Develop economical thermo-chemical conversion of non-food grade biomass to clean-burning liquid fuels.

### Task 3: Establishing PV Industry in Florida

*Don Morel, PI (Electrical Engineering):* Transitioning to solar PV will mitigate pollution, create jobs, and enhance energy security.

### Task 4: Solar Thermal Power

*Yogi Goswami, PI (Chemical Engineering/CERC):* Designing and constructing a pilot 100 kW concentrating solar power plant on campus.

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### Task 5: Beyond Photovoltaics

*Shekhar Bhansali, PI (Electrical Engineering):* The rectenna (antenna and rectifying diode) concentrates a range of photon energies, obtaining high efficiencies.

### Task 6: Zero Energy Homes

*Stan Russell, PI (Architecture):* Building affordable residential scale homes to use renewable energy systems and technologies.

### Task 7: Energy Delivery Infrastructure

*Alex Domijan, PI (Electrical Engineering):* Simulating a micro-grid renewable energy generation system feeding into the electricity distribution system.

### Task 8: Carbon Sequestration

*Mark Stewart, PI (Geology):* Capturing CO<sub>2</sub> in geologic repository to meet State-ordered reductions in greenhouse gas emissions.

### Task 9: Clean Drinking Water

*Lee Stefanakos, PI (Electrical Engineering/CERC):* Solar powered water desalination for small community needs and photocatalytic air and water disinfection to remove contamination.