

# Florida State University Institute for Energy Systems, Economics and Sustainability



## NEWSLETTER

September 2009

*IESES is a Member of the [Florida Energy Systems Consortium](#)*

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Dear Julie,

Here at IESES, we serve as a public resource. This newsletter highlights the research of our colleagues and noteworthy items related to achieving a sustainable energy economy. If you have news to share, please let us know.



[Dave Cartes](#)  
Director

### Upcoming Events

## Near-Shore Oil and Gas Production Symposium

In the coming months policy-makers in Florida will begin to address one of our State's most important, and perhaps most contentious, issues - accessing near shore oil and gas.

IESES will hold a symposium entitled "Near Shore Oil and Gas Production." Three panels, Technical Challenges, Economic Challenges and Policy Challenges, will articulate scholarship derived issues that must be addressed in any near shore production strategy the state considers. As host, IESES will serve as an 'honest broker' in

## Research Progress

### Providing Insight on the Economic Impacts of a Greenhouse Gas Cap and Trade System

In June of 2008, Governor Crist signed House Bill 7135 (HB7135), a comprehensive energy and economic development package aimed at reducing GHG (greenhouse gas) emissions as well as encouraging investment in alternative and renewable energy technologies. Section 65 calls for the Florida Department of Environmental [Julie Harrington](#)



[Dr.](#)

Protection (FDEP) to propose rule(s) for the creation of a cap-and-trade regulatory program to reduce greenhouse gas emissions from major emitters like power plants. FDEP contracted with

presenting panelists who will provide insight and critical information needed to bring greater understanding of the issues to the debate.

**Where:**

[University Center Club](#)  
FSU Doak Campbell Stadium  
Tallahassee, Florida

**When:**

November 2, 2009, starting at 2:30 PM

**[For more information.](#)**

**Sponsors:** The Florida State University's [Office of Research](#), the [Institute for Energy Systems, Economics and Sustainability](#), the Departments of [Oceanography](#) and [Economics](#) and the [Environmental and Land Use Law Program](#) at the College of Law.



## 2009 Florida Energy Systems Consortium Summit

**When:** September 29th and 30th

**Where:**

University of South Florida  
Marshall Student Center  
Tampa, Florida

**[For More Information](#)**

**Or Contact:**

[Julianne Veal](#) or call 352-392-0947

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## **[Florida Energy and Climate Commission](#)**

[IESES/FESC](#) to assist in development of a state cap-and-trade (C&T) rule proposal, including economic analysis components. The principal investigator is Julie Harrington, the Director of [The FSU Center for Economic Forecasting and Analysis](#). The project award is for \$226,000, and consists of a phased approach; Phase 1: the C&T design element, Phase 2: Data compilation and economic analysis of the C&T program designs, and Phase 3: Evaluation of C&T Rule proposal.

The Phase One was primarily completed and submitted to FDEP in June 2009, by a leading C&T design expert, Dr. Andy Keeler, of Ohio State University. The report findings included: 1) administering the C&T system at the power plant (individual generating units) is a reasonable and pragmatic choice. 2) The state will have to determine the minimum size of generation unit that will be covered by the rule 3) The state will also have to set specific caps over time consistent with the Governor's greenhouse gas reduction goals. 4) Imported electricity will need to be addressed. 5) The most visible and contentious issues about which the state will have to make decisions are those of allowance allocation and the use of allowance value ([read more](#)).

Since July 2009, the momentum towards rule development has slowed considerably. Governor Crist is now leaning towards waiting for the outcome of recent efforts to establish a national cap and trade program ([read more](#)).

Harrington is charged with analyzing the potential state-level economic impacts associated with implementing a cap and trade program in Florida. In addition to keeping current with the literature with respect to the national C&T program, the analysis also includes examining various scenarios including: modifying the renewables, nuclear and current fossil fuel energy mix, varying offsets, energy efficiency programs, introduction of new technologies and carbon capture/sequestration; over time. She is also working with Ted Kury, the Director of Energy Studies at the University of Florida Public Utility Research Center.

Kury is creating a utility dispatch model (to be publicly available on the FDEP website) that examines the least cost economic dispatch of a group of electric generating units in Florida required to provide the amount of electricity demanded by end users in each hour from 2009 to year 2040. The costs to produce this electricity are driven by the type of generating unit, it's operating efficiency, the variable costs required to operate and maintain the unit, and the price of its fuel. Once a price to emit carbon dioxide is introduced, the cost of the

## Meeting

**When:** September 29th from 8:00-11:00 AM

**Where:**  
University of South Florida  
Marshall Student Center  
Tampa, Florida

The meeting is open to the public.

[For more information.](#)

## **FESC Florida Smart Grid Workshop**

**When:** September 28th

**Where:**  
University of South Florida  
Marshall Student Center  
Tampa, Florida

**Target Audience:** Florida electric utilities, power industry suppliers and technology developers, research and development organizations and other stakeholders on the subject of defining and planning for the smart grid in Florida.

[For More Information](#)

**Or Contact:**  
[Rick Meeker](#) or call 850.645.1711

## **Schedule of Tours of the Off-Grid Zero Emissions Building**



emission is added to the dispatch decision as well. The dispatch model output, the energy price (of electricity) will then be used as input(s) for the economic impact modeling analysis, conducted by Harrington.

The data collection element of this project has utilized a cadre of stakeholder volunteers, the "data miner's group" to validate the data used for both the dispatch and the economic impact models. The group consists of 12 advisors; ranging from large Florida utilities to municipally owned, cooperatives, energy consultants and non-profit organizations. This process, though perhaps cumbersome, has helped immeasurably in "working the data kinks out" with the stakeholders to ensure a consensual and forward movement with respect to the validation of data sources used for the study. Harrington and Kury are midway through the Phase 2 economic analysis phase of the project, which is set to conclude in November 2009. Phase 3 will likely be completed during the first quarter of 2010. [Stay tuned!](#)

## **Algae - a New Fuel Source?**

As Floridians, we know that algae grow out of control here because most of us have seen that icky green slime on top of nearby lakes and streams. What if Florida's natural ability to grow algae was harnessed to produce energy, clean wastewater and capture and store greenhouse gases responsible for global warming? This is the vision for The Florida State University's Systems Approach to Bio-Energy Research (SABER). Joel Kostka, Director of SABER, has a vision for the incredible efficiencies available for the development of algae based bio-fuels.

## **Diagram of FSU's Systems Approach to Bio-Energy Research**

**What Dates:** First and third Friday of the month

**When:** Tours begin on the hour between 2:00 PM and 5:00 PM

**Where:** see [Map](#)

**Contact:** [Justin Kramer](#)

### Upcoming Faculty Presentations

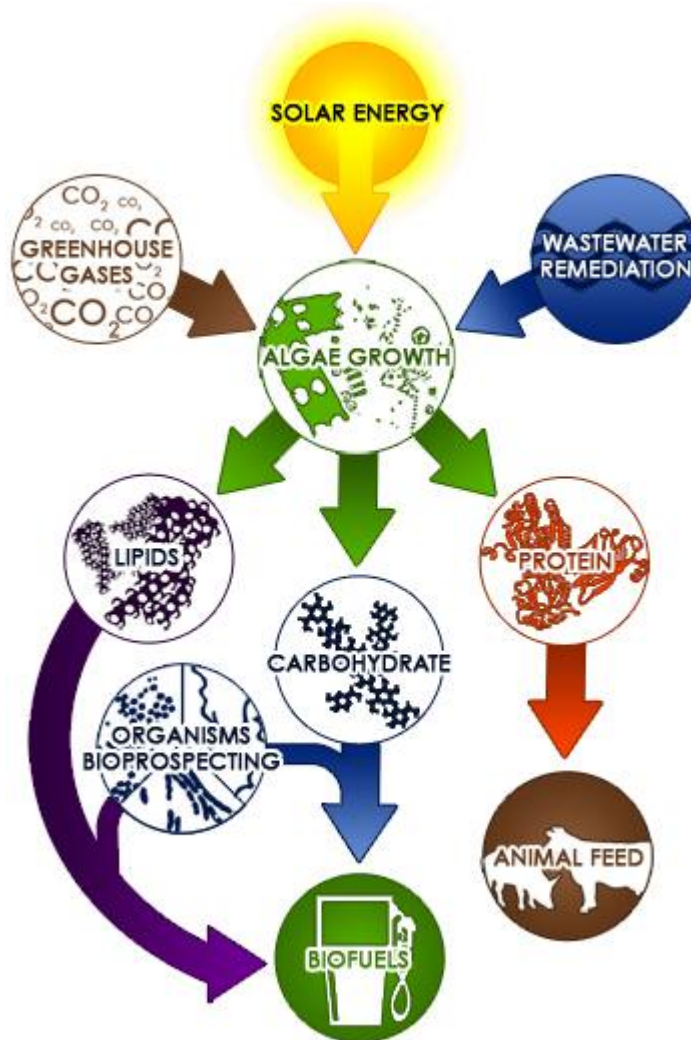


[Professor Jim Rossi](#) will be speaking about transmission siting policies at the upcoming [Harvard Electricity Policy Group](#) conference to be held on October 1-2, 2009 in Cambridge, Massachusetts

### Focus on Faculty:



Drs. [Tingting Zhao](#) and [Mark Horner](#) presented their research on "**Accounting for Carbon Emissions in Florida: Estimations Based on Land Use and Residential Energy/Fuel Consumption**" at the 2009 Annual Meeting of the Association of American Geographers. Dr. Zhao's current research focuses on effects of land-use regulation on metropolitan carbon sources and sinks and will be presented at a Brown Bag Lecture for the [Sustainable Energy and Governance Center](#) in the near future.



Kostka and his colleagues are working on ways to produce marketable and cost-effective bio-fuel from algae. If their efforts pay-off, Florida will be positioned to grow an energy source as well as energy-related jobs here in the state. With one of the largest coastlines in the U.S., Florida could develop a nearly unlimited supply of algae-based biomass to support bio-fuel production inconspicuously from its surrounding oceans.

Development of state-of-the-art, off-the-grid algal cultivation facilities will allow Kostka and his colleagues to produce algae with a minimal ecological footprint and significant environmental cleansing. Algae cultivation can draw excess nutrients out of wastewater, naturally cleaning the water in the process. Although the opportunity is further in the future, algae growth requires carbon dioxide, and flue gas from coal-fired power plants could be used for growing algae, thus leading to the capture and storage of this greenhouse gas. After





In the Summer of 2009, [Dr. Svetlana Poroseva](#) became a **Senior Member of the American Institute of Aeronautics and Astronautics** which is the world's largest technical society dedicated to the global aerospace profession. Dr. Poroseva is affiliated with the [Center for Advanced Power Systems](#).  
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fuel production, the left-over biomass can be converted into animal feed or other byproducts. SABER's success takes us a step closer to a sustainable energy economy for the State of Florida. For more information, see Dr. Kostka [website](#).



*Growing algae in Dr. Kostka's Lab.*

### Energy Research at FSU



### Watch and Listen to: WFSU's Issues in Education -- "[Energy Research](#)"

On WFSU Issues in Education, Dave Cartes, Julie Harrington and Kirby Kemper discuss areas of energy research including the issues of economics, conservation and energy efficiency at FSU with host Suzanne Smith.

### Useful Links

[Florida House of Representatives Energy & Utilities Policy Committee](#)

[Florida Senate Committee on Communications, Energy, and Public Utilities](#)

[Florida Senate Policy and Steering Committee on Energy, Environment, and Land Use](#)

[Florida Energy and Climate Commission](#)

New Staff Join IESES



[Valerie Pezzullo](#), IESES Campus Energy Training and Events Coordinator, joins our staff in time to help prepare for the [2009 FESC Summit](#) and the Near-Shore Oil and Gas Production Symposium. Other events she is working on include Intellectual Property and Media Training. In her previous position, Valerie was a researcher in Astrophysics at FSU formulating computational and theoretical methods of analyzing



Supernovae. She is also an active member in Women in Math, Science, and Engineering at FSU. Valerie is an undergraduate in Mechanical Engineering.  
Valerie Pezzullo and Dave Cartes

Luke Mowbray

[Luke Mowbray](#), IESES Campus Sustainability Liaison, is responsible for enhancing the cooperation and communication between IESES and the various campus, city, county and state organizations associated with sustainability. Luke is a graduate student in Urban and Regional Planning where he specializes in Environmental Planning and Natural Resource Management. Before coming to this position, Luke worked on an IESES grant as a research assistant in FSU's Department of Urban and Regional Planning where he studied the effects of land use planning on energy consumption. His current research interests include the effectiveness of community level sustainability practices and the restoration of Florida's natural habitats.

The [Institute](#) is a public resource. Here we carry out scholarly basic research and analysis in engineering, science, infrastructure, governance and the related social dimensions to further a sustainable energy economy. The Institute unites researchers from the disciplines of engineering, natural sciences, law, urban and regional planning, geography and economics to address sustainability and alternative power issues in the context of global climate change.

Our partners and collaborators include:

[The Center for Advance Power Systems](#);  
[The Energy and Sustainability Center](#);  
[The Sustainable Energy and Governance Center](#);  
[The Center for a Systems Approach to Bio-Energy Research](#);  
[The Center for Economic Forecasting and Analysis](#) ;  
[The Florida Institute for Sustainable Energy](#); and  
[The Florida Energy Systems Consortium](#).

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