



Florida Energy Systems Consortium (FESC) Overview Presentation

www.floridaenergy.ufl.edu

**FPL Meeting
August 20, 2014**



Florida Energy Systems Consortium (FESC)

Created by Florida Statute in 2008

Purpose... Unite Florida energy experts - including Florida's 12 Universities - so that the State leads in energy research and develops innovative energy systems giving rise to...

*Improved energy efficiency and
Expanded economic development*

Strategic Activities

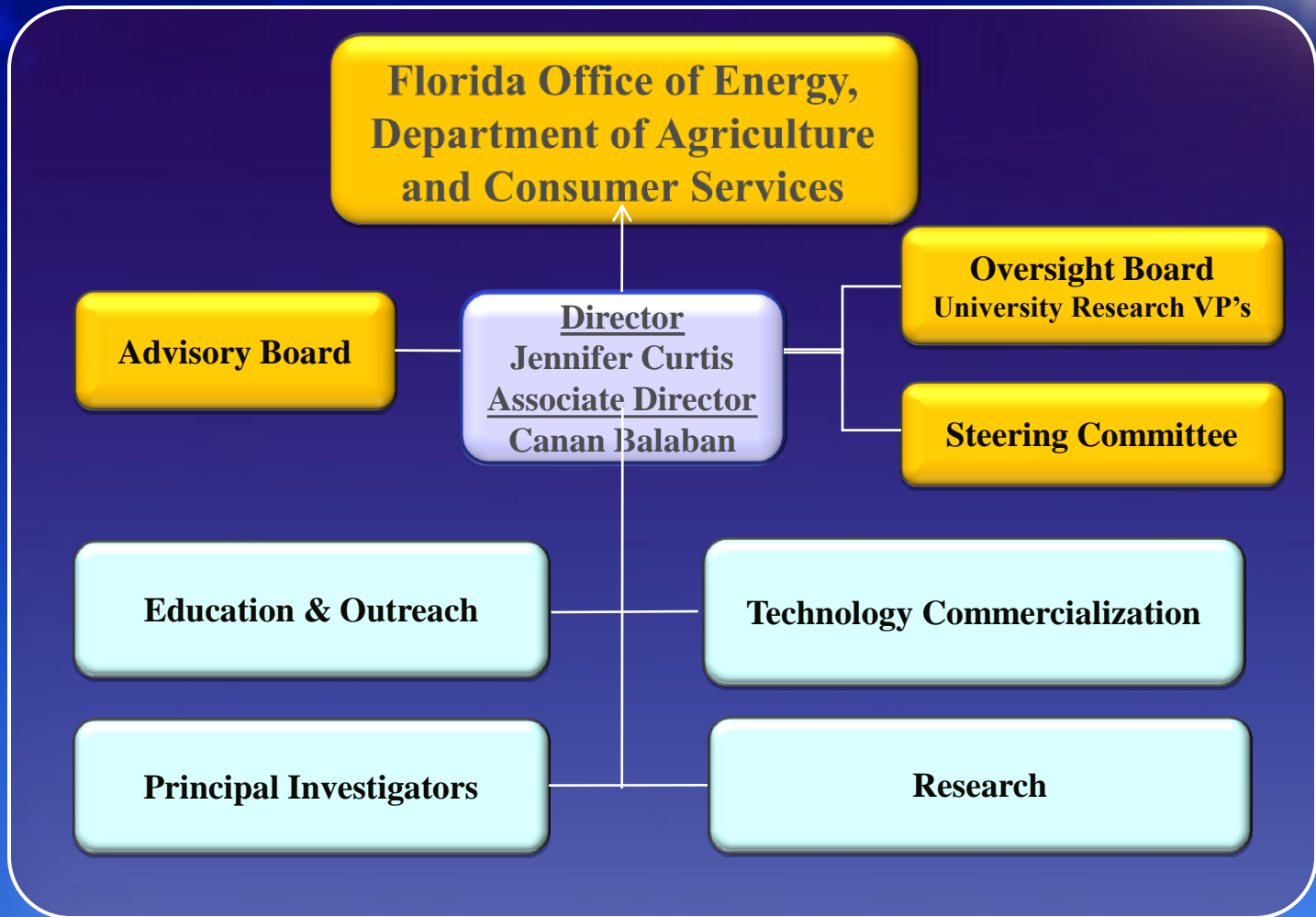
- Research
- Technology Commercialization
- Outreach
- Education

FESC involves more than

- 400 Faculty
- 100 Centers and Institutes
- 200 Companies within Florida



FESC Leadership Structure



ACTIVITIES AND ACCOMPLISHMENTS

FESC Successes to Date - Research



Leveraged \$38 million in state appropriation to obtain \$373 million in energy research funding from third parties

Resulting dissemination of over 1000 publications and 1000 presentations – promotes Florida’s energy capabilities and technical leadership helping to attract energy industry and energy funding to FL

Selected Award Examples

- \$125M US-India Joint DOE Clean Energy Research and Development Center in Biomass – UF Lead
- Nation’s only university-based Photovoltaic Regional Test Center at UCF, funded by NSF
- US DOE funded FEEDER (Foundations for Engineering Education for Distributed Energy Resources) Consortium (UCF lead with UF and FSU)
- FAU - designated by DOE as one of three National Marine Renewable Energy Centers
- \$20M NIFA-USDA funded PINEMAP (Pine Integrated Network: Education, Mitigation, and Adaptation Project): “Integrating Research, Education and Extension for Enhancing Southern Pine Climate Change” – UF Lead

User Facilities

- 28 User Facilities within the State University System
- Some Examples:
 - *Advanced Materials and Engineering Research Institute (AMERI) at FIU*
 - *Center for Advanced Power Systems (CAPS) at FSU*
 - *Photovoltaic Materials Laboratory at FSEC / UCF*
 - *Building Science Laboratory at FSEC / UCF*
 - *Materials Characterization Facility (MCF) at UCF*
 - *Major Analytical Instrumentation Center at UF*
 - *Thin Film Electronic Materials Laboratory (TFEM)*
- Summary at <http://www.floridaenergy.ufl.edu/>

FESC Successes to Date – Education

Over 300 students and post-docs educated in energy area through their direct involvement in energy-related research and technology projects

On-line Energy Certificate Program and New Energy Courses

Over 95 specialized *Industry* Training and Education Events

Workforce Development - Program implementation with Florida Advanced Technological Education Center (FLATE).

- Created state-wide technician educational delivery system
- Developed two energy degree programs
 - Alternative Energy Technologies
 - Industrial Energy Efficiency

FESC website is a communication/dissemination vehicle for existing energy education initiatives in state

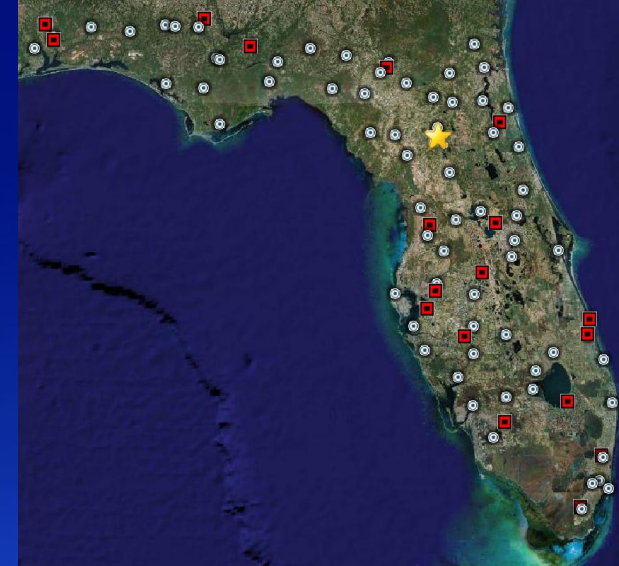


FESC Successes to Date - Outreach

Focus on Energy Efficiency

- Targeting the general public & built environment
- Collaborating with the home builders and construction industry
- Partnering with utilities to implement performance-based demand side management

Demand Management Much More Cost Effective Than Expanding Supply



Developed information for public

UF Program for Resource Efficient Communities

- Over 50 Fact Sheets prepared to help Florida citizens better conserve and increase energy efficiency
- Sustainable Floridians program (8 week training program preparing Florida citizens to be ambassadors for sustainability)

FESC Successes to Date - Technology Commercialization

FESC Technology Commercialization Program

- Funding early stage market research/business plans – Phase I
- Matching funds for companies to leverage their R&D budgets – Phase II

Startup Companies – 26 companies formed based on university developed technologies

Technology Licensed – 89 licenses

Invention Disclosures – 376 submitted

- **Job Growth**
 - Across all diverse aspects of emerging energy technologies
 - Over 100 new jobs

Summary of Activities/Accomplishments

- FESC has highly leveraged the state funding and linked Florida universities with Florida energy industry
 - Gives Florida a competitive advantage
- Increased awareness nationally/internationally of FESC and its leadership role
 - MOU with BioFuelNet (BFN) Canada
 - BFN links Canadian universities and with industry to collaborate in biomass research and development
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Content-Rich Web Site: floridaenergy.ufl.edu/

FESC Florida Energy Systems Consortium
Universities Addressing Florida's Energy Needs

UF UNIVERSITY OF FLORIDA, FSU, UCF, USF UNIVERSITY OF SOUTH FLORIDA, FAU FLORIDA ATLANTIC UNIVERSITY, FGCU FLORIDA GULF COAST UNIVERSITY, FIU FLORIDA INTERNATIONAL UNIVERSITY, COLLEGE OF PALM BEACH, UNF UNIVERSITY OF NORTH FLORIDA, UWF

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Florida Energy Systems Consortium Calender of Events

Today | Friday, January 11

Monday, January 21
Gulf of Mexico Oil Spill & Ecosystem Science Conference

Tuesday, January 22
Gulf of Mexico Oil Spill & Ecosystem Science Conference

Wednesday, January 23
Gulf of Mexico Oil Spill & Ecosystem Science Conference

Friday, January 25
7:30am Broward County Go SOLAR Fest
9:30am Community College Energy Workshop

Events shown in time zone: Eastern Time

NEWS

SEC Symposium

The first event, led by the University of Georgia and entitled *Impact of the Southeast in the World's Renewable Energy Future*, has been confirmed for February 10-12, 2013 at the Hyatt Regency Atlanta.

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FESC Bringing Energy Solutions to Florida, the Nation and the World

The Florida Energy Systems Consortium (FESC) was created by the Florida State government to promote collaboration among the energy experts at its 11 supported universities to share energy-related expertise. The consortium assists the state in the development and implementation of an environmentally compatible, sustainable, and efficient energy strategic plan. The Consortium was charged to *perform research and development on innovative energy systems that lead to alternative energy strategies, improved energy efficiencies, and expanded economic development for the state*. The legislature appropriated funding for research at five of the universities as well as support for education, outreach, and technology commercialization. The Consortium reports to and provides guidance on an as needed basis to the Florida Legislature, Executive Office of the Governor, and the Florida's Office of Energy housed in the Florida Department of Agriculture and Consumer Services.

Overarching to the Consortium's research strategy is an energy systems approach to identify innovation opportunities, prepare an energy workforce, and guide economic development.

Through collaborative research and development across the State University System and the industry, the goal of the consortium is to become a world leader in energy research, education, technology, and energy systems analysis. In so doing, the consortium shall:

Also communicate with FESC network through **bi-monthly newsletter**, in addition to biannual reports, e-mails, telecons and other meetings

FESC Annual Workshop

- FESC Annual Workshops were combined with the Florida Energy Summit in 2012 and 2013
- FESC hosted a Florida Energy Workshop on May 12-13, 2014
 - On-site expenses covered for 150 faculty/students
 - Over 200 attendees

Will host another energy workshop in May 2015

State Funding

- FESC Bridge funding for fiscal years 2013-2014 and 2014-2015 for administrative support
- Funding for administration, education and outreach
 - **Accepting education proposals - High impact activities**
- Office of Energy matching program

- Recurring funding request package being submitted to the State through the Office of Energy this fiscal year

Strategic Thrusts

1. Developing Florida's Biomass Advantage for Renewable Fuels
2. Harnessing Florida's Solar Resources
3. Enhancing Energy Efficiency and Conservation
4. Securing Energy Delivery Infrastructure and Energy Storage
5. Capturing Florida's Marine Energy Resources for Power Generation

State Funding

Office of Energy Recommendation to Commissioner Putnam

- Open, competitive grant program by Office of Energy
 - **Technology Commercialization Support**
 - Partnerships between industrial sector and universities to develop and commercialize emerging technologies
 - Increase economic development in Florida
 - **Energy Development Research Support**
 - Applied research driven by real-world problems, providing practical answers to pressing industry and State of Florida needs

State Funding

Office of Energy Recommendation to Commissioner Putnam

- Open, competitive grant program by Office of Energy
 - **Exploratory and Fundamental Energy Research Support**
 - Assist Florida in being especially competitive for additional, significant federal research dollars
 - Produce steady stream of innovation and keep Florida at cutting edge/national leader in energy research
 - **Facilities Support**
 - Funds for state-of-the-art research infrastructure – equipment and facilities
 - Facilities also available for industry use

State Funding

Office of Energy Recommendation to Commissioner Putnam

- Non-competitive grant program to FESC
 - Administration of FESC
 - Large scale research proposal coordination, interactions with FESC network, annual conference, website, etc.
 - Energy education
 - Outreach support

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