

Florida Energy Systems Consortium

Overview Presentation
Nov 26, 2013

www.floridaenergy.ufl.edu



Agenda

Short presentations by FESC Steering Committee members at each university

FAMU Overview, Charles Weatherford

FAU Overview, Camille Coley

FGCU Overview, Joe Simmons

FIU Overview, Osama Mohammed

FSU Overview, Billy Oates

UCF Overview, James Fenton

UNF Overview, John Kantner

USF Overview, Yogi Goswami

UWF Overview, Muhammad Rashid

UF Overview, Canan Balaban (for Sean Meyn)

FESC Outreach – Pierce Jones

Q&A, Open Discussion

Future Plans

Lunch



FESC OVERVIEW

Florida Energy Systems Consortium

Created by Florida Statute in 2008

Purpose is to... Unite Florida energy experts including Florida's 11 Universities so that the State is a leader in energy research and developing innovative energy systems which will give rise to...

*Improved energy efficiency and
Expanded economic development*

Strategic Activities

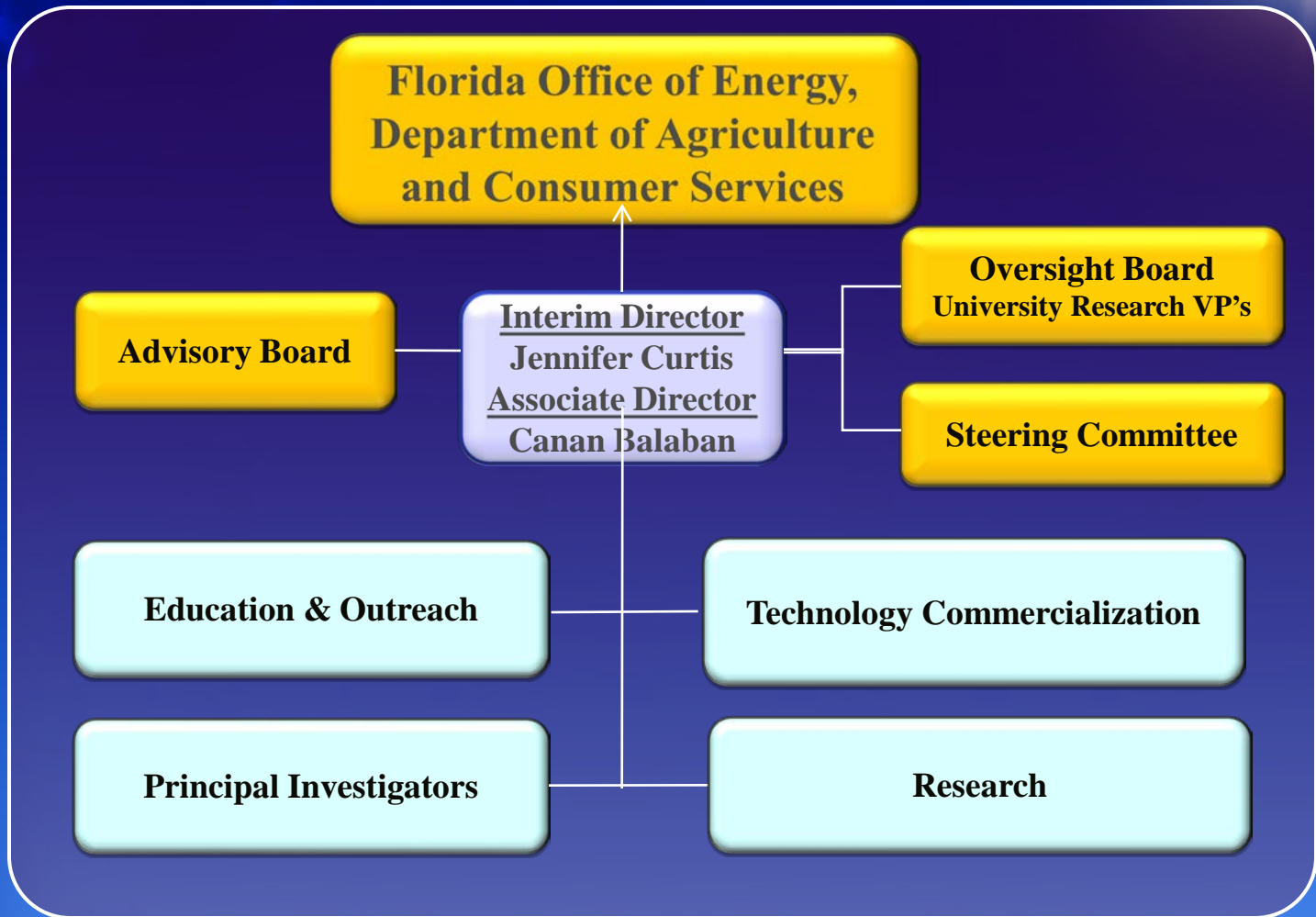
- Research
- Technology Commercialization
- Outreach
- Education

FESC involves more than

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



FESC Leadership Structure



ACTIVITIES AND ACCOMPLISHMENTS

FESC Funded Research Projects

| Thrust Areas | # of Projects |
|--|---------------|
| 1: Energy Systems | 13* |
| 2: Energy Efficiency and Conservation | 11 |
| 3: Biomass Energy | 13 |
| 4. Solar Energy | 23 |
| 5: Nuclear Energy & Carbon Capture | 5 |
| 6: Ocean Energy | 2 |
| 7. Energy Storage and Delivery | 13 |
| 8. Energy Policy | 17 |
| 9. Technology Commercialization (Phase I & II) | <u>15+5</u> |
| Total | 91 |

* 11 projects counted in other thrust areas

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
- \$12M 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

FESC Successes to Date – Education

Educated, through their direct involvement in energy-related research and technology projects, over 400 students and post-docs at FL universities

On-line Energy Certificate Program

Over 95 specialized *Industry* Training and Education Events

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

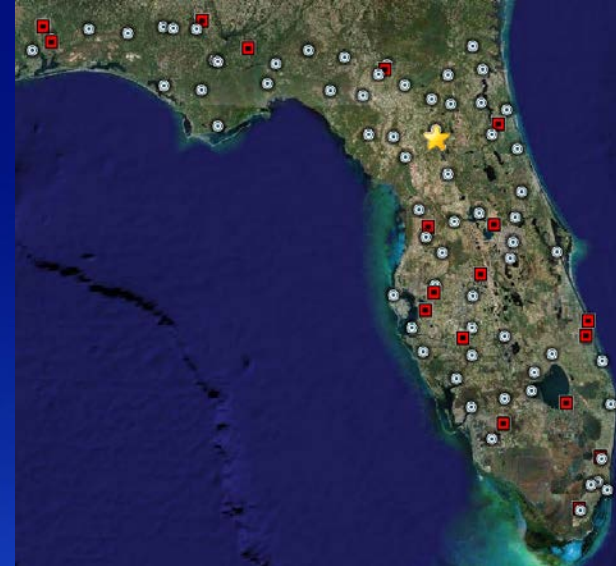
- Create State-wide technician educational delivery system
- Developed two energy degree programs
 - Alternative Energy Technologies
 - Industrial Energy Efficiency

FESC Successes to Date - Outreach

Focus on Energy Efficiency

- Target the general public & built environment
- Collaborate with the home builders and construction industry
- Partner with utilities to implement performance-based demand side management

Demand Management Much More Cost Effective Than Expanding Supply



Developed information for public

- Over 50 Fact Sheets prepared to help Florida citizens better conserve and increase energy efficiency

Conducted continuing education programs

Content-Rich Web Site: floridaenergy.ufl.edu/



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

UF UNIVERSITY OF FLORIDA USF UNIVERSITY OF SOUTH FLORIDA UCF UNIVERSITY OF CENTRAL FLORIDA FAU FLORIDA A&M UNIVERSITY FIU FLORIDA INTERNATIONAL UNIVERSITY UNF UNIVERSITY OF NORTH FLORIDA UWF UNIVERSITY OF WEST FLORIDA

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Florida Energy Systems Consortium Calendar 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

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:

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.

See Our News Archive

Download Brochure

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

FESC Successes to Date - Technology Commercialization

FESC Technology Commercialization Program

- Funding of 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
- **Creates value chain ecosystem**
 - Involving companies, suppliers, customers, academics, research partners, consultants

In Conclusion...

- 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 industry to collaborate in energy R&D



We look to build on the
current momentum FESC has established

FUTURE DIRECTIONS

FESC Workshop

- FESC Annual Workshops were combined with the Florida Energy Summit in 2012 and 2013
- FESC will host a Florida Energy Workshop on May 12-13, 2014
 - Research-focused
 - Hilton Hotel, Gainesville FL
 - On-site expenses will be covered, including hotel expenses for up to 150 faculty/students

Strategic Thrusts

1. Developing Florida's Biomass Advantage for Renewable Fuels
2. State of Florida Opportunities for High Impact Solar Energy Research
3. Enhancing Energy Efficiency and Conservation
4. Smart Grid and Energy Storage
5. Marine Energy for Power Generation
6. Nuclear Energy

State Funding Request

- FESC Bridge funding (50/50 cost shared by VP of UF) was approved by Commissioner Putnam
- Recurring funding request package has been submitted to the State through the Office of Energy
 - Administration, Education and Outreach Support - FESC
 - Research and Technology Commercialization – reside at Office of Energy and FESC will be responsible for technical oversight
- Office of Energy will establish matching program. FESC will assist in managing this program.

Energy Research Funds Requested

\$500,000 - \$1,000,000

Technology Commercialization Support

- Develop commercially-applicable, new technologies through university/industry partnerships
- A minimum of 1:1 cost sharing provided by a Florida industry partner

\$1,500,000 - \$3,000,000

Technology Development Research Support

- Perform high quality applied research driven by real-world problems
- Partnership with industry and must include a minimum of 10% industrial cost sharing

Energy Research Funds Requested

\$1,200,000 - \$2,400,000

Exploratory/Fundamental Energy Research Support

- Produces a steady stream of innovation which is key to Florida's sustained economic development
- Provides a major role in developing Florida's research leadership in the energy sector

\$800,000 - \$1,600,000

Facilities Support

- State-of-the-art energy research infrastructure – equipment and facilities – required to conduct cutting edge, high quality energy research

How You and Your University Can Support

- Already met with FESC Advisory Board at Florida Energy Summit and they are unanimously supporting this request
- Had several meetings with Office of Energy to modify/tweak request

Need lobby support from each university