

## Education and Outreach

### *Florida Advanced Technological Education Center (FLATE)*

**PI:** Marilyn Barger

**Description:** FLATE (Florida Advanced Technological Education Center) will partner with FESC to develop the state wide strategy for developing the technician based workforce that will be needed to support new/improved energy technologies as developed within FESC research partners. Strategic elements include the development of statewide curriculum frameworks for technical A.S./A.A.S. degree programs supporting existing and new energy business sectors. FLATE will be responsible for the crafting and drafting of such frameworks as well as the direct actions involve in the FLDOE the industry-validated student competencies of the frameworks process. FLATE will also develop as required new courses for each new program of study. Additionally FLATE will help state and community colleges implement the new frameworks in their institutions. To support the new curriculum, FLATE will work closely with the FESC Public Outreach and Industry Partnership programs to provide professional development opportunities for teachers and faculty to upgrade and update their knowledge base.

**Budget:** \$300,000.

**Universities:** FLATE/Hillsborough Community College

**External Collaborators:** Brevard Community College; Tallahassee Community College; Daytona State College; Central Florida Community College; Polk State College; Florida State College at Jacksonville; Valencia Community College; School District Hillsborough County; Florida Department of Education – Division of Adult and Career Education; West Side Technical School; WFI Banner Center for Energy; Advanced Technology for Energy and Environment Center (ATEEC); University of West Florida, Dept of Construction Technology; WFI Banner Center for Construction; WFI Banner Center for Clean Energy; USF College of Engineering; Madison Area Technical College ATE project for Alternative Energy certifications; Milwaukee Area Technical College Energy Conservation and Advanced Manufacturing Center (ECAM); Florida Energy Workforce Consortium (FEWC); TECO; Progress Energy; ISTE (Ibero Science and Technology Education Consortium), Center for Energy workforce Consortium (CEWD); UF Industrial Assessment Center, CREATE NSF Center for Alternative Energy; EST2 NSF ATE Grant project; DOE’s Office of Energy Efficiency & Renewable Energy; Gulf Coast State College; Palm Beach State College; University of South Florida’s College of Engineering.

## Progress Summary

The development of the process for the Florida State College System to respond to FESC’s long term strategy to bring energy related technologies out of the Florida University System is well underway. Activities this year included identifying the current status of credit and non-credit energy related courses within the State College System. In addition, online curriculum related to Alternative Energy Systems has been developed. FLATE has the college contacts and process in place to respond to any FESC and/or regional economic development authority request to provide assistance to a designated State College because of a technician workforce development need as identified or triggered by a new or expanding energy related company’s operations in the State.

**Funds leveraged/new partnerships created:** FLATE has leveraged its NSF and FESC resources to help Brevard Community College to apply for and be awarded a very competitive NSF grant, \$ 500,000, implement two energy related specialization within the A.S. Engineering Technology Degree. In addition, FLATE was able to secure a \$ 100,000 award from NSF to develop a faculty/student interchange that will allow Florida to benefit from the well advanced energy related technology educations practices at technology colleges in Spain.

## 2011 Annual Report

Since October 1, 2010 FLATE achieved several milestones. It completed the online curriculum of an introductory (overview) course in Alternative Energy Systems. Eighteen modules in the form of presentation slides are now available to the state colleges (and others) online at [www.flate.pbwiki.com](http://www.flate.pbwiki.com) at the energy link. The modules have been reviewed by subject matter experts before posting for level and content. The detailed list includes energy storage, biofuels and bioenergy, wind energy, solar energy, geothermal, energy policy and regulations, etc.

In December 2010, FLATE surveyed the 28 state and community colleges to determine their offerings in three categories: (1) non credit courses and training programs; (2) academic programs; and (3) individual courses that had as a major component any type of energy science, technology or applications. 50% of the State and community colleges responded to all 3 parts of the survey. This survey information and links were used to update information about energy program offerings in the state on the FESC website. The data revealed that all of the 14 colleges that responded offered some energy curriculum and that offerings varied across the state depending on local industry needs. Several are offering non-credit curriculum developed by the Banner Center for Clean Energy. This survey will be revised and administered again in early 2012.

FLATE and its partners made several presentations during the past 12 months. Project Manager, Jorge Monreal, presented a poster entitled “Building the Technician Workforce for Florida’s Energy Future” at the Green Energy Summit in Milwaukee, WI, where he also gathered information about community college programs focused on industrial energy efficiency. Dr. Marilyn Barger gave a 30 minute presentation “Developing an Alternative Energy Credit Certificate for Florida” at the IREC 2011 Clean Energy Workforce Education Conference in Saratoga Springs, NY (March 2011).

Additionally, FLATE presented a poster at the annual FESC Summit, September 27-28, 2011 at the University of Florida, Gainesville. Finally, FLATE regularly updates / presents information about energy curriculum and training issues at the statewide Florida Engineering Technology Forum that meets twice per year at various colleges across the state. Many of these schools are looking to add “energy” curriculum and/or programs and are requesting guidance on what industry is asking for across the state and what and how other colleges are implementing credit programs. The goal of these activities is to keep colleges working together and sharing curriculum rather than develop independent programs not properly aligned to statewide frameworks. The ET Forum group and FLATE also undertook efforts to work with the state common course numbering system to identify a prefix for energy technology courses. The new prefix will be effective in the 2012 academic year and will be called ETP (Engineering Technology – Power).

On Monday Sept 26, 2011 FLATE and FESC sponsored an energy workshop for high school and college educators at the Center for Innovation and Economic Development at Santa Fe College in Gainesville, FL. Over 45 participants heard presentations from the new Department of Economic Opportunity (DEO) about newly released Green Job Report; heard updates from the Florida Department of Education

(FLDOE) state supervisor of the Energy Cluster; learned about the new high school energy programs from the Florida Energy workforce Consortium (FEWC); and shared new information from FLATE and the Banner Centers for Energy, Clean Energy and Construction as well as the colleges. A hands-on workshop in the afternoon demonstrating hand held tools for defining energy losses in buildings completed the day. 13 of the educator attendees took advantage of the support offered by FLATE to attend the Florida Energy System Consortium (FESC) Third Annual Summit at the University of Florida on the following 2 days (September 27-28, 2011). Reviews of the event are still being tabulated, but the very positive verbal responses from the participants made it clear that there was a need and desire to have future events for this industry sector. Additionally, the participants were addressed by special guest, Henry Kelly, Acting Assistant Secretary & Principal Deputy Assistant Secretary, Office of Energy Efficiency & Renewable Energy who gave an overview of the newest resource for education and training: Department of Energy's National Training and Education Resource (NTER). All materials from the Workshop are now posted on the FLATE FESC page ([www.fl-ate.org/projects/fesc](http://www.fl-ate.org/projects/fesc)).

**Activities for the 2010-2011 year are listed below.**

- Participated as Advisory Council Member for the Banner Center for Energy's Focus Group meeting to assess future educational needs from industry within the Indian River State College area. (Orlando, FL)
- Attended presentation from the Sustainability Education & Economic Development (SEED) on application of Nanotechnology to Solar Cells. (Brandon, FL)
- Reviewed proposed course curriculum and frameworks in the Florida Energy Workforce Consortium (FEWC) quarterly meeting. (Orlando, FL)
- Jointly with Brevard CC, Tallahassee CC, FSCJ and University of Florida's Industrial Assessment Center discussed possibilities of establishing new educational programs at the three colleges that would prepare a new workforce in commercial building and residential energy efficiency. (Gainesville, FL)
- Focus group participant for the Second Annual Gathering of Tampa Bay Sustainability Educators for idea generation and implementation plans to improve sustainability efforts in the Tampa Bay area. (Tampa, FL)
- Initiated discussions with Hillsborough CC on partnership arrangements with other Florida colleges for participation in an exchange course with Denmark for Sustainability Studies where see towns that utilize distributed power generation facilities such as CHP plant with trash as fuel source. Obtained partnership with SCF in Sarasota. (Tampa, FL)
- Completed and distributed a survey to all State/Community colleges throughout Florida to assess the state's current educational offerings in alternative/sustainable energy.
- Worked with HCC's Sustainability Council towards its goal of reducing greenhouse gas (GHG) emissions on a yearly basis. Energy audits are to be conducted by TRANE across all campus locations as well as implementation of GHG emission mitigation projects.
- Began planning phase on a professional development summer energy workshop for middle school/high school teachers.
- Discussed with a local development company, HCC leadership, and District's House Representative, Rachel Burgin, future development of a CHP site in the Valrico, FL area and the possibility of using a portion of the site as a training facility for hands-on alternative energy education.
- Presented a poster entitled "Building the Technician Workforce for Florida's Energy Future" at the Green Energy Summit in Milwaukee, WI.
- Presented "Developing an Alternative Energy Credit Certificate for Florida" at the IREC 2011 Clean Energy Workforce Education Conference in Saratoga Springs, NY.
- Compiled data from 14 State/Community colleges that replied to the survey of alternative/renewable energy courses offered in Florida. Following up with non-respondents.

- Completed upload onto FLATE’s Wiki of course curriculum EST1830 Introduction to Alternative and Renewable Energy made up of 16 individual instructional “modules”. Course content is made freely available to self-learners, students and educators. Material is available here:  
<http://flate.pbworks.com/w/page/35326400/EST1830-Introduction-to-Alternative-Energy-Course-Content>
- Attended FSEC Teacher Energy workshop to network with K-12 teachers and FSEC.
- Offered summer program for middle school students on energy for underrepresented students in conjunction with the EST2 grant partners (BCC, TCC and FSCJ). A total of 50 students participated across the state in 3 4-day events.
- Began collaborations with UF’s Industrial Assessment Center (IAC) for refining the college curriculum. Dr. Tim Middlekoop has become an active participant in the work to write competencies required and possibly offering “field experience” on his various site visits, or helping to define what these could look like in an educational environment.
- Developed several flyers and brochures for FLATE - FESC
- Developed a model to crosswalk the Department of Labor’s occupation codes with the military occupation codes to help returning veterans find jobs in related energy fields. A prototype aligning DOL’s Electronics Engineering Technician has be cross walked with several MOS codes. Final review is being conducted. Next steps will be defined when this prototype is completed in Dec 2011.