Education & Training for the New Green Economy
The New Green Economy and Palm Beach State College

The College has established an energy and environmental institute to meet the community's need for a highly-trained workforce in emerging Green Industry sectors such as: Renewable Energy, Clean Technology, Smart Grid Operations, Alternative Transportation, Energy Efficiency. Officially named the Institute for Energy & Environmental Sustainability (IEES), its director, Dr. Jay Matteson explains that President Gallon and the College's Board of Trustees are “committed to the practice of sustainability in all areas and in becoming a leader in energy education in Florida.” This means that the college is focused on the development of academic and career technical programs that meet guidelines and recommendations from National Science Board to support education and workforce development for Building a Sustainable Energy Future (NSB-09-35, April 10, 2009).

With support and guidance from IEES business & industry advisors, goals to be accomplished in 2011 include:

- Producing a pipeline of highly qualified technicians from entry level to advanced for the Clean Energy & Renewable Energy Technology industry
- Creating “rigorous” and “relevant” courses of study that connects STEM benchmarks to job skills for the New Green Economy that are of high value to employers
- Developing articulation agreements with secondary schools and state universities to enable students to achieve advanced degrees in new and emerging Green industry occupations
- Collaborating with Advanced Technological Education (ATE) Centers and national associations (e.g. American Association of Community Colleges / Sustainability Education and Economic Development) to disseminate “best practices” and “lessons learned” www.theseedcenter.org/About-SEED with goal to become an Advanced Technology Education center of excellence atecenters.org/
- Exploring and laying the foundation for development of career & technical education programs and courses of study for the new & emerging Marine / Ocean Renewable Energy industry www.marinetech.org/home.php
- Procuring grants for IEES Sustainable funding projects in collaboration with business & industry and community partners; e.g. U.S. Department of Energy National Science Foundation; U.S. Department of Labor; U.S. Department of Education; U.S. Department of Agriculture

Defining the New Green Economy

There is a new frontier opening up and it is called the Clean Energy Economy. It’s definition defines its purpose: a clean energy economy generates jobs, businesses and investments while expanding clean energy production, increasing energy efficiency, reducing greenhouse gas emissions, waste and pollution, and conserving water and other natural resources.”

The Need for Clean Energy Economy Job Training

Economic workforce assessments provide compelling evidence for need to prepare highly-qualified workforce for jobs in Green Cluster industry sectors. As a testimony to this consider the following:

1. Using a data-driven survey to define the Clean Energy Economy, Pew Charitable Trusts reported that in 2007 Florida ranked in the top 10 states for jobs in the clean energy economy with more than 30,000 jobs produced.
2. Florida leads the United States in the production of electricity from municipal solid waste and landfill gas, as well as other renewable sources, (and) there continues to be significant potential for greater supply and distribution
3. U.S. Department of Labor (DOL) projections for 2008-18 report growing need for clean energy and environmental engineers and technicians, energy efficiency specialists for the Built environment, as well critical need for a broad base of skills training for “greening” of existing occupations.
4. Workforce assessments predict that by 2015 a projected 1,987 power technicians are needed in Palm Beach County largely due to the volume of industry presence in the region, representing fossil and alternative fuel production.
5. Commissioned studies by Workforce Florida and Florida Energy & Climate Commission report that job growth in Florida for Green industry is best suited for economic development of solar, wind, and Biofuels / Biomass.

6. Florida Economic & Workforce development reports have identified critical need for technician education & training for clean energy jobs currently available or job openings that are anticipated by year 2012 (Sustainability / Infrastructure Committee of Workforce Florida, Inc., Defining Green Jobs for Florida, June 2009).

Workforce Assessment Component
IEES has performed extensive review of state and national workforce assessments to determine the need for Clean Energy Economy jobs in Palm Beach, Treasure Coast, and South Florida areas relative to the state and nation. The review reveals an increasing demand for “greening occupations” and anticipated jobs in new and emerging Green occupations. For example, 5-Year Occupational Projections for 2nd Quarter 2010 shows an average annual growth rate in jobs of approximately 3% to 4% for SOCs: Environmental Scientists and Specialists; Compliance Officers (Sustainability Specialists, Energy Auditors); Environmental Engineers; Environmental Engineering Technicians; Hydrologists.

Creating Green jobs that are of high-value to employers and of high-wage earning to employees
Taken together all of this bodes well for Florida. That is to say, there is justification for investing in education and training for Clean Energy Economy technician training with specific attention to Solar, wind, Biofuels / Biomass and one other notable development - Marine Renewable Energy. U.S. Department of Energy’s August 2010 announcement has designated Florida Atlantic University’s Center for Ocean Energy Technology as DOE’s third national center for marine renewable energy. The implications of this are enormous as the new center known as the Southeast National Marine Renewable Energy Center (SNMREC) develops collaborative projects with business & industry and institutions of higher education within and without Florida to support research, demonstration, scale-up, and deployment of ocean energy technology.
Palm Beach State leads the way in Green Energy Education in Florida

IEES has developed a rigorous model for developing academic and career & technical education programs for student successes that results in high-learning outcomes of high-value to employers. Principle components driving the tasks to achieve a program of distinction consist of:

- **Curriculum & Instructional Design:** development of course learning competencies and skills that build depth of knowledge for “Extended” and “Strategic Thinking” (e.g. Analysis, design, problem-solving, critical thinking)

- **Curriculum Mapping:** refining existing courses and developing new courses to provide students with a clearly defined academic path for earning multiple-certificates and advanced college degrees in Green Industry sectors

- **Deployment of Applied Learning Laboratories:** providing students with authentic learning experiences that tests the students’ knowledge of “learning-by-doing” beyond the classroom

- **Accountability & Assessment:** developing reliable & valid test item banks to assess students’ competencies and skills for Green economy careers

- **Business & Industry Partnerships:** building partnerships with industry to establish connections between “ready workers” and “ready jobs” thereby creating powerful linkages to green occupations as guided and supported by industry experts

- **Dissemination of Curriculum Resources and Materials:** developing a library of instructional materials that enables learners and stakeholder partners to gain access to information and materials to inform and reinforce learning

- **Methods of Instructional Delivery:** creating and testing novel methods of teaching & learning

**Palm Beach State College Institute for Energy & Environmental Sustainability**

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*Electric Vehicle Integrated Solar & Wind Car Charging Station – preparing workforce for the New Clean Energy Economy (Palm Beach State College Exhibit, South Florida Fairground Expo, January 14, 2011)*

*By integrating existing programs and creating new courses of study with guidance from business & industry, Palm Beach State College has laid the foundation for building a Sustainable energy, environmental, economic, and equitable future for the community it serves*