POWER UP!
Preparing Florida’s Students for Tomorrow’s Economy through Partnerships
Carol Higley
2011 Co-Chair
Florida Energy Workforce Consortium
Florida Energy Workforce Consortium

• Formed in 2006 to develop solutions to meet the current and future workforce needs of Florida’s energy industry

• Comprised of energy industry, construction, preK – 12 and post-secondary education, and workforce representatives

• **Compete for a talent puddle or work together to build a talent pool?**
The Challenge
The need for skilled, well-educated workers is growing

Demand is up

1 in 3 U.S. workers is age 50 or older.

By 2015 a 15% decline is projected in ages 35 – 44.

“More than half of today’s utility workforce will be eligible for retirement over the next 10 years.”
- US Bureau of Labor Statistics

“The positions that will experience the highest rates of attrition over the next five years are those most difficult to fill: Engineer technicians and skilled and craft employees.”
- APPA
The Challenge

There are not enough skilled workers to fill the jobs

“More than 70% of HR executives say that incoming workers with inadequate skills are their most serious problem over the next three years.”
– Deloitte Consulting

“The number of high school students taking trade or industry-related vocational and technical courses in preparation for a skilled or craft labor job has declined by 35% in the past decade.”
- UWPN Issues Update

“More than half of applicants for skilled, entry-level positions at utility companies lack academic or basic skills required for employment.”
- UBEC survey of industry CEOs
Simply put, demand exceeds supply

“Baby boomer” employees retiring in large numbers

Smaller pool of workers who have the appropriate technical skills
This shortage directly impacts the Energy Industry

- Utility workforce is four years older than national average
  - *US Bureau of Labor Statistics*
- Demand for technical and craft workers increasing
- Failure rates on pre-employment tests are increasing
- Potential threat to both productivity and reliability
The New Economic Development Reality

- A skilled workforce has become more important than land and buildings

- As layers of middle management have been eliminated, these workplace skills are increasingly required of all employees:
  - Critical thinking
  - Problem-solving
  - Communication skills
  - Teamwork and Self-direction
  - Global, civic, financial, economic & entrepreneurial literacy

INNOVATIVE and CREATIVE thinking!
Florida’s Economy

• 20th largest in the world
• Also hit by recession – have lost 7M jobs
• 19M Floridians (4th largest state – will surpass New York to become 3rd in next 10 years)
• By 2020…+2.5M / +1.4M Net New Jobs
• By 2030…+5M
Are We Ready for 2030?

“Florida needs to plan better and grow smarter over the next 7 million people than we did during the last 7 million.”

Steve Halverson, President & CEO, The Haskell Company & Chair of the Florida Chamber of Commerce
“Talent is the new economic development currency.”

Mark Wilson
President & CEO
Florida Chamber of Commerce
Talent Supply is Our #1 Priority

“For the first time, Enterprise Florida and the Council of 100 joined forces with the Chamber to advocate for an economic recovery and transition plan.”
Talent Supply is FEWC #1 Priority

- A qualified, diverse workforce – for us and our contractors
- Various career entry points with various educational attainments
- Pipeline of students
- Core values
The Changing Workforce...

DEMAND TRIPLES (% of Total Workforce)

1950
- Professional: 20%
- Skilled: 20%
- Unskilled: 60%

1991
- Professional: 20%
- Skilled: 45%
- Unskilled: 35%

2000
- Professional: 20%
- Skilled: 65%
- Unskilled: 15%

Post-Secondary Education

Educational erosion undermines our nation’s future

Of every 100 ninth-graders in this country...
- 69 graduate from high school on time
- 38 enter college directly after high school
- 28 remain enrolled after their second year in college
- only 20 graduate from college within six years

Source: National Center for Higher Education Management Systems (Based on Common Core Data from the National Center for Education Statistics, as well as Residency and Migration, Fall Enrollment and Graduation Rate Surveys from the Integrated Postsecondary Education Data System.)
## Implications of Educational Achievement

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Unemployment Rate</th>
<th>Median Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor's degree or higher</td>
<td>9%</td>
<td>$31,600</td>
</tr>
<tr>
<td>Some college or Associate's degree</td>
<td>11.2%</td>
<td>$25,800</td>
</tr>
<tr>
<td>High school diploma only</td>
<td>15.5%</td>
<td>$19,900</td>
</tr>
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AWI, October 2009; U.S. Census Bureau, American Community Survey, 2008;
Workforce Misperceptions…

U.S. CENSUS BUREAU

• 8 of the 10 fastest growing occupations through 2014 do not require a bachelor's degree

They Require a 2-year Associate's Degree or Post-Secondary Training – *these can often be earned in high school now* – have to rethink the traditional boundaries of secondary/post-secondary

So What Is Our Need?

• A qualified, diverse workforce – for us and our contractors
• Various career entry points with various educational attainments – technician-level and degreed engineers, accountants, etc.
• Pipeline of students
• Core values
FEWC Top Occupations of Concern

• Line Installers and Repairers
• Plumbers, Pipefitters & Steamfitters
• Welders
• Maintenance and Repair Workers
• Electricians
• Engineering Technicians
• Engineers (electrical, mechanical, chemical, civil…)
• Instrumentation & Control Technicians
• Power Plant Operators
What Are These Careers Like?

• All are high-skill, high-wage
• All require some basis of knowledge/skill prior to entry, but we provide training
• All have opportunities for advancement – both through technical and management paths
• Provide world-class benefits, including pensions, 401k matches, tuition reimbursement, career development, etc.
• For more information, visit www.getintoenergy.com
So How Do We Get There?

- PARTNER and COLLABORATE!
- Work locally, regionally, at state, and at national levels to brand our industry careers and create talent pipeline programs
- Focus on key areas:
  - State & National Outreach - Career Awareness
  - Policy & Education - Untapped Labor Sources
  - Funding & Resources
Career Awareness

• Career Awareness to drive students to pipeline programs
  – Careers in Energy Week: October 17 – 21 Second Year
  – State-wide student competition to brand energy careers
    (www.getintoenergyflorida.com)
  – Recognize winners at Florida Science Fair and Florida SkillsUSA with get into energy Florida branded items/info
  – Energy summer camps
  – BEST and FIRST Robotics competitions
Partnership with Business/Industry

• Advisory Board
• Recruitment/Open House
• Classroom Speakers
• Field Study Experiences
• Thematic Learning Activities
• Job Shadowing
• Internships
• Mentoring
• Teacher Externships
Offer Resources

- Banner Center for Energy http://bannercenterforenergy.com/index.html
- Banner Center for Energy – List of FL Energy Training Programs http://bannercenterforenergy.com/trainingProgramFL.html
- Energy Information Administration Education page - http://www.eia.gov/kids/
- The National Energy Education Development project – http://www.need.org
- Engineering K12 Center - http://egfi-k12.org/
- Energy Industry Fundamentals Curriculum (revised) – NEW!
- www.cewd.org/curriculum/
Partnership with STEMflorida, Inc.

- Funded through Workforce Florida, Inc. as a business-led initiative that will result in the alignment of all STEM program activities;
- Focus on PreK to advanced degree STEM education programs, activities and research aligning to workforce expectations;
- Sustainable organization/process will be created such that all STEM initiatives in Florida successfully connect, align and cooperate to achieve the common goal of improving demand-driven talent production in STEM.
Pipeline Program: Energy Career Academies

- Have 22 in Florida, many replicated after Gulf Power Academy at W. Florida High School in Pensacola (2001)
- Many utilize NCCER Electrical curriculum, resulting in industry-recognized and valued credentials
- Most offer articulation, energy industry pre-employment testing, and local energy company engagement
- Currently piloting the new energy courses at Gulf Power Academy and Lakeland Electric Power Academy and eight other high schools around the state this Fall, 2011
Pipeline Program: *Banner Center for Energy*

- Florida’s industry-driven resource for post-secondary energy workforce education and training
- Located at Indian River State College but with educational partners across Florida
- Focus on industry-driven degree and certificate programs to meet needs of energy industry in Florida (nuclear, non-nuclear generation and distribution)
- Offer entry-level, advanced-level, and skills upgrade training

http://bannercenterforenergy.com/
Policy and Education

• Partnered with Florida Department of Education to gain approval for the addition of an Energy Industry Cluster - *FIRST IN NATION!*

• Partnered with FDOE to develop energy curriculum framework for five (5) courses:
  – Energy Foundations
  – Introduction to Alternative Energy
  – Power Generation Technician
  – Power Distribution Technician
  – Solar Energy Technician
Policy and Education

• Develop curriculum materials for Energy Courses
• Create Florida Energy Teachers Network – will add teacher “toolkit” to Get Into Energy Florida web site
  – Complete and publish compilation of readily available resources for K-12 teachers to use to integrate energy concepts into the math, science and reading curriculums
  – Develop an FEWC teacher externship program for CTE, Science and Math teachers
• Replicate energy career academies
• Partner with CEWD to ensure aligns with national competency model and curriculum pathways
Who is CEWD

- First partnership between utilities and their associations – EEI, AGA, NEI and NRECA to focus solely on these issues
- Incorporated in March, 2006
- Utilities, associations and supplemental labor contractors join as members
- Partnering with educational institutions, workforce system, and unions to create workable solutions
- Currently have 73 members from large IOU’s to smaller cooperatives and municipalities that represent about 75% of employees in Electric and Natural Gas Utilities
There are many reasons to consider a career in the energy industry. With the right education and training, you can begin a rewarding, well-paying career that benefits millions of people every day.

Find out how you can make a difference with a rewarding, well-paying and exciting career in the energy industry.

▸ EXPLORE CAREERS FOR YOUTH
Drivers for Workforce Development in Electric and Natural Gas Utilities

- A need to balance supply and demand for the energy workforce in key job categories
- Skill gaps in potential applicants
- New and emerging technologies that require additional skills
Get Into Energy
Career Pathways
Stakeholders and Modules

Students
Get Into Energy Outreach and Career Coaching

Educators
Career Pathways Curriculum and Stackable Credentials

Employers
Employer Collaboration and Support
Get Into Energy
Career Pathways

GIE
Outreach and Career Coaching

GIE Basic Training

GIE Industry Fundamentals

Job Specific

Job Specific

Job Specific

Job Specific

Industry involvement in all phases of workforce development leading to employment
Stakeholder: Students

Build on existing Get Into Energy Career information
Career Coaches follow students through 6 months of employment
Outreach and Support Services

• Recruit from pipeline organizations
  – JAG
  – YouthBuild
  – Job Corp
  – Hard Hatted Women
  – The Corp Network

• Intake and Case Management using Kuder Journey system

• Assessment
  – Energy Industry Employability (New)
  – WorkKeys
  – Career Interest

• Career Interest matching and referral to manufacturing, construction or other energy positions

• Additional Screening for Energy Skilled Trades
  – Background and Drug Screening
  – Education Evaluation
  – Support Services Evaluation

• Education and Support Services Plan
Get Into Energy
Career Pathways

GIE Outreach and Career Coaching

GIE Basic Training

GIE Industry Fundamentals

Job Specific

Job Specific

Job Specific

Job Specific

Job Specific

Industry involvement in all phases of workforce development leading to employment
Stakeholder: Educators

- Built on Energy Competency Model
- Creates flexible model that can be used to train for careers today and tomorrow
- Uses existing curriculum
- Different models for different jobs
- Education leads to industry recognized credentials at all levels
- Education focus is on key demand careers for lineworkers, utility technicians, plant / field operators and pipefitters / pipelayers / welders
Training Components

Tier 6–8 Job Specific Skills/Credentials
- Associate Degree
- Boot Camp / Apprenticeship for College Credit
- Accelerated Associate Degree

Tier 4–5 Industry Fundamentals
- Energy Industry Fundamentals Certificate

Tier 1–3 Basic Training
- Energy Industry Employability Skills Certificate
- National Career Readiness Certificate

Occupation-Specific Requirements
Occupation-Specific Technical
Occupation-Specific Knowledge Areas
Industry-Specific Technical
Industry-Wide Technical
Workplace Requirements
Academic Requirements
Personal Effectiveness

Energy Competency Tier Model for Skilled Technician Positions in Energy Efficiency, Energy Generation and Energy Transmission and Distribution
Get Into Energy
Career Pathways

GIE Outreach and Career Coaching

GIE Basic Training

GIE Industry Fundamentals

Job Specific

Industry involvement in all phases of workforce development leading to employment
Implementation Approach

• State Consortia will lead implementation
• Implement Career Coaching Process in eight states
• Implement selected education pilots in eight states based on existing education supply and industry demand
• Track students from recruitment through six months of employment or handoff to another industry
Energy Industry Fundamentals

Course Materials Overview
Overview of the EIF Course

Print-Based Modules:

- Module 1: History and Organization of the Industry
- Module 2: Safety
- Module 3: Electric Power Generation
- Module 4: Electric Power Transmission
- Module 5: Electric Power Distribution
Web-based Modules:

- Module 6: Career Exploration
- Module 7: Hot Topics in Energy
Modules 6 and 7 (in development) are web-based.

Energy Industry Fundamentals

Overview
The energy industry as a whole is projected to experience tremendous growth in the coming years, particularly with the increase in infrastructure investment in renewable energy and clean energy generation, energy efficiency, and smart grid technologies. As the Baby Boomer generation retires in ever-increasing numbers, energy employers will need skilled workers for energy-related generation, transmission, distribution, and customer service positions. These jobs are active, hands-on, rewarding, and available in every state. In addition, these jobs are in an industry where adding new skills translates into additional opportunities to advance and make more money.

The Center for Energy Workforce Development
The Center for Energy Workforce Development (CEWD) was incorporated in March 2006 as a nonprofit organization to help ensure that the nation’s electric, natural gas, and nuclear energy companies have the workforce to meet the energy demands of tomorrow. The mission of CEWD is to build the alliances, processes, and tools to develop tomorrow’s energy workforce.

Energy Industry Fundamentals Certificate Program
CEWD has created the Get Into Energy Career Pathways Model which is built on three principles: targeted outreach and support for students and potential applicants through recruiting and employment; a pathways system leading to a portable, articulated portfolio of credentials and degrees; and employer involvement in all phases of workforce development leading to employment.
Overview page

Energy Industry Fundamentals Course Materials
An instructor guide and participant materials have been developed for use at a high school, community college, workforce center, or other appropriate training locale. Modules 1 - 5 have been designed as print materials for both instructors and students. Modules 6 and 7 have been designed for online implementation.

Module titles:
- Module 1: History and Organization of the Industry
- Module 2: Safety
- Module 3: Electric Power Generation
- Module 4: Electric Power Transmission
- Module 5: Electric Power Distribution
- Module 6: Career Exploration
- Module 7: Hot Topics in Energy

The printed modules (1-5) contain the following sections:

Instructor’s Guide
- Unit Overview
- Learner Expectations (student learning objectives)
- Teaching Strategies
- Pacing Chart for Unit Lesson Delivery
- Unit Student Materials (student unit text)
- Teaching Resources
  - PowerPoint Presentation Outline
  - Vocabulary Activity (student handout or instructions for conducting activity)
  - Guided-notaking Outline (student handout)
  - Laboratory and Activity Worksheets
  - Unit Review Questions
- Assessment Resources
  - Unit Quiz
  - Answer Keys for Vocabulary, Note-taking, Activities, Review Questions, and Quiz
- Course PowerPoint Presentation Guide
- Supplemental Resource List
Registration to download materials

Student Materials

- Instructional Subject Matter Content
  - Text
  - Photos and Graphics
  - Glossary

The online modules (6-7) consist of resource webpages of instructional content, including:

- Overview of working in the energy industry
- Career Profiles
- Extension Activities
- Links to industry and association career resources
- Links to outside content such as videos and learning activities

Accessing the Curriculum

We invite you to create a free user account (using the link provided below) to begin exploring the instructional modules listed above. An instructor’s guide, student text, and set of Powerpoint files may be downloaded for modules 1-5.

Registered user login

email address

Password

Log In

Register now

Click Here to Register Now
Florida’s Approach to Secondary Certifications: CAPE

• Career and Professional Education Act
  – Legislation enacted in 2007
  – Builds on rich history of career education to bring industry-driven credentials as driver for curriculum and increased funding factor

• Most Energy Career Academies are CAPE Academies
Florida’s Approach to Secondary Certifications: CAPE

- Registered Academies:
  - 2009-10: 838
  - 2010-11: 1,302

- Certifications Granted to Students:
  - 2008-09: 2,732
  - 2009-10: 16,459
Focus on Credentials

- Portable/stackable (Energy Competency Model)
- Industry-driven:
  - Secondary: new curriculum frameworks and courses; CAPE
  - Post-secondary: Banner Center for Energy; additional progression opportunities: Banner Center for Alternative Energy; Banner Center for Construction; Banner Center for Manufacturing
- Responsive
Critical Success Factors

- True business engagement, for both educators AND students
- Inspire early and often (both educators AND students), particularly in STEM disciplines
- Project-based learning in teams
- Integration of academics and CTE – BOTH DIRECTIONS: Reinforce CORE in CTE and teach in context in academic classrooms!
- Have to address the CTE “squeeze” – funding and class time
- Must continue to overcome perceptions… students, parents, counselors, administrators, etc.
Moving forward…

• Have to continue to update these credentials (add to the stack) as new industry skillsets drive need for new training
• Want to go national when possible; when can’t, we develop the Florida solution
• Entry-level requirements vary across FEWC member companies, so we look to the common requirements
Questions?
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