

# Advanced Technological Education (ATE) Program:

*Developing Skilled Technicians  
for the Industries Fueling Our  
Global Economy*

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# Advanced Technological Education (ATE) Program

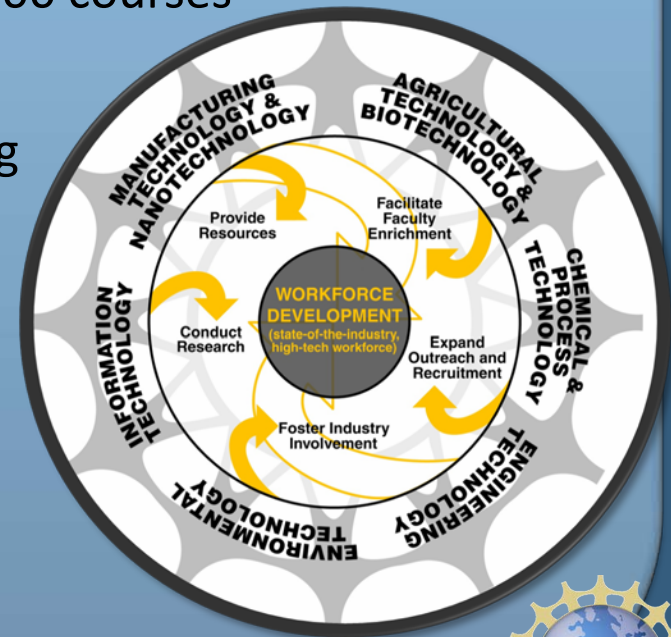
- ◎ The ATE program promotes improvement in the education of science and engineering technicians at the undergraduate and secondary school level and the educators who prepare them, focusing on technicians for high-technology fields that drive the nation's economy.
- ◎ ATE is in its 16<sup>th</sup> year of funding community colleges, having started with the Science and Advanced Technology Act of 1992 (SATA).
- ◎ 2009 Submission Dates (FY2010 Funds)
  - Preliminary Proposals April 23, 2009
  - Full Proposals October 15, 2009



# Advanced Technological Education (ATE) Program

## Outcomes (2001-2007)

- ⦿ Developed > 7,600 different educational materials aligned with workforce needs and industry standards
- ⦿ Created > 2,000 two-year college programs
- ⦿ Created 16,800 two-year college courses, 1500 secondary school courses, 150 baccalaureate programs with 800 courses
- ⦿ Concluded 2,000 articulation agreements
- ⦿ Programs offered at 4,900 locations reaching
  - ✓ 320,000 two-year students
  - ✓ 48,000 secondary students
  - ✓ 6,000 students at baccalaureate institutions
  - ✓ 80,000 educators



# ATE Energy-Related Centers



## Advanced Technology Environmental and Energy Center (ATEEC)

- ✓ Serves as a clearinghouse for environmental and energy technology resources
- ✓ Facilitates faculty professional development opportunities
- ✓ Assists in the transfer of information and technology from researchers to technicians
- ✓ Supports instructional programming for technicians
- ✓ Partners with business and industry as well as federal, state, and local governments



- ✦ Recently awarded NSF funding (\$1.4 million) for The SEET (Sustainable Energy Education and Training Workshops for Future Energy Technicians) Project:
  - Partners include ATEEC, U.S. Dept. of Energy, and Partnership for Environmental Technology Education
  - Increasing community college and high school technology instructors' technical knowledge of sustainable energy through a resource-rich SEET website and 10-day workshops at DOE sites around the country





## What is the Energy Technologies and Services field?

Energy Technologies and Services is a career field that applies the principles of science, engineering, communication, economics, management, and law to optimize the sustainable production, delivery, and use of energy resources.



# DEFINING Energy Technology & Services

## What is a technician?

A technician applies knowledge, skills, and abilities to perform scientific, technical, communication, and regulatory tasks.

### OCCUPATIONAL CATEGORIES

### OCCUPATIONAL TITLES



\*Indicates an emerging occupational field, existing but not yet fully defined  
 Note: See reverse for additional information.





## What is Environmental Technology?

Environmental Technology is a career field that applies the principles of math, science, technology, engineering, communication, economics, and law to ensure product and worker health and safety. This career field involves the management, conservation, and protection of the natural environment and resources through regulatory compliance while promoting sustainability.



# DEFINING Environmental Technology

## What is a technician?

A technician communicates and applies knowledge, skills, and abilities to perform scientific, technical, and regulatory tasks.

### OCCUPATIONAL CATEGORIES

### OCCUPATIONAL TITLES

	ENERGY TECHNOLOGIES & SERVICES*	ENVIRONMENTAL INFORMATION MANAGEMENT SYSTEMS	ENVIRONMENTAL LABORATORY SERVICES	ENVIRONMENTAL SITE MANAGEMENT	NATURAL RESOURCES MANAGEMENT	SAFETY & HEALTH	SOLID & HAZARDOUS WASTE MANAGEMENT	WASTEWATER MANAGEMENT	WATER SUPPLY & QUALITY	SUSTAINABILITY**
<b>AIR QUALITY</b>	Buying & selling energy tech Energy assessment tech Energy efficient building construction, project engineering, & implementation tech Exploration tech Generation (alternative) & utility-scale construction tech Operations & maintenance tech Regulatory affairs tech Transmission & distribution tech Transportation (mobile) source tech	Environmental education & outreach tech Environmental management systems tech Environmental database tech Environmental regulatory tech Geospatial tech Procurement & tracking tech (lifecycle analysis or product stewardship)	Biological / microbiological lab tech / analyst Chemist / analytical lab tech Instrumentation tech Quality assurance / quality control specialist Sample collection & prep tech Soil / geotechnical properties tech / analyst	Asbestos abatement worker / supervisor / inspector Decontamination tech Disaster site tech Environmental site assessor Field services tech Geology tech Geospatial tech Inorganic / organic contamination Land survey tech Land use planning / redevelopment tech Lead abatement worker / supervisor / inspector Mine reclamation tech Mobile lab tech Mold/mildew remediation tech Nonpoint source pollution tech Permitting / licensing tech Remediation tech Underground storage tank tech	Aquatic / terrestrial habitat tech Botany / biology tech Ecology tech Fire management tech Fisheries tech Forestry tech Geology tech Geospatial tech Horticulture / landscape tech Marine science tech Natural resources tech Parks & recreation tech Range tech Smart growth tech Soil conservation tech Stormwater management tech Watershed management tech Wetlands tech Wildlife tech	Chemical hygiene officer Compliance officer Ergonomist Hazardous material tech Health & safety tech Health physics / radiation safety tech Industrial hygiene tech Loss control / prevention representative Safety & health auditor Safety & health trainer / industrial trainer Safety coordinator Safety specialist Site safety manager	Biohazard tech Hazardous waste tech Landfill tech Nuclear waste tech Recycling tech Solid waste tech Treatment, storage & disposal facility tech Waste reduction tech Waste-to-energy tech	Biosolids management tech Cluster system operator Geospatial tech Graywater systems treatment manager Groundwater remediation systems tech Industrial pretreatment operator Industrial / municipal wastewater treatment operator Permitting / licensing tech Stormwater management tech Subsurface disposal tech Supervisory Control & Data Acquisition (SCADA) tech Tertiary / advanced wastewater systems tech Water security tech Wastewater collection system tech Wastewater lab tech	Desalination tech Drinking water lab tech Drinking water tech Geospatial tech Groundwater tech / operator Hydrology tech Industrial / municipal water system operator Irrigation tech Permitting / licensing tech Sanitary survey tech Supervisory Control & Data Acquisition (SCADA) tech Surface water tech / operator Water conservation tech Water rights tech Water security tech Watershed protection tech Water supply / distribution tech Water supply quality educator / trainer Well drilling tech Wellhead protection tech	Carbon offset analyst Carbon trading specialist Climate change adaptation analyst Climate change mitigation analyst Coastal zone management tech Ecological footprint analyst Efficiency specialist Efficient landscaping tech Emergency preparedness / response / natural disaster tech Energy efficiency specialist Energy resource manager Geospatial tech Global equity specialist Greenhouse gas emissions Green product specialist Home energy rater tech LEED tech Lifecycle analysis / product stewardship tech Permaculture design tech Smart growth tech Sustainability coordinator Sustainability educator / trainer Sustainability systems analyst Sustainable design tech Sustainable process & procedures manager Transportation & Logistics specialist Urban agriculture Water resources
<b>EMERGENCY PREPAREDNESS &amp; RESPONSE</b>	Air process tech Air quality tech Ambient air monitoring tech Auditor Greenhouse gas emission (carbon footprint) specialist Indoor air quality tech Instrumentation tech Source sampling tech	Emergency planning tech Emergency preparedness & response trainer Emergency response tech Hazardous materials tech Public safety / security officer Risk management tech								

\*Refer to the new "Defining Energy Technologies & Services" report for further breakdown of occupations & functions.

\*\*Indicates an emerging occupational field, with existing jobs, but not yet fully defined.

Note: See reverse for additional information.



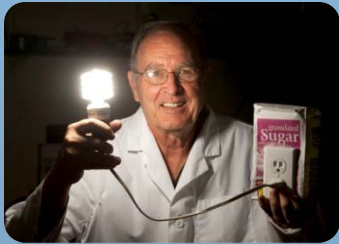
# ATE Energy-Related Centers



## National Resource Center for Agriscience & Technology Education (AgrowKnowledge)

- ✓ Grows partnerships with industry and education to prepare work-force ready graduates with advanced renewable/bio-fuels skills for agriculture, food and natural resource industries

- ✓ Partners with 15 community colleges to implement new curriculum driven by emerging technologies and critical issues influencing 21<sup>st</sup> century agriculture



Sugar + Weed Killer = potential clean energy source

## Northwest Center for Sustainable Resources (NCSR)

- ✓ Began as an ATE National Resource Center in 1995 to improve the quality and effectiveness of natural resource education to ensure effective economic use and sustainability of these resources
- ✓ Creates, disseminates, and supports adaptation of natural resource curriculum materials
- ✓ Most recently, NCSR has published modules focused on wildfire ecology and management, the impact of genetically modified organisms, illustrations of interconnectedness in ecosystems, and various courses on wildlife conservation







### OUR "GREEN" CAMPUS COMMITMENT

## Southeastern Massachusetts ATE Project in Renewable Energy Education and Training (Cape Cod Community College)

- ✓ Merges construction technology and renewable energy programs provides models of green building practices, energy efficiency, and alternative energy options for others
- ✓ Integration of renewable energy technologies into the curriculum for vocational high school academic and shop programs, which was developed with the ATE grant, is now the state standard
- ✓ CCCC continues to lead a statewide collaborative of government agencies, nonprofit organizations, and educational institutions partnering with industry that originated with its ATE Renewable Energy grant







Central Virginia Community College

## Nuclear Technologies Education: Priming the Pipeline (Central Virginia Community College)

- ✓ Introduces middle and high school students to the relevant STEM skills needed to have a successful career in the nuclear energy support technologies industry
- ✓ Partners with industry to create internship opportunities
- ✓ Provides dual-enrollment program to high school students which leads to AAS Degrees in Nuclear Support Technologies
- ✓ This initiative has gained \$1.3 million from U.S. Dept. of Labor Community-Based Training grant







Thank You!