

Manufacturing Workforce for a Clean Energy Economy

Making the transition to a clean energy economy will strengthen our energy security, improve the environment, and create jobs. In 2009, Congress passed a stimulus package to help jump-start all sectors of the U.S. economy and accelerate this transition. Approximately \$16.8 billion went directly to increase energy efficiency and the use of renewable energy across the nation. In general, renewable energy projects create more jobs per kilowatt-hour than coal and natural gas power plants.¹ Building a strong clean technology sector can revitalize America's manufacturing base.

Next-Generation Workforce

As the economy recovers, manufacturers will need workers with strong skills in energy management. The manufacturing workforce will need to promote energy efficiency to improve plant productivity and profitability in global markets. Specifically, manufacturing companies will need engineers, energy managers, and other skilled workers to design, monitor, and operate production systems that save energy, water, and other resources while reducing carbon emissions. Technology developers will also need scientists and engineers to develop innovative, clean technologies and processes that use new materials and science to increase operating efficiency in new and modernized facilities.

As U.S. industry moves toward greener manufacturing to maintain competitiveness in world markets,



Stimulus funds and tax credits are creating tens of thousands of high-quality clean energy jobs in the domestic manufacturing of clean energy technologies to increase our energy efficiency and domestic supply of renewable energy.

manufacturers will require continuously more advanced technologies. The U.S. Department of Energy's Industrial Technologies Program (ITP) is conducting research to keep the U.S. manufacturing sector at the cutting edge of technology innovation.

Jobs in Clean Energy Technology Manufacturing

Federal investments are helping to create new jobs in the manufacturing of equipment and components for diverse clean energy technologies, such as the following:

- Micro-turbines
- Wind turbines and towers
- Solar cells
- Insulation
- Energy-efficient bulbs
- Vehicle battery systems
- Glass fiber
- Electronic controls
- Electronic equipment
- Geothermal heat pumps
- Solar thermal equipment
- Reflective roofing
- Equipment for vehicle recharging station
- Biofuel pumps and pipelines
- Bearings
- Switchgear
- Transmissions
- Epoxy and resin
- Motors and generators
- Rebar

¹ Union of Concerned Scientists, *Climate 2030: A National Blueprint for a Clean Energy Economy*, May 2009.

Training in Energy Analysis Tools

As part of its *Save Energy Now* initiative, ITP maintains a suite of software decision tools to assist plant engineers in identifying the most promising options for saving energy in key industrial systems (e.g., steam, compressed air, motors, and process heating). Webinars and training classes provide introductory and advanced instruction on effective use of these tools to improve plant productivity. www.eere.energy.gov/industry/bestpractices/training.html

University-based Assessment Teams

ITP supports Industrial Assessment Centers (IAC) at more than 26 participating universities to provide an educational training ground for the next generation of energy-savvy engineers. Teams of engineering faculty and students at these centers provide energy, waste, and productivity assessments at no charge to eligible small and mid-sized manufacturers. By identifying top opportunities to save energy, the teams help U.S. manufacturers boost productivity and profitability while providing hands-on training for engineering students.

Participating IAC students (about 300 per year) graduate with the skills to conduct energy, waste, and productivity assessments, use instrumentation and diagnostic equipment, work safely in an industrial environment, and communicate successfully with clients. This valuable experience helps the students land jobs in a competitive job market. Visit www.eere.energy.gov/industrybestpractices/iacs.html

Certified Practitioners in Superior Energy Performance

Superior Energy Performance is a voluntary, ANSI-accredited certification program that provides industrial facilities with a roadmap for continual improvement in energy efficiency and competitiveness. Plant certification will require implementation of the forthcoming (June 2011) ISO 50001 energy management standard as well as documented improvements in energy performance.

DOE supports the U.S. Council for Energy-Efficient Manufacturing (U.S. CEEM) in developing the curricula to train and qualify professionals to assist and audit plants participating in Superior Energy Performance. These efforts will help to build a green workforce with expertise in industrial energy management and efficiency. To learn more, please visit www.superiorenergyperformance.net

Workforce Development

Interested in joining the ranks of our nation's emerging clean energy workforce? Our energy education and workforce development web page www.eere.energy.gov/education may have some links to get you started. Information on careers with the federal government, including green job opportunities, can be found on usajobs.gov. New opportunities in the manufacturing sector are opening up as clean energy projects ramp up across the nation. Check local job boards, papers, and web sites for up-to-date information.

Save
ENERGY
Now®

Resources to keep industry productive and profitable

The Industrial Technologies Program (ITP) works with industry to develop tools, training, assessments, information, and other resources to identify opportunities for energy savings. Companies can use these resources to save energy costs and improve productivity while reducing carbon emissions and expanding job opportunities.

Since 2006, more than 2,600 assessments have been completed. On average, the plants that volunteer for these assessments are able to identify energy-saving measures that could cut their energy bills by about 8 percent. The annual identified savings of approximately \$1.3 billion are helping U.S. manufacturers maintain their profitability and retain their workforce.

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

EERE Information Center
1-877-EERE-INF (1-877-337-3463)
eere.energy.gov/informationcenter

May 2010