DELMAR CENGAGE Learning™

Green Jobs

Wind Energy

How Green is Changing Wind Energy Jobs

The fastest growing renewable energy job sector is the wind turbine industry. As wind technology advances and the demand for renewable energy grows, so follows the need for wind power workers. Wind-generated electricity has the potential to provide as much as 20% of the U.S. electricity needs by 2030. The current output for wind energy is less than 2%. There is rapid job growth forecasted in the wind energy industry. According to the U.S. Department of Energy wind energy jobs could reach 500,000 by 2030.

This growing demand for skilled wind energy workers means there is tremendous opportunity for your school to grow within the wind energy marketplace. There are over 25,000 wind turbines in the United States and less than 15 educational institutions in the nation training wind turbine technicians*. Wind energy jobs including Wind Turbine Machinist, Wind Power Turbine Installer, Wind Analyst, and Wind Energy Technician are becoming available across the country.

**U.S. Department of Energy*

The Future of Wind Energy Employment

Wind Energy Employment Projections

The main driver of growth in wind energy employment is the growing need for electrical energy, and the projected shortfalls due to the fact that conventional electricity generation cannot keep up with demand. Wind energy can harness huge amounts of clean renewable energy which has lead to the 2030 and 20% wind energy iniatives. It is projected that the U.S. wind energy industry could support the following employment:

- **150,000** workers directly employed by the wind energy industry
- **100,000** jobs in associated industries (electrical manufacturing, steel fabrication, accounting, law)
- **100,000** jobs in wind-generated electricity transmission and distribution
- **125,000** jobs in "smart" energy applications in commercial and residential controls

Employment and Education Changes for Wind Energy Workers

The opportunity for growth in wind energy is immense. Wind power jobs are uniquely connected with the construction and maintenance of the new Smart Grid, which provides the much-needed mechanisms to push wind electricity around the country.

As a result, wind energy jobs are opening up all across the United States and the demand for highly skilled workers is rapidly growing. There is a need for trained technicians to construct, operate and maintain the wind energy infrastructure as well as to continue to innovate with respect to the Smart Grid and wind energy. These technicians need to use computers and have an understanding of hydraulics, electricity, algebra and meteorology. Although some may come to the job with a high school education and experience as a welder, many technicians complete two-year education programs in wind technology. Understanding advances in smart technology and turbine design, computer software and computer diagnostic systems, testing equipment and schematics are all part of the wind energy jobs of the 21st century.

Education – Connecting Your Curriculum to the 21st Century

Essential Green Wind Energy Courses:

- Introduction to Wind Energy
- Electrical Theory
- Electronics
- Substation/Voltage Regulation
- Electric Motors, Generators, and PLCs
- Field Training and Project Operations
- Introduction to Smart Grid
- Wind Energy Integration

Additional Resources, Certificates and Certification

- The North American Board of Certified Energy Practioners offers a Small Wind Installer Certification: **www.nabcep.org**
- The American Wind Energy Association (AWEA) is developing standards and certifications for installations and installers. The standards have not yet been set. **www.awea.org**

For information on "greening" your curriculum contact your local Delmar, Cengage Learning Representative

Or visit us at www.thegreendestination.com

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