

The Wind Energy Workforce Gap in the United States

S. Tegen and D. Keyser
National Renewable Energy Laboratory, Golden, Colorado, USA



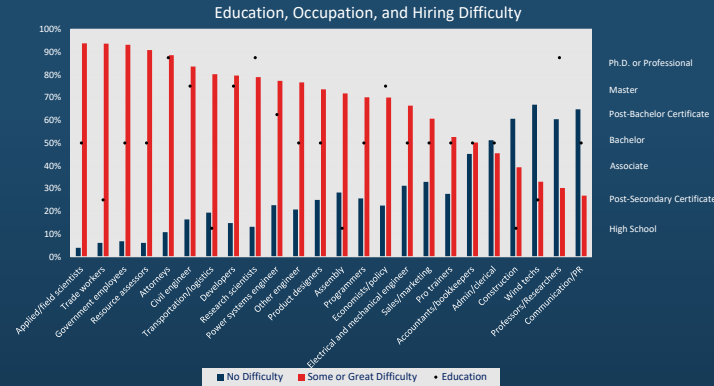
INTRODUCTION

There are more than 100,000 jobs in the U.S. wind industry today, and the second-fastest growing job in the United States in 2017 was wind technician. A vibrant wind industry needs workers, and students who graduate from wind energy education and training programs need jobs. The goal of this research is to better understand the needs of wind-related businesses, education and training requirements, and the make-up of current and future domestic workforces.

Educators are developing and training future workers. Educational institutions need to know which courses to provide to connect students with potential employers and to justify their wind energy programs by being able to place graduates into well-paying jobs.

In NREL interviews with 250 wind energy firms and 50 educational institutions, many respondents reported difficulty hiring qualified candidates, while many educational institutions reported graduates not finding jobs in the wind industry. We refer to this mismatch as the “workforce gap.”

RESULTS



The above figure shows the preferred or required level of education and training from hiring managers at 250 wind energy-related firms in the United States. The bar colors and percentages on the left axis indicate the level of difficulty hiring managers have when hiring for specific occupations, listed along the bottom. The black dots show the most common level of education hiring managers prefer or require in the wind industry, according to NREL interviews.

CURRENT DEMOGRAPHICS

According to our interviews, today’s domestic wind power workforce is made up of 21% women; 25% racial and ethnic minorities; and 11% veterans. There is overlap in the categories.

DOMESTIC HIRING

25% of hiring managers we interviewed searched outside of the United States to find qualified applicants. One main reason for this is that hiring managers believe candidates have more wind energy education and training in other countries.

PERCENTAGE OF GRADUATES ENTERING THE WIND INDUSTRY

For each type of degree and certificate that institutions award, what percentage of the graduates enter the wind energy industry?	1- to 2-Year Degrees or Certificates	Bachelor’s Degrees and Above
Almost all of them (90% or more)	6%	6%
The majority (61%-89%)	24%	11%
About half (40%-60%)	18%	11%
Less than half (20%-39%)	12%	22%
Only a small portion (less than 20%)	41%	50%
Weighted mean % entering industry	40%	31%

THE FUTURE DOMESTIC WORKFORCE

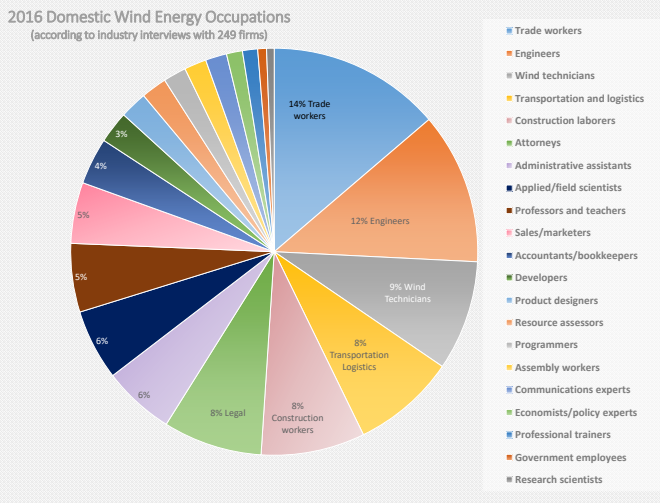
Demand for wind workers in the wind industry will be driven by existing capacity, growth, and attrition. The U.S. Department of Energy *Wind Vision* study outlines a scenario (Central Study Scenario) of future wind energy expansion – nearly 200 GW of wind by 2030 and 318 GW installed by 2050. This results in the O&M workforce growing from 23,000 in 2016 to approximately 67,00 by 2050 and the construction/installation workforce ranging from 62,000 to 114,000 annually.

METHOD

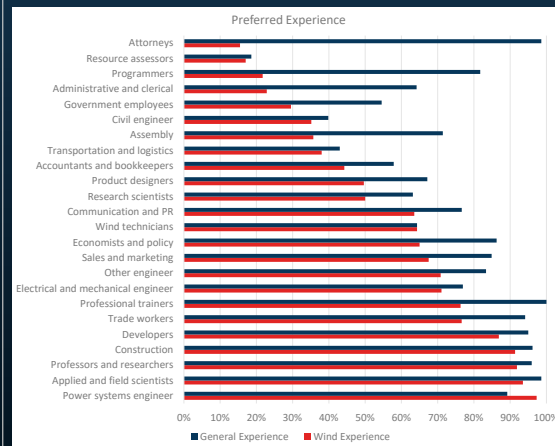
NREL researchers worked with BW Research and Clear Path Market Research to interview employers at 250 wind energy-related firms in the United States and representatives from 50 domestic educational institutions to better understand the current workforce, identify current and future needs, and assess the capacity to educate and train workers to fill these needs.



Photo from First Wind, NREL 16738



PREFERRED EXPERIENCE LEVELS



CONTACT INFORMATION

For comments or questions, please reach out to David Keyser at david.keyser@nrel.gov or 720-250-8507.

For more data on the wind energy workforce, education programs, and related information, search for WINDExchange in your browser.

