

# HOW MANY JOBS ARE THERE IN THE DOMESTIC SMALL WIND INDUSTRY?

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The goal of this work is to provide a model that estimates jobs and other economic effects associated with the domestic small wind industry. This poster estimates small wind jobs and shows the geographic diversity of the supply chain in the United States.

## The Jobs and Economic Development Impacts (JEDI) Model

- Free input-output tool to estimate employment and other impacts that result from an investment in small wind installations
  - Default inputs are from installers and industry experts and are based on existing projects
  - User input can be minimal (use defaults) or very detailed for more precise results
- JEDI can help:
- Evaluate potential scenarios —current or future
  - Inform stakeholders and decision makers
  - Assist businesses in:
    - Identifying potential customers
    - Evaluating economic development efforts
  - Assist government organizations with:
    - Planning and evaluating
    - Community development

## Small Wind JEDI Model Status

- Model is currently in development
- Four turbine size categories include:
  - 1 kilowatt (kW) to 2.4 kW
  - 2.5 kW to 10 kW
  - 10.1 kW to 50 kW
  - 50.1 kW to 100 kW
- Supply chain and manufacturing jobs vary by turbine size and state
- Default inputs and assumptions come from recent projects and industry interviews



## How You Can Help

- Better data = a better model...Actual project data helps end users calculate more accurate estimates
- NREL needs data on turbines between 1 and 100 kW, including:
  - Capital costs for small wind turbine(s)
  - Installation labor costs
  - Permitting costs and labor
  - Operation and maintenance and labor costs
  - Whether parts and labor are local

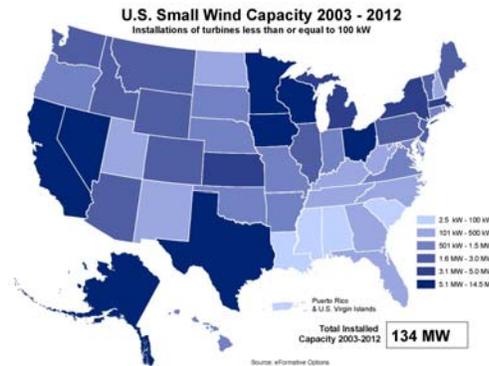
*Note: Data will not be made public. Cost and labor ranges may be provided instead of a dollar amount*

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JEDI Models can be downloaded at [www.nrel.gov/analysis/jedi](http://www.nrel.gov/analysis/jedi)

## Who Cares About Jobs?

Your friends and neighbors employed in the small wind industry, state and federal policy-makers, local decision-makers, small wind manufacturers, installers, and salespeople care about jobs.



Note: The above map shows small wind installations between 2003-2012. AWEA estimates that the total small wind capacity installed in the United States is 216 MW with over 155,000 total units. (Source: American Wind Energy Association, U.S. Wind Industry Annual Market Report 2012)

In 2012, the average installed cost of new small wind turbines in the United States was \$6,960/kW, a 15% increase from 2011. U.S.-based manufacturers' weighted average 2012 installed cost of \$6,508/kW was 19% lower than non-U.S. suppliers. (Source: American Wind Energy Association and eFormative Options, 2013)

## NREL's Role in JEDI Model Development

- Verify model's validity with developers, project owners, manufacturers, and counties
- Test the model
- Facilitate peer review process
- Issue user guides
- Publish the model online
- Manage and maintain models



## Does This Look Right to You?

Please help the model succeed by adding your input.

	Up to 2.4 kW	2.5 -10 kW	10.1 – 50 kW	50.1 – 100 kW
Installed Capital Cost	\$5,500 – \$8,000/kW	\$6,000 – \$6,300/kW	~\$6,000/kW	\$5,200 – \$5,300/kW
Operation & Maintenance	\$60-\$65/kW	~\$10/kW	\$50-\$55/kW	\$20-\$25/kW

*Inconsistent trends in costs could be due to issues with individual turbines. For the purposes of this research, they are categorized by size (nameplate capacity). Preliminary model runs indicate that small wind supports more jobs per megawatt than large/utility-scale wind. These JEDI model estimates may change as the model is updated.*

Phase	Large-Scale FTE*	Small Wind FTE*
Construction	60-70 jobs/100 MW	Up to 550 jobs/100 MW
Operations	6-7 jobs/100 MW	~ 8-25 jobs/100 MW

\*Full-time equivalent (FTE) jobs are used in these estimates. One FTE is one worker employed full time for one year, for example, or two workers employed half-time for one year.

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