

WIND ENERGY IN MINNESOTA



Minnesota is a national leader in the wind energy industry.

Minnesota ranks seventh in the country for installed wind capacity, with a total capital investment of \$7.1 billion. In 2017, wind power generated over 18 percent of Minnesota's electricity, ranking seventh in the nation for wind energy as a share of total electricity generation. The state has also been successful in attracting investment for wind energy manufacturing, with at least 20 active manufacturing facilities in the state. Major wind energy construction companies, Blattner Energy and Mortenson Construction, are both based in Minnesota.

BENEFITS Jobs & Economic Benefits

An investment in wind power is an investment in jobs, including jobs in operations and maintenance, construction, manufacturing and many support sectors. In addition, wind projects produce lease payments for landowners and increase the tax base of communities.

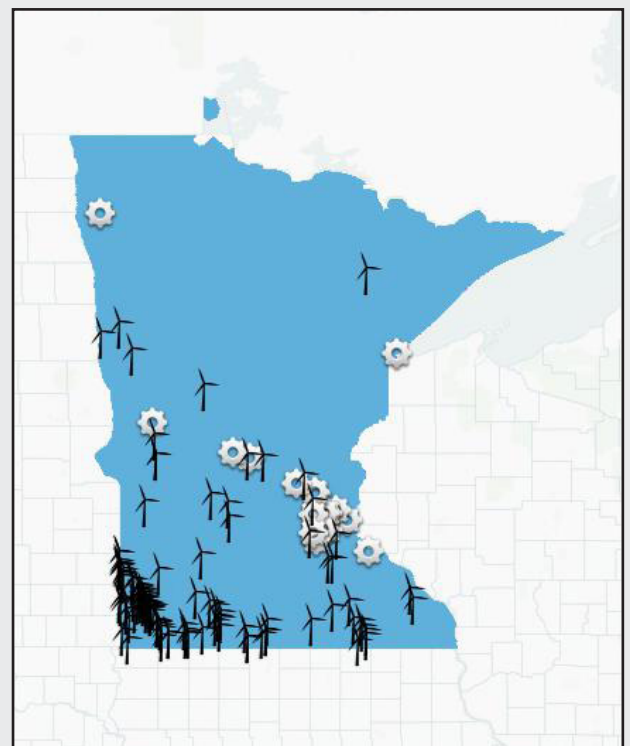
- 2017 direct and indirect jobs supported: **3,001 to 4,000**
- Total capital investment through 2017*: **\$7.1 billion**
- Annual land lease payments*: **\$10 - \$15 million**

*Calculations based on national and state averages.

Wind-Related Manufacturing

The United States has over 500 manufacturing facilities producing products for the wind industry that range from blade, tower and turbine nacelle assembly facilities to raw component suppliers, including fiberglass and steel.

- Number of active manufacturing facilities in the state: **20**



 Online Wind Project  Manufacturing Facility

Wind Projects

- Installed wind capacity: **3,699 MW**
 - » State rank for installed wind capacity: **7th**
- Number of wind turbines: **2,428**
 - » State rank for number of wind turbines: **7th**
- Wind projects online: **98 (Projects above 10 MW: 49)**
- Wind capacity under construction: **300 MW**
- Wind capacity in advanced development: **1,199 MW**

Wind Generation

During 2017, wind energy provided **18.2%** of all in-state electricity production.

- State rank for share of electricity: **7th**
- Equivalent number of homes powered by wind in 2017: **1,012,000**

Wind Generation Potential

The DOE Wind Vision Scenario projects that Minnesota could produce enough wind energy by 2030 to power the equivalent of 1.3 million average American homes.

- Land based technical wind potential at 80 m hub height: **354,998 MW**
- Land based technical wind potential at 110 m hub height: **425,831 MW** (Source: NREL)

Environmental Benefits

Generating wind power creates no emissions and uses virtually no water.

- 2017 annual state water consumption savings*: **3.5 billion gallons**
- 2017 equivalent number of water bottles saved: **26 billion**
- 2017 annual state carbon dioxide (CO₂) emissions avoided: **7.0 million metric tons**
- 2017 equivalent cars' worth of emissions avoided: **1.5 million**

*Based on national average water consumption factors for coal and gas plants



Renewable Portfolio Standard

Minnesota adopted a renewable portfolio standard in 2007. The state's largest utility, Xcel Energy, is required to derive 31.5% of its sales from renewables by 2020. Other utilities must derive 25% of their sales from renewables by 2025. Wind energy has historically been the renewable resource of choice to meet RPS requirements.