



U.S. Department of Energy
Energy Efficiency and Renewable Energy

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Wind & Hydropower Technologies Program

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Hydropower

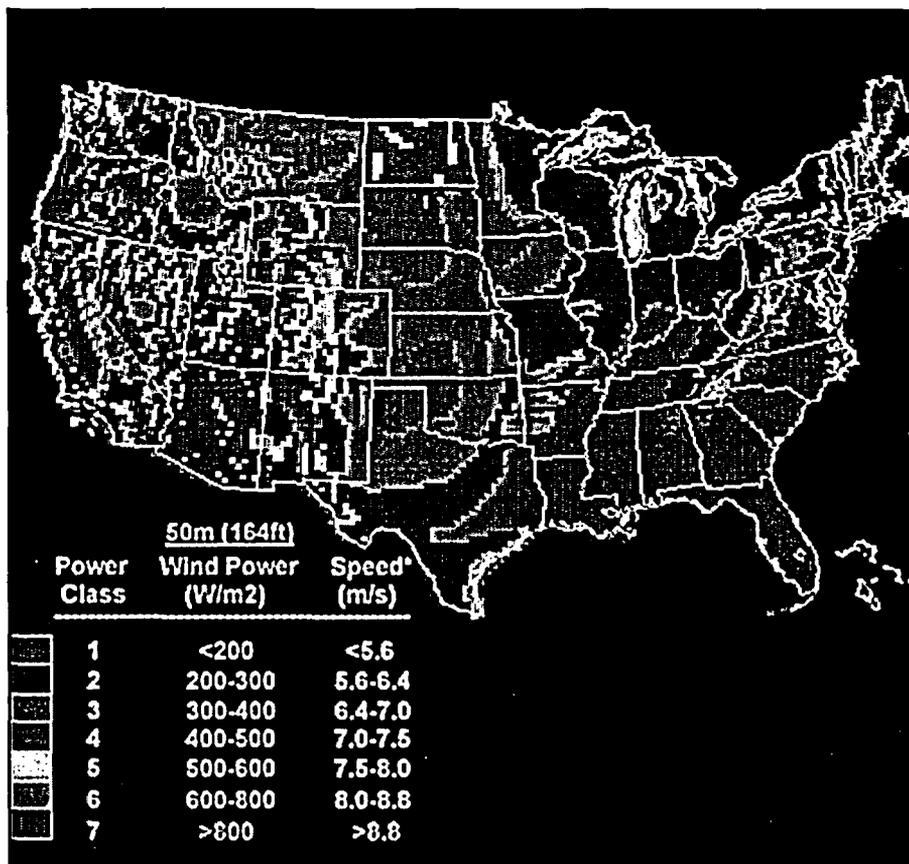
Wind Energy

- Wind Energy Basics
- How Wind Turbines Work
- Advantages & Disadvantages
- History
- Resource Potential
- Consumer FAQs
- Research & Development

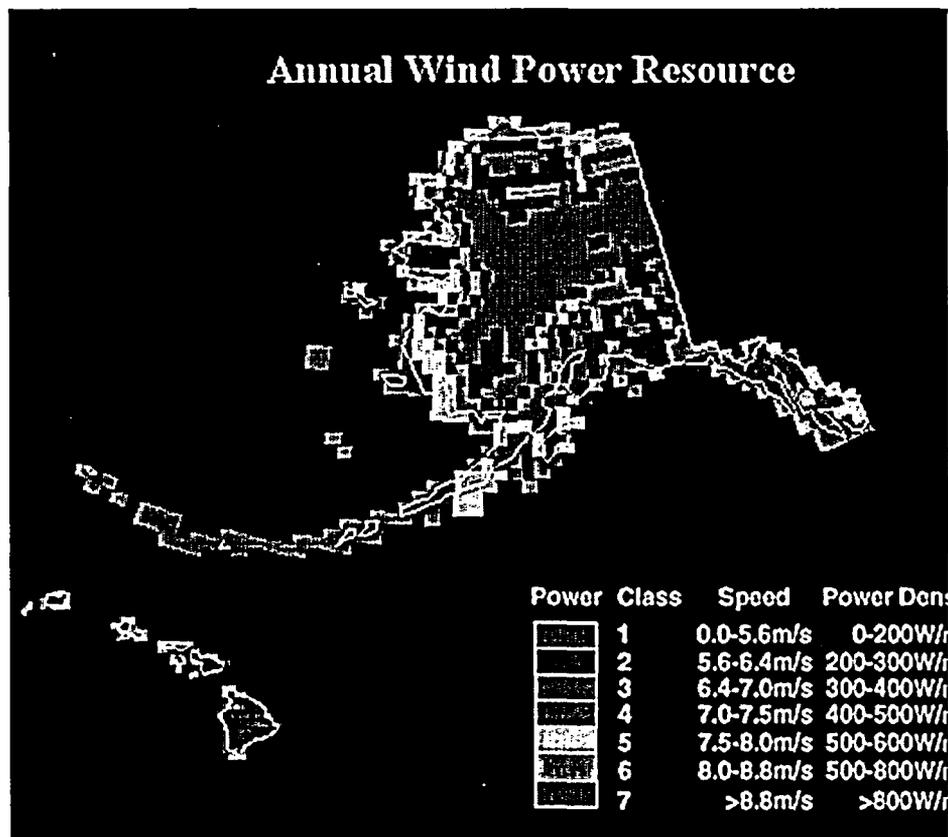
Wind Energy Resource Potential

Good wind areas, which cover 6% of the contiguous U.S. land area, have the potential to more than one and a half times the current electricity consumption of the United States.

Estimates of the wind resource are expressed in wind power classes ranging from class 1 to 7, with each class representing a range of mean wind power density or equivalent mean speeds specified heights above the ground. Areas designated class 4 or greater are suitable with advanced wind turbine technology under development today. Power class 3 areas may be suitable for future technology. Class 2 areas are marginal and class 1 areas are unsuitable for wind energy development.

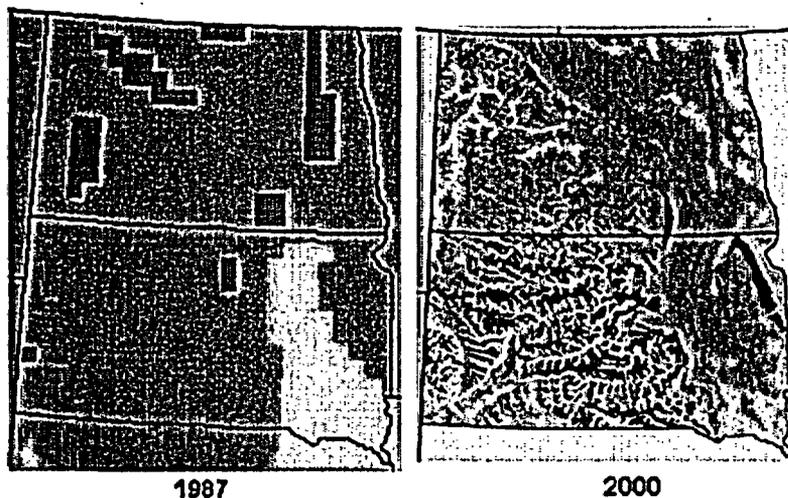


U.S. Annual Wind Power Resource and Wind Power Classes - Contiguous U.S. States.



U.S. Annual Wind Power Resource and Wind Power Classes - Alaska and Hawaii.

Because techniques of wind resource assessment have improved greatly in recent years, we began in 2000 to update the U.S. wind atlas. The work will produce regional-scale maps of wind resource with resolution down to one square kilometer. The new atlas will take advantage of modern techniques for mapping. It will also incorporate new meteorological, geographical terrain data. The program's advanced mapping of the wind resource is another important step necessary for expanding wind-generating capacity in the United States.



1987 U.S. Wind Atlas Map vs. 2000 High-Resolution (1-km²) Wind Map of North and South Dakota

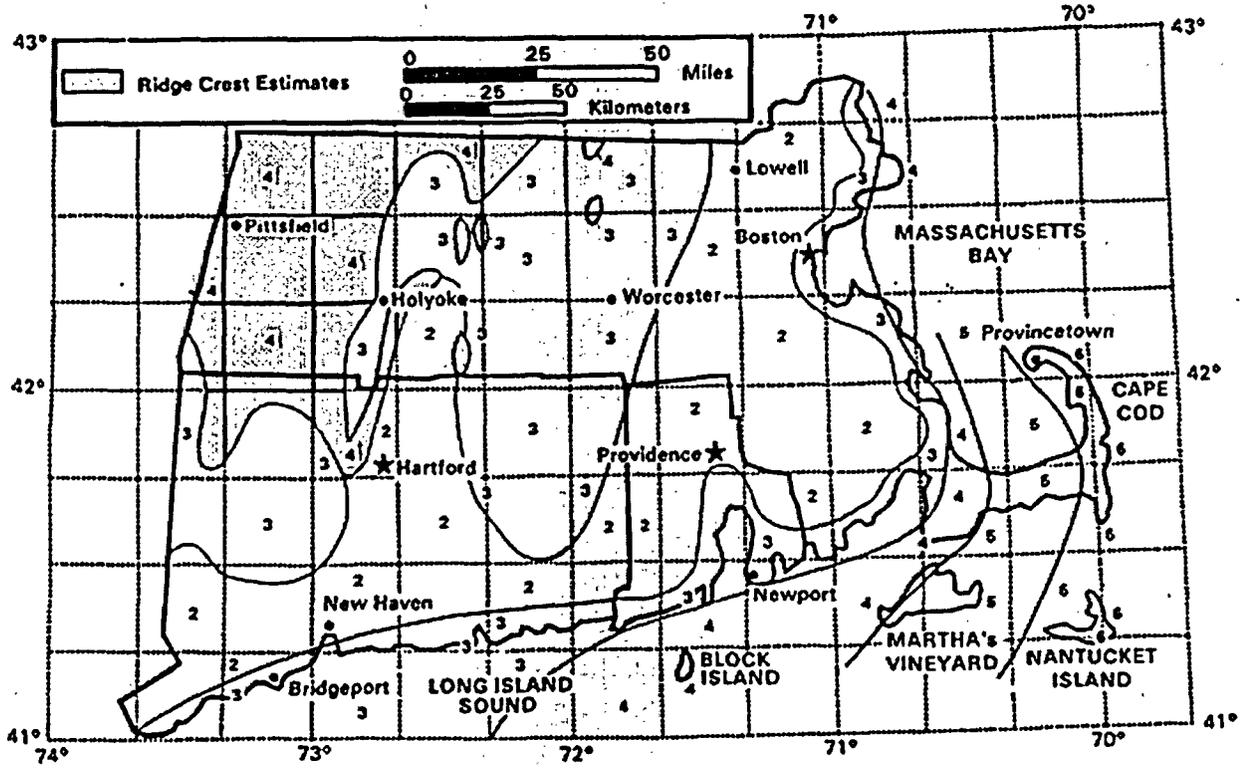
Visit the [Wind Powering America State Wind Map](#) page to see if your state or area of interest has a newer, more detailed map available.

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3-21 Connecticut, Massachusetts, and Rhode Island annual average wind power

<http://rredc.nrel.gov>