

How Wind Power Works



The term wind energy describes the process by which wind is used to generate electricity.

So how do wind turbines produce electricity? A wind turbine works the opposite of a fan. Instead of using electricity to make wind, like a fan, wind turbines use wind to make electricity. The wind turns the blades, which spin a shaft, which connects to a generator and makes electricity. The electricity produced travels through the electric transmission and distribution system until it reaches the homes, schools and businesses that consume it.

Source: U.S. Department of Energy

Did You Know...

- One megawatt of wind capacity is enough to supply approximately 250 American homes. The average American home uses approximately 10,600 kilowatt-hours of electricity per year.
- Wind turbines generate electricity approximately 65-80 percent of the time, although the output amount is variable and is dependent upon sustainable wind speeds.
- Currently, 1.6 million homes are powered by wind generation. By 2020, it is expected that approximately 25 million homes will be powered by wind generation.
- An operating modern wind generating site at a distance of 750 to 1,000 feet creates the same amount of noise as a kitchen refrigerator.
- A single one-MW turbine displaces nearly 1,800 tons of carbon dioxide each year, which is equivalent to planting nearly one square mile of forest, based on the current average U.S. utility fuel mix.
- To generate the same amount of electricity as today's U.S. wind turbine fleet (over 6,000 MW) would require the consumption of more than 28 million barrels of oil each year.
- To generate the same amount of electricity as a single one-MW wind turbine for 20 years would require the consumption of 92,000 barrels of oil.
- When 'harvesting the wind', less than one acre, on average, is removed from normal use (farming, grazing, etc.) for each 50 acres of wind resource captured.
- Wind turbines come in a variety of sizes. Typically, IPL-owned turbines will be mounted on towers 250 feet tall, with blades approximately 130 feet long, meaning the diameter of the rotor is over 260 feet – nearly the length of a football field!

Source: American Wind Energy Association

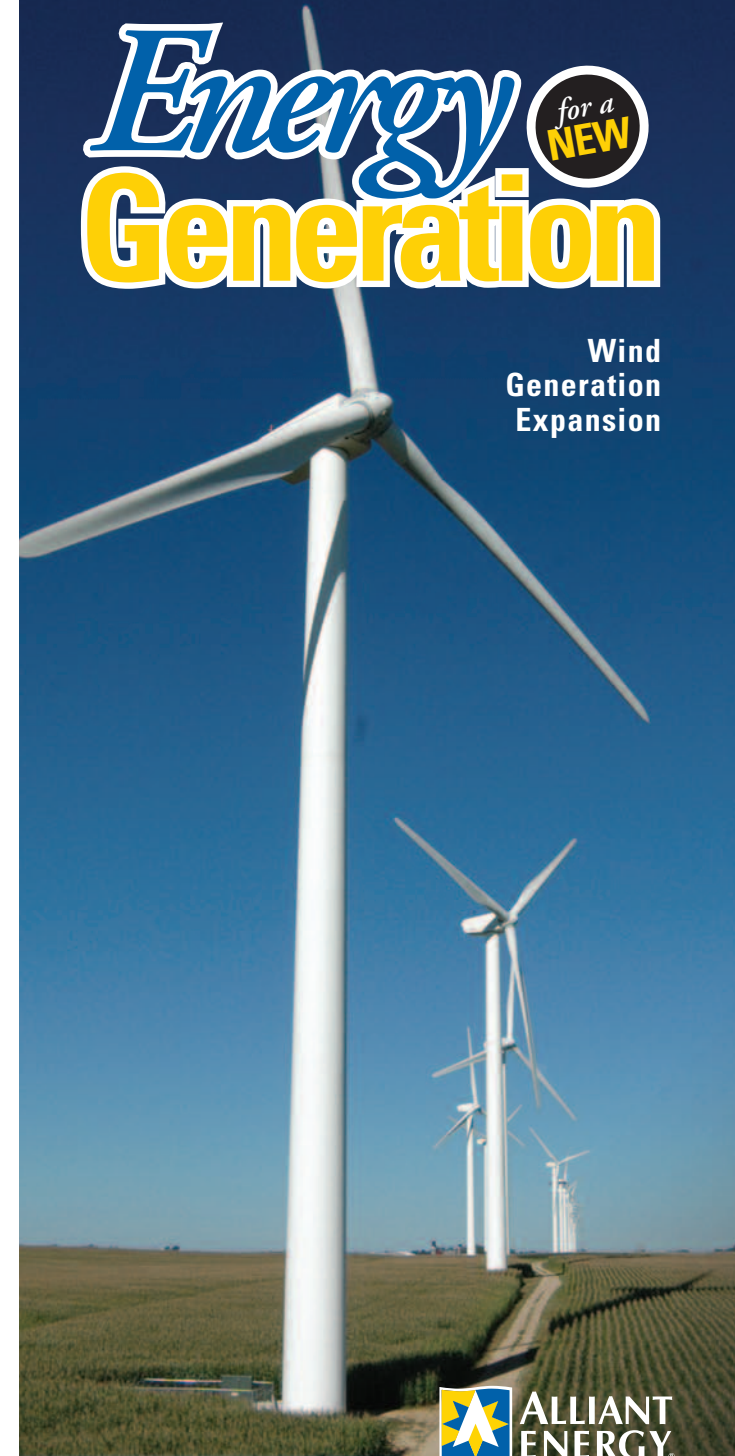
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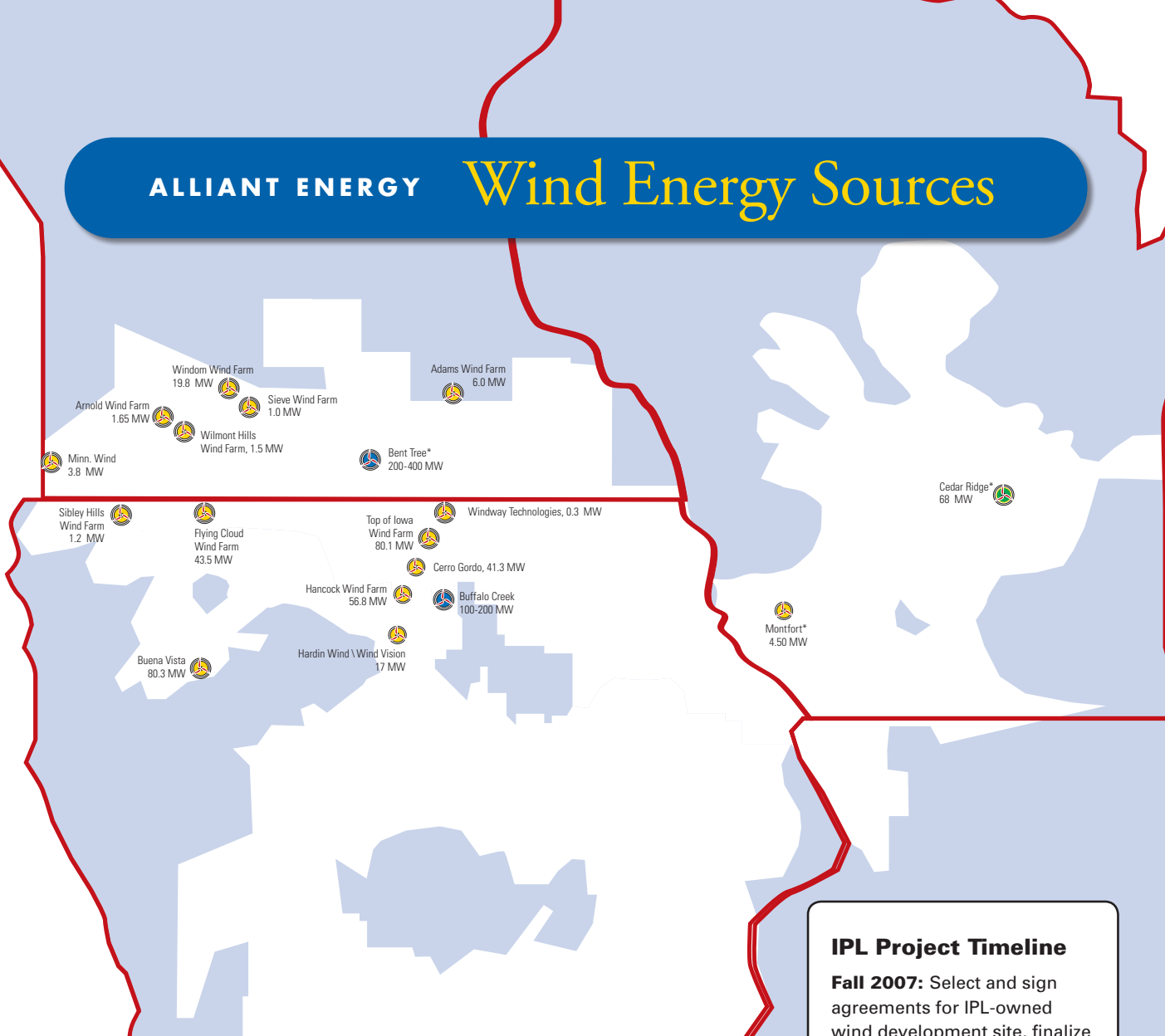
Energy for a NEW Generation

In January 2007, Interstate Power and Light (IPL) announced details of its 'Energy for a New Generation' plan. Energy efficiency initiatives and wind energy play central roles in that plan, as IPL expects to add up to 200 MW of company-owned wind generation to its energy portfolio in the next few years.




As part of the plan to expand IPL's renewable energy portfolio, the company is currently exploring various sites across its Iowa and Minnesota service areas for wind development opportunities. Upon completion of the site selection process, IPL expects to begin construction of the wind generation sites in 2009.

Once operational, approximately 6 percent of IPL's electricity will be generated from renewable energy sources. Of that, over 90 percent of IPL's renewable energy will be derived from wind generation. This energy will come from approximately 375 MW of nameplate wind capacity.

ALLIANT ENERGY Wind Energy Sources



Wind Energy Sources

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|---|------------|
|  Wind (current) | 359 MW |
|  Wind (under construction) | 68 MW |
|  Wind (potential) | 300-600 MW |

* Wisconsin Power and Light projects

IPL Project Timeline

Fall 2007: Select and sign agreements for IPL-owned wind development site, finalize project details and seek regulatory approval.

2008 to 2010: Secure permitting, solidify procurement and complete construction of an IPL-owned wind generation site.