

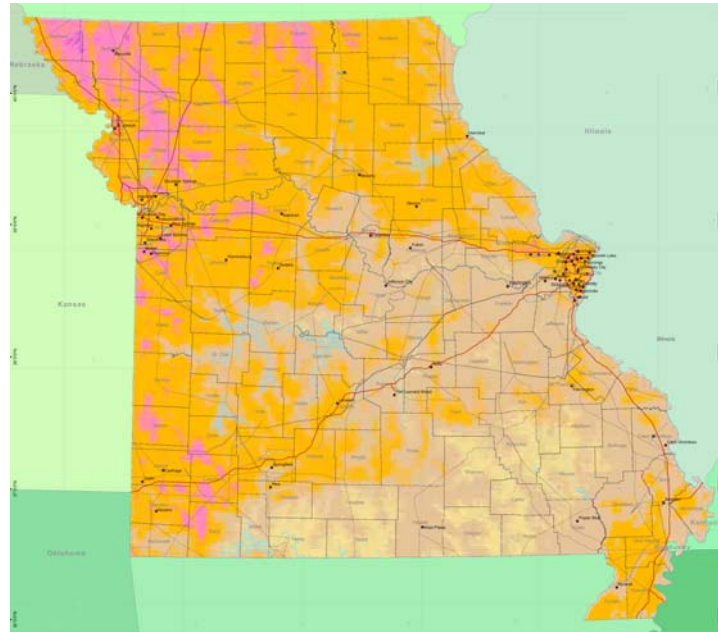
Wind Power for Missouri?

The map below shows the amount of power, in w/m^2 (watts per square meter), available across Missouri at 100 meters above the ground. Rising hydrocarbon costs could improve the cost competitiveness of lower quality wind resources, but for now, $400 w/m^2$ is required for a commercially viable wind turbine. The pink areas meet that criteria; the orange, brown, and yellow do not. A few areas in southwest Missouri qualify, but Missouri's wind resource is concentrated in the Northwest.ⁱ

Wind Capital Resources is the only company known to be actively developing wind power in Missouri at this writing. Missouri's first wind farm, Bluegrass Ridge, began operation in the fall of 2007, with three more projects nearing completion. Total rated capacity for all four will be 162 megawatts.ⁱⁱ By comparison, the Labadie power plant is rated at 2,415 mW.ⁱⁱⁱ If these plants produce on average 50% of their rated power,^{iv} then they will generate 1.4 megawatt-hours of electricity per year, which is about 0.01% of the electricity generated in Missouri.^v

I have been unable to locate an estimate of the total harvestable wind power resource for the state. North Dakota we are not. However, our resource seems likely to be significantly more than 162 mW, and we can certainly accept higher amounts into our electrical grid. Our state incentives and supports for accomplishing this improved with the passage of SB 54 in 2007, but are still primitive. They will be reviewed after the remaining renewable energy technologies have been discussed.

For most Missourians, participation in wind power is limited to special opt-in programs offered by their electric utility. A consumer enrolls in the program, agreeing to pay an additional fee. The utility then buys a certificate from a green energy producer in the amount of energy used by the consumer. The producer then delivers that amount of green energy into the Midwest power pool. The renewable energy doesn't have to be wind power, but it often is. Fifteen electric utilities and rural electric cooperatives are listed as providing opt-in programs, and a host of other national programs are also available.^{vi} The goal here needs to be to develop a program that eventually displaces significant amounts of coal fired or nuclear electricity generation.



Mean Wind Power Density of Missouri at 100 Meters
Missouri Department of Natural Resources
<http://www.dnr.mo.gov/energy/renewables/wind-energy.htm>.

ⁱ *Wind energy resources*. Missouri Department of Natural Resources. Retrieved online 12/30/2007 at <http://www.dnr.mo.gov/energy/renewables/wind-energy.htm>.

ⁱⁱ See the *Projects* page at the Wind Capital Group web site, <http://www.windcapitalgroup.com/projects.html>.

ⁱⁱⁱ *100 largest electric plants*. Energy Information Administration, <http://www.eia.doe.gov/neic/rankings/plantsbycapacity.htm>.

^{iv} It is common for wind power facilities to capture only a fraction of their rated capacity. The fall-off occurs primarily because of variability in the wind.

^v *Missouri state energy profile*. Energy Information Administration, <http://tonto.eia.doe.gov/state>.

^{vi} *Buying green power*. Energy Efficiency and Renewable Energy Office, Department of Energy. Retrieved online 12/31/2007 at http://www.eere.energy.gov/greenpower/buying/buying_power.shtml?state=MO.