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CLEAN ENERGY RESOURCE TEAMS

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Helping Minnesota communities improve their energy future.

Regions Community Projects Publications Technology Resources About Events Get Answers

Minnesotans Building a Clean Energy Future
 THE CLEAN ENERGY RESOURCE TEAMS (CERTS) PROJECT, started in 2003, is made up of community members across Minnesota who share a bold vision for Minnesota's energy future: to foster strong communities, to create local jobs, and to develop clean and reliable energy from clean sources. Learn more about CERTs >>

MINNESOTA SCHOOLS CUTTING CARBON PROGRAM
 We are cutting greenhouse gases at schools across Minnesota. Find out what schools are doing to save energy >>

Register for CERIS 2009!
 2009 CERTs Conference Feb. 10-11 in St. Cloud Register today and help us empower Minnesota! Learn more >>

Get Answers Blog
 Timely, substantive info on community-based energy efficiency and clean energy in MN. Get Answers >>

CERTS ANNOUNCEMENTS

ON THE CERTS SITE
 Clean Energy Events this Month
 Current Funding Opportunities
 CERTs Monthly Updates
 CERTs-Supported Projects
 CERTs Press & News Sightings

FEATURED NEWS
 Stearns Co. Max-Gel Wind Farm

QUESTION OF THE WEEK
How can my Southwest MN school group or youth program receive funding?
 The Southwest Clean Energy Resource Team via the Southwest Regional Development Commission (SRDC) seeks to provide limited financial assistance for energy efficiency and/or renewable energy projects requiring technical assistance to southwest MN residents.

FEATURED CASE STUDY
SOLAR PIONEERS: A CASE STUDY OF THE SE COMO NEIGHBORHOOD SOLAR THERMAL PROJECT
 This report focuses on one neighborhood's effort to jump start solar thermal in the Twin Cities. It also contains useful information on the potential of solar hot water systems in Minnesota.

REGIONAL SPOTLIGHT
NORTHWEST
 Bemis State University recently replaced their HVAC energy system and is developing a campus Greenhouse Gas inventory. Northland Community & Technical College is undertaking wind resource

www.cleanenergyresourceteams.org

kW to MW to GW conversion

$$1 \text{ kW} = 0.001 \text{ MW}$$

$$100\text{kW} = 0.1 \text{ MW}$$

$$1000 \text{ Kilowatt (kW)} = 1 \text{ Megawatt (MW)}$$

$$1500 \text{ kW} = 1.5 \text{ MW}$$

$$3000 \text{ kW} = 3 \text{ MW}$$

$$1,000,000 \text{ kW} = 1000 \text{ MW} = 1 \text{ Gigawatt (GW)}$$



Wind Siting Act

Minnesota Statutes Chapter 216F and
Minnesota Rules Chapter 7836



Large Wind Farm, Southwest Minnesota

WHO REGULATES WIND?

≥ 5 MW = Public Utilities Commission
< 5 MW = Local government

(exceptions)

- 2007 Legislation: counties may choose to permit <25 MW – *(with conditions)*
- 2008 Legislation: Size election. Projects <25 MW may elect to be sited as a Small Wind Projects.

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Photo by John Biren

Why Regulate Wind Development?

Significant expanding land use

Facilitate development

Health, Safety and Welfare of Public

Public support of wind development

Setbacks primary tool for public safety and nuisance

Catastrophic Failure

Nuisance

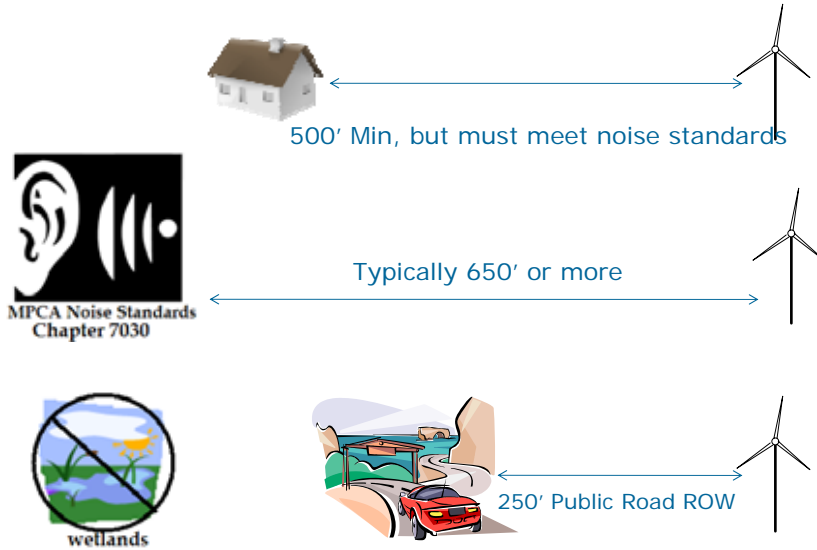
Visual Impact including shadow flicker
Bluff setbacks
Noise

Impact on adjacent property wind resources

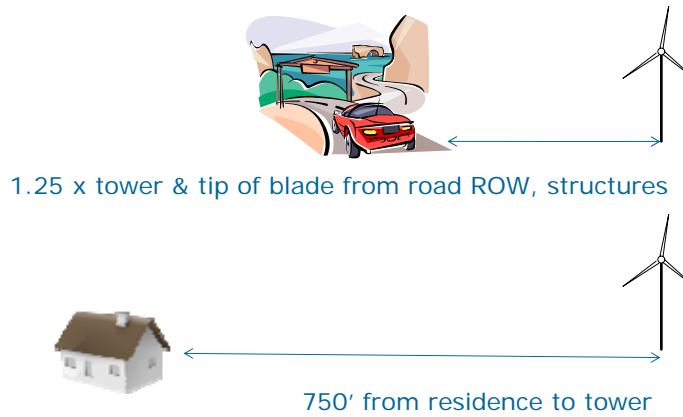


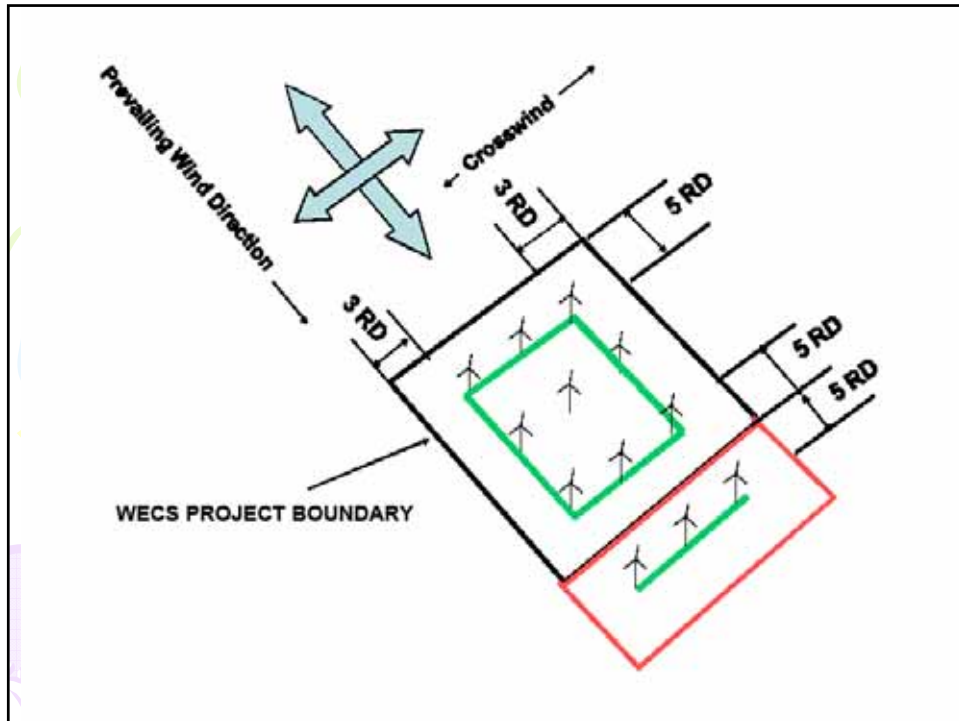
Photo by John Biren

PUC Wind Siting Setbacks



Setbacks in Redwood County, when permitted by the County





Safety Standards

Engineers Certification
Minimum ground clearance
Markings on Guy Wires
Met tower painting
E911
Setbacks

Photo by John Biren

Additional Standards include

- Drainage
- Permits: Public road, Stormwater
- Tubular towers for commercial turbines
- White, grey, or non-obtrusive color
- Lighting limited to FAA requirements.
- Conditions for crop damage & restoration
- Power lines up to 35kV – buried

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Disadvantages

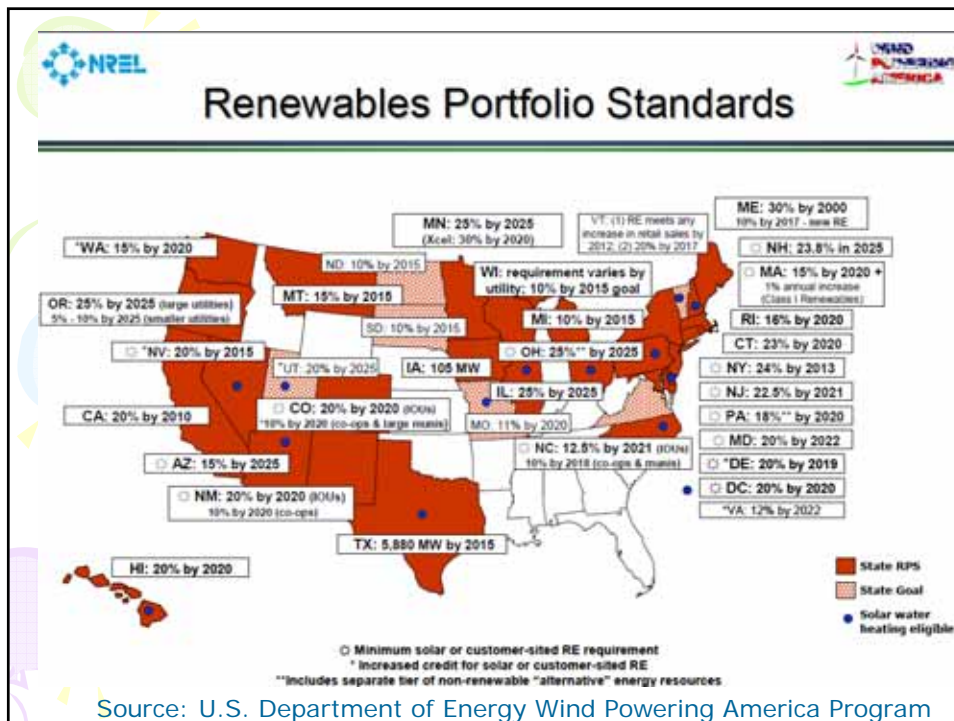
- Variable resource
- Aesthetics
- Shadow Flicker
- Noise
- Biological Resource Impacts
- Construction
- Land Use
- Radar

Photo by John Biren

Other Legislation

- 1994 NSP to add 425 MW wind by 2003
- 2007 RES (Renewable Energy Standard)
- 2008 Omnibus Environment and Natural Resources Bills (Senate File 2096), from which the REDI Program was developed

Photo by Jay Trusty





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