Renewable Energy Opportunities for American Farmers: *Farming Wind Energy*

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WIndustry

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Windustry

- Creating an understanding of wind energy opportunities for rural economic benefit.
- Non-profit based in Minneapolis, Minnesota
- Outreach and technical support for rural landowners and communities throughout the Midwest and US.
- www.Windustry.org
- Coming: Wind Energy Network for Landowners and Communities
Windustry Collaborations

- Minnesota SEED Coalition (Sustainable Energy for Economic Development - 18 member organizations)
- MN Rural Energy Task Force - 17 Counties
- Midwest State Agencies
- National Wind Coordinating Committee (NWCC)
- Wind Powering America (U.S. Department of Energy)
Wind Energy Status

Farm Bill 2002 with the Energy Title
Activities in rural communities today.
World Growth Market

*Total Installed Wind Capacity*

1. Germany: 14000 MW
2. United States: 6374 MW
3. Spain: 5780 MW
4. Denmark: 3094 MW
5. India: 1900 MW

World total 2003: 37220 MW

*Source: WindPower Monthly*
Wind Energy Development in the United States (as of the end of 2003)

Capacity & Cost Trends

Cost of Energy and Cumulative Domestic Capacity

Cost of Energy (cents/kWh*)

Capacity (MW)

*Year 2000 dollars

Increased Turbine Size - R&D Advances - Manufacturing Improvements
Key Drivers for Wind Power

- Cost of wind energy
- Volatile Natural Gas Prices
- State policies
- Future Federal Policies
  - Carbon Emissions Policy
Wind Energy Key Challenges

- Lack of firm policy support or commitments
- Transmission constraints
- Transmission rules and regulations inhibit investment
PTC Helps Grow the Industry

- 24.5% annual growth over five years
- BUT, instability of PTC causes a boom and bust cycle:
  - 2000 = 67 MW
  - 2001 = 1,696 MW
  - 2002 = 410 MW
  - 2003 = 1,100-1,400 MW
  - 2004 = ???
Energy Policy Innovations at the State/Local level

- Truly innovative energy policies for wind at the state level
  - State Renewable Energy Standards/Goals and Incentives
  - Supported by Local/State groups organized on clean energy, agriculture and economic development
Largest benefit to whole communities from large wind farms is tax revenue

For example:

- Lincoln County, Minnesota 2002 (Pop. 6,232): $757,634 from 156 MW (25% of total county tax revenue).
- Pipestone County, Minnesota 2002 (Pop. 9,761): $389,789 from 113 MW (10% of total county revenue).
- Worth County, Iowa - the new 80 MW project will add an estimated 9% to the county tax base.
Landowner Payments

- More options for landowners are emerging, but leasing land remains the most common.
- Landowners are becoming savvier about:
  - The value of windy land
  - Their wind resource
  - Options beyond leasing land
- Turbines are bigger and competition for good sites has increased.

Farmer hosts of an early wind project in Iowa.
“Yep, they make some noise, but it’s the soothing sound of money being made.”

Louis Woodward, Texas Rancher/Landowner

Prepared by Virtus Energy Research for Public Citizen and the SEED Coalition
Commercial-scale Wind Projects - Public Utilities

- **Municipal Utilities**
  - Examples: Moorhead, MN
    - Waverly, IA
    - Algona, IA,
    - Hull, MA
  - Examples: Kotzebue Electric Association, Alaska
    - Last Mile Electric Cooperative, Oregon.

Moorhead, Minnesota
Commercial-Scale Community Wind Projects

- **School districts**
  Examples: Spirit Lake, IA • Eldora, IA • Pipestone, MN- integrated into school curriculum

- **Tribal Communities**
  Example: Rosebud, SD- first Native American-owned large-scale wind turbine in the U.S.

- **Local Landowners**
  Examples: Kas Brothers, Woodstock MN • Minwind I & II, Luverne, MN
Native American Wind Projects

Rosebud Sioux Tribe

- Rosebud, South Dakota
- Dedicated a 750 kW turbine in May
- "Breaking Trail"
  - First step for the ambitious wind power plans of Great Plains tribes.
Designing state policies for community wind energy

MN Renewable Energy Incentive Payment

- Renewable energy systems, defined as wind, small hydro, and methane digesters.
- Wind energy projects under 2 MW
- Minnesota offers 1.5-cents/kWh, for 10 years, for power sold to a third party
- Owned by a farmer, non-profit, small business, or tribe
- Incentive was good for up to 200 MW installed capacity
  - From 1997 to April 2003- 100 MW
  - April to November 2003- another 100 MW enrolled
Kas Brothers Plant 25-Year Cash Crop

- First farmer owned commercial-scale project in U.S.
- Two 750 kW Micon turbines installed in summer of 2001.
- Financed with local banks
- Dozens of farmers in MN now following this model.

Richard and Roger Kas- Woodstock, MN
Minwind I and II
“Farmer Cooperative”

- Structured to use PTC, but rules are similar to a cooperative.
- Sold membership stock to 66 individuals (33 in each group, required 85% of shares to be owned by farmers)
- Developed two 1.9 MW projects (to use MN incentive)
- Built the project (installed late 2002)
Minwind I and Minwind II

- Goals included:
  - Local ownership
  - Maximize return on investment
  - Create local economic development
  - Research and utilize available incentives
  - Develop a “cookie-cutter” model
  - Maintain cooperative principles
Agriculture Policy

Innovations for Renewable Energy at the national level

- U.S. 2002 Farm Bill Energy Title
  - Championed by farm state Congressional members
  - Supported by regional/national farm and environment organizations
  - First round of grants awarded in August 2003
  - Funding for local/farmer owned wind projects
  - Becoming an important driver for community wind projects
Minwind III - IX

- Seven more Minwind projects received $178,201 grants from USDA.
  - Essentially, using funds to build interconnection substation to get all 7 projects on the grid.
  - Minwind III-IX will have 147 owners.
- Signed power purchase contracts with a utility in November.
- Result will be approximately another 14 MW of locally owned wind in Rock County, Minnesota.
Three Rural Electric Cooperatives received USDA funds to develop wind projects:

- Federated Rural Electric Association (MN) $500,000
- Nobles Cooperative Electric (MN) $500,000
- Illinois Rural Electric Cooperative (IL) $438,544
First USDA funded wind turbine was installed Oct. 2003 in Pope County, MN.
National Survey of Corn Producers - April 2003

Support for Wind Energy

- Continue Energy Title
- Support Wind Development
- Wind as Alt. Energy
- Washington commitment

Wind Power is in the news...

The New York Times

As Earth Warms, The Hottest Issue Is Energy

Dail Globe

$26 million wind field will spur the local economy

Successful Farming

Harvest the wind

Stock — The principal corn-growing Ridge area says such wind farms can help increase their production.

Fillmore County Journal

Inherit the wind

Science News

Power Harvests

Star Tribune

Tiny county benefits from wind, seeks more tax revenue

CATCH the WIND
A New “Cash Crop” for the Rural Economy

“The Energy Title establishes energy policy as an integral part of agriculture policy, which will create and grow the market for farm-based energy that will benefit rural communities.” David Benson, farmer and Nobles County Commissioner, Minnesota

“Wind Energy has provided jobs so that our young people could come back home to live and raise their families” Sherry Phillips, Mayor of McCamey, Texas
In Closing:
Community wind energy in the larger context

- U.S. policies on energy, climate change, and the environment are not in step with much of the world.
- BUT, people at the grassroots, local, and even state level are moving toward a clean energy future on their own.
In Closing:
Community Wind Energy: a key driver for wind energy in the U.S.

- **Communities energized by opportunities to:**
  - Harvest clean energy as a “cash crop”
  - Enhance energy security/independence.
  - To have local control over energy resources and keep energy dollars local.
  - Protect the environment.

- **An emerging market force:**
  - Successful projects in the ground.
  - Interest spreading like wildfire.
  - More sectors getting involved, such as bankers, attorneys, and farm organizations.
We invite you to Windustry’s Community Wind Conference

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