Wind Project Case Studies

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USDA Farm Bill Grants for
Wind Energy Development
February 2004

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Project Case Studies
Outline

- Windustry
- 2003 USDA awards
- Other development options that could be funding through USDA

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Windustry

- Creating and 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 Farmers Network

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Windustry's **Wind Farmers Network**

- A network for landowners, farmers, ranchers, farm organizations, businesses, community leaders and others.
- A membership-based exchange for case studies, individual experiences, lessons learned, negotiating points, and more.
  - More info on wind easements and development models.
- Online at www.Windustry.org

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Windustry Collaborations

- Minnesota SEED Coalition (Sustainable Energy for Economic Development)
- Midwest State Agencies
- National Wind Coordinating Committee (NWCC)
- Wind Powering America (U.S. Department of Energy)

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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 growthe 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*

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Agriculture Policy

Innovations for wind 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
  - Millions for local/farmer owned wind projects
  - Becoming an important driver for community wind projects
  - First round of grants awarded in August 2003

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2003 USDA Grant awards

- August 2003- $21,207,233 awarded to 113 applicants from 24 states.
  - Minnesota led all states with $4,678,632, followed by New York, Illinois, and Ohio.
  - Montana received one award ($37,000 to Eagle Stud Mill, Inc. in Granite County for a biomass cogeneration system)
- 35 awards totaling $7.4 million to support wind power.

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2003 USDA Grant Awards
Wind Projects

- Farmer/locally owned wind projects in Minnesota
  - 20 in Minnesota alone
  - Small wind turbine projects (Minnesota, Iowa, Washington)
  - 16 Farmer-owned <2 MW projects in Minnesota
- Rural Electric Co-op projects in Illinois and Minnesota
  - Nobles and Federated, southwest Minnesota
  - Illinois Rural Electric Cooperative, Pike County, IL

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Community Commercial- Scale Wind Projects- Local Utilities

- Municipal Utilities

  Example: Moorhead, MN- highest green pricing program subscription rate in the nation

- Rural Electric Cooperatives

  Examples: Kotzebue Electric Association, Alaska • East River Electric Cooperative, Chamberlain, South Dakota

Moorhead, Minnesota

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Community Commercial- Scale 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

Spirit Lake, Iowa

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2003 USDA Grants
First operating project

- First USDA funded project went online in October 2003 in Pope County, central Minnesota.
- A remanufactured E-15 35 kW machine, from Energy Maintenance Services in Gary, SD.
- One of 4 similar projects to be funded in Minnesota.

Visitors inspecting the new turbine at the dedication.

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2003 USDA Grants

First operating project: Pope County, MN

- Partners: Farmer Earl Hauge and his former farmhand Minneapolis resident Carl Nelson see wind power as a great opportunity to revitalize rural Minnesota.
- Earl owns the land and enjoys the new income from selling the extra electricity he doesn't need for his farm,
- While Carl earns some extra income and the piece of mind of making pollution free energy.
- A USDA grant covered 25% of the cost ($17,175).

Neighbors and other interested farmers at the turbine dedication.

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Small wind turbine projects in Montana (Glacier, Stanford, and Chester, MT)

- *Our Wind Co-op* is a unique cooperative encouraging farmers, ranchers, and rural facilities to invest in small-scale wind turbines across the Northwest.
- At the end of 2003, three small turbines were installed in MT and two in WA.
- Funded through NREL and USDA Value-Added grant program.

Glacier, Montana
Photo courtesy of NW SEED

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Small wind turbine projects in Montana

- More than 800 kW of small turbines installed around MT.
- Net Metering- “banking” electricity with a utility.
  - Available in MT for systems up to 50 kW and customers of Investor-owned utilities.
  - Some electric cooperatives offer net metering for systems up to 10 kW.

Peshastin, WA
Photo courtesy of NW SEED

Chester, Montana
Photo courtesy of NW SEED

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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 (had an equity partner).
- Dozens of farmers in MN now following this model.

Richard and Roger Kas- Woodstock, MN

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A growing group of Wind Farmers

- "Combines cost you $150,000. You use it two, three, maybe four weeks out of the year. This costs you over a million dollars, but it runs 365 days a year. So when it all boils right down, I think this is a better investment," Pam Fey, Woodstock, Minnesota.

Fey family wind turbine under construction. Photo by Mark Steil / MN Public Radio

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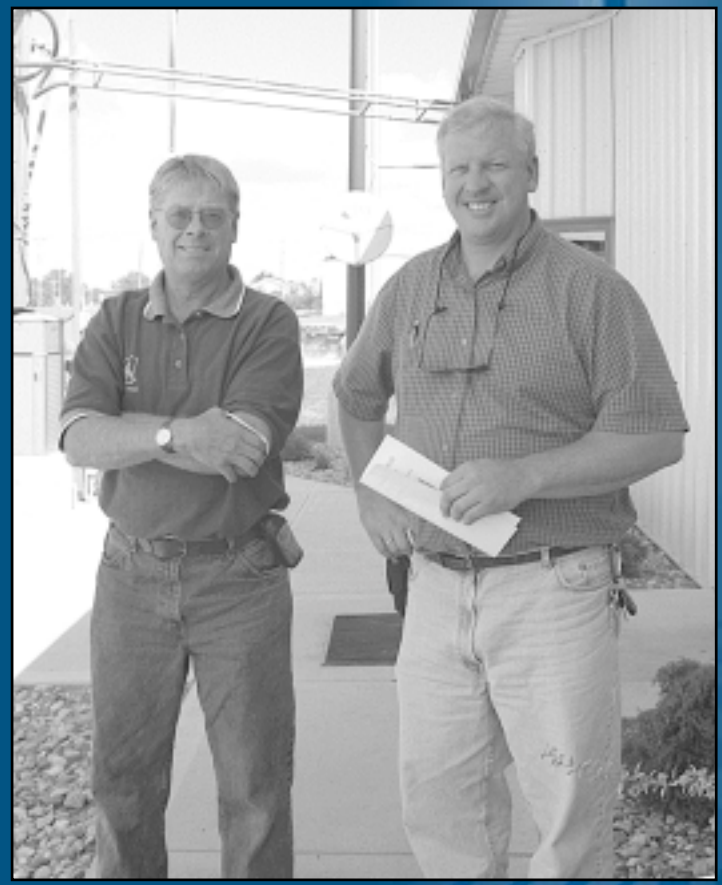
Minwind I and II "Farmer Cooperative"

- Two LLCs formed with cooperative principles.
- Sold membership stock to 66 individuals (33 in each group, required 85% of shares to be owned by farmers)
- No individual can own more than 15% of the shares.
- Developed two 1.8 MW projects (to use MN incentive)
- Built the project in late 2002.



Tom Arends and Mark Willers, Presidents of Minwind I and II

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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

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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.

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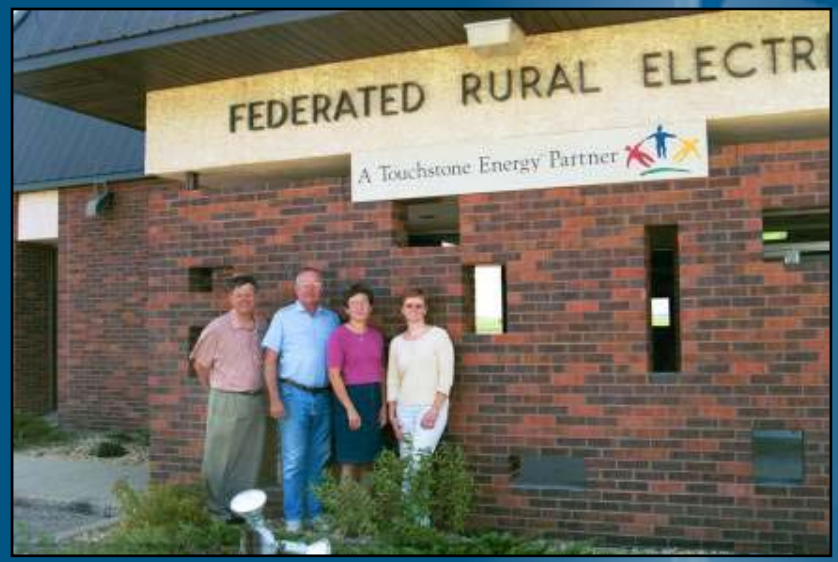
Rural Electric Cooperatives

- 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



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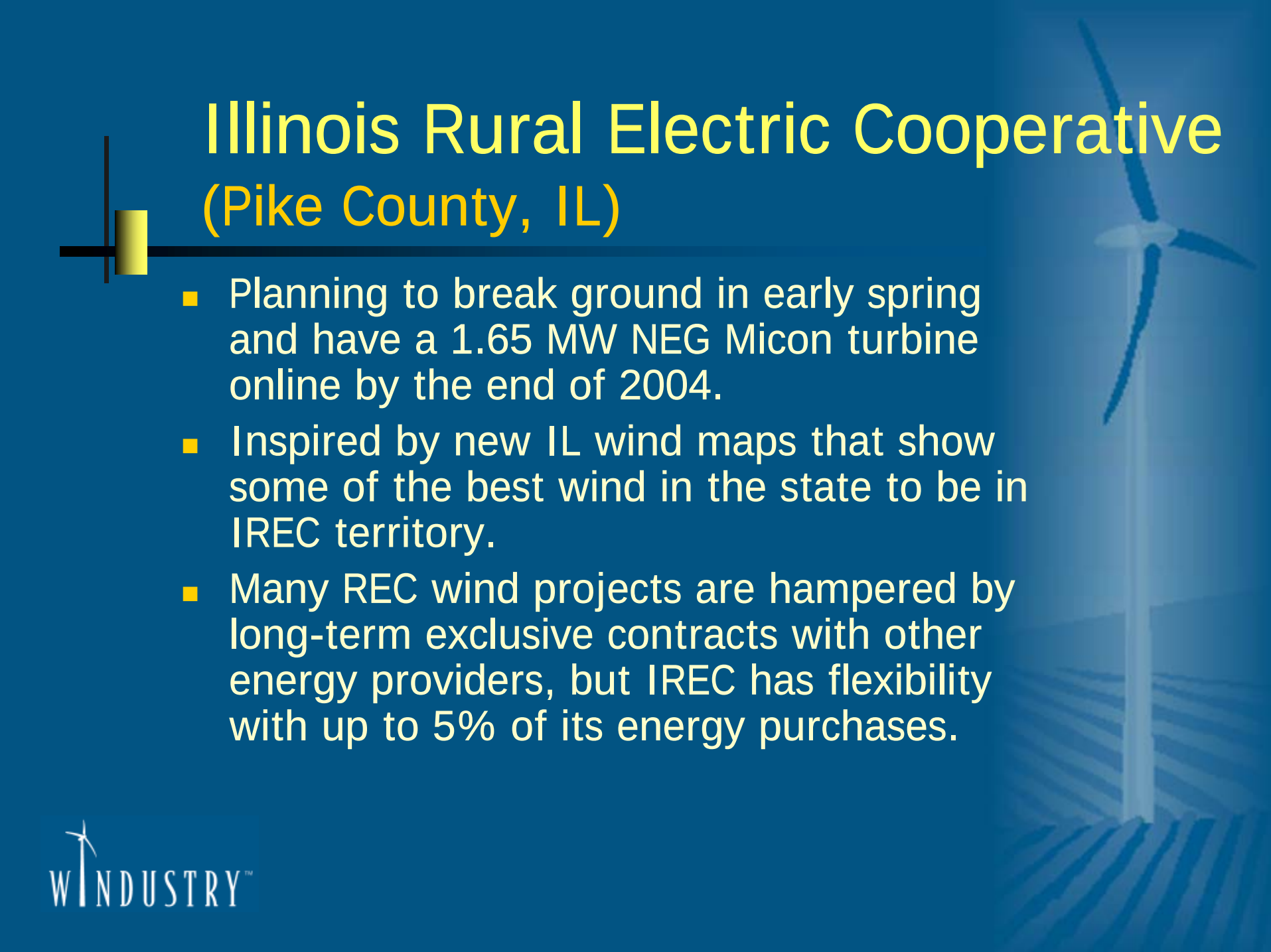
Illinois Rural Electric Cooperative (Pike County, IL)

- Planning to break ground in early spring and have a 1.65 MW NEG Micon turbine online by the end of 2004.
- Inspired by new IL wind maps that show some of the best wind in the state to be in IREC territory.
- Many REC wind projects are hampered by long-term exclusive contracts with other energy providers, but IREC has flexibility with up to 5% of its energy purchases.



Illinois Rural Electric Cooperative (Pike County, IL)

- Financing
  - $438,544 from USDA (25% of the project cost)
  - Also: $175,000 from IL Clean Energy Community Foundation and a pending IL state grant.
- According to Co-op Manager Sean Middleton the project is valuable:
  - For environmental reasons;
  - as an opportunity to be a leader among similar utilities;
  - as a chance to explore a co-op owned distribution generator;
  - to respond to public opinion and help IL meet its wind goals; and
  - to take advantage of an under used energy resource.
- Believes wind can work for small to medium sized utilities like co-ops and municipal utilities.

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School Wind Projects: **Eldora, Iowa**

- 750 kW turbine installed in late 2002
- Financing:
  - $250,000 no-interest loan from the Iowa Energy Bank, a program run by the IA DNR
  - $550,00 5.5% interest loan from local bank (Hardin County Savings Bank of Eldora)
  - Borrowed a total of $800,000 for turbine, construction, consultants and attorneys at average annual interest rate of 2.1%.

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School Wind Projects: **Eldora, Iowa**

Revenue and Production Projections (USD)

Projected energy savings per year	**$90,000**
Annual loan payments for 750 kW turbine (first 10 years of operation)	**$97,729**
Projected annual energy production	**1.5 million kWh**
Projected annual revenue from excess energy production (sold at 3.8¢ /kWh)	**$19,000**
Projected annual savings and revenue during first 10 years of operation	**$12,000**
Projected annual savings and revenue after first 10 years of operation	**$109,000**

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Native American Wind Projects

- Rosebud Sioux Tribe, Rosebud, South Dakota
  - Dedicated a 750 kW turbine in May 2003
  - “Breaking Trail”
    - First step for the ambitious wind power goals of Great Plains tribes.

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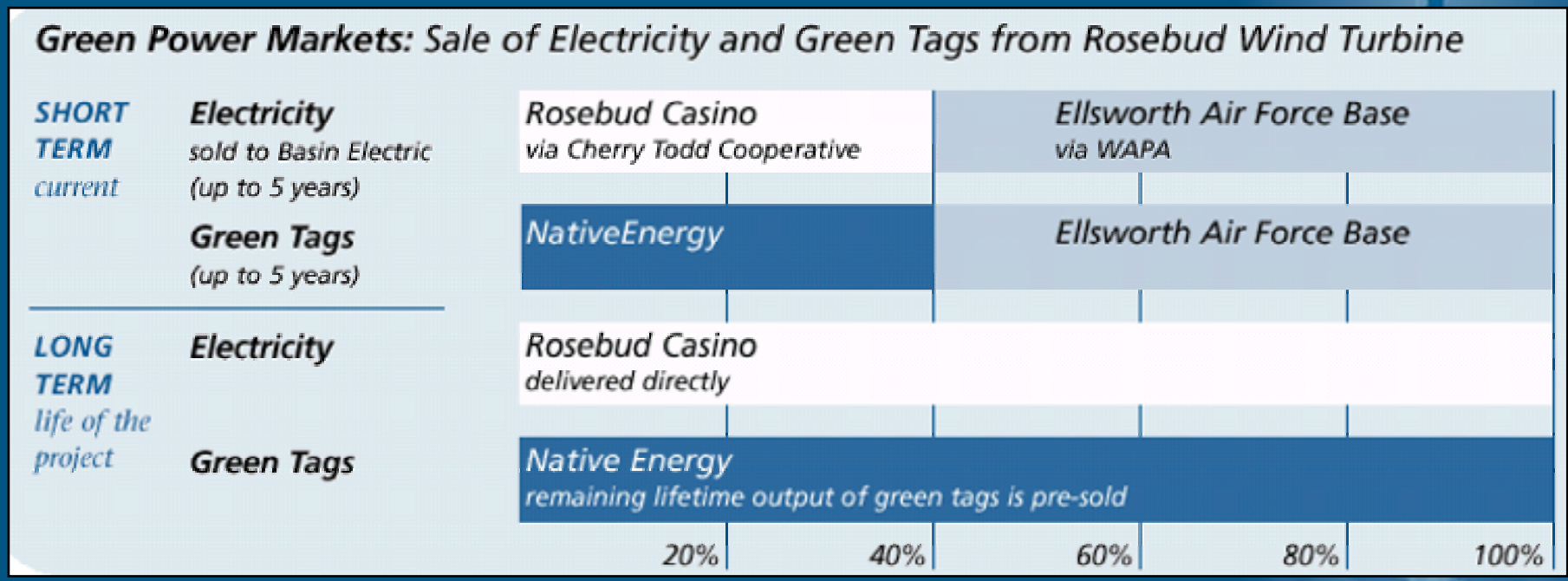
Rosebud- Selling Power



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Community Wind Energy: An emerging market force 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.
- **Becoming a real market force:**
  - Successful projects in the ground.
  - Interest spreading like wildfire.
  - Less constrained by other U.S. market challenges.

Photo courtesy of U.S. Department of Energy

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Windustry's

National Community Wind Energy Conference

June 23-24, 2004

Minneapolis, Minnesota

More information at:

www.windustry.org

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