WIND POWER FOR AMERICA

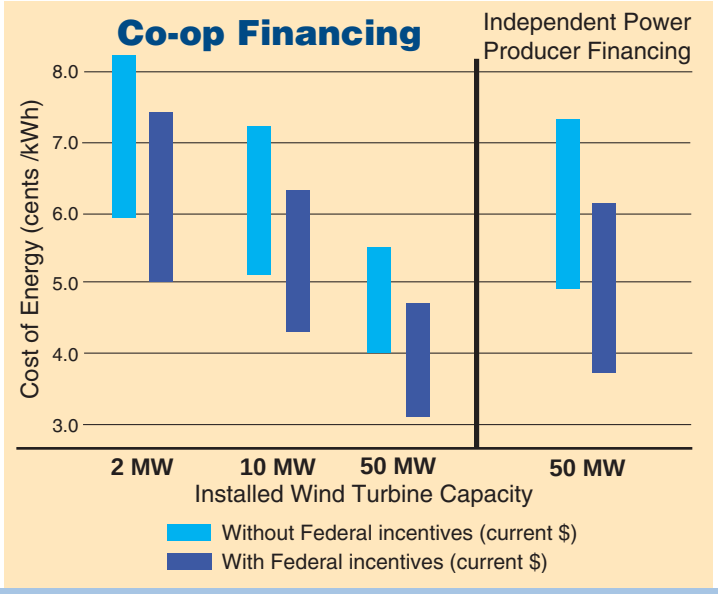
Rural Electric Utilities Harvest New Crop

WIND ECONOMICS AT A GLANCE

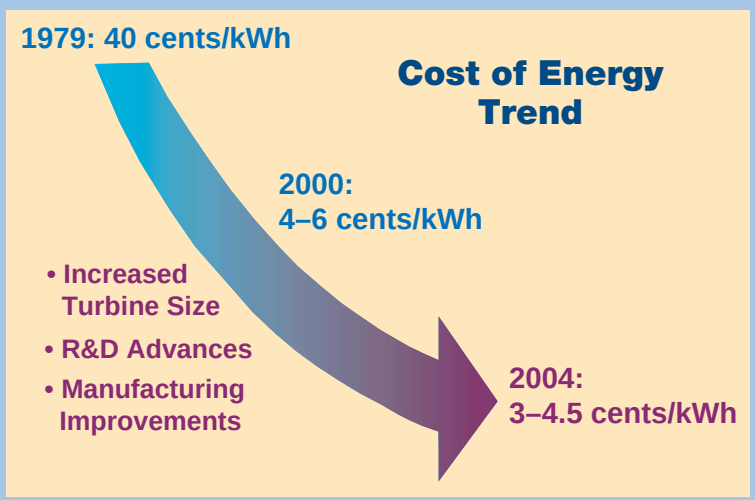
Wind power is one of mankind's oldest energy sources. In 1700, the most powerful machines in Europe were Dutch windmills. During the 1930s, half a million windmills pumped water on the Great Plains. Today's wind turbine is a far cry from the old water pumpers. By using state-of-the-art engineering, wind turbine manufacturers have produced sleek, highly efficient machines that produce inexpensive electricity, and lots of it. Depending on their size and location, wind farms can produce electricity for 4–6 cents per kilowatt-hour (kWh). And, as wind technology continues to advance, researchers predict that wind energy will soon drop to 3 cents per kilowatt-hour.

Turbine Cost (750 kW turbine)	$800,000
Annual Electricity Sales	$80,000 to $100,000
Annual Renewable Energy Production Incentive (subject to annual appropriations)	$35,000
GROSS INCOME IN FIRST 10 YEARS	$1,150,000 to $1,350,000

A typical wind turbine installed costs about $800,000. Each year it will produce electricity worth $80,000 to $100,000. Rural electric utilities also receive federal renewable energy production incentives worth approximately $350,000 per turbine, payable over 10 years.



Because of the low-cost financing available to rural electric cooperatives through USDA/Rural Utility Service, moderate sized co-op projects can compete effectively with larger, privately financed



Wind is homegrown energy that we can harvest right along side our corn or soybeans or other crops. We can use the energy in our local communities or we can export it to other markets. We need to look carefully at wind energy as a source of economic growth for our region.

David Benson, Farmer & County Commissioner, Nobles County Minnesota

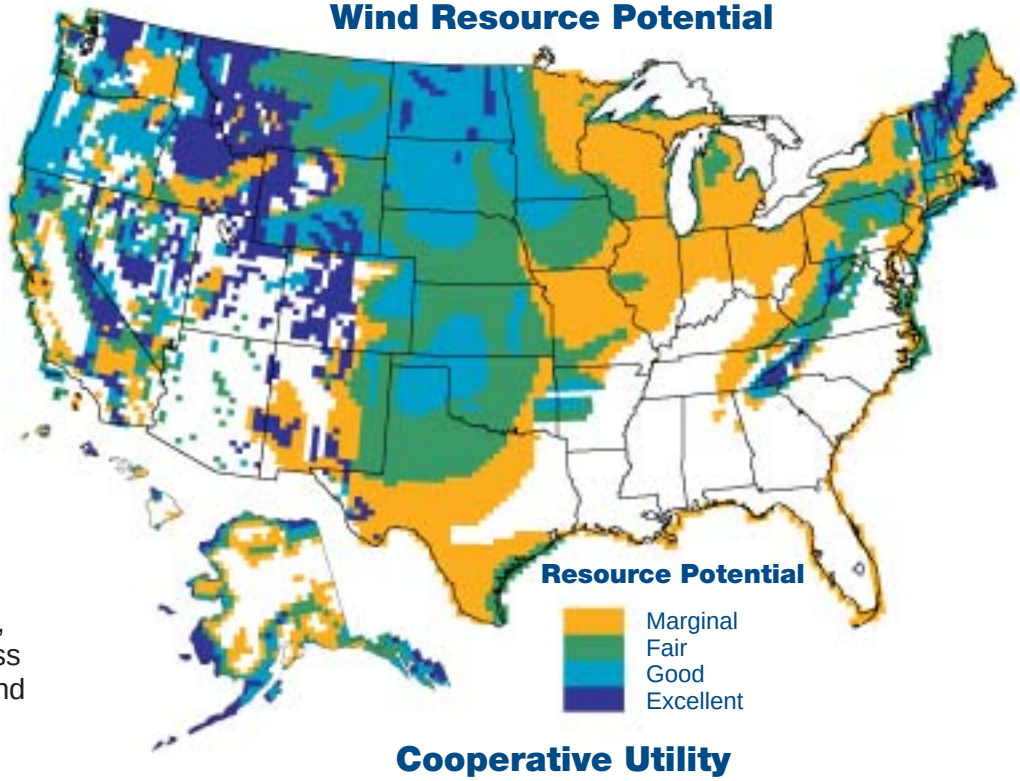
HARVESTING THE WIND

HOMEGROWN ENERGY FOR AMERICA'S RURAL ELECTRIC UTILITIES AND THEIR CUSTOMERS

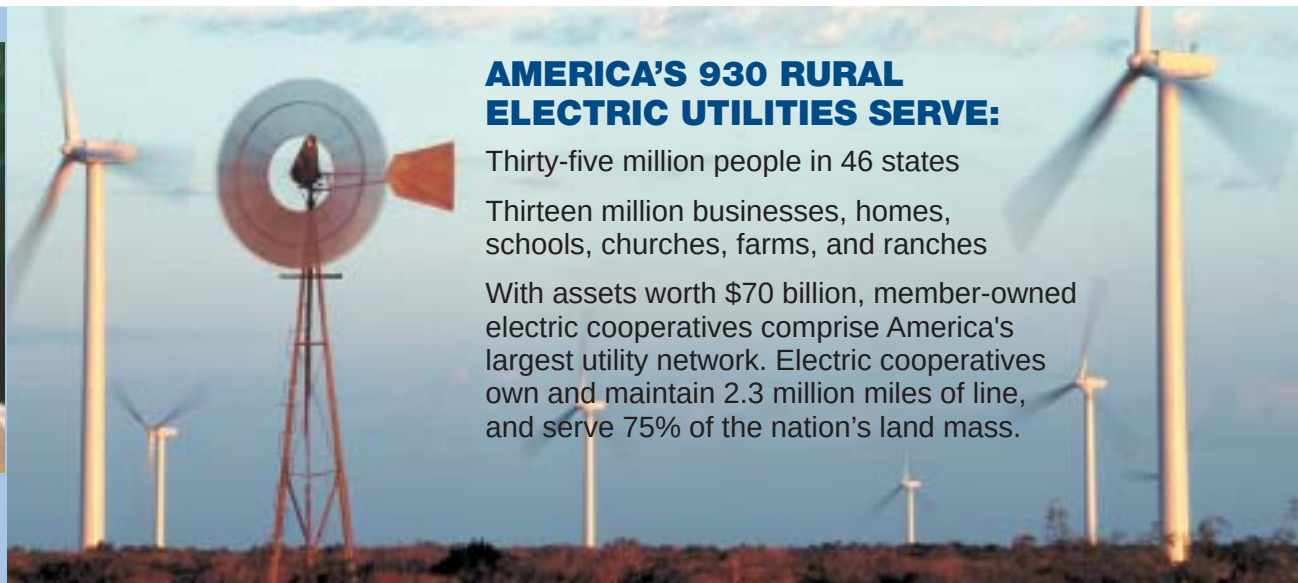
Harnessing the strong winds that sweep across America is an exciting new business opportunity for the nation's rural electric utilities. The U.S. Department of Energy's Wind Powering America Initiative works with stakeholders nationwide to increase our nation's use of wind energy. We do so in concert with the energy and agricultural industries, state and local officials, Native Americans, clean energy advocates, and our nation's electric cooperatives. From Idaho to Illinois, from Montana to Massachusetts, we work together to raise the awareness of wind energy and the benefits from and barriers to development.

Although investor-owned utilities own some wind farms, rural utilities serve the heartland, where many of the nation's best wind sites are located. Three states—North Dakota, Texas, and Kansas—have enough wind to meet the nation's entire electricity needs. Others with excellent winds include Oklahoma, Nebraska, Iowa, Minnesota, Colorado, New Mexico, Wyoming, Montana, South Dakota, Oregon, Idaho, Nevada, and Washington.

Wind Resource Potential



Cooperative Utility Service Territories



AMERICA'S 930 RURAL ELECTRIC UTILITIES SERVE:

Thirty-five million people in 46 states

Thirteen million businesses, homes, schools, churches, farms, and ranches

With assets worth $70 billion, member-owned electric cooperatives comprise America's largest utility network. Electric cooperatives own and maintain 2.3 million miles of line, and serve 75% of the nation's land mass.

WIND POWER PIONEERS

In the past few years, some of the nation's electric cooperative utilities have begun to include wind power in their energy supply portfolios. These wind power pioneers include:


Holy Cross Energy

East River Electric Power Cooperative installed two 1.3 MW wind turbines near Chamberlain, South Dakota. Capital to purchase the turbines was provided by the USDA Rural Utility Service, a federal lending agency.


Kotzebue Electric Association

WIND POWER IS BOOMING

Worldwide, 5500 MW of wind energy were installed in 2001. In the United States, almost 1700 MW of wind energy were installed in 2001, bringing our nation's wind energy capacity to 4261 MW generated by installations in 26 states.


Great River Energy

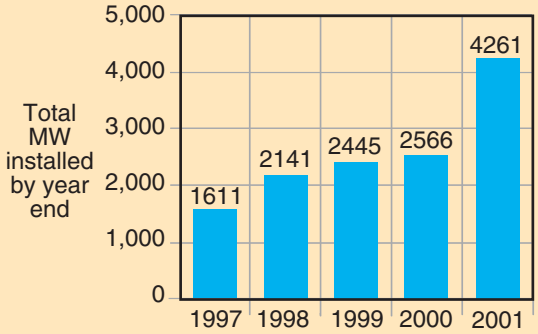
Great River Energy, Minnesota's second largest utility, generates power for 29 cooperative utilities. Great River representatives expect to get 10% of the utility's electricity from wind. Currently the company is adding 21 megawatts of wind generation.

Holy Cross Energy is buying 5 megawatts of wind power for its customers in western Colorado. About 2200 families, 115 businesses, and 12 local governments participate in Holy Cross' landmark


East River Electric Power Cooperative

Kotzebue Electric Association installed its first turbines in 1997. It currently has ten turbines installed and is working toward an eventual 2–4 megawatts of wind energy capacity. Kotzebue does not charge premium rates for the electricity generated by its wind turbines.

Growth of Wind Energy in the United States



It is becoming clear that wind energy will play a major role in the national generation mix. In Kotzebue, Alaska, wind energy provides between 5%-7% of the total energy needs and we plan to add more. There are potentially 70 to 90 communities that could reduce their energy costs by adding wind energy. This makes it extremely important for utilities to learn all they can about wind's ability to provide safe, reliable, cost-effective electricity to their members.

Brad Reeve, General Manager,
Kotzebue Electric Association

It seems only natural for rural utilities to do everything they can to advance both farm-based renewable energy development and rural economic development in a cost-effective way. In my opinion, wind energy is the next great chapter in the rural electrification story.

Aaron Jones, Manager, Washington Rural Electric Association

Rural Electric Cooperative utilities take care of their members, the communities they serve, and the land that sustains them all. Cooperatives and their members were stewards of the earth long before it was popular. Here at Holy Cross, wind energy serves our members and the environment. We are proud of our wind program, and enjoy watching it grow.

Bob Gardner, General Manager—Support Services,
Holy Cross Energy

Our cooperative members have high expectations of their electric utility, including environmental stewardship and providing a reliable, innovative power supply. Our Wellspring Renewable Energy Program allows us to develop wind energy resources to meet our members expectations.

Mark Rathbun, Key Account Representative, Demand-Side Management/Member Services, Great River Energy

Our Prairie Winds initiative is the first step in capturing the enormous wind potential in the Dakotas. This wind farm demonstrates the exciting opportunity wind offers for our energy future.

Jeff Nelson, General Manager, East River Electric

Wind energy is one of America's most abundant, clean, and secure energy resources.

INFORMATION RESOURCES

U.S. Department of Energy (DOE)
Wind Energy Program
Forrestal Building
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-5348
www.eren.doe.gov/wind

National Renewable Energy Laboratory
National Wind Technology Center
1617 Cole Boulevard
Golden, Colorado 80401
(303) 384-6979
www.nrel.gov/wind

American Wind Energy Association
122 C Street, NW, Suite 380
Washington, DC 20001
(202) 383-2500
www.awea.org

National Rural Electric Cooperative Association
4301 Wilson Boulevard
Arlington, Virginia 22203
(703) 907-5500
www.nreca.org

Utility Wind Interest Group (UWIG)
2111 Wilson Boulevard, Suite 323
Arlington, VA 22201-3001
(703) 351-4492 ext. 121
www.uwig.org

WIND POWERING AMERICA

The U.S. Department of Energy's Wind Energy Program is working nationwide to build our national investment in wind energy technology. The Program's Wind Powering America Initiative aims at identifying and addressing barriers to wind energy development. Capturing the economic benefits of developing our nation's abundant wind resources—from new homegrown jobs created to manufacture, install, and maintain wind turbines; to tax revenues for towns and municipalities; to annual payments to rural landowners who lease their land for development—is the initiative's key focus.

Working in conjunction with the American wind industry, power producers and suppliers, industrial consumers and residential end users, Wind Powering America provides the technical support, guidance, and information needed to explore and develop wind energy resources. By demonstrating the benefits of wind energy and the barriers to development, the initiative helps a state or region take the first steps towards creating a regulatory and economic environment that is more favorable for wind power and other renewable energy development.

Overall, the Wind Powering America Initiative delivers a positive vision of the future as well as new economic options for our rural towns and communities and the families that live in them.

For more information, visit the Wind Powering America Web site at www.windpoweringamerica.gov

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