



What Do We Need to Make South Dakota a Major Wind Producer?

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Located in Gary & Howard, SD

Future Vision for South Dakota by 2011

- South Dakota is recognized as one of the leading states in wind technology and training programs.
- Potential of 1500+ Jobs in Industries attracted to South Dakota by low cost, clean and secure wind energy
- Economic Development enhanced by a high percentage of Project Management, construction and O & M provided by South Dakota companies.
- High Percentage of Projects owned by South Dakota Businesses and People.

Current Generation 1.5 MW Wind Turbine



Difficult to use for training programs

Strategies and resources need to be developed to continue to build this technical framework.



- Acquiring small scale turbines to develop manufacturing capabilities.
- Training of wind technicians
- Getting experience with project financing
- Involving local economic development groups

• WE NEED NET METERING TO DEVELOP THESE SKILLS FURTHER

MCCR & Diversified Energy Solutions, LLC

Prototype

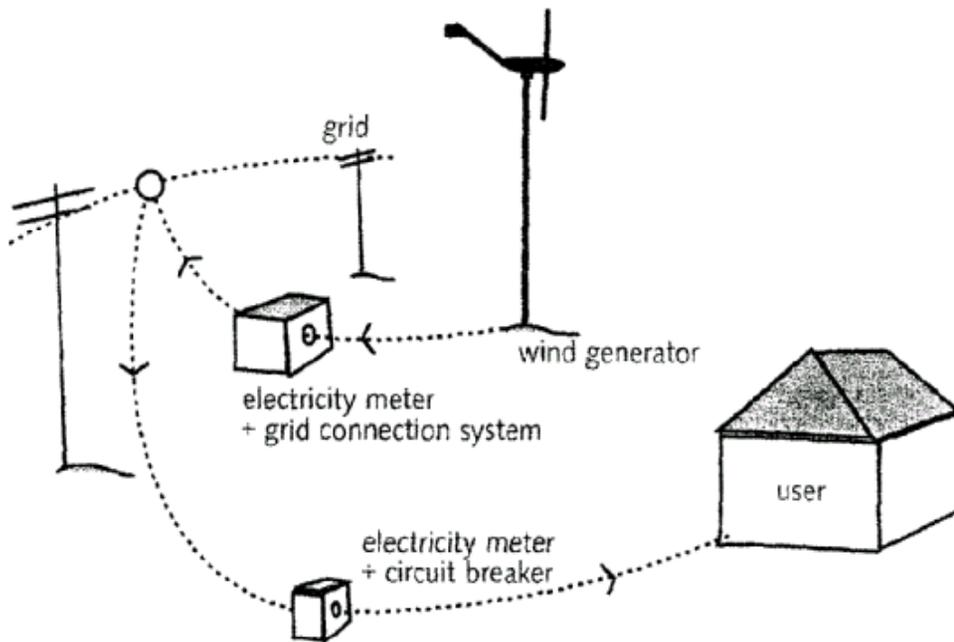


Diagram of Proxwind' concept

- > The totality of the energy produced by the wind generator is guaranteed.
- > Two electricity meters are installed: the one for the current purchase, the other for the current sale.

- Residential, Schools, Businesses
- Tilt-down tower for easy maintenance
- 2 bladed upwind turbine – 30kW generator

Net Metering Would Help Train Technicians

- \$50,000 Capital Cost
- \$10,000 Foundation
- 40 Ton Crane
- 2500 lb Gearbox



Training Technicians

Utility Scale

- \$1,000,000
Capital Cost
- \$100,000
Foundation
- 400 Ton Crane
- 40000 lb
Gearbox



By 2011, 1500+ Jobs could potentially be attracted to South Dakota by low cost, clean and secure wind energy

- Wind is a domestic and secure energy source. Long term fixed price contracts allow industries to build with lower risk.
- Wind is sustainable and environmentally benign. It is future proofed against carbon taxes and other potential liabilities.
- Wind energy will be cheaper in SD than in California, Chicago and elsewhere.
- This is an attractive incentive for European and Japanese Industries.

Looking Back...Looking Ahead

- In the past two decades, in a climate of compositeness the nation cut back on strategic and energy security projects.
- The National Energy Policy identifies the need for 1300 –1900 new power stations, 7000 miles of new electrical lines and 38,000 miles of new gas pipelines by 2020.
- Wind is competitive as an energy resource now and will increase in years to come.



Diversified Energy Solutions, LLC

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Diversified Energy Solutions (DES)

- EMS currently has daily inquiries for wind turbines for industry, utilities, schools and other businesses.
- Individuals and Industry are concerned about Energy Security and their environment.

WHAT DO WE NEED

- Diversified Energy Solutions (DES), SDSU and Miner County Community Revitalization (MCCR) are working closely to develop innovative solutions to firm up wind power using anaerobic digestion as well as fuel cells and cogeneration.
- A strategic plan by the state of South Dakota and local utilities to creatively combine the hydro and wind resources, in combination with other generation to develop long term power contracts for industries relocating to SD.
- Other states across the nation have set a precedent to utilize renewable sources.

Manufacturing of 500 MW+

- Remanufacturing and assembly of wind turbines for the Net metering market is a low cost way to develop capabilities.
- Within 4-6 years it may be possible to develop Utility grade machines. In the mid 90's European manufacturers such as NEG Micon established manufacturing plants in the U.S. NEG Micon performed a pilot project in the late 90's in Hutchinson, MN. Currently, tower manufacturing is being performed in North Dakota and blade manufacturing in Minnesota.
- Due to the exchange rate, a strong dollar has restricted US manufacturing as well as low activity in the Industry.
- Recession and greater activity in the Wind Industry increase the likelihood of increased manufacturing in the US.

We Need:

- SD industries with an interest in generating manufacturing resources to attract major manufacturers to SD.

6000 MW large Scale Projects 500 MW of Small Scale Projects



- Plans exist for at least 4000 MW in South Dakota. It is almost inevitable that these will happen.
- The major obstacle is the lack of transmission.
- To develop strong political support and public interest. It is important to see SD wind energy comprehensive, not only as a low cost energy exporter.
- It is important to develop a short and long term integrated resource and energy plan, which ensures maximum benefit to the state.

Increasing the Value of South Dakotas' wind resource.

WANT:

- High % of Project Management, Construction and O&M carried out by South Dakota companies High Percentage of Projects owned by South Dakota Business and People.

NEED:

- To have a 4-5 year SD strategy to develop expertise in all areas of the wind business.
- Project Financing and low interest loans
- Strong cooperation to minimize overlap and redundant expenditures.

The Future

- The future looks optimistic about the future. I have never seen the industry as vibrant and the market so attractive.
- After years of low development and poor energy prices, most US wind companies have become under resourced.
- With proper strategic planning, SD will be able to become a US leader in the industry.
- EMS and DES can play a large role in making this happen for the better of SD.



Energy Maintenance Service, Inc.

Questions???

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