

# Developing Locally Owned Wind Farms

EPES Seminar Presentation

August 25, 2009



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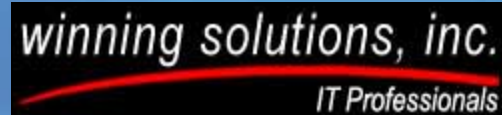
# Wind Energy Background

- Founded company in 2005
- Started developing an unsolicited wind farm project from scratch for the City of Ames and ISU.
- That lead to work for JW Prairie Wind Power on the IAMWind project
- Current focus is on helping farmers develop their own wind farms



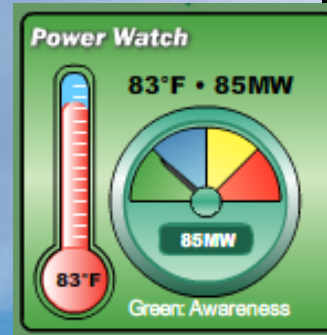
# Occupation

- Currently employed by Winning Solutions, Inc. of Ames, Iowa.



- [www.winningsolutionsinc.com](http://www.winningsolutionsinc.com)

- Custom software and web development company
- Energy related work



- Developed Power Watch System for Ames Electric Services
- Web development work for Iowa Energy Center

**DDC Online**



Why power the world  
with wind energy?



Energvation

- By 2031, just 25 years from now China's oil consumption will be larger than the whole world's current production, based on the current growth rate.
- China currently mines a  $\frac{1}{4}$  of the world's coal.
- It was once said that the U.S. consumes the most resources, this is no longer true.
- China consumes more steel, meat, coal, grain, the U.S. still consumes more oil.

Source: Lester Brown of the Earth Policy Institute



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- We now put 7 billion tons of carbon dioxide into the atmosphere, 50 years ago it was less than 2.3 billion, 50 years from now ?.
- From the year 1000 to the 1800's 280 out every million molecules inhaled was carbon dioxide.
- Today 380 out of million molecules are carbon dioxide
- Carbon dioxide is increasing by 2 parts per million per year

Source: Princeton Professor Robert Socolow's presentation during World Bank's Energy week March 9, 2006.



Energvation

“The most exciting single development today is what is happening with wind energy...”

Lester Brown of the Earth Policy Institute



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# Distributed Wind Projects

- Reduced transmission losses<sup>1</sup>
- Transmission upgrades deferred or eliminated<sup>1</sup>
- Create five to ten times more economic activity and 3.4 times more local jobs<sup>2</sup>

Sources:

1 [http://www.puc.state.mn.us/portal/groups/public/documents/pdf\\_files/000436.pdf](http://www.puc.state.mn.us/portal/groups/public/documents/pdf_files/000436.pdf)

2 <http://www.iowapolicyproject.org/2005docs/050405-wind.pdf>



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# Current Projects

- 25MW project here in Story County, Iowa
- 27MW project
- 10MW project in Sac County Iowa
  
- The first two projects have the Iowa 476c production tax credit and all three are eligible for USDA grant programs that support small wind projects



# Precedent Setting Projects

- Hardin Hilltop Wind Farm
  - 14.7MW (Seven Suzlon 2.1MW units)
- Crosswinds
  - 21MW (Ten Suzlon 2.1MW units)

## Sources

Hardin: [www.kcc.state.ks.us/energy/...wind/cw\\_thomas\\_wind\\_103106.ppt](http://www.kcc.state.ks.us/energy/...wind/cw_thomas_wind_103106.ppt)

Crosswinds <http://www.spencerdailyreporter.com/story/1217725.html>



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# From Start to Operating

- Qualify wind resource
- Identify transmission, interconnection study
- Assess landowner/farmer/investors commitment
- Environmental Review
- Work toward PPA and turbine procurement
- Manage grant application process
- Layout wind farm, permitting
- Documentation for financing
- Construction contracting
- Operations and Maintenance



# Continued

- Vendor selection
  - Transmission, collection and sub station engineering
  - Meteorological tower installation and data analysis
  - Accounting, Tax and Financial analysis
  - Legal – PPA – Interconnection – Turbine Supply
  - Civil engineering
  - Maintenance and Operations



# Key Challenges

- Land acquisition
  - Expanding project past core group
- Turbine supply
  - Reasonable warranty terms
- Qualifying vendors
- Competing with the customer
- Balancing benefits of local ownership with potential higher costs to the utility's customers



# Small But Important Challenges

- Met tower placement
- Turbine placement
- Serial development vs. parallel development
- Adversity to risk
- The ticking clock



# What is Enervation doing?

- Working with farmers and utilities to bring them together
- Providing management, expertise and organization
- Working to keep the related economic benefits local



# SECONDWIND



Two state of the art 60M tall tilt up meteorological towers being unloaded North of Nevada Iowa. One is operational North of Story City, Iowa, it was sold to Clark Thompson's Story Wind Energy, LLC single turbine project. The other will be installed this fall.



# Working to power the Midwest



## Enervation

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