

# Wind for Schools



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# School Wind Projects: Most Common Models

- Purchase green tags
- Buy a portion of a utility-scale wind project's output
- Install small wind or wind/solar system primarily for educational purposes
- Small turbine on the school grounds (behind the meter) offsets electricity costs
- Larger turbine powers a school, with excess electricity sold to local utility
- School lands leased to wind farm developers
- Developers make payments to school funds in lieu of taxes



Spirit Lake, IA



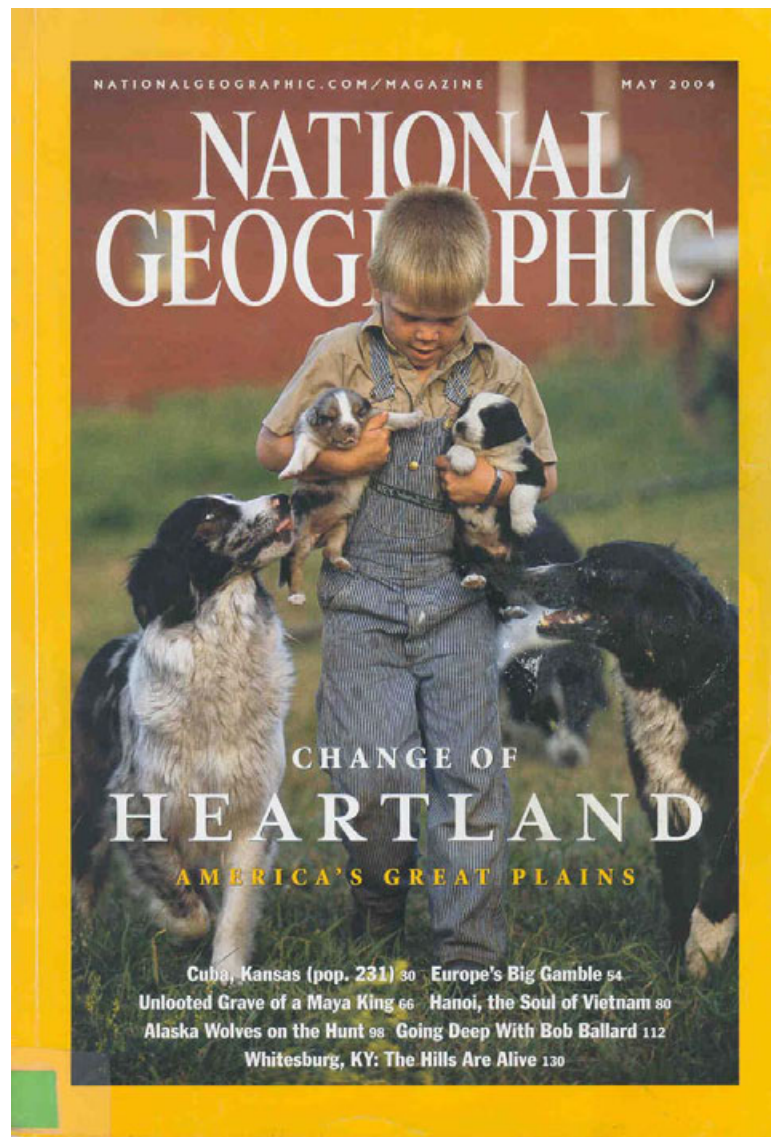
Mount Holly, VT



U. Of Colorado



# The Depopulation of the Great Plains



***“When you lose the school,” said a retired teacher, “you’ve lost the town.”***



***Long-term economic development in rural areas is tightly linked to schools***



# DOE/NREL Wind for Schools Project

## ***Objectives:***

***To engage rural America in the concept that wind offers an alternative energy and economic future for rural America***

***To engage rural school teachers and students in energy education, specifically wind***

***To equip college juniors and seniors in wind energy applications and education to provide the growing U.S. wind industry with interested and equipped engineers***

Milford High School, Utah



Iowa Lakes Community College

# WFS Pilot: Walsenburg, Colorado

John Mall High School

NREL's Wind for Schools pilot project partners:

- National Renewable Energy Laboratory
- Tom Potter
- Southwest Windpower
- Community Energy
- Western Resource Advocates
- The school and community

San Isabel Electric Association provided trenching, cabling, manpower

Community Energy donated equipment based on sales of Colorado Rural Green Tags to large businesses on the Front Range (urban-rural partnership)

Deals for more than one large local wind farm in progress.



# Wind for Schools Project approach

## Participants:

### **Wind Powering America/NREL/DOE:**

provide oversight, development assistance, and training program;

### **Wind for Schools state facilitator:**

works to identify candidate schools and develop local team

### **Wind Applications Center (WAC):**

at state-based college or university to provide analysis and technical assistance

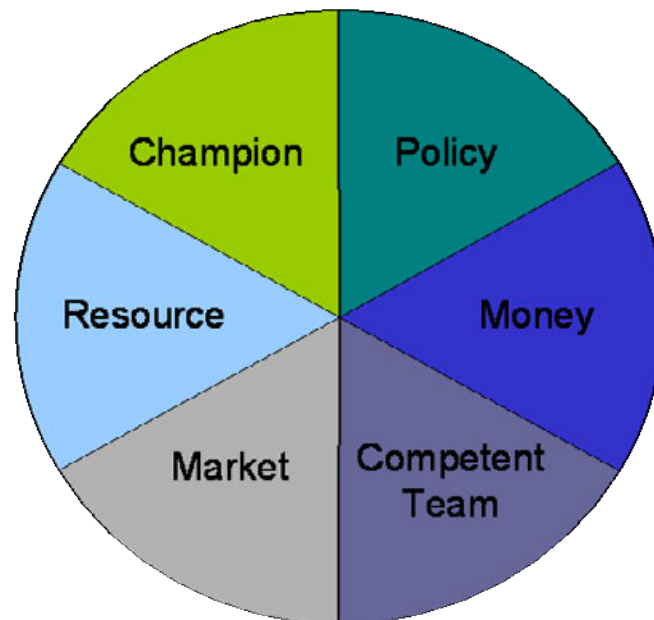
### **School teacher and administration:**

own the machine, implement curriculum

### **Green tag marketer/green tag purchaser**

**Turbine supplier:** low-cost equipment for educational institutions

**Local utility/co-op:** Active participant, in-kind services



Grants  
Electrons  
Green Tags

## Project status:

Pilot underway in Colorado

In FY07/08, expand to 5 additional states

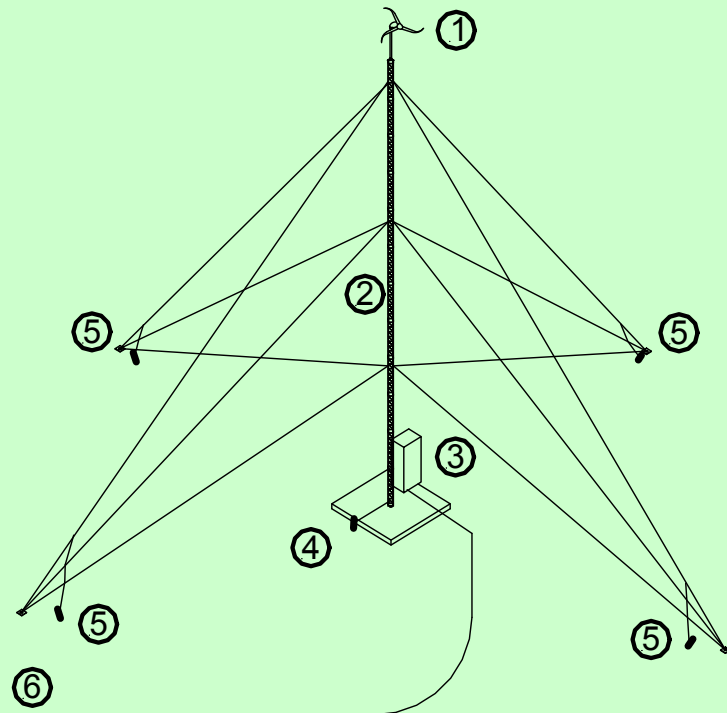
FY08 and forward expand 5 states per year

# Wind for Schools: System



## *Components of Standard System*

- 1) SkyStream 3.7, 1.8-kW wind turbine
- 2) 70-ft guyed tower
- 3) Tower/turbine base fused disconnect and junction box
- 4) Turbine foundation including tower base electrical grounding
- 5) Tower guy wire foundations and electrical grounding
- 6) School electrical connection
- 7) School disconnect and junction box
- 8) School's electrical power meter or interconnection point



# Wind for Schools: State Facilitators

- In-state person to engage with the variety of stakeholders needed for successful school projects
- Work with community, school, science teachers, local co-op/utility, Wind Application Center, NREL to develop 8 to 10 candidate schools and sites per year
- Help assemble financial package that will work, including in-state resources and green tags
- Install 3 to 5 systems per year at rural schools
- Assist in the Development of the Wind Applications Center

Colorado: **Tom Potter**, All American Energy

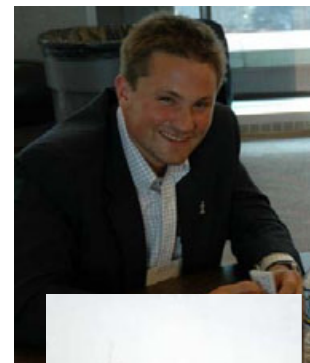
Idaho: **Brian Jackson**, Renaissance Engineering

Kansas: **Dan Nagengast**, Kansas Rural Center

Montana: **Mike Costanti**, Matney-Frantz Engineering

Nebraska: **Dan McGuire**, American Corn Growers Foundation

South Dakota: **Steve Wegman**, SD Public Utilities Commission





# Wind for Schools: Wind Application Centers

Establish a training and implementation center to educate engineers in wind applications and analysis

- Modeled after DOE Industrial Application Center
- Develop a long-term program on wind energy applications; NREL/DOE will help for first 3 years
- Provide data analysis, technical assistance, implementation support for Wind for Schools Program
- Become the go-to place for initial technical assistance for school and community wind in the state

Colorado State University

Boise State University

Kansas State University

Montana State University

University of Nebraska

South Dakota State University



# Wind for Schools Project

## Sample financial arrangement:

- \$1,500 from the school
- \$2,000 from selling lifetime green tags through a broker
- \$2,500 from a buy-down fund or other grant source
- \$4,000 provided in-kind by the community and utility

## Education:

- Work with partners (e.g. NEED, KidWind) to develop K-12 curricula
- Development of college curriculum with WACs

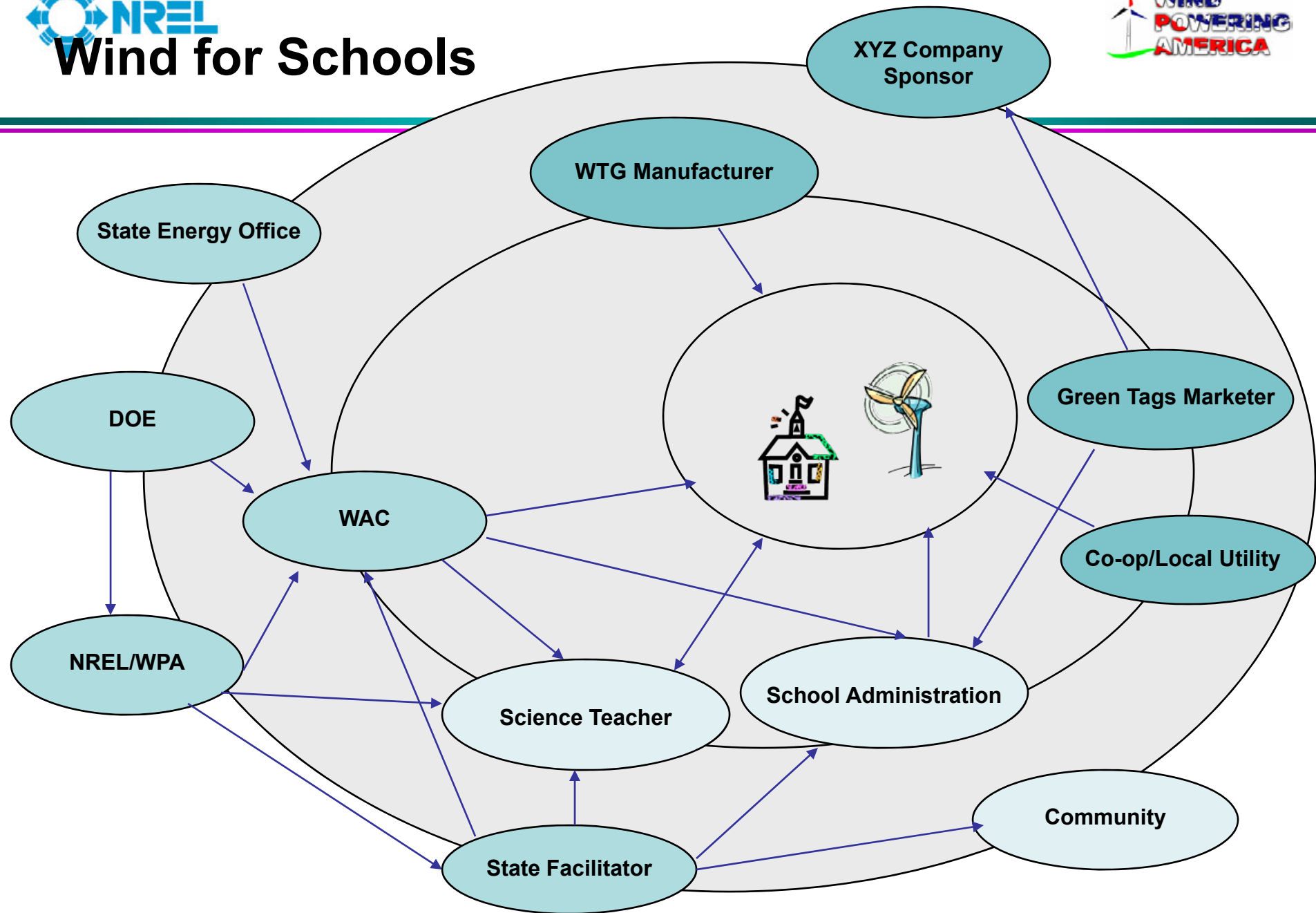
San Isabel Electric  
Association helping  
raise turbine in  
Walsenburg



High School  
Students, Wichita

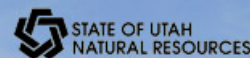
Cape Cod Regional  
Technical High School





# WIND POWER CAN FUND SCHOOLS

*winds of opportunity for utah*



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*Carpe Ventem*

[www.windpoweringamerica.gov](http://www.windpoweringamerica.gov)