Wind for Schools

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WINDPOWER 2007 – Los Angeles

June 5, 2007

NREL/PR-500-41672

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

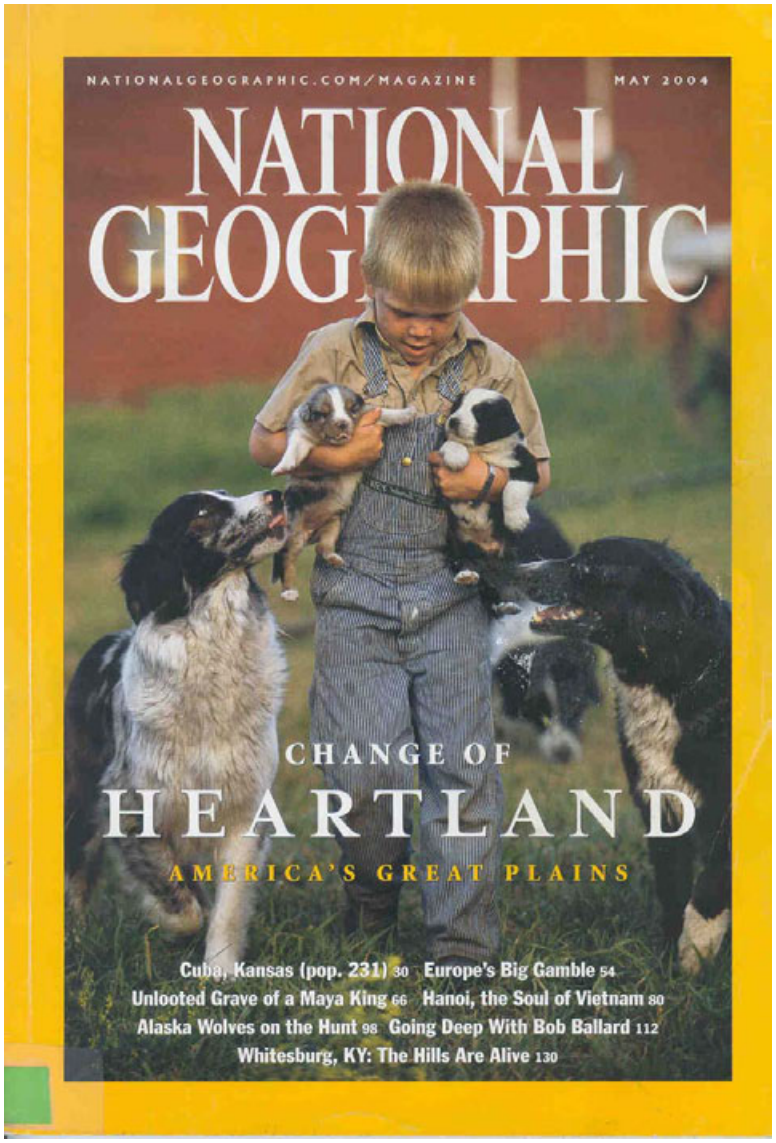
Penn

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

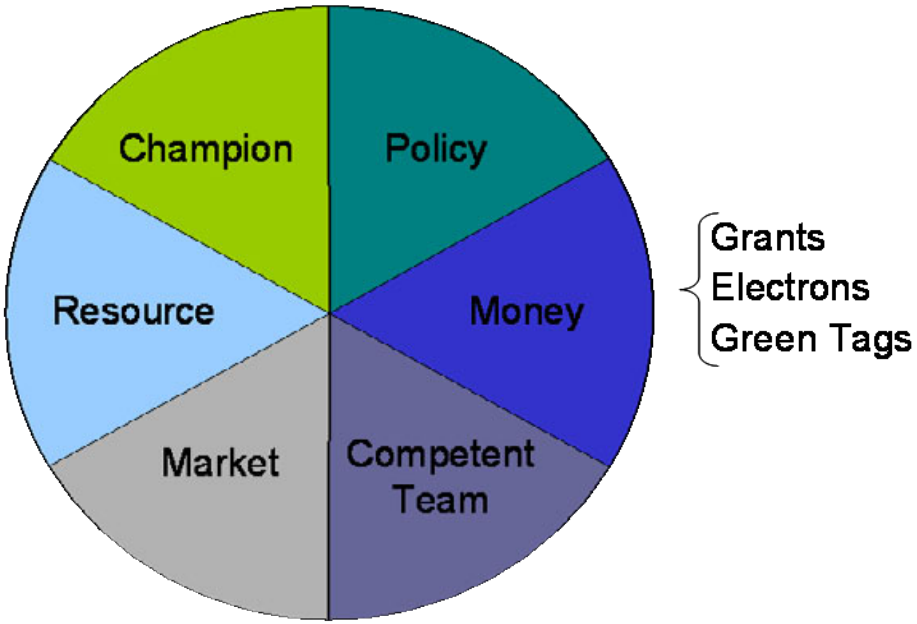
Wind Applications Center (WAC): at state-based college or university to provide analysis and technical assistance

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



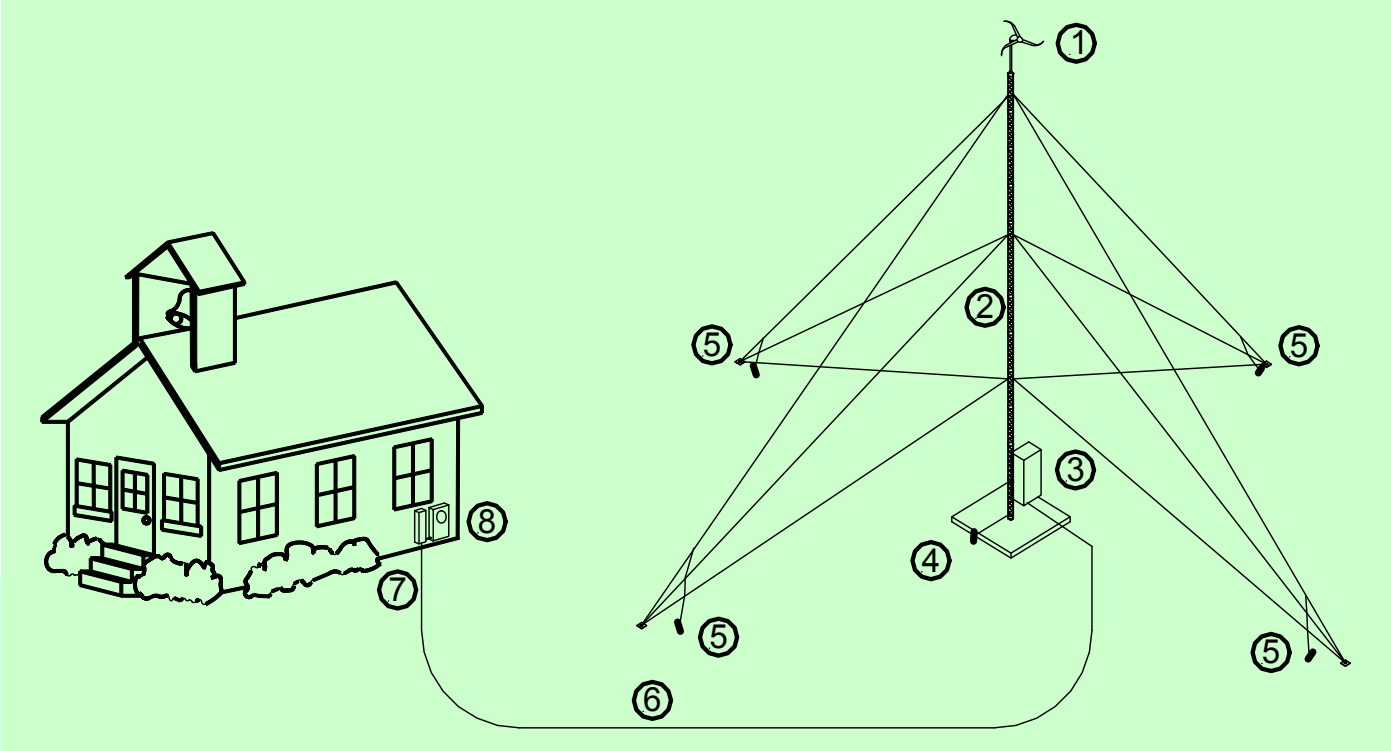
Project status:

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

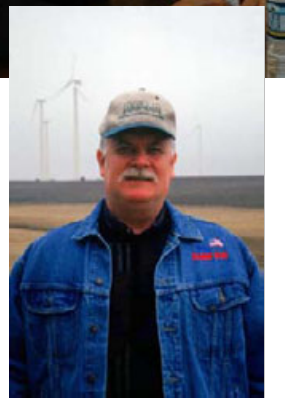
Idaho: **Brian Jackson**, Renaissance Engineering

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:

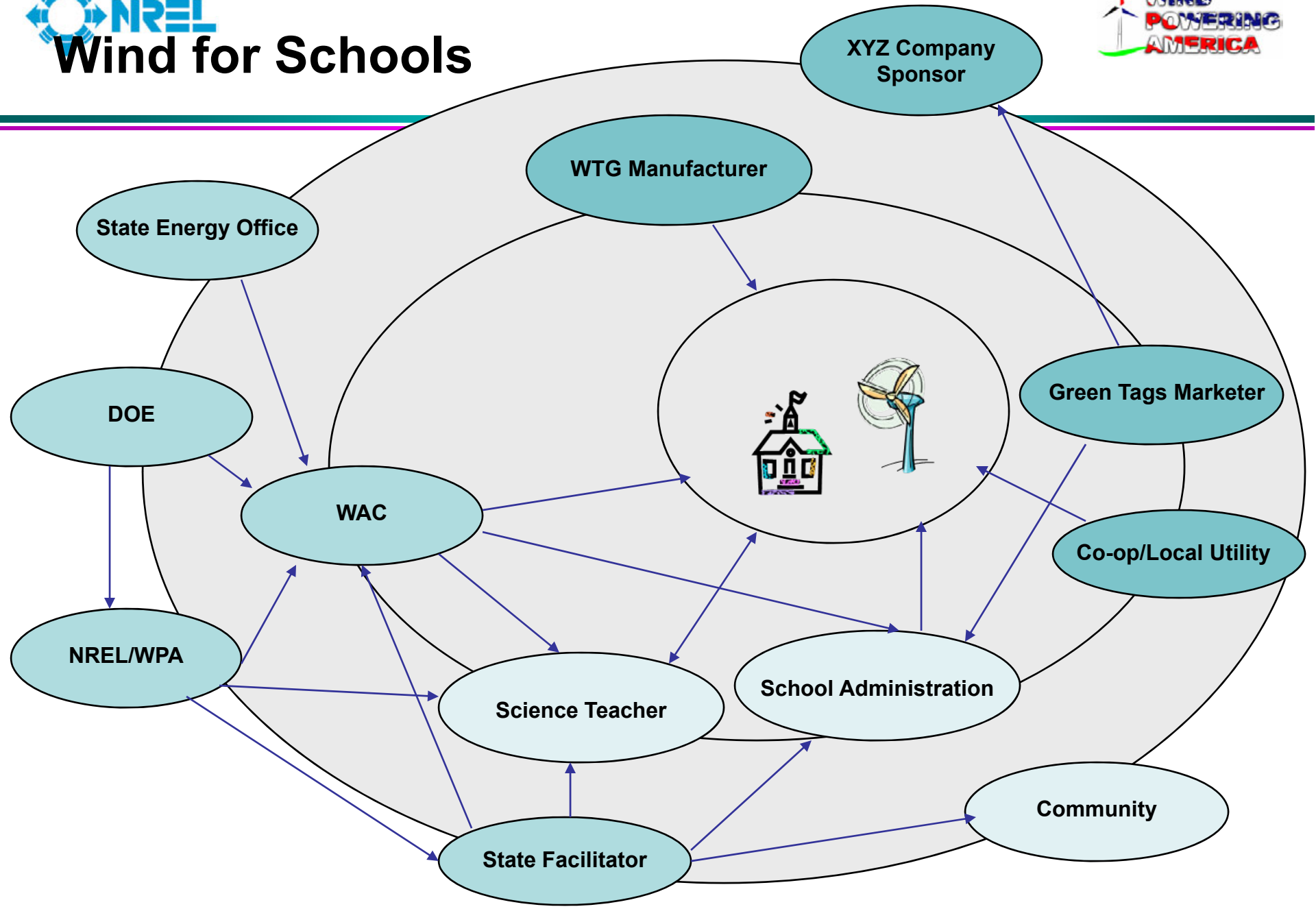
- Work with partners (e.g. NEED, KidWind) to develop K-12 curricula
- Development of college curriculum with WACs

San Isabel Electric Association helping raise turbine in Walsenburg

High School Students, Wichita

Cape Cod Regional Technical High School

Wind for Schools



Carpe Ventem

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