Wind for Schools Project Proposal (2010-2011)

1. Name/Location of School/USD#/contact information/website:

Halstead High School
521 W. 6th Street
Halstead KS 67056

USD 440 District Office
Cory Gibson, Superintendent
(316) 835-2641
www.usd440.com

2. Person submitting proposal:
Duane Knoll, Science Teacher
dknoll@usd440.com
(316) 835-2682

3. Description of school property

The proposed location is approximately 220' east of the high school and 240' west of the middle school. The closest trees are approximately 750' to the north and over 1000' to the south.

View West:

View East

View South

View North

The proposed generator is a Skystream 3.7 on a 45 foot monopole with a 6' by 6' pad. Consideration for neighbors and school children has been given in the site selection. Placing the generator on a monopole reduces profile and increases safety. It can be noted that the location is among a set of 30' flag poles near the football field. The location near the flag poles and light poles at the football field will also camouflage the generator. The closest building wiring is in the ticket booth located next to the high school. Conversations with the electrician have indicated that wiring should not be a problem as the addition is only 4 years old.

The City of Halstead currently has an ordinance that prohibits the installation of any wind generation devices in the city limits. We have begun conversations with the city and are moving forward to change the ordinance. The City of Halstead has sent us a timeline and outline to create the necessary ordinance changes. Once begun, it can be accomplished in two to three months. Mr. Gibson is leading the contact with the city administration.

4. Who will support the project?

Currently project support has been given by the following people and entities:
USD 440 Board of Education*
Cory Gibson, Superintendent, USD 440**
Dave Younger, Principal, Halstead High School**
Mike Branson, USD 440 Head of Maintenance
The Halstead Bank**
Bob McDowell, Electrician

Westar Energy

Contacts are continuing to be made and the list will grow over the school year.
*Letter of Support attached
**Letter of Support promised and will be forwarded as soon as received.

5. How do you plan to incorporate the turbine into your teaching?

The turbine will be incorporated into the curriculum of the Science, Math, and Industrial Arts departments.

The Science Department will incorporate the turbine into both Environmental Science II and Physics curricula. In Environmental Science II, the data collected from the wind generator will be incorporated into the current 15 day unit on wind generation. The unit was formulated by Duane Knoll during the summer of 2009 as part of his internship at Argonne National Lab as part of the Department of Energy (DOE) Academy of Creating Teacher Scientists (ACTS), and Teachers as Research Assistants (TARA) program. The unit was implemented during the spring of 2010. Details of the unit are in the attached file "Education Module 2009". The file includes Kansas State Science Standards, goals, timeline, materials and evidence collected to demonstrate impact on students. The module incorporates KidWind AL Turbine kits and Inspeed Windware data logging kit. Data collected will be used in Physics class during the unit on electricity and magnetism.

The Math Department plans to use the data as part of a tables and graphing unit in Algebra I. In Informal Mathematics class data can be used to have students do cost/benefit analysis of installing alternative energy devices in a residential setting. The wind turbine will be utilized by the Industrial Arts Department in house construction to make students aware of both the installation of a residential unit and the career fields in alternative energies.