

Summary of CRN Report 2000-08,  
Wind Power Assessment

CRN members will receive a comprehensive report of the entire project. Publication is scheduled for June, '01.



AWS Scientific, Inc. recently conducted a survey on behalf of the National Rural Electric Cooperative Association's (NRECA) Cooperative Research Network (CRN) for the purpose of ascertaining the lessons learned by cooperatives experienced in the selection and application of wind systems. Surveys were also sent to the six largest Public and Investor-Owned Utilities (IOUs) in terms of installed wind capacity in order to capture lessons learned by the industry at large. Surveys were sent to a total of 185 electric cooperatives from those States whose wind energy potential in winds of Class 4 (7.5 m/s @ 50 m above ground level) or higher can supply at least 0.3% of the 1990 electricity consumption of the lower 48 States. Surveys were also sent to 4 cooperatives in the State of Alaska.

A total of 89 electric cooperatives responded to the survey along with two Public Utilities and two IOUs.

### **Survey Results**

- The vast majority of wind turbines connected to the electric cooperative systems responding to the survey are rated at 66 kW or below.
- 31 % of the electric cooperatives responding to the survey offer their members a green power option.
- 49 % of electric cooperatives responding to the survey are interested in future wind development in their service area.
- The leading reason why cooperatives are interested in wind energy is fuel diversity.
- The most common perceived risks of future wind development are higher investment costs relative to other resource options and the intermittent nature of the wind resource.
- The primary technical challenges were identified as the lack of scheduling capability, available transmission capacity, and reducing cost.

***Note: Projecting the data beyond the sample is statistically inappropriate. In other words, the data should not be used to draw any conclusions concerning other electric cooperatives in either the survey States, or the electric cooperative community at large.***

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## LESSONS LEARNED THAT HAVE HELPED OR HINDERED SUCCESSFUL APPLICATIONS OF WIND ENERGY

### Helped

- Purchase power agreement based on actual production provides an incentive to bring the project in on time and on budget
- Getting all stakeholders to **actively** participate in the planning process
- Bringing in appropriate experts early to develop the project concept and help move staff up the learning curve
- Start early, and allow enough time to thoroughly investigate all aspects of the project to maximize overall project quality
- Making the developer responsible for site selection provides an incentive to locate the project in a good wind location in order to maximize revenues
- Securing candidate sites that meet predetermined evaluation criteria prior to issuing a RFP reduces uncertainty in the evaluation process
- Doing environmental homework early
- Understanding the wind resource

### Hindered

- Lack of experience
- Political preferences as to project location can conflict with the best location based on the wind resource
- Permitting process can be lengthy
- Lack of product choice in the small wind turbine market
- Historically high maintenance and lower production efficiency of small turbines
- Size of investment compared to energy production
- Visual impact

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## **LESSONS LEARNED THAT HAVE HELPED OR HINDERED SUCCESSFUL APPLICATIONS OF WIND ENERGY (CON'T)**

### **Helped**

- Getting ROW, land agents, electrical contractors, etc. involved early
- Taking advantage of conferences that provide access to wind turbine manufacturers and products
- Visiting existing installations to talk with O&M personnel
- Exploring multiple options, seek multiple opinions
- Clearly define the acceptance criteria in supply contract and take the time to do it right
- Ensure power curve verification procedure is fully defined and agreed upon prior to the start of testing
- Ensure that the turbine solicitation includes power quality and power factor specifications
- Do sufficient homework to understand utility O&M responsibilities
- Remote locations provide minimal public acceptance issues
- Public acceptance experience has been generally good and supportive
- Local community benefits

### **Hindered**