




Montana's Energy Future Symposium



Montana State University, Bozeman MT
October 18-19, 2005

Glacier Electric

- n Serves North Central Montana, including the Blackfeet Indian Reservation**
- n 7200 Meters, 4500 member/owners**
- n Last year GEC purchased about 170 million kwh, 22 average MW, peak 33 MW**
- n 1625 miles of distribution line, 212 miles of transmission.**
- n Glacier Electric an average sized cooperative.**

Montana Electric Cooperative Association (MECA)

- n Represents 25 Cooperatives in the State of Montana**
- n NOT all Cooperatives are the same.**

Topics for discussion:

- n Types of distributed generation technologies that might be appropriate for Montana**
- n Considerations for integrating distributed generation into transmission and distribution systems**
- n Concerns of property owners hosting distributed generation**
- n Institutional changes needed to facilitate more distributed generation**

Wind Generators on Glacier Electric's System

- n City of Browning Sewer Lagoon – DOE Grant (4)10kw – Net Metered**
- n Blackfeet Community College – (1) 10kw – Net Metered**
- n Doug Nelson – Northwest SEEDS Grant – (1) 10kw – Net Metered**
- n Blackfeet Tribe – (1) 65kw – Direct Purchase – Not operational**

Considerations for Interconnecting with the Utility

n **“Contact the Utility before
Purchasing a Wind Generator”**

Application for operation of Customer-Owned Generation

- n Owner Information**
- n Project Engineer**
- n Electrical Contractor**
- n Type of Generator**
- n Estimated Load, Generator Rating, and Mode of Operation**
- n Inverter Data**
- n Power Circuit Breaker**

Capital Costs:

- n Installation**
- n Interconnection**
- n Transmission or distribution upgrades**
- n Engineering**
- n Consultants**
- n Legal and administrative expenses**
- n Financing / Cost of Capital**

Operating Costs:

- n Labor, expenses, and supervision for operating and maintenance**
- n Insurance**
- n Land Lease Payments**
- n Property Tax**
- n Administrative and General Overheads**

NOT ALL PROJECTS WILL COST THE SAME

- n Location of Project**
- n Operational Life**
- n Cost of Capital**
- n Wind Speeds –**
 - n Class 4 13mph average 28% Capacity**
 - Class 6 15mph average 38% Capacity**
- n Federal and State Incentives**
- n Power Delivery Points**
- n Maintenance Costs**

Concerns of Property Owners Hosting Distributed Generation

- n “One Size Does Not Fit All” – Mandated Policies**
- n Safety of Cooperative Employees and General Public**
- n Proper Installation – IEEE Standards**
- n Protection of Customer and Cooperative Equipment**

Concerns of Property Owners Hosting Distributed Generation

- n Concern of potential of interconnected generator “islanding” – Concern for LOW Density Areas**
- n Distribution Systems Designed with Single Power Delivery Point**
- n Added Operational Cost – Visual Open of Generating Source**
- n Cost of using the System as a Battery and or a Backup. Cost of Service Issues.**

Institutional Changes Needed to Facilitate More Distributed Generation

n Formulation of Policy at the Local Level

- n Net Metering Policy**
- n Interconnection Agreements**
- n Renewable Energy Procurement Policy**
- n Large Generation Interconnection Policy**

**The Montana Cooperatives
Are Here To Help!!!**