North American Rural Futures Institute

Montana State University-Northern

Interconnection of
Small Customer Generation Facilities:

A Study of Montana Rural Electric Cooperatives

NARFI Funded Research Project

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Executive Summary

There is a widely held perception that rural electric cooperatives are generally not interested in pursuing renewable energy. To have an accurate picture of the variables involved in developing alternative energy in Montana, we need to take a closer look at the Montana rural electric cooperatives and their positions regarding green power. This research will examine the twenty-six co-ops individually, recognizing their uniqueness in the electricity industry, and the issues and concerns that have arisen for them surrounding renewables. The research is comprised of four phases:

Phase One – acquiring demographic data for all Montana cooperatives and the distributed generation interconnection policies they have adopted, determining if and how these policies differ from each other.

Phase Two – reviewing the application and approval processes for alternative energy projects co-op by co-op, to find similarities and to determine differences among all 26 electric co-ops and then between co-ops and investor owned utilities.

Phase Three – gathering existing research that examines cooperatives in the United States particularly studying the impacts, benefits and lessons learned for those utilizing wind energy.

Phase Four – analyzing the information obtained in phases 1-3, to determine how wind energy may or may not fit into Montana's rural electric cooperative market.

The data contained in Phase One of this study was collected through direct contact with each of the twenty-six Montana co-ops by telephone and email. Information was also obtained directly and via email from the Montana Electric Cooperative Association, the National Rural Electric Cooperative Association and their research branch, the Cooperative Research Network, NorthWestern Energy, Montana Dakota Utilities, Bonneville Power Authority, and the Western Area Power Administration.

Table 1 details Montana electric cooperative demographic information. **Table 2** focuses on co-op policies for distributed generation.

Most cooperatives appear to have similar interconnection policies in place, adopting with some variation the model policy developed by the Montana Electric Cooperative Association. Several stand out, however, in their policies for maximum nameplate capacity allowed to interconnect, and the ability of customers to bank excess kWh beyond the monthly billing period.

Fall River Electric, Marias River Electric, and Northern Lights, Inc. allow the interconnection of member systems greater than 10kW. Lincoln Electric and Northern Lights, Inc. will allow customer generation in excess of monthly usage to be banked for later use in the current twelve-month period. Lincoln Electric

determined that allowing customers to bank excess generation did not pose any significant financial risk to other members. By providing the opportunity for members with renewable generation to interconnect to the grid, there isn't any reason not to let the member bank the excess kWhs.

Tables 1 and 2 indicate that electric cooperatives in Montana have policies in place for members who wish to acquire renewable energy, and are willing to accommodate members who chose to do so. **Phase Two** research will look more closely at their application and approval processes to see if and how they differ between co-ops, and then between co-ops and investor owned utilities.

In extensive *conversations* with leaders from individual cooperatives, several themes emerged:

- Many cooperative members do not have a good understanding of the fundamental differences between publicly owned utilities and electric cooperatives.
- One size does not fit all in the alternative energy market.
- Electric co-ops in Montana, by nature of their non-profit structure, must be concerned that members who wish to utilize renewable energy will not impose unnecessary costs and risks to those who choose not to participate.
- The all-requirements contracts co-ops have with power suppliers may limit the extent to which they can interconnect with non-firm generated energy, and may constrain the number of projects the cooperative can support.
- Considering the existing transmission grid and the inability to transmit a substantial amount of power outside of Montana, the ability for customers to utilize wind power for profit is at this time misleading.
- The development of large wind farms in Montana would most likely be the most cost-effective and beneficial for consumers.

Montana Electric Cooperatives' Association

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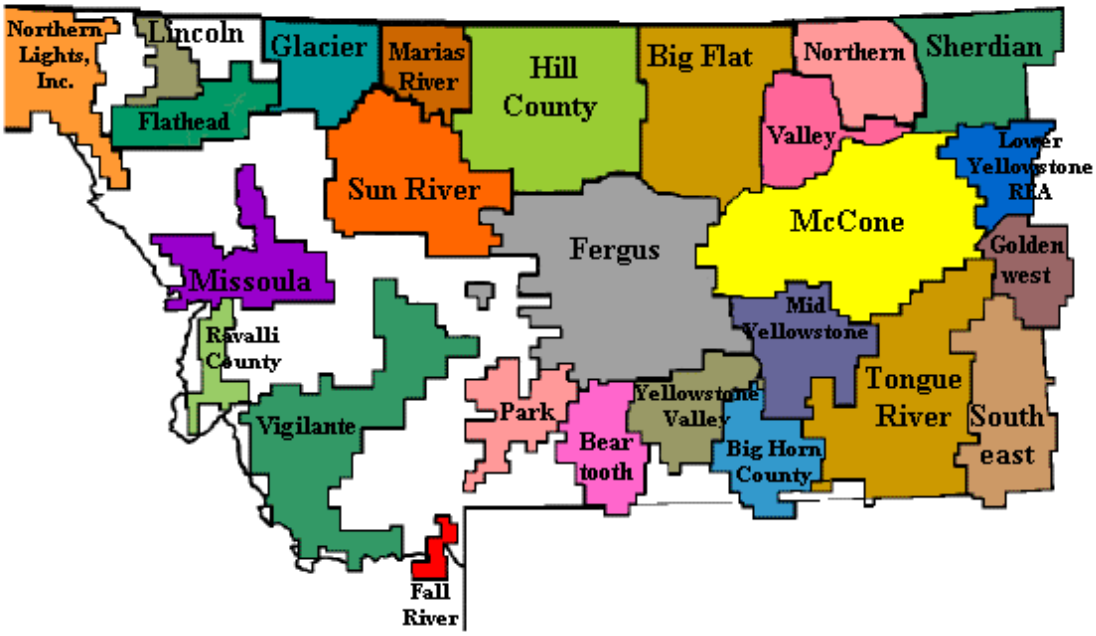
MONTANA RURAL ELECTRIC COOPERATIVES' SERVICE AREAS



Central Montana Electric Power Cooperative

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URL for this page on the Internet: http://www.mtco-ops.com/montana_co-ops.htm

TABLE 1 - MONTANA RURAL ELECTRIC COOPERATIVE DEMOGRAPHIC DATA

Cooperative	Location	Total Members	Total Meters	Miles of Line	Members/ Mile	Meters/ Mile	Date Energized	Incorp.	Power Supplier*
Beartooth Electric	Red Lodge	3,712	5,409	1,574	2.36	3.44	1941	1948	Central MT
Big Flat Electric	Malta	1,016	1,692	1,481	0.67	1.14	1947	1941	Central MT
Big Horn County Electric	Hardin	2,331	3,710	1,244	1.87	2.98	1941	1940	BPA, WAPA
Fall River Electric**	Ashton, ID	973	1,757	172	5.65	10.2	1941	1938	BPA,PNGC
Fergus Electric	Lewistown	3,454	5,619	4,005	0.86	1.4	1939	1938	Central MT
Flathead Electric	Kalispell/Libby	42,496	54,755	3,607	11.8	15.2	1938	1937	BPA,Pacific,Basin
Glacier Electric	CutBank/Browning	4,663	7,054	1,878	2.48	3.77	1946	1945	BPA
Goldenwest Electric	Wibaux	950	1,927	1,622	0.59	1.18	1950	1946	UMG&T
Hill County Electric	Havre	2,166	3,368	3,397	0.64	1	1947	1945	Central MT
Lincoln Electric	Eureka	3,197	4,205	783	4.08	5.37	1948	1948	BPA
Lower Yellowstone REA	Sidney	1,974	3,756	1,795	1.1	2.09	1937	1937	UMG&T
Marias River	Shelby	2,589	3,732	1,216	2.1	3	1946	1945	Central MT
McCone	Circle	2,454	4,802	3,795	0.65	1.26	1947	1945	UMG&T,Central MT
Mid-Yellowstone	Hysham	811	1,874	1,022	0.79	1.83	1940	1939	Central MT
Missoula Electric	Missoula	9,570	13,337	1,869	5.12	7.14	1937	1936	BPA
Northern Electric	Opheim	798	1,242	1,227	1.5	1	1947	1941	Central MT
Northern Lights, Inc.**	Sagle, ID	2,825	3,263	596	4.7	5.47	1936	1935	BPA, PNGC
Park Electric	Livingston	3,573	4,658	1,370	2.57	3.35	1939	1939	Central MT
Ravalli County Electric	Corvallis	6,982	9,184	1,124	6.22	8.17	1938	1936	BPA
Sheridan Electric	Medicine Lake	1,864	3,224	2,584	0.72	1.25	1948	1946	UMG&T
Southeast Electric	Ekalaka	950	1,930	1,625	0.58	1.18	1950	1946	UMG&T
Sun River Electric	Fairfield	2,850	4,999	2,751	1.04	1.82	1938	1937	Central MT
Tongue River Electric	Ashland	2,543	4,998	2,709	0.93	1.8	1949	1946	Central MT
Valley Electric	Glasgow	1,208	1,792	965	1.2	1.8	1947	1941	Central MT
Vigilante Electric	Dillon	4,441	8,069	2,629	1.69	3.07	1938	1936	BPA
Yellowstone Valley Electric	Huntley	10,537	13,818	2,284	4.61	6.04	1937	1937	Central MT
		120,927	174,174	49,323.89	2.56	3.7			

***Reflects members, meters, and lines in Montana only*

**BPA - Bonneville Power Authority*
WAPA - Western Area Power Administration
PNGC - Pacific Northwest Generating Corporation
UMG&T - Upper Missour Generation & Transmission

TABLE 2 - NET METERING AND DISTRIBUTED GENERATION POLICIES
A COMPARISON OF MONTANA RURAL ELECTRIC COOPERATIVES

	Policy	Net Meter	QF* Program	Nameplate Capacity	True-up Monthly	kWh Banked**	Output Purchased***	Output Wheeled
Beartooth Electric	X	X	X	10 kW	X		X	X
Big Flat Electric	X	X	X	10 kW	X		X	X
Big Horn County Electric	X	X	X	10 kW	X		X	X
Fall River Electric	X	X	X	125 kW	X		X	X
Fergus Electric	X	X	X	10 kW	X		X	X
Flathead Electric	X	X	X	10 kW	X		X	X
Glacier Electric	X	X	X	10 kW	X		X	X
Goldenwest Electric	*has not adopted policy*							
Hill County Electric	X	X	X	10 kW	X		X	X
Lincoln Electric	X	X	X	10 kW	?	X	X	X
Lower Yellowstone REA	*information pending*							
Marias River Electric	X	X	X	15 kW	X		X	X
McCone Electric	X	X	X	10 kW	X		X	X
Mid-Yellowstone	*policy under review*							
Missoula Electric	X	X	X	10 kW	X		X	X
Northern Electric	X	X	X	10 kW	X		X	X
Northern Lights, Inc.	X	X	X	25 kW	?	X	X	
Park Electric	X	X	X	10 kW	X		X	X
Ravalli County Electric	X	X	X	10 kW	X		X	X
Sheridan Electric	X	*unk*	*unk*	*unk*	*unk*		*unk*	*unk*
Southeast Electric	X	X	X	10 kW	X		X	X
Sun River Electric	X	X	X	10 kW	X		X	X
Tongue River Electric	X	X	X	10 kW	X		X	X
Valley Electric	*refer to Northern Electric*							
Vigilante Electric	X	X		10 kW	X		X	*unk*
Yellowstone Valley Electric	*information pending*							

X - yes
Blank - no
unk - unknown

? Billing period is monthly with an annual true up

*Qualifying Facility
**Beyond Monthly Billing Period
***At Avoided Cost

GLOSSARY

Avoided Cost – if the co-op buys power from a renewable producer, it must buy it at the same rate that it pays to buy power from its traditional power sources.

Banked – any monthly kWh generation by a member producer in excess of the monthly kWh consumption shall be credited by the Cooperative on the member's future bills.

Date Energized – the date in which electricity initially began transmission over the Cooperative's lines.

Nameplate Capacity – refers to a turbine's maximum ability to generate electricity under ideal conditions.

Net Metering – the interconnection of customer-owned generation from a renewable source to the co-op's distribution system, in which meter rolls forwards when the customer consumes power from the grid and rolls backwards when the customer exports power to the grid.

Output Purchased – power that exceeds that which is consumed by the Member generator purchased by the Cooperative, usually at the Cooperative's avoided cost rate.

Output Wheeled – power that is transmitted, or 'wheeled' across the distribution and transmission systems of a Cooperative to another purchaser when that power is not purchased by the Cooperative to which the generator is interconnected.

QF Facility – a qualifying facility "QF" is generally defined as generation utilizing a renewable source or from cogeneration when energy that would otherwise be wasted is harnessed to generate electricity. QF is specifically defined by FERC Orders No. 70-70E, Order 499-499-A, Orders No. 575-575A and Order No. 593.

True-Up – the net or gross energy produced by the generator less the energy delivered by the Cooperative.