Montana Electric Cooperatives' Association

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Leonard Sivumaki
Secretary/Treasurer

David M. Wheelihan
Chief Executive Officer

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Ms. Sonya Nowakowski
Research Analyst
Legislative Services Division
PO Box 201706
Helena, MT 59620-1706

Dear Ms. Nowakowski:

During the January 14th ETIC meeting, a discussion was held on net metering and feed-tariffs, including mention of the effect these policies may have on electric utilities. In its context, the perspective was given that the question of whether investment in distributed generation is cost effective is the sole responsibility of the customer considering the investment. The rationale given for that perspective was that other entities – either government or the utility – are not affected by such investments. However, during subsequent informal discussions regarding the effect on the utility and utility ratepayers, it was suggested that Montana Electric Cooperatives' Association provide a simplified explanation of that impact to the committee. Following is an explanation:

Understanding Impacts of Net Metering & Feed-In Tariffs

Montana Electric Cooperatives' Association
(As requested by Chairperson Robyn Driscoll)

NET METERING –

Summary: The impact of net metering under the current state law is that it basically shifts the lion's share of distribution and transmission costs from the net-metered customer to other consumers and bypasses a portion of power supply costs that are still being incurred by the net metering customer, regardless of the net metering customer's excess power production.

To fully understand net metering impacts on utilities and their ratepayers, it's important to mention key aspects regarding electricity delivery. Electric utilities – whether cooperative or investor owned – collect revenue from their consumers to cover a range of costs. Generally, these costs fall into three, basic categories: Transmission, distribution and power supply. The bulk transmission system delivering electricity and keeping the right mix of generation to meet the loads costs generally less than 1 cent per kWh (kWh is kilowatt hour or the volume of electricity resulting from 1,000 watts for a full hour).

501 Bay Drive P.O. Box 1306 Great Falls, MT 59403
Phone: (406) 761-8333 • Fax: (406) 761-8339 • meca@mtco-ops.com

Distribution generally includes transforming the power from transmission down to a voltage to distribute, still in the thousands of volts. Power is distributed with the poles and wires that run up and down the roads and streets to a point near the home or business served. Distribution may include service costs to reduce the voltage to a useable voltage for the consumer. These "poles and wires" costs may range from just under 3 cents to over 6 cents per kWh depending on factors such as service per mile of line or the cost of poles and wires per service. The third factor is the power supply costs. In Montana, these costs can range from under 3 cents to over 5 cents per kWh. Adding the cost of transmission, distribution and supply together results in the total cost the consumer pays. In Montana, this cost ranges from around 5 cents to well over 10 cents per kWh.

How does net metering result in a shift of these costs to the utility and other ratepayers? Under net metering, the consumer installs renewable generation at a service, i.e., a home, to provide all or part of the electrical needs in the home. The service stays interconnected with the grid, allowing the customer to take power from the grid when the renewable generator is not generating or is inadequate to meet all of the customer's electricity needs. In addition, the interconnection allows the generator to flow electricity onto the grid when more electricity is generated than needed at the home. The "net" part of net metering is that the power flow back onto the grid is netted out against the amount taken from the grid. Thus, if the consumer's generator flowed exactly the same amount of power onto the grid as the consumer took off it during a given period, then the only amount still owing on the utility bill would be the base or power demand charges, if any. (The demand charge is typically limited to larger customers and is based on the customer's maximum kilowatt demand on the system. Residential customers are not typically directly charged demand costs.)

Although excess power production by the net metering generator allows the utility to avoid the purchase of some energy from its traditional power supplier, the kilowatt hours swapped back and forth are not revenue neutral. To the degree the fixed charge (the flat fee charged to ratepayers each month) does not recover the cost of transmission and distribution, those costs are ultimately borne by other consumers. In the case of a not-for-profit electric cooperative, these costs are shifted within the year to other consumers. An investor-owned utility may have these costs built into rates through a USB charge to the consumers. Or, the investor-owned utility may decide to wait until its next rate case to try to recover these costs, whereby a sufficient rate of return on the poles and wires is re-established. Either way, other consumers ultimately pay.

The amount of cost shift may be small if the net-metering generation output is minimal. However, the cost shift also could be substantial. Take, for example, the case of a 50kW generator unit, which is sized to match the loads of a small commercial customer. If a 50 kW generator produced power at an annual rate of 25 percent, total production would be 109,500 kWh (50,000 X 365 X 24 X .25 / 1000.) If this power production is netted out against the power supply portion of the utility bill and the distribution utility's poles and wires cost is 3 to 6 cents, the amount shifted to other customers from this one net metered generator would range from $3,285 to $6,570 per year. This does not include transmission costs. If the utility is allowed to charge for power demand, some of the cost shift would be reduced.

One way to try to mitigate the cost shift would be to triple or quadruple customers' base charges. However, this may not be a realistic or fair option.

[Another aspect that is not the focus of this paper but which is nonetheless a very real concern regarding the interconnection of customer generators to the utility is that of public and line worker safety and its impact on restoration of electricity service to others. This factor is another important consideration in reviewing public policy on generator interconnections.]

FEED-IN TARIFFS –

Summary: Feed-in tariffs calculate the dollar amount per kWh needed for a given generation technology to be cost effective, requiring a utility to pay that amount to the generator. These costs to the utility are typically much higher than the utility's traditional power costs, resulting in a shift of all these costs to other consumers.

Because different generator technologies have different production costs, some generators – such as roof-top solar systems – receive a much higher rate under feed-in tariffs than wind power. Some current and real-life examples of this can be found in the January, 2010 edition of *North American Windpower* magazine. The article discusses feed-in tariff pricing by the Ontario Power Authority for various types of generation, expressed in Canadian dollars. Biomass power production in excess of 10 MW is priced at 13 cents per kWh. Rooftop solar greater than 500 kW is priced at 53.9 cents/kWh and terrestrial wind power is priced at 13.5 cents per kWh.

As stated earlier in this paper, power supply costs in Montana range from 3 cents to 6 cents per kWh, expressed in U.S. dollars. Although it is likely that feed-in tariffs will stimulate renewable energy generation, the price paid for this power will be substantially greater than power supply costs from historical sources. Substituting 40-cent per kWh power in place of 3 to 6-cent power, if done to the extent that it comprises a significant percentage of total generation, would quickly raise the price of electricity for consumers. The utility may be able to recover the costs, making it somewhat revenue neutral to that utility. But these costs will be borne by ratepayers through increased rates.

For member-owned electric cooperatives, a primary objective is usually to try to keep rates as low as practicable, consistent with sound business practices. As a result, co-ops typically strive for near revenue neutrality (for the ultimate consumers at large) when considering each interconnection of distributed generation.

Sincerely Yours,

Doug Hardy

Doug Hardy
Montana Electric Cooperatives' Association