DEQ
Montana Department of Environmental Quality

What Montana Electric Cooperatives Should Know About Community Net Metering

PURPOSE

In recent years, communities and individual energy consumers across the country have been increasingly choosing to meet new and existing energy needs with renewable energy technologies. While the costs of many conventional energy resources have been rising, the costs of many renewable energy technologies have been declining steeply, making them an attractive hedge against further energy price increases in the future. Among the newest and most popular models for developing renewable energy projects is to use community net metering, also commonly referred to as virtual net metering.

This paper is intended as a resource for Montana electric cooperatives to better understand what community net metering is, how it can be tailored to fit a particular community, and issues that may need to be considered before a community net metering project is developed. By exploring the range of options available for community net metering of renewable energy projects, this paper seeks to help Montana communities appropriately plan for the successful implementation of their own community net metered projects.

WHAT IS COMMUNITY NET METERING?

Community net metered projects differ from more typical renewable energy projects because, instead of having a single owner, multiple community members own shares in the project and receive credit on their individual utility bills for the electricity generation of the project. Each project participant's bill credit is proportionate to their ownership in the project. Community net metered projects have several advantageous attributes, including the ability to be located at sites with better renewable energy resources and the ability to aggregate demand for renewable energy into one project in order to achieve economies of scale and greater cost-effectiveness.

One of the major limitations of conventional net metering (e.g., residential rooftop solar) in Montana is that projects must be located on the property that is being net metered. A 2008 study by the National Renewable Energy Laboratory found that only a quarter of residential rooftops were suitable for the installation of a solar photovoltaic system after accounting for roof orientation, shading, and ownership issues.[i] Similarly, only a limited number of residences are suitable for small wind turbines or small hydroelectric systems. These limitations severely diminish the number of electricity consumers that can take advantage of conventional net metering.

Conversely, a much larger percentage of the community has the potential to participate in a community net metered project. Community net metered projects can be located at a more ideal site within the community, whether that's a large rooftop, an empty field, or alongside a suitable water resource. In addition to homeowners, renters can also participate in community net metered projects because their shares in the project can follow them if they move within the community, or if they leave the coop's service territory their shares can be transferred to another coop member.

Additionally, the typically greater size of community net metering projects, compared to individual residential projects, achieves economies of scale that improve the cost-effectiveness, reducing the overall cost of renewable energy for each participant. By lowering costs, it increases the percentage of the community that can afford to participate in the program, helping democratize access to renewable energy. Likewise, the payment structure for community net metered projects can be structured in a number of ways, including monthly or annual lease payments, to help make shares in the project more affordable to lower income community members.

Ten states, most notably Colorado, Minnesota, and Massachusetts, allow some form of community net metering in their state statutes. However, many other states, such as Montana, have independent electric cooperatives that can, and in many cases have, set their own community net metering policies. For example, the Kit Carson Electric Cooperative in New Mexico built a 100 kW community solar array in 2012. Most community net metered projects utilize solar photovoltaics (PV) because of their scalability, siting flexibility, and general community acceptance, but small wind and hydroelectric turbines could also be used for community net metering in the right locations.

Why Do Electric Utilities Opt to Support Community Net Metering?

The Solar Electric Power Association surveyed a number of utilities that manage community net metering programs and the following reasons were given for their support of community net metered projects:[ii]

Address a customer need – Community net metering can help customers overcome physical and financial limitations, and fulfill a desire to increase their consumption of renewable electricity.

Improve customer satisfaction and engagement – Community net metering can get customers more positively engaged with their electric utility and their own energy consumption habits.

Economic development – Community net metering helps keep energy dollars and jobs local.

Achieve economies of scale – Community net metered projects are typically more cost-effective than individual, residential net metered projects, allowing a community to get more clean energy for each dollar invested.

Distribution system benefits – If located strategically, community net metered projects can help address problem spots within the local grid, possibly allowing the utility to defer additional infrastructure investments.

Community Net Metering Options

Community net metering projects can take a number of different shapes and sizes depending upon who is managing the project, how participant payment is structured, how bill credits are distributed, and how the local utility is compensated for administering the bill crediting.

1. *Project Development & Management*

Utility-Sponsored – To date, the most common method of originating community net metering projects is for a community's utility to organize and implement the project directly or through coordination with a third party. The clearest benefit of this approach is that the utility has the experience of managing and marketing community programs and has the resources to fund and

administer the initial development stages of a project. Utility-sponsored projects tend to be larger than other types of community projects because project participation can be solicited from the entire community and the utility has more resources to scale projects to meet community demand. While electric coops cannot directly take advantage of federal tax incentives, they can take advantage of Community Renewable Energy Bonds. Using a third party diminishes the need to find up-front financing for the project and third parties can typically take full advantage of federal tax incentives, which can be reflected in the prices charged to the utility or end customer.

Special Purpose Company or Non-Profit – Also common are community projects that are organized as an independent business or non-profit organization by the participating customers. This option is challenging because it requires a group of motivated energy customers to organize together and overcome legal and financial hurdles to develop and then manage a renewable energy project. Special purpose businesses face a number of challenges with taking advantage of federal tax incentives but can partner with outside investors that may take advantage of the tax incentives.

2. *Payment Structure*

Single Payment Up-Front – This option is the most similar to the traditional method of financing on-site renewable energy. The single payment up-front covers the installation cost of the participant's share of the project in return for the electricity generation credits from the share of the project. This structure maximizes the long-term benefits to the participant but at the expense of limiting the number of community members that can afford the high up-front cost of participating in the project.

Installment Plan – An installment plan allows project participants to pay for their share over the course of a year or multiple years. Once their installment plan is fully paid, project participants will receive credit for their share of the project's electricity generation at no additional cost for their remainder of the project. Installment plans or other on-bill loan repayment options are becoming increasingly common as awareness and interest in community net metering participation increases.

Monthly Subscription – The lowest monthly cost option is for project participants to rent a share of the overall project at a fixed monthly rate. Project participants will never directly own a share in the project but will still receive the benefits of the credits from the project's electricity generation at a fixed rate for however long they choose to participate in the program.

3. *Bill Crediting*

kWh Crediting – Most state net metering programs credit net metering customers for each kWh of electricity not consumed directly by the customer. Community net metering projects can function the same way with each kWh of generation from a participant's share of a project being directly applied as a credit to their utility bill to offset customer electricity consumption.

Dollar Value Crediting – More common where time-of-use rates are used for net metering customers, dollar value crediting tracks the value of the electricity generation being put on the grid by the project, which can vary for by time of day, week, and season and then distributes the credits to the project participants based on their share of the overall project. This method of crediting is becoming more common as the costs and benefits of distributed renewable energy generation, and solar generation in particular, become better understood.

4. *Utility Administration Compensation*

No Compensation – Most Montana net metering customers pay their utility no additional fees for being a net metered customer. Community net metering could be structured the same as conventional net metering with customers receiving the full retail rate for the electricity generation from their share of the community renewable energy project.

Fixed Fee – A fixed fee could be charged to community net metering customers, either as a flat fee (e.g., $5 per month) or as a fee for each kW of capacity being net metered for the customer (e.g., $1 per kW per month) to account for the additional costs associated with administering bill credits to participating customer bills.

Separate Net Metering Rate – Community net metering customers could also be placed on a new electrical rate that decouples electricity generation and transmission costs from distribution costs. Credits generated from a participant's share of a community net metering project would be used to reduce the electricity generation and transmission portion of their utility bill but would not affect their distribution fees. The revised rates would not directly address net metering administration costs but would address the potential distribution system costs shifts presented by net metering.

EXAMPLES OF COMMUNITY NET METERING

City of Ellensburg – One of the first community net metering projects in the country, the first phase of the City of Ellensburg's Renewable Park was completed in 2006 with the installation of a 36 kW solar array. The project was funded using investments from local residents and businesses in exchange for dollar credits on their electric bills every three months for 20 years to reflect the value of the electricity generated from each investor's share of the renewable system. The project was wildly popular, resulting in three more development phases to the solar array. In total, the project now represents 112 kW of capacity and is fully subscribed.

Kit Carson Cooperative – Constructed in 2012 at the Taos Charter School, the 100 kW solar array was built in northern New Mexico in partnership with the Clean Energy Collective (CEC), the largest manager of community solar facilities in the country. Participants in the solar array purchased one or more of the arrays 420 panels and receive their share of the array's electricity generation as a utility bill credit. When it was built, purchasing 1 kW of solar energy capacity at the facility cost $3,600, well below the average installation cost for residential solar energy in 2012.[iii] The project's location at a school provides an additional benefit as a hands-on opportunity for school children to learn about energy and the environment. The project is fully subscribed. For more information, go to http://www.kcecsolar.com/.

Grand Valley Power – Constructed in 2011, Grand Valley Power's 21 kW Solar Farm was initially structured similar to other community net metering projects with participants directly purchasing solar panels up-front in return for bills credits from the project's generation over the 23 year life of the project. However, a second, five-year installment plan was later added, resulting in a doubling of the number of participants in the program.[iv] For more information, go to http://www.gvp.org/content/solar-farm.

Additional Resources

Utility Community Solar Handbook - http://www.solarelectricpower.org/media/71959/solarops-community-solar-handbook.pdf.

Community Guide to Collective Purchasing of Residential PV Systems - http://www.nrel.gov/docs/fy12osti/54738.pdf.

Guide to Community Shared Solar - http://www.nrel.gov/docs/fy12osti/54738.pdf.

Model Rules for Shared Renewable Energy Programs - http://www.growsolar.org/wp-content/uploads/2014/04/IREC-Model-Rules-for-Shared-Renewable-Energy-Programs-2013.pdf.

"Why utilities across the nation are embracing community solar" - http://www.utilitydive.com/news/why-utilities-across-the-nation-are-embracing-community-solar/354164/.

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[i] http://www.nrel.gov/docs/fy09osti/44073.pdf, p. 4.
[ii] http://www.solarelectricpower.org/media/71959/solarops-community-solar-handbook.pdf, p. 5-6.
[iii] https://sites.google.com/site/vistalindaneighborhood/member-announcements/communitysolararrayaliveintaos.
[iv] http://www.utilitydive.com/news/why-utilities-across-the-nation-are-embracing-community-solar/354164/.