

Net Metering

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What is Net Metering?

- Net metering is one of many techniques available to measure and value the output of customer-owned generation.
- Net metering rules generally provide that consumers with certain self generation capabilities should have a meter that rolls forwards when the customer consumes power from the grid and rolls backwards when the customer exports power to the grid.
- If the consumer uses more energy over the course of a billing period than they have generated, they pay only for the net energy that they have imported from the system, plus any fixed monthly charges provided by the rate schedule.
- The 43 states with net metering handle very differently the situation where a consumer generates more than they have used over the course of a billing period. Some states prohibit any payment to consumers for net exports. Some states require net credits to be rolled over to the next month, generally up to one year. Others states require utilities to pay consumers “avoided cost” (like with PURPA) for net exports at the end of a billing period or at the end of a year. Customer generators with net excess generation may still pay fixed monthly charges provided by the rate schedule for all customers in the same rate class.
- The range of technologies and applications entitled to benefit differ widely in different states.
- Many states like Connecticut and Montana limit net metering only to renewable technologies. Others include qualifying facilities under PURPA.
- Most states have size limits on the units that qualify for net metering. For example, Kentucky and Wyoming limit qualifying units to no larger than 30 kW and 25 kW, respectively, while New Mexico’s size limit is 80 MW and Ohio has no size limit.
- Some states have also imposed a limit on the total number of consumers, or total capacity of consumer-owned generation, for which any utility has to provide net metering service. Utah and Georgia limit net metering to 0.1% and 0.2% of the utility’s historic peak load, respectively.

Why Do So Many States Have Net Metering Rules?

- Many states adopted net metering in the early 1980s as a way of implementing PURPA Section 210's requirement that utilities buy the output of qualifying small power production facilities.
- Other states adopted net metering because it provides a simple, easily administered way of compensating consumers for their generation, particularly where the customer is unsophisticated, the unit is small, and the output of the unit cannot closely track the customer's demand, as with wind and solar energy.
- Some states have adopted net metering to subsidize the use of environmentally friendly renewable technologies.

Why Are Utilities Concerned About Net Metering?

- Net metering policies require utilities to pay consumers the retail price for wholesale power. The retail rate utilities charge includes not only the marginal cost of power, but also recovers costs incurred by utilities for transmission, distribution, generating capacity, and other utility services not provided by the customer-generator.
- The policies require utilities to pay high costs for what is often low-value power. Power from wind and photovoltaic systems is intermittent, cannot be scheduled or dispatched reliably to meet system requirements. Even those forms of customer generation that could technically be dispatched at times when utilities need the power do not need to enter into operating agreements with utilities in order to obtain net metering under state net metering mandates.
- Net meters allow customers to under-pay the fixed costs they impose on the system. A utility has to install sufficient facilities to meet the peak requirement of the consumer and recover the costs of those facilities through a kWh charge. When the net meter rolls backwards, it understates the total energy used by the consumer, and thus understates the consumer's impact on the fixed costs of the system. It also understates the consumer's total share of other fixed charges borne by all consumers such as taxes, stranded costs, transition costs, and public benefits charges.
- Net meters can also be deliberately or inadvertently gamed. Consumers can take power from the system at peak times when it costs the utility the most to provide it, and then roll their meters backwards by generating power at non-peak times when the utility has little need for it. That is a particular risk, for example, with gas and diesel fueled units that can be operated on demand.

What is Aggregated Net Metering, Community Net Metering?

- Aggregated net metering (ANM) generally allows one customer who owns a generating asset and receives service via multiple meters or accounts to aggregate or combine loads so that the generator can offset utility purchases for the aggregated load.
- Currently, 17 states have an ANM policy. Many states, such as Colorado and Utah, require that the meters/accounts are for contiguous properties. Others, such as Nevada, limit aggregation to customers with specific types of self-generation, such as hydro or wind.
- Community Net Metering (CNM) allows multiple customers of the same utility to share the output of a generating asset that does not have to be on their properties, and to offset utility power purchases with each customer's *pro rata* share of the generator's output. Currently, about 10 states allow CNM programs.
- Like single customer/one meter net metering, ANM and CNM programs can result in unfair cost shifting among customers. Also, because ANM and CNM programs involve more meters and, oftentimes, larger generation units, economic and reliability issues noted earlier can be compounded. Under ANM programs, allocating excess kWh credits can be complicated, and can impose additional IT and billing system costs on the utility. Credit allocation may also be subject to gaming if the accounts have different rates.

How Can We Gain the Benefits Of Net Metering Without Unfair Cost Shifting?

- Adopt policies that support renewable technologies without shifting costs between consumers:
 - Provide tax credits for consumers that install renewable generation;
 - Appropriate funds for research, development, and demonstration projects aimed at lowering the costs of DG;
 - Implement net billing programs. Such programs typically:
 - Permit interconnection of customer generation to the grid;
 - Permit consumers to use their generation to reduce their consumption of utility power;
 - Ensure appropriate compensation to consumers for their net excess generation at reasonable rates;
 - Ensure consumer generators pay an appropriate share of system costs, protecting other consumers from cross-subsidies.
- If net metering policies are adopted, impose appropriate limits:
 - They should apply only to small residential generators (<10 kW) that use intermittent renewable energy such as wind, solar, and hydro;
 - They should only be permitted up to a small percentage (*i.e.*, 0.1%) of the utility's historic peak load;

- They should not be available to:
 - larger, more sophisticated consumers who do not need the leg up;
 - larger units or large numbers of units, which can exacerbate the cost shifting problem; or,
 - gas or diesel powered units that can more easily be used to game net metering rules.
- They should be available only to consumers on marginal cost time-of-use rates that ensure that excess generation is credited at the appropriate value.
- Federal rules, if any, should not preempt state net metering rules, including those that put limitations on the availability of net metering.

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