Net Metering: Frequently Asked Questions

Q. What is net metering?

A. In 34 states, consumers can install small, grid-connected renewable energy systems to reduce their electricity bills using a protocol called net metering. Under net metering, electricity produced by the renewable energy system can flow into the utility grid, spinning the existing electricity meter backwards. Other than the renewable energy system, no special equipment is needed.

Even in the absence of net metering, consumers can use the electricity they produce to offset their electricity demand on an instantaneous basis. But if the consumer happens to produce any excess electricity (beyond what is needed to meet the customer's own needs at the moment), the utility purchases that excess electricity at the wholesale or 'avoided cost' price, which is much lower than the retail price. Net metering simplifies this arrangement by allowing the consumer to use any excess electricity to offset electricity used at other times during the billing period.

Q. Why is net metering important?

A. There are three reasons net metering is important. First, as increasing numbers of residential and small commercial customers install renewable energy systems in their homes, there needs to be a simple, standardized protocol for connecting their systems into the electricity grid that ensures safety and power quality. Second, many residential customers are not at home using electricity during the day when their systems are producing power, and net metering allows them to receive full value for the electricity they produce without installing expensive battery storage systems. Third, net metering provides a simple, inexpensive, and easily-administered mechanism for encouraging the use of renewable energy systems, which provide important local, national, and global benefits.

Q. What are the benefits and costs of net metering?

A. Net metering provides a variety of benefits for both utilities and consumers. Utilities benefit by avoiding the administrative and accounting costs of metering and purchasing the small amounts of excess electricity produced by these small-scale renewable generating facilities. Consumers benefit by getting greater value for some of the electricity they generate, by being able to interconnect with the utility using their existing utility meter, and by being able to interconnect using widely-accepted technical standards.

The only cost associated with net metering is indirect: the customer is buying less electricity from the utility, which means the utility is collecting less revenue from the customer. That's because any excess electricity that would have been sold to the utility at the wholesale or 'avoided cost' price is instead being used to offset electricity the customer would have purchased at the retail price. In most cases, the revenue loss is comparable to having the customer reducing electricity use by investing in energy efficiency measures, such as compact fluorescent lights and efficient appliances.

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The bill savings for the customer (and corresponding revenue loss to the utility) will depend on a variety of factors, particularly the difference between the 'avoided cost' and retail prices. In general, however, the difference will be between $5 - $10 a month for a residential-scale PV system (2 kW), and between $25 - $50 a month for a farm-scale wind turbine (10 kW).

Moreover, any revenue losses associated with net metering are at least partially offset by the administrative and accounting savings, which are not included in the above figures.

Q. Can I really use my existing meter to take advantage of net metering?

A. The standard kilowatt-hour meter used by the vast majority of residential and small commercial customers accurately registers the flow of electricity in either direction. This means the 'netting' process associated with net metering happens automatically—the meter spins forward (in the normal direction) when the consumer needs more electricity than is being produced, and spins backward when the consumer is producing more electricity than is needed in the house or building.

Q. How can I be sure that these small-scale generating systems are safe?

A. During the last decade there has been tremendous technological progress in the design of the equipment that integrates small-scale generators with the utility grid. Called 'inverters' because they were originally designed only to 'invert' the DC electricity produced by solar arrays and wind turbines to the AC electricity used in our homes and businesses, these devices have evolved into extremely sophisticated power management systems. Inverters now include all the necessary protective functions needed to synchronize safely and reliably with the utility grid, to protect utility power quality, and to prevent 'islanding' by preventing backfeeding during a utility power outage. Moreover, this protective equipment operates automatically, without any human intervention needed. Most new inverters comply with all nationally-recognized codes and standards, including those developed by Underwriters Laboratories (UL 1741) and the Institute of Electrical and Electronic Engineers (IEEE 929-2000). These systems are now operating safely and reliably in every state in the nation.

Q. What is the current status of net metering?

A. Currently, 34 states have some form of net metering (see accompanying table). Germany, Japan, and Switzerland also have net metering. Many state net metering rules were enacted by state utility regulators pursuant to state implementation of the federal PURPA statute. In recent years many states have enacted net metering laws legislatively, including Arkansas, California, Connecticut, Delaware, Georgia, Hawaii, Maryland, Massachusetts, Montana, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Rhode Island, Vermont, Virginia, Washington, and Wyoming.