

Net Metering & Interconnection Standards

Pathways to Distributed Generation

Overview

Net metering and interconnection standards provide the foundation for the on-site generation of electricity in homes or businesses. Electricity generated at or near its point of use is referred to as *distributed generation* (DG). It is particularly relevant for photovoltaic (PV) solar power, which comprises a majority of DG electricity. DG can complement *base-load generation*, which refers to the traditional generation of electricity by large-scale utility power plants. The viability of DG systems is dependent upon access to the electric grid (interconnection rules) and fair utility billing terms (net metering).

Net metering allows for the electricity grid to act as virtual storage by requiring that utilities bill customers only for the *net* electricity used during each billing period. For example, if a customer has a PV system on their home, they may generate more electricity than they use during daylight hours. In that case, if their home is net metered their electricity meter will run backwards. At night – when they are using electricity – their meter runs forward as normal. **Interconnection standards** are the technical and legal procedures for a customer with a DG system to physically connect to the grid.

National net metering and interconnection standards would protect the right of consumers and companies to generate electricity at their homes and places of business. A uniform national standard would also lower the cost of net-metered systems by helping achieve economies of scale through a simplified process and rules

Why Distributed Solar?

DG solar systems offer a number of benefits to consumers, both individually and in the aggregate.

- PV solar systems generate the most electricity during the middle of the day, when demand and the cost of electricity are highest. With net metering, individual PV systems can offset expensive peak electricity purchases, resulting in lower electricity bills for all consumers.
- Each megawatt (MW) of PV solar power will prevent 25,000 tons of air pollution over its useful life and reduce harmful particulate emissions from fossil-fuel generation.¹
- Solar is an emerging jobs engine. PV solar creates more jobs per MW than any other energy source. Each MW manufactured and installed in the US will directly employ 24 people.²
- As DG solar reaches higher market penetrations, it can make the electricity grid more reliable and secure. It can smooth out the electricity demand curve and reduce the need for expensive new base-load power plants to meet peak loads.



A General Electric net meter, installed by Baltimore Gas & Electric in Maryland. This digital meter runs in both directions to accommodate electricity generated at the customer's home. A 4 kilowatt PV system on a home in this area would offset around 4,911 kilowatt hours of electricity each calendar year, saving the homeowner over \$380 on their utility bill. For the average Maryland home, this represents over a 37 percent reduction in yearly electricity use. (Source – SEIA, NREL, PV Watts, EIA)

National Net Metering

Net metering recognizes the right of utility customers to generate their own electricity; often more cleanly and efficiently than the utility that serves them. Some utilities resist implementing net metering policies, believing that they represent lost revenue opportunities. In fact, net metering policies and deployment of DG solar resources create a smoother demand curve for electricity and allow utilities to better manage their peak electricity loads. Varying state and utility policies on net metering make it difficult for companies to develop best administrative practices to properly account for customer-sited generation.³ Best practices for net metering include:⁴

- Allowing all customer classes (residential, commercial & industrial) and all renewable technologies to net meter.
- Protecting the right of customers to size their solar systems to adequately meet their electricity demands, and removing arbitrary limits on aggregate deployment across states or utilities.
- Specifying that customer-sited generators retain all renewable energy credits (RECs) generated to satisfy voluntary or legally-binding renewable energy targets.
- Allowing unlimited “rollover” of any generation in excess of a customer’s monthly usage.

National Interconnection Standards

An interconnection standard encompasses both the technical standards and legal procedures which allow customer-sited generation facilities to connect to the electricity grid. Many utilities have cumbersome, lengthy and expensive interconnection procedures which can be a barrier to DG solar installations. Some utilities require significant fees, permits and redundant safety measures that are inappropriate and unfeasible for small-scale generators. Adopting a standard interconnection policy nationwide will allow for a streamlined approval process for small generators, and provide a uniform technical standard for interconnection equipment. Best practices for interconnection include:⁵

- Allowing all sizes of generators to interconnect with transparent, detailed and public processes, including expedited “plug-and-play” rules for residential customers.
- Setting reasonable, consistent fees that are proportional to the size of the customer’s system.
- Prohibiting utilities from requiring redundant equipment – such as external disconnect switches – and extraneous property insurance.
- Applying existing third-party technical standards for physical equipment such as IEEE 1547 and UL 1741

About the Solar Energy Industries Association

Established in 1974, the Solar Energy Industries Association® is the national trade association of the U.S. solar energy industry. Through advocacy and education, SEIA and its 1,000 member companies are building a strong solar industry to power America. As the voice of the industry, SEIA works to make solar a mainstream and significant energy source by expanding markets, removing market barriers, strengthening the industry and educating the public on the benefits of solar energy. www.seia.org

For a referenced version of this factsheet and more information, please visit www.seia.org.

¹ Solar Energy Industries Association.

² Ibid.

³ A survey of utility company practices by the Solar Electric Power Association (SEPA) revealed that utilities are more likely to encounter difficulties administrating net metering policies than upgrading their metering infrastructure. The report – *Residential Photovoltaic Metering and Interconnection Study* is available at www.sepa.org.

⁴ Best net metering policy practices derived from the Interstate Renewable Energy Council’s model rules, available at http://www.irecusa.org/fileadmin/user_upload/ConnectDocs/IREC_NM_model_Dec06.pdf.

⁵ Best interconnection policy practices derived from the Interstate Renewable Energy Council’s model rules, available at http://www.irecusa.org/fileadmin/user_upload/ConnectDocs/IREC_IC_model_Nov06.pdf.