

Solar Distributed Generation

Summary

In a shift from the traditional electric power paradigm, utilities and utility customers are installing distributed generation (DG) facilities that employ small-scale technologies to produce electricity closer to the end use of power. Driving this exponential growth is the dramatic decrease in the price of solar panels, as well as state, federal, and utility incentives for solar panel installations and state renewable portfolio standards (RPS). Use of DG resources may offer numerous benefits, including avoided generation capacity costs (e.g., less need to build new generation), avoided transmission costs, less need for backup power, and neutral environmental impacts, but it may also pose operational and economic challenges to electric utilities and electric power customers. The American Public Power Association (Association or APPA) believes that solar DG can play an important role in helping meet energy needs and achieving environmental goals so long as solar DG customers pay their fair share of the costs of keeping the grid operating safely and reliably. Thus, the Association supports the integration of DG resources, including community solar projects, to meet customer requests or utility goals. However, as rate design for DG must take into account a utility's technical limitations and geographic considerations, the Association opposes attempts by Congress or federal agencies to federalize standards for DG implementation or rate designs, both matters of state and local, retail regulation.

Background

Distributed energy resources (DER) include, among others, solar photovoltaic (PV), small wind turbines, combined heat and power (CHP), fuel cells, and micro-turbines. Use of DG resources may reduce the need for new utility generation assets and the procurement of ancillary services, allow utilities to avoid higher transmission costs by reducing peak demand, reduce air pollution emitted by traditional fossil fuel-fired generation, and assist utilities in hedging against widespread power outages. Despite these potential benefits, DG may also create operational

and economic issues for electric utilities and power customers, each of which should be addressed at the local and state level.

For example, too much DG can create excess demand at a substation, causing power to flow from the substation to the transmission grid and increasing the likelihood for high voltage swings and other stresses on electric equipment. DG may also contribute to lineworker safety issues such as "islanding," when the DER continuously energizes a feeder even though the utility is no longer supplying power due to an outage or other cause. In addition, DG is more difficult to monitor and may impact load forecasts, and, in rare circumstances, this may lead to outages and blackouts. Finally, DG may place increased strain on distribution systems since DG customers rely on the transmission, distribution, and generation systems more than non-DG customers. Utilities will have to make capital investments to address these potential strains on the system, and these costs may be borne by both DG-owning and non-DG-owning electric customers.

Along with the abovementioned operational problems, increased DG use may cause economic issues as well. Subject to applicable state or local laws, most electric utilities compensate DG producers through net metering. Under a net-metering program, a utility will credit customers with on-site generation for their kilowatt-hour (kWh) sales to the grid and charge them for periods when electricity consumption from the grid exceeds their generation (or the net difference between consumption and generation). Under most net-metering programs, the customer is both charged and credited at the utility's full retail rate of electricity, thus potentially over-compensating distributed generators with a value of generation that is higher than the utility's avoided cost. Some states and non-regulated utilities have designed alternative compensation schemes to appropriately value the full costs associated with DG production, including: increased customer charges for fixed costs, declining block energy charge structure, residential demand charges according to peak kW usage, time-based pricing, and standby rates. Still, many regulators (states, localities, and non-regulated utilities) have not implemented compensation schemes that properly

account for certain fixed charges, and this may create an economic burden for both utilities and power customers. Community solar projects owned, in part, by consumers of the electricity produced by these facilities, may allow utilities to apportion costs and reduce variability of the system, thus addressing several of the issues associated with using DER.

In 2015 and 2016, energy legislation in the Senate and House included provisions related to DER, including solar DG. H.R. 8, the North American Energy Security and Infrastructure Act, included language that would have created a new federal standard under Section 111(d) of the Public Utilities Regulatory Policies Act (PURPA) requiring states and non-regulated utilities to consider mandating that on receipt of a request, electric utilities would offer interconnection service and net billing service to community solar facilities. APPA and others in the electric industry opposed this provision because it was duplicative of standards added to PURPA Section 111(d) in 2005 on net metering and interconnection. It also failed to recognize that these community solar facilities should pay for their use of the power grid and ignored retail electric laws in states without retail competition. S. 2012, the Energy Policy Modernization Act, did not include any PURPA must-consider requirements, but did include language directing the Department of Energy (DOE) to undertake net metering studies. APPA had concerns that studies could lay the groundwork for future federal net metering policy. Despite several months of negotiations between the House and Senate to resolve differences between their energy bills, Congress did not pass comprehensive energy reform legislation.

Still, electric power regulators may now be facing jurisdictional challenges from the federal government. The Federal Power Act (FPA), the statute that governs the bulk power system, ascribes to the Federal Energy Regulatory Commission (FERC) the authority to regulate the interstate sale of energy, or the sale of energy across state lines. On the other hand, the FPA reserves for the states the power to regulate the intrastate sale of power, or the sale of energy within the state, which is the source of authority for states and localities to value DG. Also, PURPA imposed on each public utility, subject to minor exceptions, the requirements to purchase capacity and energy from certain generators at the “avoided cost” and to sell needed power services to the generator. Since the most recent amendments to the FPA in the Energy Policy Act of 2005, FERC has issued several orders aimed at exercising some level of authority (beyond PURPA) over electricity produced at the distribution level. In addition to FERC laying jurisdictional claims on issues traditionally left to the states, the U.S. Supreme Court has issued several major decisions suggesting that the limits on FERC’s jurisdiction may extend beyond interstate wholesale sales of electricity and into the sphere of local retail energy sales.

On September 7, 2016, the House Energy and Commerce Committee’s Subcommittee on Energy and Power held a hear-

ing to examine whether it needs to be revised in keeping with today’s technology and customers’ priorities. While certain FPA revisions may be warranted to address outdated provisions, the Association would oppose any attempt by Congress to extend federal jurisdiction over DG ratemaking or interconnection processes. Pursuant to the FPA and subsequent amendments, the transfer of electric energy from the DG producer to an end-use utility customer is a retail transaction that must be regulated at the state or local level.

American Public Power Association Position

APPA believes that DG can and should play an important role in public power’s renewable energy portfolio, and it supports members’ efforts to safely and effectively install and facilitate the use of DER. In order to continue fostering the growth of DG, the Association believes that it is important that DG customers pay their fair share of costs to keep the grid operating safely and reliably. Thus, rate structures should be designed to reflect costs and assure that those who benefit from the grid are sharing the costs associated with building and maintaining it. Because community solar projects may address several issues associated with DG usage, the Association is a proponent of this type of ownership structure for DG facilities. APPA opposes attempts by the federal government to nationalize rate design and distribution-related matters that have traditionally been governed by state and local laws. Finally, the Association supports efforts to protect consumers from deceptive or misleading sales practices by third-party DG leasing companies

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The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 93,000 people they employ. Our association advocates and advises on electricity policy, technology, trends, training, and operations. Our members strengthen their communities by providing superior service, engaging citizens, and instilling pride in community-owned power.