

**Something New Under the Sun: Competition and Consumer Protection Issues in Solar  
Power  
A Federal Trade Commission Workshop**

The Federal Trade Commission will hold a one-day workshop to explore competition and consumer protection issues that may arise when consumers generate their own electric power by installing solar photovoltaic (PV) panels – a practice known as solar distributed generation (DG). The workshop will discuss specific topics, including:

- 1) The current state of the solar power industry, and anticipated technological advancements;
- 2) Current regulatory approaches to compensating consumers for the power they generate, with a particular focus on net metering laws and regulations;
- 3) Competition among solar DG firms, between solar DG firms and regulated utilities, and between solar generation and other power generation technologies; and
- 4) Consumer protection issues, including how consumers get the information necessary to decide whether to install solar PV panels.

Supplementary Information below describes in more detail each of these topic areas.

**Date**

The workshop will take place on June 21, 2016, in the Constitution Center auditorium at 400 7th Street S.W., Washington, DC 20024.

**Public Comment**

The Commission invites comments from the public on the topics to be covered by this workshop. In order for a comment to be considered at the workshop, it must be submitted no later than June 7, 2016. The public comment period, however, will remain open until August 22, 2016. Comments will be posted on the workshop's public webpage.

Interested parties may file a comment electronically at <https://ftcpublic.commentworks.com/ftc/solarworkshop>.

Alternatively, paper comments may be mailed to Federal Trade Commission, Office of the Secretary, 600 Pennsylvania Avenue N.W., Suite CC-5610 (Annex B), Washington, DC 20580, or they may be delivered to Federal Trade Commission, Office of the Secretary, 400 7th Street SW, 5th Floor, Suite 5610 (Annex B), Washington, DC 20024.

Please write "Solar Electricity Project No. P161200" on your comment so that it will be readily identified with this workshop.

## Contacts

For further information, please contact Derek Moore, Attorney Advisor, Office of Policy Planning, 202-326-3367, or John Seesel, Associate General Counsel for Energy, Office of the General Counsel, 202-326-2702. You may also contact us by email at [solarworkshop@ftc.gov](mailto:solarworkshop@ftc.gov).

For additional information, visit the workshop website at <https://www.ftc.gov/news-events/events-calendar/2016/06/something-new-under-sun-competition-consumer-protection-issues>. Prior to the workshop, the Commission will publish a detailed agenda and other relevant information on this website.

## Supplementary Information

The electric power industry is a critical sector of the American economy and affects virtually every person in the country. Unlike most other industries, the electric power industry is regulated to varying extents at the local, state, and federal levels. Retail electric utilities remain statutory monopolies to some degree in every state because elements of their operations have been viewed as natural monopolies. In general, retail electricity rates are not set by the marketplace. Rather, in most states, they are the product of ratemaking proceedings overseen by state regulators (*e.g.*, public utility commissions (PUCs)) or local authorities.

In many jurisdictions, laws or regulations require electric power distribution utilities that sell retail electric power to residential and commercial customers to compensate customers for the power they generate from solar PV panels they have installed. Compensation can take the form of a reduction in a customer's bill if the customer consumes more electricity than he or she generates, or a payment from the utility if the customer generates more than he or she consumes. This practice is broadly known as "net metering."

Determining the correct rate for net metering is a complex issue. Most states that have adopted net metering have chosen to compensate solar DG customers at the retail rate the utility charges most customers for the electric power they consume from the grid. Using the retail rate is simple for residential customers to understand: the power they generate with solar PV panels receives the same price as what they pay to consume power from the grid. There is a robust debate about whether the retail rate is the appropriate rate to use in compensating customers for solar DG: some believe the correct price for solar DG is below the retail rate, whereas others believe the correct price is at (or even above) the retail rate. Determining the correct price depends upon a number of factors, including issues that are less specific to solar DG and relate more generally to the goals and function of regulated retail rate design.

Some view regulated retail rates as designed primarily to allow the utility to recover both fixed and variable costs, which helps to ensure the continuing viability of the utility. In this view, compensating solar DG customers at the retail rate allows these customers to avoid paying an appropriate share of the fixed costs of a system that was built to serve them, shifting these costs to customers who have not installed solar PV panels. Proponents of this view argue that the price utilities pay for solar DG should be closer to the (typically lower) price utilities pay for most other types of generation on the wholesale market.

Others argue that the utility should pay for customer-installed solar DG at the retail rate, because solar DG enables the utility to avoid more costs than it incurs. In their view, to the extent that peak periods of solar generation coincide with periods of high overall demand, solar DG will reduce the utility's need to invest in generation. Moreover, some argue that by placing some of the generation closer to the point of consumption, solar DG may reduce the utility's need to invest in transmission or distribution facilities. Thus, because solar DG results in avoided costs for the utility, the correct price for solar DG ought to reflect the value of those avoided costs. Some also suggest the government should incentivize consumers to install solar PV panels by factoring the environmental benefits of solar power into ratemaking decisions. For example, because solar-generated electric power does not create the same pollution or other externalities as carbon-based sources of electric power, compensating solar customers at or above the retail rate may be a way to achieve desirable environmental objectives.

The question of how to compensate customers for the power they generate at their properties is complicated by the fact that the retail price in most jurisdictions is set by regulation, not directly by market forces. In jurisdictions that do not use variable retail rates, the regulated retail rate at any given moment does not typically reflect the often-variable prices for wholesale electricity purchased for resale to retail customers. For this reason, customers in these areas do not typically base their electricity consumption on retail rates that fluctuate to reflect the varying wholesale price of electricity. If peak periods of solar generation coincided with periods when wholesale prices are high but retail prices remained static, then net metering at the set retail rate would not necessarily provide customers with the correct incentive to install solar PV panels. The incentive may be too large or too small depending upon the circumstances. Accordingly, the lack of accurate retail price signals can affect entry decisions by solar DG firms, which in turn affects competition in the industry.

Moreover, because retail rates often do not send customers accurate price signals, some utilities argue that retail rates need reform in addition to arguing that the net metering system needs revisions to allow utilities to recover fixed costs. On the one hand, rate reform may produce more efficient retail rates, even though a collateral effect may be a reduction in customer adoption of solar DG. On the other hand, rate reform may be a disguised effort by utilities to make solar DG less desirable relative to the status quo, thereby minimizing solar DG as a competitive threat. There also may be competitive issues if a regulated public utility is permitted to use revenues from regulated retail sales to compete directly with solar DG firms by offering to install utility-supplied PV panels to its current customers.

Solar DG and the changing regulatory environment surrounding retail electricity pricing also present significant questions of consumer protection. The cost to purchase and install solar PV panels is decreasing, although it remains a significant capital expenditure that may take years to pay off. In recent years, a number of companies, non-profits, and public utilities have sought to expand consumers' access to home solar through various financing, leasing, or power purchase agreements. It is critical to ensure that customers have accurate information about the costs, benefits, and uncertainties associated with installing solar PV panels on their properties. One important component of this information is what customers know (or can possibly know) about

potential changes in the compensation for the solar electricity they generate as determined by regulatory and legislative decisions.

Information gained during this workshop will enrich the Commission's knowledge about this nascent but critical sector of the economy and thus support the Commission's advocacy and consumer education efforts. The workshop also will facilitate public discussion and comment on these issues, which may provide additional information to the many states considering how to address retail electricity rates and the consumer protection issues that can arise when consumers purchase or lease rooftop solar PV panels.

### **Current State of the Solar Industry**

The amount of solar electricity generation has grown enormously in recent years. In this workshop, the Commission intends to explore the sources of this growth, and to facilitate a discussion regarding the anticipated evolution of the industry. The Commission invites public comment on questions relevant to this topic, including:

- How much solar electricity was generated in the U.S. in 2015? How does that compare to 2005? 1995? How much solar generation can reasonably be projected for 2025?
- Is the growth coming primarily from solar DG? Is growth in solar DG being driven by residential, commercial, or community installations? Are utility-scale installations of solar generation growing as well?
- How does the cost of solar DG compare with the costs of other sources of generation, including utility-scale solar installations?
- What are the cost components of solar DG? How fast is the cost of solar PV panels decreasing? What about installation costs? Are those costs likely to continue decreasing?
- Does DG impose additional costs on the grid because of, *e.g.*, changes in how the grid is used, integration costs, and/or overloading of local circuits? How can we calculate these additional costs?
- Does DG save costs compared to other sources of generation because DG is placed more closely to the point of consumption? How can we value these cost savings?
- What other benefits does solar DG provide to the grid? For example, does solar DG improve power quality, reliability, and/or resiliency? How can we value these benefits?
- What are the environmental benefits and costs of solar power?
- What are the subsidies for solar DG at the federal and state levels?
- What other technologies (*e.g.*, battery storage of solar-generated electricity) are relevant to the future of solar DG?

### **Net Metering: Pricing Solar DG at Retail**

In many states, utilities that sell electric power to retail customers are required to compensate these customers for customer-generated power. In this workshop, the Commission intends to explore the various regulatory approaches to compensating customers for this power. The Commission invites public comment on questions relevant to this topic, including:

- Is net metering good policy? At the retail rate? At a different rate?

- Does retail net metering result in cross-subsidization? For example, if the fixed costs associated with building and maintaining the electricity grid are incorporated into the price per kilowatt hour (volumetric pricing), do non-solar customers end up cross-subsidizing solar DG customers because the latter do not pay a full share of fixed costs when they choose to rely on self-generation?
- Does cross-subsidization of one form or another always occur when retail rates are based only on volumetric charges and are time-invariant? Does cross-subsidization caused by net metering differ in any way from other forms of cross-subsidization inherent in regulated retail rates?
- Does it make sense for PUCs to target net metering for reform, or should they focus on reforming retail rates more generally to better reflect the varying costs of supplying electric power?
- Is there a way to prioritize among various reforms? Potential reforms may include a “value of solar” tariff; dual metering/net metering at something other than the retail rate; fixed charge reforms; smart meters/time-variant pricing.
- Does the analysis change when the distribution utility is vertically integrated? When the utility is investor-owned, municipally-owned, or a co-op? When consumers have retail choice? When retail pricing is time-variant?
- To what extent does the optimal approach depend on penetration levels for solar DG?
- Should environmental externalities affect retail pricing?

## Competition Issues

DG may be a competitive alternative to utility-sourced electric power for some customers. Whether consumers can benefit from this competition depends on a number of factors, including the extent to which solar DG firms face entry barriers, whether sufficient competition exists among such firms, and whether utilities can use revenues from regulated sales to offer solar DG. In this workshop, the Commission intends to explore the competitive landscape in solar DG. The Commission invites public comment on questions relevant to this topic, including:

- Is solar DG a competitive threat to distribution utilities? Does this depend on whether the distribution utility owns generation assets?
- How does regulation affect entry decisions by solar DG firms? What regulatory policies support or discourage entry?
- Are there barriers to entry not related to regulatory policies? If so, is antitrust enforcement an appropriate tool to address them?
- If regulatory policy affects entry conditions, is there a role for antitrust enforcement or competition advocacy to encourage entry? Is antitrust an appropriate tool to police efforts by utilities to maintain or strengthen regulatory barriers to entry from solar DG firms? Can such efforts by utilities be characterized as exclusionary conduct under the antitrust laws? Or is regulation the preferred tool to shape electricity distribution going forward? Are regulated distribution utilities protected from antitrust suits through any immunity or exemption? Should they be?
- Should utilities be permitted to offer rate-paying customers utility-supplied solar PV panels or access to community solar installations? Does it make a difference if, instead, it is an unregulated subsidiary or affiliate of a regulated utility that is offering the solar PV

panels? Are anti-discrimination rules for utility affiliates effective in achieving a competitive landscape?

- What is the state of competition among solar DG firms? Are there geographic areas where competition is particularly lacking between solar DG firms?
- What is the state of competition between solar DG firms and regulated utilities? How is competition affected by whether the utility offers distribution service only, electricity supply only, or both?
- How is this competition affected by the fact that regulated utilities earn revenues that are based, in part, on regulated rates of return?
- How do consumer protection issues such as comparative price information or disclosures of regulatory risk affect competition among solar DG firms and competition between solar DG firms and utilities?

### **Consumer Protection Issues**

Until recently, the only realistic option for consumers seeking to generate solar power was to buy and install solar PV panels themselves. In recent years, solar DG has grown in part because companies have entered the marketplace to offer consumers various leasing, financing, or power purchase agreements that do not require the same up-front capital as purchasing the panels outright. A well-functioning marketplace requires that consumers have access to the information necessary to weigh the financial costs and benefits of the various options for installing solar PV panels. In this workshop, the Commission intends to explore these and other consumer protection issues in solar DG. The Commission invites public comment on questions relevant to this topic, including:

- How do consumers obtain information about installing solar PV panels?
- What information is most important to consumers' decisions to install rooftop solar?
- What information is available about regulated retail electricity rates? What are solar DG firms telling consumers about expected future retail rates?
- Who typically assumes the risk that regulators in a given jurisdiction will change net metering and/or reform compensation rates paid for solar DG – consumers or solar DG firms?
- Do consumers understand the payments they will make for solar PV panels and electricity, based on whether and how they finance or lease a system, or obtain a power purchase agreement? Do consumers understand whether their payments may escalate under some agreements?
- Do consumers understand any permissions that may be needed to install rooftop solar?
- Do consumers understand the implications of having rooftop solar if they sell their homes, including disclosures to prospective homebuyers? Do solar DG firms make disclosures about how a home sale may affect the consumer's contract for solar generation? Should they be required to make such disclosures? Do the disclosures vary depending on whether the consumer purchased or leased the solar PV panels or used a power purchase agreement, and depending on the specifics of how the consumer is compensated for the electricity he or she generates? If so, how and why?

- Do consumers or solar DG firms bear the risk of structural damage to homes from solar panel installations? What is needed for clear and conspicuous disclosures about damage or loss relating to rooftop solar?
- What gaps are there in information for consumers and businesses that are considering rooftop solar?
- Is it standard practice for solar DG firms to retain renewable energy credits (RECs) when selling or leasing solar PV panels to consumers? Do solar DG firms make disclosures to consumers concerning the sale of RECs on a secondary market? Is information about RECs material to a consumer's decision to install rooftop solar?
- What types of disclosures are solar DG marketers or others providing to consumers? Are marketers using a standard format for such disclosures? Have standard disclosures to consumers been developed by solar DG firms or others? If so, are there any additional disclosures that would be useful to consumers?
- Do solar DG marketers or others use robocalls to promote solar PV panel sales to consumers? If so, are there practices that raise issues for consumers?