

Guest Opinion

Is Solar PV and Net Metering the Elephant in the Room?

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One of the hottest topics in utility regulation today is what utilities and regulators could or should do about the rapid growth in distributed energy resources, most particularly rooftop solar.

A recent NRRI research paper summarizes and catalogs over a hundred recently adopted changes and pending proposals, from 43 states and the District of Columbia, that would change rate designs for customers with solar photovoltaic generation. The four major types of proposals include, singly or in combinations: (1) raising fixed charges; (2) adding demand charges for residential and small commercial customers; (3) raising minimum monthly bills; and (4) changing the terms and conditions for net metering. The paper lists and classifies the many different types of rate design proposals, including:

- A total of 25 states have seen proposals for fixed-charge increases, either for all customers, for solar photovoltaic self-generators only, for all distributed generation customers only, or for net metering customers only;
- Over a dozen states have recently enacted changes to net metering policies, and 17 states are currently reviewing changes to net metering rules and standards, or are explicitly considering possible successors to net metering;
- Eleven states have recently completed or ongoing studies of net metering, and in four of those states the efforts are directed towards identifying new program designs or replacements for net metering.
- Broader dockets about policies affecting all distributed energy resources have been recently decided in two states and are underway in 10 others; and,
- Six states have recently enacted provisions and nine states and the District of Columbia have open dockets on community-shared solar.

Several major factors set the stage for the dozens of recent proposals, including:

(1) aging utility infrastructure in need of replacement; (2) further tightening of federal environmental protections and the likelihood of greenhouse gas regulations; (3) flat or declining loads and load factors resulting from greater energy efficiency and the widespread slow-growing economy; (4) requirements for grid modernization; (5) declining costs and rapidly growing markets for distributed energy resources, particularly solar PV and battery storage; (6) state and utility net metering programs nearing or exceeding existing caps, thus triggering policy reviews, and (7) strong interest on the part of growing numbers of large corporate and institutional buyers and municipalities engaging in community-choice aggregation, that want to take more control of

energy purchases and obtain more or all of their electricity from renewable and low- or zero-emissions energy resources.

Another factor creating some urgency is that many jurisdictions are approaching, and a few have already exceeded, the system-wide caps in existing NEM rules. In large part, the perceived urgency in addressing rate designs for customers with PV is a result of net metering's success in opening up PV markets. In several jurisdictions, reaching the caps is automatically triggering a review of existing rules. The average utility in the U.S. reports only about one-quarter of 1 percent of customers net metering, but Hawaii utilities lead the country with eight to 12 percent of customers net metering, one Washington/Idaho utility has reached 5 percent, and a handful of California and Arizona utilities have hit 3 percent of customers. Almost 60 more U.S. utilities report over 1 percent of customers are net metering. In the U.S., net metering reportedly accounts for almost 675,000 systems, which represents 99 percent (by number) of all PV systems installed, and 44 percent of all installed solar PV capacity.

During the fairly stable policy environment for the past decade or more, solar PV businesses developed and implemented paths to faster market growth. PV system performance improved, costs declined, and low-cost financing became more readily available, often with no money down, thus increasing the numbers of electricity customers who found PV self-generation was cost-effective. This led to rapid growth in solar PV installations, first in states and utility service territories with combinations of the most intensive solar radiation, rate structures conveying the highest utility cost-avoidance, plus generous state or local financial incentives. Although it is still too early to conclude that solar PV is becoming mainstream, in the true sense of the word, markets in a few locations are progressing through the traditional diffusion-of-innovations process, moving from the earliest true believers, to early adopters, and now starting to approach mass markets. Recent projections show as much as a quarter of the U.S. population is already in a jurisdiction where on-site PV can be fully cost-effective, and more are following close behind as installed solar prices continue to drop and performance improves. Industry forecasts predict by 2020 solar PV at grid parity prices or better in 28 states, with a potential U.S. residential PV market in the range of 100 GW.

The overall result has been dozens of legislative and regulatory proposals for changes, reminiscent of the ancient parable about several people exploring an elephant.

In some versions of the story, the people are blind and in others they are in a darkened room. Either way, this parable, which has been a part of various cultures for hundreds of years, teaches us that our subjective experience can be true, but at the same time it can be seriously limited by failing to account for other truths, or a totality of truth.

The ideas about how best to address today's challenges diverge widely, depending on different groups' perceptions about exactly what problem needs to be solved, and the goals and objectives any proposed solutions should meet.

At one side of the PV policy elephant are those who claim that current policies are over-subsidizing solar PV, artificially overheating the market by attracting high-income customers and causing cost shifts to modest- and lower-income, non-participating customers. Generally

speaking, this perspective favors increasing utility fees and reducing taxpayer- or utility-funded incentives for PV customers.

On another side of the policy elephant are PV advocates claiming the subsidies are operating in exactly the reverse direction, with PV customers producing extra utility grid and societal benefits without ample compensation.

Some groups see PV as a boutique technology that offers little in the way of system benefits, while others see PV as a sorely needed, essential component of a low-emissions energy future.

Where the ideas diverge, it is likely evidence that the different parties hold partial truths, each examining different components of the renewable energy and distributed energy resources elephant and coming to very different conclusions.

Today's state public utility commissions face a difficult task, regulating in the best public interest while the electric utility industry progresses, one way or another, through the biggest changes in more than a century.

Regulators find themselves overseeing a regulatory structure that was established a century ago and adjusted over the years to protect large-scale, vertically integrated electric companies by maintaining legal barriers to entry with few exceptions.

That model is now being challenged by new entrants that are seeking a new regulatory structure that provides minimal barriers to entry, and all participants need incentives for innovation and experimentation.

Reorienting rate structures and utility business models is a thorny task, frequently pitting parties with competing interests against one another, in contentious clashes, in what first appears to be a zero-sum game with multiple, conflicting goals.

Ideally, major changes in rate design will await more complete understanding of these issues, which will lead to much greater consensus on both means and ends, with the hope that policy makers might adopt win-win approaches that ultimately support both utilities, customers, and the burgeoning PV industry.

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