



MARKETS & POLICY

Net Metering Is the Solar Industry's Junk Food



It's time for the solar industry to grapple with what "doing good" actually means, argues Tom Konrad.

by Tom Konrad
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Shoppers who bring reusable bags to the grocery store [buy more junk food](http://www.theatlantic.com/business/archive/2015/07/plastic-bag-reusable-junk-food/398372/) (<http://www.theatlantic.com/business/archive/2015/07/plastic-bag-reusable-junk-food/398372/>).

This example is part of a growing body of behavioral psychology research showing that when we feel good about ourselves for doing one thing right, we give ourselves permission to be careless in other areas.

The solar installation industry seems to be falling into the "reusable shopping bag" trap. Solar itself is the reusable shopping bag. The junk food is net metering.

Net metering is a simple, intuitive way to pay for solar generation at retail rates. But it puts solar companies on a collision course with regulators trying to protect non-solar customers from cost-shifting. Solutions to this conflict exist and have the potential to unlock an even brighter future for the solar industry.

Net metering pays owners of distributed solar for their excess power generation at the same price they would pay for power from the grid. When solar is a small fraction of the generation on the grid, this is a great deal for utilities and other ratepayers: solar

generation occurs during the day, when electricity demand is typically higher and wholesale prices are also high. This is crucial on hot summer days when air conditioners drive up peak loads.

Net metering becomes less attractive for utilities as solar penetration increases. Hawaii and California are seeing this already.

Because electricity transmission is hard to build and storage is expensive relative to electricity generation, supply must be locally and instantaneously matched with demand. When lots of generation comes from variable, price-insensitive resources like solar, the grid suffers from too much of a good thing. In the middle of the day, solar production starts to meet and eventually surpasses daytime peak demand, and the value of electricity falls. Low prices during the day mean that more flexible forms of generation need to make profits when solar production is low, increasing prices and the value of electricity at night and on cloudy days.

This process puts utilities and regulators in a bind. The conflict can hurt both sides of the utility-customer relationship.

The Nevada Public Utilities Commission's decision

(<http://www.greentechmedia.com/articles/read/nevada-net-metering-decision>) to end net metering for both old and existing customers may seem like a victory for the utility, but it is a Pyrrhic victory at best.

When only a small fraction of the electricity on the grid comes from solar (low penetration) in any part of the grid, net metering is a subsidy to the utility, not the net-metered customer. But rather than replacing net metering with something that would encourage distributed solar where it would be most useful, Nevada has driven solar installers (http://www.slate.com/articles/business/the_juice/2016/01/solarcity_and_vivint_pulled_o) from the state.

The decision did the greatest damage to solar customers who had the rules changed on them retroactively, and many of them will now never recover their solar investments. It also hurt other ratepayers who might have wanted to go solar in the future, and robbed all ratepayers of the benefits of any such installations to the grid. They are also robbing the planet of an opportunity to cost-effectively reduce carbon emissions.

The retroactive removal of net metering is also increasing uncertainty among large-scale energy developers, who reasonably wonder if something similar could happen to them.

How the conflict over net metering can be an opportunity

Must solar companies' gain be a utility loss? Hardly. The key is to learn from the principles of stakeholder capitalism and turn the seeming tradeoff into an opportunity.

Speaking at the 2016 Conscious Investors Summit

(<https://consciousinvestorssummit.splashthat.com/>), R. Edward Freeman, the academic director at the Institute for Business in Society of the Darden School and the University of Virginia, made the point that tradeoffs are a managerial failure.

Freeman explains that when you treat employees and managers like jackasses, with carrots and sticks, they start acting like jackasses. When you treat them like human beings who crave a sense of purpose, they work with passion and deliver creative solutions to seemingly intractable problems.

The solar/utility conflict is far from intractable, but for now, both sides are acting like jackasses. Utilities deride net metering as a subsidy from customers who can't install solar to those who can, while the Solar Energy Industries Association publishes principles

(<http://www.seia.org/sites/default/files/resources/SEIA%20NEM%20Principles%20for%20t> stating that customers should always have net metering as an option.

Both sides should stop acting like jackasses and seize the opportunity instead to focus on the tradeoff.

A solution already exists. This is the value-of-solar tariff, where solar customers are paid for the value of the electricity they produce at the specific time and place they put it on the grid.

Under a value-of-solar tariff, non-solar customers cannot subsidize solar customers (a common utility claim about net metering). By definition, under a value-of-solar tariff, solar customers are paid only for the value they bring to the grid. They won't be subsidized by other ratepayers simply because they are only paid for the value they create.

Untapped potential

Not only can a value-of-solar tariff resolve the conflict between solar and non-solar customers, but it can also unlock opportunities for solar which are currently being squandered under net metering.

Under net metering, the incentive is to install solar so that it produces the maximum possible amount of electricity. This means pointing the panels south, at latitude tilt. Under a value-of-solar tariff, the incentive is to produce as much value for the grid as possible, which often means pointing panels west or southwest, in order to help service peak air-conditioning loads on hot days, which usually occur in the afternoon. Such decisions depend on both the local climate and on the local loads on the grid.

They also depend on getting the value of solar right. This is where we need creativity from all parties working together.

The paradox of doing good

Few people expect much creativity from utilities -- although there are notable exceptions, especially when it is the regulator driving change.

The solar industry is another matter. Almost all solar companies portray themselves as working for the good of the planet, and most of those genuinely believe that is what they are doing.

That's where the reusable bags conundrum comes in. The mental accounting that allows a shopper to offset junk food indulgence with shopping bag virtue also seems to be affecting the solar industry as a whole.

If the solar industry were a person, it would be thinking: "I'm doing something great for the planet, so I don't need to worry about all the non-solar ratepayers my actions might hurt. As long as the greater good is being served, it's not my problem."

It's a pity that solar companies, which are doing so much good for the planet by displacing fossil fuels, are falling into the same trap as shoppers who displace plastic bags with reusable, but then poison themselves with junk food.

More solar companies need to stop substituting doing good for being good, and start living up to their true ideals. Solar has the potential to help all users of electricity, not just those who can install it themselves. A value-of-solar tariff can unlock that potential, as long as we have the creativity and courage to take everyone's interests into account.

Getting a value-of-solar tariff right will be tricky (<http://www.brookings.edu/research/articles/2014/09/net-energy-metering-solar-wood>), but creativity in the pursuit of a greater good (<http://complexsystems.org/publications/stakeholder-capitalism-an-idea-whose-time-has-come/>) is precisely what stakeholder companies excel at.

If all parties work toward a well-calibrated tariff, everyone will have the incentives they need to get the most out of future solar installations. Solar companies will get more business deploying solar where it does the most good. Regulators will see that all ratepayers are treated fairly. Utilities will find that new solar is connected to the grid where it makes it easier, not harder, to balance supply and demand.

Some people will still want to install solar even where the new supply is difficult to integrate, but a value-of-solar tariff will give them the incentive to install it with electronics and storage that makes the new supply easier to manage, or the price will be low enough that it will make sense for the utility to make the changes needed to handle it.

This kind of dynamic tariff is also likely to catalyze demand management, energy storage, and other industries we have not even thought of -- all of which will add jobs, create value, and help unlock the potential of solar.

Perhaps the solar industry and utilities can both have their cake -- and eat it together.

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