



The Unintended Consequences of Net Metering^{*}

On the surface, the concept of promoting rooftop solar energy seems like a good idea: homeowners are incentivized to buy or lease solar panels; they benefit from reduced reliance on the local utility for electricity; they benefit directly from clean solar energy; and they sell any excess power to the electric utility for credit or payment. The subsidies, in theory, make solar energy an affordable alternative for consumers. But, that is not the whole story. As this ConsumerGram shows, net metering can produce many unintended consequences that lead to higher costs for consumers.

What is Net Metering?

Net Metering is a program that allows consumers to generate energy from rooftop solar panels for their own use and to offset the cost of any energy they purchase from electric utilities. Because solar panels can be costly to purchase and install in homes, homeowners generally finance or lease the cost of these solar panels.

In an effort to reduce the costs of solar energy and encourage the production of carbon-free energy, regulators and policymakers, both state and federal, have put a number of measures in place to incentivize homeowner investment in solar panel systems. These measures come in the form of federal tax credits for solar panel equipment and installation, and, in some cases, a host of other state tax breaks and other incentives. In California, for example, net metering homeowners receive free interconnection and renewable energy credits, as well as exemptions from application fees and distribution upgrade expenses. In addition to these incentives, states allow homeowners with solar panels to sell the excess power they produce from their rooftops to the electric utility for credit or payment.

However, a number of states require utilities to buy excess solar energy from net metering consumers at or near retail prices, which makes net metering costly for electric utilities and thus consumers as well. In addition, the times when excess solar energy is produced and sold to an electric utility may not coincide precisely with the electric utility's

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demand, which means that some of the solar energy that is being purchased by the utility has less value or little offsetting benefit to the utility, its customers and even the environment.

The fact is net metering can lead to unintended consequences that increase costs for others. For taxpayers, giving some homeowners tax breaks is a cost that someone else must pay. There are also opportunity costs incurred when homeowners sell solar electricity without paying the taxes and fees that typical electricity producers would pay. In addition, if electric utilities are required to pay too much to buy excess energy from net metering consumers, then non-solar consumers are subsidizing solar consumers. In short, the measures introduced to encourage rooftop solar energy are potentially costly to consumers.

Welfare for the Rich

When net metering consumers are allowed to sell excess solar electricity to the utility at or near retail rates, as some states allow, the utility loses a portion of the cash flow that it could have used to invest in and maintain the electrical grid and its distribution infrastructure. Fixed costs for an electric utility can be substantial and recovery of these costs is necessary to insure reliability of services. Without setting prices correctly, the financial losses from net metering could undermine the very infrastructure upon which all electricity consumers depend, including net metering consumers. Unless addressed, this will jeopardize service reliability and ratepayers will be on the hook to pay the difference.

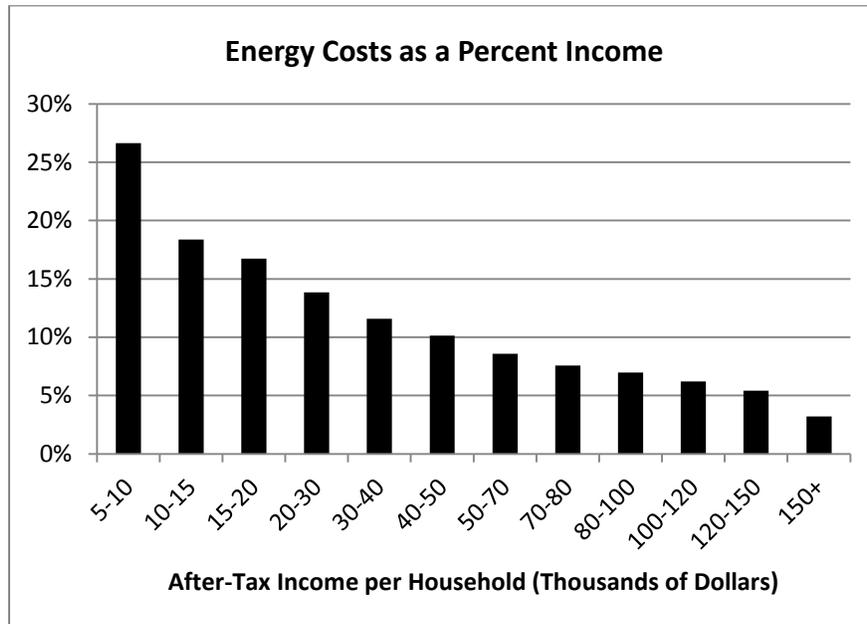
Homeowners who benefit from net metering should pay their fair share. Consumers without solar panels should not be subsidizing consumers with solar panels. To avoid this inequitable market distortion, electric utilities should be paying a price substantially less than the retail rate for excess solar electricity. As a general rule, the price should approximate the cost that the utility avoids by not producing the energy itself, or what is sometimes referred to as the *avoided-cost*.

Why should getting the price right matter to policymakers? Because consumers owning solar panels tend to have much higher incomes than other consumers, lower income families are effectively subsidizing higher income families. For example, the California Public Service Commission estimated that households with solar panels had incomes that were 68% higher than the average household.¹ Essentially, these subsidies amount to welfare for the rich.

Asking lower-income consumers to subsidize higher income consumers becomes even more contemptible when you consider that low-income consumers pay such a high proportion of their income for energy. According to the Bureau of Labor Statistics data, households with after-tax earnings between \$5,000 and \$10,000 spend 27% of their income on energy utilities

¹ "California Net Energy Metering Ratepayer Impacts," California Public Utilities Commission, October 2013, <http://www.cpuc.ca.gov/NR/rdonlyres/75573B69-D5C8-45D3-BE22-3074EAB16D87/0/NEMReport.pdf> .

and fuels, including gas and oil for their automobile, while households with after-tax income over \$150,000 spend only 3% of their income, as shown (below) in the chart.²



While encouraging alternative energy may seem to be a well-intentioned idea, subsidizing rooftop solar energy hits lower income consumers the very hardest. Policies that subsidize solar panels on the roofs of homes are discriminatory, because they unfairly raise the costs of energy for ordinary consumers. Given society's limited resources, these subsidies effectively reduce funding for conservation, low-income and other state programs, and they undermine the basic infrastructure that all consumers depend on for reliable energy. The costs of these subsidies may far outweigh the benefits.

The Cottage Economy

When governments give subsidies, some businesses find ways to benefit from these actions. With respect to net metering, one such group appears to be the many companies that lease rooftop solar panel systems to homeowners. The leases appear very attractive – offering free energy and low payments – but the deals are often fraught with inaccuracies about future energy savings, overlook insurance costs, and downplay the escalation of future lease payments.

In some instances, questionable sales practices have led leasing representatives to give misleading information in order to encourage consumers to sign long term lease contracts. The structure of many of these solar deals leaves leasing companies as the owners of the panels, which means that homeowners have additional debt obligations related to the home that may

² Annual Consumer Expenditure Survey, The U.S. Bureau of Labor Statistics, 2011, <http://www.bls.gov/cex/>.

complicate the ability of homeowners to replace or repair leaky roofs, as well as sell their homes. In a few years, some consumers could find themselves paying more for electricity than before their installation. To put some sunlight on these activities and address consumer fraud, a number of investigations and lawsuits have taken place in Arizona, Louisiana and in other states.³

Also of interest is the industry's huge debt which is sometimes supported by securitized financing that appears little different from the mortgage scheme of recent past. Moreover, according to *Energy Daily*, the financial survival of the industry rests on duping consumers:

*The company's [SolarCity] lease model depends largely on uninformed customers buying the unattractive lease/PPA [Power Purchasing Agreement] products. The supply of this class of customers is likely to be plentiful as the company targets new geographies, but we expect the supply of gullible customers to decline as solar penetration increases.*⁴

In short, many solar panel deals are being called *consumer scams*.⁵ The cottage industry that has sprouted up across the nation has come about, in large part, from the subsidies that have distorted market prices. Consumers need to be provided the right information to make informed decisions, and consumer protection is necessary to prevent such fraud.

Policy Solutions

The intent of policies that encourage homeowners to buy or lease solar panels is a good one in that it encourages the use of clean energy, but the policy has many adverse consequences that could be minimized. Rooftop solar energy is supported by net metering and tax incentive programs that translate into real costs for taxpayers and ratepayers. They disproportionately help high-income consumers at the cost of low-income consumers. These programs are designed to help consumers who can afford solar panels and own homes at the expense of those who are cannot. The subsidies can undermine electricity infrastructure funding, which would raise consumer costs and will eventually adversely affect service reliability. They can also attract leasing schemes that hurt homeowners.

³ For an example of Arizona's Attorney General warning consumers against fraud from solar power dealers, see <http://www.jrn.com/kgun9/news/AG-warns-about-residential-solar-panel-systems-262012861.html>; and for an example of legal action against unfair trade practices and advertising in Louisiana see, <http://louisianarecord.com/news/258663-5-million-at-stake-in-class-action-lawsuit-claiming-solar-panel-installation-companies-lied-about-electricity-cost-savings>.

⁴ For example see <http://www.newsmax.com/BradleyBlakeman/Solar-Energy-SolarCity-Homeowners/2014/08/13/id/588557/>.

⁵ For example, see <http://www.newsmax.com/bradleyblakeman/roof-solar-panels-fraud/2014/03/14/id/559661/> and <http://www.bbb.org/blog/2012/06/dont-fall-for-a-solar-paneling-scam-this-summer/>.

The basic solution is simple. It is important for policymakers get the prices right. The price at which net metering customers are compensated for excess production should reflect no more than the avoided cost. This would set the right market incentives, financially support the network infrastructure, maintain customer reliability, and lead to workable public policies that promote clean energy consumption and production.

State consumer protection agencies, state Attorneys' General, Consumer Financial Protection Bureau, and the Federal Trade Commission should become involved and investigate the rooftop solar leasing dealers that are fleecing American consumers across the country. The U.S. Congress should hold hearings to expose the scope of the problem and seek solutions that protect consumers. At a minimum, it is important that consumers get the right information to make good buying decisions. In addition, implicit subsidies, including tax breaks, need to be made explicit so consumers and taxpayers know what they are paying for to encourage the adoption of rooftop solar energy.

For net metering to be successful, it is crucial that policymakers find solutions that produce more benefits than costs. Accomplishing this requires getting the prices right, and increasing consumer protections.