

# Why the poor pay more for utilities?

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It is clear that the solar revolution is sweeping across the globe, with or without governmental incentives. Particularly in North America, the largest job creator in the past year has been singularly the solar industry. But a deeper analysis reveals that most of the growth over the past decade has been in utility-scale sector, although certain states like California, New Jersey, and Pennsylvania lead the way in residential sector as well.

Even in these states, if we look a bit deeper into the residential sector, we find that most of the penetration has been in the mid to upper echelons of society, while leaving out the vast majority of low income communities. Thus, in a sense, solar is still the playground of the rich, in spite of drastically falling costs in the industry, and significant federal, and state level incentives.

Consequently, the affordable housing residents do not have an opportunity to enjoy the savings due to solar installations, nor the health benefits of clean power. To make matters worse, most of the coal plants are located close to low income communities.

We don't need to look far to find out the reasons for this situation; the residents of low income communities cannot invest any monies toward a solar installation. With a tight budget and nearly 40% or more of the monthly income being spent toward rent, there is very little room for such things as a solar installation.

Although various models of participation in the residential solar revolution are prevalent such as lease, Power Purchase agreements, or ownership, funded via the loan model,

none of these options are available to low income residents. How can we ameliorate this situation?

For gaining deeper penetration in the affordable housing market, there needs to be a coalition of local government agencies, non-profits, community service organizations, and churches. This coalition is to be formed, not just for raising funds for deployment of solar, but also for customer education on safety issues, long term maintenance of the asset, prudent use of energy over the life of the system, just to name a few.

The impediments to greater penetration can be classified into 3 categories: financial, utility policies and solar illiteracy. Let us review each of these in detail.

## **The financial issue**

The low income residents rarely, if ever, need any tax credits. So, even if they tide over the liquid cash issue, they will not be motivated to install solar by focusing on the tax credits for themselves. Thus, self-financing, or bank financing is out of the question. So, why can't a for profit developer come in and enjoy the tax benefits, while passing on the utility bill

savings to the low income resident? For this to happen, there has to be scale. So, agglomeration of customers into a larger pool of energy capacity is the first step.

Even if this was achieved with the help of local community agencies, how can the developer be assured of payment? He may be worried about customers' credit issues. One option is to have a power purchase agreement with the customer, but many states do not allow PPAs.

Also, whereas many states have good solar incentives, they are mostly applicable to 'for profit' entities, which precludes the possibility of a non-profit organization being seriously interested in owning a system for the benefit of low income residents, even if such non-profit was willing to fund the system.

So this leaves one of the few available options on the table, such as non-profit foundations making grants for installation of solar in affordable housing communities. Although there are some examples such as the Clean Energy Community Foundation in Illinois, they are just far and few between. Besides, their kitty is also very limited in size, in most cases.



income population, most of them of exceptional quality.

If a similar 90% incentive is offered to solar projects geared toward affordable housing communities, then, there will be a big boost in solar penetration levels in such communities. A similar incentive could be considered at the state level as well. Local governments could consider issuing 'Affordable Solar Bonds', exclusively targeted at bringing solar to low income residents.

Second, community organizations have to lobby for changes in utility policies directed toward universal net metering for low income communities and adoption of PPAs at least for low income communities. Whereas the idea of limiting the MW that can qualify for net metering is reasonable in view of grid capacity, and utilities staying in business for the long haul, the MW restriction has to be relaxed at least for low income communities. Also, virtual net metering must be allowed at least for low income communities, universally, across all states.

And finally, the community organizations must take up the challenge of propagating the solar benefits, cost advantages, and environmental benefits to the low income residents. Good education regarding the prudent use of energy, safety habits with respect to solar installations and cost savings, due to adoption of clean energy, are an absolutely essential part of making solar affordable for all!

In this respect, the recent 'Solar in your Community Challenge' program by the Department of Energy is a good step in the right direction. The department is awarding a huge prize of \$1 m, as well as several small grants for companies to come up with innovative business models for propagation of solar in low income communities.

Solar Micronics is one of the proud participants in the challenge, and has been selected by the Department of Energy to participate in the final round of the competition. About 500 companies around the nation participated in the challenge. As part of its efforts, Solar Micronics is putting up a 1.3 MW system for a low income apartment complex of 175 units.

Combining geothermal with solar and using the most efficient HVAC system, the residents will be able to enjoy more than 50% saving in their utility bills in this complex of Net Zero Energy, and Net Zero Carbon. Training of the low income residents in the solar installation field is also part of the program. The final results of the competition will be announced in Oct 2018.

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### Utility policies

Some states do not have a net metering policy, which means the customer cannot get credit for excess solar production. Also, even in states which allow net metering, the size of the system that can be eligible for net metering is quite small. For instance, the limit is 1 MW in North Carolina, and even less in some states.

A large apartment complex, comprising entirely of low income residents, is likely to need a system well in excess of this limit of 1 MW. So, if the apartment complex needs a 3 MW system, the residents can enjoy the benefits of only one third of the system capability. If there is no net metering policy at all, the situation is even worse.

Another impediment is the lack of virtual net metering in many states. If virtual net metering was allowed, such as in Community Solar models adopted by some states, then, the low income consumers can participate in the solar revolution by getting credit for at least a portion of their consumption by either purchasing a limited number of panels, or by entering into a PPA in states where allowed. But, this model is largely undeveloped across vast swaths of the country.

### Solar illiteracy

This is another major impediment to propagation of solar among low income communities. Just like the situation of the poor people having unhealthy eating habits not for any reason other than the fact that they do not know any better, the lack of knowledge about solar and its money-saving capabilities is another major negative factor affecting the widespread adoption of this clean energy mechanism. So, how do we overcome these impediments to ensure a solar future for all, including the residents of low income communities?

First of all, there have to be government policies and incentives exclusively targeted toward 'affordable solar'. One of the most successful government programs is in the housing area targeted exclusively toward low income customers is the LIHTC (low income housing tax credit) program.

In this program, almost 90% of the cost of building a home (or apartment complex) is recouped via tax credits which are soaked up by banks, insurance companies and other profitable enterprises. As a result, literally, hundreds of thousands of units have been developed in the US for low