

I had my system installed by Sunfinity in Aug 2018 starting with 20 panels: 17 panels facing south west. (optimum direction for our house) and 3 facing to the opposite north east direction. (The trees in my neighbor's yard to the west block the sun on the south west facing panels late in the afternoon so I don't have an optimum situation for solar.)

I had several other installer quotes before, but Sunfinity was willing to work with me to customize the layout of the panels. Normally the design programs layout a system focused on getting the optimum performance out of the panels so the north east roof angles were the only design options for the quotes I received. Designs come with the caveat that trees have to be controlled or removed to get this optimum performance. Even if I had control of the trees, this would be unacceptable. (Nature always does a better job at anything and the shading in the west during the hot summer months is an excellent energy demand reducer.)

The three "non- traditionally oriented "panels facing north east were at my request for evaluation. Where I have shortened daytime exposure for my more optimally placed south west panels, my north east planes of my roof have no shading issue and I have sun exposure at sunrise year-round.

After a year of comparing the output of the three experimental north east facing panels to any of the south west panels, my theory was confirmed. The north east facing panels generate as much if not more energy than the optimally oriented panels due to the longer daily hours of sun exposure. I have a very clear exposure to the early sunrise and my north east panels starts generating power as soon as the photons strike the panels -hours before my westerly panels kick in.

In August 2019, I had 14 more panels added to my system mostly on the north east planes of my roof. This addition probably doubled my capacity for energy production. We had three months this year where we produced more energy than we consumed. All in all, it looks like a 50% or better annual grid supplied energy reduction. I never could have achieved this amount of energy savings without the north east panels as I had no more south west space to put panels.

My goal was to achieve the most energy production as possible for our home. This is my story on how I was able to achieve this goal. Was it environmentally a good move? It adds to the renewable energy pool, so I would like to believe so. Admittedly, these panels placed on an ideally situated home would be a better use of the panels considering the earth's resources required to make them? These are difficult questions to answer. For now, the answer is yes. If we lived in an economic environment that favored long term survival (over profit), then the 1000's of better locations for panels in Dallas would have been ahead of me in the queue for installations.

For now, we are enjoying knowing that our grid demands are reduced and it is an added bonus that our utility bills are down a bit. For us it is an environmental investment.

Comments on Oncor rebates:

My first attempt at solar was 5 years ago. I had a contract all signed and ready to go with another company but it fell through when I was disqualified for the rebate by Oncor. Our afternoon shading caused us to fail the at production during prime capacity hours in the summer months (5 PM to 7 PM) needed to qualify for an Oncor rebate. The Oncor rebate is given to help them reduce the need for online capacity during their peak capacity in the summer hours. That is the reason for the

rebates. Various installers in the Oncor area are given an allotment of rebates and this is an incentive for the installers to find homes that can qualify.

Comments on Green Mountain:

We have the 2 year buy back plan with Green Mountain.(Renewable Rewards 24 at \$0.129/kwh). A one year renewal would have been at \$0.139 per kwh. My first contract in 2018 was 1 year for \$0.119 so after my 2 years is up, I expect the rate to rise again. The nice thing is that there is only one charge to consider in the cost as opposed to the usual multitude of costs associated with traditional tiered plans. (Before solar, my rates were around 7 or 8 cents per kwh for less than 1000 kwh monthly usage. But, on half of the months when I went well over 1000, my rate was in the 11 cent range after all of the add-ons.)

What is net metering?

GM's buyback program is not true net metering since the newer Smart Meters can't run backwards like the original mechanical ones with dials. If this were the case, someone could find the lowest rate provider and pay the low rate on the net energy used. The energy industry has fought against net metering due to the loss of revenue from solar users that could keep their usage at the reduced usage rates.

GM charges a premium price on the energy you use from the grid. They credit your account for the energy they receive from your system. Think of this premium as the price to "store" your excess energy for later use. This saves the investment of a battery storage system. Of course, more tradeoffs. It takes electricity to run the solar panels and a battery storage system could be configured to take your system off line in the event of a power failure (extended of course) and allow someone to have solar energy when the grid is down. For me, I have a gas generator that supplies about 1/2 of the circuits in the house (the most critical) during a power failure. The solar panels are not critical circuits.

Observations after one year:

I am pleased with the Enphase app for online reports. I would guess that any system would have the same type reporting. The displays that show cumulative energy produced on each panel was invaluable for my evaluations. But what I now look at the most is the display showing 15 minutes increments of the day. I can observe a bar graph with bars above the zero line representing KWHrs of energy produced each quarter of an hour. Pointing downward under these production bars are the grid supplied energy amounts in KWHrs added to our production. My total usage demand is the sum of these two bars.

Even after having phased in LED bulbs throughout the house, I still find myself turning out lights around the house. Just knowing that unnecessary usage is eroding the "credits" earned during the day, one tends to be hyper conservative. Being able to visualize savings is highly addictive for solar users. And that can't be all bad.

Happy "solaring",  
Charlie Hess