

To net meter or not to net meter – how should utilities, consumers and vendors collaborate

By Omer Ghani, CEO, Kilowatt Labs, Inc.

The end of net metering (NEM) in Hawaii and Nevada, has brought the NEM debate mainstream. Solar and green advocates, and solar vendors, blame “greedy, monopolistic” utilities for standing in the way to a cheaper and cleaner electricity future to protect their outdated and inefficient business models. Utilities respond by stating the benefits of NEM aren’t as wonderful as NEM proponents claim them to be and are actually troublesome and hard to manage.

Experts and consultants research and engage with all stakeholders and publish reports paid for by both sides – each making strong claims. The experts and consultants are happy.

No one else is.

In order to understand why the acrimony is escalating, we must understand how the electric grid works.

The grid consists of 3 components (1) generation which is the production of electricity; (2) transmission which is the transport of electricity from its production site, typically over long distances; and (3) distribution which is the transport of electricity from the transmission network to our homes.

Some additional important facts (1) the grid has no inventory, which means that the supply of electricity at all times has to equal demand; (2) fewer than 30% of utilities own generation plants¹; (3) solar panels generate electricity between 4 to 6 hours a day depending on location.

Now let’s see what happens with each stakeholder when a solar system is installed in a home under a NEM program.

The Consumer (or ratepayer). The consumer acquires a solar system from a solar vendor. When her new acquisition is installed, the solar panels start to generate electricity. She either consumes it or exports it to the grid if she isn’t home. This happens for 4 to 6 hours a day (the solar generation time). She then uses the grid for the remainder 18 to 20 hours of the day. With the NEM tariff in place, she reduces her utility bill 90 to 100%, and she shares these savings with the solar vendor, and recoups her investment over time. She is a happy consumer.

The solar vendor. The solar vendor sells and installs the hardware at the consumer’s home, connects the system to the grid, and collects his payments, making a profit on the transaction. All he has to worry about is making sure that the system is installed properly

and he has met the interconnect requirements set out by the utility. He is a happy solar vendor.

The utility. The utility has a lot of work to do. (1) It must have the grid in place to allow the consumer to connect her solar system to it, because that's the only way the solar system works; (2) it must accept the electricity exported by the consumer as and when the consumer decides to export the electricity; (3) since the grid does not have inventory, it must immediately find a new consumer for the electricity being exported otherwise it will create all sorts of technical problems; (4) it must deliver electricity to the consumer for the 18 to 20 hours a day that the consumer's panels are not generating electricity; and (5) since it is paying the consumer a retail tariff for the exported electricity, it must do all of the above but now earn between with 0% - 10% of the revenue it was previously earning from the consumer. No wonder the utility is not happy.

Pro-NEM advocates go to great lengths in highlighting other potential advantages of rooftop solar that apparently make NEM beneficial to the utilities.

With all due respect to the various analyses put forward by NEM advocates, the concept that the grid must be present for the rooftop solar system to even function, accept the exported electricity not consumed by it in an intermittent and unpredictable way, compensate for this intermittent and unpredictable supply at a retail rate, and then to supply electricity to the same consumer for the remaining 18 to 20 hours a day with just 10% of its revenue, seems an unsustainable concept in the long term.

In other words, if the grid wasn't present, rooftop solar wouldn't exist.

No wonder the utilities are pushing back on net metering.

Now that we have an understanding of why there is pushback on NEM programs by the utilities, is there a sustainable collaborative solution available to transition to renewables from fossil fuels?

The answer is yes, and it's based on the concept of independent distributed energy.

Independent distributed energy is defined as a "renewable plus storage solution" that generates electricity entirely from renewables (solar, wind etc.) during the day, delivers it to the home and charges the storage concurrently, and then uses this stored energy to deliver electricity at night. Technology is now available that makes independent distributed energy a reality, economically, and is being tested in various pilot projects.

Under such a solution, the consumer doesn't need the grid to transition to renewable based energy. She installs the system and completely stops consuming electricity from the utility.

This releases demand to the utility in a predictable way, which allows the utility to profitably find a new customer and, not have to deal with an intermittent and unpredictable reduction

of consumption or export of electricity into its system. Importantly, by doing so, the utility doesn't lose any revenue.

Finally, by investing in such a solution, the consumer helps the utility achieve renewable requirements mandated by the government, without any capital allocation.

The consumer is happy. The utility is happy. The solar vendor is happy.

And the transition to cleaner and cheaper electricity is underway.

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<http://www.eei.org/resourcesandmedia/industrydataanalysis/industrydata/Pages/default.aspx>