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Residential Solar Cells Could Ease Power Woes

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Over the past few weeks, Albuquerque's rapidly growing West Side experienced a series of temporary electricity outages during the middle of slightly hotter than average summer days.

It wasn't because power plants couldn't generate enough electricity. It was because the distribution network couldn't carry the load being demanded by air conditioners, indoor lighting, refrigerators and industrial motors.

Public Service Company of New Mexico had to install a temporary substation and is now having to build new, expensive additions to the grid. That will prop up the system until the ever-increasing demand for electricity— most of which is generated by fossil fuel-burning plants in New Mexico— overwhelms the new additions or exceeds primary generating capacity.

At 2 percent growth per year, it won't be long.

The experience on the West Side isn't unique and it's far from new. The New York City blackout of 2001 immediately generated a flurry of "think tank" reports chronicling the blatantly obvious: the U.S. electricity distribution system is creaking along— a setup for recurrent failure.

Here's an idea that won't solve the whole problem, but will mitigate the worst of it in much of the Southwest: Encourage electric utilities to provide— for free— "time of day" meters for any household that installs grid-connected photovoltaic panels.

When a household puts in PV panels with a regular meter in place, the meter turns backwards when the panels' output exceeds consumption. By law, utility companies are required to credit the homeowner for those excess kilowatt hours.

But if there were a time of day meter, which accounts for when those kilowatts are produced, the power company could reimburse the PV-panel owner for those expensive middle-of-the-day kilowatt hours with, say, a 2.5-for-1 kilowatt-hour credit, depending on open market prices. Daytime peak rates can be from three to 10 times the rate for night-time kilowatts.

The result is win-win: power produced when it's needed, used where it is needed (long-distance transmission losses are avoided), enough electricity from a modest system to cover the vast majority of typical yearly residential use, no maintenance needs, no fossil fuels burned, and no need for substations and more wires.

The cost, borne by the utility company, will be rapidly recovered in deferred

infrastructure investment, generating capacity exactly at the time of day when its needed when the sun is shining brightly overhead in our high desert environment, and sparing of expensive natural gas to run "peaking" plants on hot days.

Utility companies get to sell the power at higher daytime rates, even to places as distant as California (where the profits can be enormous— often from five to 10 times the cost of producing and transmitting the electricity).

And, it will encourage individual residential daytime energy conservation as well — the low hanging fruit that frivolous Americans refuse to pick.

The economics work out well for the homeowner who installs photovoltaic panels: A \$12,000 system will, in effect, generate about \$700 worth of electricity a year— a 6 percent, tax-free return and completely protected against energy cost inflation. Try to get that with any "guaranteed" investment like a treasury bill.

Now not everyone has that much money to invest, but if even 10 percent of homeowners in New Mexico put in a 2-kilowatt sized system, that would be over 200 megawatts of precious "peak power"— more than enough to cover the shortfalls we've been experiencing in the area and the inevitable increased demand projected for the near future.

New Mexico is blessed with abundant sunshine, indeed just about the most of any state. Without the need for wasteful subsidies, citizens can partner with the local power companies to produce and distribute electricity cost-effectively for everyone involved, and with little or no impact on the environment.

All that's needed is a bit of open-mindedness from utility executives and a push from our peripatetic governor who prides himself on his negotiating skills and friendly cajoling, finally putting a bit of substance behind his so-far empty rhetoric glorifying New Mexico as the "Saudia Arabia of renewable energy."

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