Solar Value Eclipse

Are you in favor of adding more solar power to the electric grid? If your answer is yes, you probably haven't heard about the Solar Value Cliff. In many regions today, adding solar harms the grid's reliability, it's fundamental economics, and it costs you more money.

Surprised? Well, this sort of energy reality isn't the kind of thing the mainstream media talk about.

Because electricity can't be affordably stored on a large scale it has to be used when it's generated. That means solar facilities only provide value to the grid during daylight hours.

This is a big problem because in the colder months peak demand for electricity happens after the sun has gone down as people get home from work, turn on lights and TVs, cook dinner and adjust their thermostats. In the summer, the peak comes earlier and lasts longer, but demand is still high as solar's output is on the wane. While solar's electricity contribution is going or gone, traditional energy sources have to carry the entire load.

Think of it this way. Natural gas, coal, nuclear, and hydro generate electricity twenty-four-seven. Solar, on the other hand, is like a privileged part-timer who arrives late, does work others could easily do, and then leaves while everyone else is working full tilt. Because all full-time workers are needed for the peak workload, they all have to be kept on staff and there is an expensive duplication of labor.

This is bad enough, but a new report by the Institute for Energy Research, IER, explains why this problem is even worse than it appears.

When solar installations are generating electricity during the daytime hours, other sources have to scale back what they produce. Selling less electricity costs them money and if there's too much solar power in the system they can't produce enough revenue to make a reliable profit.

Who cares about the financial health of big, faceless power companies? We all should. If there aren't enough traditional power plants to meet peak demand, the lights go out.

IER's research shows that when solar generates one percent of all electric power, it does provide a nice addition to the grid, but that value drops quickly and falls to zero once the solar market share reaches six percent. Anything beyond that creates a destabilizing negative value as other electricity providers lose revenue even though they are still called upon to provide power at the most critical hours when solar isn't helping much or not at all.

If some genius invents an affordable way to store solar power on a large scale so it's useful when the sun isn't shining, THAT will be a breakthrough moment that will greatly impact the way we produce and use electricity. But until that day comes, if it ever does, adding too much solar will just drive up electricity costs while making the grid less stable.

Power on America.