

## **Ferguson: Energy Matters**

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### **California's Future: Solar or Nuclear?**

Having decided, more or less, that California is going to wean itself from coal-fired power in an effort to limit global warming, what does its electricity future look like? The Energy Commission and the California Public Utilities Commission declare the state will increase generation from solar and other renewable resources. The governor appears supportive. The utilities, however, are thinking nukes. Both are non-fossil, but the choices couldn't be more polarized.

Which will it be? Solar or nukes?

My guess is that an opinion poll would find the public squarely on the side of solar. Building solar power plants also has the advantage of being legal. For the time being, building another nuclear plant would require a change in existing law, since no solution to the waste disposal problem is in sight.

There are other renewable energy technologies besides solar, of course. The state is blessed with substantial wind, geothermal and biomass resources that should be developed. But the potential of these resources is limited. Solar potential is huge. Florida may claim to be the sunshine state, but California outshines Florida by far with some of the most extensive and intensive solar energy resources in the world.

No one is suggesting that the desert be paved with photovoltaic (PV) panels. When building utility scale solar power plants, it is much more efficient to collect the solar energy to make steam to run conventional steam generators. Efficiencies are three times higher than PV and costs are three times less. California already is home to the world's largest collection of concentrating solar power (CSP) generators—nearly 400 megawatts. New, more efficient, CSP facilities are on the drawing boards ready to go.

Unlike nuclear plants that run 24/7—when they run at all—solar power is available when the sun shines (duh). The same sun also heats up buildings and makes folks turn on air conditioners that need electricity. So there's a pretty good fit between solar power and air conditioning loads. Because these peak air conditioning loads make grid operators worry about the lights going out, solar electricity is a welcome addition.

What about costs? The price of solar power now being offered to utilities is in the neighborhood of 15 cents/kWh these days. There is reason to expect that a commitment for several thousand megawatts—the size of a nuclear plant—would lower costs to around a dime. How much does a nuke cost these days? Who knows? California's experience with nuclear power so far hasn't been exactly cheap. *(Editor's note: the state estimated that ratepayers spent well over \$30 billion on Diablo Canyon over the years.)*

And then there's that nagging question about what to do with radioactive waste. Ganging up with other states to dump the stuff in Nevada doesn't strike me as particularly fair.

So what's the hold-up? California has a plethora of grand global warming policies, so why isn't it building solar power plants left and right? And why are the utilities talking nukes instead?

My theory is that utilities haven't figured out how to make money on solar power.

Investor-owned utilities make their money by investing shareholder money in projects approved by the CPUC, for which they receive a handsome return on their equity almost risk free. If they build a nuclear plant, untold billions could be invested. If all they do is purchase power from solar developers, they make no profit at all. One utility suggested that it should simply receive a share of the money going to solar developers under contract, but outright bribery like that is unlikely to be popular at the CPUC.

If my theory is correct, we fans of solar power need to figure out a legitimate way for utilities to invest in solar power. FPL, the big Florida nuclear utility, has a subsidiary that ironically owns solar power plants in California. For whatever reasons, our own utilities aren't willing to do so.

Perhaps the solution is for our utilities to simply buy a minority equity stake in solar projects. By all accounts, there is plenty of money on Wall Street ready to fund clean power in California, so the utility investment is not required. But if allowing our utilities to invest would make them solar friendly, why not encourage them?

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