

Ferguson: Energy Matters

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Global Warming - What Hath Sacramento Wrought?

The California Legislature has been praised and damned nationwide by all the usual suspects for passing historic legislation to limit emissions of greenhouse gases. AB 32 by Assembly speaker Fabian Núñez (D-Los Angeles) and Assemblymember Fran Pavley (D-Agoura Hills) orders the Air Resources Board to devise a regulatory scheme to achieve the "maximum technologically feasible and cost-effective" emissions reductions by 2020.

But what does it mean for California's electricity system?

The quickest and cheapest way to minimize emissions from the electricity sector is to reduce demand for electricity. The state is spending something like a billion dollars a year on energy "efficiency" but is not even close to capturing all feasible and cost-effective load reductions.

For many years I argued in vain that utilities have too many conflicts of interest and should not control public investment in energy conservation. They much prefer to spend money where it has the biggest public relations benefit rather than reducing demand for their product. I've given up hope for significant improvements in energy conservation unless electricity prices soar.

On the supply side, greenhouse gases are emitted by electric generators burning coal and natural gas. There are efforts to capture and permanently "sequester" carbon dioxide from these plants, but it seems unlikely that the required technology will be feasible or cost-effective in the next decade or so. If not, what are the alternatives?

Hydroelectric and nuclear power currently are the two other major conventional sources of electricity for California. However, the state's hydro system is maxed out, and the nuclear waste issue has yet to be resolved. I deem it unlikely that these generation technologies will expand in California anytime soon.

So it appears to me that AB 32 is tantamount to a requirement that the state's growing demand for electricity be satisfied by unconventional technologies such as wind, geothermal, solar, and biomass if the goals are to be met.

"Biomass" is a shorthand term for agricultural waste, forest residues, landfill gas, and other fuels from once-living plants. Burning releases carbon dioxide, but the theory is that the plants captured the carbon from the air in the first place, so net emissions are zero. Collecting these fuels and transporting them to a generation facility is energy-intensive and expensive. Environmentalists argue that timber and crop residues must be returned to the earth if the system is to be sustainable. It's unclear to me how big a role biomass fuels can play.

Geothermal resources are limited. The Geysers area is at maximum production, perhaps even exceeding sustainable limits. The Salton Sea and Mammoth regions have geothermal potential that should be tapped, and neighboring states also have resources, but geothermal's contribution to total supplies will be limited.

That leaves us with wind and solar power. With all due respect to my solar colleagues, proven solar technologies cannot now meet a standard cost-effectiveness test. I'm a big fan of solar and hope costs can come down. It's worthwhile to keep investing in solar even at current prices so the technologies can continue to develop. But barring a breakthrough, it's hard to see solar playing a major role in meeting AB 32's goals.

So we're down to wind. If AB 32 means anything, it means that California is going to capture all the wind energy it can and put it into the electricity grid. Wind technology is mature, and wind power costs less than gas-fired.

Sacramento politicians love grand gestures and the admiring press coverage they generate. But I don't put much faith in such things. By the time the bureaucrats get done deciding what "cost-effective" and "maximum technologically feasible" mean, who knows where we'll be?

If what AB 32 intends for the electricity sector is to maximize reliance on California's wind resources, why the heck didn't it just say so?

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