

Calif. can meet 75% of its clean energy goals with existing technologies -- study

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California regulators are jumping hurdles to meet their target of 1990 emissions levels by 2020, but they still have the long view in their sights.

A report released this week by the California Council on Science and Technology, a state-founded think tank, theorizes on how to reach 80 percent below 1990 levels by 2050, as mandated by an executive order signed by former Gov. Arnold Schwarzenegger (R) in 2005.

Reaching 80 percent below 1990 levels by 2050, while planning for a near-doubling of the population, would require emissions to fall from 13 tons of carbon dioxide-equivalent per person in 2005 to 1.6 tons in 2050, or from 470 million tons to 85 million statewide.

Getting to the 60 percent mark, or 75 percent of the way to the goal, is doable with existing technologies, the report finds. Energy efficiency measures for buildings, industry and transportation, as well as electrification of transportation and heating systems, wider adoption of low-carbon fuels, nuclear power and carbon capture and storage will all be needed.

"The problem of getting from 60 percent to a full 80 percent reduction in emissions from the 1990 level will require technologies that are not currently on the market, or even in demonstration," the report says. These could include new energy storage technologies, smart grid improvements, advances in biofuel technology, new low-carbon fuels that are not based on biomass, and changes in behavior, it says.

If California continues on its current trajectory of increasing renewable electricity generation and using natural gas to smooth intermittent supplies, its chances of reaching the 2050 target are basically nil, the report finds. Energy storage techniques or a smarter grid are necessary.

"The grid as it currently stands is entirely unsustainable," said report co-author Jeff Greenblatt, of Lawrence Berkeley National Laboratory. "We're going to see a very different grid in 2050 than we have now."

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