

# **Study: Extending Daylight Saving Time is an unlikely energy saver**

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As the United States readies to launch Daylight Saving Time (DST) this Sunday (March 11) - three weeks earlier than previous years - residents can count on more sunshine later in the day, but not on saving energy, advise two University of California, Berkeley, Ph.D. students.

In a University of California Energy Institute working paper, Ryan Kellogg and Hendrik Wolff of UC Berkeley's Department of Agricultural & Resource Economics contend that the extension of DST won't cut back energy consumption by the proffered goal of 1 percent and could actually increase it.

Their study is the first to report that the extension of DST- the adjustment by an hour or so of standard time to more closely match the solar day with regular human activities - does not save electricity or promote more efficient energy usage.

"Does Extending Daylight Saving Time Save Energy? Evidence from an Australian Experiment" offers a detailed look at what happened in one of the two states in Australia that stretched out DST by two months to facilitate the 2000 Olympic Games in Sydney.

The researchers' data included comparisons of half-hourly electricity consumption, prices and weather conditions in the state of Victoria, which extended DST, and its neighbor state, South Australia, which did not. The researchers avoided confounding their results with the direct effect of the Olympics by excluding from their analysis the two weeks

during which the Olympics were held. They also excluded the state of New South Wales, where the games were hosted, and where construction could be expected to affect electricity consumption before and after the international competition.

"Our results show that the extension failed to conserve electricity," wrote the student researchers. In fact, they said, it appears that energy suppliers experienced higher peak loads in the mornings than before, and that morning wholesale electricity prices rose sharply in response.

"The decrease in evening electricity demand and the increase in morning demand almost perfectly balanced each other out," said Wolff, a native of Germany, in an interview, noting a slight but statistically negligible increase in overall usage.

The findings, the students said, have significant implications for Australia, which ranks highest in greenhouse gas emissions per capita worldwide and is considering making Daylight Saving Time permanent.

"Our results indicate that the claims that extending DST in Australia will significantly decrease energy use and (greenhouse gas) emissions are at best overstated, and at worst carry the wrong sign," wrote Kellogg and Wolff. "Also, while we cannot directly apply our results to other countries without adjustment for behavioral and climatic differences, this study raises concern that the U.S. is unlikely to see the anticipated energy conservation benefits from extending DST."

Meanwhile, the researchers said that the federal Department of Energy told the students it will officially respond to their work sometime in the coming weeks, and the California Energy Commission has expressed interest in revamping its own simulation models of electricity use. The commission in 2001 developed simulations that ultimately supported a California Senate resolution to drop Pacific Standard Time in favor of a

year-round Mountain time zone designation - in essence, DST in the winter and double-DST in the summer.

The Australia report carries added import for Central California, said Wolff and Kellogg, because the two regions occupy similar latitudinal locations and typically record similar weather conditions during the time periods when they typically put DST into effect: October in Australia and April in California.

"What happened in Australia intuitively fits with what will likely happen here," said Kellogg, also a graduate student researcher at the UC Energy Institute. He said he will informally monitor energy usage in California this year during the first week or so of DST.

With the United States and other nations dependent on foreign oil emphasizing "oil above all else" in terms of energy policy, Wolff said, he and Kellogg suggested including gasoline consumption data in future analyses of the energy implications of extending Daylight Saving Time.

The pair began by reviewing 2005 national energy policy, which extolled the virtues of extending DST and claimed it would save 1 percent in electrical energy consumption daily - the equivalent of 100,000 barrels of oil.

That policy, said Kellogg and Wolff, relied on previous experience in the United States with the extension of DST that occurred in response to the Arab oil embargo of the early 1970s, when a recession and other energy conservation efforts may also have reduced electricity use.

"Until now, studies were restrained by a lack of recent observable data," said Kellogg, a Cleveland native. "No one until now knew how imperfect it was to rely on older work."

Both Wolff and Kellogg acknowledged that even without energy savings, Daylight Saving Time will have its boosters among those who enjoy evening outings in the sunshine and detractors among early morning joggers and others who dislike extended morning darkness.

"In the public mind, more important than any energy issue is, 'How is this going to affect my life?'" noted Kellogg. "Some people will really appreciate an extra hour of daylight."

Wolff recommended that DST - first instituted in the United States to save energy at the end of World War I - be removed as a component of national energy policy and assigned to other legislative and governmental forces that might consider it more in terms of its impact on traffic accidents, crime and culture. "For the 21st century, if we want to keep Daylight Saving Time," he said, "we should find better, more efficient arguments for it rather than just energy conservation."

Source: University of California Berkeley

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