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THE NUMBERS GUY
 By CARL BIALIK



Longer Daylight Time May Save Energy -- But Stats Are Stale

November 2, 2007; Page B1

Americans are turning their clocks back this Sunday -- one week later than last year. With the earlier start this past March, that translates into four extra weeks of daylight-saving time.

The extra hour of primetime daylight is supposed to save energy, but the decision to make the extension was based on some questionable numbers. And any subsequent statistical support is a long way off. "The jury is still out on the potential national energy savings," says U.S. energy department spokeswoman Megan Barnett.

Congressional sponsors of the bill in 2005 argued that starting daylight time the second Sunday in March and ending it the first Sunday in November would cut electricity usage. Natural light would substitute for electric lights and people would participate in electricity-free outdoor activities instead of heading home to use appliances and watch television.

When Edward Markey, a Massachusetts Democrat, and Fred Upton, a Michigan Republican, introduced the bill, they said the extension could save Americans the equivalent of 100,000 barrels of oil a day -- an estimate repeated frequently in the media. But that statistic relied on figures from 1974, when President Nixon sprung clocks forward early, in January, during an energy crisis.

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Since the 1970s, however, Americans' behavior and the range of appliances they use have changed dramatically. Today, for example, early risers during daylight time

might eschew a dark morning run to surf the Internet or watch a program they have TiVoed.

Another supporting study, conducted in 2001 by the California Energy Commission, couldn't compare data from the colder days of an extension -- because no previous such extension had occurred. Researchers instead used a statistical model to simulate demand. Those projections showed much greater savings from trimming peak electricity demand than from cutting overall electricity usage (just a half-percentage-point drop in the latter in the winter months).

Even so, the drop in peak demand would have less relevance today than it did during the electricity crisis engulfing California when the study was released, says lead author of the study, Adrienne Kandel.

The congressmen also cited energy savings calculated by the American Council for an Energy-Efficient Economy, based in Washington, D.C. Steve Nadel, the group's executive director, says those numbers, too, were based on the 1970s data and were uncertain.

Yet another study, this one based on research from the 2000 Summer Olympics in Sydney, Australia, also raises questions about the presumption of energy savings. The games created an unintended ideal

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experimental situation: Daylight-saving time was extended in some regions outside Sydney but not in others.

Researchers Ryan Kellogg and Hendrik Wolff compared electricity data in one state that had extended daylight saving with one that hadn't and found that a rise in electricity usage during the darker mornings more than made up for any evening savings.

Markey spokeswoman Jessica Schafer pointed out that the Australia study didn't include regions with temperatures as cold as New England, where savings from keeping people out of their homes until later in the darker hours may be greater. Dr. Kandel added that Californians spread out their wake-up times and their commutes to avoid traffic on congested freeways, so her study didn't find big peaks in morning energy usage.

University of Washington economist Hendrik Wolff, co-author of the Australia study, acknowledges, "The data surely do not apply directly to the U.S."

The Department of Energy will have to report to Congress on whether daylight-saving time really does save electricity, though no time has been set.

The task is going to be difficult. California's experience shows that such a study may be hobbled by inherent challenges. Dr. Kandel said the state's electricity usage during the three weeks of extra daylight time this spring represented a drop of just one-fifth of one percent. That finding, however, was limited by a small sample size and the difficulty of controlling for many differences year to year, other than daylight time, that may affect energy consumption.

The plan is to assemble data from power companies' federal filings on consumption of electricity, gasoline and other forms of energy, then to account for differences in weather, population and business activity.

To get reliable data about the time change in the U.S., "the best experiment would be to randomly assign different time schedules to different states," Prof. Wolff said. He points out that his Australia study is the only one to compare, concurrently, extended daylight time with the alternative in the neighboring states.

That model isn't realistic, politically, on a national scale in the U.S. But in Indiana, until last year, daylight-saving time took effect in only part of the state. "It would provide an interesting test bed," says Doug Gotham, director of the state's utility forecasting group. But he doesn't know of any such study to date.

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