IN BRIEF

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Daylight Saving Time and Energy Conservation

THE U.S. PROPOSAL

The Energy Policy Act of 2005, approved by the U.S. Congress on 29 July 2005 and signed into law by the President on 8 August 2005, contains a provision to extend Daylight Saving Time (DST) in the United States by four weeks, ostensibly to reduce energy consumption. While this is a relatively minor provision considering the scope of the Energy Policy Act, it has thus far received an inordinate amount of attention.

DST is currently observed in most North American jurisdictions from the first Sunday in April to the last Sunday in October. DST is not currently federally mandated in the United States and Canada, but most states and provinces have nevertheless chosen to observe DST. In the United States, those states that do must abide by the DST dates set by federal legislation to ensure consistency in time observance.(1) There is no similar federal requirement in Canada.

Beginning in 2007, DST will extend from the second Sunday in March to the first Sunday in November across most of the United States. Interestingly, in a tacit acknowledgment that the net energy impact of extending DST remains unclear, the Act also stipulates that the U.S. Department of Energy (DOE) is to study the impact of daylight saving on energy consumption and report its findings to Congress by the end of 2007 at the latest. Congress retains the right to revert to the by-now traditional American DST schedule once the DOE study is complete.

This publication reviews the rationale for extending DST. Will it really help conserve energy? Will Canada follow suit? How and when? To begin, the issue is put in context.

A BRIEF HISTORY OF DAYLIGHT SAVING TIME

The practice of adopting DST dates back to World War I. DST was first implemented by the German government, with the United Kingdom and other Allied countries following suit. It was thought that implementing DST would help to better align traditional hours of work with daylight hours and therefore reduce the need for artificial lighting in factories and offices, which in turn would ease the consumption of scarce fossil fuel resources.

Perhaps surprisingly, the practice of adopting DST has generally persisted in many countries not located near the equator, though it remains particularly unpopular with some farmers and certain other groups whose activities are set by the sun rather than by the clock.

DAYLIGHT SAVING TIME AND ENERGY CONSERVATION

DST moves the time at which sunrise and sunset occur forward by one hour during that period of the year with the most hours of daylight (late spring, summer and early fall). The conventional wisdom is that shifting an hour of daylight from early morning to evening reduces residential electricity consumption by better matching waking time with daylight hours (power use in the commercial and institutional sectors, however, tends to be more or less constant throughout the day).

U.S. legislators who first proposed the DST extension argued that doing so would help further conserve energy. To back their claim, they cite figures drawn from a U.S. Department of Transportation (DOT) study from 1975 which tentatively concluded that the application of daylight saving time *might* result in electricity savings of 1% in March and April,

equivalent to savings of about 100,000 barrels of oil daily over the two months in question. The study's general conclusion was that extending DST into March could be expected to yield only "modest" overall benefits in the areas of energy conservation, traffic safety and crime prevention.[2]

In more recent testimony before a Congressional committee, a senior DOT official cautioned that this particular study, apparently the only one of its kind to date, is outdated and ultimately inconclusive.[3] For example, the study failed to consider the *net* energy impact of extending DST into March. It is entirely possible, the official noted, that any reduction in residential electricity use could be offset by an increase in travel demand, and thus an increase in gasoline use, stemming from more evening daylight. Ironically, this would weaken the United States' energy security by further increasing the demand for imported oil.

A few other studies have examined the impact of extending DST on electricity consumption. At the height of the California electricity crisis, the California Energy Commission attempted to estimate the electricity savings that could result from extending DST beyond its traditional time frame. They concluded that doing so would "probably save marginal amounts of electricity" overall but could cut peak electricity use by shifting some electricity consumption from the high-demand evening hours to lower-demand – and, incidentally, cheaper – morning hours.[4]

Ontario's Independent Electricity System Operator likewise anticipates that extending DST into March would likely yield only a small reduction in province-wide electricity consumption since, in Ontario, the sun would have set by the time most people get home, even with DST.[5] Extending DST by four weeks would have little impact in terms of relieving pressure on Ontario's electricity grid, as demand for electricity in Ontario now peaks in the hot summer months, while demand is relatively muted in the spring and fall.

WHAT WILL CANADA DO?

Congress's move to extend DST has taken Canada by surprise. The question now is whether Canada will follow suit and similarly extend DST to ensure that clocks on both sides of the border remain in sync. Given the extent to which the Canadian economy is integrated with that of the United States, continuing to synchronize our clocks with theirs is perhaps necessary to avoid scheduling chaos in this era of cross-border finance and commerce, just-in-time deliveries and international travel.

Interestingly, in Canada setting the time is left up to the provinces and territories.[6] Several provinces have already begun to study the issue of extending DST. In some cases, extending DST would likely require the modification of existing provincial laws, as in Quebec.[7] In Ontario, the *Time Act* allows changes to DST to be made by regulation; currently, there are no regulations under the Act.[8]

Extending DST by four weeks is unlikely to significantly alter energy consumption patterns in this country. Given the importance of north-south commercial ties, however, there is likely to be increasing pressure on the provinces and territories to follow the U.S. lead.

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(1) Hawaii, Arizona (with the exception of the Navajo Indian Reservation) and the part of Indiana in the eastern time zone do not currently observe DST. In Canada, the province of Saskatchewan (with the exception of areas around Lloydminster) and certain communities, notably in British Columbia and Quebec, do not observe DST.

(2) U.S. Department of Transportation, *The Daylight Saving Time study: A report to Congress*, 1975, cited in Heidi G. Yacker, *Daylight Saving Time*, Congressional Research Service, Library of Congress, 9 February 1998.

(3) Testimony of Linda L. Lawson, Acting Deputy Assistant Secretary for Transportation Policy, U.S. Department of Transportation, before the House Science Committee, Energy Subcommittee, concerning daylight saving time and energy conservation, 24 May 2001.

(4) Adrienne Kandel and Daryl Metz, *Effects of Daylight Saving Time on California Electricity Use*, California Energy Commission, May 2001.

(5) Peter Gorrie, "Get set for darker November mornings," *The Toronto Star*, 21 July 2005, p. A1.

(6) Frequently Asked Questions, Institute for National Measurement Standards, National Research Council Canada web site.

(7) History of the Legislation Concerning Official Time in Québec, Justice Québec web site.

(8) *Time Act*, R.S.O. 1990, c. T.9, s. 2.(5).