

Intelligence MEMOS



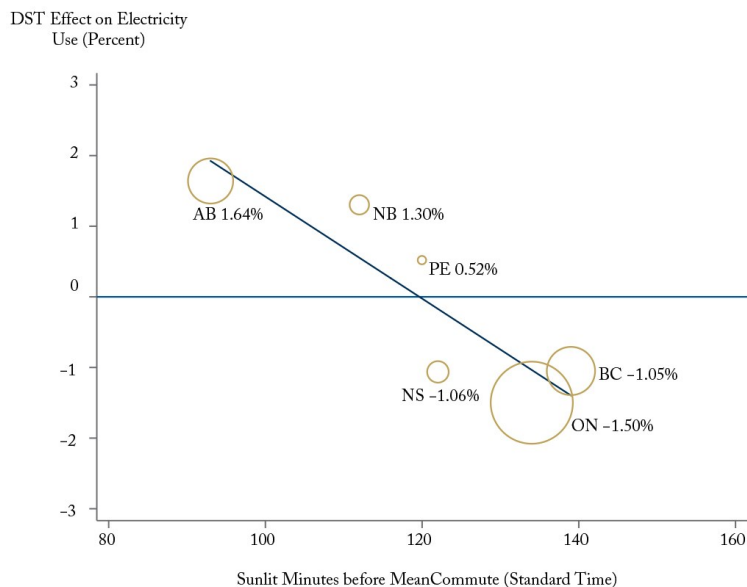
From: Nic Rivers and Blake Shaffer
To: Canadians with one less hour of sleep
Date: March 8th, 2017
Re: DOES DAYLIGHT SAVING TIME REDUCE ENERGY CONSUMPTION? (PART 2)

In [Part 1 of this memo](#) we showed the findings that in some regions, daylight saving time (DST) decreases electricity demand, while in others DST either increases or leaves overall demand unchanged. In a forthcoming paper, [Shaffer \(2017\)](#) proposes and tests whether differences in sun times and waking hours help explain the different regional results.

In Alberta, late sunrises and early waking hours mean there is an hour and a half of sunlight before leaving for work, prior to the DST transition. After the transition, this shrinks to only half an hour for the average commuter, leaving many early risers darkened by the time shift. In Ontario, a combination of earlier sunrises and later waking hours leaves far less people affected by the transition during morning hours, and commensurately less need for more energy.

The differences between Ontario and Alberta sun times and waking hours are consistent with the difference in the estimated effect of DST on electricity use. [Rivers \(2017\)](#) found DST reduces electricity demand in Ontario by roughly 1.5%, whereas [Shaffer \(2017\)](#) finds DST increases electricity demand in Alberta by 1.6% during the periods of spring and fall transition and by roughly 1% across the entire DST period.

Looking across the remaining Canadian provinces (with a few exceptions for unavailable data at the time of writing), the effect of DST on electricity use appears correlated with late sunrises and/or early waking times (see figure; with bubbles weighted by province population). For every 15 minutes of added time between sunrise and leaving for work, electricity use falls by roughly 1% due to DST.



The policy implication is that decision makers considering whether to keep, implement or abolish DST need to consider local factors. DST does not have a universal effect on energy use.

Of course, energy use is only one piece of the DST cost-benefit puzzle. Policymakers also need to consider effects on [health](#), [personal safety](#), [traffic incidents](#), among other factors. But, in Alberta, there looks to be a strong case to abolish DST and revert to year-long Mountain Standard Time. To put the Albertan result into perspective, eliminating DST would have the equivalent energy saving effect as replacing about half of Alberta's residential lights with LED bulbs. All at the cost of a stroke of a pen.

This raises a broader question. Looking forward, as households and business move towards greater use of LED lighting that use 90% less energy than traditional bulbs, is DST losing its relevance as an energy saving policy to reduce lighting demand? Has the time come for the sun to set on daylight saving time?

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