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Sponsor Testimony

Senate Bill 119

Senate General Government and Agency Review Committee

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Chairman Schuring, Vice-Chair Rulli, Ranking Member O'Brien and Members of the Senate General Government and Agency Review Committee, thank you for the opportunity to provide sponsor testimony on Senate Bill 119. By aligning Ohio's clocks with DST all year, this legislation eliminates the need for Ohioans to switch their clocks twice a year.

Each year in March, we move our clocks from Standard Time forward to Daylight Saving Time. This time change occurs only then for clocks to be returned back to Standard Time in November. Effectively, that means that for 238 days, or about 65% of each year, the State of Ohio observes Daylight Saving Time. Under this legislation, Daylight Saving Time will be observed for the entirety of the year.

Daylight Saving Time (DST) was first instituted in the United States during World War I. The rationale was to extend daylight working hours in order to use less artificial light and save fuel for the war effort. However, one of the effects of technological advancements over the years has been reduced power consumption by ever-more-efficient artificial lighting.

In fact, one study conducted in Australia in 2008 found that adjusting clocks twice a year actually did not reduce electricity consumption at all. Instead, the researchers found that the time change only caused a "shift in demand consistent with activity patterns that are tied to the clock rather than sunrise and sunset."¹ In other words, changing clocks twice a year did not save any power at all, nor did it lead to behavioral change as people do not adjust their schedules based on outdoor lighting. Instead, those researchers found that modern schedules are fixed to clocks, not the sun.

Another study in Indiana in 2008 found that their move to introduce DST actually increased energy use by 4%.² Based on these studies, it is clear that biannual clock changes serve very little purpose in terms of conserving energy. In fact, they may be accomplishing the exact opposite result.

¹ <https://www.sciencedirect.com/science/article/abs/pii/S0095069608000661>

² <http://environment.yale.edu/kotchen/pubs/revDSTpaper.pdf>

One of the concerns with staying on DST year round has historically been ensuring the safety of schoolchildren who are walking to school each morning. Obviously, shifting daylight from the morning hours to later in the day will cause mornings to be darker. The impact that darker mornings might have on child safety during some of the dark, winter months is not clear, since in many cases children are already standing at the bus stops in the darkness, when the sun is not rising until almost 8am. However, if this should be an area of concern as the legislation moves forward, there are potential solutions to this problem.

For one, school districts might simply opt to adjust start times during winter months to account for the shift in daylight hours. The American Academy of Pediatrics actually makes this very suggestion, citing studies indicating that adolescents who do not sleep enough often suffer physical and mental health problems, as well as decreased academic performance and increased risk of automobile accidents.³ This suggestion was echoed by the American Medical Association, which suggested that schools in the United States begin no earlier than 8:30am.⁴ Such an adjustment in school start times would, in many cases, significantly account for any potential decrease in morning daylight caused by permanent DST during the winter months.

In the realm of adult safety, we actually have convincing evidence that DST is connected to significant danger on the part of working adults. Based on recent research, we know now that adult workers on average sleep 40 minutes less, have 5.7% more workplace injuries and lose 67.6% more work days because of injuries the day following the “spring shift” than on other days.⁵ In their analysis of Bureau of Labor Statistics data from 1983-2006, Christopher Barnes and David Wagner of Michigan State University conclude that “schedule changes, such as those involved in switches to and from Daylight Saving time, place employees in clear and present danger.”

Behind the wheel, we have found that biannual time changes have also been shown to endanger the lives of drivers and passengers due to sleep deprivation. After researching 21 years of fatal automobile accidents in the United States, one study found a “significant increase in accidents for the Monday following shift to DST” as well as a “significant increase the number of accidents on the Sunday of the fall shift from DST.”⁶ Another study exploring the potential correlation between DST and automobile collisions with wildlife found that observing DST could decrease collisions with wildlife by about 8-11%.⁷ To all of us who are concerned about the safety of our children, we might remember that the most common cause of death in children under 15 is unintentional injury, and the most common cause of unintentional injury is car accidents.⁸ If permanent DST is one way to reduce such fatal accidents, then it certainly deserves our full and thorough consideration.

³ <https://www.aap.org/en-us/about-the-aap/aap-press-room/Pages/Let-Them-Sleep-AAP-Recommend-Delaying-Start-Times-of-Middle-and-High-Schools-to-Combat-Teen-Sleep-Deprivation.aspx>

⁴ <https://www.ama-assn.org/press-center/press-releases/ama-supports-delayed-school-start-times-improve-adolescent-wellness>

⁵ <https://www.apa.org/pubs/journals/releases/apl9451317.pdf>

⁶ <https://www.ncbi.nlm.nih.gov/pubmed/11152980>

⁷ <https://www.ncbi.nlm.nih.gov/pubmed/27881767>

⁸ <https://www.nytimes.com/2017/05/29/health/car-accidents-child-deaths-seat-belts.html>

With the legislative intent of the bill to ultimately establish DST as the year-round time in Ohio, we have included the following chart to demonstrate the impact this legislation would have on some of the most significant dates throughout the year. To summarize the chart briefly, the primary impact of the bill would be to adjust forward the sunlight hours from November to March each year, or about 35% of the year. During those months, the sun would rise later in the morning, but the sun would remain up an hour later. For example, on the shortest day of the year, December 21st, the sun would rise at about 8:50am and set at about 6:09pm.

Key Time Change Dates 2019	Sunrise (Current)	Sunset (Current)	Sunrise (Proposed)	Sunset (Proposed)
March 9 (pre-DST)	6:54am	6:31pm	7:54am	7:31pm
March 10 (in DST)	7:53am	7:32pm	7:53am	7:32pm
June 21 (in DST- longest day)	6:03am	9:04pm	6:03am	9:04pm
November 2 (in DST)	8:01am	6:30pm	8:01am	6:30pm
November 3 (post-DST)	7:02am	5:29pm	8:02am	6:29pm
December 21 (post-DST- shortest day of year)	7:50am	5:09pm	8:50am	6:09pm

Based on our informal social media poll, as well as the numerous emails and calls our offices have received recently, it is clear that many Ohioans strongly support this concept.

One of the major questions that we are interested in addressing as we move forward is how this legislation can interact with federal law governing time changes. 15 U.S. Code § 260a states that the federal government has the authority to supersede state law governing time zones. Under current federal law, Ohio is permitted to discontinue observing Daylight Saving Time and remain on Standard Time year round, but is not permitted to observe DST for an entire year.

Unfortunately, remaining on Standard Time all year is not an ideal alternative, as it would lead to summer nights being shortened by an hour, while the sun would be rising at about 5am on some of the longest days. For that reason, this legislation proposes to enact DST year round in Ohio, recognizing that its impact would be curtailed until federal law changes. Fortunately, there has been some traction at the federal level for establishing DST year round, with legislation pending in both houses of Congress that would accomplish that as well as support from the president for

doing so. To be clear, this legislation would not cause Ohio clocks to be changed immediately upon passage, unless a change in the federal law takes place as well.

We are not alone in this effort, as the National Conference of State Legislatures reports that state legislators have introduced 46 bills in 26 states to make either Standard Time or Daylight Saving Time permanent.⁹ Florida led this movement with their Sunshine Protection Act that went into effect in July of 2018, but this legislation will, if passed, ensure that Ohio is among the leaders in this movement.

Obviously, this is a complex issue that will, as we move forward, bring up a number of issues that we may not anticipate at this point. However, we do believe it is possible to address these concerns as we move through the legislative process.

Thank you for the opportunity to provide sponsor testimony. We would be happy to answer any questions at this time.

⁹ <http://www.ncsl.org/blog/2019/03/06/is-twilight-approaching-for-daylight-saving-time.aspx>