

Daylight Saving Time

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Issue

This report discusses daylight saving time, including its history, relevant studies, regulation, state options, and recent legislation in surrounding states.

Summary

Daylight saving time generally refers to a period of the year between spring and fall when clocks are set one hour ahead of standard time. Initially introduced in the United States during World War I, daylight saving time is currently regulated at the federal level by the U.S. Department of Transportation's (U.S. DOT) Office of the General Counsel. Federal law allows states to observe daylight saving time in accordance with federal requirements or opt out of daylight saving time entirely. While federal law does not allow states to observe daylight saving time year round, a state may be able to effectively do so by moving to a more eastern time zone and then opting out of daylight saving time.

Studies show conflicting findings on whether the observance of daylight saving time saves energy. Studies by the U.S. Department of Energy and other sources suggest a modest energy savings, while one study from Indiana shows an energy cost. Studies have also examined links between daylight saving time and car accidents, heart attacks, and mental health.

Two states and several territories do not observe daylight saving time. In 2016, Massachusetts passed a law establishing a special commission to conduct a comprehensive study related to the practical, economic, fiscal, and health related impacts of moving to the Atlantic Time Zone year-round (effectively, remaining on daylight saving time year round). Other New England states have similarly considered legislation to change time zones and other related proposals.

Daylight Saving Time History

Daylight saving time was introduced in the United States during World War I, after Germany and other European countries began observing it to conserve fuel. Table 1 shows a timeline of events and policy changes related to daylight saving time in the United States.

Table 1: Daylight Saving Time History

Year	Description
1916	Germany begins observing daylight saving time.
1918	The United States enacts “An Act to Preserve Daylight and Provide Standard Time for the United States,” which both established standard time zones and set summer daylight saving time to begin March 31, 1918 (40 Stat 450). ¹
1919	Congress overrode President Wilson’s veto and abolished daylight saving time (P.L. 66-40). Daylight saving time became a local option, observed in some states.
1942	President Roosevelt establishes year-round daylight saving time (called “War Time”).
1945	Year-round daylight saving time ended and many states and localities adopted summer daylight saving time for the next year.
1966	The Uniform Time Act of 1966 (P.L. 89-387): <ol style="list-style-type: none"> 1. established standard time within time zones; 2. provided for “advanced time” to advance clocks one hour beginning at 2:00 a.m. on the last Sunday in April and turn them back one hour at 2:00 a.m. on the last Sunday in October; 3. allowed states to opt out of daylight saving time as long as the entire state did so; and 4. required that states choosing to observe daylight saving time use the dates required under the act.
1968	Arizona became the first state to opt out of daylight saving time.
1972	Congress amends the Uniform Time Act to allow those states split between time zones to exempt from daylight saving time either the entire state or that part of the state lying within a different time zone (P.L. 92-267). ²
1973	Congress enacted the Emergency Daylight Saving Time Energy Conservation Act of 1973, which established a trial period of year-round daylight saving time in response to the oil embargo by the Organization of Petroleum Exporting Countries (OPEC) (P.L. 93-182).
1974	Federal legislation returns the country to summer daylight saving time (excluding those states that opted out) (P.L. 93-434).
1986	Congress enacted P.L. 99-359 , which lengthened daylight saving time by moving the start date from the last Sunday in April to the first Sunday in April.
2005	Federal legislation again lengthens daylight saving time, moving the start date to the second Sunday in March and the end date to the first Sunday in November (P.L. 109-58, § 110).

Relevant Studies

Studies cited below provide a sample of those available; this report is not a comprehensive literature review.

Energy Savings

In 1975, the U.S. Department of Transportation evaluated the trial period of year-round daylight saving time enacted during the OPEC oil embargo. It determined that extending the daylight saving time period from six to eight months could have modest benefits “in the areas of energy conservation, overall traffic safety, and reduced violent crime” ([Executive Summary, U.S. DOT \(1975\)](#)).

The U.S. Department of Energy studied the impacts of extending daylight saving time in 2006 (estimated potential) and 2008 (actual savings), finding small energy impacts. [The 2008 study](#) found that the total electricity savings of extended daylight saving time were about 1.3 Tera Watt-hour (TWh) or 0.5% per each day of extended daylight saving time, or 0.03% of electricity consumption over the year. It also found no statistically significant changes in national traffic volume or motor gasoline consumption.

A study published in 2011 examined the effect of daylight saving time on residential electricity consumption, using data from Indiana, where initially some counties observed daylight saving time and others did not and then daylight saving time was implemented statewide. It found that, contrary to the policy’s intent, daylight saving time increased electricity demand, likely because the reduced demand for lighting during daylight saving time appeared to be less than the increased demand for heating and cooling. The study estimates that daylight saving time costs Indiana households \$9 million per year in increased electricity bills ([Kotchen and Grant, 2011](#)).

Health and Safety

One study found that daylight saving time shifts have a substantial influence on the risk of acute myocardial infarction (heart attack) ([MR Jiddou et al. \(2013\)](#)). The authors stated that the study’s findings suggest that “shifts to and from daylight saving time might transiently affect the incidence and type of acute cardiac events, albeit modestly.” An earlier study found that incidence of heart attack significantly increased during the three weekdays following the spring transition but significantly decreased for only one weekday following the fall transition ([Janszky and Ljung \(2008\)](#)).

Studies on the relationship between car accidents and daylight saving time have mixed findings and may consider two effects – the effect of the amount of daylight while drivers are on the road and the effect of the transition to and from daylight saving time on drivers. A 2016 study found that the transition into daylight saving time caused over 30 deaths in fatal automobile crashes between 2002 and 2011 due to sleep deprivation ([Smith \(2016\)](#)). A 2004 study showed that full year daylight saving time would reduce pedestrian fatalities by 171 per year and motor occupant fatalities by 195 per year ([Coate and Markowitz, 2004](#)).

Another study found that the short-term effect of daylight saving time on crashes on the first morning of daylight saving time was not statistically significant, and that overall, daylight saving time reduced crashes at dusk by providing better visibility for drivers ([A. Huang and D. Levinson \(2010\)](#)).

A study looking at hospital data in the United States and Germany generally found that when clocks are set back one hour in the fall, giving sleep deprived individuals extra sleep, population health slightly improves for four days. The study found little evidence that population health significantly decreases when clocks are set forward in the spring ([Jin and Ziebarth \(2015\)](#)).

Several media reports also quote experts who describe a relationship between daylight saving time and seasonal affective disorder or depression (e.g., [CNN, “Transitioning from Daylight Saving Time could Increase Depression,” 11/4/2016](#)). We found one study conducted in Denmark that showed an increase in depression cases at psychiatric hospitals following the transition from daylight saving to standard time ([Hansen, Bertel T. et al., \(2017\)](#)).

Regulation and State Options

According to [the Congressional Research Service](#), moving an area on or off daylight saving time is accomplished through legal action at the state level. Some states require legislation while others require executive action (e.g., a governor’s executive order). Connecticut state law requires the state to observe daylight saving time and a change to that requirement would require a change to the law ([CGS § 1-6](#)).

The following states and territories do not observe daylight saving time:

1. Arizona (except for the Navajo Nation),
2. Hawaii,
3. Puerto Rico,

4. American Samoa,
5. Guam,
6. the Northern Mariana Islands, and
7. the U.S. Virgin Islands.

At the federal level, U.S. DOT's Office of the General Counsel oversees and regulates daylight saving time.

While federal law allows a state to opt out of observing daylight saving time (i.e., observe standard time year-round), it does not allow it to permanently observe daylight saving time (i.e. observe daylight saving time year-round). However, states can achieve the same end by moving to the next time zone to the east and opting out of daylight saving time. (As an example, see Massachusetts' proposal below to move from the Eastern Time Zone to the Atlantic Time Zone and opt out of daylight saving time.)

A state or local government can be moved to another time zone through an act of Congress or through regulations issued by U.S. DOT. [According to U.S. DOT](#), states may request a change in time zone by submitting a request from the governor or legislature to the U.S. Secretary of Transportation with a formal certification, contact information, and supporting information. The General Counsel's Office reviews these requests, considering whether the change would benefit commerce. If the office determines that a requested change serves the convenience of commerce, it issues a proposed rule to make the change and invites written public comment. If, after reviewing comments, the General Counsel believes the change would serve the convenience of commerce, he or she sends the recommendation to the Secretary of Transportation, who has the sole authority to change a time zone.

Recent Proposed Legislation in Nearby States

According to [the National Conference of State Legislatures \(NCSL\)](#), at least 16 states considered or are considering one or more bills in 2017 related to changing daylight saving time. NCSL states that 12 of the bills establish permanent standard time while 12 would seek permanent daylight saving time. [The Council of State Governments](#) counted 21 states that considered proposals affecting daylight saving time in 2017.

Connecticut

During the 2017 regular session, three proposed bills in Connecticut sought to change the state's observance of daylight saving time. [Proposed Bill 5090](#) and [Proposed Bill 5734](#) required the state to remain on standard time and not observe daylight saving time. [Proposed Bill 33](#) required the state to retain daylight saving time throughout the year. That bill had a subject matter public hearing on February 27, 2017 and no further action was taken.

Maine

A bill considered in 2017 in Maine would require the secretary of state to monitor legislative activity in Massachusetts and New Hampshire. If those states adopted Atlantic Standard Time Zone, the bill would require the secretary of state to submit to state voters a referendum question asking them to choose if the state should seek placement in the Atlantic Standard Time Zone and opt out of observing daylight saving time ([H.P. 159, L.D. 203, as amended](#)). The House passed the bill and the Senate passed the bill but also amended it, effectively tabling it for this session ([Summary of LD 203](#)).

Massachusetts

In 2016, Massachusetts passed a law establishing a special commission to conduct a comprehensive study related to the practical, economic, fiscal, and health related impacts of moving to the Atlantic Time Zone year-round (effectively, remaining on daylight saving time year round) ([Chapter 219, 2016, § 136](#)). The commission's report, issued on November 1, 2017, found that doing so could have positive benefits for Massachusetts, but also advised the following:

1. Massachusetts should only move to year-round daylight saving time if a majority of other Northeast states do so,
2. any move to year-round daylight saving time should be accompanied by statewide standards for delaying school start-times to mitigate safety and other issues, and
3. Massachusetts should not adopt year-round daylight saving time unless it simultaneously commits funding to educate the public about the implications of the change.

The report also noted that even modest reductions in afternoon and evening energy consumption can have significant benefits for the state as reducing peak demand can reduce the need for new infrastructure and lower electricity rates in New England markets where natural gas supply is constrained. Based on the commission's findings, the Massachusetts legislature may take up a bill addressing this issue in the next legislative session.

New Hampshire

New Hampshire considered a bill in 2017 under which the state would adopt Atlantic Standard Time if Massachusetts did so ([HB 209](#)). The House passed the bill but the Senate rejected it ([NH Bill Status System](#)).

New Jersey

The New Jersey Senate passed a resolution urging Congress to extend daylight saving time until after the general election, held in New Jersey and elsewhere annually on the first Tuesday after the first Monday in November. According to the resolution, extending daylight saving time through Election Day would provide voters with an additional hour of daylight in the evening to go to the polls, likely increasing the number of voters who cast ballots on Election Day ([SR 90](#)).

New York

Legislators in New York introduced legislation requiring the state to opt out of daylight saving time ([A06937](#)). The bill was referred to the Committee on Governmental Operations in March 2017.

Rhode Island

Rhode Island also considered a bill to join the Atlantic Time Zone if and when Massachusetts does ([H5519 \(2017\)](#)). The bill was considered by the House Judiciary Committee, which recommended the measure be held for further study.

Vermont

The Vermont Senate considered a joint resolution demanding that Congress abolish daylight saving time. The Senate referred the resolution to the Committee on Economic Development, Housing and General Affairs in March ([J.R.S. 28, 2017](#)).

Resources

U.S. Department of Transportation: [Executive Summary. Final Report on the Operation and Effects of Daylight Saving Time](#) July 1975.

U.S. Department of Energy: [Impact of Extended Daylight Saving Time on National Energy Consumption](#). October 2008.

Jiddou, Monica et. al. ["Incidence of Myocardial Infarction with Shifts to and from Daylight Savings Time."](#) *The American Journal of Cardiology*, March 2013.

Kotchen, Matthew and Grant, Laura. [“Does Daylight Saving Time Save Energy? Evidence from a Natural Experiment in Indiana.”](#) *The Review of Economics and Statistics*, November 2011.

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Coate, Douglas and Markowitz, Sara. [“The effects of daylight and daylight saving time on US pedestrian fatalities and motor vehicle occupant fatalities.”](#) *Accident Analysis & Prevention*, May 2004.

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Jin, Lawrence and Ziebarth, Nicolas R. [“Does Daylight Saving Time Really Make Us Sick?”](#) *IZA Discussion Paper No. 9088*, June 2015.

Hansen, Bertel et. al. [“Daylight Savings Time Transitions and the Incidence Rate of Unipolar Depressive Episodes.”](#) *Epidemiology*, May 2017.

Congressional Research Service: [Daylight Saving Time.](#) March 2016.

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