



DAYLIGHT SAVING TIME

Research Paper B34 (Revised March 2013)

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Daylight Saving Time (DST) will arrive at 2:00 a.m. local time Sunday, March 10, 2013, signaling the need to advance clocks and timepieces by one hour from 2:00 a.m. to 3:00 a.m. The shift from Standard Time to DST falls 10 calendar days before the start of spring. It is now six years since the United States set the new North American standard for DST—to commence three weeks earlier, on the second Sunday of March, and to end a week later on the first Sunday of November as part of its energy saving *Energy Policy Act* of 2005. Those provinces and territories that observe DST saw the advantage of remaining synchronized with the U.S. and amended their time statutes accordingly. Ontario adopted a similar provision.

This backgrounder examines basic questions, history, and recent events related to both Standard Time and Daylight Saving Time.

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INTRODUCTION

Daylight Saving Time (DST) will arrive at 2:00 a.m. local time, Sunday, March 10, 2013, signaling the need to advance clocks and timepieces by one hour from 2:00 a.m. to 3:00 a.m. The shift from Standard Time to DST falls 10 calendar days before the start of spring. It is now six years since the United States set the new North American standard for DST—to commence three weeks earlier, on the second Sunday of March, and to end one week later on the first Sunday of November as part of its energy saving *Energy Policy Act* of 2005. Those provinces and territories that observe DST saw the advantage of remaining synchronized with the U.S., and amended their time statutes accordingly. Ontario adopted a similar provision.

This backgrounder examines basic questions, history, and recent events related to both Standard Time and DST. For example:

- The Utah Legislature has been grappling with attempts by various representatives to exempt the state and all of its political subdivisions from the observance of DST. Several bills have been introduced since 2010 and all have failed to pass, including the most recent, [SB 157 Daylight Saving Time Amendments](#) which was held indefinitely in committee on February 21, 2013.¹ The initiative to eliminate state observance of DST and revert to year round Mountain Standard Time, is driven by concerns among legislators—for instance, that the biannual shifting of the clocks creates adjustment difficulties for sick and elderly persons, poses safety risks for students in the pre-dawn hours, and coincides with a spike in heart attacks during the changeover.²
- A legislative proposal for the United Kingdom (UK) would have required the government to conduct a cross-departmental analysis of the costs and benefits of advancing time by one hour for all, or part of, the year. Were the analysis to have found that a clock change would benefit the U.K., the bill would have required the government to initiate a trial clock change to determine the full implications. That Private Member's bill failed to pass by the end of the session, however.³

¹ Bill SB 157 – *Daylight Saving Time Amendments* sponsored by Utah Senator Steve Urquhart (R) was defeated in the Senate Natural Resources, Agriculture and Environment Committee. Among the reasons why it failed to pass are that some representatives did not want to see the state out of sync with surrounding areas and states, some farmers and outdoor enthusiasts prefer the lingering daylight, and car dealerships argue that it brings in late shoppers. See Curtis Haring, “Flagged Bill: SB 157 – Daylight Saving Time Amendments, Sen. Urquhart,” [Utah Political Capitol: Utah Political News, As It Happens](#), February 5, 2013.

² Ladd Brubaker, “Daylight Saving elimination bill sees early sunset,” [Deseret News](#), February 3, 2012.

³ U.K. Parliament, Parliamentary Business, Bills and Legislation, [Daylight Saving Bill](#), 2010-12 (accessed October 26, 2012).

WHAT IS DAYLIGHT SAVING TIME?

Daylight Saving Time (DST), the practice of advancing the clock one hour for a period of approximately six months, also known as “summer time” in some countries, is a deviation of Standard Time. Since 2007, DST has begun in Canada and the United States at 2:00 A.M. local time on the second Sunday of March and ended at 2:00 A.M. on the first Sunday of November. DST seeks to shift the hours of human activity to make better use of the daylight.⁴ It provides a longer period of daylight to enjoy outdoor activities during summer evenings. The decline in the use of artificial light and appliances conserves fuel and energy thereby generating financial savings. Studies done by the US Department of Transportation in the 1970s show that the country’s electrical usage declined by about one percent each day with DST.⁵

In 2000, the experience of brownouts and rolling blackouts in the United States prompted legislators from California and several Western states to consider year-round DST or even Double Daylight Saving Time as a means of reducing power consumption.⁶ As an energy conservation measure, the US *Energy Policy Act* declared that commencing in 2007, DST would start three weeks earlier in the spring and end one week later in the fall. The Act also required the US Department of Energy to evaluate the effect of Extended DST (EDST) upon energy consumption and to report to Congress. Under the Act, Congress retains the right to reverse EDST and go back to the 2005 time schedule once the Department study is completed.⁷ In October 2008 analysts submitted their report to Congress indicating that the total electricity savings of EDST were 1.3 trillion watt-hours or 0.5% per day of Extended Daylight Saving Time, or 0.03% of electricity consumption over the year. Total 2007 electricity consumption in the

⁴ David S. Prerau, *Seize the Daylight: The Curious and Contentious Story of Daylight Saving Time* (New York: Thunder’s Mouth Press, 2005), p. xv.

⁵ California Energy Commission, Bob Aldrich, [Saving Time, Saving Energy: Daylight Saving Time, Its History and Why We Use It](#) (2005), accessed on March 7, 2011.

⁶ Year-round DST occurs when countries advance their clocks ahead by one hour throughout the entire year. The US Congress placed the United States on DST in 1974 and 1975 for eight and ten months respectively as an energy conservation measure in response to the OPEC oil embargo. The effort worked, but Congress discontinued the practice in 1975 due to opposition from the farming states. Double Daylight Saving Time (DDST) would advance the clocks by two hours in the summer months only, and is thought to yield energy savings. During WWII, Great Britain used DDST during summer months (known as “Double Summer Time”) and experienced more energy savings than with DST. To date, the United States has not experimented with Double Daylight Saving Time. See US House of Representatives, Committee on Science, Subcommittee on Energy, Hearing Charter for Hearing on “Energy Conservation Potential of Extended and Double Daylight Saving Time,” (May 24, 2001).

⁷ The *Energy Policy Act* (2005), Section 110.

United States was 3,900 trillion watt-hours.⁸ Some studies dispute the anticipated energy savings associated with DST.⁹ A study by the California Energy Commission concluded that Extended Daylight Saving Time in 2007 had a neutral effect on energy use in the state.¹⁰

WHAT IS STANDARD TIME?

Sir Sandford Fleming, a Canadian railroad planner, engineer and citizen of Peterborough, Ontario is widely credited with inventing the worldwide system of standard time zones.

Prior to the establishment of standard time, there was local time (also known as solar time), determined by the position of the sun at midday, and varying from one community to another. Prior to 1883, there were 100 or more local time zones in the United States based on solar time.¹¹ Before the adoption of standard time, 12 noon in Kingston was twelve minutes later than 12 noon in Montreal and thirteen minutes before 12 noon in Toronto. With the introduction of railways, local time became highly inconvenient and inefficient. Travellers sometimes carried a number of watches, or one with six different faces, each labelled with the name of a different city. Train schedules based on local times created nightmares for railway stationmasters and chaos for a transcontinental railway.¹²

The solution was to adopt a system by which the clocks would read consistently in one large region. Railways began using Greenwich Mean Time (GMT) as the Standard Time for England, Scotland and Wales in the 1840s, although it would not become the legal standard until 1880. According to the Dictionary of Canadian Biography (DCB),

in 1879 two reports, each prepared independently of the other, took a global approach to the problem [of standard time zones] and each received wide circulation. One author was Fleming; the other was Cleveland Abbe, chief of the United States Weather Service. . . .

⁸ US Department of Energy, Energy Efficiency and Renewable Energy, [*Impact of Extended Daylight Saving time on National Energy Consumption: Report to Congress*](#) (Energy Policy Act of 2005, Section 110) October 2008, p. I, accessed on March 7, 2011.

⁹ An examination of electricity usage and billing in Indiana since the state adopted DST in 2006 found that the time change led to a 1% overall *rise* in residential electricity use. This cost the state an extra \$9 million, according to the researchers. Charles Q. Choi, "Spring Forward or Not?" *Scientific American*, March 2009, p. 18.

¹⁰ Ibid.

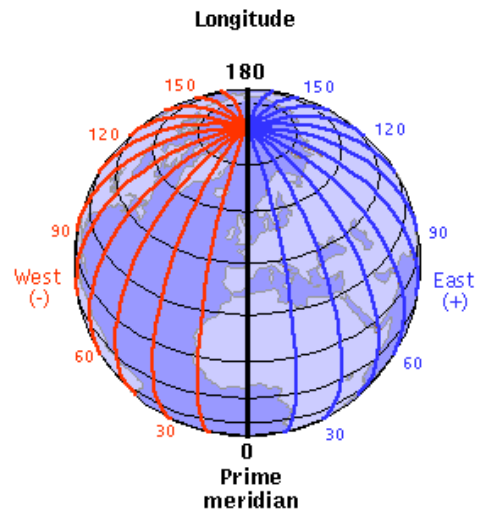
¹¹ US House of Representatives, "Energy Conservation Potential of Extended and Double Daylight Saving Time," n.p.

¹² The CRB Foundation Heritage Project, "Sanford Fleming makes trains run on time." accessed on 4 October 1999 (link no longer active).

The two schemes were so similar that the authors joined to form a powerful lobby with . . . strong ties to Washington and international scientific leaders. Together they took every opportunity to promote the case for time standards.¹³

On November 18, 1883, North American railways adopted a system of one-hour time zones proposed by William F. Allen, secretary of the General Time Convention. The DCB describes the rest of the story, including Fleming's role in the 1884 International Prime Meridian Conference as follows:

Because of its simplicity, railway time soon became the standard for the continent. But the need remained for global uniformity. The key players of the metrological society and the ASCE [American Society of Civil Engineers – Fleming chaired its standing committee on time] were successful in getting Congress to call an international gathering in 1884 to decide on the core question: where the prime meridian would be. Grudgingly included in the British delegation, Fleming was the only delegate to distribute a position paper. The conference eventually endorsed his main points, but each country was to make its own decision on adoption. A mean time based on an existing prime meridian through Greenwich (London), England, with hourly variations according to established time zones, became standard before the end of the century in most major countries.¹⁴



The railway time zones were not recognized in US law until March 19, 1918, when the *Standard Time Act* came into force.¹⁵

¹³ *Dictionary of Canadian Biography Online*, "Fleming, Sir Sandford" accessed at http://www.biographi.ca/009004-119.01-e.php?&id_nbr=7370 on March 8, 2011.

¹⁴ *Dictionary of Canadian Biography Online*, "Fleming, Sir Sandford", see note 9.

¹⁵ Institute for Dynamic Educational Advancement (IDEA), WebExhibits, "[Daylight Saving Time – First there was Standard Time](#)," accessed on March 7, 2011.

Greenwich Mean Time and the International Date Line

Greenwich Mean Time or GMT is the name for mean solar time of 0° longitude of the Royal Greenwich Observatory in England. The meridian of this longitude is called the prime meridian or the Greenwich meridian. In 1925 GMT was adopted by astronomers so that the astronomical day—like the civil day—began at midnight. However, in 1928, the International Astronomical Union changed the designation of GMT to Universal Time which has been modified to Coordinated Universal Time or UTC. The term GMT is still used, however.¹⁶

The world was divided into twenty-four time zones “starting” at the Greenwich Meridian. The International Date Line lies along the 180° line of longitude opposite from the Prime Meridian on the planet’s other side. It is a theoretical line extending between the North and South Poles that demarcates each calendar day from the next. While it corresponds to 180° of longitude, it deviates in places to avoid crossing land.¹⁷

Samoa Leaps over Date Line



Source: *The Daily Mail* online, December 30, 2011.

At the end of December 2011, the small South Pacific state of Samoa opted for a change that effectively moves the Date Line from running to the west of the island to running to its east. It did this by moving its calendar ahead one day to fall in line with neighbours Fiji and Tonga, formerly on the opposite side of the Date Line (see illustration below). The intended outcome is increased trade and tourism. At 12:00 midnight local time on Thursday, December 29, 2011, Samoa’s calendar advanced to Saturday, December 31. There was no Friday December 30,

¹⁶ [Coordinated universal time \(UTC\)](#), Encyclopaedia Britannica, Inc., accessed February 22, 2012.

¹⁷ The Date Line exists to provide a standard means of making the needed adjustment to the following problem: A traveler journeying around the Earth carrying a clock that was advanced or retarded by one hour whenever he entered a new time zone and a calendar that he advanced by one day whenever his clock indicated midnight, would find upon returning to his starting point that the date according to his own experience was different by one day from that kept by those who had remained at the starting point. See [International Date Line](#), Encyclopaedia Britannica, accessed February 22, 2012.

2011 on Samoa. The 24-hour advance made the island one of the first countries in the world—rather than the last—to welcome in the New Year. The move puts the Samoan day in alignment with the Asian side of the Pacific (including Australia and New Zealand) as it was prior to 1982, when Samoa opted to align its day with the American side of the Pacific.¹⁸ It should be noted that the neighbouring islands of American Samoa did not follow Samoa's lead.¹⁹

The Samoan initiative—born of a need to align the island's trade patterns differently—captured the imagination of journalists around the world. Samoa's westward journey across the Date Line – really a journey of the Date Line across Samoa – was treated almost as if it were a strange occurrence of time travel. Can one change time zones with one unilateral sweep? What does it mean when an entire day goes missing from history? National Public Radio observed that in Samoa, no one was born on that date and no one died. Another observer noted that while time zones once seemed sacred, that is no longer the case: "There may be international overseers of time zones, like the Royal Observatory at Greenwich, creator of Greenwich Mean Time. But there is no transnational or trans-universal time zone enforcer."²⁰

Resources on Sir Sandford Fleming (1827 – 1915)

[Fleming, Sir Sandford](#), Dictionary of Canadian Biography Online

[Sir Sandford Fleming](#), The Canadian Encyclopedia

Resources on Standard Time

[Standard Time](#), Encyclopedia Britannica

[Standard Time Zones](#), The Atlas of Canada, accessed online March 7, 2011



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¹⁸ Emma Reynolds, "[Friday's cancelled: Samoans lose 24 hours of their lives as island jumps over international dateline](#)," *The Daily Mail online*, December 30, 2011,

¹⁹ Stefany Golberg, "Zoning Out," see note 1.

²⁰ Ibid.

Time Zones of Canada

There are six time zones in Canada, identified by their hours from the Greenwich meridian:

Newfoundland Standard Time (NST): 3½ hours

Atlantic Standard Time (AST): 4 hours

Eastern Standard Time (EST): 5 hours

Central Standard Time (CST): 6 hours

Mountain Standard Time (MST): 7 hours;

Pacific Standard Time (PST): 8 hours.



Map reproduced with the kind permission of the Institute for National Measurement Standards, National Research Council of Canada.

Newfoundland's Unique Time Zone

Many have wondered why the Province of Newfoundland has a time zone that varies by the half-hour rather than the standard one hour. While the system of Standard Time employs 24 meridians, each of which is theoretically the centre of a time zone, adjustments have been made in some cases for the convenience of inhabitants within the zones. Newfoundland – but not Labrador – lies squarely in the eastern one-half of its time zone, exactly three and a half hours from Greenwich. A 1963 attempt by the government to bring Newfoundland into conformity with the other Atlantic Provinces faltered in the face of stiff public opposition. Other jurisdictions operating on a half-hour time difference are Suriname, Iran, India, Sri Lanka, and Central Australia.²¹

BRIEF HISTORY OF DAYLIGHT SAVING TIME

1784 - Benjamin Franklin made one of the first references to saving daylight in 1784 in a whimsical letter to the *Journal de Paris*, while serving as the US Minister to France. Awakened by an unexpected noise at 6:00 A.M., he noticed the room was filled with daylight. His servant had forgotten to fasten the shutters before bedtime. This realization about daylight intrigued Franklin. For the next six months (between March 20 and September 20), he estimated that, on average, Parisians would sleep seven hours after sunrise, and therefore could save seven hours of candlelight if they changed their habits and rose earlier with the sun.²²

²¹ "Timed by the zone," Write to Know – Answers to Readers' Perplexing Questions, *Canadian Geographic*, 1998.

²² Prerau, *Seize the Daylight*, p. xii-xiv.

1907 - William Willett, a London builder, proposed setting clocks ahead by 80 minutes in four moves of 20 minutes each during the spring and summer. In his pamphlet called *The Waste of Daylight*, he wrote,

Everyone appreciates the long, light evenings. Everyone laments their shortage as Autumn approaches; and everyone has given utterance to regret that the clear, bright light of an early morning during Spring and Summer months is so seldom seen or used.²³

1908 - In 1908, Robert Pearce, a British MP, intrigued with the ideas of William Willett, introduced a daylight saving bill to advance the clock by one hour in the spring and return to GMT in the fall. Following a highly contentious debate, the bill was rejected, as were several subsequent DST bills. In 1914, following the outbreak of World War I, energy conservation for the war effort grew in importance. Many British miners had enlisted and coal output was diminished. DST, though still controversial, was now viewed in a more positive light.²⁴

1916 - Germany became the first country to adopt DST. The German Federal Council declared that summer daylight saving time would be adopted as a wartime measure, from the last Sunday of April and to the first Sunday in October. Countries with close economic or political ties to Germany soon followed that country's lead (e.g., Austria-Hungary, Holland, Denmark and Sweden).²⁵

In May 1916 the British Parliament passed the *Summer Time Act of 1916*, establishing British Summer Time for 1916 and permitting extensions for the duration of the War. This transpired eight years after MP Robert Pearce had sponsored the first DST bill and one year after the death of William Willett.²⁶

Wartime measures - During World War I, clocks in several countries, including Australia, Great Britain, Germany, and the United States, were advanced one hour in an effort to save energy used for artificial lighting. In the United States, the measure proved unpopular, so it was repealed after the war. During World War II, Congress reinstated DST from February 2, 1942 until September 30, 1945. England used "double summer time," advancing the clocks two hours from Standard Time in the summer and one hour in the winter. In Canada, federal legislation established DST during a limited portion of the Second World War.

²³ Institute for Dynamic Educational Advancement, "Daylight Saving Time – Rationale and Original Idea." see note 13.

²⁴ Prerau, *Seize the Daylight*, pp. 52-53.

²⁵ Ibid., p. 53.

²⁶ Ibid., p. 57.

1950s and 1960s - Between 1945 and 1966, there was no federal law regulating DST, and the United States allowed states and municipalities to observe DST or not. By 1966, 100 million Americans were observing DST through local laws. This brought havoc to industries in the transportation and communications sectors. Trains and buses had to publish new schedules each time a state or town began or ended DST. Congress decided to establish one pattern across the country with the *Uniform Time Act of 1966* (US Code, Title 15, Subchapter IX).²⁷ The legislation decreed that DST would begin on the last Sunday of April and end on the last Sunday of October. The US Department of Transportation oversees DST in the United States.²⁸

1986 - In 1986, President Reagan amended the law to commence DST three weeks earlier, to the first Sunday of April. No change was made to the end date. This was done to conserve energy for the entire month of April. It was estimated that extending DST from the last Sunday of April to the first Sunday yielded savings of 300,000 barrels of oil nationwide.²⁹

2005 - As noted above, in 2005 the US Congress decided to once again change the start and end dates of DST. A provision of the *US Energy Policy Act of 2005* proposed to extend DST by two months – one month earlier in the spring and one month later in the fall. Opposition to the proposal caused the Congress to shorten its planned extension of DST to one month.

This US proposal initially took Canada by surprise. Many commercial stakeholders and provincial leaders expressed concern about confusion and economic disruption if the two countries fell out of alignment with respect to time. After the US Bill was signed into law, the premiers added the topic to the agenda of their 2005 annual summer meeting.

History of DST in Ontario

Within Canada, all 10 provinces and three territories regulate time through legislation or regulation. As early as 1895, Ontario enacted a brief time statute known as *An Act respecting the Legal Meaning of Expressions relative to Time*. The first section (i) stated that expressions of time in the Province would refer to Standard Time, and (ii) provided for two time zones. The parts of the province to the east and west of 87° W longitude (present day Terrace Bay) would be deemed to be five and six hours (respectively) behind Greenwich Time. The 1895

²⁷ See [15 USC Chapter 6, Subchapter IX – Standard Time](#), accessed March 7, 2011.

²⁸ Aldrich, “Saving Time, Saving Energy: Daylight Saving Time, Its History and Why We Use It,” n. p.

²⁹ Institute for Dynamic Educational Advancement, “Daylight Saving Time – Rationale and Original Idea.” see note 12.

boundary between the Eastern and Central Time Zones fell about 225 km. east of today's boundary of 90° W longitude near Shebandowan, a small hamlet west of Thunder Bay.

No reference to "Daylight Saving Time" was made in any Ontario time statute until 1986. Nonetheless, various Ontario communities did observe DST on an *ad hoc* basis, some as early as 1908.³⁰ Some permitted DST through by-law while others did so by consensus.³¹

Between 1984 and 1986, MPPs Michael Cassidy (Ottawa Centre) and Ross McClellan (Bellwoods) introduced Private Members' Bills endorsing the extension of DST.³² Mr. McClelland's Bill 58 was introduced for First Reading on April 22 1986. It proposed starting DST on the first Sunday in April continuing until the first Sunday in November. The Legislative Assembly subsequently amended Bill 58 such that DST would start on the first Sunday in April and end the last Sunday of October, thus providing for nearly seven months of DST in Ontario. The Bill was given Royal Assent on November 27, 1986. In a March 1987 news release issued to municipal clerks in all 839 municipalities, Municipal Affairs Minister Bernard Grandmâitre directed their attention to the three-week extension of DST, which was consistent with action taken by the United States Congress earlier that year.³³ The passage of Bill 58 is significant for a couple of reasons. It was one of those rare occasions when a Private Member's bill successfully passes in the Legislature and becomes law. It also marked the beginning of DST being decided at the provincial rather than the local level (with some exceptions—see **Ontario's Time Zone Anomalies**).

Ontario's Response to the US Energy Policy Act of 2005

The Ministry of the Attorney General (AG) administers Ontario's *Time Act*.³⁴ In 2005, Attorney General Michael Bryant asked his Parliamentary Assistant (PA), David Zimmer to investigate the impact that the extension of DST could have on the different sectors in Ontario. Mr. Zimmer led an inter-Ministry committee over a period of three months with the goal of preparing a report with recommendations for Cabinet. The PA also created a website and held consultations with different levels of government on the question of harmonizing with the United States on DST. According to Attorney General Bryant,

³⁰ Prerau, *Seize the Daylight*, n. p.

³¹ Correspondence with officials from the Ministry of the Attorney General, (February 27, 2007). The Ministry of the Attorney General administers the *Time Act*.

³² Mr. Cassidy's Bill 47, introduced April 26, 1984, and Mr. McLellan's Bill 40 (October 24, 1985), both proposed extending DST from the first Sunday in March to the first Sunday in November.

³³ Ontario, Ministry of Municipal Affairs, *News Release* (March 10, 1987).

³⁴ See the [Time Act](#), accessed March 8, 2011.

Representatives from finance and capital markets, trade, manufacturing and industry unanimously urged us to harmonize daylight saving with the US. In fact, they told us that any misalignment could have a real and negative impact, namely: trade disruption as well as cost coordination, delivery system supply chain and border pressures.³⁵

On October 20, the Attorney General announced that Ontario would synchronize its DST schedule with the United States. PA David Zimmer told the *National Post* that “a good, solid 75% [of Ontarians consulted] were in favour of extending DST.”³⁶

In April 2006 the Ontario government enacted Ontario Regulation 111/06 under the *Time Act*.³⁷ The regulation, which came into force on January 1, 2007, contained provisions to change Ontario’s DST schedule which have now been incorporated in the Act itself:

Daylight saving time

2. (3) Daylight saving time shall be reckoned as one hour ahead of standard time.

Time in effect

(4) The time in effect shall be,

(a) daylight saving time during the period between 2 a.m. standard time on the second Sunday in March and 2 a.m. daylight saving time on the first Sunday in November; and

(b) standard time during the rest of the year.

Ontario’s Time Zone Anomalies

The Northwestern Ontario communities of Atikokan, Pickle Lake and Mishkeegogamang (formerly New Osnaburgh) are located west of the 90th meridian and therefore fall within the Central Time Zone. Like Saskatchewan, they do not observe DST and have no plans to change the status quo. As a further anomaly, the community of Pickle Lake, which is situated quite near to the 90th meridian, has chosen to observe Eastern Time as local time, even though it is physically located within the Central Time Zone. There are a number of these time zone anomalies located throughout Canada.

³⁵ Legislative Assembly, *Hansard*, 2nd Sess., 38th Parl. ([October 20, 2005](#)), accessed on March 8, 2011.

³⁶ Lee Greenberg, “Ontario to extend daylight savings,” *National Post*, (October 21, 2005), p. A4.

³⁷ See [O. Reg. 111/06](#), accessed March 8, 2011.

Daylight Saving Time Resources

Bob Aldrich, Information Officer, California Energy Commission

“[Saving Time, Saving Energy: Daylight Saving Time, Its History and Why We Use It](#),” September 27, 2001

Institute for Dynamic Educational Advancement (IDEA)

WebExhibits, “[Daylight Saving Time – First there was Standard Time](#)”

[Daylight Saving Time](#), The Columbia Encyclopedia, Sixth Edition. 2001

DOES EVERYONE OBSERVE DST?

Saskatchewan

All provinces observe daylight saving time except Saskatchewan, which remains on Central Standard Time (CST) year-round. The question of daylight saving time in Saskatchewan has been overshadowed by the more pressing question of whether to accept Mountain Standard Time (MST) or Central Standard Time as the uniform time in the province.

There are some in the province who argue that, in a sense, Saskatchewan is already observing Daylight Saving Time. This is because Saskatchewan observes Central Standard Time as the official time of the province instead of Mountain Standard Time (which is the “true” time associated with the 105° W meridian which runs through the middle of the province). Thus, Saskatchewan is observing time that is one hour ahead of the official Greenwich Time for that part of the hemisphere.

In 1966, the *Time Act* established the current system. The Act was introduced to allow residents of Saskatchewan to have one uniform time in the summer, while allowing residents in selected areas on the western side of the province to vote on whether to observe either MST or CST during the winter months.³⁸ The *Time Act* is silent on the question of Daylight Saving Time. During the summer months, all of Saskatchewan observes Central Standard Time. During the winter, only the Battle River (Lloydminster) Time Option Area follows Mountain Standard Time.³⁹

From time to time, various interests in the province have argued that Saskatchewan adopt DST, like the rest of North America. The Saskatchewan

³⁸ Ibid.

³⁹ Saskatchewan, Government Relations, “[Time System in Saskatchewan](#),” *Fact Sheet* (2005), accessed on September 29, 2006.

Chamber of Commerce (SCC) passed a resolution in 2001 calling on the Saskatchewan government to adopt DST, as did the Saskatchewan Urban Municipalities Association (SUMA) at its 2001 convention.

During the November 2007 provincial election campaign, Saskatchewan Party Leader Brad Wall promised a referendum on the matter of DST, in conjunction with the next (2011) provincial election, if his party were to form the government.⁴⁰ Winning a majority in the general election of November 7, 2007, the Saskatchewan Party formed the government. In early 2010, press articles appeared asking about the promised DST referendum. In one article, the Premier sounded less committed to a referendum when he suggested that citizens of Saskatchewan might first be polled to see whether they favoured change or the status quo. In March 2011, the Minister of Municipal Affairs ended speculation by announcing that the government would not hold a referendum on DST in conjunction with the November 7, 2011 provincial general election. According to a government-commissioned poll, 66% of Saskatchewan residents opposed switching to DST each spring, while just 27% would support the move.⁴¹ Of those opposed, 56% said they were “strongly opposed.” Only 7% of respondents expressed no opinion on the matter. The results of the government poll are similar to an earlier one conducted by the *Regina Leader-Post* and Saskatoon Star-Phoenix which showed that 60% of Saskatchewan residents opposed DST while just over a quarter expressed support. The results have convinced the government that “there is no need to go through the effort and expense of conducting a referendum on this issue.”⁴²

Nunavut

Canada’s newest territory, Nunavut, straddles three time zones – Eastern (UTC-5), Central (UTC-6) and Mountain (UTC-7). When the Territory was first created on April 1, 1999, however, elected representatives indicated a preference to have all Nunavut people within a single time zone in an effort to create unity and ease of communication across the entire 2 million km² area. On October 31, 1999, the

⁴⁰ “Brad Wall promises a referendum or plebiscite on daylight saving time issue,” *Leader-Post*, November 2, 2007.

⁴¹ In January 2011, Fast Consulting surveyed 1,012 Saskatchewan adults 19 years of age or older. The sample size of 1,012 allowed the consulting firm to say with a 95% level of confidence that the survey results are within plus or minus 3.1% of what they would be if the entire adult population of Saskatchewan were polled. The survey firm pointed out that the survey does not measure how important the issue is to people, or the level of understanding people have regarding the implications of switching, or not switching, to DST. See: Fast Consulting, Business Intelligence, Saskatchewan Ministry of Municipal Affairs, *Daylight Saving Time Opinion Survey Results* (February 2011), p. 2.

⁴² Saskatchewan, Ministry of Municipal Affairs, “Province will not hold referendum on Daylight Saving Time,” *Press Release*, March 10, 2010. For further information about time in Saskatchewan refer to [*The Saskatchewan Time System \(A Scientific and Historical Background\)*](#) prepared by Municipal Relations Division, Saskatchewan Government Relations and Aboriginal Affairs, 2002.

territory changed to Central Standard Time. This immediately created concern for people in the eastern region, where, during the winter, the sun was setting at 1 p.m. School children who set out in daylight were arriving home in complete darkness. Residents of Baffin Island in the eastern part of the Territory refused to adopt CST.⁴³

In October 2000, the press reported the government's solution: the Territory's time would conform to EST for six months, and to the CST zone for the next six months. The revised plan was not popular. On March 1, 2001, Nunavut's Minister of Justice, the Hon. Paul Okalik issued a statement explaining that based upon feedback from residents and officials, effective Sunday, April 1, 2001, three time zones (Eastern, Central and Mountain) would be re-established for Nunavut. The Minister admitted that the single time zone model across the territory had proved controversial since its inception, as had the proposed revisions. The government responded by amending the *Interpretation Act* accordingly.⁴⁴

WHO REGULATES DST IN CANADA?

While the federal government regulated DST as national policy during World War II, and municipal governments had jurisdiction thereafter, provincial and territorial governments now regulate it through the statutes presented in the following table:

Provincial Legislation and DST

Province/ Territory	Act [Regulation]	Responsible Ministry/ Department
British Columbia	<i>Interpretation Act</i> <i>Daylight Saving Time Regulation</i>	Ministry of Justice
Alberta	<i>Daylight Saving Time Act</i>	Justice and Attorney General
Saskatchewan	<i>Time Act</i> [and <i>Regulation</i>]	Government Relations (Municipal Relations Branch)
Manitoba	<i>Official Time Act</i>	Local Government
Ontario	<i>Time Act</i>	Attorney General
Quebec	<i>Legal Time Act/loi sur le temps légal</i>	Justice
New Brunswick	<i>Time Definition Act</i>	Premier's Office
Nova Scotia	<i>Time Definition Act</i>	Justice

⁴³ Adrian Humphreys, "Nunavut clocks in with solution for time zones: Territory will split year between Central and Eastern Time," *National Post*, October 10, 2000, p. A10.

⁴⁴ Nunavut, Ministry of Justice, "Time Zone," *Ministerial Statements*, March 1, 2001.

Province/ Territory	Act [Regulation]	Responsible Ministry/ Department
	[See <i>Regulations Act</i> for DST provisions]	
Prince Edward Island	<i>Time Uniformity Act</i>	Environment, Labour, and Justice
Newfoundland and Labrador	<i>Standard Time Act</i>	Municipal Affairs
Yukon	<i>Interpretation Act</i> See <i>O.I.C 2005/07</i> made under s. 33 of the Act	Justice
Northwest Territories	<i>Interpretation Act: Daylight Saving Time Reg.</i>	Justice
Nunavut	<i>Interpretation Act, s. 25 Time</i> See <i>Daylight Saving Time Regulations, 2001</i> , as amended by R-007-2007	Justice

OTHER COUNTRIES THAT OBSERVE DST

Approximately 75 countries worldwide observe DST while 164 do not.⁴⁵ Japan, India, and China are the only industrialized countries that do not observe some form of DST. Japan abandoned it in 1952, citing opposition from farmers. Today, South Korea, Japan, and Iceland are the only countries in the 30-member Organization for Economic Cooperation and Development that do not observe DST.⁴⁶ China, which enacted a single time zone in 1980, observed DST between 1986 and 1991, but no longer does so.⁴⁷

European Union

The dates that other countries observe DST vary. In 1996, the European Union (EU) standardized an EU-wide “summer time period” which extends from the last Sunday in March through the last Sunday in October. In the United Kingdom, a Summer Time Order established the period of summer time to commence on the last Sunday in March, extending to the last Sunday in October. As of 2002, the United Kingdom follows EU law on summer time

⁴⁵ Time and Date, “[Daylight Saving Time Around the World 2012](#),” February 4, 2012.

⁴⁶ South Korea is considering adoption of DST in the near future. It was last observed during the years 1986-1988. DST advocates (business and industry) have urged both the South Korean and Japanese governments to adopt DST to boost tourism in the summer months. Polls show that many people in both countries oppose DST fearing that it will lead to longer working hours. See “S. Korea, Japan urged to jointly adopt daylight savings time,” *Yonhap News Agency of Korea*, November 5, 2009.

⁴⁷ See table at [Overview of Countries](#), accessed March 8, 2011.

arrangements.⁴⁸ In 2012, British Summer Time (GMT+1) will commence at 1:00 a.m. Sunday March 25 and end at 1:00 a.m. Sunday October 28.

United Kingdom (UK)

In the UK House of Commons, backbencher Rebecca Harris (Essex Castle Point) sought to have her Private Member's Bill on Daylight Saving Time adopted by Parliament before the end of the first session in April 2012.⁴⁹ If passed, Bill 260 would have authorized a three-year trial and an in-depth study of advancing the clocks by one hour year-round. British Summer Time (GMT+1) would operate in the winter months and British Double Summer Time (GMT+2) in the summer months. Supporters claim that this proposal, known as "Single/Double Summer Time (SDST), would reduce road casualties, cut carbon emissions, and stimulate the economy chiefly through tourism, recreation, and job creation.

While the bill received considerable cross-party support at Second Reading, the matter of adopting or extending Daylight Saving Time has also proven to be a contentious issue. The bill was extensively amended in Committee. The two key areas of debate were (1) a possible veto for the Scottish and Welsh Executives, and (2) in the proposed costs and benefits report, the scope of the issues that would be covered. No veto was added to the bill, but the Minister indicated that the Scottish and Welsh Executives would have input into the process. An SDST trial would not proceed if there was clear opposition from any part of the UK.⁵⁰

Several MPs, primarily from the Conservative and Scottish National parties, tabled amendments, and spoke at length to them, thereby ensuring that the bill ran out of time. Conservative MP Christopher Chope noted that changing the time zone of the UK against the wishes of those in Scotland, would give ammunition to supporters of an independent Scotland. He added that the government could have easily launched an independent study of the pros and cons of the daylight saving proposal without tabling legislation.

⁴⁸ A common date and time has been established in all member states for the beginning and end of summer-time. From 2002 onward, the summer-time period begins in every member state at 1:00 A.M. Greenwich Mean Time (GMT) on the last Sunday in March and ends at 1:00 A.M. GMT on the last Sunday in October. The EU Directive defines summer-time as "the period of the year during which the clocks are put forward by 60 minutes compared with the rest of the year." See: [European Union Law Directive 2000/84/EC of the European Parliament and of the Council of 19 January 2001 on Summer-time Arrangements](#) (March 2002), accessed on May 13, 2003.

⁴⁹ [Daylight Saving Bill 2010-12 – UK Parliament](#), accessed October 27, 2011.

⁵⁰ United Kingdom, House of Commons Library, "Daylight Saving Bill: Committee Stage Report," *Research Paper 12/03*, January 11, 2012.

The proposed DST bill failed to complete its passage through Parliament before the end of the session.⁵¹

Other Countries

In Israel, DST is determined on a yearly basis, because religious considerations dictate that DST must end before the New Year. This can fall any time between early September and early to mid October. Russia advances its clocks two hours ahead of Standard Time during the summer, and one hour ahead during the winter in all 9 of its time zones.⁵² In the southern hemisphere, where summer arrives in December, DST is observed from October to March. Australian states observe DST from the first Sunday of October until the first Sunday of April. Equatorial and tropical countries do not observe DST since day and night are equal throughout the seasons.⁵³

International Exceptions to DST

All parts of the United States observe DST with the following exceptions: Hawaii, American Samoa, Guam, Puerto Rico, the Virgin Islands, the Commonwealth of Northern Mariana Islands, and Arizona. However, the Navajo Nation (located within Arizona and other states) does observe DST. In 2005, the State of Indiana passed a law to create a more unified system of time. Effective April 2, 2006, Indiana (which falls predominantly in the Eastern Time Zone) began observing DST. In Australia, Queensland, the Northern Territory, Western Australia, and Christmas Island do not observe DST.

WHY NOT “DAYLIGHT SAVINGS TIME”?

There is no “s” because what is saved is daylight, which is singular.

WHY NOT OBSERVE DST YEAR ROUND?

While some people would like DST year-round, there are practical reasons for avoiding it during the late sunrise months of November through February. At the end of the two-year trial in the United States in 1974-75, data compiled showed a statistically significant increase in fatal traffic accidents between 5:30 and 9:30 A.M. during the late sunrise months of January and February 1974, compared with 1973. While the increase in accidents could not be definitively attributed to

⁵¹ U.K. Parliament, Parliamentary Business, Bills and Legislation, [Daylight Saving Bill](#), 2010-12 (accessed October 26, 2012).

⁵² Russia has the highest number of time zones of any nation. In 2010 the country had 11 but two were removed that year under the authority of President Medvedev. See Goldberg, “Zoning Out.”

⁵³ Aldrich, “Saving Time” n. p.

Daylight Saving Time, DST as a factor in these accidents could not be ruled out either.⁵⁴ The morning darkness was and remains a concern for parents whose children wait for school buses or walk to school in the morning during November through February. Daylight Saving Time is most acceptable to the public when sunrises are not too late and sunsets are not too early.⁵⁵ Some experts believe that the best period for DST in terms of light symmetry, is the six month period starting on the first Sunday in April and ending on the last Sunday in September.⁵⁶

OPPOSITION TO DAYLIGHT SAVING TIME

In general, some people resent the twice a year inconvenience of resetting their clocks, and the time on their various appliances.⁵⁷ Others dislike adjusting their sleeping patterns and some with sleep problems find the change disruptive and disorienting. They complain that adjusting to DST or back to Standard Time is "like getting jet lag without even leaving home."⁵⁸

Stanley Coren, who authored the book *Sleep Thieves*, published data claiming that the spring shift to DST increases driver fatigue resulting in an increase in automobile collisions.⁵⁹ Other experts dispute these claims.⁶⁰ However, a Hamilton sleep disorder specialist has observed that the loss of as little as one hour of sleep (as happens during the shift to DST) can have a significant impact on individuals already suffering from sleep deprivation.⁶¹ A Swedish study noted that since 1987, the number of heart attacks rises about 5% during the first week of daylight saving time due to disruption of sleep patterns and biological rhythms.⁶²

⁵⁴ Ian R. Barkky and Elizabeth Harrison, "Standard and Daylight-saving Time," *Scientific American* (May 1979), p. 50.

⁵⁵ Barkky and Harrison, "Standard and Daylight-saving Time," p. 50.

⁵⁶ *Ibid.*, p. 53.

⁵⁷ Sheila Danzig, "[End Daylight Saving time](#)," 1997, accessed on May 13, 2003.

⁵⁸ Wood, "Changing clocks a sore subject."

⁵⁹ Stanley Coren, "[Sleep Deficit, Fatal Accidents and the Spring Shift to Daylight Savings Time](#)" (1998) Presented at INABIS '98, 5th Internet World Congress at McMaster University, Canada, December 7-16th, 1998, accessed on 13 May 2003.

⁶⁰ Nicolas van Rijn, "Accident unrelated to time change: study – Statistics show losing sleep has little or no effect," *Toronto Star*, 17 October 1998, p. A4.

⁶¹ Suzanne Morrison, "All work and no sleep plays havoc with lives; Studies say lack of sleep causes premature aging, weakens immune system and leads to accidents," *The Hamilton Spectator*, 31 March 2001, p. A1.

⁶² Charles Choi, "Spring Forward or Not? *Scientific American*, March 2009, p.18.

Researchers at Stanford and Johns Hopkins universities reported in the journal *Sleep Medicine*, that there may be a link between the spring change to DST and an increase in fatal auto accidents on the Monday following the spring change to DST. Reviewing records on fatalities kept by the US National Highway Transportation Safety Administration from 1974 to 1995, the data showed that an average of 78.2 fatalities had occurred during the weeks prior to the shift while an average of 83.5 fatalities occurred immediately following.⁶³ Several economists from British Columbia have even suggested that disrupted sleep routines lead to unusual declines on the stock market on the Monday following the start/end of DST.⁶⁴

Finally, Robertson Davies, who wrote under the pseudonym Samuel Marchbanks for the *Peterborough Examiner* in the 1940s, made these whimsical observations about Daylight Saving Time:

Went cheerfully through the whole day without realizing that the usual haphazard tinkering with the clocks was in progress, and that I should have been enjoying the benefits of Daylight Saving Time. I don't really care how time is reckoned so long as there is some agreement about it, but I object being told that I am saving daylight when my reason tells me that I am doing nothing of the kind. I even object to the implication that I am wasting something valuable if I stay in bed after the sun has risen. As an admirer of moonlight I resent the bossy insistence of those who want to reduce my time for enjoying it. At the back of the Daylight Saving scheme I detect the bony, blue-fingered hand of Puritanism, eager to push people into bed earlier, and get them up earlier, to make them healthy, wealthy and wise in spite of themselves.⁶⁵

⁶³ Ibid.

⁶⁴ Derek DeCloet, "Thank God it's Monday: Don't Call your Broker Yet (Stock Market Decline Follows Switch to Daylight Savings Time)," *Canadian Business*, April 3, 2000, pp. 19-20.

⁶⁵ Robertson Davies, *The Papers of Samuel Marchbanks* (New York: Viking Penguin, 1986), pp. 75-76.