Daylight saving time: summer 2007–08

Greg Baker
Statistics and Mapping Section

Executive summary

- Australia has three standard time zones.
- Its external territories have an additional five time zones.
- During the summer of 2007–08, at any one time Australia will have as many as five time zones and if external territories are included this increases to ten time zones.
- Also during the summer of 2007–08, Australian time zones change four times. These changes are on 7 October 2007, 28 October 2007, 30 March 2008, and 6 April 2008.

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Introduction

Daylight saving time in Australia has a long and chequered history.

This is largely because the responsibility for the setting of time zones has remained with state and territory authorities. Commonwealth power over weights and measures in the Constitution extends to the measurement of time, but whether it has power to legislate about time zones is not free from doubt.¹

This turbulent history is also because the institution of daylight saving time impacts in a fundamental way on the manner in which people lead their lives. This in turn means that there are many people who feel strongly on the issue and are vocal in their praise or criticism of daylight saving time.

This paper updates a Parliamentary Library December 2006 research note on the same topic. It provides more historical detail and sets out the changes that will be in place for the summer of 2007–08 and for 2008. It also provides a ready reckoner to calculate time of day in any part of Australia throughout the daylight saving period and beyond.

Time zones

World

World time is measured in relation to Coordinated Universal Time (UTC).² Using UTC as local time worldwide would have the disadvantage that 12 o’clock at any place on the globe would not occur at around the time the sun is at its high point in the sky at that place.

1. Section 51(xv) of the Constitution says that “[t]he Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to … weights and measures’. A private member’s Bill, the National Measurement (Standard Time) Amendment Bill passed all stages in the House of Representatives in 1991. It was adopted by the then Labor government which introduced it into the Senate. It was withdrawn without vote from the Senate following the daylight saving referendum in Queensland in February 1992. In November 2006, Peter Conway from The Canberra Institute called on the federal government to use its powers to administer a national daylight saving system. See Megan Doherty, ‘Idea sees light of day’, Canberra Times, 24 November 2006, p. 16.

2. ‘In 1970 the Coordinated Universal Time system was devised by an international advisory group of technical experts within the International Telecommunication Union (ITU). The ITU felt it was best to designate a single abbreviation for use in all languages in order to minimize confusion. Since unanimous agreement could not be achieved on using either the English word order, CUT, or the French word order, TUC, the acronym UTC was chosen as a compromise’. US National Institute of Standards and Technology, http://tf.nist.gov/general/misc.htm,
To avoid this problem the world is divided into time zones.\(^3\) Over the oceans, time zones are equally spaced and 15 degrees of longitude apart except for the deviations of the International Date Line. This makes 24 one-hour time zones totalling the full 360-degree circumference of the world.

Over land masses, political, administrative and geographic considerations have changed this ideal 15 degree geometry. In Australia this means that with one minor exception the borders of time zones follow state and territory boundaries.\(^4\)

**Australia**

Australia has three time zones. These are called Eastern Standard Time (EST), Central Standard Time (CST), and Western Standard Time (WST) which is sometimes called Western Australian Time. These zones are sometimes referred to as AEST, ACST and AWST respectively where the prefix refers to Australia. These time zones were set up by colonial legislatures in the mid to late 1890s.\(^5\)

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3 Historically, time of day for each location was determined by defining midday as when the sun was at its highest point in the sky. With the introduction of fast land travel, particularly railways, timetabling arrival and departure times became a significant problem with the multiplicity of local time systems. Greenwich Mean Time (GMT) was adopted in England as the national standard of time by railways in the 1840s, and a series of time zones were developed in the USA by railways in 1883. GMT has since been replaced by the atomic-based time system, Coordinated Universal Time. John Birch, Executive Director 1986–2000, National Standards Commission, personal communication, 19 August 2007; and Graeme Davidson, *The Unforgiving Minute: How Australians Learned to Tell the Time*, OUP, Melbourne, 1993, p. 71.

4. The minor exception is Broken Hill on which there is more following in the main text. There are also some local unofficial variations for those people living in the south-east corner of Western Australia along the Eyre Highway between South Australia and Western Australia. In towns such as Eucla, the time is set at UTC plus 8 hours and 45 minutes, viz. half way between South Australian and Western Australian times. It is unofficially known as Western Central Standard Time. See [http://en.wikipedia.org/wiki/Time_in_Australia](http://en.wikipedia.org/wiki/Time_in_Australia), accessed 7 August 2007; and Gwillim Law, ‘Time Zones of Australia’, *Administrative Divisions of Countries*, [http://www.statoids.com/tau.html](http://www.statoids.com/tau.html), accessed 9 August 2007.

5. Jan Todd, *For Good Measure: The Making Of Australia’s Measurement System*, Allen & Unwin, Crows Nest, 2004, pp. 28–9. Note that all states standardised their time zones from the beginning of February 1895; at that time South Australian time was set half way between the east and west coasts. Following legislation, South Australia changed its standard time to
EST is 10 hours ahead of UTC. In winter it applies to New South Wales, except in Broken Hill\textsuperscript{6} which is on CST, Victoria, Queensland, Tasmania and the Australian Capital Territory. Lord Howe Island is administratively part of New South Wales, but has standard time 10 hours 30 minutes ahead of UTC.\textsuperscript{7}

CST is 9 hours 30 minutes ahead of UTC. CST applies throughout South Australia, the Northern Territory and Broken Hill in New South Wales.\textsuperscript{8}

WST is 8 hours ahead of UTC and applies throughout Western Australia.

**External territories**

Australia has other time zones that are associated with the external territories under its control. The Cocos (Keeling) Islands are 6 hours and 30 minutes ahead of UTC; Christmas Island is 7 hours ahead of UTC; and Norfolk Island is 11 hours 30 minutes ahead of UTC.

Australia's four Antarctic bases have their times determined more for convenience of contact with the Australian Antarctic Division of the Department of Environment and Water Resources in Hobart than their geographic location. Mawson is 6 hours ahead of UTC; Davis is 7 hours ahead of UTC; Casey is 8 hours ahead of UTC; and Macquarie Island is 10 hours ahead of UTC. The territories of Heard Island and McDonald Islands; the Coral Sea Islands; and Ashmore and Cartier Islands are usually uninhabited and do not have times set for them.

**Daylight saving time**

Daylight saving is the name for the process of putting clocks forward by one hour during summer to extend the hours of daylight available at the end of the normal working day. It was introduced across Australia in 1917 as a wartime fuel-saving measure, but was abandoned the same year in the face of public opposition. It was introduced across Australia again in 1942

30 minutes closer to the east coast in 1898 but there has been some debate in the past few years variously about again setting South Australian time to mid-way between east and west coasts and about setting South Australian time to Eastern Standard Time. See, for example, ABC News, ‘MP fights against joining eastern time zone’, 15 December 2004 and Editorial, ‘Right time for daylight saving trial’, *The Advertiser*, 29 June 2007, p. 16. Part of the explanation for state and territory based time zones is that these were set up before Federation. John Birch, Executive Director 1986–2000, National Standards Commission, personal communication, 19 August 2007.

6. Strictly this refers to the County of Yancowinna.

7. Times for Broken Hill and Lord Howe Island, as well as New South Wales, are set out in the New South Wales *Standard Time Act 1987*.

8. Legislatively Broken Hill time is defined by the New South Wales Act; this time coincides with CST.
under National Security Regulations and in the summers of 1942–43 and 1943–44. Western Australia which had made strong representations was exempt from daylight saving in 1943–44.9

There was no daylight saving time in Australia after the Second World War until Tasmania—excluding King Island—introduced it in 1967–68.10 New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory adopted daylight saving time in 1971.11

Queensland abandoned daylight saving time in 1972, reintroduced it in 1989 and abandoned it again following a referendum in 1992. In 2006, a Queensland Parliament E-Petition in favour of the introduction of daylight saving time was signed by 62 232 people; a parallel E-Petition against the introduction of daylight saving time was signed by 7516 people.12 In response to the petitions, the then acting Premier, Anna Bligh, in rejecting any change noted that she was ‘unaware of any current workable model for state-wide daylight saving that would be supported by a majority of Queenslanders’.13 Premier Peter Beattie has indicated that the Queensland government will gauge public support for a two-zone daylight saving time system for Queensland. He is reported as saying that an assessment will be made to see if ‘people believe that the southeast corner [of Queensland] should be able to be in a separate time zone with daylight saving’.14

Western Australia adopted daylight saving time in 1974, but abandoned it following a referendum in 1975. It then reintroduced it in 1983–84, only to abandon it again following a


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referendum during 1984. A further referendum in 1992 sealed the fate of daylight saving time in Western Australia until the question resurfaced during 2006. On 24 October 2006, the Premier of Western Australia, Alan Carpenter, indicated his support for a three-year trial of daylight saving time in Western Australia beginning on the first Sunday in the 2006–07 summer, 3 December.\textsuperscript{15} This, coupled with the decision by both sides of politics to support a free vote, led to a 37–14 vote in the Legislative Assembly in favour of the daylight saving time trial. A subsequent vote of the Legislative Council passed the trial with a vote of 21–10.\textsuperscript{16} The Western Australian Daylight Saving Act 2006 legislates that daylight saving time in that state begins on the last Sunday in October and finishes on the last Sunday in March; the dates of these Sundays are included in the legislation. A referendum on the future of daylight saving in Western Australia will be held in 2009 after the three-year trial has been completed.\textsuperscript{17}

In early 2007, New South Wales, Victoria and the Australian Capital Territory agreed to bring forward the beginning of their daylight saving periods from the last Sunday in October to the first Sunday in October. These changes would bring these jurisdictions into line with Tasmania which starts daylight saving on that day. They also agreed to delay the end of the daylight saving period from the last Sunday in March to the first Sunday in April. At the Council of Australian Governments’ meeting in Canberra on 14 July 2007, the representatives of these jurisdictions and South Australia and Tasmania stated that they would consider synchronising the start and end dates for daylight saving time.\textsuperscript{18} Subsequently all these jurisdictions set the start date as the first Sunday in October and the end date as the first Sunday in April. However, these dates are to begin from 2008, meaning that the already announced starting dates for daylight saving time for the summer of 2007–08 will remain; these are Sunday 28 October 2007 for New South Wales, Victoria, South Australia and the Australian Capital Territory, and Sunday 7 October 2007 for Tasmania.\textsuperscript{19}


\textsuperscript{16} Ben Spencer, ‘It’s daylight to rivals as MLCs bed down trial’, West Australian, 22 November 2006, p. 4.

\textsuperscript{17} The referendum will be held no later than 13 September 2009. Katie Hampson, ‘Clocks go forward—WA moves with them’, West Australian, 2 December 2006, p. 14. See also Daylight Saving Act 2006 (WA).


\textsuperscript{19} The New South Wales Parliament has before it (at 7 August 2007) the Standard Time Amendment (Daylight Saving) Bill 2007, which will legislate for daylight saving time to start in New South Wales on 28 October 2007 and finish on 6 April 2008. This is a transition arrangement for the summer of 2007–08. Victoria has yet to prepare appropriate legislation but has announced transition arrangements for the summer of 2007–08 in line with New South Wales. Premier Steve Bracks’ media release is at
Referenda

As indicated in the introduction above, the issue of daylight saving time has generated much heat over the years because it impacts in a fundamental way on the manner in which people lead their lives.

Some of the arguments that people advance in favour of daylight saving time are that it increases the opportunities for after-work leisure activities and for shopping and that it reduces overall energy consumption. Arguments against the imposition of daylight saving time include that it increases economic costs and disrupts sleep patterns, particularly of children, at the times of changeover; it has an economic cost to people providing evening entertainment; and it is disruptive of the work lives of people such as farmers whose work lives are regulated by the sun.

Because of this controversy which appears difficult to resolve by normal parliamentary means, several states have conducted referenda to determine the views of electors.20 The following table shows results of recent daylight saving time referenda.21


20 A good introduction to the arguments for and against daylight saving time was put in the debates leading up to the current Western Australian trial. M. J. Birney the MLA for Kalgoorlie put the case for daylight saving on 25 October 2006 as did J. B. D’Orazio the MLA for Ballajura. For these arguments see the Birney speech and the D’Orazio speech in the Western Australian Hansard. The case against was put by a number of speakers in the Western Australian Legislative Assembly on 31 October 2006. The arguments are also in the Hansard for that day. As noted above, a good discussion of daylight saving time in Australia is in Graeme Davison, The Unforgiving Minute: How Australians Learned to Tell the Time, OUP, Melbourne, 1993, pp. 114–21.

Daylight saving referenda

<table>
<thead>
<tr>
<th>State</th>
<th>Date</th>
<th>For (%)</th>
<th>Against (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>1.5.76</td>
<td>68.42</td>
<td>31.58</td>
</tr>
<tr>
<td>Queensland</td>
<td>22.2.92</td>
<td>45.50</td>
<td>54.50</td>
</tr>
<tr>
<td>South Australia</td>
<td>6.11.82</td>
<td>71.62</td>
<td>28.38</td>
</tr>
<tr>
<td>Western Australia</td>
<td>8.3.75</td>
<td>46.34</td>
<td>53.66</td>
</tr>
<tr>
<td></td>
<td>7.4.84</td>
<td>45.65</td>
<td>54.35</td>
</tr>
<tr>
<td></td>
<td>4.4.92</td>
<td>46.86</td>
<td>53.14</td>
</tr>
</tbody>
</table>

Summer 2007–08

For the 2007–08 summer, New South Wales, Victoria, South Australia and the Australian Capital Territory will all have daylight saving time running from 0200 Sunday 28 October 2007 to Sunday 6 April 2008. Lord Howe Island clocks are moved forward half an hour during daylight saving time in New South Wales to make them operate on the same time as New South Wales during the summer period.

Tasmania has daylight saving time from 0200 Sunday 7 October 2007 to Sunday 6 April 2008. Macquarie Island also observes daylight saving time in line with Tasmania.

According to its legislation, Western Australia is on daylight saving time from 0200 Sunday 28 October 2007 to Sunday 30 March 2008.

Queensland, the Northern Territory, Norfolk Island, Christmas Island, the Cocos (Keeling) Islands and the three Antarctic bases, Casey, Davis and Mawson, do not observe daylight saving time.22

The table below shows Australian time zones for 2007–08 and how they relate to UTC.


The ready reckoner below shows times in Australian states and territories during the summer of 2007–08.
### 2007–08 DAYLIGHT SAVING TIME READY RECKONER

To calculate any time in the states and territories in the left columns adjust by the amount shown in the table.

<table>
<thead>
<tr>
<th>Your state or territory</th>
<th>7.10.2007 to 28.10.2007</th>
<th>30.03.2008 to 6.04.2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your state or territory</td>
<td>NSW, Vic, Qld, ACT</td>
<td>NSW, Vic, Tas, ACT</td>
</tr>
<tr>
<td>New South Wales</td>
<td>0:00 0:30 2:00 -1:00</td>
<td>New South Wales</td>
</tr>
<tr>
<td>Victoria</td>
<td>0:00 0:30 2:00 -1:00</td>
<td>Victoria</td>
</tr>
<tr>
<td>Queensland</td>
<td>0:00 0:30 2:00 -1:00</td>
<td>Queensland</td>
</tr>
<tr>
<td>South Australia</td>
<td>-0:30 0:00 1:30 -1:30</td>
<td>South Australia</td>
</tr>
<tr>
<td>Western Australia</td>
<td>-2:00 -1:30 0:00 -3:00</td>
<td>Western Australia</td>
</tr>
<tr>
<td>Tasmania</td>
<td>1:00 1:30 3:00 0:00</td>
<td>Tasmania</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>-0:30 0:00 1:30 -1:30</td>
<td>Northern Territory</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>0:00 0:30 2:00 -1:00</td>
<td>Australian Capital Territory</td>
</tr>
<tr>
<td>Lord Howe Island</td>
<td>0:30 1:00 2:30 -0:30</td>
<td>Lord Howe Island</td>
</tr>
<tr>
<td>Norfolk Island</td>
<td>1:30 2:00 3:30 0:30</td>
<td>Norfolk Island</td>
</tr>
<tr>
<td>Casey</td>
<td>-2:00 -1:30 0:00 -3:00</td>
<td>Casey</td>
</tr>
<tr>
<td>Davis</td>
<td>-3:00 -2:30 -1:00 -4:00</td>
<td>Davis</td>
</tr>
<tr>
<td>Mawson</td>
<td>-4:00 -3:30 -2:00 -5:00</td>
<td>Mawson</td>
</tr>
<tr>
<td>Macquarie Island</td>
<td>0:00 1:30 3:00 0:00</td>
<td>Macquarie Island</td>
</tr>
<tr>
<td>Cocos (Keeling) Islands</td>
<td>-3:30 -3:00 -1:30 -4:30</td>
<td>Cocos (Keeling) Islands</td>
</tr>
<tr>
<td>Christmas Island</td>
<td>-3:00 -2:30 -1:00 -4:00</td>
<td>Christmas Island</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Your state or territory</th>
<th>28.10.2007 to 30.03.2008</th>
<th>From 6.04.2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your state or territory</td>
<td>NSW, Vic, Tas, Qld, ACT</td>
<td>ACT</td>
</tr>
<tr>
<td>New South Wales</td>
<td>0:00 1:00 0:30 2:00 1:30</td>
<td>New South Wales</td>
</tr>
<tr>
<td>Victoria</td>
<td>0:00 1:00 0:30 2:00 1:30</td>
<td>Victoria</td>
</tr>
<tr>
<td>Queensland</td>
<td>-1:00 0:00 1:00 0:30 1:30</td>
<td>Queensland</td>
</tr>
<tr>
<td>South Australia</td>
<td>-0:30 0:00 1:30 0:00 3:00</td>
<td>South Australia</td>
</tr>
<tr>
<td>Western Australia</td>
<td>-2:00 -1:00 1:30 0:00 3:00</td>
<td>Western Australia</td>
</tr>
<tr>
<td>Tasmania</td>
<td>0:00 1:00 0:30 2:00 1:30</td>
<td>Tasmania</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>-1:30 -0:30 -1:00 0:30 0:00</td>
<td>Northern Territory</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>0:00 1:00 0:30 2:00 1:30</td>
<td>Australian Capital Territory</td>
</tr>
<tr>
<td>Lord Howe Island</td>
<td>0:00 1:00 0:30 2:00 1:30</td>
<td>Lord Howe Island</td>
</tr>
<tr>
<td>Norfolk Island</td>
<td>0:30 1:30 1:00 2:30 2:00</td>
<td>Norfolk Island</td>
</tr>
<tr>
<td>Casey</td>
<td>-3:00 -2:30 -1:00 -3:00</td>
<td>Casey</td>
</tr>
<tr>
<td>Davis</td>
<td>-4:00 -3:30 -2:00 -4:00</td>
<td>Davis</td>
</tr>
<tr>
<td>Mawson</td>
<td>-5:00 -4:30 -3:00 -5:30</td>
<td>Mawson</td>
</tr>
<tr>
<td>Macquarie Island</td>
<td>0:00 1:00 0:30 2:00 1:30</td>
<td>Macquarie Island</td>
</tr>
<tr>
<td>Cocos (Keeling) Islands</td>
<td>-4:30 -3:30 -2:30 -3:30</td>
<td>Cocos (Keeling) Islands</td>
</tr>
<tr>
<td>Christmas Island</td>
<td>-4:00 -3:00 -2:30 -4:00</td>
<td>Christmas Island</td>
</tr>
</tbody>
</table>
Appendix 1. State and territory legislation

New South Wales
Standard Time Act 1987

Victoria
Supreme Court Act 1986
Summer Time Act 1972

Queensland
Standard Time Act 1894

South Australia
The Standard Time Act 1898
Daylight Saving Act 1971
Daylight Saving Regulations 2007

Western Australia
Standard Time Act 2005
Daylight Saving Act 2006

Tasmania
Standard Time Act 1895
Daylight Saving Act 1968

Northern Territory
Standard Time Act 2005

Australian Capital Territory
Standard Time and Summer Time Act 1972
Appendix 2. Wartime legislation

First World War

For the First World War, the legislation was the *Daylight Saving Act 1916*. It came into force on 1 January 1917.

Section 4 of that Act says: ‘Notwithstanding anything contained in any Act or State Act, from the hour of two in the morning of the day upon which this Act commences [1 January 1917] until the hour of two in the morning of the last Sunday in March next following that day, and thereafter from the hour of two in the morning of the last Sunday in September in each year until the hour of two in the morning of the last Sunday in March in the following year, Australian clock time shall, as regards each State and Territory being part of the Commonwealth, be one hour in advance of standard time.’

Section 2 of the Act stipulates that the Act should stay ‘in force for the duration of the war and six months thereafter, but no longer’. However, according to Ernest Scott, ‘Australia during the war’, *Official history of Australia in the war of 1914–1918*, vol. 11, Angus & Robertson, Sydney, 1943, people felt there was not enough twilight to make it worthwhile and people in rural and regional areas were not happy with it. The Act was therefore repealed by the *Daylight Saving Repeal Act 1917*. This was passed in September 1917 and took effect immediately. Both Acts appear to rely on the Commonwealth’s wartime defence power, as it has not been established whether the Commonwealth has any power to legislate in this area.

Second World War

For the Second World War, the legislation was Statutory Rule no. 392 of 1942. This was an amendment to the National Security (Supplementary) Regulations and was published in the Government Gazette on 10 September 1942. The text says: ‘Regulation 28 of the National Security (Supplementary) Regulations is amended by adding at the end thereof the following subregulation: “(2.) Notwithstanding anything contained in any law of the Commonwealth or of any State or Territory, from the hour of two o’clock in the morning of Sunday, the twenty-seventh day of September, 1942, until the hour of two o’clock in the morning of Sunday, the twenty-eighth day of March, 1943, summer time shall, in respect of each State and Territory, be one hour in advance of standard time.” ’ Under this statutory rule, daylight saving ended on 28 March 1943 but Statutory Rule no. 241 of 1943 extended daylight saving time to March 1944, this time excluding Western Australia by repealing and substituting sub-regulation 2. On 22 August 1944, Federal Cabinet agreed: ‘That unless the Premiers expressed a wish to retain the daylight saving arrangement it should not be reintroduced.’