Daylight Saving Time for St. Helena

A document for review by Legislative Council

Prepared, March 2007 by:

LIGHT

an informal, non-political coalition
advocating Daylight Saving for St Helena

What is "Daylight Saving Time" for?

The main purpose of Daylight Saving Time ("DST", also often called "Summer Time" in many places in the world) is to make better use of daylight. DST-using countries change their clocks during the summer months to move an hour of daylight from the morning to the evening. The result is lighter evenings – the sun sets an hour later than it would without DST. There's a brief history at the end of this document.

Daylight Saving Time is Popular

People like Daylight Saving Time.

A poll conducted by the U.S. Department of Transportation indicated that Americans liked Daylight Saving Time because "there is more light in the evenings / can do more in the evenings."

A survey of 2.7 million citizens in New South Wales, Australia, found 68% liked daylight saving. Indeed, some say that the primary reason that Daylight Saving Time is a part of many societies is simply because people like to enjoy long summer evenings. But there are many other benefits.

Saving Daylight saves energy

Various studies have shown that Daylight Saving Time cuts a country's electricity usage by a significant amount; about one percent each day.

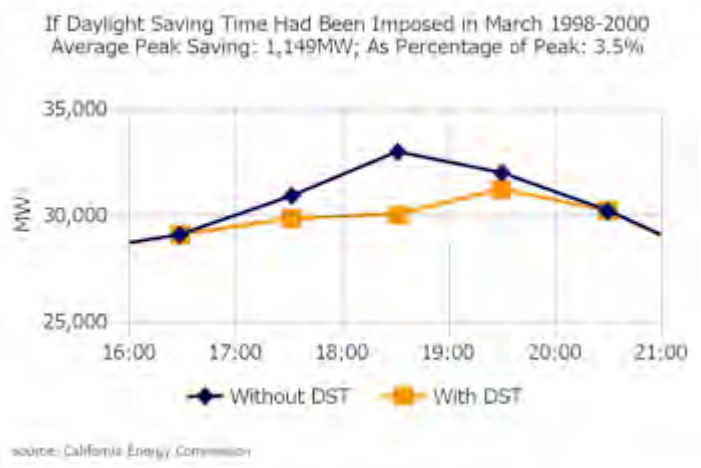
Energy use and the demand for electricity is directly related to the times when people go to bed at night and rise in the morning. In the average home, 25 percent of electricity is used for lighting and small appliances, such as TVs, VCRs, and stereos. A good percentage of energy consumed by lighting and appliances occurs in the evening when families are home. By moving the clocks ahead one hour, the amount of electricity consumed each day decreases. The chart shows the difference in generating capacity required with and without DST (source: California Energy Commission [4])

In the summer, people who rise before the sun rises use more energy in the morning than if DST was not in effect. However, this increased use of energy from having less sunlight in the morning is more than offset by the savings of energy that results from more sunlight in the evening.

In addition, less electricity is used because people are at home for fewer hours during the longer evenings of summer. Many people plan outdoor activities in the extra daylight hours. When people are not at home, they don't turn on appliances and lights.

In 1974, the US mounted a Daylight Saving Time experiment, which confirmed that Daylight Saving Time saves energy. Based on consumption figures for 1974 and 1975, observing Daylight Saving Time in March and April saved the equivalent in energy of 10,000 barrels of oil each day — a total of 600,000 barrels in each of those two years. California Energy Commission studies[4] confirm a saving of about one percent per day.

Similarly, in New Zealand, power companies have found that power usage decreases 3.5 percent when daylight saving starts. In the first week, peak evening consumption commonly drops around five percent.



Daylight Saving Time reduces Accidents and cuts crime

There is a public health benefit to Daylight Saving Time: it decreases traffic accidents and reduces crime.

Several studies in the U.S. and Great Britain have found that the DST daylight shift reduces net traffic accidents and fatalities by close to one percent. A slight increase in accidents in the dark mornings is more than offset by the evening decrease in accidents. An explanation offered for this is that drivers and pedestrians are more alert in the morn-

Monet was french, and painted a Summer Evening like this:

But if he had been a Saint it would have looked like this...

ing than the evening, and so are better able to cope with darkness. Alcohol consumption during the day may also be a factor.
In addition, because people get home from work and school and complete more tasks in daylight, Daylight Saving Time also seems to reduce people's exposure to various crimes, which are more common in darkness than in light.
The 1974 US Daylight Saving Time experiment concluded that 50 lives were saved and about 2,000 injuries were prevented in March and April of the study years. The department also estimated that $28 million was saved in traffic accident costs.

Who uses DST?

Most major industrialized countries observe some form of daylight saving.
Countries using DST on comparable latitudes to St. Helena include:
Southern Hemisphere

Namibia	Starts: First Sunday in September Ends: First Sunday in April
Brazil	Starts: First Sunday in October Ends: Third Sunday in February

It has been proposed that South Africa would also benefit from adopting DST[5]
Northern Hemisphere

Mexico	Starts: First Sunday in April Ends: Last Sunday in October
Southern USA	Starts: second Sunday of March Ends: first Sunday in November

How would Daylight Saving Time work in St. Helena?

The proposal is that St. Helena should adopt GMT+1 in winter, and GMT+2 for five months between end October and end March.
The benefits of this would be:

Social Benefits

- Sunset in January would move from 7pm to 9pm. This would provide a five hour period between the ending of working time and sunset; allowing a much wider range of weekday-evening outdoor sports and leisure activities.
- For example, the popular exercise of evening walking would be made safer and perhaps more widespread with longer evenings.
- The increase in after-work daylight would give gardeners more time in the vegetable patch, improving the availability of fresh food across the island
- DIY activities would benefit from having longer daylight hours in the evening.

- Youth-focused groups, especially New Horizons, would be able to continue outdoor activities much longer without incurring floodlighting costs
- Rifle shooting practice and events could occur for longer on weeknights, and other possible weekday evening sports include tennis and bowls.
- Closer synchronisation with South African time would shift television's 'watershed' hour later, removing the current unsuitable content from early evening viewing.

Economic Benefits

- The average household could expect to save approximately £100 per annum in electricity costs (see Appendix 1).
- In addition to household energy savings SHG departments would benefit from reduced costs for street lighting, building lighting (police station; prison; hospital; care homes; etc.)
- A wider range of tourist activities would become possible, including evening tours (useful for cruise ships arriving later in the day); evening craft markets; a 'street café' culture and other evening events.
- Fund-raisers, schools and charities would benefit because it would be possible to organise in daylight an evening fete, charitable barbecue or outdoor performances.

Health and Safety Benefits

- A reduction in crime and nuisance could be expected along similar lines to the experience in other countries.
- A reduction in accidents could be expected along similar lines to the experience in other countries.
- Many of the additional leisure activities listed above are beneficial to health, particularly when set against the alternative of sitting at home watching the television.



Hasn't it been tried before?

A short DST experiment was undertaken in St. Helena from 18th October 1981 until February 28th 1982 (just over 4 months). The reasons why this experiment was deemed at the time to be a failure are examined below.
In addition, 1981-2 was 25 years ago and much has changed. There are reasons, also examined below, why the environment in which a new experiment would be conducted makes it more likely to succeed.

1. Four months was too short to run a meaningful experiment.
In other countries DST experiments have been run for at least 2 years. This is necessary to obtain sufficient data to make a fair assessment of the benefits.
Note that, two years is the minimum, and three years is preferred, because abnormal weather in any single year could result in unrealistically high or low expectations of likely savings. This year's exceptionally wet weather would have made some of the benefits of lighter evenings hard to confirm.

2. Energy usage is now a more significant factor.
Energy prices are much higher than in 1981-2 and far more properties have access to Electricity, so the economic benefits will be more marked.

3. Social behaviour has changed.
Some of the activities listed above as benefiting from lighter evenings were not as prevalent in 1981-2 (for example DIY), or as vital to the island (for example domestic food production), so the benefits to these were less apparent.
Crime and nuisance are widely thought to be more of an issue today than in 1981-2, and public health is also a bigger concern for the island, so benefits in these areas will be more valued.

4. Darker mornings are less of a problem.
In 1981-2 many children walked to school, often over long distances, so the dark mornings were considered to be a problem (though there is no evidence that any serious accidents occurred as a result).
Now most children who travel a distance to school do so by car or bus, so the issue does not arise.
And, as noted above, research shows that fewer serious accidents occur in dark mornings than in dark evenings, resulting in a net improvement in public safety.

Examination of the trial in 1981-2, from reporting in the newspaper of the time, suggests that a large part of the opposition was not based on an objective analysis of the data (largely, of course, because the trial was too short to allow any meaningful data to be collected) combined with previously-held skepticism about the expected benefits.
As can be seen from the above, the situation today is much different from that in which the 1981-2 trial was conducted. It can be anticipated that a properly-conducted trial will either prove the case for DST (as the proponents expect) or objectively disprove it so that the issue need not arise again in the future.

FURTHER READING:

A Brief History of (Daylight Saving) Time

The idea of daylight saving was first conceived by Benjamin Franklin during his time in Paris in 1784, but it was first advocated seriously by London builder William Willett (1857-1915) in the pamphlet, "Waste of Daylight" (1907). About one year later Robert Pearce - later Sir Robert Pearce - introduced a bill in the House of Commons to make it compulsory to adjust the clocks. The bill was drafted in 1909 and introduced in Parliament several times, met with ridicule and opposition, especially from farming interests. However, following Germany's lead, Britain passed an act on May 17, 1916, with an over-complicated scheme of adding 80 minutes, in four separate movements. There was a storm of opposition, confusion, and prejudice. However, after World War I, Parliament passed several acts relating to Summer Time. In 1925, a law was enacted that Summer Time should begin on the day following the third Saturday in April (or one week earlier if that day was Easter Day). The date for closing of Summer Time was fixed for the day after the first Saturday in October.
The energy saving benefits of Summer Time were recognised during World War II, when clocks in Britain were put two hours ahead of GMT during the summer. This became known as Double Summer Time. During the war, clocks remained one hour ahead of GMT throughout the winter. Today most of the major industrialized countries observe some form of daylight saving.

Sources

1. http://webexhibits.org/daylightsaving/index.html a site dedicated to the explanation and promotion of Daylight Saving Time

2. http://en.wikipedia.org/wiki/Energy_Policy_Act_of_2005#Change_to_daylight_saving_time (explanation of the US "Energy Policy Act of 2005" which, inter alia, extended US Daylight Saving Time as an energy-saving measure.

3. http://en.wikipedia.org/wiki/Daylight_saving_time_around_the_world details of countries using DST

4. http://www.energy.ca.gov/daylightsaving.html California Energy Commission website

5. http://www.worldtimezone.com/newspaper-southafrica.html article proposing that South Africa would benefit from adopting DST.

Appendix 1: Calculations of Energy Saving in St. Helena for various DST models

PARAMETERS

	Local Time	On GMT+0 this equates to this time GMT	On GMT+1 this equates to this time GMT	On GMT+2 this equates to this time GMT	On GMT+3 this equates to this time GMT
People rise at	07:00	07:00	06:00	05:00	04:00
People go to bed at	23:00	23:00	22:00	21:00	20:00

Assumed power of artificial lighting and heating for an 'average' household

Lighting	Bulbs	4		
	Wattage each	100		
	KW	0.4		
Heating	Electric Fire bars	2	Used from	June
June	Wattage each	1000	to	October
	KW	2		
@(£/KWh)	£0.16			

PTO for continuation of Appendix 1

Appendix 1: Calculations of Energy Saving in St. Helena for various DST models

Continued from PREVIOUS PAGE

Sun Data for St. Helena, Longitude W5.8, Latitude S16.0 (all times GMT)

Source: U.S. Naval Observatory, http://aa.usno.navy.mil/data/docs/RS_OneDay.html

Month	Begin Civil Twilight	Sunrise	Sunset	End Civil Twilight	Hours of daylight
15 January	05:40	06:03	19:02	19:25	13:45
15 February	05:57	06:19	18:55	19:17	13:20
15 March	06:05	06:26	18:38	18:59	12:54
15 April	06:09	06:31	18:15	18:37	12:28
15 May	06:15	06:38	18:00	18:23	12:08
15 June	06:25	06:48	17:59	18:22	11:57
15 July	06:28	06:51	18:07	18:30	12:02
15 August	06:18	06:40	18:15	18:37	12:19
15 September	05:57	06:18	18:18	18:40	12:43
15 October	05:34	05:56	18:22	18:44	13:10
15 November	05:19	05:42	18:33	18:56	13:37
15 December	05:22	05:46	18:50	19:14	13:52

Artificial Lighting Time

(defined as the time between getting up and sunrise, plus the time between sunset and bedtime)

	GMT+	0	1	2	3
Month	Days	Minutes	Minutes	Minutes	Minutes
January	31	7,378	5,611	5,611	5,611
February	28	6,860	5,712	5,712	5,712
March	31	8,122	7,068	7,068	7,068
April	30	8,550	7,680	7,680	7,680
May	31	9,300	8,618	8,618	8,618
June	30	9,030	8,670	8,670	8,670
July	31	9,083	8,804	8,804	8,804
August	31	8,835	8,215	8,215	8,215
September	30	8,460	7,200	7,200	7,200
October	31	8,618	6,758	6,634	6,634
November	30	8,010	6,210	5,670	5,670
December	31	7,750	5,890	5,456	5,456
Total Minutes		99,996	86,436	85,338	85,338
KWH used		3,333	2,881	2,845	2,845

Heating Time

(defined as the time between getting up and sunrise, plus the time between sunset and bedtime)

	GMT+	0	1	2	3
Month	Days	Minutes	Minutes	Minutes	Minutes
January	31				
February	28				
March	31				
April	30				
May	31				
June	30	9,030	8,670	8,670	8,670
July	31	9,083	8,804	8,804	8,804
August	31	8,835	8,215	8,215	8,215
September	30	8,460	7,200	7,200	7,200
October	31	8,618	6,758	6,634	6,634
November	30				
December	31				
Total Minutes		44,026	39,647	39,523	39,523
KWH used		1,468	1,322	1,317	1,317
Total KWH used		4,801	4,203	4,162	4,162
Total Cost		£768	£672	£666	£666
Total Saving, per household			**£96**	**£102**	**£102**