



SA Government Energy Use Annual Report

2005-06



Government
of South Australia

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For further information about this report please contact Jinny Pavanello, Energy Project Analyst, Energy Division on (08) 8226 5699.

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Executive Summary

This Annual Government Energy Use Report 2005-06 has been prepared in accordance with the requirements of the **Government Energy Efficiency Action Plan**, particularly Action 5 Verification and Reporting. This report includes energy use across Government and details on performance towards achieving stated energy use reduction targets.

Scope of the Energy Efficiency Action Plan

The Energy Efficiency Action Plan and associated targets apply to all non-commercial Agencies. The term non-commercial agency refers to any agency in the General Government Sector of the South Australian budget papers, published annually by the Department of Treasury and Finance. It excludes Non-Financial Public Corporations and Public Financial Corporations.

South Australia's Strategic Plan

South Australia's Strategic Plan was released on 31 March 2004. Under target T3.2 (Part A) of the Plan, agencies are required to reduce energy use in Government buildings by 25% by 2014, measured against a 2000-01 baseline. There is also an interim target to achieve a 15% reduction by 2010. The delivery mechanism for these targets is the Energy Efficiency Action Plan program.

Energy Use in Government Buildings

Government building energy use for 2005-06 was 2,546,559GJ. This represents a 1.93% reduction from the 2000-01 baseline of 2,596,689GJ.

Total Government Energy Use

Overall Government energy use incorporating vehicle fleet and public transport usage for the financial year was 4,414,482GJ and related greenhouse gas emissions were approximately 625,500 tonnes. The department with the greatest energy use was Transport, Energy and Infrastructure, whose consumption includes public transport energy consumption. This department used 1,596,290GJ, which accounts for 36% of the total Government figure. The department with the second largest energy consumption was Health, primarily due to energy use in hospitals. It used 1,411,055GJ, corresponding to 32% of the total energy use by Government.

Independent Verification of Performance

Under Action 5 of the Energy Efficiency Action Plan, Independent Verification of Performance is to be provided annually. The purpose of this requirement is to provide a level of assurance of the accuracy and robustness of the performance being reported by Government. Independent verification of performance in 2005-06 was undertaken by KPMG. The scope of work this year was similar to that of last year's and consisted of an audit of primary data used to populate energy reports as well as investigating internal quality management processes. The KPMG report for 2005-06 identified a few issues with energy reporting processes and is available at www.dtei.sa.gov.au.

I. Introduction

The Premier, Hon Mike Rann, MP, launched the South Australian Government's Energy Efficiency Action Plan on 3 May 2002. The Energy Efficiency Action Plan is a comprehensive energy management program for the South Australian Government. It defines energy efficiency measures for new Government buildings and major refurbishments, incorporates energy efficiency practices into maintenance programs and procurement policies and addresses energy use in the vehicle fleet.

The Energy Efficiency Action Plan is a key delivery mechanism for South Australia's Strategic Plan target T3.2a, which requires a reduction in energy use in Government buildings by 25% by 2014 measured against a 2000-01 baseline. There is also an interim target to achieve a 15% reduction by 2010.

The Energy Efficiency Action Plan and this report are broader than South Australia's Strategic Plan target T3.2a, though, as they include some public transport and passenger vehicle data.

1.1 Scope of the Energy Efficiency Action Plan

The Energy Efficiency Action Plan and associated targets apply to all non-commercial Agencies. The definition of non-commercial is any Agency in the *General Government* Sector of the South Australian budget papers, published annually by the Department of Treasury and Finance. Departments may choose to include any Agencies not in the General Government sector in their Energy Efficiency Action Plan activities and reporting.

The General Government sector comprises all government departments, offices and other bodies engaged in providing services free of charge or at prices significantly below their cost of production. General Government services include those that are mainly non-market in nature, those that are largely for collective consumption by the community, and those that involve the transfer or redistribution of income. These services are financed mainly through taxes, other compulsory levies and user charges.

South Australian Government Controlled Entities classified as either Non-Financial Public Corporations or Public Financial Corporations (ie commercial agencies) are excluded. These entities can participate in the Energy Efficiency Action Plan and associated targets on a voluntary basis or can be members of the Greenhouse Challenge. For example, SA Water is classified as a Non-Financial Public Corporation and is a member of the Greenhouse Challenge.

A list of the South Australian Government Controlled Entities is available on the Treasury and Finance web site at www.treasury.sa.gov.au.

1.2 Energy Efficiency Reference Group

The Energy Efficiency Reference Group (EERG) was established by Cabinet to oversee the implementation of Energy Efficiency Action Plan requirements across Government. It is tasked to ensure that Government meets its energy use reduction target. The EERG meets monthly, has representatives of senior management of all portfolios and is co-chaired by the Department of the Premier and Cabinet (Cabinet Office) and the Department for Transport, Energy and Infrastructure (Energy Division).

1.3 Verification and Reporting Requirements

An integral component of the Energy Efficiency Action Plan is reporting and publishing results. By reporting annual energy use and significant energy management initiatives in the agency annual reports there is a public record of energy use and performance against targets. Therefore Action 5 of the Energy Efficiency Action Plan requires the following reporting and verification activities:

- Agencies are to report annual energy use against targets, significant energy management initiatives and other achievements against the Action Plan in their annual reports.
- An annual Government Energy Use report is to be prepared and published by Energy Division and is to include Agency performance and Action Plan progress.
- Independent verification of performance under the Action Plan is to be coordinated annually by Energy Division.

This report is the fifth SA Government Annual Energy Use Report produced in accordance with the Energy Efficiency Action Plan's requirements. Its aim is to present an overview of the SA Public Sector's energy use, greenhouse gas emissions, performance measures and performance against the stated energy use reduction targets. This report focuses primarily on analysis of building energy use but also includes some passenger vehicle and public transport information. It should be noted that reporting passenger vehicle information is optional.

1.4 Energy Data Gathering and Reporting (EDGAR)

Each Government portfolio entered data for the 2000-01 through 2005-06 financial years onto the Environmental Data Gathering And Reporting (EDGAR) system. EDGAR is an Internet based user interface to a central database system developed by the Australian Government. It is used by jurisdictions across Australia. All tables and figures in this report are derived from data stored in EDGAR by all portfolios unless otherwise specified.

Individual portfolios chose the reporting structure that would be used for EDGAR. Some portfolios reported at an agency level while others simply reported as a portfolio. The reporting structure differed between portfolios due to the varying ways of capturing energy use data, each agency and portfolio adopting the most convenient reporting method. It is important to note that the reporting structure used for EDGAR does not necessarily correspond to the portfolio's corporate structure.

2. Overall Energy Use Performance

2.1 Outcomes for 2005-06

Table 1 provides information on the total energy consumption of individual portfolios for 2005-06. These figures include all building and transport energy consumption including public transport (in the Department for Transport, Energy and Infrastructure). It does not include energy use from either Non-Financial Public Corporations or Public Financial Corporations. Total energy consumption for 2005-06 was 4,414,482GJ with greenhouse gas emissions of approximately 625,500 tonnes. Total expenditure on Government energy use was approximately \$110,000,000 for the 2005-06 financial year.

Table 1: Energy use by portfolio

Portfolio	Total Energy Use		Greenhouse emissions	
	GJ	% of SA Government	Tonnes	% total
Transport, Energy and Infrastructure	1,596,290	36.16%	152,656	24.40%
Health	1,411,055	31.96%	204,867	32.75%
Education and Childrens Services	451,366	10.22%	93,419	14.93%
Justice	218,337	4.95%	46,293	7.40%
Further Education, Employment, Science and Technology	180,089	4.08%	35,030	5.60%
Families and Communities	167,583	3.80%	23,793	3.80%
Administrative and Information Services	124,175	2.81%	23,400	3.74%
Premier and Cabinet	99,987	2.26%	18,963	3.03%
Primary Industries and Resources	88,027	1.99%	15,876	2.54%
Environment and Conservation and the River Murray	67,309	1.52%	8,714	1.39%
Treasury and Finance	7,019	0.16%	1,965	0.31%
Trade and Economic Development	3,247	0.07%	553	0.09%
Total	4,414,482		625,529	

As shown in Table 1, the Department for Transport, Energy and Infrastructure has the largest energy consumption of all the portfolios due to the energy consumption of public transport accounted for under this portfolio. The Health portfolio has the second largest energy consumption of all the portfolios due to the large energy consumption of public hospitals accounted for under this portfolio.

The portfolios are listed in order of decreasing energy use but, as Table 1 illustrates, the ranking by greenhouse gas emissions would be different. The differences arise on account of the differing greenhouse intensity of the sources of energy used in the different portfolios. As an example, the Department for Transport, Energy and Infrastructure has the highest energy use but, largely because of the shift in fuel used by buses from diesel to natural gas, its greenhouse intensity is among the lowest.

Table 2 provides information on energy consumption and related greenhouse gas emissions by end-use category for the 2005-06 financial year.¹

Table 2: Energy consumption and greenhouse gas emissions by end use category

End-use category	Energy Use		Greenhouse emissions	
	GJ	% Total	Tonnes	% total
Public Transport	1,284,120	29.09%	95,267	15.23%
Hospitals	1,217,693	27.58%	180,153	28.80%
Educational facilities	523,615	11.86%	117,459	18.78%
Passenger Vehicles	468,552	10.61%	36,902	5.90%
Office - Tenant Light and Power	158,523	3.59%	41,419	6.62%
Other healthcare buildings	148,677	3.37%	23,878	3.82%
Police, Fire and Emergency Services Facilities	107,359	2.43%	25,200	4.03%
Infrastructure - roadways	95,894	2.17%	26,850	4.29%
Public Buildings	85,640	1.94%	16,627	2.66%
Custodial facilities	75,248	1.70%	13,160	2.10%
Office - Central Services	67,797	1.54%	13,110	2.10%
Office buildings - combined services	53,332	1.21%	14,306	2.29%
Other Buildings	48,460	1.10%	7,293	1.17%
Law Courts	29,096	0.66%	6,349	1.02%
Other Transport	19,356	0.44%	1,535	0.25%
Other Uses	15,172	0.34%	2,164	0.35%
Other health care facilities	13,258	0.30%	3,260	0.52%
Laboratories	2,690	0.06%	597	0.10%
Total	4,414,482		625,529	

As Table 2 demonstrates, the largest single end-use category in the 2005-06 financial year was Public Transport, which accounted for 29% of the public sector's total energy use and 15% of associated greenhouse gas emissions. The largest end-use category relating specifically to building energy use is Hospitals, which accounts for 27.6% of the total energy use. Hospitals account for the largest proportion of related greenhouse gas emissions.

The second largest building end-use category is Educational Facilities, which accounts for 11.9% of the total energy use and 18.78% of the public sector's greenhouse gas emissions. Office – Tenant Light and Power is the fifth largest end-use category overall and the third largest building end-use category, accounting for 3.6% of the total energy use. Passenger Vehicles comprises of energy data used in some agencies' vehicle fleets. It is the fourth largest end-use category and accounts for 10.6% of the total energy used.

¹ End use categories enable data reported by portfolios to be disaggregated into similar operational types. This allows the comparison of identical end use categories across Government departments. Appendix A details the end use category definitions.

Figure 1 below shows the six end-use categories responsible for the highest energy use in 2005-06 as percentages of total energy use.

Figure 1: Energy consumption by end-use category as percentage of total

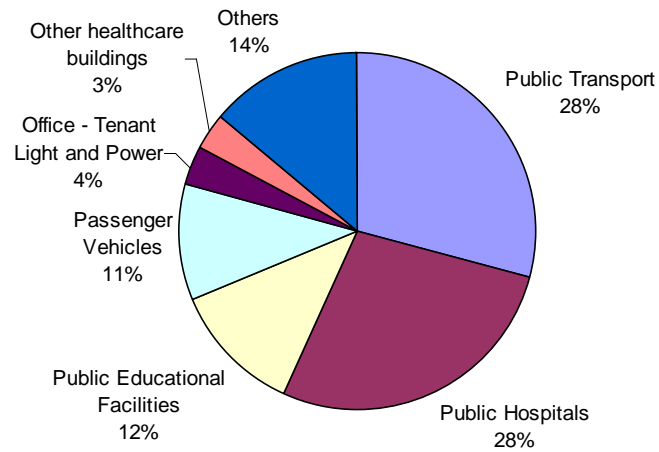


Figure 2 shows the six end-use categories responsible for the highest greenhouse gas emissions in 2005-06 as percentages of total energy use.

Figure 2: Energy greenhouse gas emissions by end-use category as percentage of total

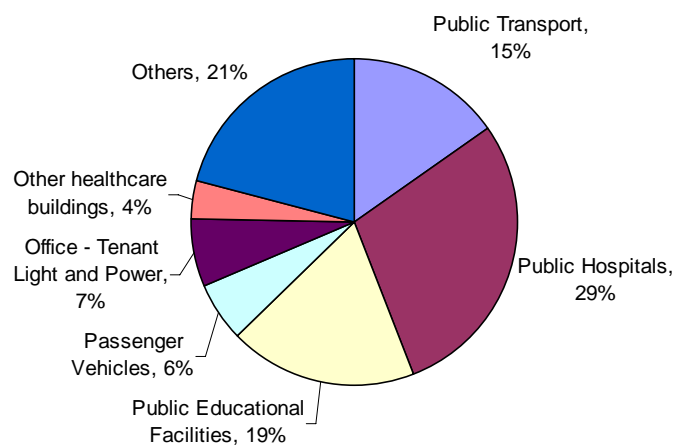


Table 3 provides details on the energy use and related greenhouse gas emissions from the various fuel types. Table 4 lists energy use and greenhouse gas emissions by fuel type specific to transport functions.

Table 3: Energy consumption and greenhouse gas emissions by fuel type

Fuel Type	Energy use		Greenhouse emissions	
	GJ	% total	Tonnes	%total
Electricity	1,564,623	35.44%	438,094	70.04%
Natural Gas	1,315,532	29.80%	68,013	10.87%
Automotive Diesel	1,142,898	25.89%	89,375	14.29%
Petrol	254,131	5.76%	20,635	3.30%
LPG	130,850	2.96%	8,912	1.42%
Heating Oil/Fuel Oil	5,846	0.13%	453	0.07%
AVGAS	603	0.01%	47	0.01%
Total	4,414,482		625,529	

Table 4: Transport, public transport and, passenger vehicle energy consumption and greenhouse gas emissions by fuel type

Fuel Type	Energy Use		Greenhouse emissions	
	GJ	% total	Tonnes	% total
Automotive Diesel	1,140,904	64.38%	89,219	66.73%
Natural Gas	312,913	17.66%	16,178	12.10%
Petrol	253,948	14.33%	20,621	15.42%
LPG	48,109	2.71%	3,286	2.46%
Electricity	15,552	0.88%	4,354	3.26%
AVGAS	603	0.03%	47	0.03%
Total	1,772,029		133,704	

2.2 End Use Category Performance Indicators

The 2005-06 reporting period is the first time that portfolios have been required to report performance indicators. This has been reported for 2005-06 only in addition to absolute energy use. Measuring performance indicators will be useful in providing more accurate explanations of portfolio energy efficiency, in monitoring these changes over time as well as allow like for like benchmarking between facilities within the same end use category.

Most end use categories have at least one associated performance indicator. A performance indicator is a measure of activity. Activity (in respect of energy use reporting) can generally be regarded as factors that influence the level of energy used in a particular building, other than the efficiency of end use. Typical activity indicators for a Government building include number of full time equivalent employees or square metres of floor area. A number of specialised performance indicators have also been developed for certain end use categories.

Table 5 shows the range of energy intensity reported in most end use categories. Energy intensity is the energy consumed per unit of defined activity. The average values are the weighted average performance for all the portfolios that reported in each end use category. The minimum and maximum performance range values represent the minimum and maximum values among all reporting portfolios, respectively. Those categories that have no range variation only contain data from one portfolio while categories with a different upper and lower range contain data from more than one portfolio.

Table 5: End Use Category Performance Indicators

End Use Category	Performance Indicator	Performance Range		
		Lower	Average	Upper
Office Tenant Light & Power	MJ/Occupancy (people)/annum	3,913	14,944	62,610
Office Tenant Light & Power	MJ/Area (m ²)/annum	114	468	2,120
Office - Central Services	MJ/Area (m ²)/annum	554	554	554
Laboratories	MJ/Area (m ²)/annum	7,685	7,685	7,685
Other Buildings	MJ/Area (m ²)/annum	459	1,276	64,625
Passenger Vehicles	MJ/Distance Travelled (km)/annum	3.23	5.87	4.25
Law Courts	MJ/Area (m ²)/annum	386	386	386
Public Buildings	MJ/Area (m ²)/annum	533	533	533
Office Buildings - Combined Services	MJ/Occupancy (people)/annum	701	6,643	44,048
Office Buildings - Combined Services	MJ/Area (m ²)/annum	331	687	964
Public Educational Facilities	MJ/Area (m ²)/annum	196	229	375
Custodial Facilities	MJ/Area (m ²)/annum	700	700	700
Public Hospitals	MJ/Area (m ²)/annum	1,171	1,171	1,171
Public Hospitals	MJ/Occupied Bed Days/annum	860	860	860
Other Healthcare Buildings	MJ/Area (m ²)/annum	1,203	1,369	1,528
Other Healthcare Facilities	MJ/Area (m ²)/annum	726	726	726
Police, Fire & Emergency Services Facilities	MJ/Area (m ²)/annum	454	486	454

It can be seen from Table 5 that there was a wide range of performance indicator values for the majority of end use categories. Some of this variation is likely to indicate differences in the efficiency of energy use by portfolios. However, another part of this variation is likely to be due to a number of factors including how energy use is apportioned to specific end use categories and limited reporting in some end use categories as well as the fact that, this being the first time performance indicators have been reported, there are likely to be errors in them. To the extent that efficiency variations account for this difference, however, this indicates potential for future savings. It is expected that the variation between the lower and upper range for each end use category will reduce over time as portfolios continue

implementing energy efficiency programs and achieve further energy use reductions. The range of available data will increase in future allowing for more detailed trend analysis.

2.3 Vehicle Fleet

Action 4 of the Energy Efficiency Action Plan – Vehicle Fleet promotes the cost-effective reduction in greenhouse gas emissions from the operation of vehicles under the responsibility of Fleet SA. Therefore, Action 4 requires the following activities:

- Fleet SA to continue to:
 - Provide cost-effective access to alternative fuel vehicles;
 - Make vehicle operating costs transparent;
 - Promote efficient vehicle utilisation and responsible driving practices
- Fleet SA to work with Agencies to set fleet performance targets.
- Fleet SA to increase the level of LPG vehicles from 10% to 20% by 2005.

The target of 20% alternative fuel vehicles was achieved in December 2005.

Table 6: Status of the alternative fuel vehicles in the South Australian Government's Passenger and Light Commercial Vehicle Fleet as at 30 June 2006

LPG Vehicles	
279	On Order
1 768	In Fleet
Hybrid Vehicles	
47	On Order
47	In Fleet
Sum Alternative Fuel Vehicles	
333	On Order
1 861	In Fleet
Percentage Alternative Fuels	
23%	

Source: Fleet SA

In 2005-06 the environmental impact of the South Australian Government passenger and light commercial motor vehicle fleet was further reduced by several initiatives. These include:

- Trialling the Honda Civic Hybrid
- Working closely with vehicle manufacturers on the development of Vapour Injected LPG technology.

	On Order	In Fleet
Vapour Injected VZ	129	424
Holden Commodore Vapour Injected	100	227
Mitsubishi 380		

Source: Fleet SA

- Working in partnership with Mitsubishi Motors and Australian Carbon Biosequestration Initiative to provide the SA Government with CO2 offset Mitsubishi 380's

	On Order	In Fleet
Mitsubishi 380 post 1/1/06 with CO2 offset	152	274

Source: Fleet SA

Fleet SA has further strengthened the environmental and energy conservation content of the Across Government Driver Training and Education Program.

Fleet SA has worked with Department for Families and Communities on an initiative to have two thirds of their fleet as LPG, and use the fuel savings to fund the other third to be Hybrids.

Fleet SA has provided information to Agencies, in a Vehicle Management Report (VMR) format, to assist them to improve their performance in areas such as:

- Use of LPG in Dual Fuel Vehicles
- CO₂ Emissions
- Fuel Consumption
- Unscheduled Maintenance
- Excessive Wear and Tear
- Vehicle Crashes

The South Australian Government's passenger and light commercial motor vehicle fleet covered a total distance of 136 million kilometres in 2005-06. Fleet SA will continue to work in partnership with the vehicle manufacturers and Government agencies to lessen the energy use and increase the environmental sustainability of the fleet.

2.4 Energy Use Trends in Government Buildings

Energy use in Government buildings reported for the 2005-06 financial year was 2,546,559GJ with associated greenhouse gas emissions of approximately 465,000 tonnes. This is broken down by portfolio in Table 7 below.

Table 7: Energy use in government buildings 2005-06 by portfolio

Portfolio	Total Energy Use		Greenhouse emissions	
	GJ	% of SA Government	Tonnes	% total
Health	1,295,218	29.34%	195,650	31.28%
Education and Childrens Services	376,272	8.52%	87,633	14.01%
Justice	218,337	4.95%	46,293	7.40%
Further Education, Employment, Science and Technology	160,394	3.63%	33,480	5.35%
Families and Communities	111,819	2.53%	19,316	3.09%
Administrative and Information Services	96,996	2.20%	21,285	3.40%
Premier and Cabinet	91,673	2.08%	18,299	2.93%
Primary Industries and Resources	88,027	1.99%	15,876	2.54%
Transport, Energy and Infrastructure	70,063	1.59%	19,009	3.04%
Environment and Conservation and the River Murray	29,286	0.66%	5,761	0.92%
Treasury and Finance	7,019	0.16%	1,965	0.31%
Trade and Economic Development	1,456	0.03%	408	0.07%
Total	2,546,559		464,975	

Under the Energy Efficiency Action Plan, Agencies are required to reduce energy use in Government buildings by 15% before the year 2010, en route to achieving South Australia's Strategic Plan target of a 25% reduction by 2014. The base year against which this target has been set is the 2000-01 financial year.

Energy use in Government buildings in 2005-06 increased by 0.69% from 2004-05 levels. It is now 50,130GJ (or 1.93%) below the baseline 2000-01. This is broken down by portfolio in Table 8 below.

Table 8: Energy use in government buildings 2000-01 to 2005-06 by portfolio

Portfolio	Energy Use (GJ)						Move from last year	Move from Baseline
	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06		
Health	1,262,383	1,250,260	1,259,649	1,309,910	1,298,226	1,295,218	-0.23%	2.60%
Education and Childrens Services	369,971	392,698	376,715	404,180	387,683	376,272	-2.94%	1.70%
Justice	240,217	233,149	219,891	214,264	213,264	218,337	2.38%	-9.11%
Further Education, Employment, Science and Technology	156,156	174,965	159,192	151,399	143,216	160,394	11.99%	2.71%
Families and Communities	118,905	111,691	104,793	112,315	111,819	111,819	0.00%	-5.96%
Administrative and Information Services	112,243	107,283	104,517	106,790	96,016	96,996	1.02%	-13.58%
Premier and Cabinet	103,908	93,842	93,079	93,416	86,061	91,673	6.52%	-11.77%
Primary Industries and Resources	94,981	89,920	88,302	86,284	85,615	88,027	2.82%	-7.32%
Transport, Energy & Infrastructure	79,377	67,827	66,692	65,321	65,148	70,063	7.54%	-11.73%
Environment and Conservation and the River Murray	47,210	35,620	34,164	33,694	33,376	29,286	-12.26%	-37.97%
Treasury and Finance	7,877	8,089	7,643	6,895	7,057	7,019	-0.55%	-10.89%
Trade and Economic Development	3,461	3,373	3,196	2,835	1,639	1,456	-11.20%	-57.94%
Total	2,596,689	2,568,717	2,517,832	2,587,304	2,529,121	2,546,559	0.69%	-1.93%

Some portfolios have increased energy use above 2000-01 levels have done so because of new activity. Most other portfolios are below 2000-01 baseline levels.

The following portfolios achieved a decrease in their energy use over the past year:

- Department of Health
- Department of Education and Children's Services,
- Environment, Conservation and the River Murray Portfolio,
- Department of Treasury and Finance, and the
- Department of Trade and Economic Development.

The Department of Further Education, Employment, Science and Technology reported a 2.71% energy use increase from 2000-01 levels.

Environment, Conservation and the River Murray Portfolio and the Department of Trade and Economic Development have both exceeded the 25% building energy use reduction target. Detailed overviews of performance in each portfolio, significant energy management achievements and proposed new initiatives are provided in Chapter 3.

The portfolio that accounts for the largest percentage of building energy use in Government is Health. This particular portfolio is responsible for 51% of public sector building energy use. Education and Children's Services is the next largest user of energy in the Government accounting for 15% of total energy use. Justice, Further Education, Employment, Science and Technology, Families and Communities and Administrative and Information Services, are also large users.

3. Progress by Portfolio

Progress made by portfolio is now presented. Each portfolio graph shows a line at the 2003-04 financial year as this was when the inaugural South Australia's Strategic Plan was released.

Baseline Revisions

It is acknowledged that portfolio structures change over time and therefore the portfolio baseline and subsequent years' energy figures will need to be revised to represent the structure of the portfolio for the given reporting period. Baselines can be adjusted in legitimate circumstances according to specific procedures developed by the EERG.

The need to revise baselines between portfolios has been acknowledged as an important requirement under this program. The 2002-03 Independent Verification Report contained a recommendation that a standard procedure be developed and implemented by the Energy Efficiency Reference Group for this purpose.

Under this procedure, agencies are not able to revise baselines due to changes in operational characteristics, such as staff number changes, and productivity (service-level) fluctuations, or acquisition or disposal of sites. Untenanted sites, a change in tenancy or size of floor space occupied are also not recognised as legitimate circumstances to warrant changes.

Baseline changes are available where:

- Change occurs in portfolio structure (and particular sites must be transferred from one portfolio to another);
- A site was previously excluded from reported data; and
- Data for a site previously reported was an estimate and actual data is now available.

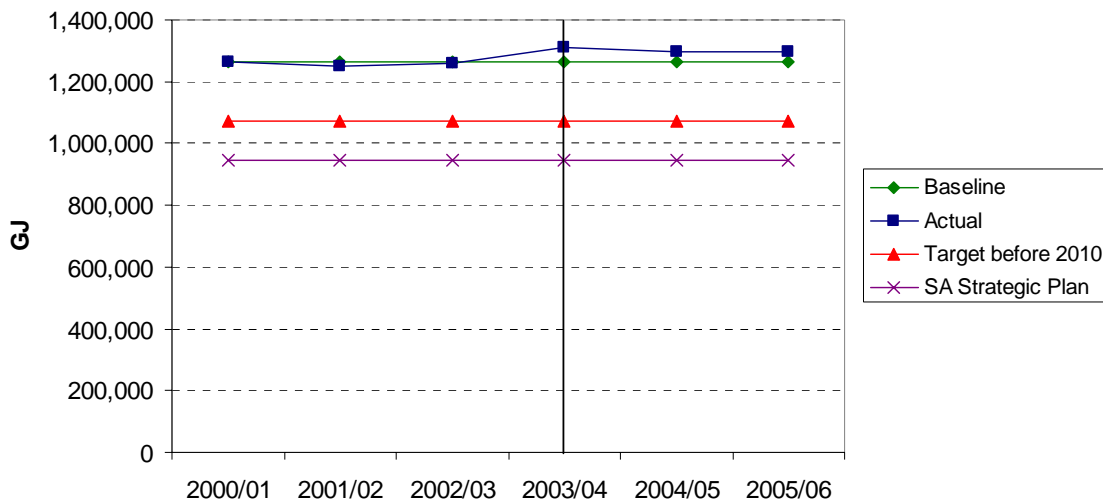
Where a portfolio has made a modification to its baseline energy use data in the 2005-06 financial year, a brief explanation is provided in this section.

Independent Verification of Performance

Under Action 5 of the Energy Efficiency Action Plan, Independent Verification of Performance is provided annually. The purpose of this requirement is to lend credibility to the performance being reported by Government. The Independent Verification exercise for 2005-06 was conducted by KPMG. The portfolios selected collectively accounted for 70% of the total reported 2005-06 energy use. Spot checks were undertaken for randomly selected sites and reported energy use figures were reconciled with source documentation for the 2005-06 reporting period. Source documentation was either original bills received from energy retailers, electronic summary reports from whole of Government energy contracts or invoices supplied by building owner for leased accommodation as well as investigating internal quality management processes.

The Independent Verification exercise identified a few issues with data integrity as well as energy reporting processes. The 2005-06 Independent Verification Report is available on the Energy Division web site at www.dtei.sa.gov.au.

3.1 Department of Health



Overview of Performance to 2005-06

In 2005-06 Health consumed fractionally less energy than it did in 2004-05. However, Health's energy consumption is still 2.6% higher than the 2000-01 baseline.

The results in 2005-06 are, however, better than they initially appear:

- Firstly, Health has commissioned a number of new facilities and substantially increased the floor area of a number of existing facilities in the period between 2000-01 and 2005-06 with floor area within Health's jurisdiction increasing by approximately 12.3%. Accordingly, Health has actually made substantial achievement in improving energy efficiency over the last 5 years, with energy use per square metre decreasing by 10%. Energy and water efficiency are core priorities addressed in all Health capital projects for example the Lyell McEwin Health Service (LMHS) and The Queen Elizabeth Health Service (TOEH) redevelopments.
- Secondly energy consumption in South Australia's public hospitals (which account for 93% of all building energy use by Health) has traditionally trended upwards by 2 - 3% per annum over the 10 years preceding the benchmark year of 2000-01. It is thought this upward trend has been primarily driven by increased use of energy intensive electronic equipment (such as imaging machines and computers) and higher lighting and air-conditioning standards now required for hospitals to comply with relevant code requirements. Of late this trend is being reversed, in part due to the increasing energy efficiency of new electronic equipment, with the two most notable examples being higher efficiency lighting and flat screen computer monitors.
- Thirdly and most significantly Health is actively pursuing several major energy reduction projects (most notably cogeneration) as part of a strategic approach. It may take a few years to bring these projects on line; however each of them should result in a step change in Health's energy use. As such, progress towards the 25% target is not expected to be linear, even though the Department is encouraging incremental reductions at all health units.

Given this, a 2.60% increase in Health's energy use over the last five years does not appear unreasonable.

Changes in Baseline and/or Subsequent Years' Energy Use

The Department of Health has transferred the Guardianship Board and Office of the Public Advocate to Justice for all reporting periods. Health made revisions to increase previously reported data for 2000-01 through to 2004-05 for certain health facilities. Revisions to add data previously not reported for all reporting periods were made for certain end use categories.

Significant Energy Management Achievements

Cogeneration: During 2005-06, Health commenced a process to procure cogeneration at Flinders Medical Centre. It is estimated that cogeneration at Flinders Medical Centre has potential to reduce departmental energy by 4 to 5%. Cogeneration for the Queen Elizabeth Hospital and the Royal Adelaide Hospital is also being actively investigated and if it proceeds at these sites is likely to also deliver very substantial reduction in energy use and greenhouse emissions. If cogeneration was to proceed at all three sites it is estimated Departmental energy use and greenhouse emissions would potentially decrease by 16 to 22%.

Greenstar: During 2005-06, the former Department of Administrative and Information Services in consultation with Health provided substantial funding to the Australian Green Building Council to develop a health sector specific building design environmental assessment tool to be known as "Greenstar Healthcare". The Pilot Greenstar Healthcare tool, which the Department has taken a very pro-active role in developing is scheduled for public release in October 2006. The tool promises to greatly assist health departments around Australia in delivering more environmentally sustainable and energy efficient facilities.

The Queen Elizabeth Hospital: In addition to assisting in the development of the Greenstar Health tool the Queen Elizabeth Hospital redevelopment teams have committed themselves to building a highly energy efficient facility that will consume 25% less energy than the current facility; this target, if met, will deliver a further 2.8% reduction in Health's total building energy use.

Repatriation General Hospital: During the past four years the Repatriation General Hospital (formerly one of the most energy inefficient public hospitals in South Australia) implemented a number of projects that have resulted in a 22% reduction in site wide energy use and a 30% decrease in energy use per square metre. Key initiatives have included installation of a large solar hot water system (delivering a 40% reduction in site wide gas consumption) installation of lighting voltage reduction technology (delivering a 20% reduction in lighting energy in selected areas) and a major redesign of the air conditioning system to operating theatres, resulting in improved user comfort while significantly reducing electricity demand.

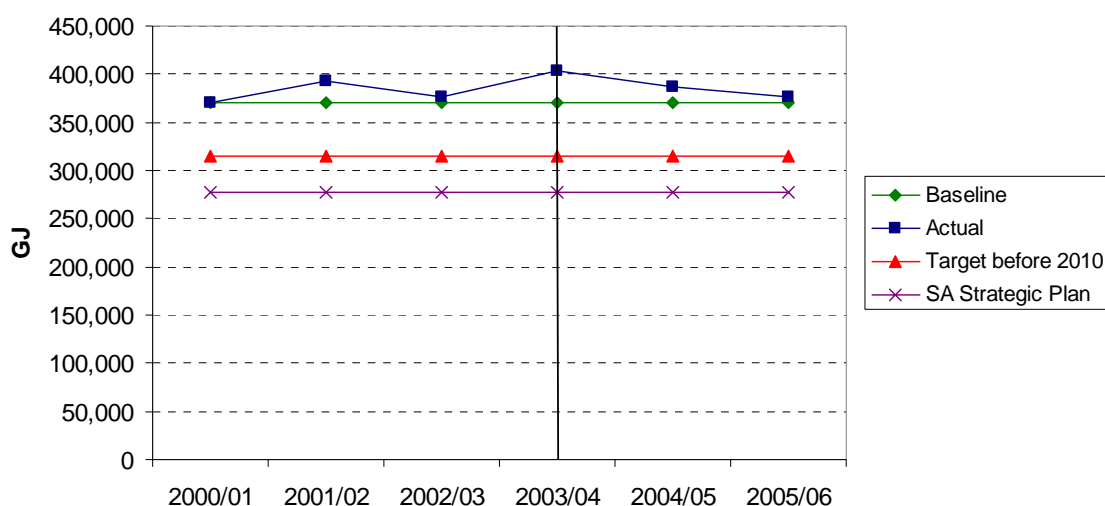
Flinders Medical Centre and Repatriation General Hospital Mental health units: During 2005-06 construction of the Mental Health facilities at these hospitals was largely completed. Both facilities are designed to be highly energy efficient and are designed to deliver the equivalent of a five star energy performance standard. Innovations include solar hot water; high efficiency glazing; high efficiency air-conditioning including economy cycle; extensive use of best practice passive design techniques, including extensive provision of access to natural light, high efficiency lighting fixtures, automated lighting controls, heat recovery, low flow plumbing fixtures to reduce hot water energy consumption and provision of state of the art Building Management Systems that will assist in minimizing energy use in these facilities while maintaining user comfort.

Citi Centre Upgrade: A number of very significant energy conservation measures have been incorporated into the refurbishments of levels 5 and 8 during 2005-06. Preliminary indications are that the lighting and lighting controls upgrade measures alone are delivering a substantial 30% reduction in tenant energy use in those areas of Citi Centre that have been upgraded. Other initiatives, including adjustment of the control strategy for air-conditioning in refurbished areas, will deliver further energy savings.

Proposed New Initiatives in 2006-07

Cogeneration investigations will continue at key sites.

3.2 Department of Education and Children's Services



Overview of Performance to 2005-06

The Department of Education and Children's Services (DECS) has achieved a 2.94% reduction against its reported performance in 2004-05 and is now 1.70% over the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

Nil.

Significant Energy Management Achievements

DECS, in partnership with the Department for Transport, Energy and Infrastructure has carried out an Energy Efficiency Scoping Study which identified those DECS sites with the greatest potential to reduce energy consumption. 120 DECS schools consuming more than 160MW were examined in terms of energy use per square metre, energy used per FTE enrolment, and background energy use. A prioritised target list of sites has been identified along with recommendations for the preferred approach to pursuing energy saving initiatives.

The SA Solar Schools Program is a \$1.25m program announced by the Premier in 2003. The Program provides a "hands on" learning for students about the operation and benefits of solar energy through science and other curriculum programs. Data is generated by the system and fed into a computer which provides minute by minute information on the status of the electricity being generated, as well historical data for comparative purposes. A total of 74 schools and preschools were solar powered to June 2006 with approval for another 23 installations which are due for completion by December 2006.

DECS ESD policy and guidelines have been further developed and endorsed for major works. Major Project Coordinators are working closely with architects and engineers to ensure sustainable design principles are given appropriate weighting at each stage of development of new and refurbished buildings. Energy consumption is minimised in the operation of the building and site, by using energy more efficiently and reducing greenhouse gas emissions.

DECS continues to distribute regular energy use reduction strategies via articles in the DECS Xpress newspaper.

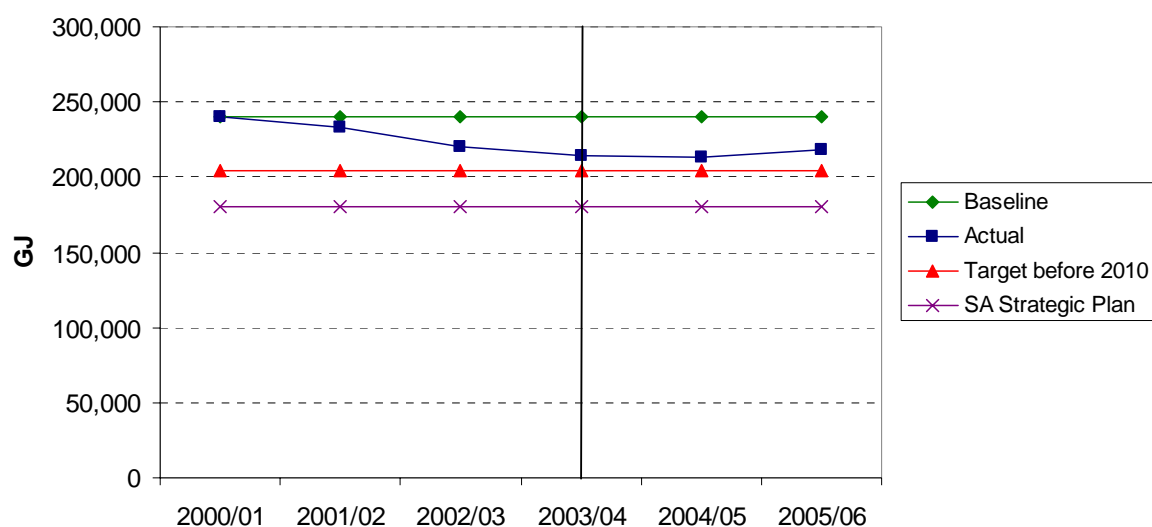
The Sustainable Schools and Children's Services Initiative engages sites and their wider community in increasing their understandings of sustainability, adopting more sustainable practices and the ongoing monitoring of their environmental performance. Energy Efficiency is a key component of this initiative.

Proposed New Initiatives in 2006-07

The Green Building Council of Australia has developed (in association with DECS) a rating tool for the environmental design of educational buildings. This tool rates a number of aspects of a school's design, construction and operation including indoor environmental quality (daylighting, ventilation etc), energy management, transport, water, materials, land use and ecology, and pollutants. The tool will be incorporated into DECS design policies for new schools and major capital works.

DECS proposes to use the Energy Efficiency Scoping Study findings to progress efficiency improvements at major sites. It is intended to trial the recommended strategies at a limited number of sites before a broader application is implemented.

3.3 Department of Justice



Overview of Performance to 2005-06

Justice has reported a 2.38% increase against its reported performance in 2004-05 and is now 9.11% below the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

The Department of Health has transferred the Guardianship Board and Office of the Public Advocate to Justice for all reporting periods.

Significant Energy Management Achievements

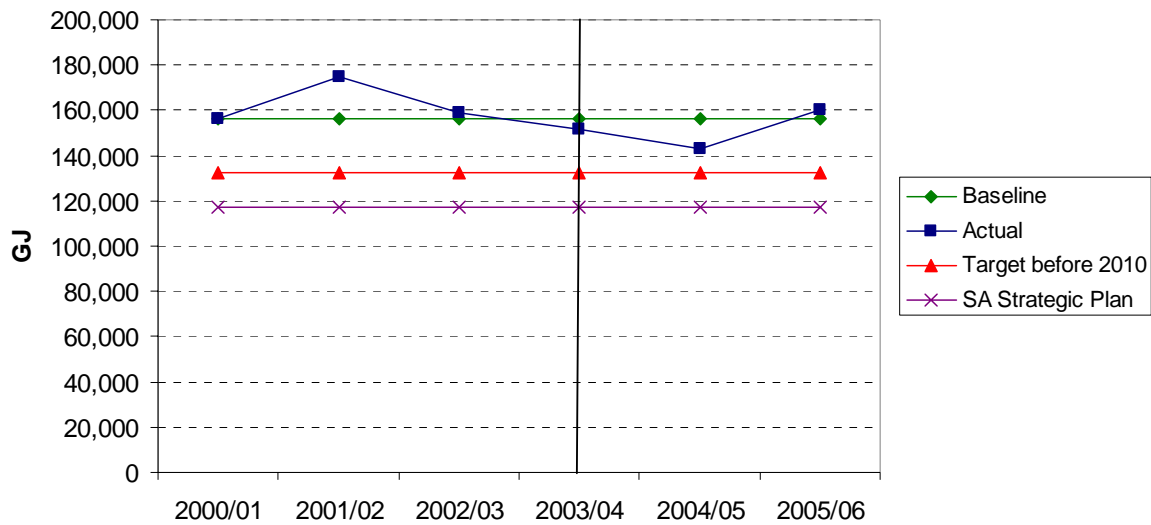
Energy audits were conducted by SA Police, Courts Administration Authority and Attorney-General's. SAFECOM, Country Fire Service and State Emergency Services have undertaken lighting modifications using timers, improved air conditioning efficiency, tinted windows as well as staff energy awareness programs. The Department of Correctional Services has improved the energy efficiency of prisons and office accommodation by installing solar hot water systems and new lighting systems.

Proposed New Initiatives in 2006-07

Cabinet has approved that the Department of Correctional Services proceed with the process to procure three new prisons under a Public Private Partnership arrangement. The output specification for these facilities will emphasise the need to achieve desirable environmental sustainable outcomes which should result in considerable improvements over the inefficient existing facilities which will be closed once the new prisoners are commissioned.

The Justice portfolio is also undertaking other initiatives: further energy audits by the Courts Administration Authority, modifications to Port Augusta Prison and lighting modifications in other prisons and lighting and air conditioning improvements in Attorney-General's leased buildings.

3.4 Department of Further Education, Employment, Science and Technology



Overview of Performance to 2004-05

The Department of Further Education, Employment, Science and Technology has reported a significant increase of 11.99% against its reported performance in 2004-05 and is now 2.71% over the 2000-01 baseline.

Some of the influences that have contributed to these results are:

- Season fluctuations. The state experienced two very cold winters, and a prolonged and at times very hot summer which has placed additional demand on our air conditioning services.
- Increased usage capacity at various TAFE Campuses. Mechanical Engineering and Arts related programs are currently experiencing strong demand and subsequent higher energy usage.
- Increased collaboration with three state Universities to utilise TAFE Campuses to deliver several higher education programs on their behalf.
- Similar arrangements are in place with focused third parties with particular programs such as aquaculture and forestry for various TAFE Campuses for delivery of their programs.
- The Cogeneration plant at Regency Park Campus has been inoperative due to ongoing repairs, thereby not contributing to reducing that sites energy usage.

The Department of Further Education, Employment, Science and Technology has increased it's service output to the South Australian community, ie greater numbers of students in training courses, in this reporting period.

Changes in Baseline and/or Subsequent Years' Energy Use

Nil.

Significant Energy Management Achievements

Investigations of an Energy Performance Contract have commenced for DFEEST's largest site to identify and implement energy initiatives that should guarantee substantial energy consumption savings and subsequent reduced greenhouse gas emissions and cost. Further funding options will be investigated to implement energy efficient capital/minor works for identified sites.

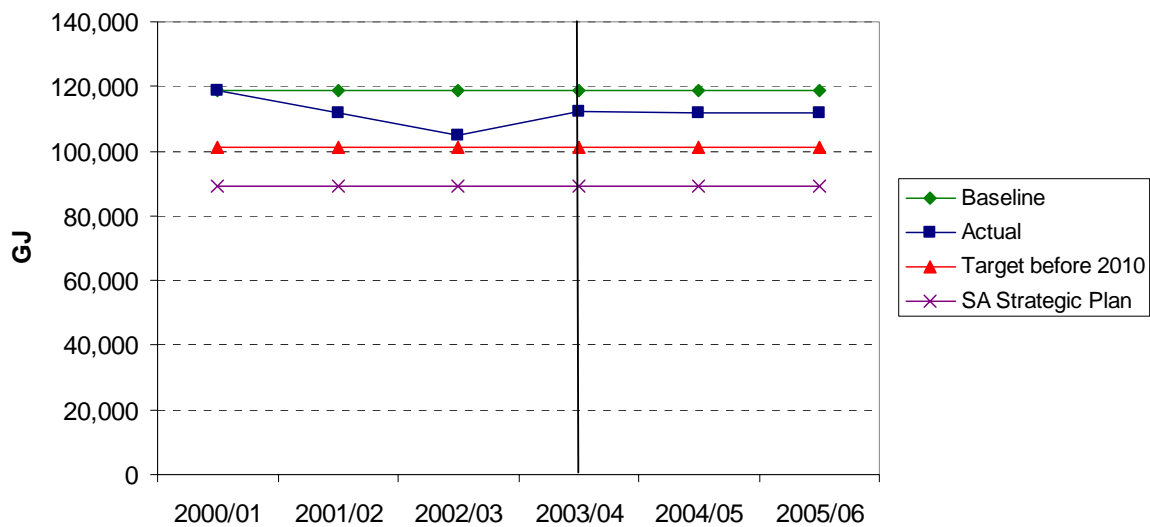
Energy management has been incorporated as a component of procurement policy and as a criterion of the prioritisation of funding through the minor works program.

The environmental awareness of DFEEST's staff has been increased through focus groups, presentations and other media.

Proposed New Initiatives in 2006-07

Consolidate and relocate the corporate sector of the department to the new 5 star energy rated building, City Central in early 2007.

3.5 Department for Families and Communities



Overview of Performance to 2005-06

Families and Communities (DFC) has achieved a result identical to 2004-05 reported performance, which is a 5.96% reduction from the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

Nil.

Significant Energy Management Achievements

DFC has been very active in relation to improving our energy efficiency by:

- The introduction of dual fuel and hybrid vehicles in the DFC passenger fleet over the next 3 years which will aid in reducing greenhouse gas emissions by up to 25%.
- The portfolio wide Greening Program has been influential in getting other agencies within DFC to start their own Environmental committees and energy saving programs.
- The DFC Central Greening Reference Group has been providing continuing guidance on policy procedures and guidelines to implement energy saving programs.
- Disability Services SA has implemented a program through TravelSmart to encourage its employees and clients to use public transport by providing discounted Adelaide Metro tickets to further reduce greenhouse gas emissions.

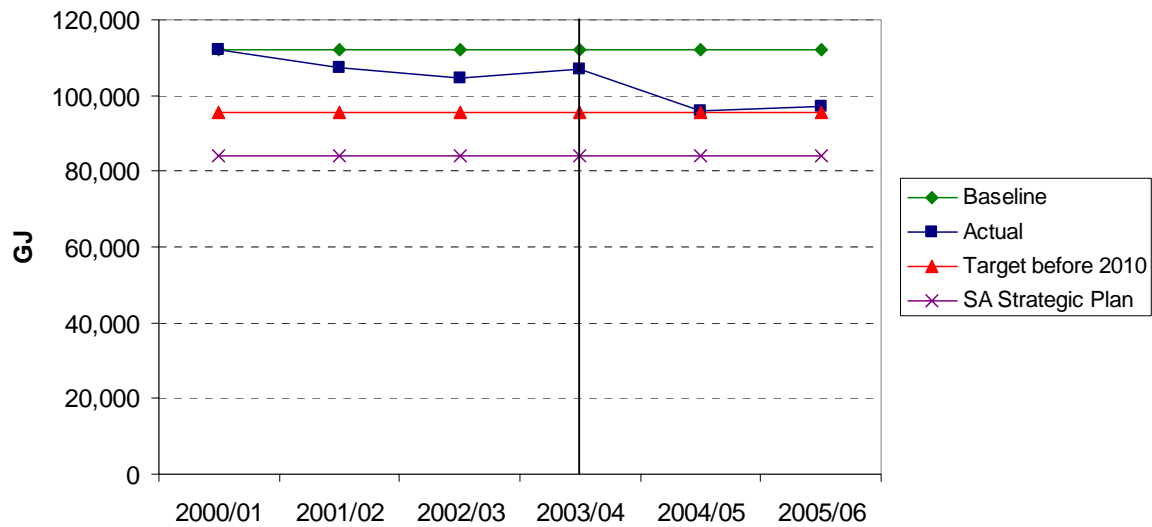
Proposed New Initiatives in 2006-07

DFC understands that Energy Management is a multi-faceted issue. In order to achieve savings in energy we are using "Whole of Systems Thinking" to undertake issues which tie in resource usage and workflows in offices. These initiatives should start to see dividends in the coming years in terms of lesser energy usage and emissions reduction.

- During 2006-07 agencies within DFC will be instructed to identify opportunities within their operations to reduce energy costs and greenhouse gas emissions
- During 2006-07 agencies within DFC will be asked to identify opportunities to employ Energy Performance Contracting (EPC) within public sector operations as a means of reducing energy costs and greenhouse gas emissions.
- During 2006-07 Riverside Building will reduce its' printing devices by approximately 50%, this will result in cost savings of up to \$200,000 annually and energy consumption savings of 36% or up to 110 tonnes of greenhouse gas emissions.

- DFC will continue to change the mix of its' passenger fleet. It currently has 64 Hybrids' in service or on order (10%) and 303 LPG in service or on order (47%).
- Greening DFC will work with the DFC Contract Management Unit in the areas of energy usage and waste management to implement programs in those areas which will reduce greenhouse gas emissions, costs and waste. It is also developing processes and procedures which will accommodate energy friendly products being introduced into the workplace.
- DFC will establish a Data and Information System which will undertake collection and monitoring of energy data and information on an ongoing basis in all of DFC offices and sites. This will enable us to establish and confirm baselines and fine tune existing ones, monitor performance and trends, and improve reporting.

3.6 Department for Administrative and Information Services



Overview of Performance to 2005-06

The Department for Administrative and Information Services has reported a 1.02% increase against its reported performance in 2004-05 and is now 13.58% below the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

The Department for Administrative and Information Services has gained a number of functions from the Department for Transport, Energy and Infrastructure for all reporting periods. Revisions to existing energy data for all reporting periods were made for certain end use categories.

Significant Energy Management Achievements

Tenancy achievements: Energy efficiency is now a requirement in the brief to all designers in the development of new or refurbished fitout solutions and formal efficiency standards are being developed by DAIS. T5 energy efficient lighting, associated controllers and sensors have been rolled out across nominated DAIS tenancies.

Building owner achievements: An Environmentally Sustainable Development (ESD) implementation plan has been developed and is being applied. The Adelaide Building Tune-ups Project has been reviewed for government sites and works proposed are currently being implemented. Development of strategies for a number of the larger office buildings has been ongoing and plans are being finalised to undertake the upgrade of services over the next five years.

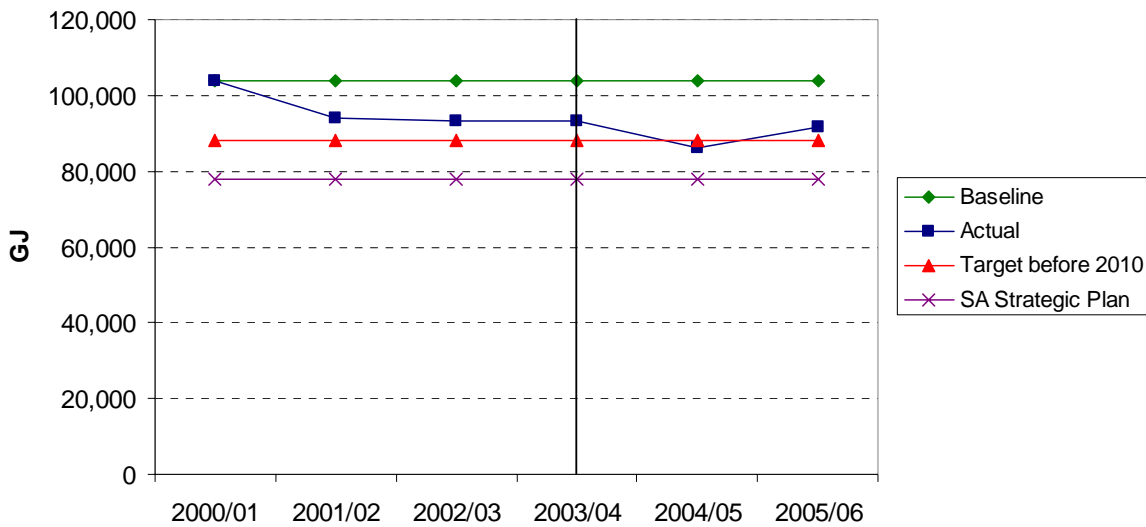
Proposed New Initiatives in 2006-07

Following the 2006 Budget, the functions previously undertaken by the Department of Administrative and Information Services have been allocated to the following portfolios: Department of Justice, the Department for Transport, Energy and Infrastructure, the Department of Premier and Cabinet and the Department of Treasury and Finance. This portfolio transfer came into effect in October 2006. The report relates to 2005-06 performance, which is why the Department of Administrative and Information Services has been used throughout this report.

Thus, in future years, the responsibility for energy efficiency in relation to the former DAIS will now rest with the Department of Justice, the Department for Transport, Energy and

Infrastructure, the Department of Premier and Cabinet and the Department of Treasury and Finance.

3.7 Department of Premier and Cabinet



Overview of Performance to 2005-06

The Department of Premier and Cabinet has reported a 6.52% increase against its reported performance in 2004-05 and is now 11.77% below the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

Revisions to add energy data previously not reported for all reporting periods were made for certain end use categories.

Significant Energy Management Achievements

The year was characterised as one of consolidation with the major redevelopments within the Arts portfolio being operational for a full year, including the State Library, the SA Museum, Festival Centre and the commissioning of improvements in the air-conditioning in parts of the Art Gallery.

The accommodation in the DPC non-Arts locations was consolidated into 3 main locations, resulting in a minor reduction of electricity use.

Most significantly, a large increase in gas consumption at the State Library of SA resulted from the replacement of the boilers located in The Science Centre following 11 months of non-operation in the 2004-05 financial year. In late June 2005 the boilers were replaced, causing the gas consumption to return to the levels of previous years.

For the Art Gallery, additional gas was required to keep internal humidity and temperature levels at the required standards during periods of extreme fluctuations in the external temperature and humidity, particularly during October 2005 and January 2006. Increased patronage at the Adelaide Festival Theatre complex, including during the successful 2006 Adelaide Festival of Arts, also resulted in an increase in gas use. This was partially offset by the first full year of operation of the new air-conditioning plant in the exhibition wing of the Art Gallery.

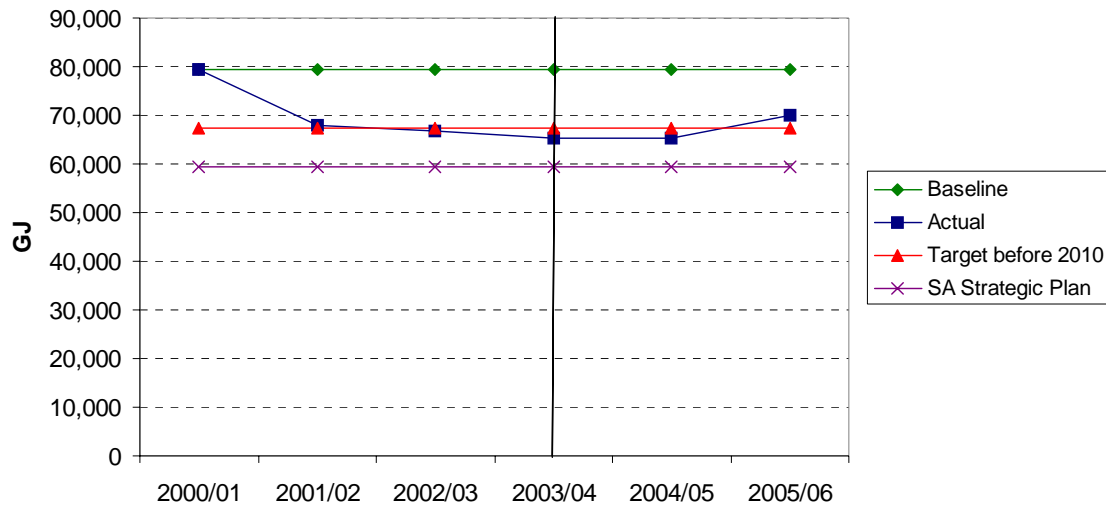
An increase in electricity use was a result of the increased patronage at the cultural institutions and maintenance problems for the aged heating and cooling plant at one location, which caused a significant increase in off peak electricity use for six months during the year.

Overall, the Department of Premier and Cabinet increased its service output to the South Australian community, with higher numbers of art performances as part of regular art events such as the 2006 Adelaide Festival of Arts, in this reporting period.

Proposed New Initiatives in 2006-07

To improve management of electricity and gas consumption, an energy demand audit will be undertaken at the State Library of SA which is expected to make recommendations for improvements.

3.8 Department for Transport, Energy and Infrastructure



Overview of Performance to 2005-06

The Department for Transport, Energy and Infrastructure reported an increase of 7.54% against 2004-05 levels. It is now 11.73% below the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

The Department for Transport, Energy and Infrastructure has both gained a number of functions from and transferred other functions to Primary Industries and Resources for all reporting periods. The Department for Transport, Energy and Infrastructure has also transferred other functions to the Department for Administrative and Information Services for all reporting periods.

Significant Energy Management Achievements

Phase One of the energy performance contract for the Walkerville building, a lighting upgrade, and the air conditioning system replacement from Phase Two, resulted in a building energy use decrease of 30 per cent.

DTEI commenced purchasing flatscreen monitors for all desktops, with the current stock numbering 873. These screens consume on average 60 per cent less power (when operating) and 70 per cent less in standby mode than a similarly-sized cathode ray tube monitor.

In the past year DTEI has procured 44 new buses with diesel engines to Euro 3 standard. The Euro 3 engines, together with the fleet-wide use of ultra-low sulphur diesel (with a mix of 5% biodiesel), have significantly reduced emissions compared to previous (Euro 2) standard engines. Six buses are currently running a trial of B20 (20% biodiesel).

The Green Transporter is a shuttle-bus service that operates between the Department's Walkerville and City sites, reducing the requirement for vehicle journeys, including taxi fares. In 2005-06 the number of journeys was 22,846, an increase of 15% over 2004-05.

Proposed New Initiatives in 2006-07

DTEI's 2006-07 energy initiatives consist of:

- Commissioning of the Walkerville cogeneration system, as part of Phase Two of the Energy Performance Contract, which is expected to result in:
 - A departmental 2.3% increase in total energy use (1,640 GJ), but a 5.3 percent reduction in Departmental building greenhouse gas emissions (1,015 tonnes); and
 - A \$100,000 per annum saving in building energy costs.

In February 2007 DTEI's Energy Division is scheduled to move to the City Central building in Waymouth Street, which is being built to a five-star rating under the Green Building Council's office design rating system. In particular, the fitout will incorporate:

- Light sensor controlled lighting,
- Minimised supplementary airconditioning,
- Minimised specialist lighting,
- Minimised printing and copying equipment,
- Flat screen technology at all workstations,
- Access to natural light from all occupied spaces on the floor, and
- 4A-rated tapware and fittings with dishwashers selected based on the highest possible A-rating and energy ratings;

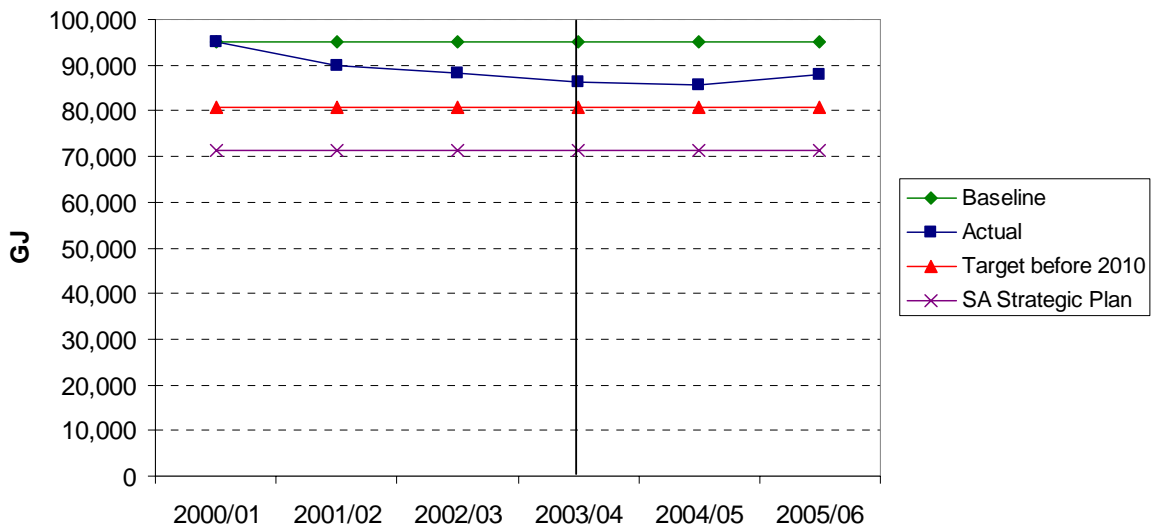
Development of a facilities proposal to consolidate the majority of the Department's CBD and metropolitan office accommodation into a new building within the City West precinct, which will meet the Green Building Council's five-star rating requirements;

DTEI will continue to purchase flatscreen monitors for all desktops, as replacements for cathode ray tube monitors. These replacement screens consume on average 60 per cent less power (when operating) and 70 per cent less in standby mode;

An objective of the across-government facilities management (FM) contract, which commenced on 1 July 2006 and which DTEI utilises, is the delivery of demonstrable energy efficiency gains:

- The FM contractor is required to give preference to energy efficient goods which provide equal or better value for money as similar quality goods, unless there are valid technical reasons for not doing so; and
- In 2006-07 DTEI will be investigating energy management options for retrofit to existing buildings.

3.9 Department of Primary Industries and Resources



Overview of Performance to 2005-06

The Department of Primary Industries and Resources has reported a 2.82% increase against its reported performance in 2004-05 and is now 7.32% below the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

Primary Industries and Resources (PIRSA) has both gained a number of functions from and transferred other functions to the Department for Transport, Energy and Infrastructure for all reporting periods.

Significant Energy Management Achievements

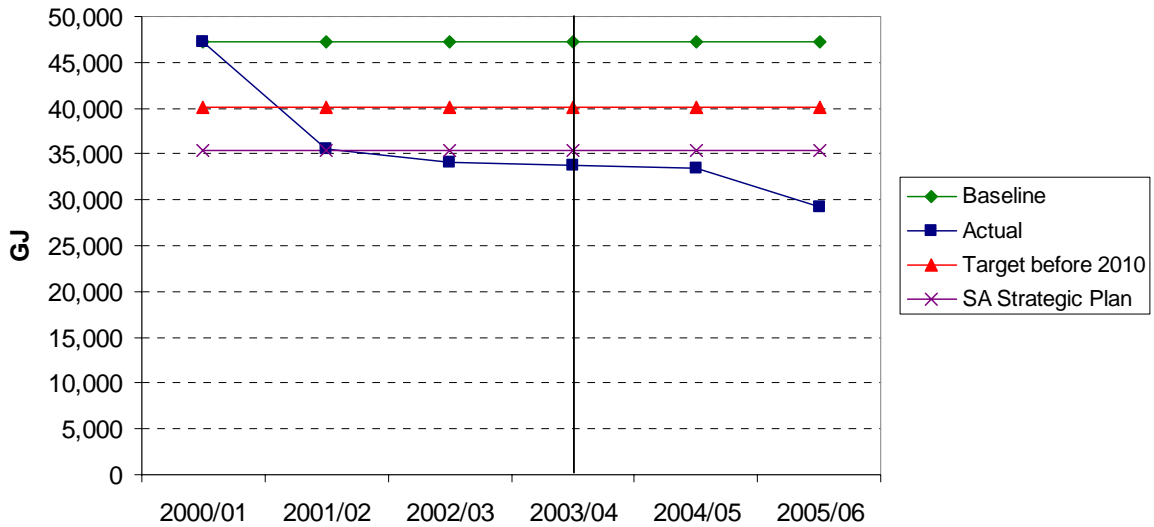
Energy efficiency measures were identified and implemented as part of a new fit-out of PIRSA accommodation on level 13, 25 Grenfell Street, Adelaide. These improvements included green procurement of furniture, use of energy efficient construction and materials, reduced use of artificial lighting, and the installation of motion sensors and separate air-conditioning in meeting rooms.

PIRSA Corporate Executive demonstrated commitment to the Greening of Government Operations (GoGO) Framework when it endorsed the new PIRSA Environmental Policy and Green PIRSA Implementation Plan. The newly formed Green PIRSA Reference Group comprises representatives of all PIRSA divisions and has energy efficient strategies in its sights. The group is a critical link for divisions, improving understanding of greening innovations and the environmental performance of the agency.

Proposed New Initiatives in 2006-07

It is proposed to undertake level 1 audits on all PIRSA's contestable sites in the 2006-07 financial year.

3.10 Environment, Conservation and the River Murray



Overview of Performance to 2005-06

The portfolio has achieved a 12.26% reduction against its reported performance in 2004-05 and is now 38% below the 2000-01 baseline. This is already below South Australia's Strategic Plan target.

Changes in Baseline and/or Subsequent Years' Energy Use

The Department of Environment and Heritage (DEH) made revisions to add energy data previously not reported for all reporting periods for certain end use categories.

Significant Energy Management Achievements

The two floors that DEH leases in 100 Pirie Street were refurbished in mid 2005 prior to the relocation of the Environmental Information Directorate from Netley. The refurbishment included the installation of T5 lighting. The configuration of the offices used by the previous tenants was retained and the number of staff who moved in there was virtually the same. Energy efficiencies were achieved to the tune of 60% in its operation of this office site.

Progressive refurbishment of the DEH tenancy in Chesser House commenced during 2005-06, again with the installation of T5 lighting as a principal feature. To enable effective monitoring of future energy usage associated with this refurbished lease, electronic metering, with data captured direct to an in-house personal computer, has been installed on each of the five floors in the tenancy.

As per government requirements linked to the Energy Efficiency Action Plan and South Australia's Strategic Plan targets, Australian Building Greenhouse Rating (ABGR) assessments were done on all of DEH's central and regional office sites, as part of a broader environmental audit of these premises.

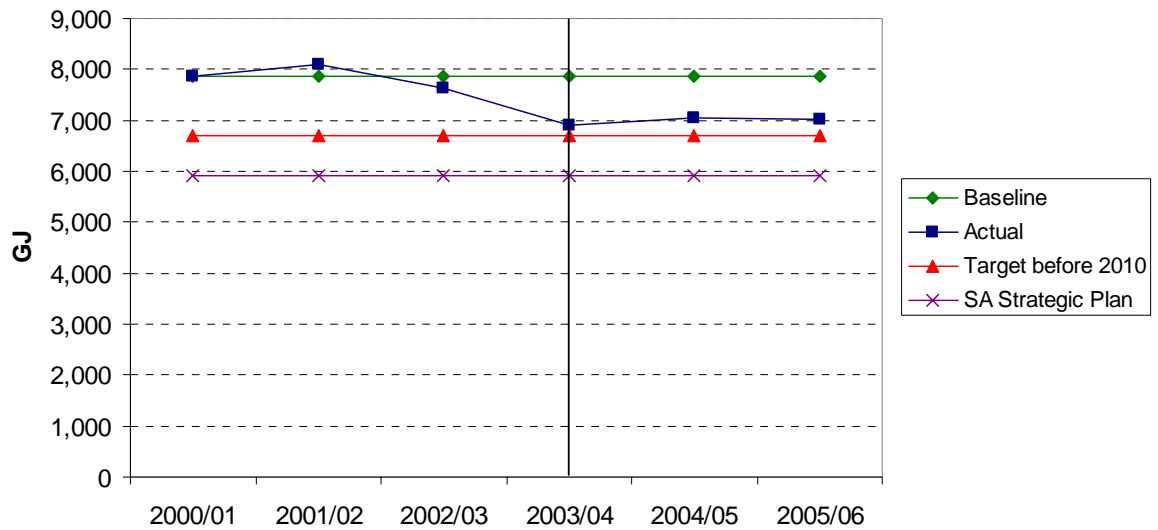
The Department of Water, Land and Biodiversity Conservation (DWLBC) will install T5 lighting to the new fitout on levels 2 & 3 of 25 Grenfell Street.

Proposed New Initiatives in 2006-07

The information generated by DEH's environmental audits will be used to assist in prioritising the allocation of whatever capital investment funds might be available for further energy efficiency measures.

Energy audits to be conducted on all owned and leased metro and regional accommodation DWLBC sites.

3.11 Department of Treasury and Finance



Overview of Performance to 2005-06

The Department of Treasury and Finance has achieved a 0.55% reduction against its reported performance in 2004-05 and is now 10.89% below the 2000-01 baseline.

Changes in Baseline and/or Subsequent Years' Energy Use

Nil.

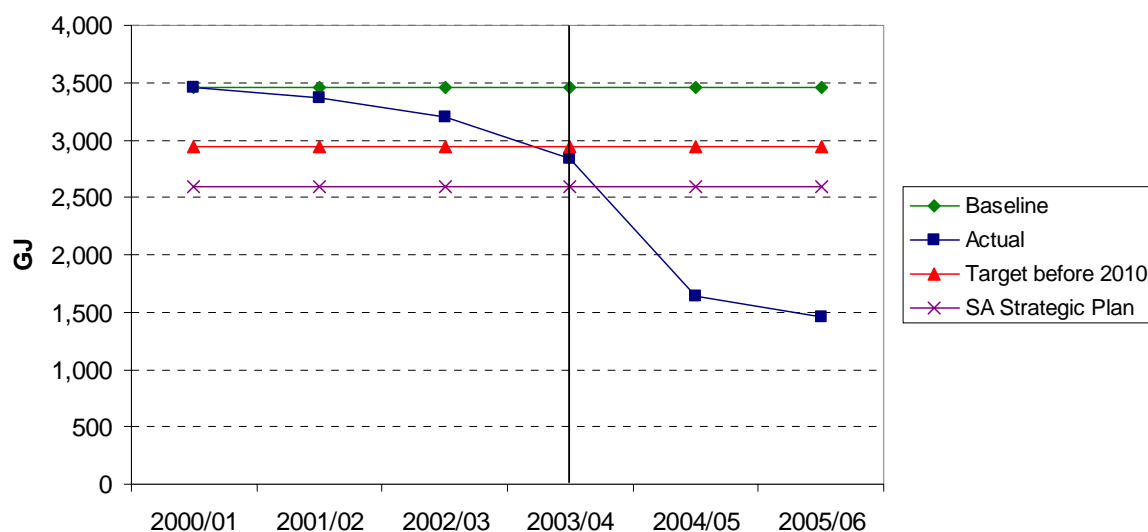
Significant Energy Management Achievements

A Greening of Government Operations Implementation Plan was developed. An audit was conducted of tenancy sensor lights and work was completed to align sensors with the Building Management System. Timers were installed on all mini-boil units in the State Administration Centre building. Options for reducing the power consumption of computer equipment were further investigated.

Proposed New Initiatives in 2006-07

The options and cost benefits of T5 or Eco lighting for occupied floors in the State Administration Centre will be investigated.

3.12 Department of Trade and Economic Development



Overview of Performance to 2005-06

The Department of Trade and Economic Development (DTED) has achieved an 11% reduction against its reported performance in 2004-05 and is now 58% below the 2000-01 baseline. This is over double South Australia's Strategic Plan target. In recent years DTED was significantly restructured which resulted in the rationalisation of sites.

Changes in Baseline and/or Subsequent Years' Energy Use

Nil.

Significant Energy Management Achievements

In January 2006, the department developed its Energy Efficiency Action Plan which made a number of recommendations ranging from no cost through to high cost actions. No cost and low cost recommendations were actioned without delay in order to make immediate savings. The high cost actions related to measures that were planned in the reporting period however, due to changes in negotiations of the lease, those actions were not able to be implemented. A review of the high cost actions will take place in 2009 when lease negotiations are renewed.

All office machinery is purchased with Energy Star ratings as one of the selection criteria and life cycle operating costs are incorporated into the assessment of costs. The department continues to recycle waste paper, bottles and drink containers, and used printer and copier toner cartridges.

Proposed New Initiatives in 2006-07

Some strategies DTED will be employing in 2006-07 include:

- Increase set points to selected air conditioning units.
- Instruct staff on use of supplementary air conditioning units during summer.
- Introduce and maintain a general energy efficiency awareness strategy to educate staff in ways of making achievable savings through best practice (both in the office and at home).
- As a longer term strategy, raise the profile of achieving "green" solutions, whilst making cost savings, in concert with Greening of Government Operations (GoGO) targets, through its newly created DTED "GoGO" Working Group.

Appendix A - End Use Category Definitions

Office Buildings – Tenant Light and Power

This category covers energy used for tenant operations in buildings whose primary function is office space. It includes tenancy lighting, office equipment, supplementary air conditioners, boiling water units etc. Additional building factors that contribute to higher energy consumption, such as computer server rooms, or localised areas of extended operating hours, are not separated from office consumption. Agencies also do not report on a building-by-building basis but on the aggregate performance of their entire building estate.

Office Buildings – Central Services

This category covers energy used for services in office buildings common to all tenants. It includes building air conditioning, lifts, security and lobby lights, domestic hot water etc.

Laboratories

This category covers all energy use in buildings that, as their primary function, are used as laboratories and research facilities.

Other Buildings

The energy performance of buildings not reported elsewhere is included in the Other Buildings category. These buildings range from simple storage sheds through to radio transmitters.

Passenger Vehicles

This category includes the energy consumption of passenger cars, light commercial vehicles and mini buses.

Other Transport

The energy consumption of all forms of transport, other than Passenger Vehicles, is reported in this category. Energy used for general public transport such as trains and buses is not included.

Law Courts

The Law Courts category includes all types of court facilities, whether a relatively small space in a larger building or a specialised building.

Public Buildings

This category includes energy consumed in buildings whose primary function is to be visited by the public in significant numbers. Typical buildings in this category are public libraries, museums or art galleries. Frequently, there is a requirement to maintain close control of internal environmental conditions on a 24-hour basis in these buildings.

Other Uses

This category includes the energy consumption of facilities that do not fit into any of the other categories.

Office Buildings – Combined Services

This category relates to the energy consumed in office buildings where tenant services and central services consumption can not be separated. This is often the case for smaller office buildings.

Educational Facilities

The Educational Facilities category includes all types of educational facilities from schools to TAFE Institutes.

Custodial Facilities

The Custodial Facilities category includes all types of custodial facilities for adults or juveniles.

Infrastructure – Roadways

This category includes energy consumption for street lighting, traffic lights and other facilities in the road network that are the direct responsibility of a Government agency.

Public Transport

This category covers the energy consumption in vehicles and infrastructure used primarily for conveying the public, including trains, trams, buses, ferries and their operating stations. It is intended for the agencies responsible for the *operation* of the public transport system, rather than the energy consumed by individual *users* of the public transport system.

Hospitals

This category covers the energy consumption in buildings and facilities primarily used as hospitals and in the delivery of health care services.

Other Health Care Buildings

This category covers the energy consumption in buildings and facilities other than hospitals such as community health centres.

Other Health Care Facilities

This category covers the energy consumption for major consumers of energy such as linen services and stand-alone food services.

Police, Fire and Emergency Services Facilities

This category covers the energy consumption in buildings and facilities primarily used as police, fire and emergency services facilities such as police stations, fire stations and ambulance stations.

Appendix B - Conversion Factors

Table B.1 – Measurement Units

Unit	Abbreviation	Measures	Equals
Megajoule	MJ	energy	10 ⁶ joules
Gigajoule	GJ	energy	10 ⁹ joules
Petajoule	PJ	energy	10 ¹⁵ joules
Metre	m	length	
Kilogram	kg	mass	
Tonne	t	mass	1000 kg
Litre	L	volume	0.001m ³

Table B.2 – Energy Conversion Factors

Energy Type	Typical Measured Units	Abbreviation	To convert to Gigajoules, multiply by	CO ₂ Intensity kg/GJ
Electricity	kilowatt hour	kWh	0.0036	280.0
Natural Gas	megajoule	MJ	0.001	51.7
Natural Gas	cubic metre	m ³	0.039 approximate	51.7
LPG (Liquefied Petroleum Gas)	tonnes	T	50	67.2
LPG	litre	L	0.0257	68.3
LPG	kilogram	kg	0.0496	67.2
Heating Oil/ Fuel Oil	litre	L	0.0373	77.5
Automotive Diesel	litre	L	0.0386	78.2
Petrol	litre	L	0.0342	81.2
AVGAS	litre	L	0.0331	77.2
Greenpower	kilowatt hour	kWh	0.0036	0

Source: Australian Greenhouse Office, Factors and Methods Workbook – December 2005