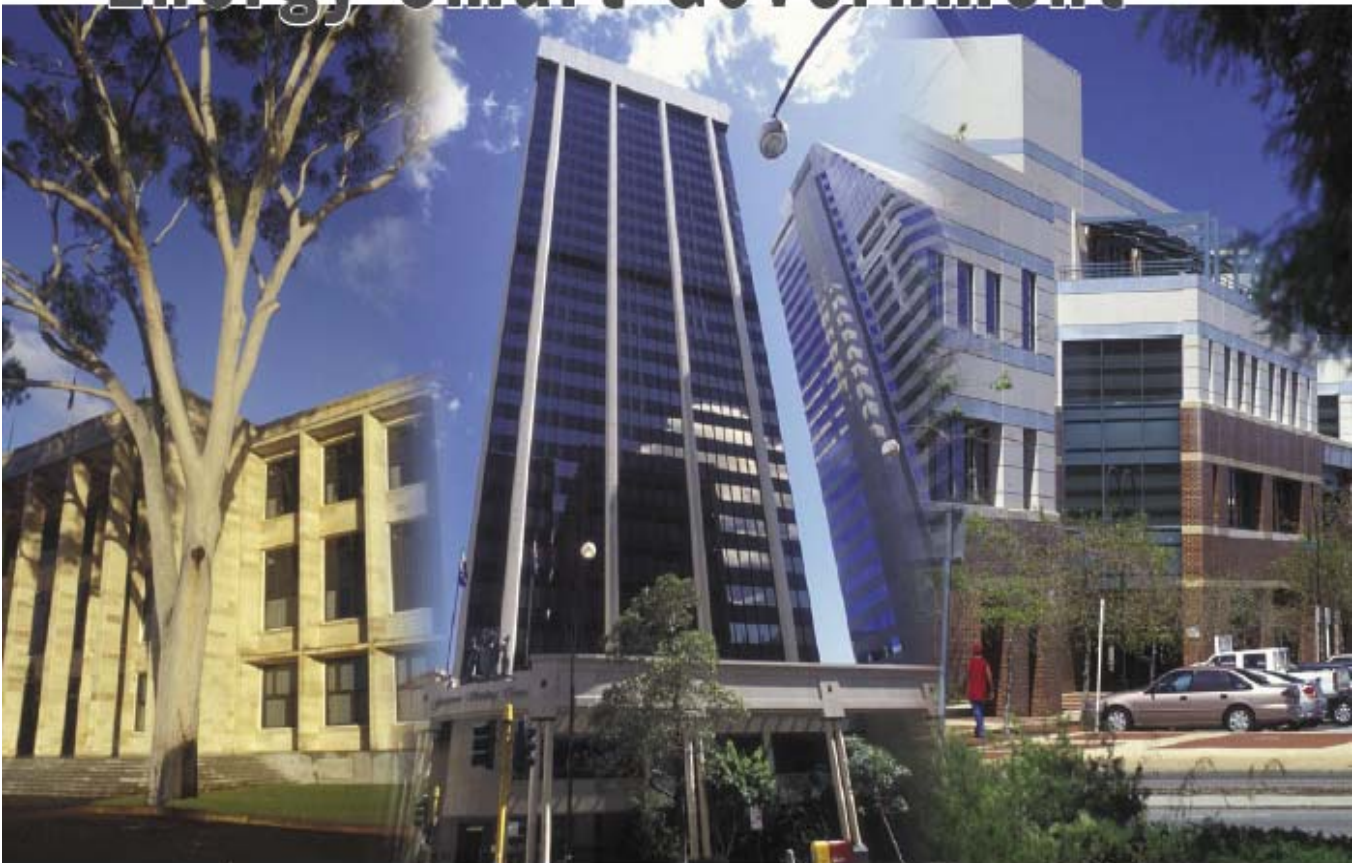




Energy Smart Government



2003/04



Sustainable Energy Development Office
Government of Western Australia

Draft report: November 2004

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Government of Western Australia, November 2004

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Minister's Foreword

I am pleased to present the results of the Energy Smart Government program for 2003/04 as part of the Government's commitment to achieving a more sustainable future.

The commitment across government from agency staff is evident in the early program achievements outlined in this report. The combined data for the majority of agencies meets the 6% target for 2003/04 and those agencies that did not reach it this time have good prospects of meeting the target in the three remaining years of the program.

The Energy Smart Government program has only operated for two years but 21 agencies have already achieved the program's objective of a 12% energy reduction target by 2006/07. The number of agencies that met the annual target has also increased from last year.

As a result, agencies have reduced energy costs by over \$2.3m in the last two years, and in 2003/04 avoided emitting nearly 13,000 tonnes of greenhouse gas emissions. This provides a signal to all Western Australians of the potential benefits of good energy management practices.

The adoption of energy management practices and principles as part of agency policy and decision making will lead to more sustainable solutions being implemented in the future. A good example of this is a recently announced Department of Housing and Works office accommodation procurement guide that will ensure maximum energy efficiency in premises occupied by Government agencies. Individual agency results can be expected to show continued improvement as the impact of this and other sustainability initiatives are incorporated into agency operations.

I wish to congratulate and thank staff in all Government agencies for their hard work in achieving these improvements in energy efficiency and I urge them to continue their commitment to reducing their energy use as part of the Energy Smart Government program.

Hon Eric Ripper
Minister for Energy

Executive Summary

The second report of the Energy Smart Government program demonstrates the ongoing commitment of the agencies participating in the program. Agencies have continued to build on the progress made in 2002/03, with a significant amount of activity focused on establishing energy management policies and developing action plans.

The Government has saved over 173,000 GJ of energy since the program's inception, with a contribution of 91,500 GJ in 2003/04. This represents a saving of more than \$2.3m in agency operating budgets.

The energy reduction target for the 2003/04 financial year, as set in the Energy Smart Government policy, is 6%. The combined data for 61 of the 62 participating agencies shows a very encouraging 6.4% reduction in energy consumption.

Hospitals remain the single largest energy user reported under the Energy Smart Government program and account for 44% of total government energy use. The Department of Health did not meet the 2003/04 target and this has influenced the 2003/04 whole of Government result. The combined result for all participating agencies is a reduction in energy use of 3.3%.

The Government's Health Reform Implementation Program will enable further integration of energy efficiency into the design and management of health facilities, both new and existing. The Department of Health has been working with the Sustainable Energy Development Office to implement an agreed action plan to achieve future energy savings. This should start to show in next years' results.

Other significant categories of energy users are primary and secondary education facilities, accounting for 16%, and tertiary educational facilities and custodial facilities, each accounting for 6%. At the agency level the results vary widely, with 37.6% the largest reduction by a single agency. Overall, 44 agencies reported a reduction in energy use, of which 34 exceeded the 2003/04 energy reduction target of 6%. Relative to 2002/03 results, this represents a 20% increase in the number of agencies that met the target.

Another 13 agencies showed a significant improvement in the intensity of their energy use. While some agencies were not able to achieve the energy reduction target due to an expansion in services, many minimised the impact of those additional services and achieved reductions in energy use per person (total number of people occupying a facility, including permanent staff, temporary staff and contractors) or energy use per square metre of floor area. It is acknowledged that the outcomes achieved in 2003/04 are also a result of the efforts of those agencies.

Overall, participating agencies achieved the following savings in 2003/04 relative to the baseline:

- Energy consumption reduced by 3.3% to 2,683,898 GJ.
- Energy cost reduced by 2.2% to \$76.1 million
- Greenhouse gas emissions reduced by 2.5% to 509,502 tonnes

Agency demand for Facilitation Grants was strong throughout the year with more than 35 energy audits being conducted. The benefit from actions following these audits is expected to be fully realised next year. A further \$1.1m was committed to capital works projects at nine sites with projects involving lighting upgrades being the main recipients of the funds. The demand for Capital Advances is expected to increase as agencies continue to implement the initiatives identified through energy audits and other means.

The 2003/04 results demonstrate improvements in the way energy is viewed and managed by agencies. This is reflected in a survey undertaken during the year on agency energy management practices. The survey found that most agencies had made initial progress towards integrating energy management into their daily operations with 43% indicating that an energy management policy had been developed within the last two years.

While there is still significant work to be done before energy management is fully incorporated into agency culture, the early indications remain positive. The impact of other State Government sustainability policy announcements during the year is expected to provide further impetus for agencies to realise their energy saving potential.

Program Background

The development and implementation of the Energy Smart Government policy is a major sustainability initiative of the Western Australian Government. The purpose of the policy is to realise ongoing absolute reductions in energy use, energy costs and associated greenhouse gas emissions by establishing energy efficiency as a basis for the effective management of government assets.

The policy is consistent with the Government's strategic objectives of accountability, sound financial management, encouraging the development of a more diversified economy and protecting the environment. It also contributes to job creation in the sustainable energy industry sector. The establishment of absolute energy reduction targets was considered by Cabinet as the best overall means to meet the multiple purposes of making savings in agency operating budgets and reducing greenhouse gas emissions. An overview of the key components of the policy is contained in Appendix One.

The Sustainable Energy Development Office (SEDO) oversees the implementation of this initiative and coordinates the annual reporting of energy use by agencies. It is the responsibility of each agency to monitor and report its energy use. The Chief Executive Officer for each agency has responsibility to ensure that the energy reduction targets are achieved and that energy management is incorporated as an integral part of their agency's business management plan.

The energy data for 62 Government agencies is included in this report. Of these, 55 are required to report their energy use and a further seven have elected to report their energy use on a voluntary basis.

A number of requests for baseline adjustments were received and considered by SEDO during the year. To protect the integrity of the program, amendments were only approved to correct errors in agency data, including those caused by omission of sites; to reflect changes to the energy use under the direct control of agencies; to reflect restructuring of sites resulting as a result of government functional reviews; and to give credit for energy savings achieved by some agencies prior to the commencement of the Energy Smart Government program.

Agencies provide their data through the Energy Data Gathering And Reporting software (EDGAR). EDGAR is a web based energy reporting and benchmarking tool that enables agencies to enter and submit data online to meet the reporting requirements of the policy. A number of enhancements to EDGAR were undertaken during the year to improve the functionality of the software. It is the primary energy reporting tool used by the Commonwealth Government and the State and Territory Governments throughout Australia.

Agencies are able to report energy related data across 17 different end-use categories. Each category enables sites with similar functions to be benchmarked and compared against key performance indicators. Additional end-use categories are available in EDGAR for agencies to track parameters other than stationary energy use, such as water and transport fuel. Details of the end-use categories that agencies currently report under are provided in Appendix Two.

Throughout the year, SEDO assisted agencies to develop and put into place appropriate energy monitoring and reporting processes to enable energy consumption and energy cost data to be accurately captured. The information contained in this report is based on the data provided by agencies. It is anticipated that, over time, the data will become more reliable and will allow for more rigorous verification as agencies develop a better understanding of their energy use and the sophistication of agency energy monitoring is improved.

A survey was undertaken during the year to gain information on agency energy management practices. The survey found that most agencies had made initial progress towards integrating energy management into their daily operations with 43% indicating that an energy management policy had been developed within the last two years. SEDO will use the information gained from the survey to improve and focus the assistance it provides to agencies.

Agency Achievements

There has been an increase in the number of agencies meeting the energy reduction target in 2003/04 relative to the previous year. Table One outlines the results for the agencies that achieved (and in many cases far exceeded) this target. It is particularly pleasing to note that 12 agencies achieved the annual reduction target for the first time in 2003/04.

Table One: Agencies that met the 6% energy reduction target for 2003/04

| Agency | Reduction in energy consumption |
|---|---------------------------------|
| Botanic Gardens and Parks Authority* | 19.5% |
| Central West College of TAFE* | 8.4% |
| Department of Education and Training | 7.4% |
| Department of Fisheries* | 6.4% |
| Department of Housing and Works* | 10.7% |
| Department of Indigenous Affairs | 34.7% |
| Department of Industry and Resources* | 8.0% |
| Department of Justice | 7.2% |
| Department of Land Information | 26.8% |
| Department of Local Government and Regional Development | 37.6% |
| Department of Racing, Gaming and Liquor | 19.6% |
| Department of Sport and Recreation | 20.8% |
| Disability Services Commission | 11.7% |
| Fire and Emergency Services Authority* | 20.4% |
| Forest Products Commission | 34.4% |
| Great Southern TAFE | 21.2% |
| Metropolitan Cemeteries Board* | 22.3% |
| Office of Energy* | 13.9% |
| Office of the Auditor General | 17.5% |
| Office of the Country High School Hostels Authority | 22.2% |
| Office of the Director of Public Prosecutions | 7.4% |
| Office of the Public Sector Standards Commissioner | 17.7% |
| Parliamentary Services Department | 7.3% |
| Pilbara College of TAFE* | 12.0% |
| Public Transport Authority | 14.4% |
| Small Business Development Corporation* | 11.9% |
| South West Regional College of TAFE* | 6.7% |
| State Supply Commission of Western Australia | 20.0% |
| Sustainable Energy Development Office | 30.6% |
| Swan College of TAFE | 15.4% |
| West Coast College of TAFE | 20.0% |
| Western Australian Institute of Sport* | 16.4% |
| Western Australian Sports Centre Trust | 10.3% |
| WorkCover WA | 13.1% |

* Agencies that achieved the annual target for the first time in 2003/04.

The achievements of agencies can also be assessed in terms of key performance indicators. These indicators have been developed for many of the end-use categories and provide an insight into the efficiency or intensity of energy use within each category. Improvement in performance indicators can be used to assess the effectiveness of agencies' energy management policies.

Percentage improvements in performance indicators reflect agency achievements as they remove the distorting effect on global targets of contraction or expansion of agency services. For agencies that are experiencing changes in service levels, an improvement in performance indicators demonstrates the effectiveness of energy saving initiatives that have been implemented.

A number of agencies reported a significant improvement in the performance indicators of energy intensity per person (total number of people occupying a facility, including permanent staff, temporary staff and contractors), per student (EFTS) or per square metre (m²) of floor area occupied in 2003/04. While these agencies did not meet the 6% energy reduction target, they contributed positively to the whole of government performance by limiting the impact of expanding services.

To illustrate these achievements, Table Two shows the percentage change in energy consumption and the corresponding change in performance indicators for the end-use categories on which each of these agencies reported. The Other Use end-use category does not have any established performance indicators as the diversity of facilities included in this category does not allow any meaningful comparison to be made.

The agencies listed in Table Two demonstrate a consistent reduction in energy intensity per person or per student, while the change in energy intensity on the basis of floor area is more diverse. This reflects the fact that staff and student numbers are generally subject to greater variation than floor area. In many cases, the change in energy consumption per square metre is consistent with the change in energy consumption overall, indicating that the energy consumption has changed but the floor area has remained constant. Improvements in energy use per person or per student reflect the better use of facilities as staff or student numbers increase.

The percentage change in energy intensity from the baseline for all agencies by key performance indicator is provided in Appendix Three.

Table Two: Agencies that achieved significant reductions in energy intensity

| Agency/End-use category | Variation in energy consumption % Reduction/ (% Increase) | Variation in energy intensity % Reduction/(% Increase) | | |
|---|---|---|---------|-------------------|
| | | By person | By EFTS | By m ² |
| C Y O'Connor College of TAFE | | | | |
| Tertiary Educational Facilities | 2.0% | | 22.7% | 2.0% |
| Central TAFE | | | | |
| Tertiary Educational Facilities | 5.2% | | 18.9% | 5.2% |
| Challenger TAFE | | | | |
| Tertiary Educational Facilities | (2.4%) | | 6.7% | (1.7%) |
| Curriculum Council of Western Australia | | | | |
| Office - Combined Services | 1.7% | 20.5% | | 1.6% |
| Department for Community Development | | | | |
| Office - Combined Services | 11.5% | 19.1% | | 13.2% |
| Office - Tenant Light and Power | 8.0% | 10.5% | | 4.6% |
| Other Uses | (1.9%) | | | |
| Department of Environment | | | | |
| Office - Tenant Light and Power | (8.1%) | 28.9% | | (15.2%) |
| Other Uses | (40.1%) | | | |
| Department of the Premier and Cabinet | | | | |
| Office - Tenant Light and Power | 2.2% | 15.1% | | 10.1% |
| Gascoyne Development Commission | | | | |
| Office - Combined Services | (45.2%) | 8.4% | | (45.1%) |
| Kimberley College of TAFE | | | | |
| Tertiary Educational Facilities | (0.9%) | | 11.9% | 1.5% |
| Legal Aid Western Australia | | | | |
| Office - Tenant Light and Power | (0.3%) | 11.5% | | 4.9% |
| Mid West Development Commission | | | | |
| Office - Tenant Light and Power | (1.5%) | 18.5% | | (1.7%) |
| Tourism Western Australia | | | | |
| Office - Tenant Light and Power | (19.2%) | 16.6% | | (14.8%) |
| Western Australian Electoral Commission | | | | |
| Office - Tenant Light and Power | 0.4% | 26.8% | | (0.7%) |

Agency Results

The results reported by agencies show a large variance from the targeted 6% reduction for 2003/04, with the largest reduction being 37.6% and the greatest increase being 45.2%. The combined data for the majority of agencies shows a commendable 6.4% reduction in energy consumption and the average result across the whole program was a reduction of 3.3%.

The Department of Health remains the single largest energy user and accounts for 45% of total government energy use. The Department of Health did not meet the 2003/04 target and this significantly influenced the 2003/04 whole of Government result. With the announcement of the Government's Health Reform Implementation Program, the path is now cleared for further integration of energy efficiency into health facilities, both new and existing. The Department of Health has been working with the Sustainable Energy Development Office to implement an agreed action plan to achieve future energy savings. This should start to show in next years' results.

The number of agencies that achieved the target was more than 20% higher than the number of agencies that achieved the target in 2002/03. This is a strong indicator that agencies are continuing to implement effective energy management practices. The total number of agencies that reduced energy use relative to their baselines also increased, further demonstrating the ongoing commitment of agencies.

Over the last two years, agencies have reported energy savings of 173,407 GJ and savings of over \$2.3m in energy costs. In addition, 12,904 tonnes of greenhouse gas emissions were avoided in 2003/04 due to better energy management by agencies and an improvement in the carbon intensity of electricity sold by Western Power.

Individual agency results for 2003/04 are listed alphabetically in Table Three. 62 agencies reported their energy data, with seven of those participating in the program on a voluntary basis.

A notable omission from this year's report is the Anti Corruption Commission that was abolished during the year. The energy use data for the Commission was not reported to SEDO and is therefore not included in this report. In addition, the Western Australian Alcohol and Drug Authority joined the program in 2003/04 and the newly created Corruption and Crime Commission will join the program in 2004/05.

Table Three: Summary of agency performance in 2003/04

| Agency | Energy Consumption GJ | Greenhouse Gas Emissions Tonnes CO₂ | Energy Cost \$ | Variation in energy consumption % Reduction/ (% Increase) |
|--|----------------------------------|---|---------------------------|--|
| Botanic Gardens and Parks Authority | 6,265 | 1,400 | 161,419 | 19.5% |
| C Y O'Connor College of TAFE | 1,798 | 403 | 70,659 | 2.0% |
| Central TAFE | 43,698 | 9,121 | 1,275,917 | 5.2% |
| Central West College of TAFE | 6,072 | 1,427 | 217,862 | 8.4% |
| Challenger TAFE | 20,687 | 4,616 | 700,758 | (2.4%) |
| Curriculum Council of Western Australia | 1,248 | 315 | 55,490 | 1.7% |
| Department for Community Development | 17,275 | 3,950 | 738,926 | 5.6% |
| Department for Planning and Infrastructure | 25,633 | 6,480 | 653,965 | (3.9%) |
| Department of Agriculture | 47,436 | 11,216 | 1,662,817 | 4.2% |
| Department of Conservation and Land Management | 24,038 | 4,037 | 869,281 | 1.4% |
| Department of Consumer and Employment Protection | 8,716 | 2,203 | 394,523 | (1.5%) |
| Department of Culture and the Arts | 98,443 | 17,335 | 2,214,763 | (18.3%) |
| Department of Education and Training | 455,293 | 94,354 | 18,778,083 | 7.4% |
| Department of Education Services | 416 | 105 | 17,088 | N/A ¹ |
| Department of Environment | 8,223 | 2,069 | 327,349 | (13.4%) |
| Department of Fisheries | 5,102 | 1,266 | 216,334 | 6.4% |
| Department of Health | 1,205,538 | 203,268 | 24,901,615 | (0.7%) |
| Department of Housing and Works | 53,944 | 12,558 | 1,894,522 | 10.7% |
| Department of Indigenous Affairs | 1,206 | 305 | 57,720 | 34.7% |
| Department of Industry and Resources | 23,262 | 5,437 | 818,525 | 8.0% |
| Department of Justice | 207,252 | 40,250 | 5,951,950 | 7.2% |
| Department of Land Information | 18,143 | 4,587 | 609,372 | 26.8% |
| Department of Local Government and Regional Development | 739 | 187 | 26,089 | 37.6% |
| Department of Racing, Gaming and Liquor | 609 | 154 | 27,077 | 19.6% |
| Department of Sport and Recreation | 5,260 | 1,000 | 165,034 | 20.8% |
| Department of the Premier and Cabinet | 11,432 | 2,887 | 517,446 | 2.2% |
| Department of the Registrar Western Australian Industrial Relations Commission | 1,259 | 318 | 55,549 | (10.9%) |
| Department of Treasury and Finance | 4,348 | 1,099 | 187,318 | (7.5%) |
| Disability Services Commission | 22,730 | 4,018 | 676,275 | 11.7% |
| Fire and Emergency Services Authority | 22,323 | 4,926 | 741,392 | 20.4% |
| Forest Products Commission | 4,242 | 809 | 159,385 | 34.4% |
| Gascoyne Development Commission | 225 | 57 | 19,893 | (45.2%) |
| Great Southern TAFE | 4,330 | 814 | 150,484 | 21.2% |
| Kimberley College of TAFE | 3,356 | 848 | 310,005 | (0.9%) |
| Legal Aid Western Australia | 1,834 | 464 | 82,755 | (0.3%) |
| Lotterywest | 4,950 | 1,245 | 148,993 | (1.7%) |

| Agency | Energy Consumption GJ | Greenhouse Gas Emissions Tonnes CO ₂ | Energy Cost \$ | Variation in energy consumption % Reduction/ (% Increase) |
|--|--------------------------|--|-------------------|---|
| Main Roads Western Australia | 16,633 | 4,131 | 791,651 | 4.5% |
| Metropolitan Cemeteries Board | 7,973 | 1,458 | 268,352 | 22.3% |
| Mid West Development Commission | 199 | 50 | 9,077 | (1.5%) |
| Office of Energy | 372 | 94 | 15,105 | 13.9% |
| Office of the Auditor General | 520 | 131 | 18,336 | 17.5% |
| Office of the Country High School Hostels Authority | 8,660 | 1,373 | 272,287 | 22.2% |
| Office of the Director of Public Prosecutions | 1,072 | 271 | 31,214 | 7.4% |
| Office of the Public Sector Standards Commissioner | 237 | 60 | 9,924 | 17.7% |
| Parliamentary Commissioner for Administrative Investigations | 310 | 78 | 13,984 | 3.7% |
| Parliamentary Services Department | 6,597 | 1,534 | 224,358 | 7.3% |
| Pilbara College of TAFE | 15,351 | 3,854 | 873,061 | 12.0% |
| Public Transport Authority | 18,395 | 3,754 | 475,729 | 14.4% |
| Small Business Development Corporation | 673 | 170 | 29,678 | 11.9% |
| South West Regional College of TAFE | 7,382 | 1,693 | 266,133 | 6.7% |
| State Supply Commission of Western Australia | 48 | 12 | 1,693 | 20.0% |
| Sustainable Energy Development Office | 50 | 13 | 4,886 | 30.6% |
| Swan College of TAFE | 36,930 | 7,661 | 1,240,210 | 15.4% |
| Tourism Western Australia | 1,898 | 480 | 75,279 | (19.2%) |
| West Coast College of TAFE | 11,637 | 2,503 | 354,388 | 20.0% |
| Western Australia Police Service | 106,468 | 25,544 | 3,865,289 | (0.6%) |
| Western Australian Alcohol and Drug Authority | 2,377 | 546 | 83,447 | N/A ² |
| Western Australian Electoral Commission | 486 | 123 | 24,150 | 0.4% |
| Western Australian Institute of Sport | 1,204 | 304 | 61,751 | 16.4% |
| Western Australian Sports Centre Trust | 58,509 | 5,420 | 888,948 | 10.3% |
| WorkCover WA | 3,538 | 894 | 159,157 | 13.1% |
| Zoological Parks Authority | 9,054 | 1,823 | 197,158 | (7.2%) |
| Total for Participating Agencies | 2,683,898 | 509,502 | 76,111,878 | 3.3% |

1. The Department of Education Services relocated during the year and is now reporting under a different end-use category. As a result, its baseline was revised and its targets reset. Further information is provided in the Agency Summaries section of the report.

2. The Western Australian Alcohol and Drug Authority joined the Energy Smart Government program in 2003/04. Further information is provided in the Agency Summaries section of the report.

Largest Energy Users for 2003/04

The 2003/04 results demonstrate that an agency's size does not determine its ability to achieve the objectives of the Energy Smart Government policy. Ten of the 20 largest agencies achieved the 6% target.

Some position changes occurred in the top 20 table over the last year. For example, the Fire and Emergency Services Authority improved its position by dropping three places to number 15 in 2003/04 as a result of the 20.4% reduction in energy consumption relative to its baseline. A number of other minor changes occurred as the success of energy management programs were realised.

The Department of Health and the Department of Education and Training are the two largest agencies on the basis of consumption of stationary energy. Together, those two agencies accounted for nearly 62% of energy consumption reported in 2003/04.

The energy used by the 20 largest energy consumers for 2003/04 is provided in Table Four. The table also shows each agency's proportion of the total reported Government energy use and its ranking for the last two years.

Table Four: Top 20 largest energy users in 2003/04

| Agency | Energy Consumption GJ | Proportion of Government total | 2003/04 ranking | 2002/03 ranking |
|---|---------------------------------|--------------------------------------|--------------------|--------------------|
| Department of Health | 1,205,538 | 44.9% | 1 | 1 |
| Department of Education and Training | 455,293 | 17.0% | 2 | 2 |
| Department of Justice | 207,252 | 7.7% | 3 | 3 |
| Western Australia Police Service | 106,468 | 4.0% | 4 | 4 |
| Department of Culture and the Arts | 98,443 | 3.7% | 5 | 5 |
| Western Australian Sports Centre Trust | 58,509 | 2.2% | 6 | 7 |
| Department of Housing and Works | 53,944 | 2.0% | 7 | 6 |
| Department of Agriculture | 47,436 | 1.8% | 8 | 8 |
| Central TAFE | 43,698 | 1.6% | 9 | 9 |
| Swan College of TAFE | 36,930 | 1.4% | 10 | 10 |
| Department for Planning and Infrastructure | 25,633 | 1.0% | 11 | 11 |
| Department of Conservation and Land Management | 24,038 | 0.9% | 12 | 15 |
| Department of Industry and Resources | 23,262 | 0.9% | 13 | 13 |
| Disability Services Commission | 22,730 | 0.8% | 14 | 14 |
| Fire and Emergency Services Authority | 22,323 | 0.8% | 15 | 12 |
| Challenger TAFE | 20,687 | 0.8% | 16 | 17 |
| Public Transport Authority | 18,395 | 0.7% | 17 | 18 |
| Department of Land Information | 18,143 | 0.7% | 18 | 16 |
| Department for Community Development | 17,275 | 0.6% | 19 | 20 |
| Main Roads Western Australia | 16,633 | 0.6% | 20 | 19 |
| Total for top 20 agencies | 2,522,630 | 94.0% | | |
| Total for WA | 2,683,898 | | | |

Fuel Types

Electricity is the primary energy source used by agencies participating in the Energy Smart Government program. In 2003/04 it accounted for 68% of all energy used and 91% of energy-related greenhouse gas emissions attributable to those agencies. Natural gas was the next largest fuel type, accounting for 25% of the total energy use, but responsible for only 7% of total greenhouse gas emissions.

The quantity of greenhouse gas emissions associated with electricity use is dependant on the fuels used to generate the electricity. Emissions vary each year as the mix of fuels used to generate electricity changes.

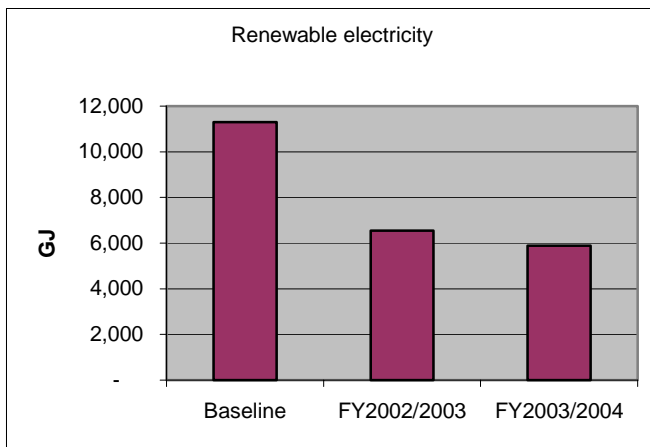
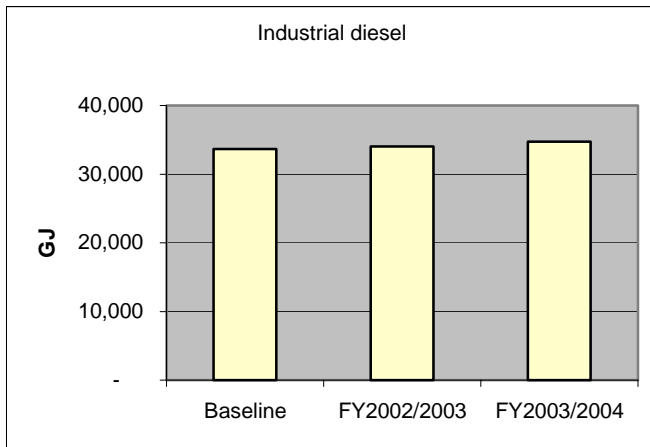
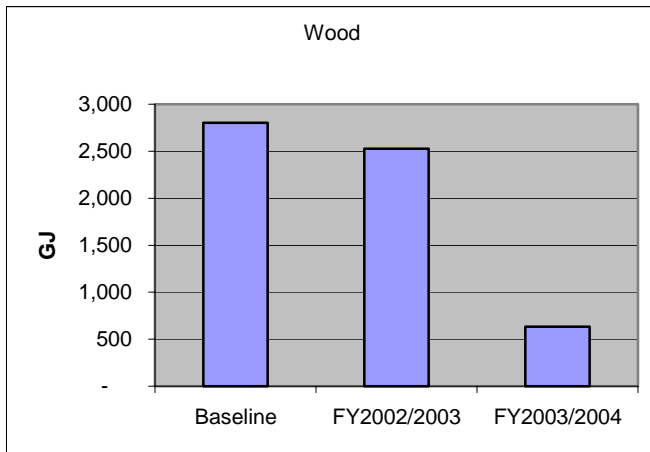
A summary of the fuel types reported in 2003/04 is provided in Table Five. The table shows the distribution of fuels used and the associated greenhouse gas emissions and cost. The greenhouse gas coefficients used to calculate these emissions are provided in Appendix Four.

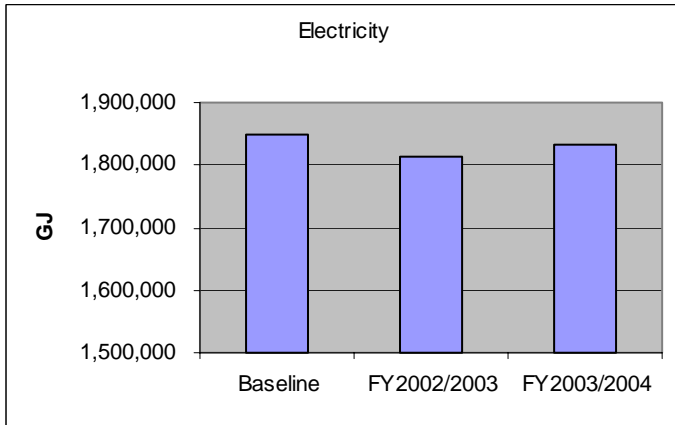
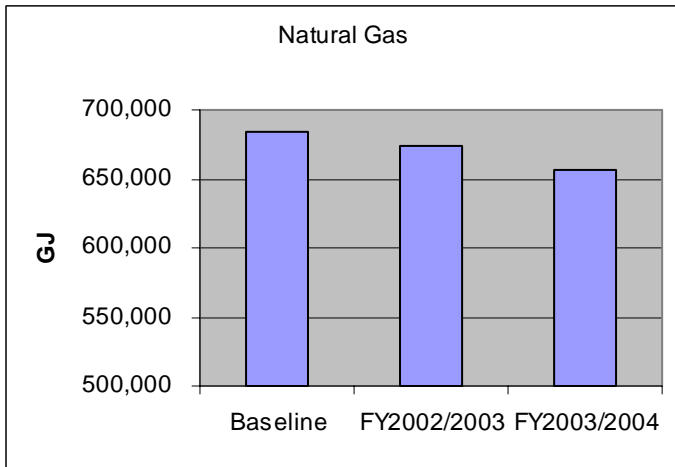
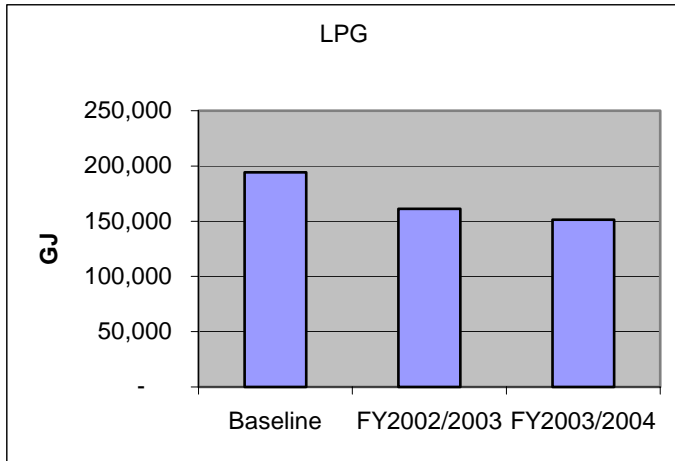
Table Five: Consumption, cost and greenhouse gas emissions of fuel sources.

| Fuel | Energy Consumption | | Greenhouse Gas Emissions | | Cost | |
|-----------------------|--------------------|------------|--------------------------|------------|-------------------|------------|
| | GJ | % of Total | Tonnes CO ₂ | % of Total | \$ | % of Total |
| Wood | 632 | - | - | - | 0 | - |
| Renewable electricity | 5,888 | 0.2% | - | - | 201,782 | 0.3% |
| Industrial diesel | 34,745 | 1.3% | 2,432 | 0.5% | 827,336 | 1.1% |
| LPG | 151,289 | 5.6% | 8,986 | 1.8% | 2,432,403 | 3.2% |
| Natural Gas | 657,119 | 24.5% | 34,427 | 6.8% | 5,406,485 | 7.1% |
| Electricity | 1,834,225 | 68.4% | 463,657 | 91.0% | 67,243,872 | 88.3% |
| Total | 2,683,898 | | 509,502 | | 76,111,878 | |

To illustrate variations in the energy types used by agencies since the commencement of the Energy Smart Government program, the quantities of each fuel type are shown in Figure One. Generally, the consumption of each type shows a decreasing trend over the last three years. The most significant decrease has occurred in wood fuel, primarily as a result of the replacement of wood barbeques by the Botanical Parks and Gardens Authority in Kings Park.

Figure One: Annual consumption of all agencies by fuel type





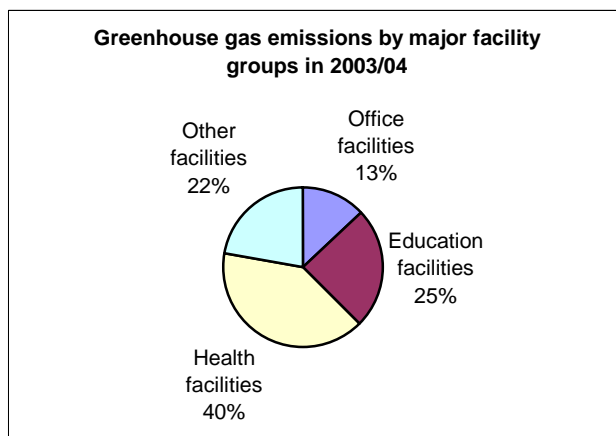
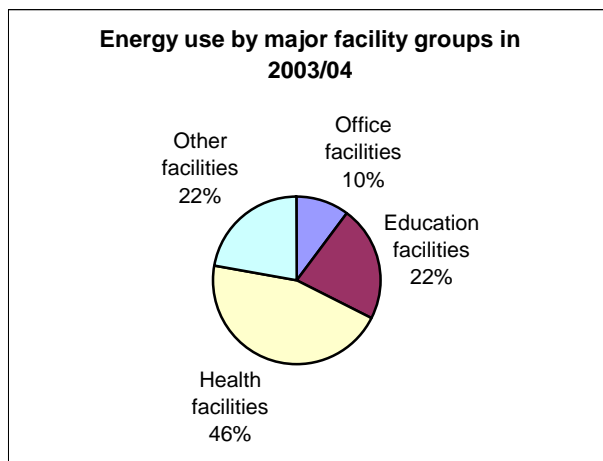
Distribution of Energy Use by End-Use Category

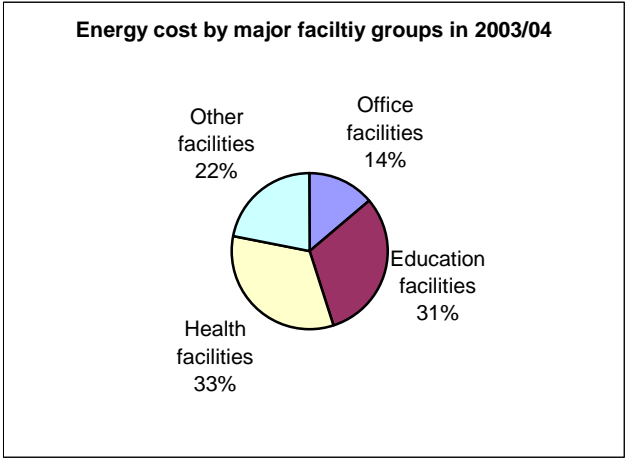
End-use categories enable energy data reported by agencies to be disaggregated into similar functional groupings and the performance of similar facilities to be compared for benchmarking purposes. Agencies have reported data in 17 different end-use categories. A definition of the types of facilities included under each end-use category is provided in Appendix Two.

In Figure Two, the 17 categories have been grouped into four major facility types to demonstrate the key energy use areas and the distribution of energy use. Full details of each end-use category are available in Table Six and descriptions of each end-use category are provided in Appendix Two.

It is interesting to note that health facilities is the only sector in which the share of energy cost is smaller than its energy use, i.e. it represents 46% of energy use but only 33% of energy cost. By contrast, education facilities account for 22% of energy use, and 31% of total energy cost. The lower unit cost for energy in health facilities is largely a result of the ability of the Department of Health to secure favourable energy costs due to the concentration of energy use at a small number of very large sites.

Figure Two: Distribution of energy use, greenhouse gas and cost by major facility groups in 2003/04





| Major Facility Group | End-Use Categories |
|----------------------|--|
| Health Facilities | Hospitals Other Healthcare Buildings |
| Education Facilities | Primary and Secondary Educational Facilities Tertiary Educational Facilities |
| Office Facilities | Office – Tenant Light and Power Office – Central Services Office – Combined Services |
| Other Facilities | Law Courts Custodial Facilities Police, Fire and Emergency Services Laboratories Public Buildings Entertainment and Sporting Complexes Parks and Wildlife Facilities Residential Buildings Other Buildings Other Uses |

Breaking the four major groups up into the 17 end-use categories provides a further insight into diversity of government operations. After taking out health and educational facilities, the distribution of energy use amongst the remaining end-use categories is quite uniform.

The data for the Office – Tenant Light and Power end-use category shows a disproportionate percentage of energy cost relative to the percentage of energy use. This could be an area where further cost efficiencies could be achieved.

Table Six: Energy use, greenhouse gas and energy cost by end-use category.

| End-use Category | Energy Consumption | | Greenhouse Gas Emissions | | Cost | |
|--|--------------------|---------|--------------------------|---------|-------------------|---------|
| | GJ | % Total | Tonnes CO ₂ | % Total | \$ | % Total |
| Office - Tenant Light and Power | 93,970 | 3.5% | 23,608 | 4.7% | 4,061,814 | 5.3% |
| Office - Central Services | 38,585 | 1.4% | 8,761 | 1.7% | 1,244,220 | 1.6% |
| Office - Combined Services | 144,673 | 5.4% | 33,819 | 6.6% | 5,185,227 | 6.8% |
| Law Courts | 33,621 | 1.3% | 7,991 | 1.6% | 1,408,652 | 1.9% |
| Custodial Facilities | 152,541 | 5.7% | 26,953 | 5.3% | 3,670,406 | 4.8% |
| Police, Fire and Emergency Services Facilities | 104,207 | 3.9% | 25,104 | 4.9% | 3,857,862 | 5.1% |
| Primary and Secondary Educational Facilities | 437,474 | 16.3% | 90,083 | 17.7% | 18,095,453 | 23.8% |
| Tertiary Educational Facilities | 160,428 | 6.0% | 35,122 | 6.9% | 5,763,031 | 7.6% |
| Laboratories | 57,931 | 2.2% | 13,811 | 2.7% | 1,977,427 | 2.6% |
| Hospitals | 1,187,111 | 44.2% | 198,678 | 39.0% | 24,148,604 | 31.7% |
| Other Healthcare Buildings | 26,729 | 1.0% | 5,985 | 1.2% | 966,728 | 1.3% |
| Public Buildings | 105,458 | 3.9% | 18,902 | 3.7% | 2,449,994 | 3.2% |
| Entertainment and Sporting Complexes | 61,743 | 2.3% | 5,907 | 1.2% | 966,467 | 1.3% |
| Parks and Wildlife Facilities | 24,276 | 0.9% | 3,993 | 0.8% | 586,389 | 0.8% |
| Residential Buildings | 17,783 | 0.7% | 2,635 | 0.5% | 492,634 | 0.6% |
| Other Buildings | 7,109 | 0.3% | 1,760 | 0.3% | 416,375 | 0.5% |
| Other Uses | 30,259 | 1.1% | 6,390 | 1.3% | 820,595 | 1.1% |
| Total | 2,683,898 | | 509,502 | | 76,111,878 | |

Performance Indicators

Each end-use category, with the exception of the Parks and Wildlife Facilities and Other Uses categories, has associated performance indicators. Performance indicators enable the energy intensity of similar facilities to be compared and also allow comparison of the intensity of energy use by individual agencies and sites over time. Agencies were asked to report staffing levels, student numbers, floor areas and other key activity levels that could be compared with energy consumption to measure the intensity of energy use in each end-use category.

The main performance indicators used as a measure of energy intensity are megajoules (MJ) per person or per student and MJ per square metre of floor area. A number of other specialised performance indicators have also been developed for specific end-use categories. The functions and services reported under each end-use category are unique, making it meaningless to compare performance between end-use categories.

Table Seven shows the range of energy intensity reported in each end-use category. The large performance ranges reported in some end-use categories are due to variations in sites in terms of their features and operations. The average values are the weighted average performance of all the sites reported in each particular end-use category. Those categories that have no range variation only contain data for one agency, and categories with a different upper and lower range contain data from more than one agency.

The information in Table Seven highlights the potential scope for energy savings in each end-use category. It is expected that the variation between the lower and upper results for each category will be reduced as agencies continue to upgrade their facilities and realise energy savings.

Table Seven: Variations in energy intensity for each end-use category

| End-use Category | Performance | Performance Range | | |
|--|--------------------------|-------------------|---------|---------|
| | Indicator | Lower | Upper | Average |
| Office - Tenant Light and Power | MJ/m ² /annum | 117 | 546 | 346 |
| | MJ/person/annum | 2,392 | 18,067 | 9,290 |
| Office - Central Services | MJ/m ² /annum | 395 | 395 | 395 |
| Office - Combined Services | MJ/m ² /annum | 121 | 1,275 | 627 |
| | MJ/person/annum | 6,683 | 111,822 | 16,789 |
| Law Courts | MJ/m ² /annum | 367 | 378 | 378 |
| | MJ/person/annum | 32,745 | 32,745 | 32,745 |
| Custodial Facilities | MJ/m ² /annum | 1,028 | 1,028 | 1,028 |
| | MJ/inmate days | 134 | 134 | 134 |
| Police, Fire and Emergency Services Facilities | MJ/m ² /annum | 686 | 686 | 686 |
| | MJ/person/annum | 13,993 | 16,005 | 15,854 |
| Primary and Secondary Educational Facilities | MJ/m ² /annum | 150 | 150 | 150 |
| | MJ/EFTStudent | 1,597 | 1,597 | 1,597 |
| Tertiary Educational Facilities | MJ/m ² /annum | 190 | 546 | 351 |
| | MJ/EFTStudent | 965 | 30,626 | 2,524 |
| Laboratories | MJ/m ² /annum | 421 | 3,187 | 596 |
| Hospitals | MJ/m ² /annum | 640 | 964 | 964 |
| | MJ/person/annum | 51,868 | 51,868 | 51,868 |
| | MJ/OBD | 358 | 896 | 894 |
| Other Healthcare Buildings | MJ/m ² /annum | 311 | 1,015 | 379 |
| Public Buildings | MJ/m ² /annum | 87 | 1,158 | 903 |
| Entertainment and Sporting Complexes | MJ/m ² /annum | 1,707 | 1,707 | 1,707 |
| Parks and Wildlife Facilities | N/A | | | |
| Residential Buildings | MJ/m ² /annum | 188 | 483 | 471 |
| | MJ/person/annum | 8,186 | 17,401 | 13,668 |
| Other Buildings | MJ/m ² /annum | 24 | 1,222 | 122 |
| Other Uses | N/A | | | |

Agency Energy Use and Performance Indicator Results by End-Use Category

Table Eight shows the distribution of agency energy consumption and performance indicators for each end-use category.

The wide performance range indicated in Table Eight could suggest that significant scope exists for agencies to make further savings in some end-use categories. However, the variation in performance indicators between agencies can also due to variations in the age, location, features and operations of different sites.

Table Eight: Performance of agencies by end-use category

| Office - Tenant Light and Power | Energy Consumption | Performance Indicator | |
|--|--------------------|--------------------------|-----------------|
| | GJ | MJ/m ² /annum | MJ/person/annum |
| Department for Community Development | 5,608 | 400 | 11,957 |
| Department for Planning and Infrastructure | 2,736 | 329 | 8,143 |
| Department of Agriculture | 739 | 185 | 3,447 |
| Department of Conservation and Land Management | 891 | 171 | 5 820 |
| Department of Consumer and Employment Protection | 7,980 | 533 | 12,727 |
| Department of Culture and the Arts | 640 | 337 | 5,427 |
| Department of Education and Training | 6,104 | 176 | 3,745 |
| Department of Education Services | 25 | 324 | 10,223 |
| Department of Environment | 6,561 | 443 | 7,464 |
| Department of Housing and Works | 3,511 | 369 | 9,072 |
| Department of Indigenous Affairs | 1,206 | 316 | 9,105 |
| Department of Industry and Resources | 2,803 | 337 | 10,084 |
| Department of Justice | 21,777 | 354 | 12,984 |
| Department of Land Information | 2,259 | 490 | 10,653 |
| Department of Local Government and Regional Development | 739 | 320 | 6,905 |
| Department of Racing, Gaming and Liquor | 609 | 306 | 6,937 |
| Department of Sport and Recreation | 2,026 | 546 | 18,067 |
| Department of the Premier and Cabinet | 11,432 | 340 | 13,062 |
| Department of the Registrar Western Australian Industrial Relations Commission | 348 | 203 | 5,442 |
| Department of Treasury and Finance | 4,348 | 327 | 7,369 |
| Disability Services Commission | 1,527 | 405 | 10,315 |
| Fire and Emergency Services Authority | 622 | 338 | 17,270 |
| Forest Products Commission | 672 | 377 | 9,888 |
| Legal Aid Western Australia | 1,834 | 372 | 8,172 |

| Office - Tenant Light and Power – cont'd | Energy Consumption | Performance Indicator | |
|--|--------------------|--------------------------|-----------------|
| | GJ | MJ/m ² /annum | MJ/person/annum |
| Main Roads Western Australia | 496 | 509 | 13,055 |
| Mid West Development Commission | 199 | 449 | 13,290 |
| Office of Energy | 372 | 295 | 6,968 |
| Office of the Auditor General | 520 | 300 | 5,362 |
| Office of the Director of Public Prosecutions | 1,072 | 318 | 6,740 |
| Office of the Public Sector Standards Commissioner | 237 | 211 | 7,643 |
| Parliamentary Commissioner for Administrative Investigations | 310 | 342 | 10,695 |
| Parliamentary Services Department | 612 | 350 | 13,911 |
| Small Business Development Corporation | 673 | 443 | 14,017 |
| State Supply Commission of Western Australia | 48 | 118 | 3,995 |
| Sustainable Energy Development Office | 50 | 117 | 2,392 |
| Tourism Western Australia | 1,898 | 541 | 10,216 |
| Western Australian Electoral Commission | 486 | 278 | 9,928 |
| Sub total | 93,970 | | |

| Office - Central Services | GJ | MJ/m ² /annum |
|---------------------------------|---------------|--------------------------|
| Department of Housing and Works | 38,585 | 395 |
| Sub total | 38,585 | |

| Office - Combined Services | GJ | MJ/m ² /annum | MJ/person/annum |
|--|--------|--------------------------|-----------------|
| Curriculum Council of Western Australia | 1,248 | 617 | 12,605 |
| Department for Community Development | 5,091 | 340 | 7,554 |
| Department for Planning and Infrastructure | 14,453 | 855 | 18,893 |
| Department of Agriculture | 1,850 | 790 | 27,670 |
| Department of Conservation and Land Management | 8,693 | 296 | 9,990 |
| Department of Consumer and Employment Protection | 736 | 551 | 17,510 |
| Department of Education and Training | 11,715 | 419 | 16,271 |
| Department of Education Services | 391 | 356 | 14,493 |
| Department of Fisheries | 2,592 | 344 | 9,322 |
| Department of Housing and Works | 10,293 | 639 | 12,125 |
| Department of Industry and Resources | 12,702 | 739 | 21,602 |
| Department of Land Information | 15,860 | 762 | 20,814 |

| Office - Combined Services | Energy Consumption | Performance Indicator | |
|---|--------------------|--------------------------|-----------------|
| | GJ | MJ/m ² /annum | MJ/person/annum |
| Department of the Registrar Western Australian Industrial Relations Commission Disability Services Commission | 224 | 898 | 111,822 |
| Fire and Emergency Services Authority | 5,229 | 448 | 10,232 |
| Forest Products Commission | 14,775 | 832 | 27,209 |
| Gascoyne Development Commission | 582 | 210 | 6,683 |
| Lotterywest | 225 | 413 | 11,841 |
| Main Roads Western Australia | 4,024 | 1,275 | 25,631 |
| Parliamentary Services Department | 11,082 | 828 | 17,343 |
| Public Transport Authority | 68 | 121 | 17,100 |
| Western Australian Alcohol and Drug Authority | 18,395 | 1,180 | 26,621 |
| WorkCover WA | 907 | 435 | 10,929 |
| Sub total | 144,673 | | |

| Law Courts | GJ | MJ/m ² /annum | MJ/person/annum |
|--|---------------|--------------------------|-----------------|
| Department of Justice | 32,934 | 378 | 32,745 |
| Department of the Registrar Western Australian Industrial Relations Commission | 687 | 367 | |
| Sub total | 33,621 | | |

| Custodial facilities | GJ | MJ/m ² /annum | MJ/person/annum | MJ/Inmate Days |
|-----------------------|----------------|--------------------------|-----------------|----------------|
| Department of Justice | 152,541 | 1,028 | 87,050 | 134 |
| Sub total | 152,541 | | | |

| Police, Fire and Emergency Services Facilities | GJ | MJ/m ² /annum | MJ/person/annum |
|--|----------------|--------------------------|-----------------|
| Fire and Emergency Services Authority | 6926 | | 13,993 |
| Western Australia Police Service | 97,281 | 686 | 16,005 |
| Sub total | 104,207 | | |

| Primary and Secondary Educational facilities | GJ | MJ/m ² /annum | MJ/EFT Student/annum |
|--|----------------|--------------------------|----------------------|
| Department of Education and Training | 437,474 | 150 | 1,597 |
| Sub total | 437,474 | | |

| Tertiary Educational Facilities | Energy Consumption | Performance Indicator | |
|--|---------------------------|-------------------------------|-----------------------------|
| | GJ | MJ/m²/annum | MJ/EFT Student/annum |
| C Y O'Connor College of TAFE | 1,798 | 258 | 965 |
| Central TAFE | 43,698 | 401 | 2,257 |
| Central West College of TAFE | 6,072 | 334 | 2,603 |
| Challenger TAFE | 20,687 | 280 | 2,156 |
| Great Southern TAFE | 4,330 | 297 | 1,815 |
| Kimberley College of TAFE | 3,356 | 503 | 3,268 |
| Pilbara College of TAFE | 15,351 | 546 | 12,760 |
| South West Regional College of TAFE | 7,382 | 190 | 1,616 |
| Swan College of TAFE | 36,930 | 329 | 2,446 |
| West Coast College of TAFE | 11,637 | 427 | 2,001 |
| Western Australia Police Service | 9,187 | 422 | 30,626 |
| Sub total | 160,428 | | |

| Laboratories | GJ | MJ/m²/annum | MJ/person/annum |
|--|---------------|-------------------------------|------------------------|
| Department of Agriculture | 44,748 | 543 | 32,036 |
| Department of Conservation and Land Management | 2,758 | 421 | 229,808 |
| Department of Fisheries | 2,198 | 809 | |
| Department of Industry and Resources | 6,280 | 1,289 | 69,006 |
| Main Roads Western Australia | 1,947 | 3,187 | |
| Sub total | 57,931 | | |

| Hospitals | GJ | MJ/m²/annum | MJ/person/annum | MJ/OBD |
|---|------------------|-------------------------------|------------------------|---------------|
| Department of Health | 1,185,955 | 964 | 51,868 | 896 |
| Western Australian Alcohol and Drug Authority | 1,156 | 640 | 18,642 | 358 |
| Sub total | 1,187,111 | | | |

| Other Healthcare Buildings | GJ | MJ/m²/annum | MJ/person/annum |
|---|---------------|-------------------------------|------------------------|
| Department of Health | 19,583 | 311 | 22,003 |
| Disability Services Commission | 6,832 | 1,015 | |
| Western Australian Alcohol and Drug Authority | 314 | 370 | |
| Sub total | 26,729 | | |

| | Energy Consumption | Performance Indicator | |
|--|-------------------------------|------------------------------------|--|
| Public Buildings | GJ | MJ/m²/ annum | |
| Department of Conservation and Land Management | 614 | 214 | |
| Department of Culture and the Arts | 97,407 | 1,158 | |
| Department of Housing and Works | 1,555 | 87 | |
| Parliamentary Services Department | 5,882 | 489 | |
| Sub total | 105,458 | | |

| Entertainment and Sporting Complexes | GJ | MJ/m²/ annum | MJ/person/ annum |
|---|---------------|------------------------------------|-----------------------------|
| Department of Sport and Recreation | 3,234 | | 174,162 |
| Western Australian Sports Centre Trust | 58,509 | 1,707 | |
| Sub total | 61,743 | | |

| Parks and Wildlife | GJ | | |
|--|---------------|--|--|
| Botanic Gardens and Parks Authority | 6,265 | | |
| Department of Conservation and Land Management | 8,957 | | |
| Zoological Parks Authority | 9,054 | | |
| Sub total | 24,276 | | |

| Residential Buildings | GJ | MJ/m²/ annum | MJ/person/ annum |
|---|---------------|------------------------------------|-----------------------------|
| Department of Conservation and Land Management | 58 | 188 | 8,186 |
| Disability Services Commission | 9,065 | 483 | 17,401 |
| Office of the Country High School Hostels Authority | 8,660 | 464 | 11,203 |
| Sub total | 17,783 | | |

| Other Buildings | GJ | MJ/m²/ annum | MJ/person/ annum |
|--|--------------|------------------------------------|-----------------------------|
| Department of Conservation and Land Management | 1,163 | 338 | 22,011 |
| Department of Culture and the Arts | 396 | 24 | 39,553 |
| Department of Fisheries | 312 | | |
| Lotterywest | 926 | 1 222 | 89,061 |
| Main Roads Western Australia | 3,108 | | |
| Western Australian Institute of Sport | 1,204 | | |
| Sub total | 7,109 | | |

| | Energy Consumption | Performance Indicator |
|--|-------------------------------|------------------------------|
| Other Uses | GJ | |
| Department for Community Development | 6,576 | |
| Department for Planning and Infrastructure | 8,444 | |
| Department of Agriculture | 99 | |
| Department of Conservation and Land Management | 904 | |
| Department of Environment | 1,662 | |
| Department of Industry and Resources | 1,477 | |
| Department of Land Information | 24 | |
| Disability Services Commission | 77 | |
| Forest Products Commission | 2,988 | |
| Metropolitan Cemeteries Board | 7,973 | |
| Parliamentary Services Department | 35 | |
| Sub total | 30,259 | |
| | | |
| Grand Total | 2,683,898 | |

Funding Allocations

Two streams of funding are available through the Sustainable Energy Development Office to assist agencies to achieve the energy reduction target. The objective of the Facilitation Grants program is to assist agencies to identify energy saving measures that enable them to meet their obligations under the Energy Smart Government policy. Facilitation Grants are non-repayable.

The Capital Advance program provides capital funding to agencies to invest in energy saving technologies. These funds are an interest free advance to the agency from the Treasurer and are repayable. Repayments are based on the estimated annual energy savings that are expected to be achieved by the project and are therefore budget neutral to the agencies.

Details of projects for which Facilitation Grants and Capital Advances were approved in 2003/04 are provided in Tables Nine and Ten.

Table Nine: Projects for which Facilitation Grants were approved in 2003/04

| Agency | Project Description | Funding Allocated \$ |
|--|--|----------------------|
| Central West College of TAFE | Geraldton Campus energy audit and facilitation of recommendations | 25,000 |
| Department of Conservation and Land Management | Bunbury Office energy audit | 4,000 |
| Department of Consumer and Employment Protection | Energy audits of Forrest Centre and Selby Street offices | 7,500 |
| Department of Culture and the Arts | Energy audits of Museum sites, Art Gallery and offices | 30,000 |
| Department of Culture and the Arts | Consultancy advice for Kew Street Museum | 8,300 |
| Department of Education and Training | Energy consultant | 50,000 |
| Department of Health | Energy reporting consultant | 9,929 |
| Department of Health | Energy management advice for Country Health Regions | 69,655 |
| Department of Health | Bentley Hospital Energy Performance Contract feasibility study | 20,000 |
| Department of Health | Energy audits of five Wheatbelt Hospitals | 7,646 |
| Department of Housing and Works | Hillarys Marine Research and Education Facility consultant advice | 4,500 |
| Department of Housing and Works | 151 and 189 Royal Street lighting demonstration projects | 21,448 |
| Department of Justice | Energy audits of various sites | 39,050 |
| Department of the Premier and Cabinet | Lighting audits of Governor Stirling Tower and State Law Publisher tenancies | 1,750 |
| Disability Services Commission | Energy audits of two group homes | 1,175 |
| Office of Energy | Tenancy energy audit | 1,500 |

| Agency | Project Description | Funding Allocated \$ |
|--|--|-----------------------------|
| Office of Energy | Energy audits of Kimberley schools | 4,000 |
| Parliamentary Services Department | Energy audits of Parliament House and offices | 5,500 |
| South West Regional College of TAFE | Building Management System consultant for Bunbury Campus | 3,850 |
| Swan TAFE | Carlisle campus energy audit | 3,500 |
| Tourism Western Australia | Energy audit of 2 Mill Street | 1,800 |
| Western Australia Police Service | Energy audits of eight sites | 14,500 |
| Western Australia Police Service | Police City Post sub-metering | 3,262 |
| Western Australian Sports Centre Trust | Arena Joondalup energy audit | 4,500 |
| Total Facilitation Grant Allocation for 2003/04 | | 342,365 |

Table Ten: Projects for which Capital Advances were approved in 2003/04

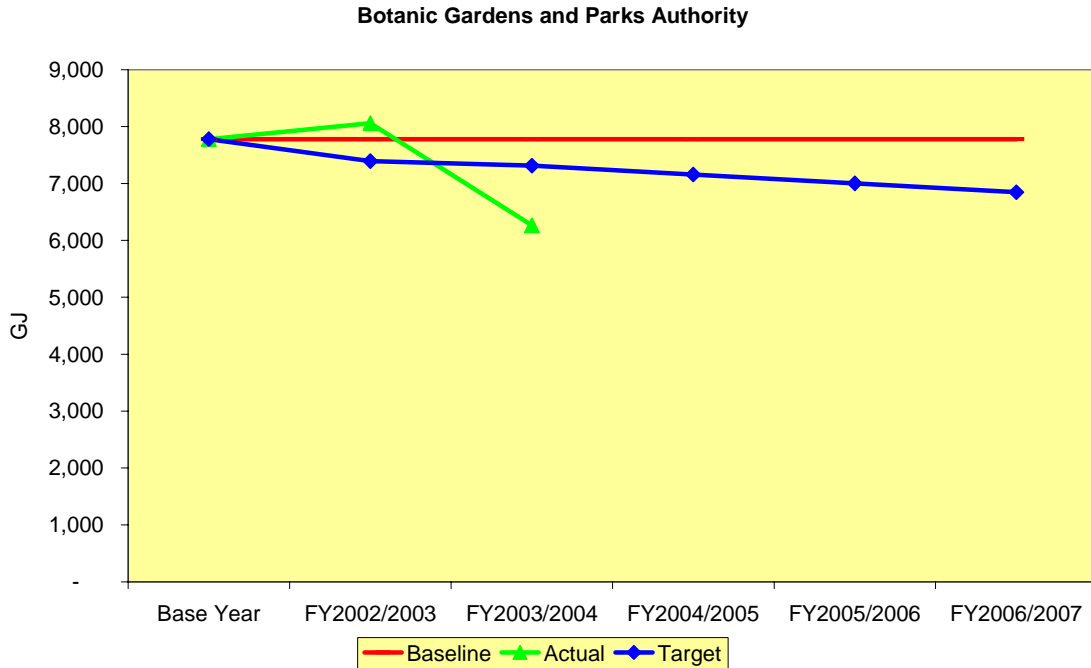
| Agency | Description | Funding Allocated \$ |
|---|--|-----------------------------|
| Central TAFE | Lighting upgrade - 25 Aberdeen Street | 92,660 |
| Department for Community Development | Lighting upgrade -189 Royal Street | 124,235 |
| Department for Planning and Infrastructure | Lighting upgrade - Albert Facey House | 130,000 |
| Department of Health | Lighting upgrade - 189 Royal Street | 273,584 |
| Department of Health | Lighting upgrade - Royal Perth Hospital | 11,205 |
| Main Roads Western Australia | Mechanical upgrades - Don Aitken Centre | 317,800 |
| Office of Energy | Lighting upgrade - Governor Stirling Tower | 13,990 |
| South West Regional College of TAFE | Energy Management System, lighting upgrade and other projects - Bunbury Campus | 161,915 |
| Western Australian Sports Centre Trust | Pool blanket - Arena Joondalup | 39,682 |
| Total Capital Advance Allocation for 2003/04 | | 1,165,071 |

Agency Summaries

The following pages summarise the 2003/04 achievements of each participating agency, with comments based on information provided by the agencies.

Agencies are listed in alphabetical order.

Botanic Gardens and Parks Authority

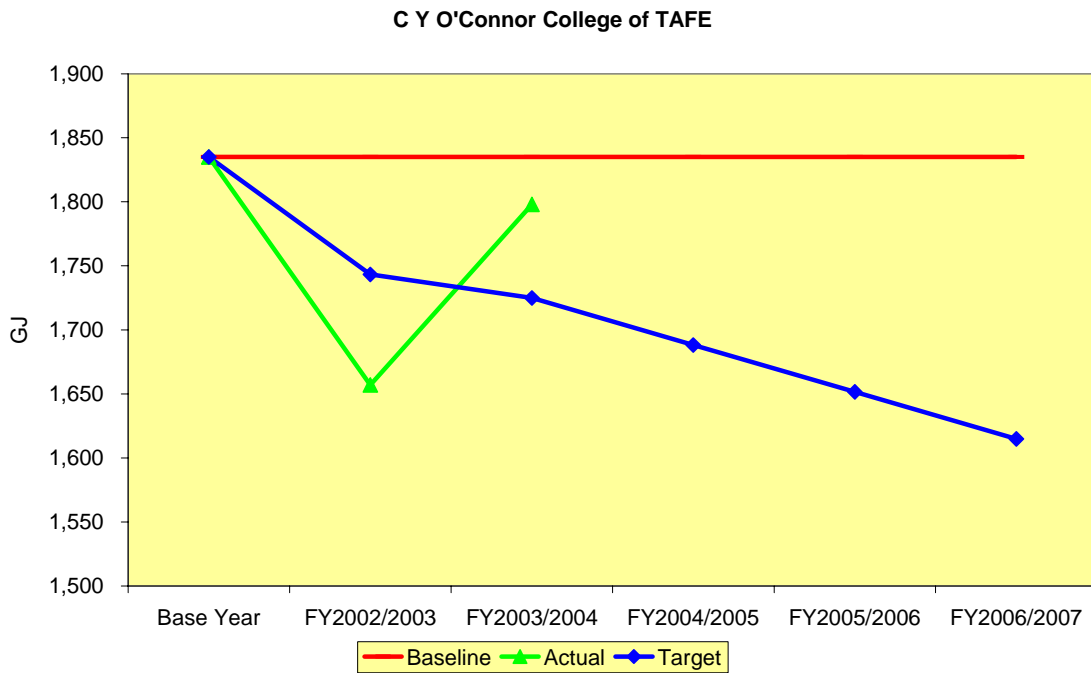


During 2003/04, energy and cost saving initiatives were largely focused on further refinements to the operation of the irrigation systems and to the establishment of an energy conservation policy for the Authority. Some improvements to the efficiency of office lighting were also made.

Energy costs have decreased because changes to the operation of the irrigation system have led to a greater percentage of electricity being used at off-peak rates. Total energy used has decreased because the number of wood barbeques has been reduced from 19 to 5 as a result of the upgrades to the picnic areas. The energy contained in the firewood used was substantially more than the electricity consumed in the replacement electric barbeques.

There have been many additional services and capital works programs implemented since the baseline year. These include major improvements associated with the redevelopment of the Western Power Parkland and Pines picnic areas, establishment of the Bali Memorial, an increased program of events, and substantially increased public lighting.

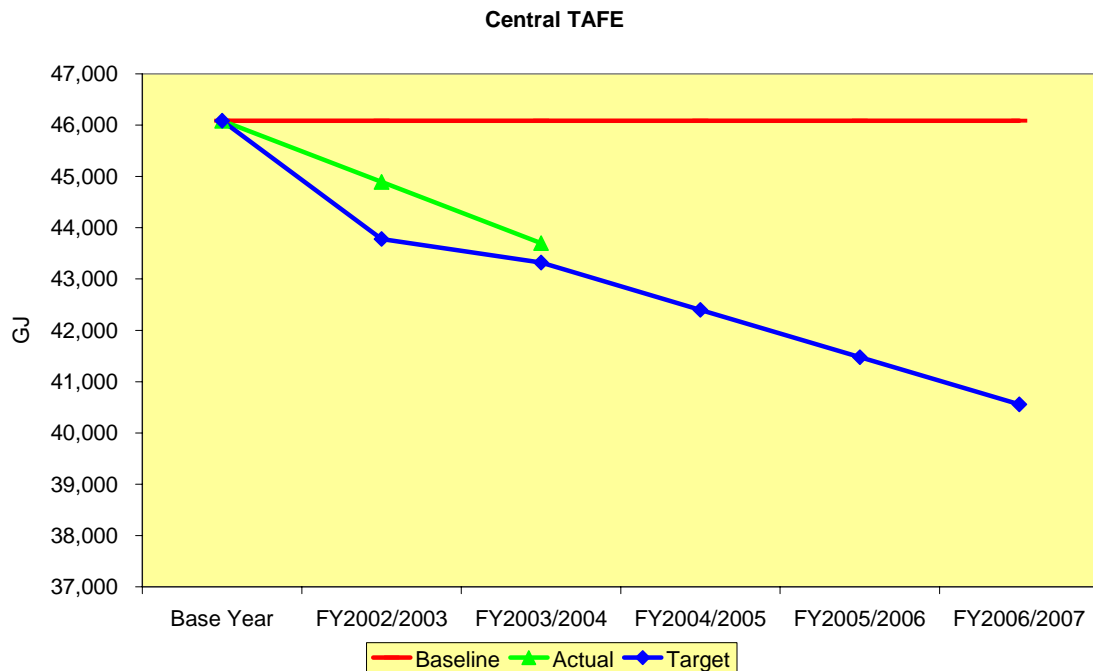
C Y O'Connor College of TAFE



Throughout 2003/04, the College fostered and implemented a culture of energy efficiency. Specifically targeted was the use of lighting, heating and air conditioning, which accounts for a substantial component of energy consumption. The College has implemented programs for replacing inefficient heaters and the promotion of energy efficiency in relation to their use.

In 2003/04, the College experienced an increase in equivalent full time students resulting in an increase in the use of resources and facilities and a consequent increase in energy consumption.

Central TAFE



Energy efficiency and energy reduction have been a major focus of Central TAFE since the mid 1990s. The College has a very active energy committee that meets monthly and now has a broader focus on operational sustainability issues.

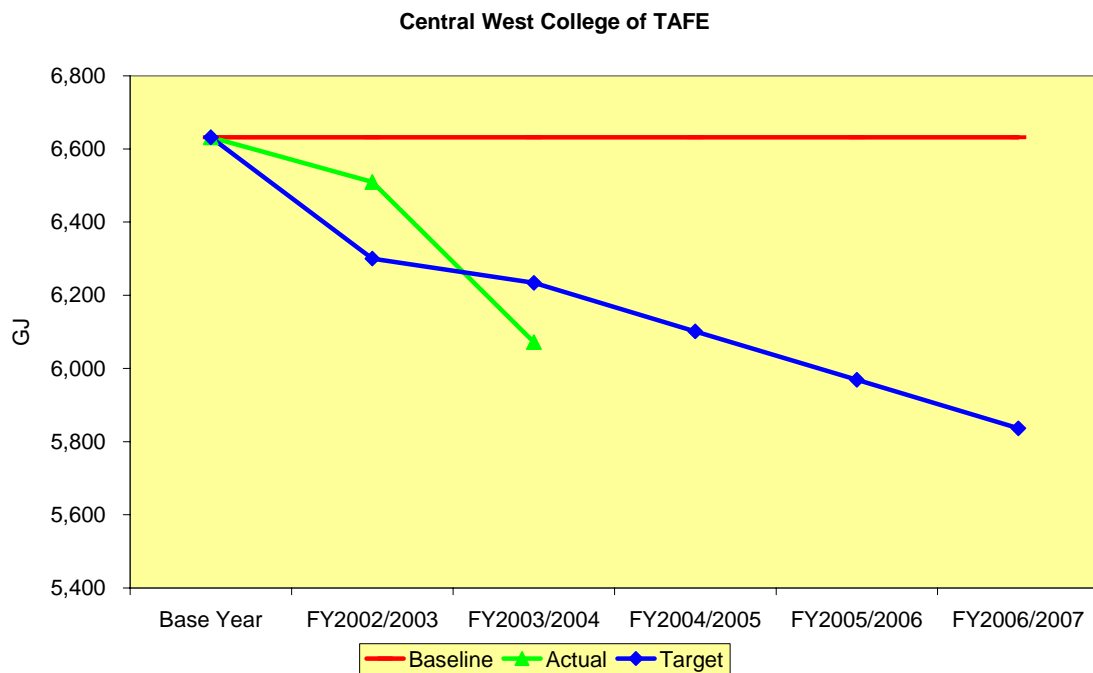
Energy saving initiatives that have been put into place include:

- Automatic shut down of academic computers at a specified time.
- Gradual replacement of CRT monitors with LCD monitors across the College's 2,600 computers.
- Optimisation of the building management system at the Perth campus.
- A successful trial of voltage reduction units on fluorescent lights, with retrofitting of all campuses now planned.
- Tinting of selected windows at e-Central to reduce heat load on the building.
- Installation of a 'Clipsal C Bus' energy management system in a wing of the Leederville campus renovated as office space.
- Renovation of a cooling tower at the 25 Aberdeen Street campus.
- Replacement of an old inefficient boiler with new boiler at the 25 Aberdeen Street campus.
- A light re-tubing and de-tubing program being carried out progressively across all sites using triphosphor tubes.
- Development and endorsement of an energy conservation policy for the College.
- A mandatory energy awareness program as part of divisional senior staff meetings.
- Making energy targets and current performance available to all managers through the College's Management Information System, to make managers more accountable for energy usage and devolve responsibility for energy budgets.
- Appointment of a full time environmental coordinator to coordinate the College's sustainability projects and processes.

Other major associated initiatives include:

- Energy audits, currently being conducted by College environmental science students at the larger Central TAFE campuses, focusing on staff and student behaviours toward energy conservation. The results from this audit will be used to develop energy awareness programs and energy conservation projects.
- An energy performance contracting (EPC) feasibility study is underway to determine the feasibility of a combined facilities maintenance / works and energy management contract for the College. Any EPC implemented would be expected to deliver further energy savings.

Central West College of TAFE

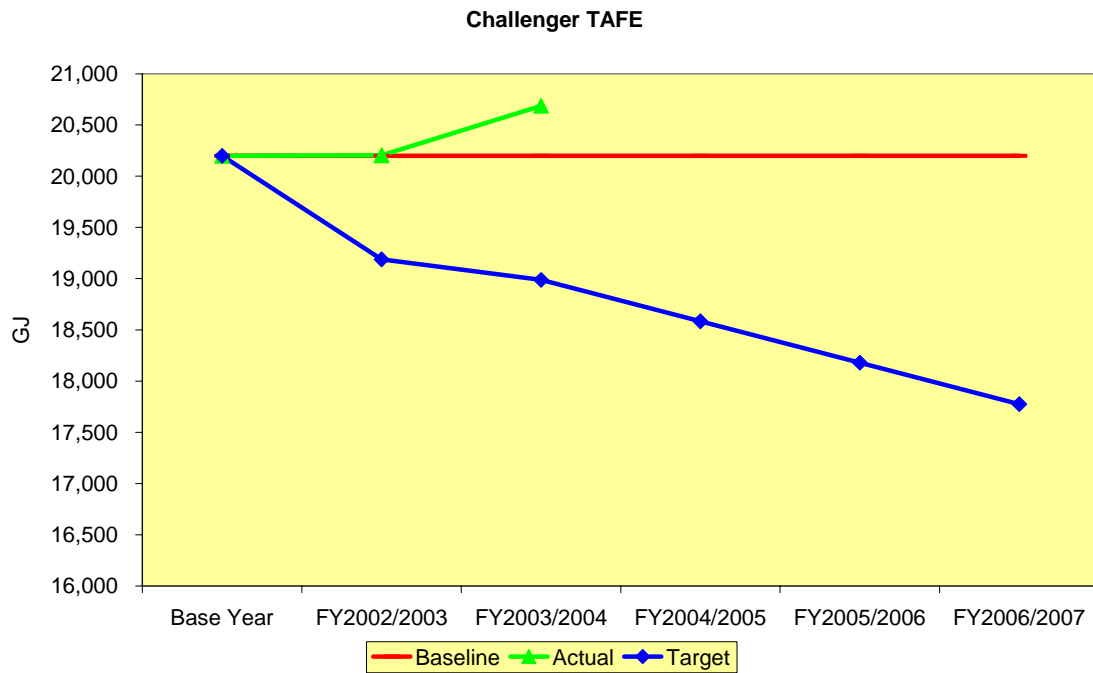


Central West TAFE offers a number of trade-based programs for apprentices. These courses can have high energy requirements as they involve activities such as welding, fitting and machining, hospitality, automotive, carpentry and joinery.

Since the implementation of the Energy Smart Government program, the College has undertaken a number of initiatives to reduce energy consumption. During 2003/04, the following initiatives were undertaken:

- Establishment of an energy management committee.
- Establishment of a staff awareness program.
- Further progress on completing items outlined in the energy reduction action plan.
- De-lamping of stores areas and areas that are infrequently used and replacement of old tubes with more energy efficient fluorescent tubes.
- A review of lighting and security arrangements resulting in a reduction in operating time of all external building lights and the implementation of more sophisticated light switching arrangements.
- A program that replaced 100 of the College's computers with more efficient models.
- Development of a checklist that is used by evening lock-up staff to record any instances where significant energy using equipment items are not turned off in the evening. The College will look at further expanding this program in 2004/05.

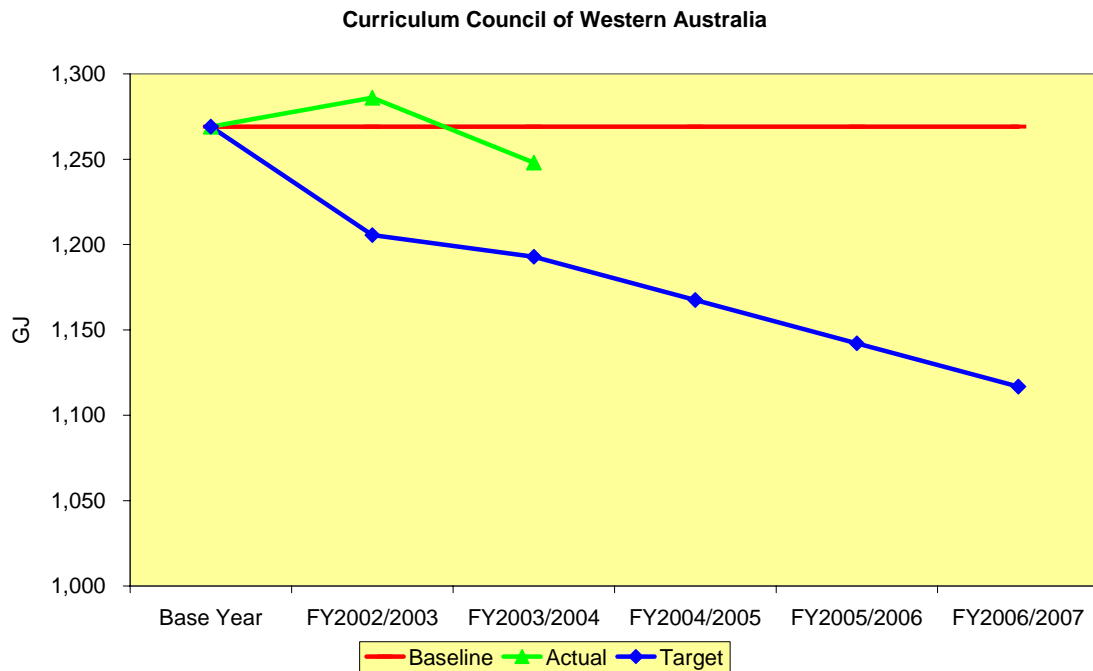
Challenger TAFE



Challenger TAFE is a dynamic organisation, constantly looking for business growth opportunities and enhancements to facilities for students and staff. Strategies include a facilities expansion program that in 2004/05 will see the College take up occupancy of a new corporate and teaching building at the Fremantle Port, plus new industrial training facilities in both Henderson and Kwinana.

The College recognises that more can be done to reduce energy consumption at College premises. Following recent energy audits conducted at Beaconsfield and Murdoch, campus managers will be implementing the various recommendations with the objective of driving down both absolute and relative energy consumptions.

Curriculum Council of Western Australia

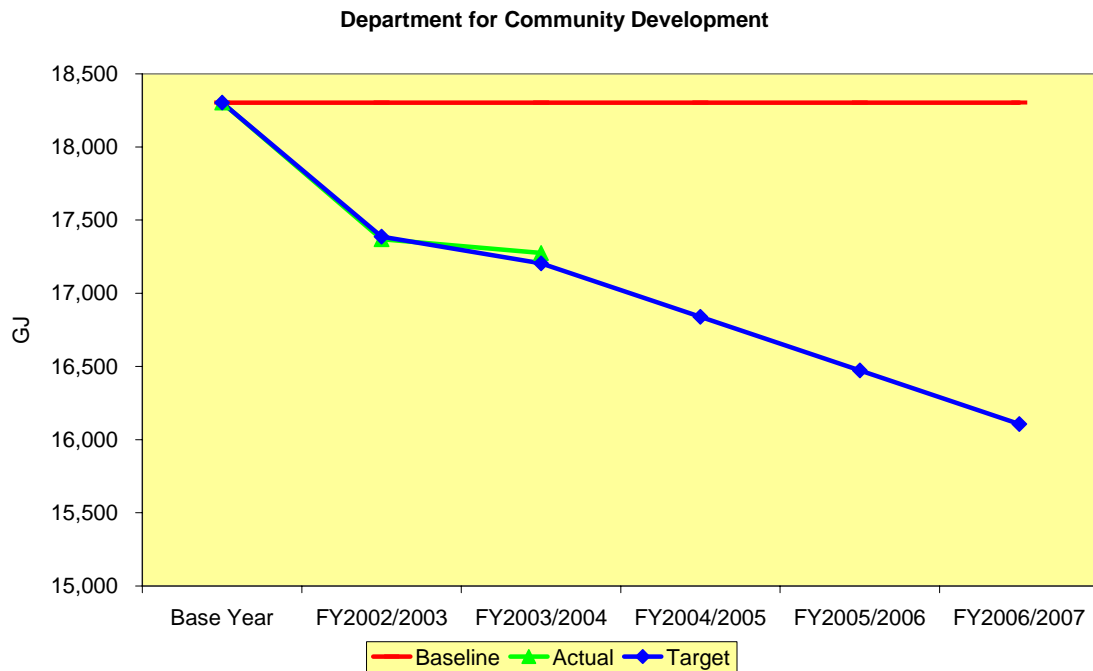


The Curriculum Council is undergoing a growth phase due to the implementation of the recommendations from the 'Our Youth, Our Future' report. This has resulted in increases in activity and staffing levels. However, the Curriculum Council achieved a reduction of over 20% in MJ/person per annum relative to the baseline.

During 2003/04, the Curriculum Council conducted an energy audit of its building which recommended a number of initiatives. The following actions were or will be undertaken as a result of the recommendations of the audit report:

- Switches to operate lighting in infrequently occupied areas of the building.
- Inverter drive air conditioning units in the computer room.
- Time clock control of boiling water units will be implemented in 2004/05.

Department for Community Development

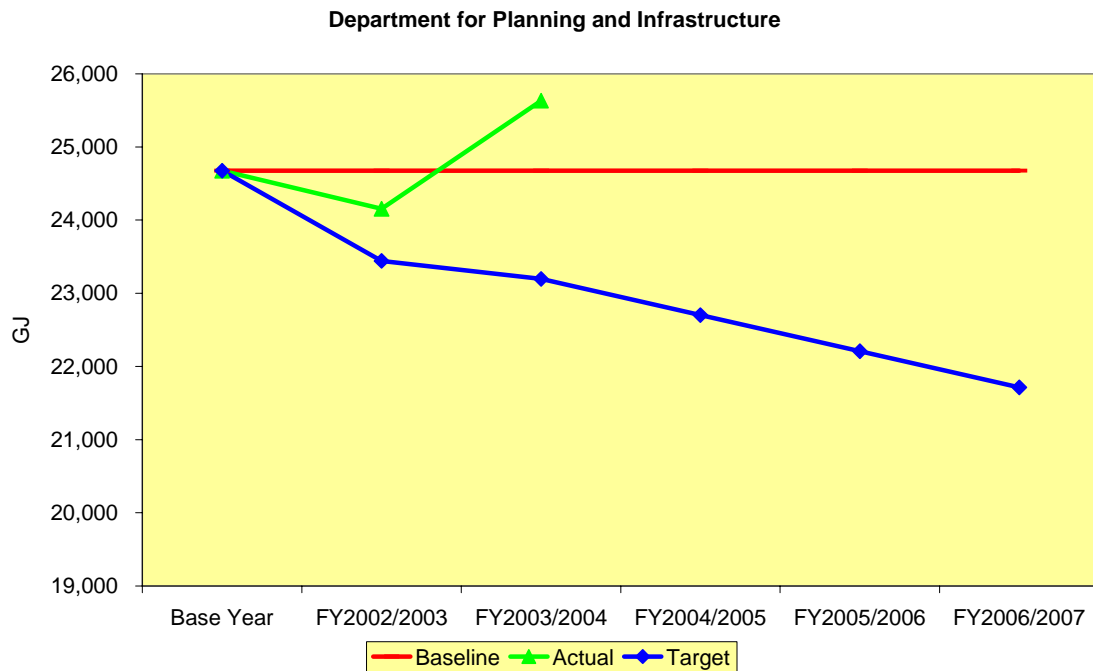


A significant increase in staffing levels due to the Gordon Inquiry and the full year operation of previously closed facilities restricted the ability of the Department for Community Development to achieve the energy reduction target for 2003/04. In addition, a community based child care centre was burnt down and the facility was accommodated, for the full year, within a departmental building. If this situation had not arisen the Department would have met its 6% target.

During the year the Department instigated a number of initiatives to continue the energy reduction momentum. These included:

- Providing all work units with further brochures on how to save energy.
- Providing sites with an analysis of their consumption in 2002/03 and a comparison against the base year consumption. This process highlighted those areas that did not achieve the 5% reduction and feedback was sought on what measures they were putting in place to reduce consumption.
- Installation of sub metering and lighting upgrade at Central Office that is expected to achieve a 60% reduction in energy consumption for lighting.
- The development of an automated monitoring system for electricity consumption at individual locations on an ongoing basis. 2004/05 will be the first time that the Department is able to monitor consumption throughout the year and this will assist in instigating timely remedial action.

Department for Planning and Infrastructure



In 2003/04, the Department for Planning and Infrastructure (DPI) applied significant resources to ascertain and verify site details, energy consumption and cost data over the past 3 years. As part of this improved data collection, additional information on energy recoups from boat harbour lessees, as well as an improved allocation of FTEs and area against sites were identified. DPI's baseline was amended to reflect the corrected data.

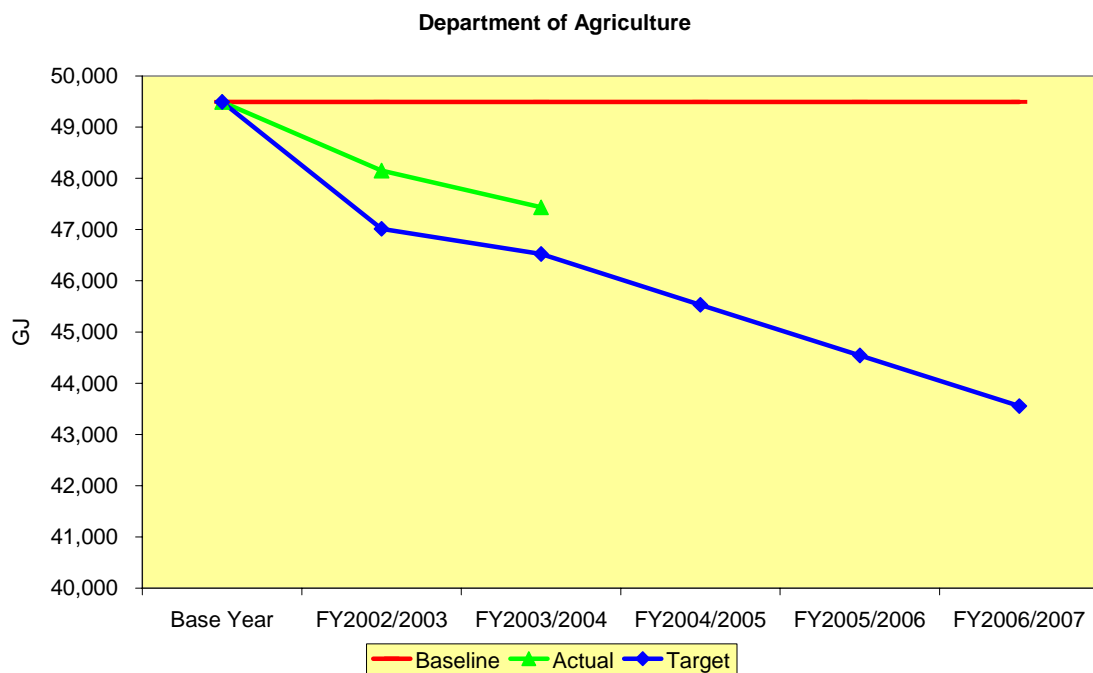
DPI implemented a number of initiatives in 2003/04 to ensure long term energy reduction and efficiency:

- An energy smart committee was established to co-ordinate the direction of the energy smart program within DPI. The committee consists of key stakeholders representing all divisions of DPI.
- Creation of an energy smart program project outline detailing the direction of the implementation program within DPI.
- Appointment of a dedicated energy smart project officer to spearhead the program to ensure effective changes is made.
- Development and implementation of an energy smart policy that was formally approved by the Corporate Executive in December 2003.
- Structured walk-through energy audits were undertaken by an energy management consultant at several sites to ascertain opportunities for energy reduction.
- An employee awareness program that included the creation of an energy smart web page, publishing of regular articles in DPI's internal paper and electronic distribution of energy smart information.
- The contracting of an energy consultant to develop an energy management reporting tool.

In addition to the initiatives listed above, a lighting upgrade is being implemented at Albert Facey House that is expected to result in an energy saving of 3.8% on DPI's total consumption.

DPI is currently reviewing its short term commercial leases and the impact these have on DPI's ability to achieve energy savings. With the support of the Department of Housing and Works, DPI is developing some strategic accommodation initiatives that will provide for longer lease terms being negotiated and possible reduction in space requirements.

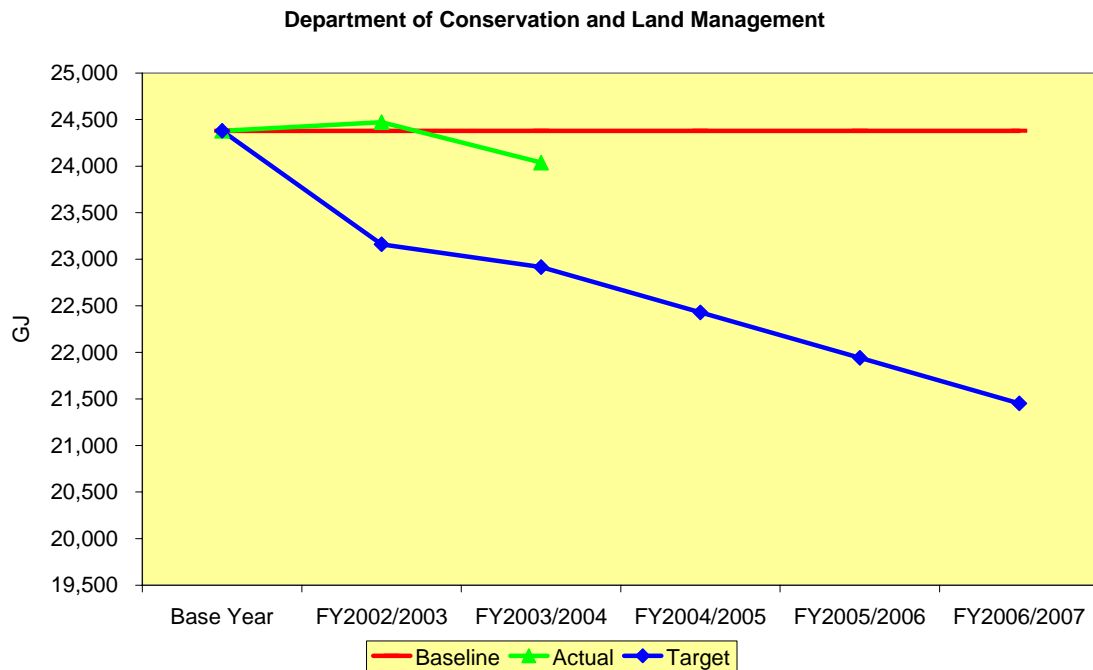
Department of Agriculture



The Department of Agriculture's 2003/04 reduction of 4.2% was primarily due to staff behaviour changes. Although the 2003/04 target of 6% was not achieved, it is anticipated that the agency will achieve the 2004/05 target of 8%, based on the following key initiatives:

- The re-tubing of fluorescent light fittings and installation of voltage reduction units at 14 sites across the state.
- Glasshouse shading facilities will be installed at two regional locations.
- Electric drying ovens will be converted to gas at six regional locations.
- Eucla wind/solar alternative energy installation was completed in June 2004. A substantial energy saving of around 90% less than the current energy usage at this site is expected.
- In Kununurra, an alternative solar energy installation is expected to be completed in October/November 2004, delivering a substantial energy saving of around 80%.
- In June 2004, the South Perth site had variable speed fans installed to major air conditioning plant and significant energy savings are expected.
- At three regional offices, old air conditioning units were replaced with more efficient split inverter systems.

Department of Conservation and Land Management

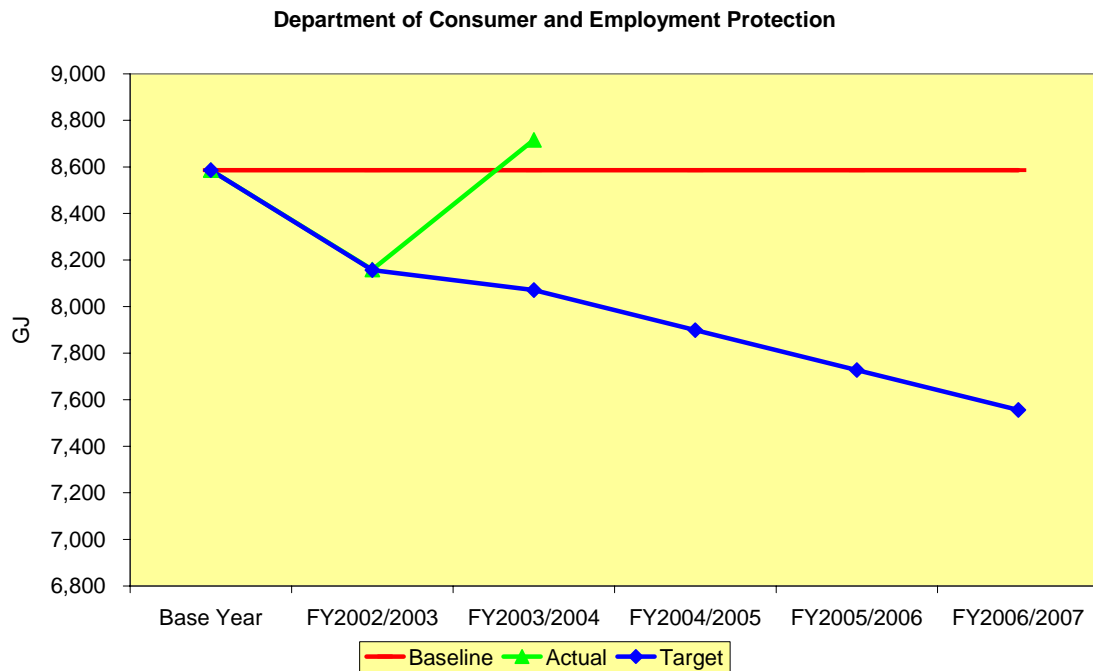


In November 2003, the Department of Conservation and Land Management (CALM) Corporate Executive recognised the need for further action to comply with the Energy Smart Government policy and appointed a committee comprising three members of Corporate Executive to address this issue. Among other initiatives, this committee established an energy monitoring system to complement the EDGAR system and facilitate progress reports on energy consumption from the large number of CALM sites throughout Western Australia. The committee is also in the process of finalising an energy management plan.

Examples of practical initiatives undertaken to date by CALM to address the Energy Smart Government policy are:

- Completion of an energy audit at the Kensington complex (CALM's largest site).
- Implementation of the main recommendations from that report, including installation of voltage reduction units on lighting systems.
- Rebalancing the air conditioning system at the Kensington complex to provide for better management of the system and optimise its efficiency.
- Allocation of an officer to the role of 'Energy Conservation Officer' in each of the Department's regions to drive the energy conservation initiative at a local level.
- Establishment of renewable energy systems at the Perup Ecology Centre, Icy Creek Environmental Education Camp and Lorna Glen Station.

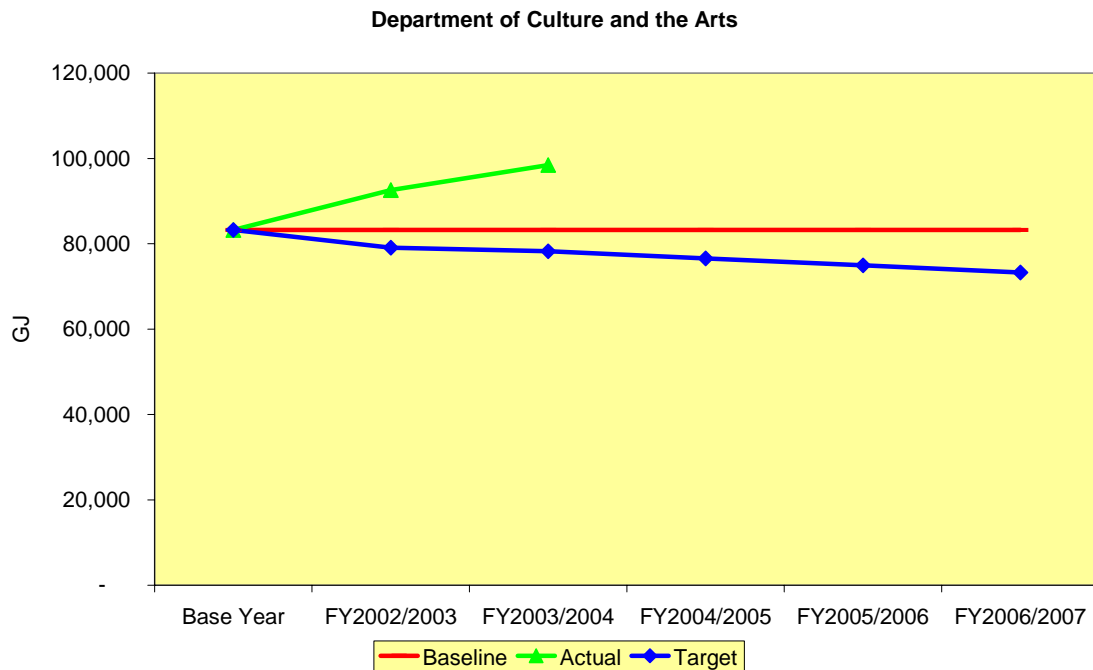
Department of Consumer and Employment Protection



The Department of Consumer and Employment Protection (DOCEP) took a number of steps in 2003/04 to reduce its energy consumption, including:

- Implementation of a system to monitor DOCEP's energy consumption at all major locations on a monthly basis.
- Commencement of a "turn the lights off" email campaign and regular reminders to cleaning staff.
- Targeting key staff members to encourage energy reduction, with the additional aim of appointing formal DOCEP Energy Smart representatives at each location in 2004/05.
- Replacement of display lighting at the Forrest Centre and Selby Street offices.
- Changes to the light switching on the ground floor of the Forrest Centre.
- Ensuring energy consumption is taken into account in agency procurement and contract documentation.
- Obtaining agreement from the owner of Southport Street (DOCEP's fourth largest location) to replace inefficient air conditioning units with more energy efficient units (due to be completed in first half of 2004/05).

Department of Culture and the Arts



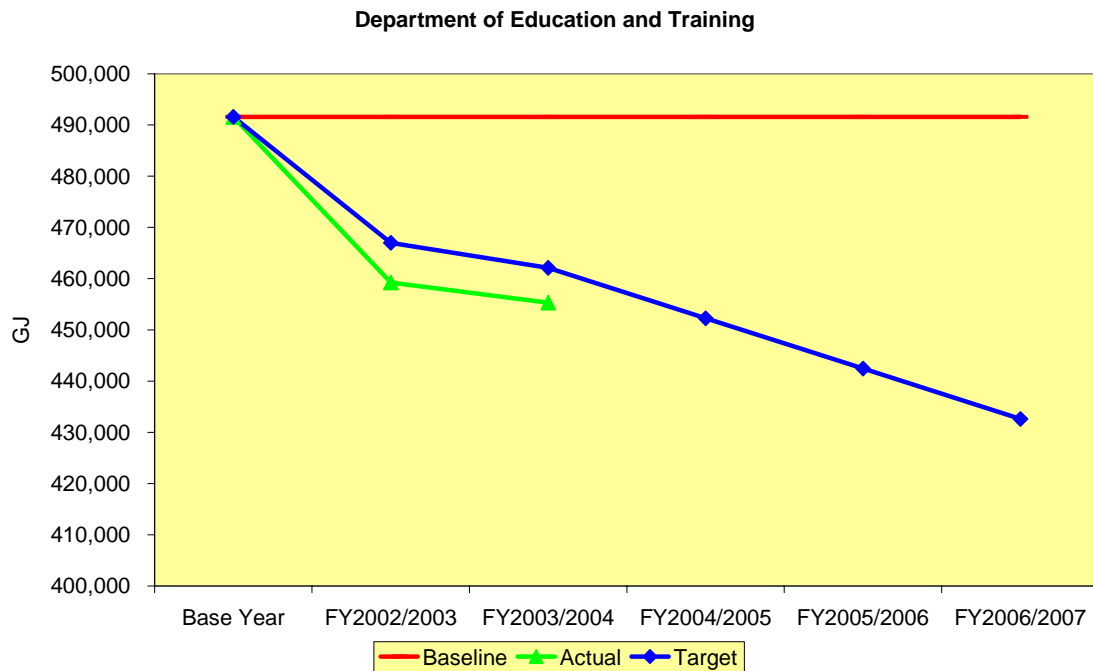
The focus on energy efficiency at the Department of Culture and the Arts (DCA) started well before the commencement of the Energy Smart Government program with the State Library of Western Australia already having achieved savings in the order of 20%. Energy audits of the Western Australian Museum and the Art Gallery of Western Australia facilities will be undertaken in the near future and an action plan will be developed from the recommendations to generate real savings.

The DCA has an Energy Executive and an energy management team in place and has endorsed an energy management policy.

The new Maritime Museum at Victoria Quay was commissioned during 2002/03 and is consequently not included in the DCA's baseline. 2003/04 was the first full year of operation for this facility and it accounted for more than 20% of all energy consumed by the DCA. If this facility is excluded, the balance of the DCA portfolio achieved a 7.3% reduction from the baseline.

The DCA also acquired an office and warehouse facility in Welshpool that contributed very marginally to the increase in energy consumption in 2003/04. Substantial energy impacts of this acquisition will not show up until 2004/05, with further increases expected in 2005/06, the first full year on-site. Both of these new sites require stringent environmental controls to preserve the collections they house.

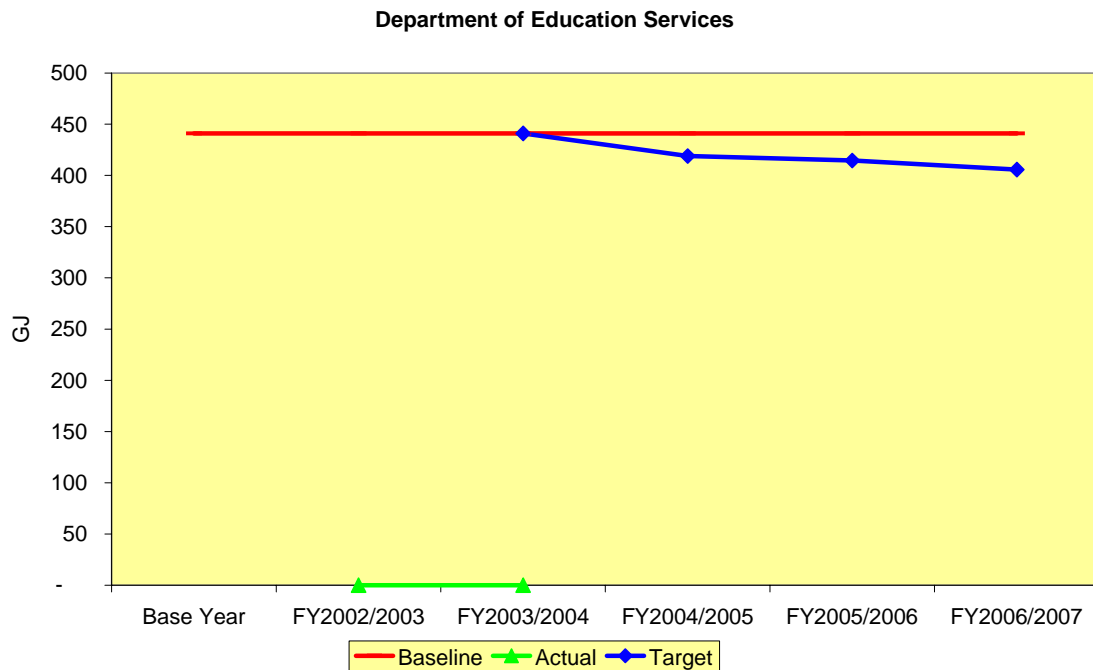
Department of Education and Training



The Department of Education and Training has undertaken a number of initiatives in its schools and office facilities, including:

- Publication and distribution to all schools and district offices of the Conductor Newsletter, which provides energy conservation information and strategies for incorporation into environmental learning programs and energy management plans.
- Collaboration with the World of Energy to update and re-publish a manual for schools on saving energy and reducing greenhouse gas emissions.
- Funding of energy saving programs at schools through the Department of Education and Training Utilities Management Retrofit Pool (\$100,000). This funding will be doubled to \$200,000 in 2004/05.
- Funding of energy audits at metropolitan schools and implementation of those recommendations using retrofit funding. The audit recommendations were used to develop an information package distributed via the Conductor Newsletter.
- Implementation of the Sustainable Schools Initiative, part of which requires schools to develop environmental management plans that seek to encourage a decrease in energy consumption and a corresponding reduction in greenhouse gas emissions. This program aims to provide a complete package to schools that will give principals and staff the skills, strategies and support required to combine sustainable operating practices with learning opportunities for students.
- An energy efficiency lighting upgrade, costing around \$450,000, which will significantly reduce energy consumption in Central Office.
- The planned introduction of the Energywise Workers program, an educational program to encourage staff to be conscious of the need to switch off electrical appliances and lights when they are not needed.
- A strategic sub-metering program whereby electrical sub-meters were installed throughout Central Office to monitor energy consumption in different areas of the building. Through this program the Department can monitor electricity consumption and take the appropriate remedial action.

Department of Education Services

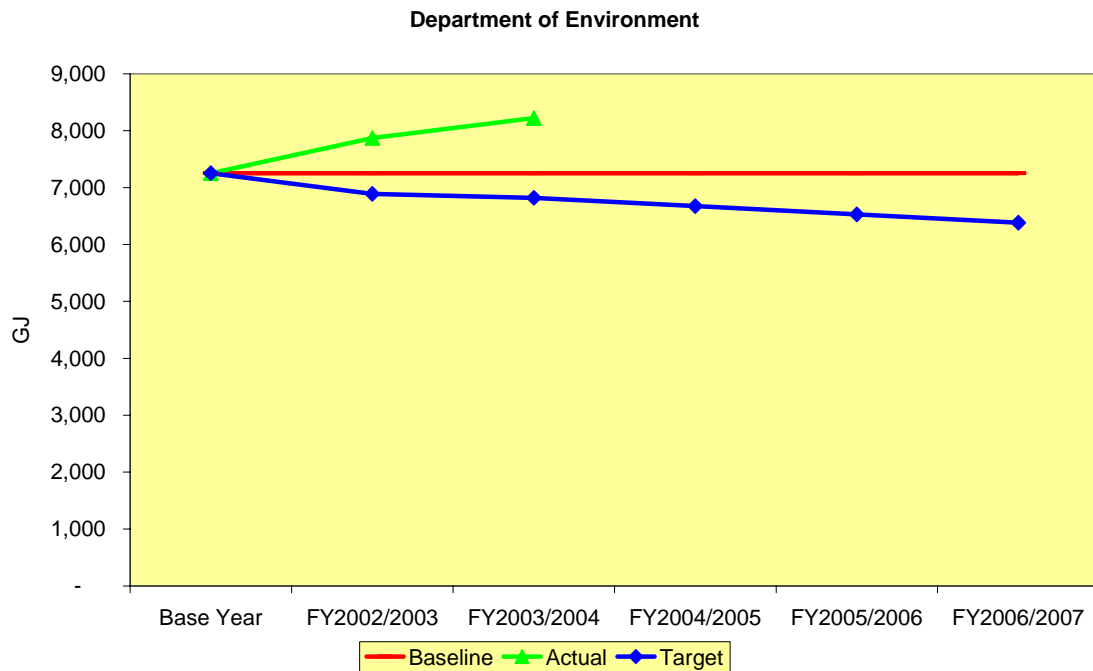


The Department of Education Services was a tenant in a multi-tenanted building with a baseline established under the Office – Tenant Light and Power end use category. The Department achieved a 12% saving in energy consumption in 2002/03.

In September 2003, the Department relocated to a new building where it became responsible for the total energy consumption of the building (i.e. energy used by the central services and the tenant light and power). As a result, the Department's energy use is now required to be reported under the Office – Combined Services end use category. This led to the negotiation of a new baseline for the Department.

A revised baseline was approved by the Sustainable Energy Development Office and the energy reduction targets of the agency were adjusted in recognition of the agency's altered situation. The Department will be seeking to achieve a 5% reduction in energy consumption in 2004/05, 6% in 2005/06 and 8% in 2006/07.

Department of Environment



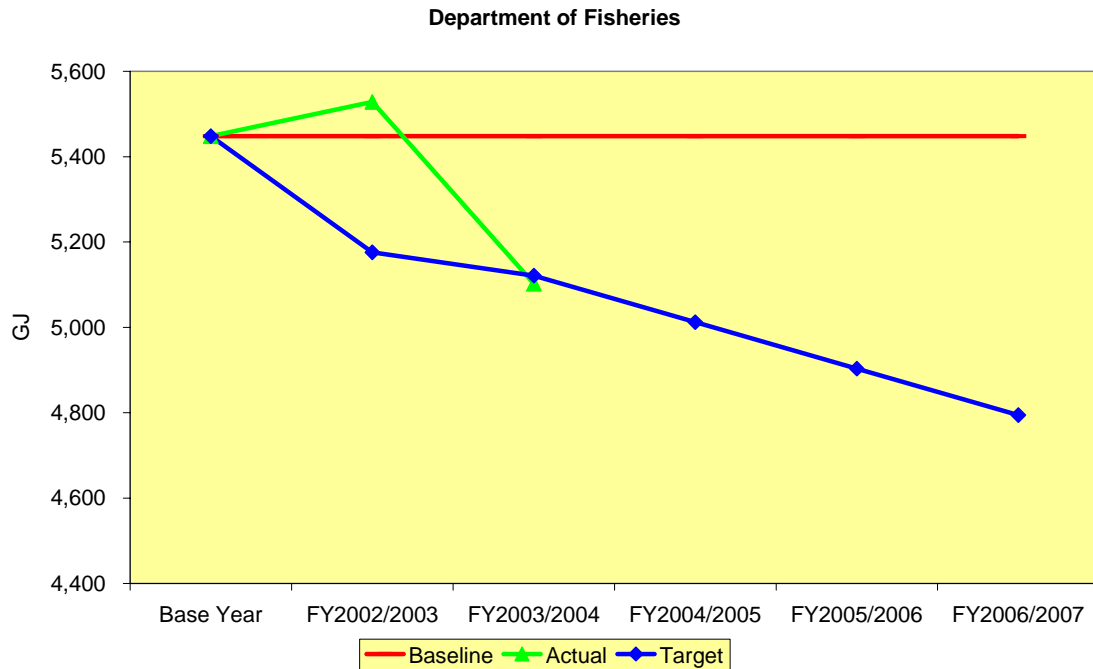
The Department of Environment (DoE) has undertaken the following key steps to achieve good energy management:

- The DoE's Corporate Executive committed to the agency's eco-office program in July 2003, which incorporates energy smart management and energy reduction as a target area. A full-time staff member was appointed during 2003/04 to implement the Eco-office program.
- The eco-office committee, chaired by the Energy Executive, is currently working towards preparing an action plan to save energy. Additionally, the department participates on government procurement committees aimed at improving agency sustainability targets.
- The eco-office committee is currently working on implementing an internal reporting program to monitor energy use throughout the year.
- The committee has raised staff awareness through regular electronic updates and use of SEDO posters and stickers. The committee is currently working on a more holistic approach to raise awareness of staff using behaviour change theory as a basis.
- The DoE has undertaken an energy audit of one of the two current head office buildings. The eco-office committee is currently addressing the recommendations. DoE staff will be co-locating to a new head office premise in 2005. The DoE is currently liaising with the design and fit-out consultant team to achieve energy efficiencies in the new accommodation. Energy efficiencies and eco-office principles are a strong focus of the DoE's accommodation committee and are written into the DoE's CBD accommodation policy.

There are two key factors that prevented the DoE from achieving the 6% energy reduction target for 2003/04. The most significant is the increase in staff members by 301, or 52%, since the baseline year. Relative to the baseline, the DoE achieved a reduction in energy consumption per person in its office accommodation of almost 29% in 2003/04.

The other factor is the increase in pumping from groundwater bores, due to recent low rainfall levels. DoE is required to maintain water levels in a number of lakes and wetlands, for the health of the ecosystems. Whilst some of DoE's monitoring stations are now solar-powered, energy requirements for the bores are too large to be effectively operated by solar power.

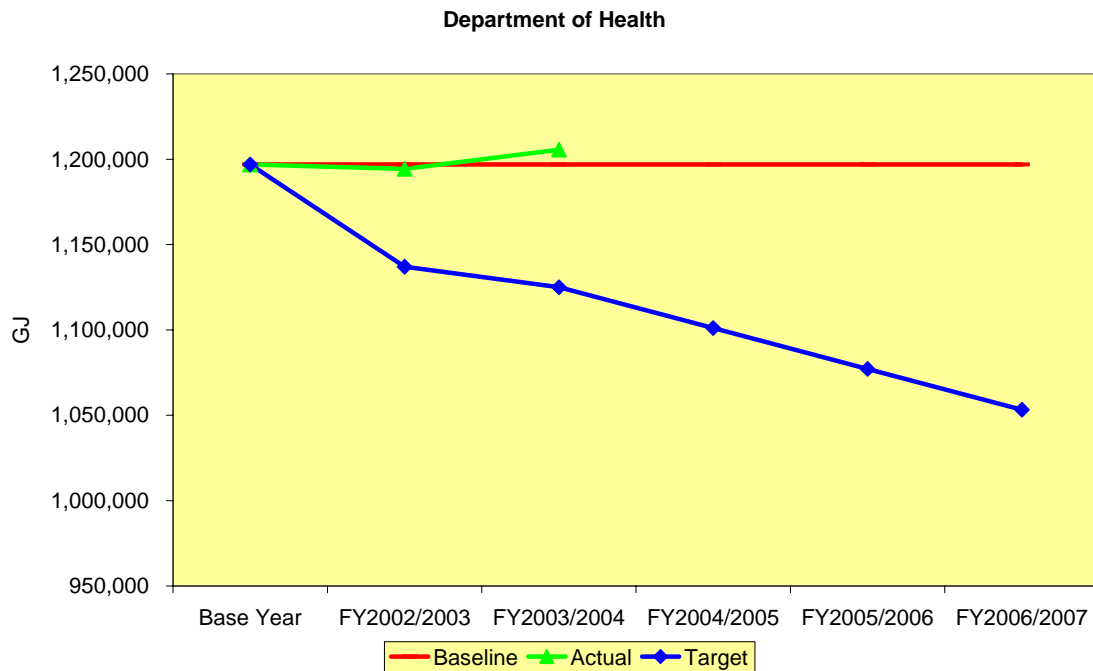
Department of Fisheries



The Department of Fisheries established an energy management committee to coordinate the implementation of the Energy Smart Government policy. The Department endeavoured to reduce energy consumption during 2003/04 by the better management of office lighting in Head Office. Further work is to be undertaken on Head Office lighting during 2004/05 that will make this initiative more effective.

While the Department achieved the 2003/04 target of a 6% reduction in energy consumption, future targets will be more difficult to achieve as the Department's infrastructure expands. Of particular significance will be the addition of the new \$16 million Research and Education Centre now under construction at Hillarys.

Department of Health



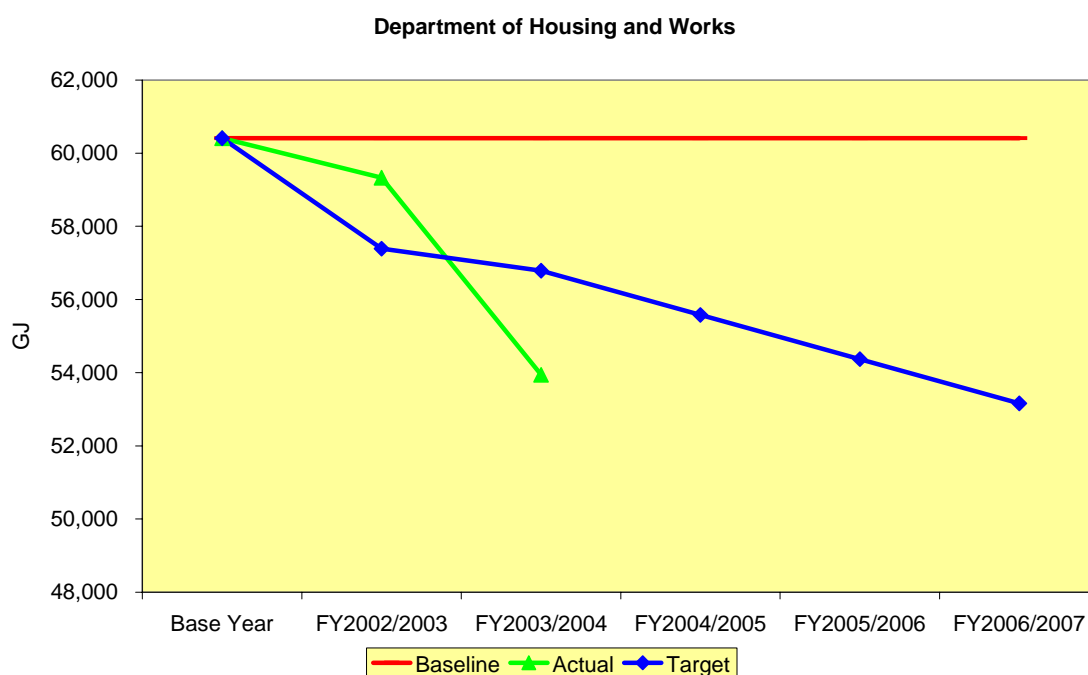
The following steps have been taken by the Department of Health to ensure energy management is delivering best practicable results:

- An accountable Energy Executive has been appointed.
- Energy managers have been appointed in each Area Health Service.
- Updated policies and processes to give clearer direction on energy management responsibilities have been issued.
- Energy management objectives have been incorporated into budget holder performance agreements.
- Energy management objectives are incorporated in design briefing for all capital projects.
- Updated energy audits have been commissioned for a number of hospital sites and incorporated into the planning investigations for Health Reform Implementation projects.
- Consultants were commissioned to provide advice and tutoring to Country and South West area energy and facility managers with a view to identifying further energy saving opportunities and raising energy management skill levels across the State.
- Systematic energy performance reporting was established with a view to having good quality information for future management of continuous improvement.

Further actions to increase the energy management response across facilities throughout the State include the following:

- Each facility will be required to review its energy management and implement any initiatives within local delegations and responsibilities.
- Energy investment opportunities will be identified and business cases will be developed.
- Viable business cases will become the basis of capital funds applications to implement the proposals.

Department of Housing and Works



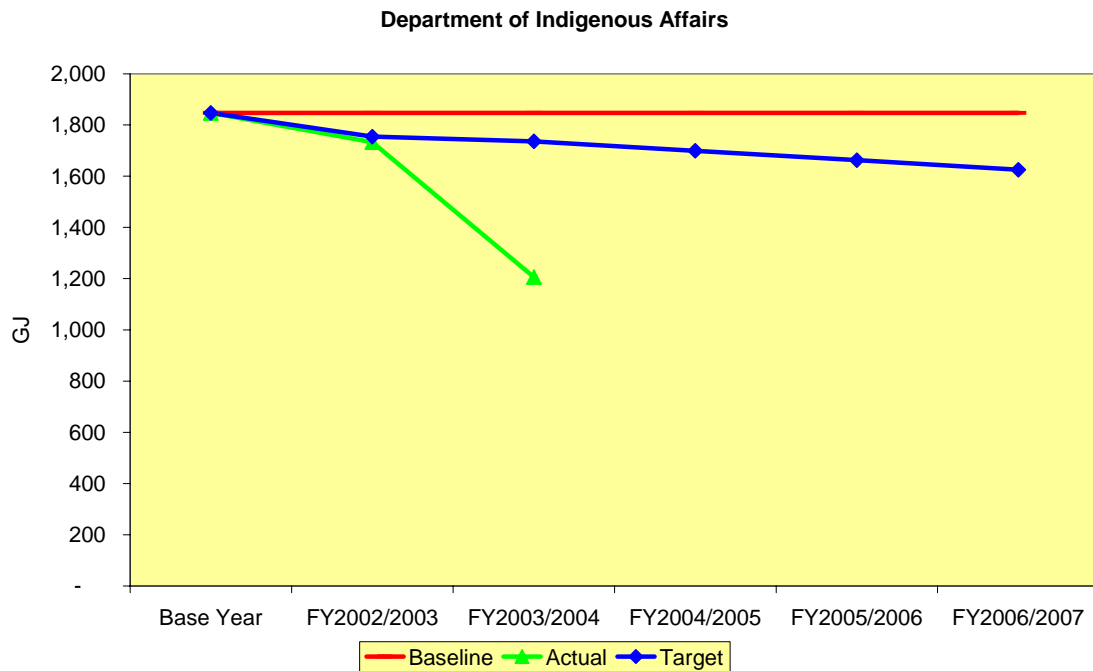
The Department of Housing and Works achieved a reduction in energy consumption through the following:

- Building rationalisation through the co-location of regional offices.
- Installation of a range of energy saving initiatives in government buildings at 151 and 189 Royal Street, East Perth; Albert Facey House; Dumas House and the government offices at Derby.
- Staff awareness and commitment to reduction in energy usage.

Other initiatives, which will be taking place in the near future, are:

- Refurbishments of 99 Plain Street and 108 Adelaide Terrace, including upgrading of lifts, air conditioning and electrical services featuring energy efficient equipment and lighting.
- Energy reports will be obtained on the balance of the government property portfolio. It is expected that the reports will recommend installation of a range of energy saving initiatives on these buildings. This will be undertaken over the next few financial years commencing with the Kununurra government offices.
- In accordance with the office accommodation policies relating particularly to new government lease properties, the Department of Housing and Works will ensure that the base building for all proposed tenancies will be assessed for greenhouse and energy performance using the Australian Building Greenhouse Rating (ABGR).

Department of Indigenous Affairs

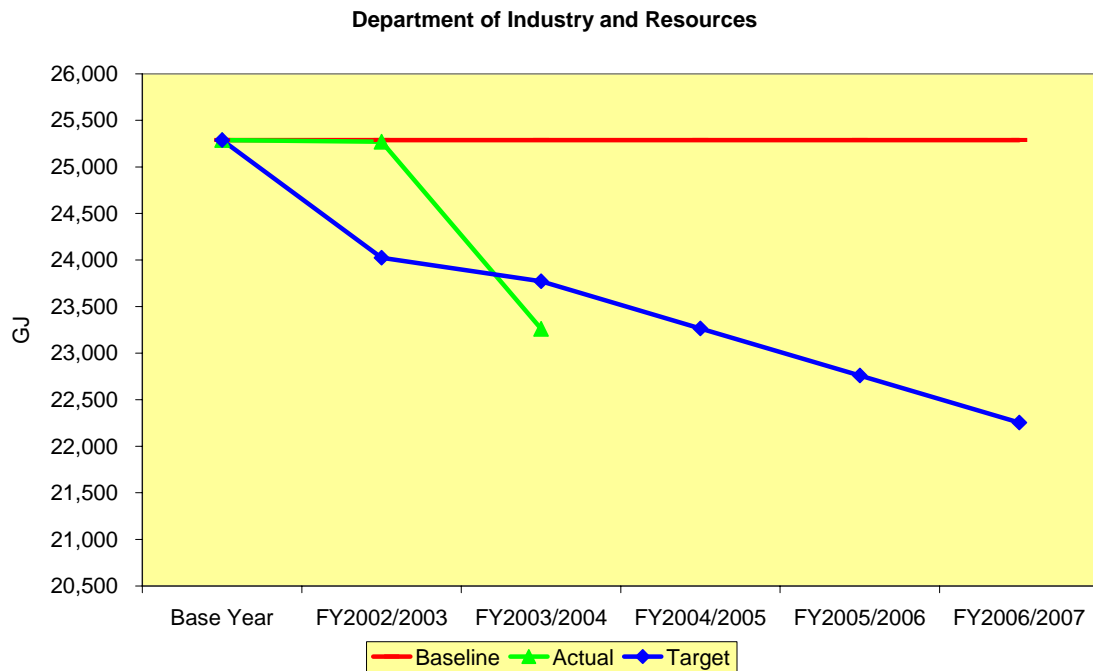


Prior to the Energy Smart Government policy, the energy consumption and cost for the building in which the Department of Indigenous Affairs' largest office is located was apportioned between tenants on the basis of area occupied rather than on metered consumption. This inequity was corrected in 2003/04 and resulted in significant cost and consumption savings. The closure of 18 regional offices over the past 24 months also reduced the Department's energy consumption.

In the future, the Department hopes to renegotiate regional office leases and influence the respective landlords to adopt better energy saving initiatives with subsequent savings to the Department.

The Department has also initiated the purchase of energy efficient equipment and lighting whenever replacement is due.

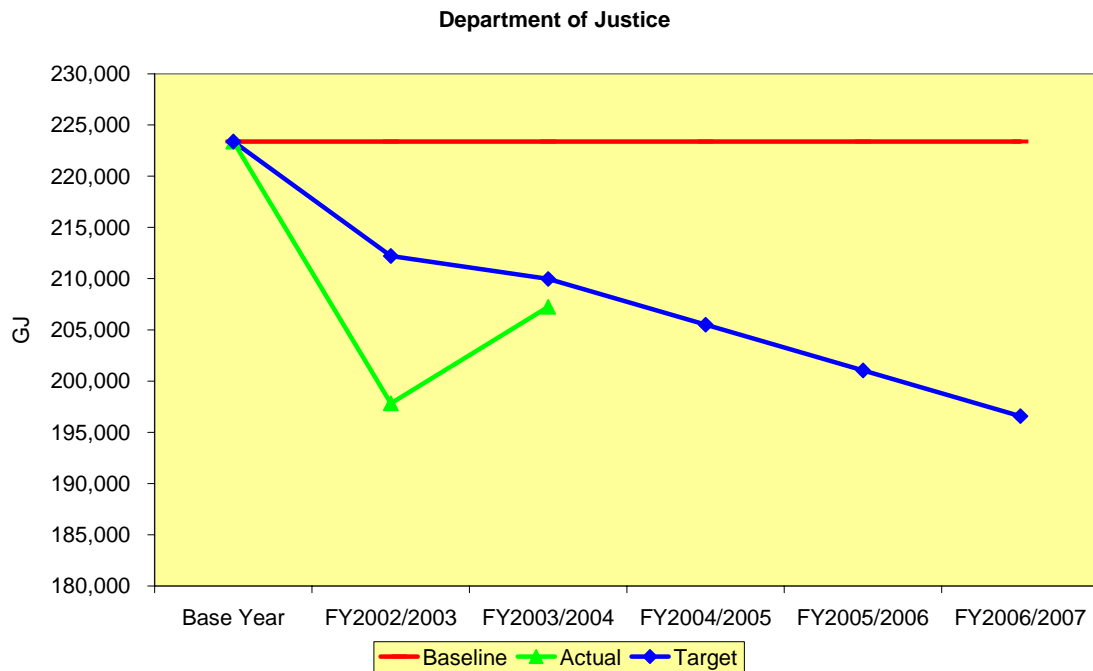
Department of Industry and Resources



The Department of Industry and Resources undertook the following initiatives during 2003/04:

- A major de-lamping program was carried out in the Mineral House north building. Resulting lighting levels were 10% higher than Australian Standards but over 1000 tubes were removed.
- Tighter control was introduced on the operating times of the Mineral House air conditioning system. The aim was to reduce running hours and take full advantage of the thermal inertia of the building during start-up and shut-down periods.
- An awareness campaign was started to inform staff of the work being done and invite their participation in switching off unused equipment and lighting. The campaign was communicated via the intranet daily newsflash with progress shown by the updating of an energy reduction chart displayed in the lifts and ground floor reception areas.
- Staff in the IT branch developed a program that operates via the computer network to detect any unused PC equipment still running at 6.00 pm each day, and automatically switch it off.
- An initiative was developed to progressively replace CRT monitors with LCD monitors, which consume significantly less energy.

Department of Justice

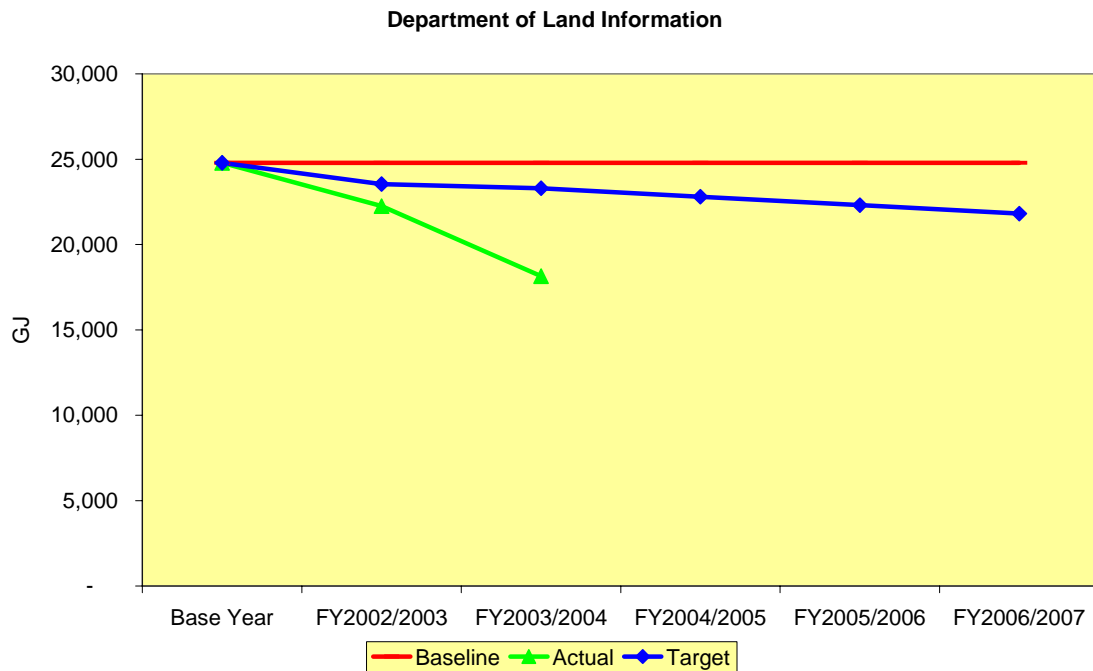


The Energy Management team of the Department of Justice coordinated the entry of data throughout the year by on-site representatives at each facility. Through regular reporting, the Department was able to monitor and evaluate the progress of internal business areas as well as individual facilities. This information also provided the on-site representatives with better information to manage their energy consumption. Energy audits of several facilities were conducted during the year and identified potential savings. Specific recommendations will be pursued to realise further savings during 2004/05.

The Department's intranet was expanded to provide staff with information about the Energy Smart Government policy and its reduction milestones as well as handy hints for energy savings ideas at home. The Department's progress and ongoing initiatives are communicated to staff through an internal newsletter.

The Department is also exploring the potential for an Energy Facilities Manager position to be established which would be responsible for monitoring on-site activities, developing specific and relevant energy savings programs and liaising with on-site maintenance and departmental staff.

Department of Land Information

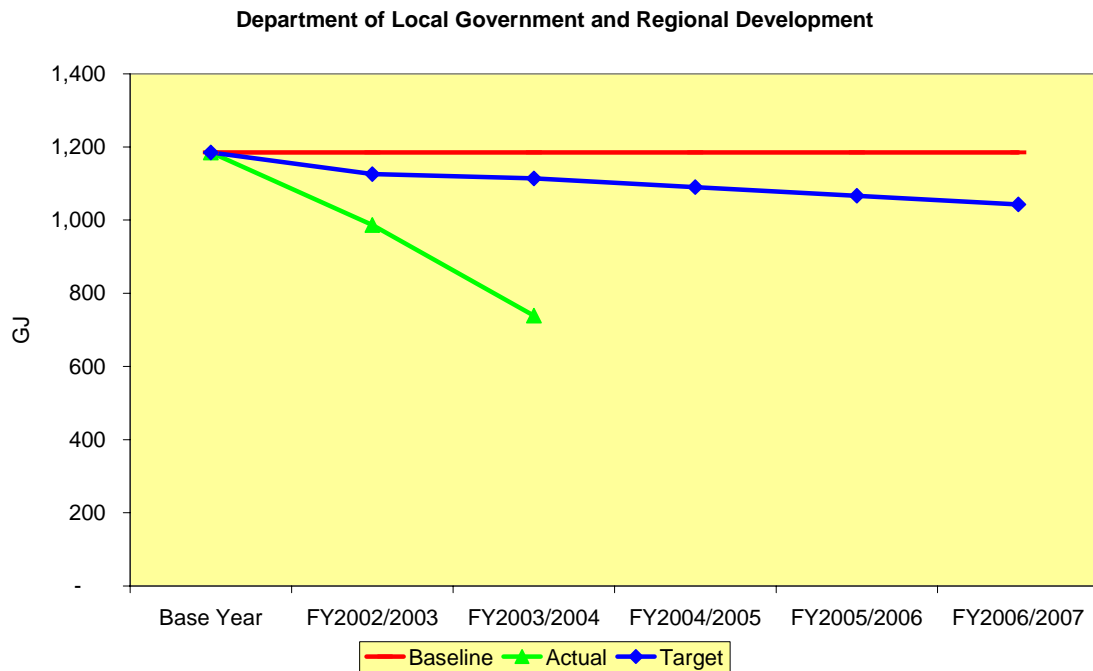


The Department of Land Information achieved significant energy savings during 2003/04 by the instigation of the following initiatives:

- Installation of lighting sensors in all offices and meeting rooms.
- Upgrade of lighting controls for all floors.
- Upgrade of the air conditioning system in the computer suite.
- Improvements to the building management system.
- Installation of programmable time switches to optimise operation of domestic hot water units.
- Reminding staff to turn off computers, screens, facsimiles, printers, and photocopiers prior to departing each evening.

The achievements of the Department were recognised externally when it won the 2003 Premier's Sustainable Environment Award and the WA Environment Award for Energy Efficiency.

Department of Local Government and Regional Development

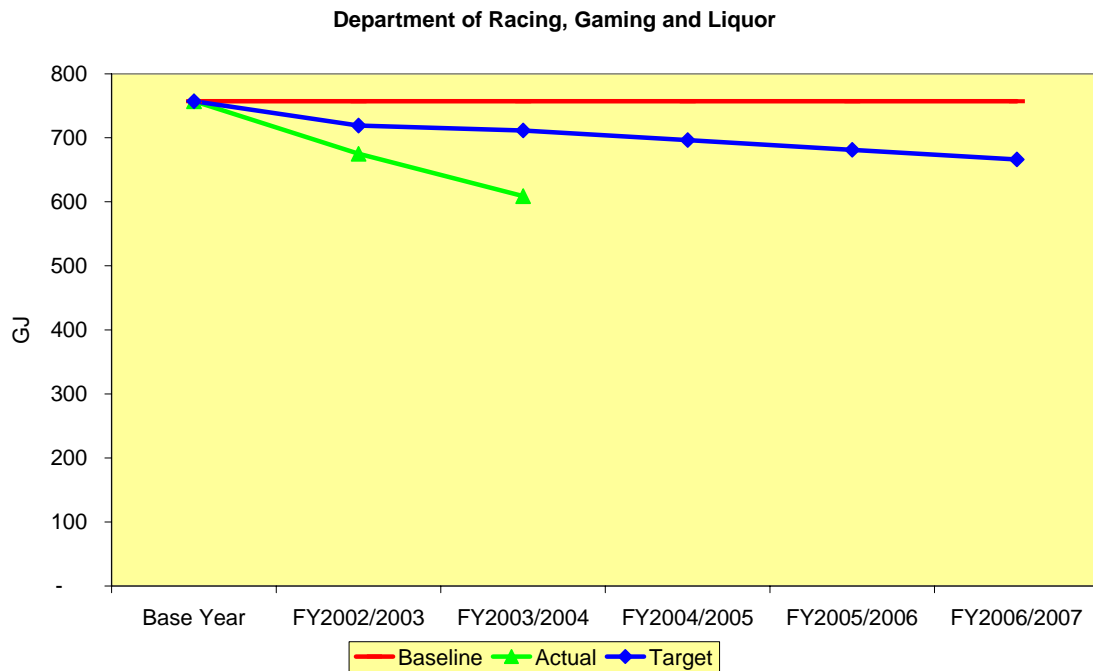


Accommodation for the Department of Local Government and Regional Development was consolidated at the end of 2002/03 and resulted in a significant reduction in floor area. The Department is now located in Dumas House where building management recently installed several smart energy mechanisms to reduce electricity use.

The Department also undertook the following initiatives as part of its capital works program:

- Purchase of 60 energy efficient computers to replace old machines.
- Commencement of a program to replace printers and copiers with combined units, thereby requiring fewer units.
- Replacement of a number of inefficient small fridges with fewer larger capacity more energy efficient fridges.

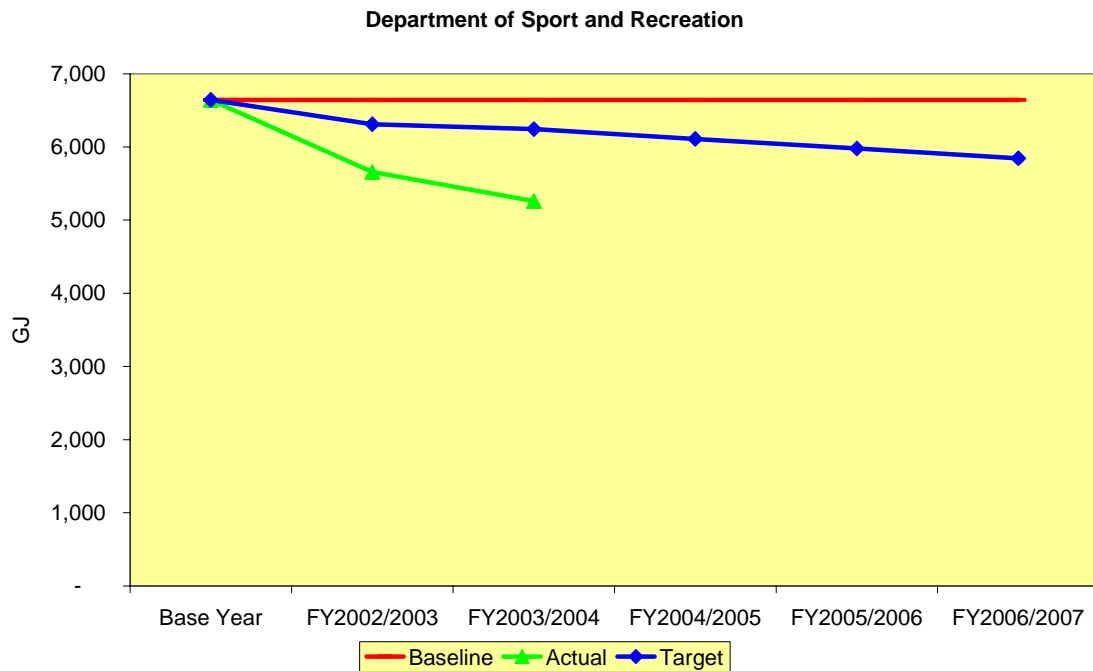
Department of Racing, Gaming and Liquor



2003/04 saw the full benefit of the program that upgraded the office with energy efficient lighting. Staff awareness was maintained through internal staff communications. In addition, the following energy saving initiatives were undertaken:

- Continuation of energy management action plans.
- Monitoring of energy usage.
- Re-wiring of offices to provide individual switches, resulting in lighting only being used when each area is occupied.
- Sustainability factors being taken into account in Departmental procurement.

Department of Sport and Recreation

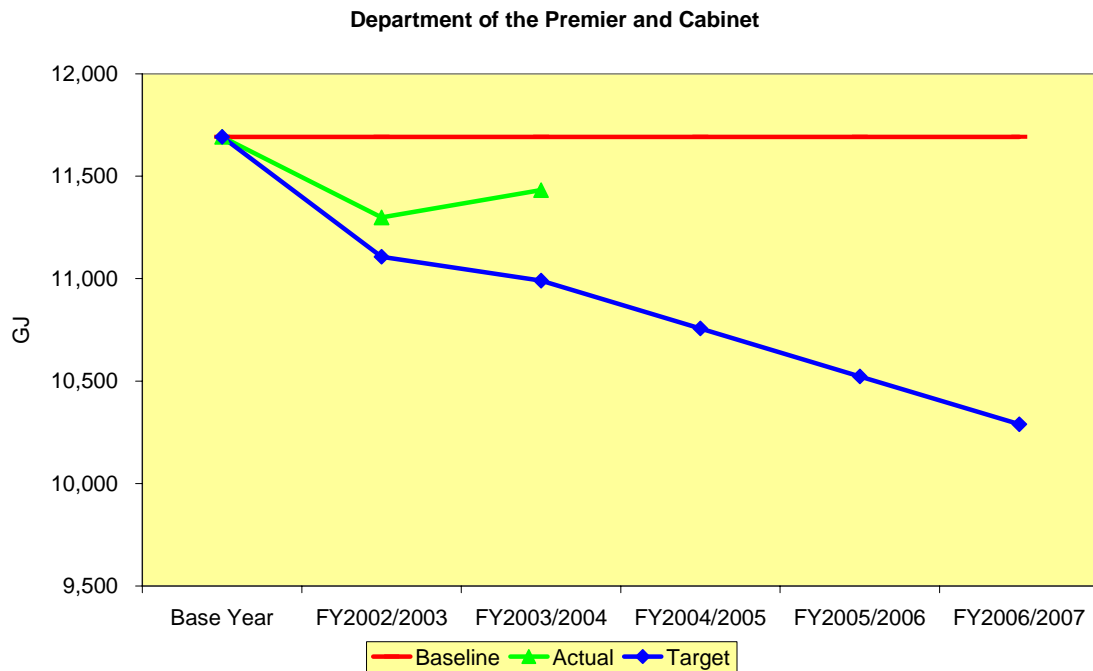


In 2002/03 and 2003/04, the Department of Sport and Recreation's Perth office experienced many faults with the electricity supply which caused power surges, damage to major air conditioning units and altered settings, causing the air conditioning to operate at times outside normal office hours. The Department actively pursued the matter through investigation and analysis with electrical engineers and rectified the problem.

The Department actively encourages staff to practice energy conservation through using the energy saving devices on office machines, turning off all personal computers at the end of the day, making sure that only essential lighting is used, and continually providing awareness raising information updates. This includes operations at the Department's nine regional offices.

An integral component of the agency's operations are the recreation camps. The Department has also rationalised energy use across the camps' network to achieve significant savings.

Department of the Premier and Cabinet



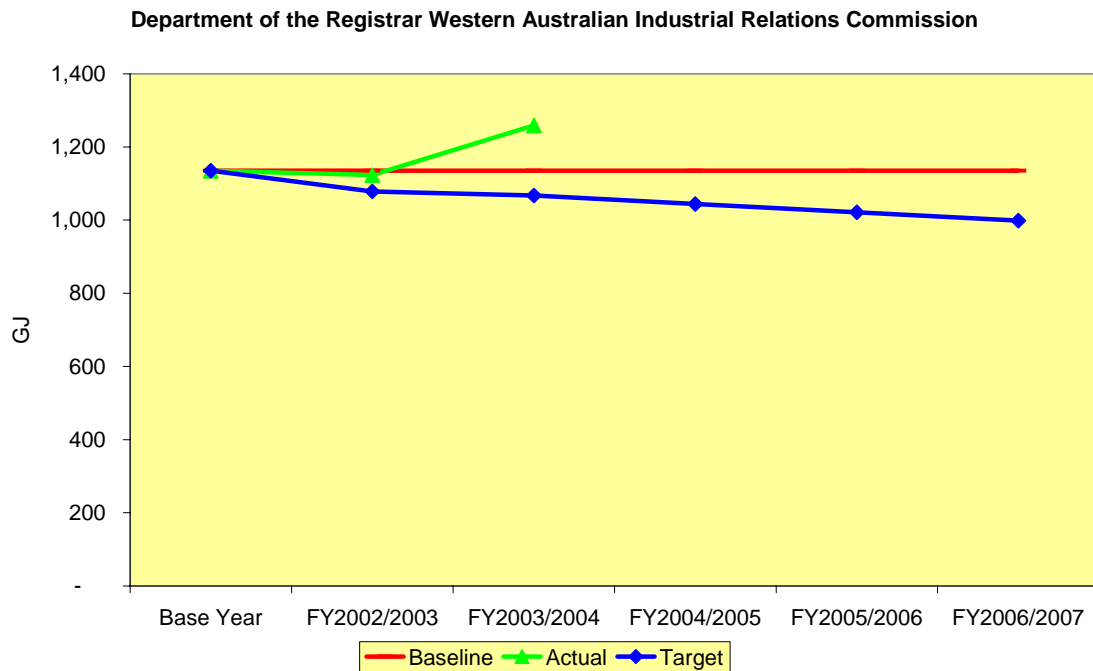
A number of actions were taken by the Department of the Premier and Cabinet to reduce energy consumption. Lighting efficiency upgrades have been completed at Dumas House, leading to a significant decrease in energy consumption, and triphosphor tubes have been installed at the State Law Publisher's premises. In Governor Stirling Tower, compact fluorescent lighting has been installed on the 26th floor and motion sensors have been installed in meeting rooms, conference rooms and store rooms on the 2nd floor.

Additional works recommended in a lighting audit of Governor Stirling Tower are expected to be undertaken during 2004/05. These works will involve the installation of triphosphor tubes and appropriate de-lamping in the building as well as the installation of motion sensors in conference rooms, meeting rooms and store rooms as deemed appropriate. This work should result in a significant decrease in energy consumption in the Governor Stirling Tower tenancies, leading to a decrease in the Department's overall energy consumption.

The Department's failure to achieve the 6% energy reduction target for 2003/04 is primarily the result of substantial expansion of the Functional Review Implementation Team (FRIT), which did not exist when the baseline was established. If FRIT's energy consumption for 2003/04 is excluded, the balance of the Department can demonstrate a 6% reduction in energy consumption relative to the baseline.

Despite the increased total energy consumption in 2003/04, the Department achieved significant improvements in its key energy performance indicators. Reductions of 15% in the energy consumed per employee and 10% in the energy consumed per square metre were achieved relative to the baseline.

Department of the Registrar Western Australian Industrial Relations Commission



The Department of the Registrar Western Australian Industrial Relations Commission identified inconsistencies in the energy data supplied by building managers and the Department of Housing and Works over the first two years of the Energy Smart Government program. Efforts are being made to correct any remaining errors.

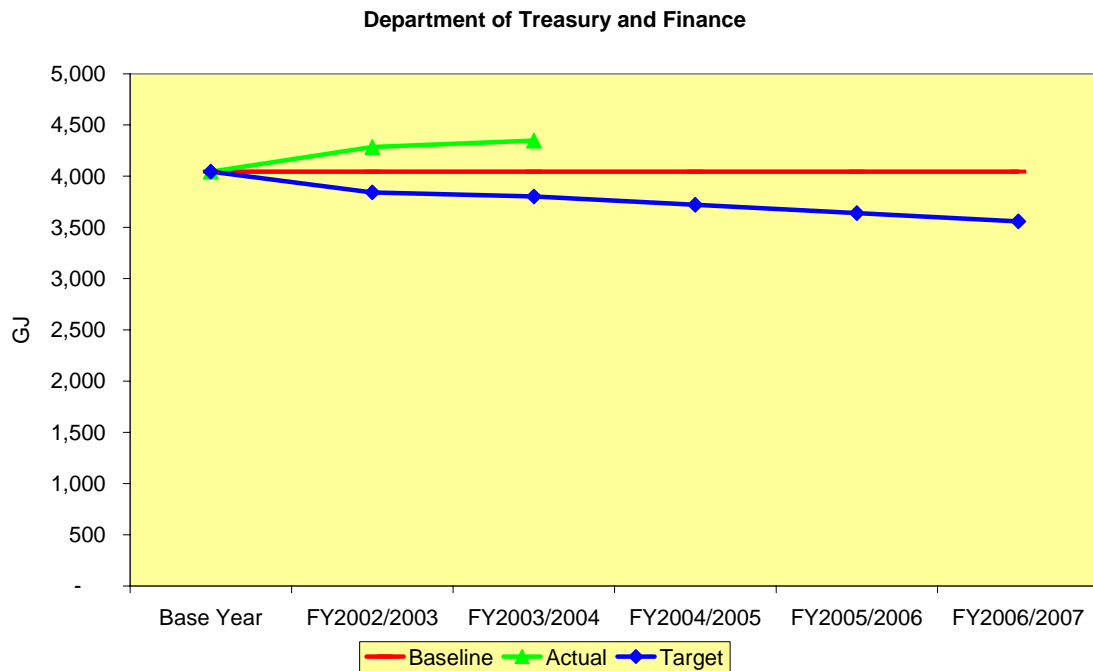
The Department made genuine steps towards meeting sustainability targets, for example:

- During 2003/04 all printers and copiers were replaced with equipment that has a smaller energy footprint.
- 99% of computer monitors are now LCD, which consume less energy than CRT monitors.
- Staff awareness is continually promoted.

In addition, the following projects were commenced and will be completed during 2004/05:

- Installation of virtualised servers that will enable many servers to run from one piece of server hardware.
- Upgraded network software that will enable the server to shut down client machines if certain tests are met.
- Timer systems for supplementary air conditioning.

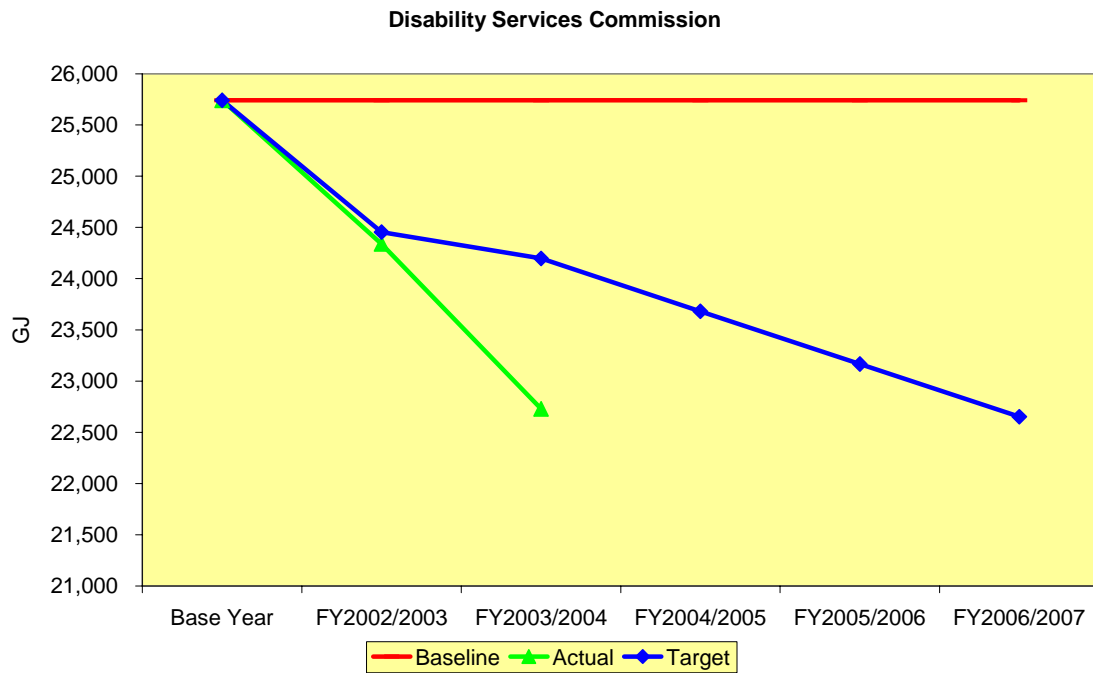
Department of Treasury and Finance



The Department of Treasury and Finance undertook an energy audit in June 2003 and commenced implementation of the recommendations with a trial of triphosphor tubes and staff turning off monitors after hours.

A contributor to the Department's increased energy use in 2003/04 was its increased dependency on IT hardware that consumes a high level of electricity. The capacity of the Department's infrastructure increased substantially in 2003/04 with the take-up of the procurement function, which was further pressured through the need for disaster recovery planning outcomes (necessitating a separate site as a back-up).

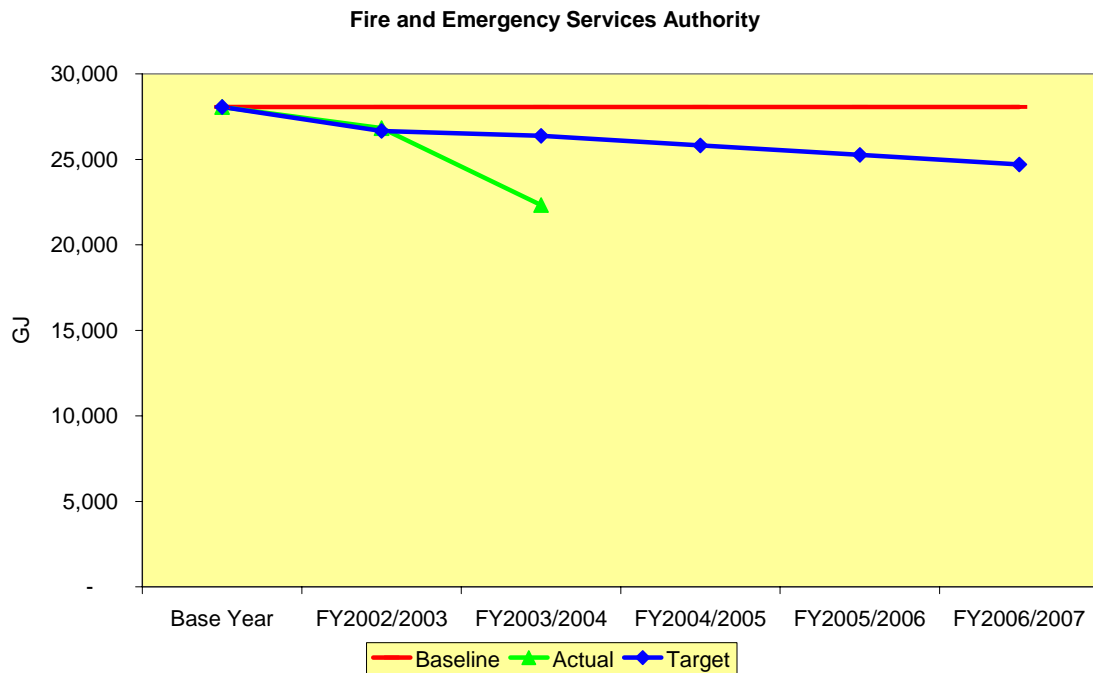
Disability Services Commission



Energy Smart initiatives undertaken by the Disability Services Commission in 2003/04 include:

- Energy audits of various Commission properties.
- Implementation of energy efficiency guidelines for new leased premises.
- Recommissioning of air conditioning plant at the West Perth office to improve efficiency.
- Purchase of energy efficient equipment.

Fire and Emergency Services Authority

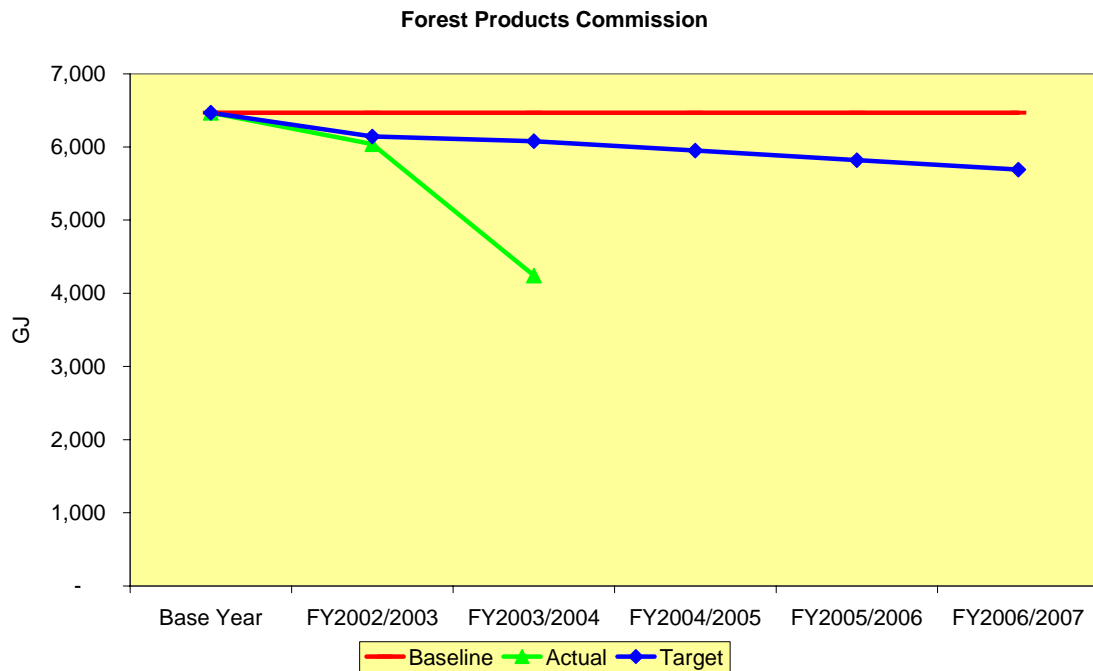


The Fire and Emergency Services Authority is reducing energy consumption through:

- Engineering of mechanical services.
- Personal behaviour changes.
- Installation of energy efficient equipment in new fire stations.
- Refinements in mechanical services upgrades at major office complexes.
- Identifying projects that reduce maintenance costs from capital expenditure.
- Monitoring of energy usage across each fire station and investigation of any abnormal variations.
- Ongoing implementation of energy saving computer screens.

In addition, restructuring of training courses in 2003/04 resulted in reduced energy consumption at the training facility.

Forest Products Commission



The significant reduction in energy consumption by the Forest Products Commission in 2003/04 can be attributed to two major factors:

- The Timber Technology Centre in Harvey recorded a significant reduction in electricity and natural gas usage due mainly to the phasing out of the commercial timber drying facility that commenced during 2002/03.
- The Manjimup Nursery reported a 50% reduction in electricity consumption due to a decrease in nursery production, resulting in reduced operational usage of the equipment and cool room.

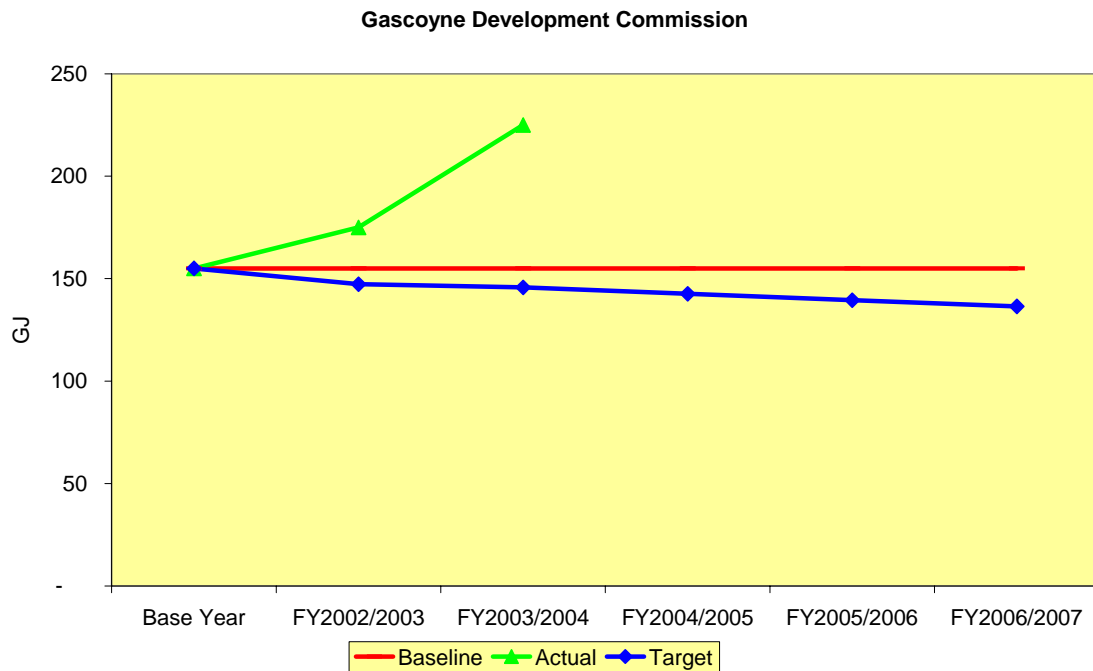
Offsetting these significant decreases were increases in electricity consumption due to the commissioning of a new building for the Manjimup Seed Centre and occupation of additional floor space at the Rivervale office.

A comprehensive energy management approach has been implemented and the Forest Products Commission has undertaken the following initiatives:

- The Commission has implemented an energy management policy, which aims to reduce dependence on fossil fuels and reduce expenditure on energy by investing in cost effective plant and equipment and by sourcing energy from low greenhouse emitting sources.
- The Commission has established an energy management team to implement the policy, develop an energy management program to communicate energy awareness to all staff and to promote energy management initiatives. Staff are encouraged to conserve energy wherever possible and to be active in identifying energy saving ideas for the Commission.
- The Commission will undertake an energy audit of its Rivervale office to initiate its energy management program.

The Forest Products Commission participates in the Energy Smart Government program on a voluntary basis.

Gascoyne Development Commission



Cleaner Production and Eco-Efficiency are vital to the successful performance of the activities of the Gascoyne Development Commission as they support the Commission's objective of sustainable development in the region.

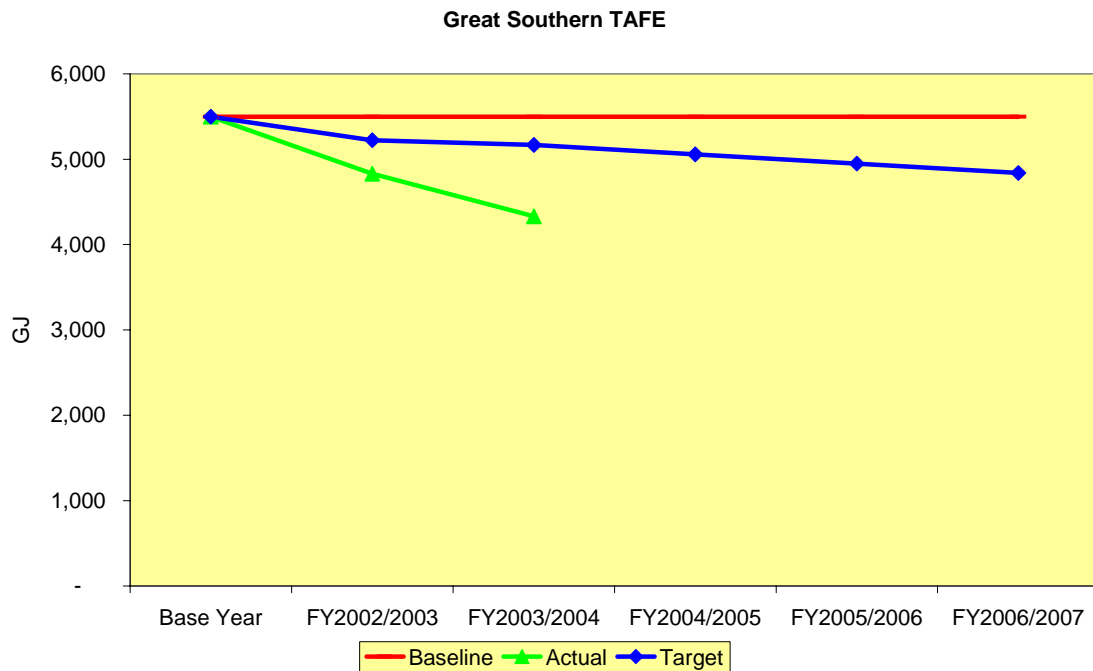
Staff of the Commission are well informed regarding sustainability and are actively involved, in particular with in house activities like recycling, energy conservation, efficient vehicle use and occupational health and safety.

The Commission has recently finished compiling an action plan on sustainability.

The Commission recruited significantly during 2003/04 and which resulted in increased energy consumption. As part of the Commission's induction program, and through staff meetings, personnel are informed and encouraged to pursue energy saving practises.

The Gascoyne Development Commission participates in the Energy Smart Government program on a voluntary basis.

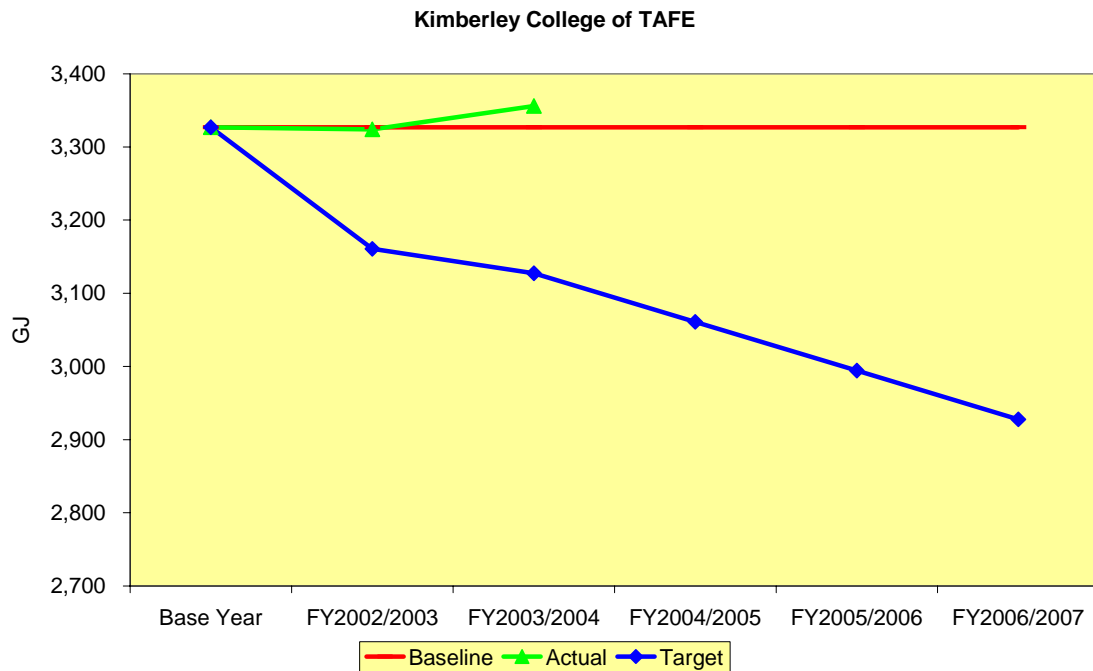
Great Southern TAFE



During 2003/04, Great Southern TAFE used the following initiatives to reinforce the strategies implemented in the first year of the program:

- The energy management committee meet to maintain interest and focus on energy savings.
- Staff awareness and education was ongoing.
- The College continued implementation of the energy saving initiatives recommended in its energy audit, such as energy star on all computers and replacing standard fluorescent tubes with triphosphor tubes.
- The College continued with whole-of-agency emails reiterating energy management initiatives.

Kimberley College of TAFE

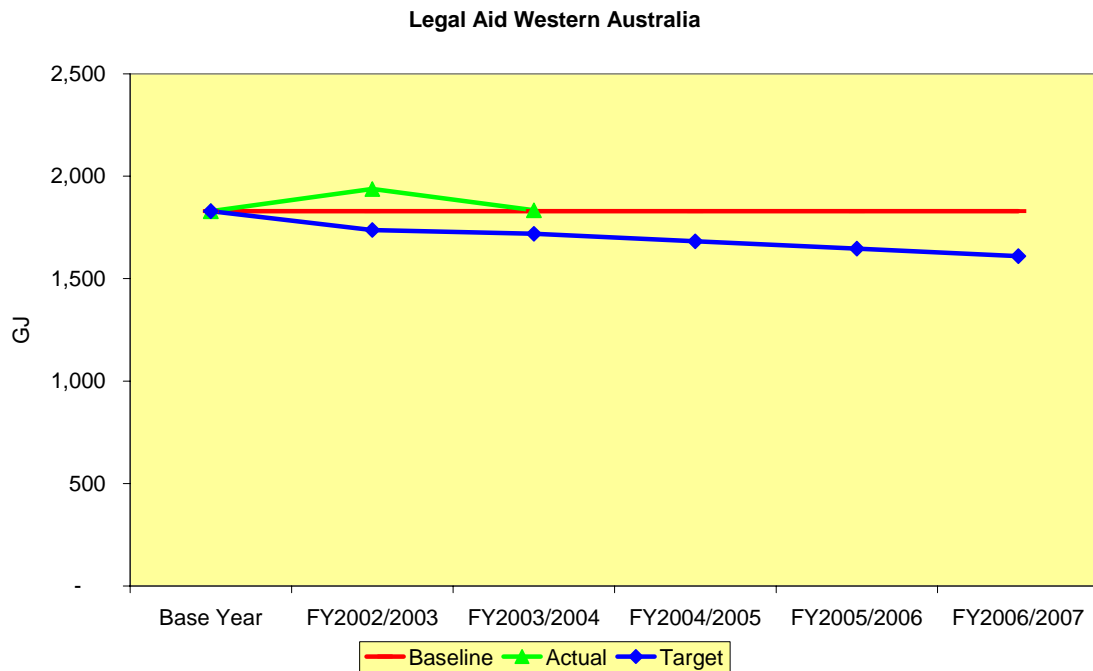


The Kimberley College of TAFE has had an increase in service delivery (i.e. student curriculum hours) of 18.6% since the 2001 academic year. A fair proportion of this increase occurred in on-campus delivery, which impacted on energy usage. There have also been additional facilities developed at Halls Creek and Derby since the baseline year. During the past two years, the Kununurra Campus and Aquaculture Centre in Broome have made significant reductions in energy consumption.

The College is undertaking a number of initiatives to ensure effective energy management is practised throughout the organisation:

- The College Executive has taken an active role in promoting the energy smart message throughout the College. This has been supported by regular report updates at executive meetings, presentations at staff meetings, distribution of the energy smart material including stickers and direct communication to all areas of the College.
- An energy audit was carried out in the latter half of 2003. This audit made a number of recommendations to reduce energy usage throughout the College.
- This will result in the replacement of all fluorescent tubes with triphosphor tubes and installation of voltage reduction units to lighting at all campuses, and an upgrade to the air conditioning system at the Kununurra campus.
- All new building developments will incorporate energy efficiency measures.

Legal Aid Western Australia



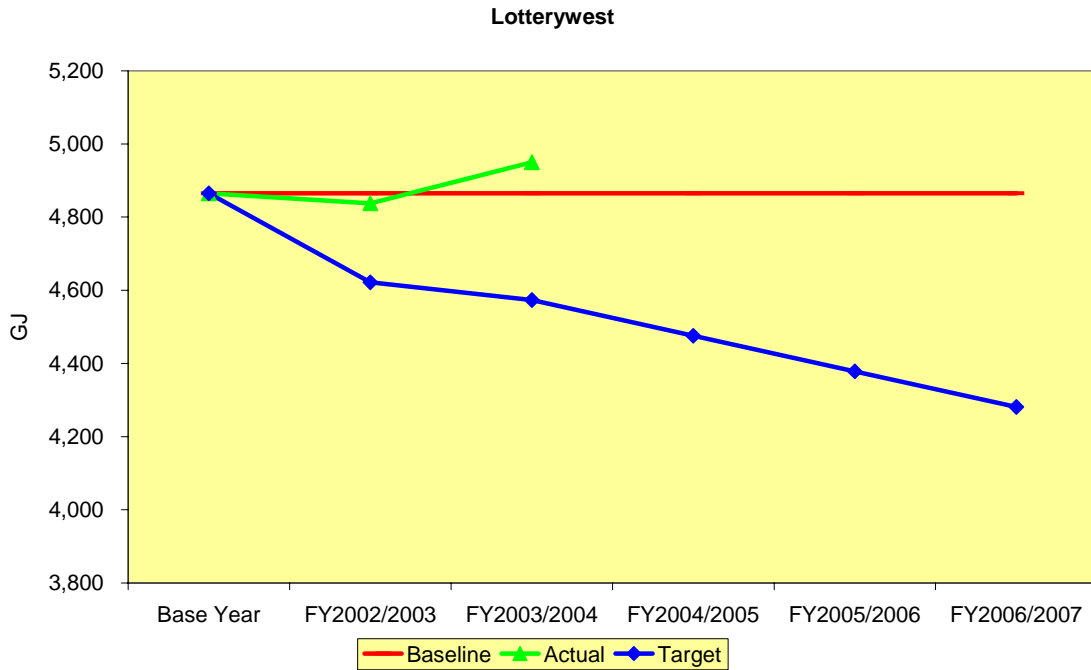
While Legal Aid did not achieve the 6% energy reduction target, it did achieve significant improvements of 11.5% in energy use per person and 4.9% in energy use per square metre, demonstrating that measures to improve energy management practices have been effective.

Legal Aid improved energy management practices with the implementation of the following initiatives:

- An energy smart management group has been established.
- An Energy Executive has been appointed.
- An energy management policy has been developed.
- A draft energy management plan has been prepared.
- An information system to collect, analyse and report on energy use and expenditure has been implemented.
- A commitment to report to Executive every four months on the progress of the energy management program and keeping staff updated on the actions and initiatives of the energy smart management group.
- Energy saving requirements have been incorporated into the head office and regional lease negotiations.
- Staff awareness has been raised by the use of agency wide staff notices providing information on the energy smart program and reporting to all staff on the energy performance of each location within Legal Aid.

The implementation of major energy saving strategies by Legal Aid has been restricted due to the head office lease re-negotiation. However, it is anticipated that a significant fit-out will be required which will include energy saving initiatives.

Lotterywest

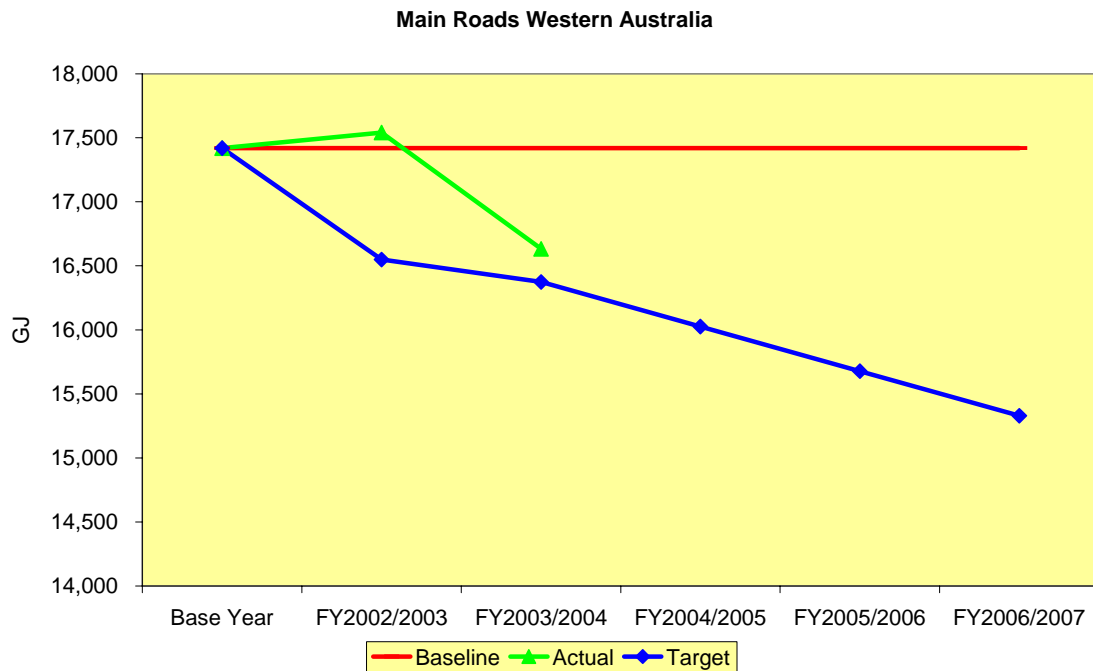


For a number of reasons, Lotterywest has been unable to progress further initiatives towards its goal of saving energy. Furthermore, security problems resulted in installation of additional exterior lighting that remains on all night. Renovations, preparation for the recent name change to Lotterywest and the implementation of a significant upgrade to the computer system required additional, out of hours attendance by many staff members and contractors, adding considerably to the agency's energy needs during 2003/04.

Lotterywest is aware of and concerned about its responsibility and has modified start times on the building air conditioning and varied the timing of the air handlers to reduce energy consumption. Lotterywest has also arranged for consultant advice on further options for reducing energy consumption.

Lotterywest participates in the Energy Smart Government program on a voluntary basis.

Main Roads Western Australia



During 2003/04, Main Roads implemented the following initiatives to reduce energy consumption:

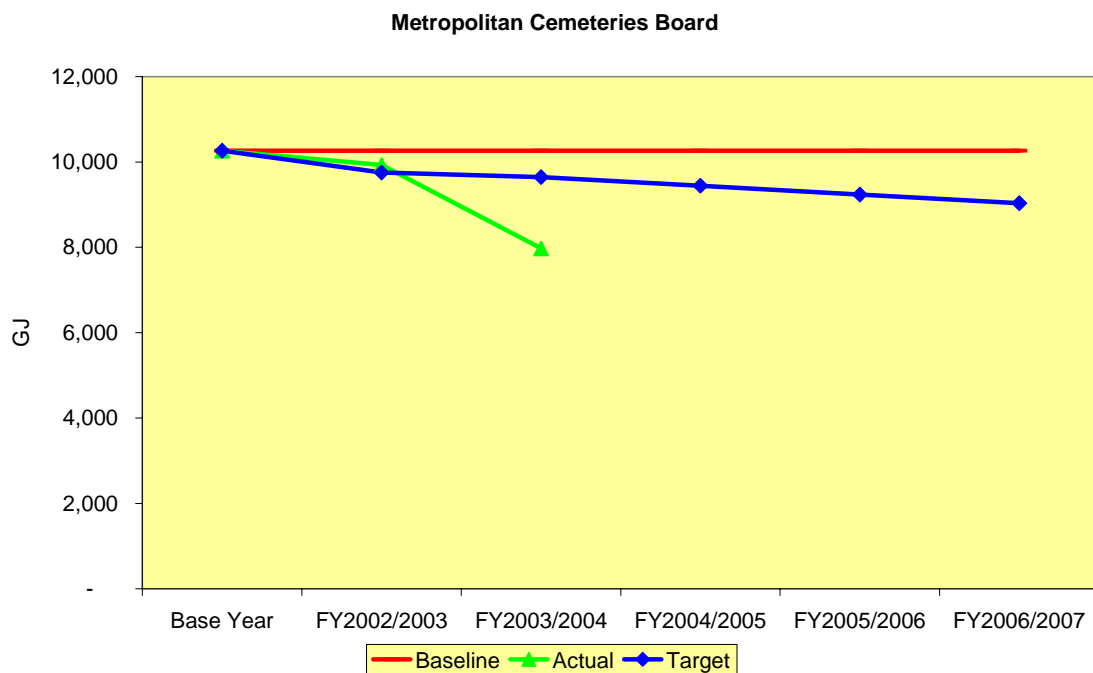
- Upgrade of the mechanical services in the Don Aitken Centre.
- Replacement of old inefficient chillers at the Don Aitken Centre was completed with the commissioning of a modern 'screw type' system. It is estimated that the energy consumption of the new chillers will be 24 per cent lower than the old chillers, representing a 99 000 kWh saving per annum.
- At Main Roads' Kununurra office, the existing 30-year-old air conditioning system was replaced with more energy efficient split systems. The split systems were more cost effective than a replacement ducted air conditioning system and additional energy savings will be achieved as the units will only be operated when required.
- Energy audits were undertaken of several regional offices and implementation of the recommendations commenced early in 2004. One of the major recommendations for energy efficiency was the installation of triphosphor tubes and electronic starters in all regional offices. This is currently being undertaken in the Pilbara regional office.
- A staff awareness program has been ongoing with information being placed on Main Roads' Intranet site. This has been introduced to demonstrate tangible benefits of energy reduction to employees.

During 2004/05, it is Main Roads' aim to develop and improve its staff awareness program. An undergraduate from Murdoch University has been engaged to work on increasing staff awareness of general house keeping measures to assist Main Roads in meeting the annual energy milestones.

As part of the awareness program a pre-survey of all staff was undertaken in August 2004 to determine knowledge of the Energy Smart Government program and the current housekeeping measures used to conserve energy. The survey results will be used to identify desired behaviours and actions, which can then be emphasised in the program. A post-survey will be carried out to assess the effectiveness of the campaign in changing people's values and behaviours.

To reinforce desired behaviour, newsletters, posters, an event (Energy Week) and the internal website will be used as a communication strategy to provide regular feedback to staff.

Metropolitan Cemeteries Board

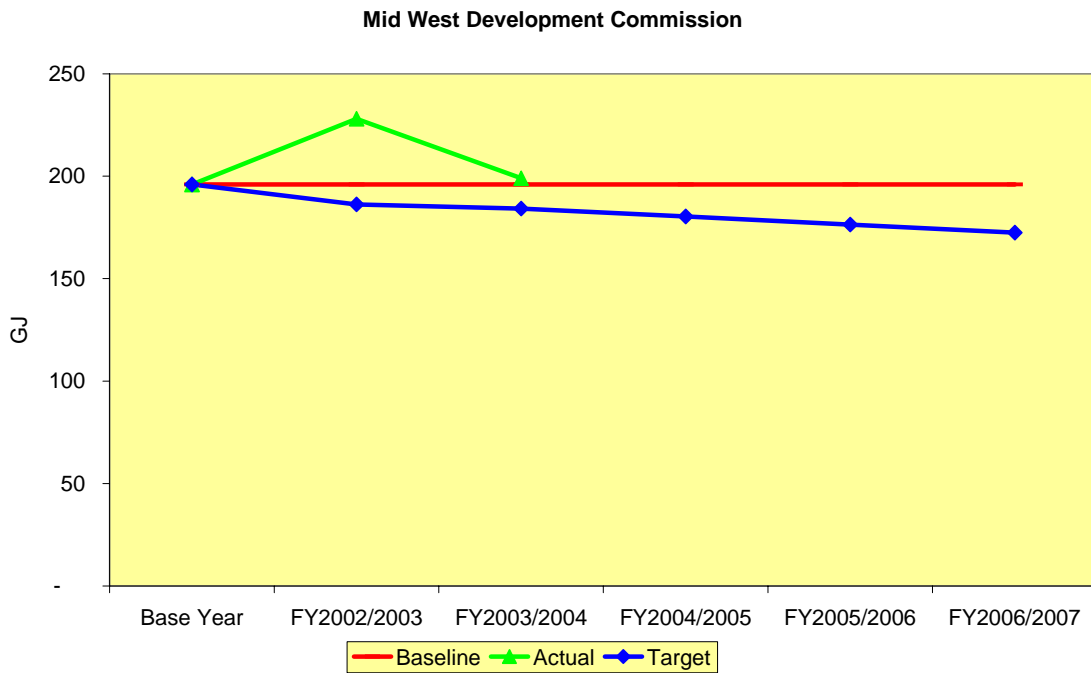


There are a number of reasons for the Metropolitan Cemeteries Board's significant reduction in energy consumption in 2003/04:

- The cremation process undertaken at the Pinnaroo Crematorium and Karrakatta Crematorium has been revised and the new procedures are more energy efficient.
- The Karrakatta Stage 3 mausoleum, Swan Region mausoleum and Midland mausoleum construction projects contributed significantly to energy consumption in the previous year and their completion resulted in an overall decrease in energy consumption in 2003/04.
- In addition, each mausoleum will use energy efficient LED technology for vigil lighting.

The Metropolitan Cemeteries Board participates in the Energy Smart Government program on a voluntary basis.

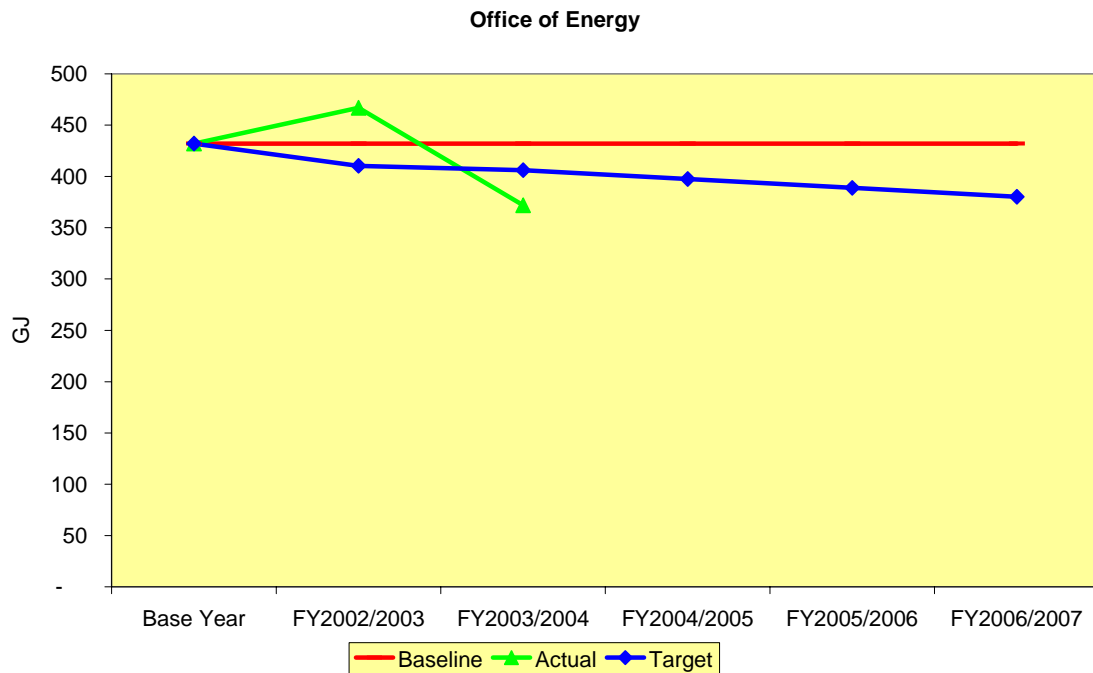
Mid West Development Commission



The Mid West Development Commission has developed an eco-efficient office program in collaboration with staff. As part of this program energy saving and sleep modes are being used for the photocopier and new printer, and fluorescent tubes are being progressively replaced with triphosphor tubes.

The Mid West Development Commission participates in the Energy Smart Government program on a voluntary basis.

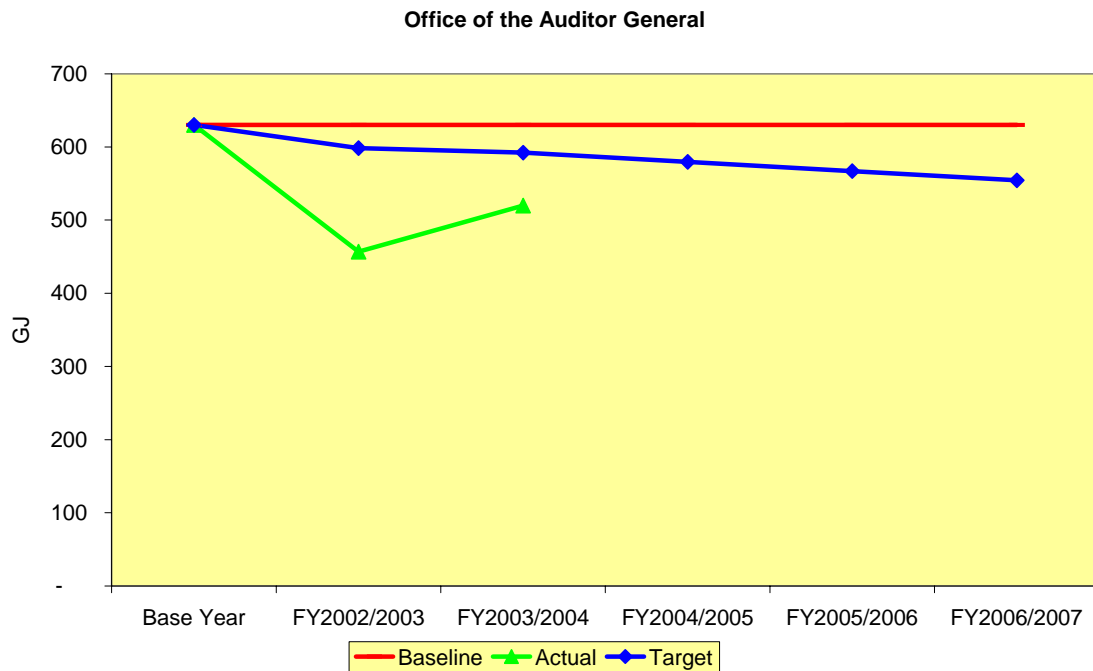
Office of Energy



The Office of Energy implemented the following initiatives in 2003/04 as part of its Energy Management Plan:

- A successful energy efficiency awareness campaign started.
- An energy audit was conducted.
- An energy efficiency project involving the provision and installation of energy efficiency equipment and systems will be completed in 2004/05.
- Energy consumption of lighting was further reduced by the removal of fluorescent tubes in the passageways and where lighting levels were higher than required.

Office of the Auditor General

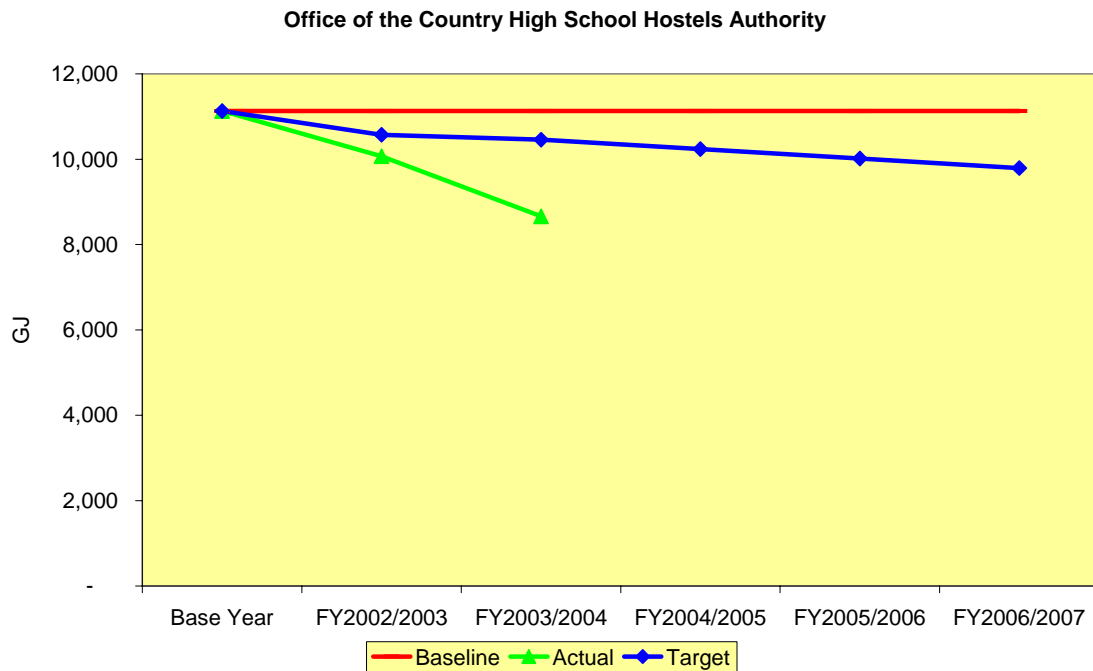


Energy saving initiatives conducted by the Office of the Auditor General in 2003/04 include:

- An internal communication strategy to raise staff awareness of energy use.
- Conducting energy efficient procurement strategies.
- Establishment of an energy database that allows for the collection, monitoring and reporting of energy consumption over a set time period.

During 2003/04, an upgrade of the electrical sub-metering was undertaken by building management at Dumas House enabling each tenant to obtain precise meter readings of energy consumption. This replaced past arrangements where energy consumption and cost for the building was apportioned between tenants on the basis of occupied floor area.

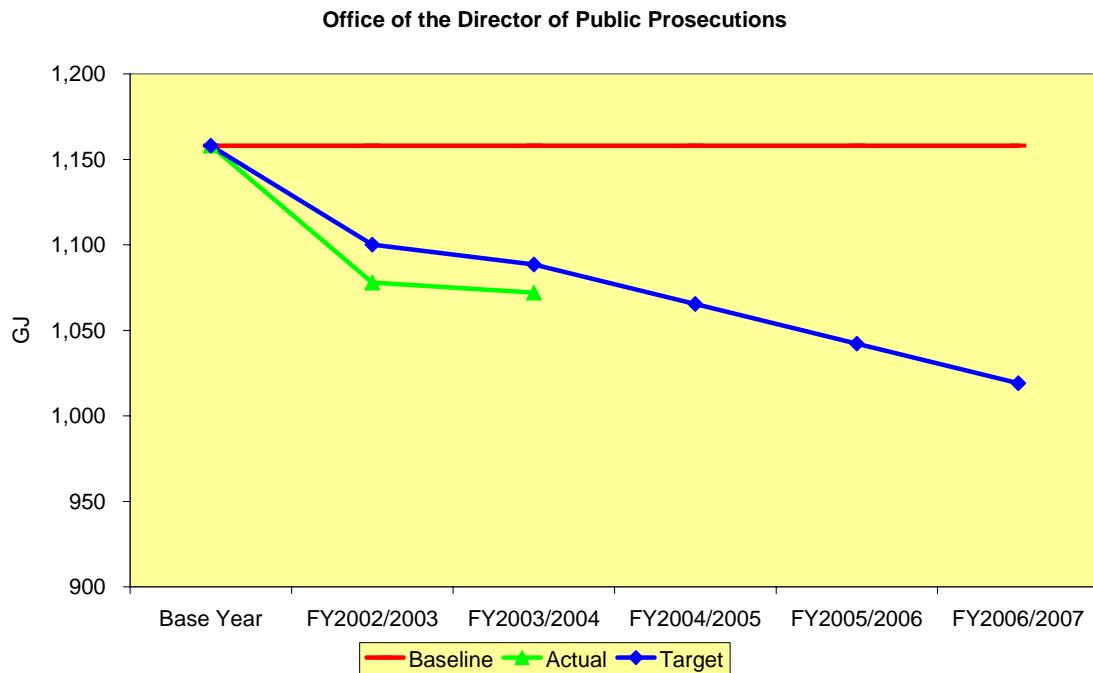
Office of the Country High School Hostels Authority



During 2003/04, the Country High School Hostels Authority consolidated building sites in Geraldton and made all residential hostels aware of the need to reduce energy consumption. The Authority closed part of the hostel at Northam due to a decline in enrolment numbers that resulted in a reduction in energy consumption at this site.

The Authority intends to undertake energy audits at a number of older colleges (e.g. Moora, Merredin and Esperance) in 2004/05 and implement the recommendations to improve energy consumption practices in these colleges. In addition, the Authority intends to develop an energy management policy by 30 June 2005.

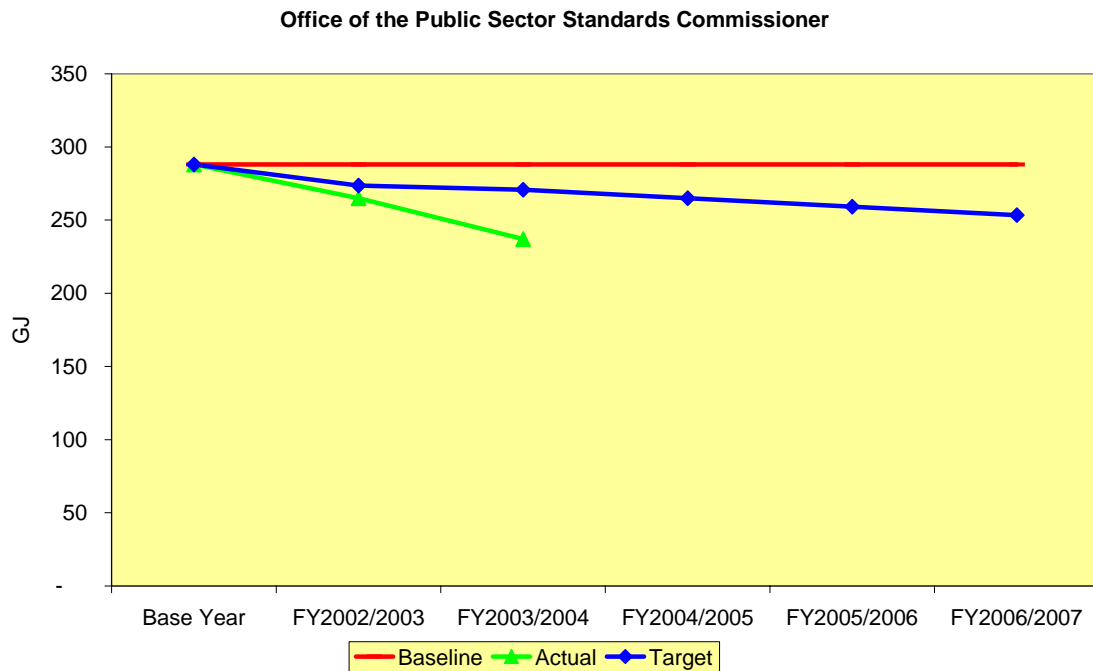
Office of the Director of Public Prosecutions



During 2003/04, the Office of the Director of Public Prosecutions maintained the previously implemented staff awareness program involving posters and stickers placed by light switches and in common areas to remind staff to turn off computers and lights at the end of the work day.

The Office previously installed timer switches for office lighting so that no extra energy usage occurs after 6.30pm in the evening.

Office of the Public Sector Standards Commissioner



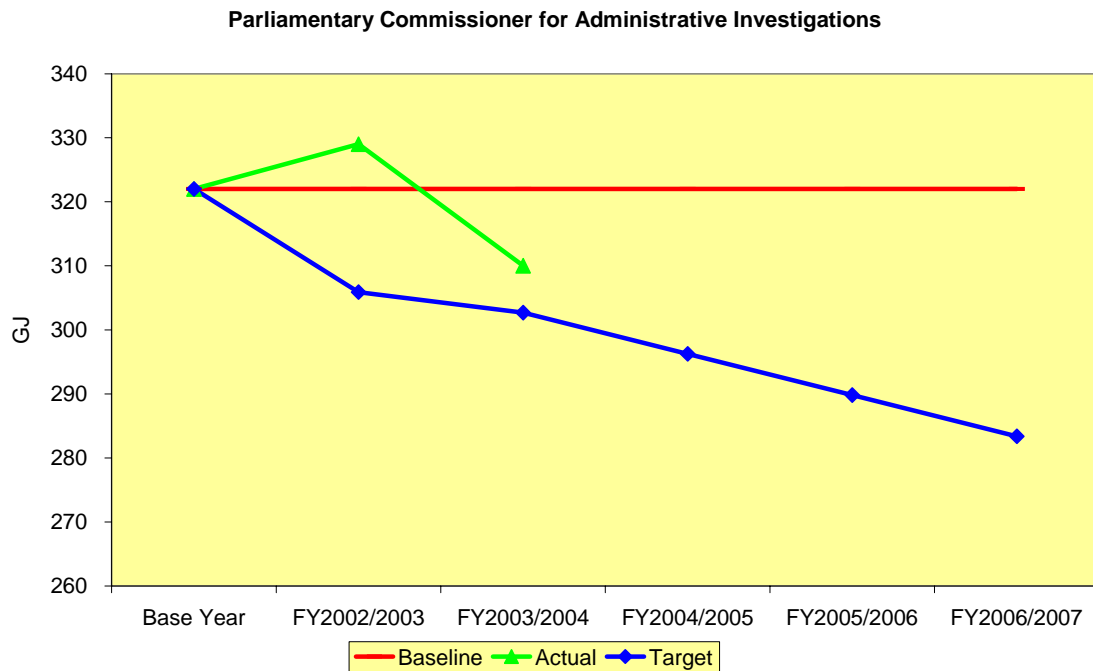
A Government decision was made to co-locate the Office of the Public Sector Standards Commissioner, the Parliamentary Commissioner for Administrative Investigations, the Office of the Information Commissioner, and the Office of Health Review. The resulting refurbishment impacted on energy consumption for these offices.

Completion of the fit-out during the year involved a transition period between temporary and permanent accommodation that may have impacted on the final energy costs and consumption for 2003/04. The finalisation of this accommodation should enable more accurate reporting in 2004/05.

The following energy saving initiatives were undertaken by the Office of the Public Sector Standards Commissioner:

- A review of existing lighting in the reception resulted in the installation of additional fluorescent lighting to provide better and more efficient lighting than the down lights initially used.
- Staff are encouraged to switch off lights when they are not required.

Parliamentary Commissioner for Administrative Investigations



The Parliamentary Commissioner for Administrative Investigations was co-located during the year with the Office of the Public Sector Standards Commissioner, the Office of the Information Commissioner, and the Office of Health Review.

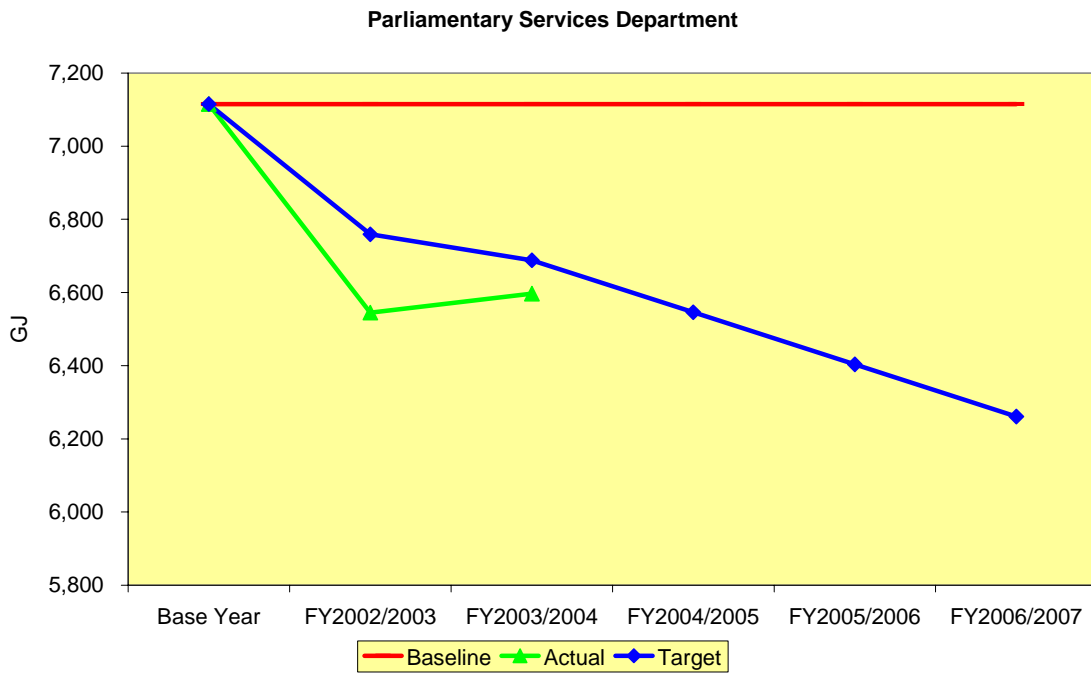
The refurbishment of the office was completed in June 2004 and it is likely that additional energy consumption was incurred as a result of the construction activity and fit-out work, which occurred during and outside standard work hours, including weekends. This involved the use of equipment and machinery not used in the normal office environment and is considered to be the primary reason for the increase in energy consumption during 2003/04.

Whilst the Office of the Parliamentary Commissioner for Administrative Investigations did not achieve its targeted energy saving for 2003/04, it recorded a 5.8% turnaround from the previous financial year, demonstrating that it is becoming more energy efficient.

The Parliamentary Commissioner for Administrative Investigations expects to achieve reductions in energy consumption as a result of the following initiatives:

- Increasing use of open plan office accommodation.
- Separate light switches are now available in areas not regularly used, such as meeting rooms.
- Energy consumption and costs from shared accommodation areas will now be shared between co-located agencies (previously they were met by this Office).
- The dissemination of energy efficient newsletters and other relevant information has assisted all staff to become more aware of the importance of energy efficiency initiatives.
- New energy efficient equipment such as computers, printers and photocopiers have been purchased.

Parliamentary Services Department

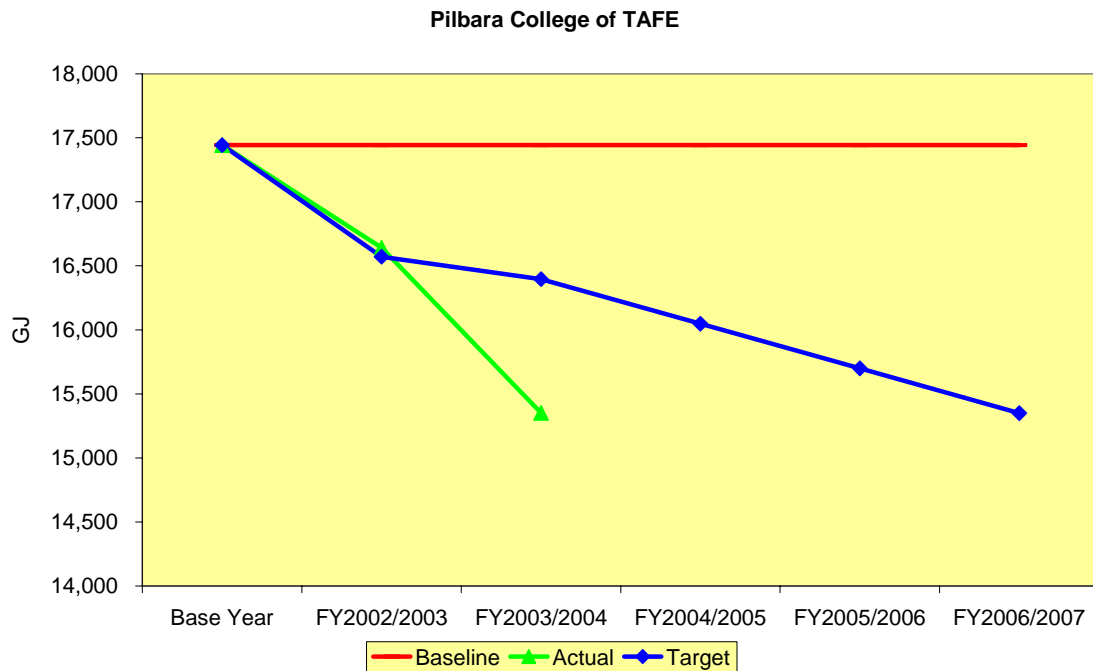


During 2003/04, the Parliamentary Services Department undertook energy audits of all sites and started implementation of the findings. This included:

- Turning off PCs and other office equipment when not in use.
- Modification of air conditioning auto start up so that each occupant manually operates the system when required.
- Planned installation of motion sensors for lighting in selected areas.

In addition, the Parliament House fountains were operated on a minimal maintenance time schedule and an energy awareness program was initiated for the occupants of Parliament House and annexe buildings.

Pilbara College of TAFE

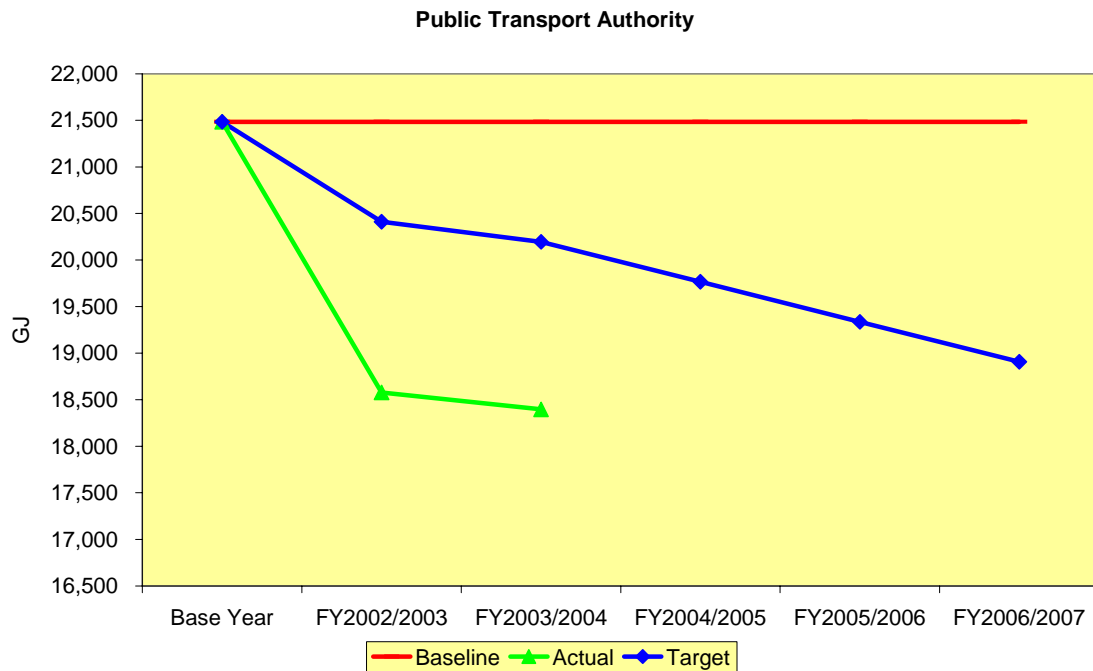


Energy savings for the Pilbara College of TAFE in 2003/04 were achieved as the result of a combination of responsible management practices and major plant and equipment upgrades. This involved:

- A chilled water system major plant upgrade and a more fine tuned approach to scheduling and temperature control produced a significant reduction in energy consumption at South Hedland campus. Ensuring the chilled water system is run at its most cost and energy effective load ratio has resulted in an energy reduction of approximately 25% against the campus baseline consumption.
- Better maintenance practices at Minurmarghali Mia campus have shown an approximate 60% reduction in energy usage against the campus baseline.

Planned upgrades of controls to augment the chilled water plant upgrade at Karratha campus should achieve significant results in 2004/05 at what is currently a high energy usage campus.

Public Transport Authority



The Public Transport Authority is participating in the Energy Smart Government program on a voluntary basis and is only reporting on the Public Transport Centre in East Perth

During 2003/04, the following initiatives were undertaken:

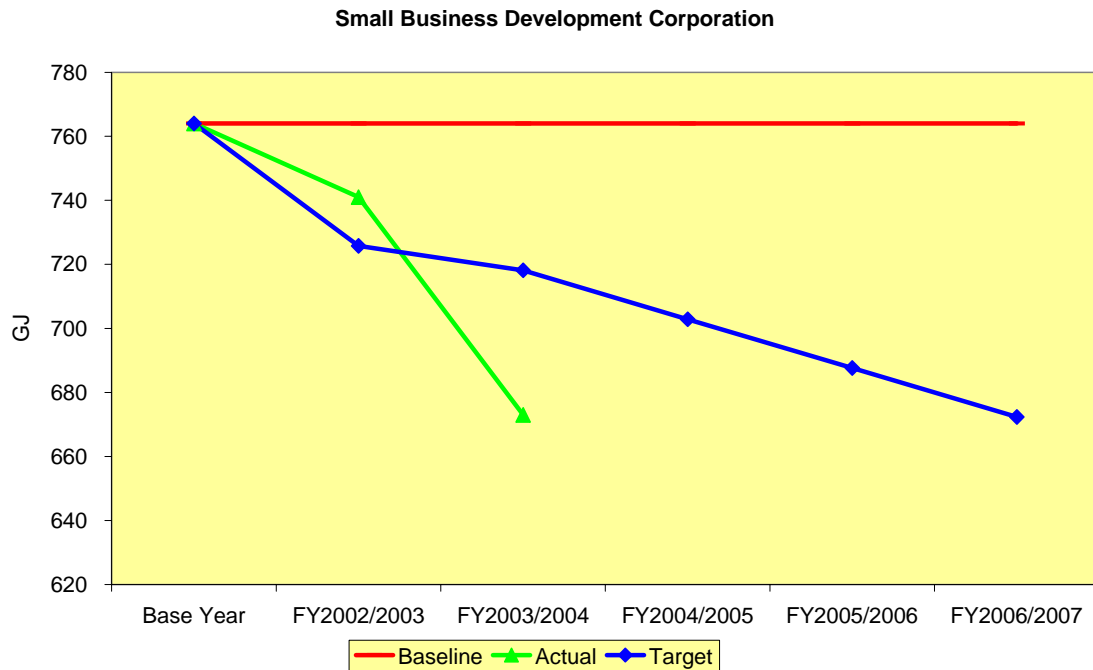
- Installation of variable speed drives to the air conditioning chillers.
- Connection of the 3rd floor office lighting to the building management system (BMS) to enable greater control of the after hours operation of lights
- Connection of the Upper Ground and 1st Floor lighting circuits to the BMS and installation of a switch for the cleaners with 1 hour preset.
- Briefing of security officers to ensure that all unnecessary lighting is turned off at the end of the day.
- Installation of motion detectors in toilets to automatically turn lights on and off as required.
- Upgrading of the lifts using energy efficient electronic equipment.
- Turning off gas fired boilers during hot days.
- Programming of all 'Zip' under sink boiling water heater units to turn off at night.
- Connection of cooling tower fans to the BMS to enable examination of the most efficient operation of the fans in conjunction with the air conditioning chillers.

Future strategies planned for the building include the following:

- The 2nd floor south end will be upgraded during 2004/05 and the existing lighting will be replaced with new energy efficient T5 light fittings and connected to the BMS.
- The north end of the 2nd floor is due to be similarly upgraded in 2006/07.

- It is expected that the 4th and 6th floors will be upgraded in the next 2 to 3 years and will save energy from the lighting upgrade and replacement of air conditioning mixing boxes. All to be connected to the BMS.
- Automatic turn off of all computers when not used for a set period and in particular after normal working hours is being examined.
- The Basement Fitness Centre and Communications Office fan coil units will be connected to timers to prevent continuous running.

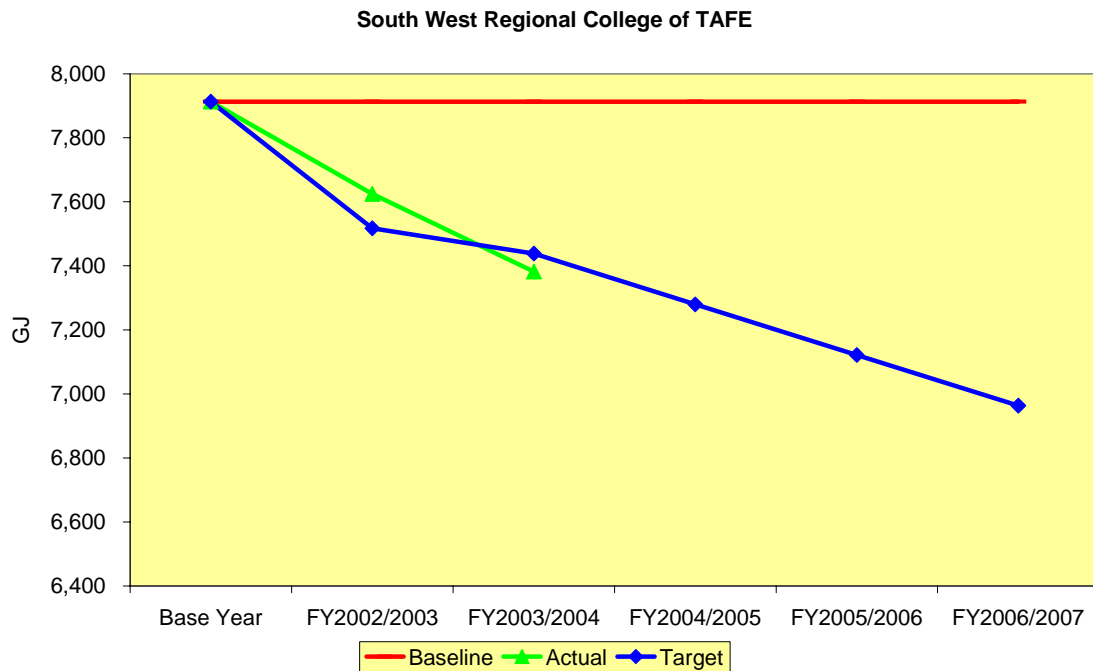
Small Business Development Corporation



During 2003/04, the Small Business Development Corporation continued to encourage responsible energy use. Effective energy saving practices, including the efficient use of lighting and office equipment, are regularly promoted and highlighted to all staff through internal communications.

Energy consumption is monitored on an ongoing basis to identify and investigate abnormal usage and to develop effective strategies to address any inefficiency. In addition, energy efficiency is a consideration when purchasing computing and other electrical consuming equipment.

South West Regional College of TAFE

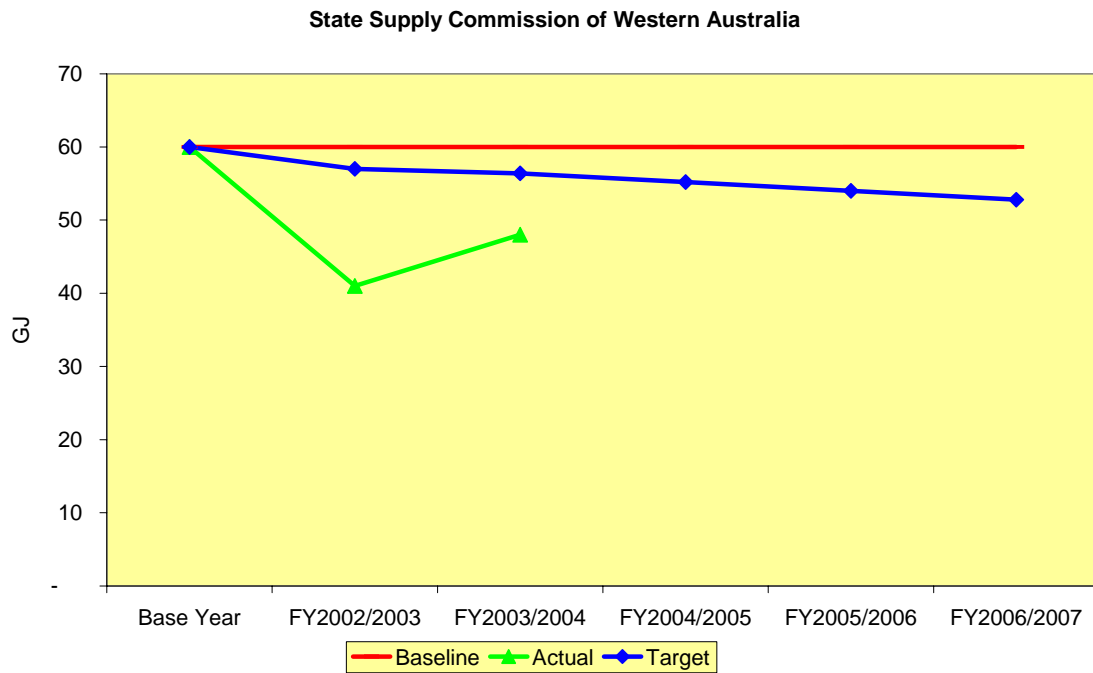


The South West Regional College of TAFE continued with the energy saving initiatives introduced in 2002/03:

- The staff newsletter, posters and light switch stickers were used to maintain awareness.
- College ancillary staff are aware of the benefits of turning off unused equipment and lights.
- College night wardens have energy management built into their track statements and are very proactive.
- The IT department set the computers to sleep mode after a short time of inactivity.

During 2003/04, the facilities services area identified a large natural gas leak as part of work on a building project,. Fixing this has accounted for some savings.

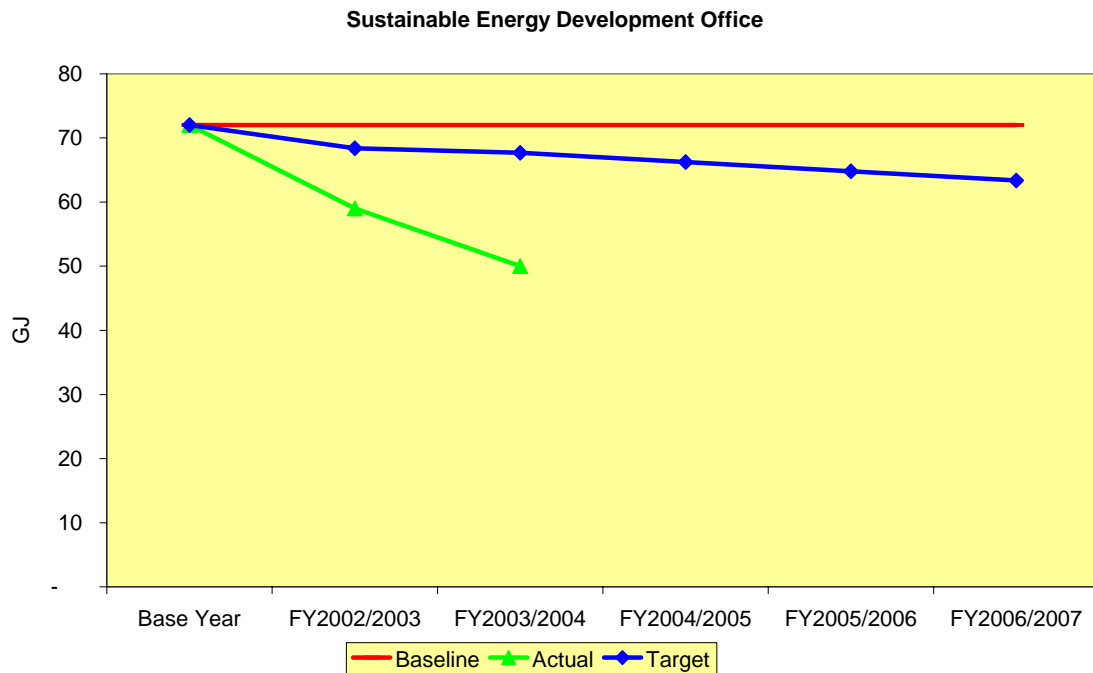
State Supply Commission of Western Australia



The State Supply Commission achieved significant energy savings through the limited use of internal lighting. The Commission is on the south side of Dumas House and its offices receive enough natural light that most staff choose to use natural light for their offices. In addition, staff are conscious of turning lights out when leaving the office, turning computers off at night and being conscientious about energy use within the office.

The State Supply Commission is participating in the Energy Smart Government program on a voluntary basis.

Sustainable Energy Development Office

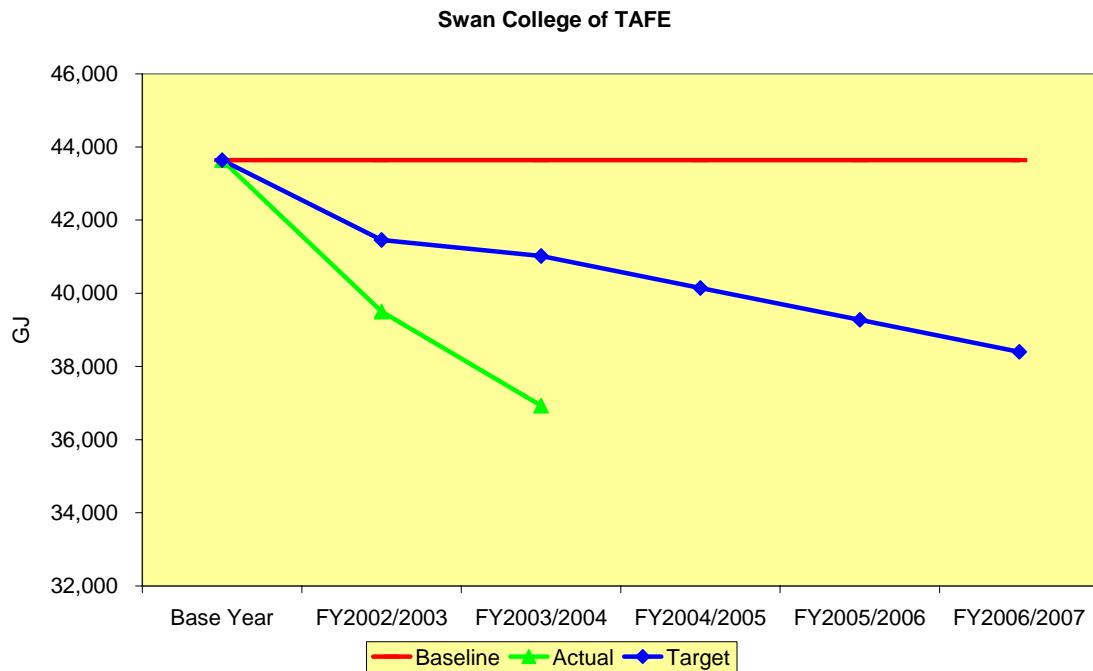


The Sustainable Energy Development Office achieved a further reduction in energy consumption in 2003/04 through various initiatives including:

- Staff awareness ensuring that lights and equipment are switched off after hours.
- Daily monitoring of energy consumption to quickly identify any unusual consumption patterns.
- Further de-lamping where light levels were higher than necessary.

Voltage reduction units will be fitted to the remaining lighting circuits in Sustainable Energy Development Office accommodation in 2004/05.

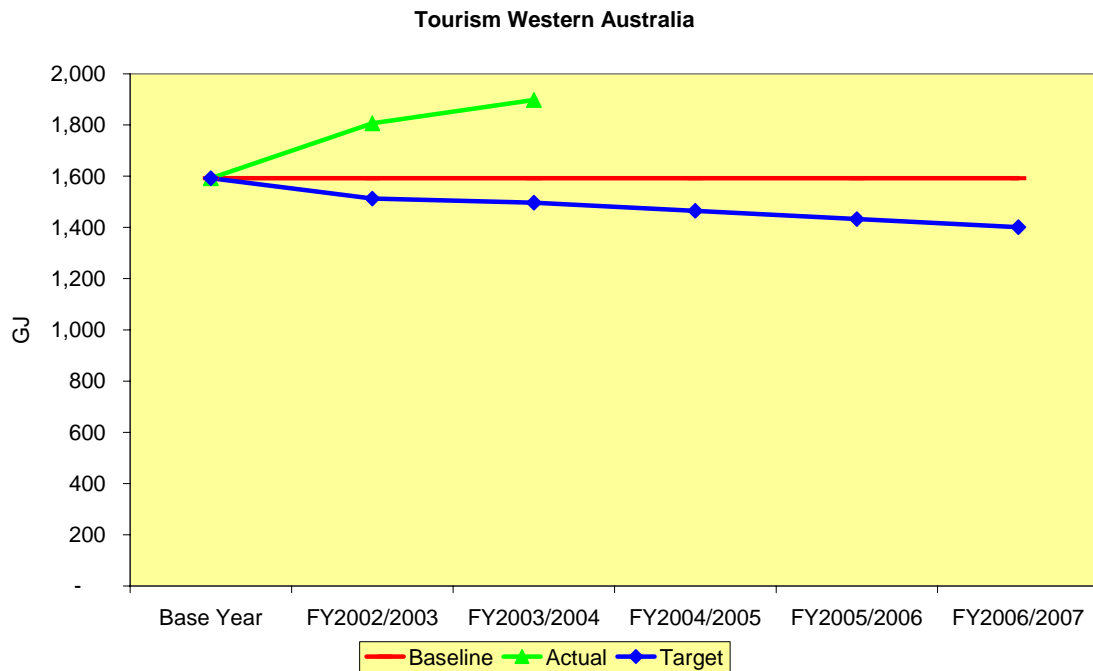
Swan TAFE



Swan TAFE continued with its 2002/03 energy program strategies and introduced some additional initiatives for 2003/04:

- At Balga campus the large workshop extractor units are now operated on an as needs only basis. A program to install energy efficient globes commenced in some work areas. Maintenance staff patrol the campus and switch off unnecessary lights and equipment.
- The building management system at Thornlie campus has been improved to better control the air cooling/heating system. A local energy committee is now fully operational and will sell the “energy smart concept” to staff and students by way of newsletters and personal contact.
- At Bentley campus, timers have been fitted to air conditioning units. Fitting of energy efficient lighting commenced and the use of bore water reticulation in winter was reduced. Advertising “Energy Smart” in newsletters and on orientation days and the formation of a local energy committee has helped get the message around.
- At Midland campus timers were fitted to all air compressor units and night classes were consolidated into one block to achieve savings in light and power use. Further air conditioning refinements have been made to improve air flow.
- Carlisle campus continued to make energy savings in 2003/04 through the dedication of a small team. This team has worked consistently to conserve energy by turning off unnecessary lights, equipment and plant during low and non-contact teaching periods.

Tourism Western Australia



Tourism WA underwent an organisational restructure in 2002 that resulted in an increase in staff numbers. In 2003/04, staff numbers were 43% higher than in the baseline year, but Tourism WA achieved a reduction in energy consumption per person of 16.6% relative to the baseline.

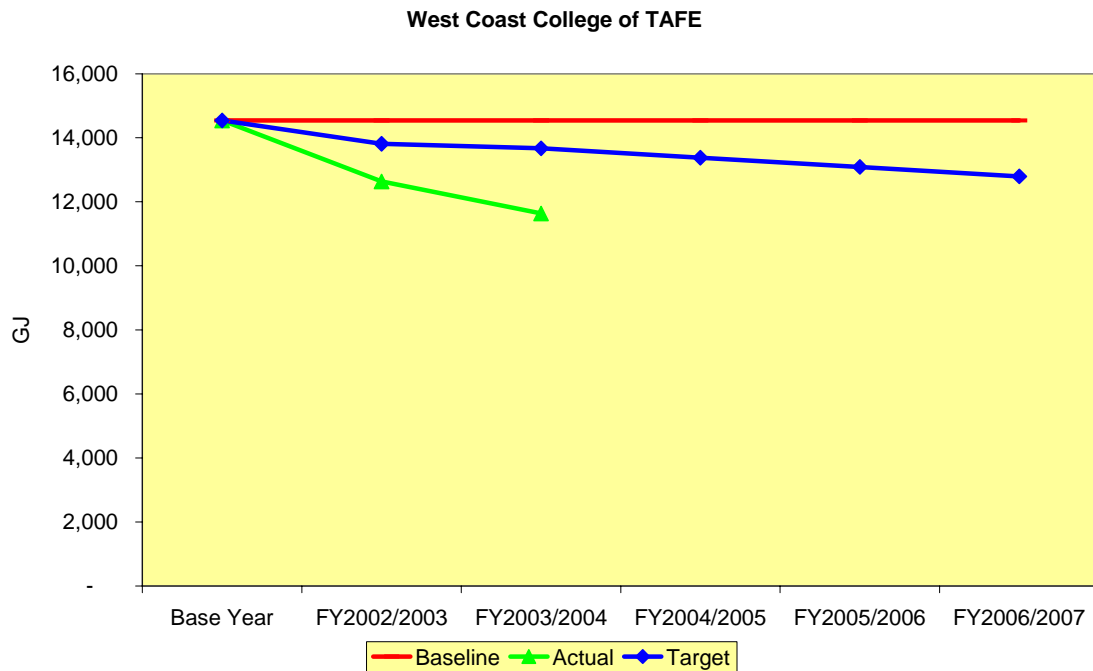
The Head Office of Tourism WA relocated in July 2004. Consequently, it was not cost effective to invest in any energy savings programs in the old premises. During the fit-out process for the new premises, Tourism Western Australia incorporated several energy saving initiatives:

- A consultant was engaged to review the fit-out plans and make recommendations to improve the energy efficiency of the office.
- These recommendations were incorporated into the tenancy fit out and included lighting circuit arrangements and lighting controls to enable efficient use of lighting, movement sensors to control lighting, voltage reduction units to reduce lighting energy consumption, mimic panels adjacent to light switch panels to enable easy recognition of switching zones, and a digital control system for control of lighting.
- Where possible, energy efficient whitegoods were purchased.

Further initiatives planned by Tourism WA are:

- Implementation of an energy policy.
- Further educating staff on energy awareness.
- Implementation of LCD screens over a three year period to enable energy savings from monitors.

West Coast College of TAFE

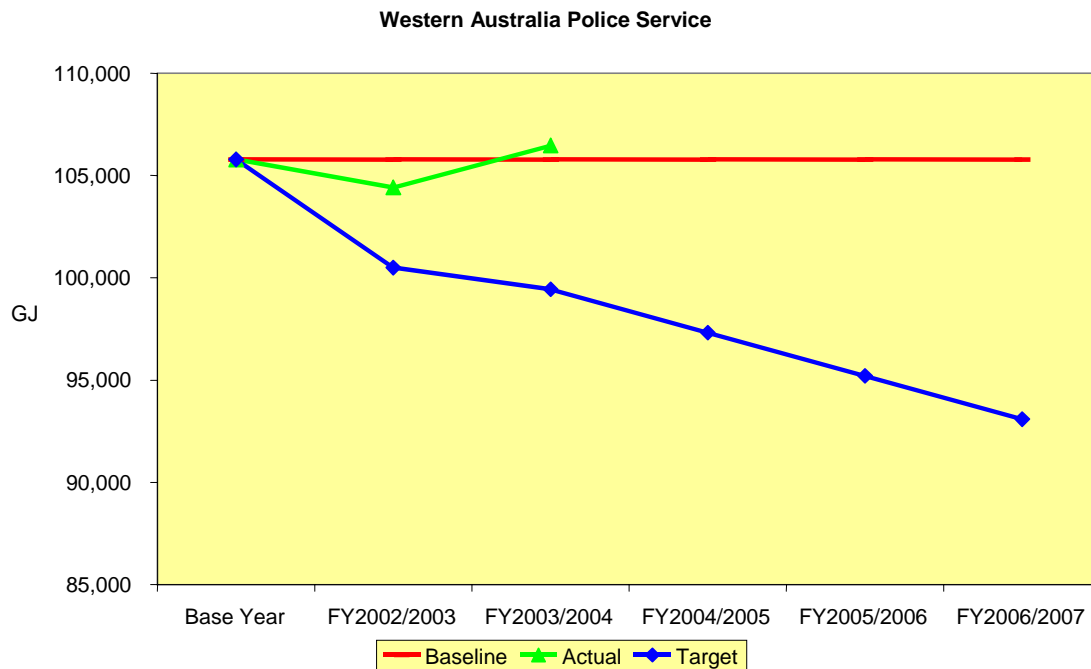


During 2003/04, West Coast College of TAFE concentrated on monitoring and management of the systems that operate the mechanical equipment at each campus. The College upgraded the reporting function of the Joondalup campus energy management system, including logging of the chillers. This facility, used in conjunction with downloads supplied by Western Power, enabled the College to identify situations where mechanical equipment was running after hours even though timers had been set to prevent after hours operation.

The College also has a policy of daily monitoring of time schedules and timers, out of hours usage of the facilities, set points for air conditioning units and holiday re-scheduling. The College ensured that the new Hospitality Tourism Centre being built at the Joondalup campus incorporated the necessary equipment to allow for energy usage to be monitored.

The College has also established an energy management committee and is finalising an energy management policy. An action plan will also be prepared through this committee.

Western Australia Police Service



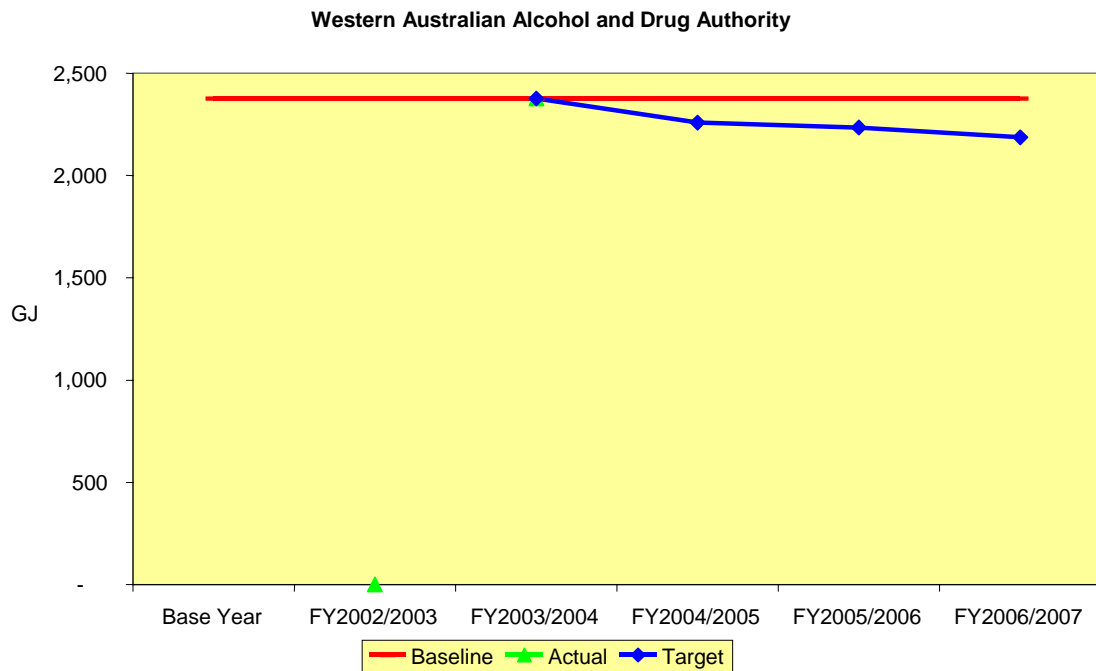
The Western Australia Police Service initiated the following strategies to reduce energy consumption:

- An energy management committee has been established and is chaired by the Director Asset Management. Its role is to oversee and drive energy reduction strategies.
- A sustainability officer position has been established and will be filled in 2004/05. The officer will be dedicated to sustainability and energy policy initiatives and will be responsible for assisting and supporting business units to reduce energy consumption.
- Regular premise based reporting of energy consumption will be implemented to improve business unit focus on energy consumption.
- Energy audits of all major police buildings have been undertaken. The recommendations will be implemented in the near future.

The following changes to operations impacted on the Police Service's ability to meet the 6% target:

- Police Service staff numbers continue to increase.
- The Police Service continues to build new and replacement facilities that, whilst energy efficient, incorporate more sophisticated services and systems.
- Changes to policing operations have led to Police Service facilities being occupied for longer periods of time.
- In January 2004, all police officers came under occupational safety and health legislation. This necessitated the provision of additional external and internal lighting, exit signs, bio-hazard refrigerators, security systems and other solutions to enhance the safety and well-being of staff.

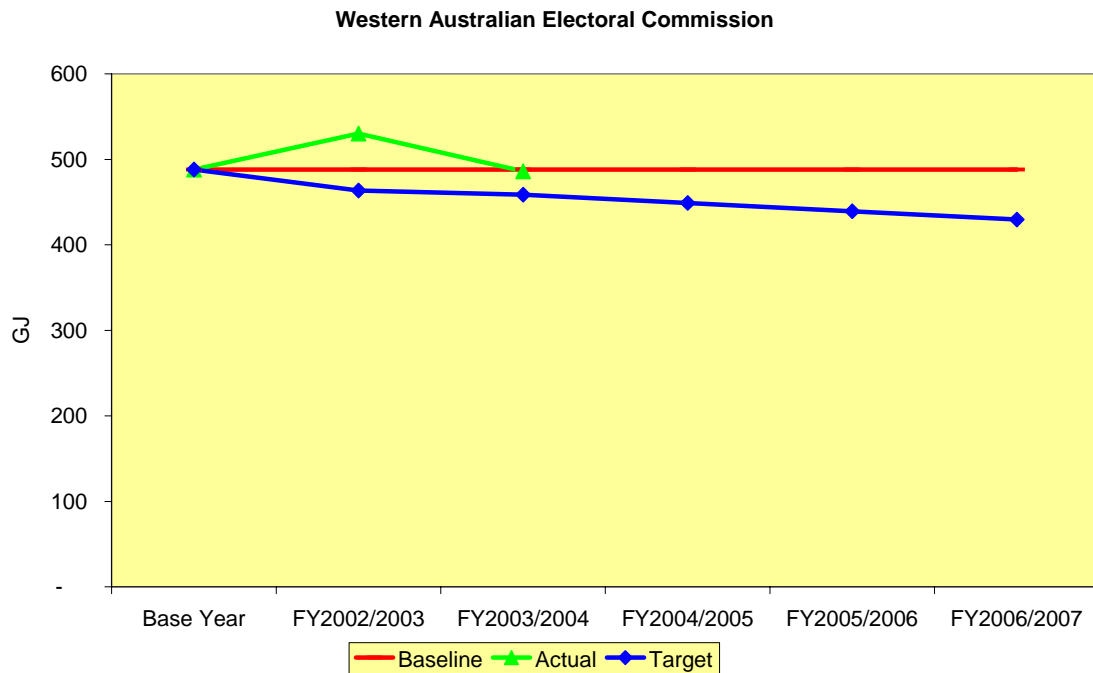
Western Australian Alcohol and Drug Authority



The Western Australian Alcohol and Drug Authority joined the Energy Smart Government program in 2003/04. A baseline has been established for the Authority based on 2003/04 energy consumption and energy reduction targets have been established as follows: 5% in 2004/05; 6% in 2005/06; 8% in 2006/07.

The Authority is undertaking energy audits of its facilities to identify energy saving opportunities.

Western Australian Electoral Commission

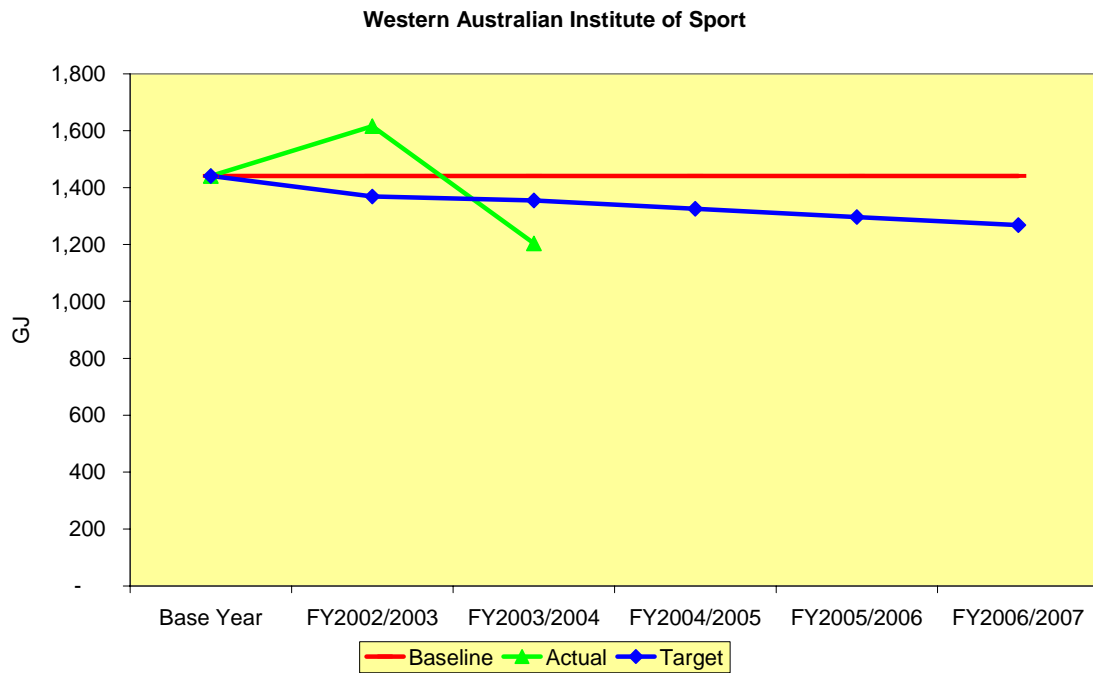


The Western Australian Electoral Commission has implemented the following initiatives to reduce energy consumption:

- Staff awareness training, particularly in regard to turning off lights when not required, and in the selective opening and closing of blinds to reduce heat absorption on east and west facing windows.
- Criteria for the selection of new computer equipment and copiers has included a requirement for energy efficient features.
- The Commission has implemented a practice whereby all desk top computers power down after 10 minutes of non-use.
- The Corporate Executive team undertakes the energy management responsibility for the Commission.

The activities and staffing of the Western Australian Electoral Commission vary from year to year as a result of the cyclical nature of election operations. The baseline year was a non-election year. Although the Commission did not achieve the energy reduction target in 2003/04, the initiatives implemented by the Commission resulted in a reduction in energy consumption per person of 27% relative to the baseline.

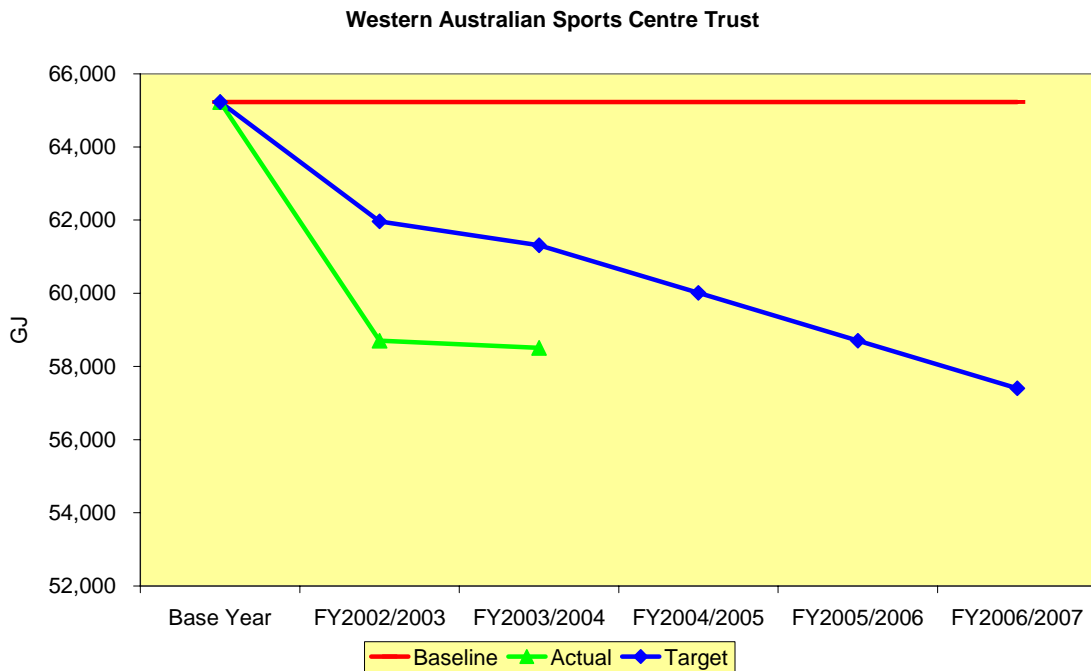
Western Australian Institute of Sport



The Western Australian Institute of Sport adopted various energy saving initiatives in 2003/04 that included:

- Optimising the usage of high energy consuming resources and monitoring them on a regular basis.
- Communicating effectively with regards to energy usage.
- Planning an energy saving capital expenditure initiative.

Western Australian Sports Centre Trust

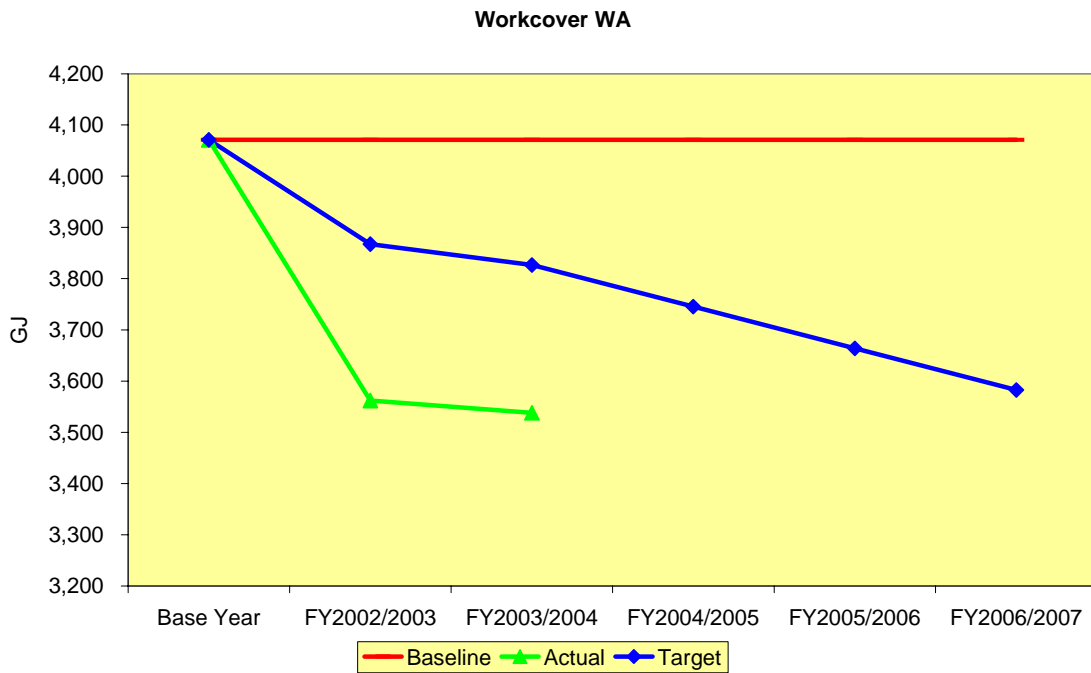


Further energy savings by the Western Australian Sports Centre Trust in 2003/04 were the result of a number of initiatives that included:

- The installation of a variable speed drive on the dive pool main circulation pump at Challenge Stadium.
- Time scheduling of a number of other pumps.
- Control of lighting via light sensors and further tuning of the building management systems at both major sites.

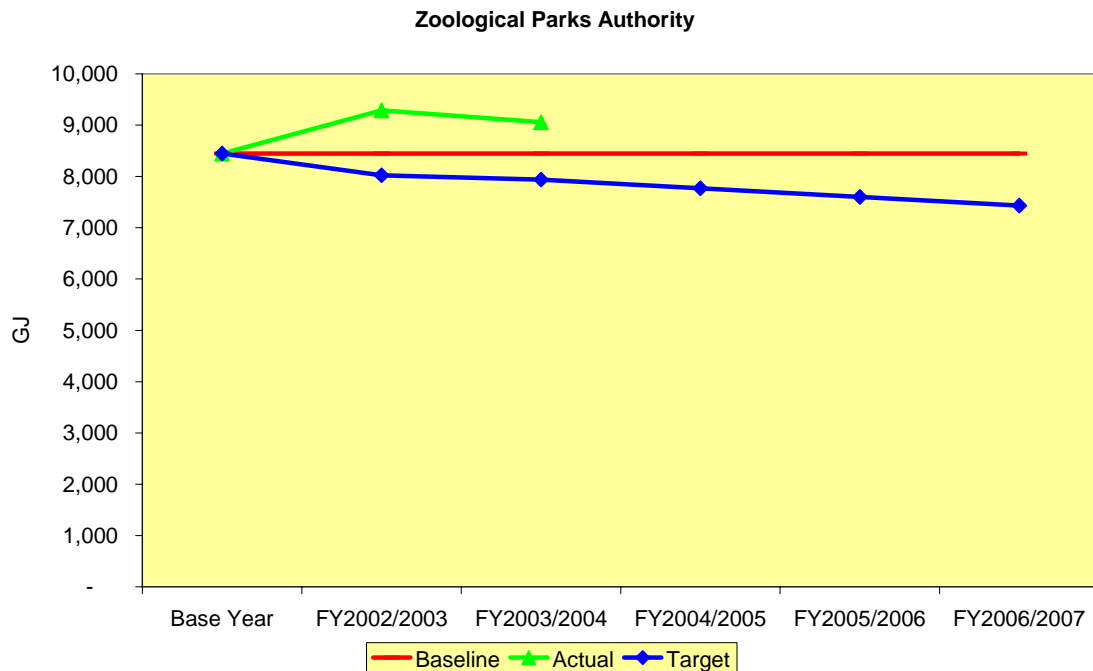
Commissioning in July 2004 of the geothermal system to heat the pools at Challenge Stadium should result in a reduction in the overall gas consumption for the Trust in 2004/05.

WorkCover WA



During 2003/04, energy audits were undertaken at both WorkCover sites. As a result of the audit recommendations, the software and hardware for the air conditioning system at Shenton Park was upgraded and existing lamps are being replaced with energy efficient fluorescent tubes.

Zoological Parks Authority



During 2002/03 and 2003/04, Perth Zoo actively implemented energy saving actions, some of which were identified during an energy audit commissioned in 2001. These actions have included:

- De-lamping of all administration buildings.
- Installation of timers on over 30 storage water heaters.
- Installation of timers on the recirculation pumps associated with water bodies in animal exhibits.
- Rationalisation of the number of fridges in use resulting in six units being taken out of operation.
- Replacement of two of the Zoo's six bore pumps with more efficient units.
- An audit and rationalisation of the number and type of printers in use, resulting in 15 personal printers being taken out of action.
- Installation of motion sensors for light switching in all public toilet buildings.
- Introduction of a preventative maintenance program for all air conditioners.
- Inclusion of energy efficiency requirements in contract documentation for capital works projects.

More recently, an irrigation consultant has been appointed to conduct a pump energy audit involving 52 pumps. It is also intended to engage a consultant to review the air conditioning systems in several buildings.

Energy management is a standing issue on every meeting of the Zoo's environmental management group (EMG) that is chaired by the CEO. The EMG has been working with each section of the Zoo to identify potential energy efficiency opportunities and to reinforce the adoption of energy efficient practices by staff. Energy management issues and initiatives are also brought to the attention of Zoo staff at monthly staff meetings and via internal emails.

Appendix One: Overview of the Energy Smart Government Policy

The Energy Smart Government policy was launched in June 2002. It covers all of the energy used in the buildings, plant and equipment of all general government sector agencies with 25 or more FTEs. Energy used in the transport operations of Government agencies is not covered by this policy.

Agencies with less than 25 FTEs and government trading enterprises (i.e. public non-financial corporations, public financial corporations and agencies outside the State's public sector) are not compelled to participate in the Energy Smart Government program. However, they are encouraged to adopt the principles of the policy as an integral part of their business and to contribute to Western Australia's broad environmental outcomes while pursuing good business practice.

The policy requires participating agencies to:

- Achieve a 12% reduction in stationary energy consumption relative to an established baseline by 2006/07. Annual energy reduction milestones of 5%, 6%, 8%, 10% and 12% for the years 2002/03 to 2006/07 have been established.
- Include in their annual reports total stationary energy consumption, stationary energy costs, greenhouse gas emissions associated with the production and use of that energy, and their performance against the established set of nationally consistent activity based energy performance indicators.
- Provide to the Sustainable Energy Development Office by 31 August of each year their total stationary energy costs, stationary energy consumption, greenhouse gas emissions associated with the production and use of that energy and activity measures for energy performance indicators for the previous financial year.

There is provision in the policy for financial penalties to be imposed on those agencies that do not achieve the energy reduction targets and that are unable to demonstrate adequate reasons for failing to do so.

Appendix Two: End-Use Categories

| | |
|---|---|
| Office - Tenant Light and Power | <p>Tenant operations in buildings whose primary function is office space. Energy use includes that required for tenancy lighting, office equipment, supplementary air conditioning, boiling water units etc.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Office - Central Services | <p>Services in office buildings common to all tenants. Energy use includes that required for building air conditioning, lifts, security and lobby lights, domestic hot water etc.</p> <p>Performance indicator: MJ/m²/annum</p> |
| Office Buildings - Combined Services | <p>Office buildings where energy consumption for tenant services and central services cannot be separated. This includes smaller stand-alone office buildings as well as other office buildings where tenant services and central services energy consumption is not metered separately.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Law Courts | <p>All types of court facilities, whether a relatively small space in a larger building, or housed in a specialised building.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Custodial Facilities | <p>Buildings and facilities used primarily for custodial services for adults or juveniles.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum; MJ/inmate day/annum.</p> |
| Police, Fire and Emergency Services Facilities | <p>Police stations, fire stations, state emergency services centres, ambulance stations, etc.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Primary and Secondary Educational Facilities | <p>Buildings and facilities used for education and training at primary and secondary level.</p> <p>Performance indicators: MJ/m²/annum; MJ/effective full time student/annum.</p> |
| Tertiary Educational Facilities | <p>Tertiary colleges, TAFE Colleges and universities.</p> <p>Performance indicators: MJ/m²/annum; MJ/effective full time student/annum.</p> |
| Laboratories | <p>Facilities used as laboratories.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Hospitals | <p>Buildings and facilities primarily used as hospitals. Includes mental health and other hospitals as per Hospital's Comparison Year Book Multi Purpose Services.</p> <p>Performance indicators: MJ/m²/annum, MJ/person/annum, MJ/occupied bed day/annum.</p> |

| | |
|---|--|
| Other Healthcare Buildings | <p>Healthcare buildings and facilities other than hospitals such as community health centres, ambulance stations and nursing homes.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Public Buildings | <p>Buildings visited by the public in significant numbers. Typical buildings in this category are public libraries, museums and art galleries.</p> <p>Performance indicator: MJ/m²/annum</p> |
| Entertainment and Sporting Complexes | <p>Entertainment and sporting facilities including theatres, concert halls and sport centres.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Parks and Wildlife Facilities | <p>Ranger Stations, visitor centres, camping grounds, wildlife parks, zoological parks and gardens.</p> <p>Performance indicator: N/A</p> |
| Residential Buildings | <p>Houses and flats, including guesthouses and some nursing homes.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Other Buildings | <p>Buildings that do not fit any of the other building categories, e.g. simple storage shed, radio transmitter buildings.</p> <p>Performance indicators: MJ/m²/annum; MJ/person/annum</p> |
| Other Uses | <p>Facilities that do not fit any of the previously defined categories.</p> <p>Performance indicator: N/A</p> |

Appendix Three: Agency Performance Indicator Results

Percentage change in energy intensity from the baseline for each agency by end-use category.

| Agency/End-Use Category | Energy Consumption GJ | Variation in energy intensity %Reduction (%Increase) | | | |
|--|--------------------------|---|-------------------|---------|-----------------------|
| | | By person | By m ² | By EFTS | By Inmate By OBD Days |
| Botanic Gardens and Parks Authority | | | | | |
| Parks and Wildlife Facilities | 6,265 | | | | |
| C Y O'Connor College of TAFE | | | | | |
| Tertiary Educational Facilities | 1,798 | | 2.0% | 22.7% | |
| Central TAFE | | | | | |
| Tertiary Educational Facilities | 43,698 | | 5.2% | 18.9% | |
| Central West College of TAFE | | | | | |
| Tertiary Educational Facilities | 6,072 | | 8.4% | 13.2% | |
| Challenger TAFE | | | | | |
| Tertiary Educational Facilities | 20,687 | | (1.7%) | 6.7% | |
| Curriculum Council of Western Australia | | | | | |
| Office - Combined Services | 1,248 | 20.5% | 1.6% | | |
| Department for Community Development | | | | | |
| Office - Combined Services | 5,091 | 19.1% | 13.2% | | |
| Office - Tenant Light and Power | 5,608 | 10.5% | 4.6% | | |
| Other Uses | 6,576 | | | | |
| Department for Planning and Infrastructure | | | | | |
| Office - Combined Services | 14,453 | 11.1% | 8.2% | | |
| Office - Tenant Light and Power | 2,736 | (18.3%) | (3.0%) | | |
| Other Uses | 8,444 | | | | |
| Department of Agriculture | | | | | |
| Laboratories | 44,748 | | 7.0% | | |
| Office - Combined Services | 1,850 | (54.8%) | (103.6%) | | |
| Office - Tenant Light and Power | 739 | (123.0%) | (18.6%) | | |
| Other Uses | 99 | | | | |
| Department of Conservation and Land Management | | | | | |
| Laboratories | 2,758 | | 12.8% | | |
| Office - Combined Services | 8,693 | 13.7% | (19.2%) | | |
| Office - Tenant Light and Power | 891 | 25.2% | 35.2% | | |
| Other Buildings | 1,163 | | 31.3% | | |
| Other Uses | 904 | | | | |
| Parks and Wildlife Facilities | 8,957 | | | | |
| Public Buildings | 614 | | | | |
| Residential Buildings | 58 | | | | |
| Department of Consumer and Employment Protection | | | | | |
| Office - Combined Services | 736 | (5.9%) | (7.1%) | | |
| Office - Tenant Light and Power | 7,980 | 14.5% | 4.0% | | |
| Department of Culture and the Arts | | | | | |
| Office - Tenant Light and Power | 640 | 13.7% | (1.2%) | | |
| Other Buildings | 396 | | | | |
| Public Buildings | 97,407 | | (1.3%) | | |

| Agency/End-Use Category | Energy Consumption GJ | Variation in energy intensity %Reduction (%Increase) | | | |
|---|--------------------------|---|-------------------|---------|-----------------------|
| | | By person | By m ² | By EFTS | By Inmate By OBD Days |
| Department of Education and Training | | | | | |
| Office - Combined Services | 11,715 | 12.4% | 2.0% | | |
| Office - Tenant Light and Power | 6,104 | 2.3% | 15.3% | | |
| Primary and Secondary Educational facilities | 437,474 | | 9.1% | 7.2% | |
| Department of Education Services | | | | | |
| Office - Combined Services | 391 | | | | |
| Office - Tenant Light and Power | 25 | | | | |
| Department of Environment | | | | | |
| Office - Tenant Light and Power | 6,561 | 28.9% | (15.2%) | | |
| Other Uses | 1,662 | | | | |
| Department of Fisheries | | | | | |
| Laboratories | 2,198 | | (0.7%) | | |
| Office - Combined Services | 2,592 | 11.2% | 3.0% | | |
| Other Buildings | 312 | | | | |
| Department of Health | | | | | |
| Hospitals | 1,185,955 | | (2.2%) | | (1.6%) |
| Other Healthcare Buildings | 19,583 | | | | |
| Department of Housing and Works | | | | | |
| Office - Central Services | 38,585 | | 12.7% | | |
| Office - Combined Services | 10,293 | 28.5% | 13.2% | | |
| Office - Tenant Light and Power | 3,511 | 4.5% | 4.3% | | |
| Public Buildings | 1,555 | | 13.4% | | |
| Department of Indigenous Affairs | | | | | |
| Office - Tenant Light and Power | 1,206 | 34.9% | 13.1% | | |
| Department of Industry and Resources | | | | | |
| Laboratories | 6,280 | | 7.0% | | |
| Office - Combined Services | 12,702 | 16.1% | 10.5% | | |
| Office - Tenant Light and Power | 2,803 | (12.2%) | (23.7%) | | |
| Other Uses | 1,477 | | | | |
| Department of Justice | | | | | |
| Custodial facilities | 152,541 | 88.9% | (1.6%) | | 15.1% |
| Law Courts | 32,934 | 48.4% | 11.0% | | |
| Office - Tenant Light and Power | 21,777 | 1.7% | 27.8% | | |
| Department of Land Information | | | | | |
| Office - Combined Services | 15,860 | 32.7% | 36.8% | | |
| Office - Tenant Light and Power | 2,259 | (20.8%) | (7.6%) | | |
| Other Uses | 24 | | | | |
| Department of Local Government and Regional Development | | | | | |
| Office - Tenant Light and Power | 739 | 42.3% | 32.4% | | |
| Department of Racing, Gaming and Liquor | | | | | |
| Office - Tenant Light and Power | 609 | 21.2% | 19.5% | | |
| Department of Sport and Recreation | | | | | |
| Entertainment and Sporting Complexes | 3,234 | | | | |
| Office - Tenant Light and Power | 2,026 | (15.9%) | (13.4%) | | |
| Department of the Premier and Cabinet | | | | | |
| Office - Tenant Light and Power | 11,432 | 15.1% | 10.1% | | |

| Agency/End-Use Category | Energy Consumption GJ | Variation in energy intensity %Reduction (%Increase) | | |
|--|--------------------------|---|-------------------|--|
| | | By person | By m ² | By EFTS By Inmate By OBD Days |
| Department of the Registrar Western Australian Industrial Relations Commission | | | | |
| Law Courts | 687 | | (18.4%) | |
| Office - Combined Services | 224 | 1.9% | 1.9% | |
| Office - Tenant Light and Power | 348 | 8.4% | (6.6%) | |
| Department of Treasury and Finance | | | | |
| Office - Tenant Light and Power | 4,348 | (3.8%) | (3.6%) | |
| Disability Services Commission | | | | |
| Office - Combined Services | 5,229 | 40.0% | 39.0% | |
| Office - Tenant Light and Power | 1,527 | 20.2% | 18.4% | |
| Other Healthcare Buildings | 6,832 | | 13.5% | |
| Other Uses | 77 | | | |
| Residential Buildings | 9,065 | | | |
| Fire and Emergency Services Authority | | | | |
| Office - Combined Services | 14,775 | 28.9% | 20.0% | |
| Office - Tenant Light and Power | 622 | 29.6% | (22.7%) | |
| Police, Fire and Emergency Services Facilities | 6,926 | (5.7%) | | |
| Forest Products Commission | | | | |
| Office - Combined Services | 582 | (24.8%) | 61.1% | |
| Office - Tenant Light and Power | 672 | (6.1%) | (40.0%) | |
| Other Uses | 2,988 | | | |
| Gascoyne Development Commission | | | | |
| Office - Combined Services | 225 | 8.4% | (45.1%) | |
| Great Southern TAFE | | | | |
| Tertiary Educational Facilities | 4,330 | | 26.2% | 19.5% |
| Kimberley College of TAFE | | | | |
| Tertiary Educational Facilities | 3,356 | | 1.5% | 11.9% |
| Legal Aid Western Australia | | | | |
| Office - Tenant Light and Power | 1,834 | 11.5% | 4.9% | |
| Lotterywest | | | | |
| Office - Combined Services | 4,024 | 9.8% | 0.6% | |
| Other Buildings | 926 | (42.5%) | (13.2%) | |
| Main Roads Western Australia | | | | |
| Laboratories | 1,947 | | (9.4%) | |
| Office - Combined Services | 11,082 | 7.5% | (0.9%) | |
| Office - Tenant Light and Power | 496 | (32.2%) | (1,420.9%) | |
| Other Buildings | 3,108 | | | |
| Metropolitan Cemeteries Board | | | | |
| Other Uses | 7,973 | | | |
| Mid West Development Commission | | | | |
| Office - Tenant Light and Power | 199 | 18.5% | (1.7%) | |
| Office of Energy | | | | |
| Office - Tenant Light and Power | 372 | 22.6% | 13.9% | |
| Office of the Auditor General | | | | |
| Office - Tenant Light and Power | 520 | 10.6% | 5.2% | |
| Office of the Country High School Hostels Authority | | | | |
| Residential Buildings | 8,660 | 21.1% | 22.4% | |

| Agency/End-Use Category | Energy Consumption GJ | Variation in energy intensity %Reduction (%Increase) | | |
|--|--------------------------|---|-------------------|--|
| | | By person | By m ² | By EFTS By Inmate By OBD Days |
| Office of the Director of Public Prosecutions | | | | |
| Office - Tenant Light and Power | 1,072 | 28.4% | 17.9% | |
| Office of the Public Sector Standards Commissioner | | | | |
| Office - Tenant Light and Power | 237 | 17.6% | 50.7% | |
| Parliamentary Commissioner for Administrative Investigations | | | | |
| Office - Tenant Light and Power | 310 | 3.8% | 3.8% | |
| Parliamentary Services Department | | | | |
| Office - Combined Services | 68 | 20.2% | 24.1% | |
| Office - Tenant Light and Power | 612 | (1.0%) | 15.0% | |
| Other Uses | 35 | | | |
| Public Buildings | 5,882 | | 9.9% | |
| Pilbara College of TAFE | | | | |
| Tertiary Educational Facilities | 15,351 | | 15.1% | 17.1% |
| Public Transport Authority | | | | |
| Office - Combined Services | 18,395 | 54.2% | 14.4% | |
| Small Business Development Corporation | | | | |
| Office - Tenant Light and Power | 673 | 11.9% | 11.9% | |
| South West Regional College of TAFE | | | | |
| Tertiary Educational Facilities | 7,382 | | 12.3% | 25.0% |
| State Supply Commission of Western Australia | | | | |
| Office - Tenant Light and Power | 48 | 20.1% | 20.1% | |
| Sustainable Energy Development Office | | | | |
| Office - Tenant Light and Power | 50 | 43.5% | 30.3% | |
| Swan College of TAFE | | | | |
| Tertiary Educational Facilities | 36,930 | | 17.7% | 10.8% |
| Tourism Western Australia | | | | |
| Office - Tenant Light and Power | 1,898 | 16.6% | (14.8%) | |
| West Coast College of TAFE | | | | |
| Tertiary Educational Facilities | 11,637 | | 20.4% | 0.7% |
| Western Australia Police Service | | | | |
| Police, Fire and Emergency Services Facilities | 97,281 | 0.6% | (3.4%) | |
| Tertiary Educational Facilities | 9,187 | | 5.3% | 5.3% |
| Western Australian Alcohol and Drug Authority | | | | |
| Hospitals | 1,156 | | | |
| Office - Combined Services | 907 | | | |
| Other Healthcare Buildings | 314 | | | |
| Western Australian Electoral Commission | | | | |
| Office - Tenant Light and Power | 486 | 26.8% | (0.7%) | |
| Western Australian Institute of Sport | | | | |
| Other Buildings | 1,204 | | | |
| Western Australian Sports Centre Trust | | | | |
| Entertainment and Sporting Complexes | 58,509 | | 10.3% | |
| WorkCover WA | | | | |
| Office - Combined Services | 3,538 | 15.6% | 13.1% | |
| Zoological Parks Authority | | | | |
| Parks and Wildlife Facilities | 9,054 | | | |
| Total GJ | 2,683,898 | | | |

Appendix Four: Greenhouse Gas Coefficients

The greenhouse gas coefficients used to calculate emissions from government energy use in this report are taken from the Office of Energy's publication, *Energy Western Australia, February 2003*, with the exception of the greenhouse gas coefficient applied to electricity. In this instance, the coefficient used was sourced from Western Power Corporation based on the carbon intensity for electricity sold. This figure varies from year to year as the mix of fuels used by Western Power Corporation to generate electricity changes.

Greenhouse gas coefficients used to determine the level of emissions attributable to government operations reported under the Energy Smart Government policy are contained in the following table.

Greenhouse gas coefficients for Western Australian Government operations

| Fuel Type | Baseline kg CO₂/GJ | 2002/03 kg CO₂/GJ | 2003/04 kg CO₂/GJ |
|------------------|--|---|---|
| Electricity | 255.6 | 263.9 | 252.8 |
| Natural Gas | 52.4 | 52.4 | 52.4 |
| LPG | 59.4 | 59.4 | 59.4 |
| Wood | 91.0 | 91.0 | 91.0 |
| Diesel | 70.1 | 70.1 | 70.1 |

Appendix Five: Abbreviations and Conversion Factors

Abbreviations

| Abbreviation | Meaning |
|-----------------|--|
| CO ₂ | Carbon Dioxide |
| EDGAR | Energy Data Gathering and Reporting |
| EFTS | Effective Full Time Students |
| FTE | Full Time Equivalent |
| GJ | GigaJoule |
| kg | Kilogram |
| kWh | Kilowatt-hour |
| LPG | Liquefied Petroleum Gas |
| MJ | MegaJoule |
| OBD | Occupied Bed Days |
| person | Total number of people occupying a facility, including permanent staff, temporary staff and contractors. |

Conversion Factors

1 kWh = 3.6 MJ

1 kg LPG = 50.3 MJ

1 litre diesel = 38.6 MJ

1 tonne of wood = 16 200 MJ



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