# Government Buildings Energy Strategy

2013-2020


SOUTH AUSTRALIA

Government of South Australia

Cover image shows solar photovoltaic shading devices being installed on the Hanson Institute Building, Frome Road, Adelaide. Image courtesy of the *Department for Health and Ageing* and *Sustainable Focus Pty Ltd.*

**SA GOVERNMENT BUILDINGS ENERGY STRATEGY**

**2013-2020**

**Contents**

# Introduction

The 2013 Government Buildings Energy Strategy (the Strategy) is the SA Government's key strategic document for managing energy and improving energy efficiency within Government buildings. The Strategy covers the period 2013 – 2020, with a review proposed during 2016.

The Strategy has been prepared in consultation with the Energy Efficiency Reference Group. It has also been informed by an independent assessment of current energy efficiency practices and policies regarding Government buildings.

The Strategy updates and replaces the SA Government Energy Efficiency Action Plan, which was endorsed by Cabinet in 2002. The 2002 Action Plan was developed in response to the Kyoto Protocol and was focussed primarily on abating greenhouse gas emissions from government operations.

Since the 2002 Plan was endorsed, a number of changes have occurred to prompt a revision of the targets and actions:

- The Government has made some key commitments regarding the environmental performance of newly constructed and leased office accommodation (these commitments are explained in Chapters 1 and 2).
- The Government has adopted South Australia's Strategic Plan (2011) which includes Target 61 (SASP T61) 'to improve the energy efficiency of government buildings by 30% by 2020 - based on 2000/01 levels'.
- The Commonwealth Government has introduced its Clean Energy Future package, which aims to reduce greenhouse gas emissions by increasing the relative price of carbon-intensive sources of energy.
- Changes to network tariffs (in particular higher demand charges) have resulted in a greater focus on reducing peak demand as well as overall consumption. The objective here is broader than just improving energy efficiency – it is also about avoiding paying more for energy than is necessary.

Given this context, the actions in this revised Strategy address the broader issue of sound energy management in Government buildings, rather than focusing solely on greenhouse gas abatement. Some of the actions from the 2002 Energy Efficiency Action Plan are ongoing and have been carried forward into the revised Strategy, whilst others are being dealt with through other programs. Appendix 1 provides a summary of the status of previous actions.

## Objectives of the Strategy

- To achieve SASP T61
- To reduce energy costs to government, compared to business as usual
- To reduce greenhouse gas emissions associated with the operation of government buildings

## Progress Toward SASP T61

The latest published data from the SA Government Annual Energy Efficiency Report shows that the energy efficiency of government buildings has improved by 21.1% since 2000/01. The projects developed through the Energy Efficiency Investment Framework are expected to add an additional 4% improvement by 2016. Existing business planning will also see energy efficiency improvements through the transfer of agencies into newer, more energy efficient buildings. The measures in this Strategy are intended to provide the additional gains in energy efficiency necessary to reach SASP T61 by 2020.

## Energy Use in Government Buildings

In 2011/12, energy costs for government buildings, exclusive of GST, were approximately $78.7M for electricity and $7M for natural gas.

Three agencies consume over 75% of all energy used in government buildings. These are:

- Department of Health (approximately 52%)
- Department for Education and Child Development (approximately 17%)
- Department of Further Education, Employment, Science and Technology (approximately 7%)

The energy used by categories of government building types is reflective of the agency usage. The major two categories of building in terms of percentage of total government building energy use are:

- Health Buildings, such as hospitals and community health centres (approximately 50%)
- Educational Facilities, such as schools and TAFE Colleges (approximately 24%)

By comparison, office buildings comprise approximately 7% of total government building energy use. For this reason, there is an increased focus on health and education buildings in this Strategy, as these buildings offer the greatest opportunities to reduce overall Government energy use.

# Format of the Strategy

The Strategy is structured around the milestones in the life of a government building, each of which presents an important intervention opportunity to improve energy performance and reduce energy costs. For each milestone, the Strategy outlines specific approved actions, identifies the lead and supporting agencies, and the implementation timing.

The Strategy also addresses accountability, governance and reporting which are essential at every stage.

| **Building milestones** | **Main Type of Interventions** |
|---|---|
| New buildings | • Ensure compliance with the existing 5-star Green Star policy for new office buildings<br>• Mandate minimum energy efficiency standards for new acute healthcare facilities and primary and secondary education buildings<br>• Mandate energy life cycle assessment for all new builds |
| New Leases | • Continue to negotiate energy efficiency improvements for new and renewed office leases<br>• When procuring leased office accommodation >2,000m$^2$, continue to apply the South Australian Commercial Property Sector Agreement requirements for NABERS Energy ratings<br>• When renewing office leases >2,000m$^2$ require the tenant and building owner to agree to undertake an assessment of tenancy lighting and commit to implementing tenancy lighting upgrades where these can be commercially realised within the terms of the lease. |
| Refurbishments | • Develop and implement energy efficiency investment proposals through the budget bid process, using the *Framework for Cost Effective Energy Efficiency Investments in SA Government Buildings*<br>• Mandate minimum energy efficiency standards for substantially refurbished acute healthcare facilities and primary and secondary education buildings<br>• Ensure all major upgrades to government owned office accommodation > 2,000m$^2$ in the Adelaide CBD seek to achieve and maintain a minimum 4.0 star NABERS Energy rating (where economically viable) |
| Equipment | • Modify standard procurement documentation to require suppliers to provide energy efficiency information/ratings for equipment<br>• Require suppliers to provide staff training on the use of energy management features<br>• Require new reverse-cycle air conditioners to incorporate automatic switch-off and restricted thermostat features. |
| Maintenance | • Incorporate into facility management (FM) contracts a standard life cycle assessment methodology and a requirement to carry out regular maintenance of building management systems<br>• Introduce KPIs for FM contractors to identify energy efficiency opportunities and include use of life cycle assessment in procurement |

| | |
|---|---|
| Demand Management | • Load profiling for sites consuming >160MWh p.a.<br>• Identify priority demand management and cost reduction opportunities<br>• Ongoing review of timetabling and operational policies regarding use of energy intensive equipment at TAFE campuses<br>• Quantify value of standby generation<br>• Consider co-gen and tri-gen for new or refurbished buildings with a high thermal load |
| Accountability and Governance | • Increase accountability of Chief Executives and Senior Management Council for improving energy management in Government buildings<br>• Retain the Energy Efficiency Reference Group (to be renamed the Government Buildings Energy Group) to oversee implementation of the Strategy<br>• Ensure Building Management – Across Government Facilities Management is represented on the GBE Group |
| Reporting | • Report annually (to Cabinet and the public) on energy efficiency, greenhouse intensity and energy expenditure associated with Government buildings<br>• Report annually (to Senior Management Council) on implementation of the GBE Strategy<br>• Adopt a uniform metric for reporting<br>• Investigate centralising energy efficiency reporting |

# 1 NEW BUILDINGS

**Background**

Since 2004, the SA Government has had a commitment that all newly constructed office buildings with an area greater than 2,000m$^2$ to be used by the Government must be built to at least a five-star rating under the Australian Green Building Council's 'Green Star Office Design' and 'Green Star Office As Built' rating systems. This policy applies to the base building as well as the tenancy (where the tenancy fit-out forms part of the project). It applies to offices in regional areas as well as metropolitan Adelaide, but it does not apply to office areas within other building types (such as hospitals and prisons).

Currently there is no equivalent policy commitment for the largest consumer of energy: the Department for Health and Ageing. Given that acute healthcare facilities[1] represent a much larger proportion of overall Government energy use, a significant opportunity exists to improve overall energy efficiency by mandating minimum energy efficiency standards for new and refurbished acute healthcare buildings. Various tools exist to measure the energy efficiency of healthcare buildings, and more are likely to emerge in future. In order to retain flexibility to use the most appropriate tool, commitments should not stipulate a particular rating scheme, but seek to improve on standard practice (ie the minimum performance requirements set out in the Building Code of Australia). The same approach is adopted for new and substantially refurbished primary and secondary education facilities.

The existing Ecologically Sustainable Development (ESD) Guide Notes published by the Department of Planning, Transport and Infrastructure (Building Management) will continue to reinforce energy efficiency objectives by prompting agencies to consider energy efficient design features and equipment. Under Premier and Cabinet Circular 015 - *Procedures for submissions seeking the review of Public Works by the Public Works Committee* (PC015), proponents of public works exceeding $4 million are required to demonstrate how the project 'incorporates sustainable technology'. In order to receive an acquittal from the Sustainability and Climate Change Division (Department of Environment, Water and Natural Resources), the proponent must have regard to the ESD Guide Note *'Planning, Design and Delivery'*.

The ESD Guide Notes provide useful advice on energy efficient design, but in practice, many of the measures are considered aspirational and are often 'valued out' in the design phase of projects. A mechanism is needed to ensure that energy efficiency requirements are detailed from the earliest Expression of Interest stage and to ensure that operational energy efficiency and value for money are assessed over the life of the building rather than just the initial cost. Life cycle assessment will improve the business case for investing in energy efficient design features (as these features typically increase the initial cost, but reduce operational costs).

PC015 would be of greater assistance to agencies if it identified a specific life cycle assessment methodology to be included in reports to the Public Works Committee. Examples of life cycle assessments can be accessed at (URL to be advised) (government access only).

[1] Acute healthcare facilities provide relatively short-term care to patients suffering from brief but severe episodes of illness, with the goal of discharging patients as soon as they are deemed healthy and stable. In specifying acute healthcare facilities, this strategy focuses on hospitals, which account for over 97 per cent of overall energy consumption within the Department for Health and Ageing

| NEW BUILDINGS - Actions | | Responsibility | Timing | Potential contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 1 | Incorporate in contracts for all newly constructed office buildings to be occupied by Government, the requirement to be designed and built to at least a five-star rating under the Australian Green Building Council's 'Green Star Office Design' and 'Green Star Office As Built' rating systems (as they relate to energy). | DPTI BM – Project Services | 2014 | Low-Medium: The potential contribution of this action is constrained by the fact that offices only contribute around 7% of government building energy use and government occupation of newly constructed offices happens relatively infrequently. As SA Government is a major tenant in the Adelaide commercial office market, however, this action has been the impetus behind construction of several high performance office buildings in the Adelaide CBD over recent years. |
| 2 | Include in contracts for all new or substantially refurbished[2] acute healthcare facilities[3], the requirement for building(s) to undergo an energy efficiency assessment during the design phase (using a tool that satisfies the Australian Building Codes Board's *Protocol for Building Energy Analysis Software)*. The modelled building(s) (including the building envelope and services) must:<br>• restrict peak electrical demand, such that the difference between peak demand and average demand does not exceed 40% (including by practical use of onsite electrical generation facilities if appropriate); and either<br>• consume at least 30% less energy than a reference building[4]; or<br>• produce at least 30% less greenhouse gas emissions than a reference building. | Department for Health and Ageing | 2014 | High: Healthcare buildings contribute approximately 50% of government building energy use. Improved energy management in this sector will have a potentially significant impact on overall government energy use. |

[2] Substantial refurbishments are defined as those that materially impact on the existing building structure and its services

[3] Healthcare facilities that provide relatively short-term care to patients suffering from brief but severe episodes of illness, with the goal of discharging patients as soon as they are deemed healthy and stable.

[4] Reference building means a hypothetical building that incorporates all the deemed-to-satisfy provisions for building envelope and services as set out in the Building Code of Australia

| NEW BUILDINGS - Actions | | Responsibility | Timing | Potential contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 3 | Include in contracts for all new and substantially refurbished[5] primary and secondary education facilities the requirement for building(s) to undergo an energy efficiency assessment during the design phase (using a tool that satisfies the Australian Building Codes Board's *Protocol for Building Energy Analysis Software*). The modelled building(s) (including the building envelope and services) must consume 30% less energy than a reference building[6]. | DECD – Capital Programs and Asset Services Division | 2014 - ongoing | High: Education buildings contribute approximately 24% of government building energy use. Improved energy management in this sector will have a potentially significant impact on overall government energy use. |
| 4 | Continue to require designs for new and substantially refurbished government buildings to comply with the energy management provisions in ESD Guide Note – *Planning, Design and Delivery* (provided in Appendix 2). | DPTI BM – Project Services<br>DEWNR – Sustainability and Climate Change | 2013 | High: The ESD Guidance note is called up by Premier and Cabinet Circular 015 - *Procedures for submissions seeking the review of Public Works by the Public Works Committee*, and therefore applies to all projects over $4m. Including energy efficiency requirements as part of the design brief will ensure they considered from the start. |
| 5 | Incorporate a specific energy life cycle assessment methodology into the ESD Guide Note – *Planning, Design and Delivery*. | EERG Secretariat to develop methodology in consultation with DPTI BM – Project Services | 2013 | High: energy efficient design features are more likely to be incorporated into new buildings if a life cycle assessment is conducted, as the upfront cost of the features are usually offset by the ongoing cost savings they deliver. By making the life cycle assessment mandatory, energy efficient design features are less likely to be 'valued out'. |

[5] Substantial refurbishments are defined as those that materially impact on the existing building structure and its services
[6] Reference building means a hypothetical building that incorporates all the deemed-to-satisfy provisions for building envelope and services as set out in the Building Code of Australia

# 2 NEW LEASES

**Background**

Office accommodation makes up the bulk of the Government's leased accommodation portfolio. Operational/ institutional government buildings, eg schools, hospitals, prisons, museums are generally owned by the Government, and are therefore not considered here.

Under the Commonwealth Government's (2010) mandatory disclosure requirement, all lessors of office space >2,000m$^2$ are to disclose the NABERS Energy rating of the base building at the time of sale or lease. This has allowed greater discretion in selecting energy efficient office accommodation. 75% of the Government's leased office accommodation in the CBD is in buildings with a NABERS Energy rating[7]. The NABERS Energy ratings are as follows:

- 5.0 Star - 27%
- 4.5 Star - 15%
- 4.0 Star - 20%
- 3.5 Star - 5%
- 3.0 Star - 5%
- 2.0 Star - 3%

*Source: DPTI Annual Report 2012*

The South Australian Commercial Property Sector Agreement (2009)[8] requires that:

- all new government leases >2,000m$^2$ in privately owned office accommodation buildings in the Adelaide CBD will be on terms that seek to achieve and maintain a 5.0 star NABERS Energy rating; and
- all new tenancies with an area >2,000m$^2$ in government-owned buildings in the Adelaide CBD are on terms that seek to achieve and maintain a 5.0 star NABERS Energy rating,

over the term of the lease, where economic or other benefits are realised. This policy applies to the tenancy only, not the base building.

Further, all new leases and lease renewals for government office accommodation >2,000m$^2$ require property owners to agree to produce a NABERS Energy Building rating and commit to undertaking a building upgrade where identified improvements can be commercially realised within the terms of the lease.

These policies do not apply to office areas within other building types (such as hospitals or prisons).

To better understand the barriers to improving energy efficiency in leased office accommodation, DPTI Building Management will report through the Annual Energy Efficiency Report on the number of new or renewed leases that did not achieve a 5.0 star NABERS Energy rating, and the reasons why.

[7] Figures apply to leases >2,000m$^2$

[8] South Australian Commercial Property Sector Agreement between the Minister for Sustainability and Climate Change and the Property Council of Australia Limited, June 2009

| NEW LEASES – Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 6 | All new leases and lease renewals for government office accommodation >2,000m$^2$ in the Adelaide CBD, require private property owners to agree to produce a NABERS Energy Base Building rating and commit to undertaking a building upgrade where identified improvements can be commercially realised within the terms of the lease[9]. | DPTI BM – Accommodation and Property Services | ongoing | Low – Medium: Offices comprise a relatively minor proportion of government building energy use. |
| 7 | All new leases >2,000m$^2$ in both government owned and privately owned office accommodation buildings in the Adelaide CBD seek to achieve and maintain a 5.0 star NABERS Energy rating over the term of the lease[9]. | DPTI BM – Accommodation and Property Services | Ongoing | Low – Medium: Offices comprise a relatively minor proportion of government building energy use. |
| 8 | Report through the Annual Energy Efficiency Report on:<br>• the proportion of office leases with a NABERS Energy rating, and the breakdown of ratings, from 6.0 star to 1.0 star, and those with a commitment to achieve a 5.0 star rating.<br>• the number of new or renewed leases that did not achieve a 5.0 star NABERS Energy rating, the reasons why, and any penalties imposed. | DPTI BM – Accommodation and Property Services, DMITRE – Energy Markets and Programs | 2014 - ongoing | Low: Reporting will allow the GBE Group to see any trends in Energy performance of Government office accommodation, which may inform future policy, but the impact on overall Government performance is considered low. |
| 9 | During lease negotiations for renewed leases >2,000m$^2$ in privately owned office buildings, require DPTI (on behalf of the tenant) and building owner review the tenancy lighting assessment provided in the Building Energy Efficiency Certificate, and commit to implementing tenancy lighting upgrades where these can be commercially realised within the terms of the lease. | DPTI BM – Accommodation and Property Services | Ongoing | Low – Medium: Offices comprise a relatively minor proportion of government building energy use. |

[9] South Australian Commercial Property Sector Agreement between the Minister for Sustainability and Climate Change and the Property Council of Australia Limited, June 2009

# 3 REFURBISHMENTS

**Background**

Since new Government buildings account for around 3% of the total building stock each year, refurbishments to existing buildings represent the greatest opportunity to improve the energy efficiency of the Government's building portfolio.

Since the adoption of the Energy Efficiency Action Plan in 2002, Government agencies have funded a range of improvements to existing facilities and equipment. These initiatives, which are documented in the Annual Energy Efficiency Reports published by DMITRE, have ranged in scale, but for the most part represent the 'low hanging fruit' in terms of energy efficiency opportunities.

**Financing**

Budget and resource constraints have in many cases prevented agencies from undertaking large-scale refurbishments that require significant capital expenditure. For this reason, the Government has adopted a set of Guidelines for Cost Effective Energy Efficiency Investments in SA Government Buildings (for projects over $1M). It has also established a Facilitation Service to assist agencies with development of funding proposals and implementation of energy efficiency projects. This Framework aims to incentivise the implementation of energy efficiency projects by permitting Agencies to retain any cost savings resulting from the project (following reimbursement of the implementation cost to the Department of Treasury and Finance).

Cabinet has endorsed the preparation of funding proposals for six energy efficiency projects using the Energy Efficiency Investment Guidelines. These projects will be subject to the normal budget bid process, and if successful, will be considered by Cabinet for inclusion in the 2014-15 and 2015-16 budgets.

There is potential for additional projects to seek funding through the Energy Efficiency Investment Framework. Upon becoming aware of potential projects (for example, through suggestions from Facilities Management contractors), the GBE Group should refer these projects to the Energy Efficiency Investment Facilitation Service for further investigation with the relevant agency.

Alternative financing mechanisms are available or under development, and should be considered as a means of financing energy efficiency initiatives:

- Environmental Upgrade Financing (EUF) allows a loan to be tied to a property, rather than a property owner, to finance a building upgrade project that results in environmental benefits, such as improved energy use. This mechanism allows loan repayments to be made through a property related charge such as council rates. In the event of a transfer in ownership of the property, the loan remains with the property, and the obligation to make the repayments transfers to the new owner, along with the benefit of reduced utility costs. Capital is usually provided through the banking and finance sector at a lower interest rate due to the reduced level of risk to the financier. While EUF offers little value for government owned buildings (where finance for upgrades can be secured through DTF) it can overcome some of the barriers to implementing energy management initiatives in leased buildings, such as the split incentive where the building owner is not incentivised to invest in energy and water efficiency as the tenant pays the utility bills. Under EUF, tenants can share in both the costs and the benefits. Where EUF is available, agencies in leased accommodation should consider it as a possible means of implementing energy management initiatives.

- Energy Performance Contracting (EPC) enables energy efficiency improvements to be funded, generally by a third party (such as an energy retailer), and then paid back through consequent guaranteed savings in energy costs. It offers reduced risk to agencies, certainty around future energy costs and smoothed expenditure (by funding capital upgrades through energy savings).

**Performance ratings**

Tools and rating schemes that assess the operational performance of buildings provide a means by which Government can effect energy efficiency improvements in existing buildings as part of the refurbishment cycle. It is generally more cost effective and less disruptive to implement energy efficiency improvements concurrently with other refurbishment work.

For office accommodation, the Commercial Property Sector Agreement currently requires that all major upgrades to Government owned office accommodation >2,000$m^2$ in the Adelaide CBD seek to achieve and maintain a minimum 4.0 star NABERS Energy building rating where economically viable.

However, offices contribute only 7% of the total energy consumption for Government buildings. The GBE Group has a role in evaluating performance tools for other (non-office) buildings as they become available, and considering their use as a benchmarking tool in the refurbishment process.

| REFURBISHMENTS - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 10 | Implement the SA Government Energy Efficiency Investment Framework, including developing six energy efficiency project proposals for consideration in the 2014-15 and 2015-16 budget processes. | DMITRE – Energy Markets and Programs<br>All agencies | 2014-2016 | High: The energy efficiency projects proposed under the investment framework focus on large consumers of energy and are therefore expected to contribute significantly to the Government's energy efficiency target. |
| 11 | Identify further project proposals for development in future budget processes. | | Ongoing | High: Projects that meet the requirements of the Investment Framework will be those that deliver significant savings in energy costs, and are therefore likely to have a high contribution to the GBE Strategy objectives |
| 12 | Consider energy performance contracting and environmental upgrade financing (where applicable) as a means of implementing energy management initiatives. | All agencies | Ongoing | Medium: Energy Performance Contracting and Environmental Upgrade Financing provide another funding pathway, thereby increasing the chance of energy management initiatives being implemented, however these financing methods are not appropriate in all circumstances. |
| 13 | Evaluate the Green Star Performance tool when it is released, and consider its potential use as a benchmarking tool in the refurbishment process. Evaluation of the Performance tool to include an assessment of the costs of undertaking the assessment and obtaining a rating. | GBE Group | 2014 or when Performance tool released | Medium: Existing buildings offer the greatest opportunity to improve energy management in Government buildings. Subject to the Performance tool meeting with the requirements of the GBE Group, it may provide a means by which to drive energy efficiency upgrades as part of the refurbishment cycle. |

| REFURBISHMENTS - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 14 | Require all major upgrades to government-owned office accommodation >2,000m$^2$ in the Adelaide CBD to seek to achieve and maintain a minimum 4.0 star NABERS Energy rating (where economically viable)[10]. | DPTI BM – Accommodation and Property Services | Ongoing | Low – Medium: Offices comprise a relatively minor proportion of government building energy use. |
| * | Note: Actions 2, 3 and 4 (in Chapter 1: New Buildings) also apply to refurbishments | | | |

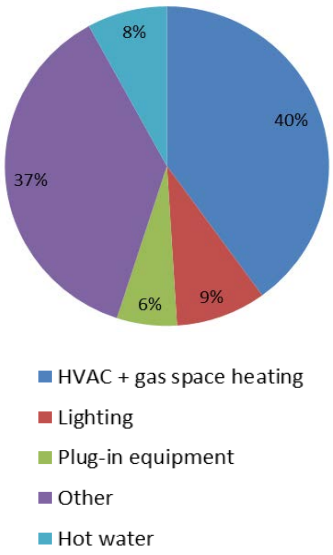
[10] South Australian Commercial Property Sector Agreement between the Minister for Sustainability and Climate Change and the Property Council of Australia Limited, June 2009

# 4 PLANT AND EQUIPMENT

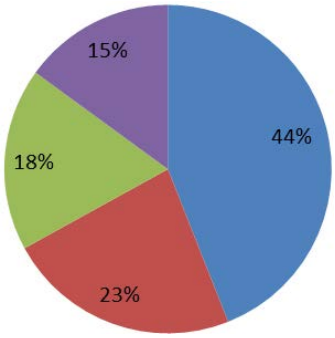
## Background

The equipment sector is one of the most important areas to focus efforts on reducing energy consumption in Australia. Whilst plug-in equipment such as ICT equipment and refrigerators consume a considerable amount energy in certain building types, engineering services plant and equipment, such as lighting, heating, ventilation and air conditioning systems (HVAC) account for the vast majority of energy consumption in commercial buildings. The pie charts below provide an average break-down of energy consumption by end-use for hospitals, offices and schools, based on national data[11] and local studies[12].

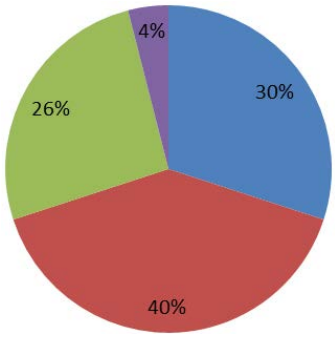
Hospitals: Energy consumption by end-use (electricity and gas)




Offices: Energy consumption by end-use (electricity and gas)




Schools: Energy consumption by end-use (electricity only)




Improvements to the energy efficiency of appliances and equipment are delivered nationally through the Greenhouse and Energy Minimum Standards (GEMS) program. The national regulatory approach, however, only establishes minimum standards, removing the most inefficient products from the market. It also only applies to certain types of equipment and doesn't cover specialised equipment such as that used in hospitals and theatres, which is often energy intensive.

The following SA Government policies complement the GEMS program by assisting agencies to make greener procurement decisions:

- *Water Efficient Outlets in Government Buildings*: Since July 2011, the Government has mandated the use of highly efficient water outlets in new and substantially refurbished[13] Government owned buildings, in an effort to deliver improved water efficiency and consequential reduced energy consumption for water heating. All agencies are required to

[11] Council of Australian Governments (2012) 'Baseline Energy Consumption and Greenhouse Gas Emissions in Commercial Buildings in Australia'
[12] Sustainable Focus (2006) 'Energy Saving Scoping Study for DECS and DTEI'
[13] Policy applies to substantial refurbishments and fit-outs that directly result in the need to replace taps and showerheads. It does not trigger a specific retrofit of all taps and showerheads across Government, but affects the selection of new taps and showerheads at the stage when they would be replaced.

apply the policy to new projects and at the point of replacement of existing taps and showerheads in existing buildings.

- *State Procurement Board guidelines*: the Sustainable Procurement Guideline and Life Cycle Costing Guideline are designed to assist agencies with calculation of the total cost and expenses associated with goods, services and integrated projects. Training in the application of guidelines is also provided. In practice however, these guides are not being systematically applied, possibly because they are not sufficiently integrated into standard procurement contracts, or because sustainability criteria can be more difficult to measure and compare than other variables such as price or warranty.

To make it easier for procurement staff to make a direct comparison of the energy efficiency or sustainability performance of certain products, standard procurement contracts should require suppliers to provide ratings for relevant products (using a rating system specified by the agency). Examples of rating systems include Energy Rating Labelling Scheme, EnergyStar and the Electronic Products Environmental Assessment Tool (EPEAT) (for ICT equipment). Where no suitable rating system exists, standard procurement contracts should require suppliers to disclose the energy consumption of their products and demonstrate initiatives to reduce energy consumption of the equipment in all operating modes.

Engineering services plant and equipment, such as lighting and HVAC systems, are generally procured as part of a building contract, using a different procurement process. However the same principles should apply, ie contracts should:

- require designers/ suppliers to provide sufficient information on equipment energy use to enable agencies to make an informed selection based on whole-of-life costs; or
- require designers to submit a lifecycle assessment of the recommended plant or equipment and at least one alternative.

Appropriate training is also needed to ensure that employees are aware of how to operate equipment within their building to optimise the energy efficiency. For new equipment, this should be arranged at the time of installation, and should form one of the contract requirements.

**Standby power**

In 2006, an Energy Saving and Scoping Study was undertaken for the then Department of Education and Children's Services and Department of Transport, Energy and Infrastructure to identify sites within the Government school portfolio with the greatest potential to reduce energy consumption. An assessment of interval metering data for some of the largest consumers of energy revealed a substantial 'background load', ie energy drawn when there should be no one on site. This was attributed to an amalgam of standby power of appliances such as computers, other office equipment and audio-visual equipment, as well as power from equipment such as air-conditioners and lights left on when students and teachers go home (and when out-of-school-hours activities such as community group use and cleaning have finished). Background load (excluding security lighting) accounted for between one quarter and one third of all electricity consumed for the sites analysed. Based on this study, specific actions to reduce background load are warranted.

The issue of standby power is being addressed to some extent through the national Minimum Performance Standards for off-the-shelf electrical products, which seek to eliminate the poorest performing products (including those with high standby power use). The issue of equipment being left on is being addressed in a piecemeal fashion, with some agencies focussing on behaviour change and awareness strategies, and others introducing procurement guidelines that require all new split systems to have timer functions. Whilst these are positive steps, there are more effective ways of reducing background power use, which do not rely on human behaviour and which deal with existing as well as new equipment.

Devices that automatically switch off air conditioning units when no movement is detected after a set period of time, and that restrict the thermostat setting to a sensible pre-set range tackle the issue of units being left on when rooms are not in use, and users setting the thermostat above or below acceptable thermal comfort levels. Standby Power Controllers can reduce standby power of ICT equipment by automatically reducing the standby-mode energy consumption of peripheral appliances when the principal appliance is not being used. Automatic lighting controls have been installed in many Government buildings and are a proven way of limiting energy wastage through lights being left on in unoccupied rooms.

**Telecommuting and online service delivery**

Advanced ICT equipment offers the potential to reduce energy consumption in some government buildings. By enabling staff to work remotely and customers to access services online, telecommuting, teleconferencing and online service delivery can reduce floor space requirements in offices, service centres, education facilities and other government buildings, resulting in reduced heating and cooling loads, lighting requirements etc. This technology is already being used to some extent (for example, some TAFE courses are delivered online instead of in a classroom, staff are able to work remotely through virtual private network access). Agencies should explore opportunities to utilise ICT equipment to further reduce energy consumption and operating costs in government buildings.

| PLANT AND EQUIPMENT - Actions | | Responsibility | Timing | Potential Contribution to GBE S Strategy objectives |
|---|---|---|---|---|
| 15 | Report through the Annual Energy Efficiency Report on compliance with the Sustainable Procurement Guideline and the Life Cycle Costing Guideline, using the following KPIs:<br>• the percentage of contracts[14] that incorporate specific sustainability requirements<br>• the percentage of contract awards that have included life cycle costing<br>• the percentage of contracts that incorporate sustainability in the tender evaluation | All agencies | 2014 - ongoing | Low - Medium: Reporting will allow the GBE Group to see any relationship between increased application of the sustainable procurement/ life cycle costing guideline and energy management. KPI reporting may remind procurement officers to incorporate sustainability and life cycle costing into tender and contract documentation. |
| 16 | Continue to mandate the use of highly efficient water outlets for new and substantially refurbished[15] Government owned buildings, in accordance with the *'Water Efficient Outlets in Government Buildings'* policy. | All agencies | 2013 - ongoing | Medium: Taps and showerheads that comply with the water efficiency requirements deliver up to 67% and 62% energy savings over standard fittings respectively (Water Efficiency Labelling and Standards Scheme). This represents a significant saving for sites where energy for water heating comprises a large portion of overall consumption. |
| 17 | Modify standard procurement processes to require suppliers to provide specific energy rating information for engineering services plant and equipment and other appliances (where relevant) and consider other ways to incorporate principles from the Sustainable Procurement Guideline and Life Cycle Costing Guideline. | DTF Contract Services, DPTI Contracts and Procurement Services. | 2013-14 | Medium - High: Appliances comprise a significant proportion of energy use in Government buildings. |

[14] In this Action, contracts means contracts for building infrastructure, building services and equipment

[15] Policy applies to substantial refurbishments and fit-outs that directly result in the need to replace taps and showerheads. It does not trigger a specific retrofit of all taps and showerheads across Government, but affects the selection of new taps and showerheads at the stage when they would be replaced.

| PLANT AND EQUIPMENT - Actions | | Responsibility | Timing | Potential Contribution to GBE S Strategy objectives |
|---|---|---|---|---|
| 18 | Modify standard procurement contracts to require suppliers to provide a staff training session on how to use power management features of new equipment at the time of installation. | All agencies to modify standard procurement contracts | | |
| 19 | Modify standard procurement contracts such that all new air conditioning units that are not centrally controlled must be provided with:<br>• an automatic switch-off device that shuts the system down after a specified period, or when no movement is detected after a specified period, and<br>• a temperature control mechanism that restricts the thermostat setting to a pre-set range of 18-22$^0$C in winter and 22-26$^0$C in summer, and does not permit users to select temperatures below or above this[16]. | All agencies to modify standard procurement contracts | 2013-14 | Medium: Controls on the operation of individual air conditioning units will become more important as the shift away from centrally controlled HVAC systems to individual reverse-cycle split system air conditioning units observed in some agencies continues |
| 20 | Agencies are to arrange (through the Across Government Facilities Management Contract Arrangement) the preparation of a business case analysis for the supply and installation of:<br>• automatic switch-off devices and temperature control mechanisms for existing reverse-cycle air conditioning units without these features; and<br>• standby power controllers for ICT equipment where two or more peripheral appliances are connected to a principal appliance. | EERG secretariat to lead on the scope of works. All agencies to arrange work through AGFMA | 2013-14 | Medium: Controls on the operation of individual air conditioning units will become more important as the shift away from centrally controlled HVAC systems to individual reverse-cycle split system air conditioning units observed in some agencies continues |

[16] This requirement does not override existing agency policies that stipulate a more stringent maximum or minimum thermostat setting, for example, DECD Asset Policy & Capital Programs Protocol SV001: 'Air Conditioning, Ventilation, Heating and Cooling' states that thermostats should be set no lower than 25$^0$C in summer

| PLANT AND EQUIPMENT - Actions | | Responsibility | Timing | Potential Contribution to GBE S Strategy objectives |
|---|---|---|---|---|
| 21 | Explore opportunities to utilise ICT equipment for teleconferencing, telecommuting and online service delivery, where appropriate, to reduce floor space requirements (and thus energy consumption) in government buildings. Where appropriate, modify HR policies to remove barriers to the increased uptake of this technology. | All agencies<br>OCIO to provide support and advice as required | Ongoing | Low - Medium: teleconferencing, telecommuting and online collaboration can offer significant energy savings (both through reduced travel and reduced demand for desk space and physical meeting rooms). However they are not applicable to a number of government activities (eg hospitals, correction centres) |

# 5 MAINTENANCE

**Background**

Maintenance and minor works in Government buildings are carried out through the 'Across Government Facilities Management Contract Arrangement'. Under this arrangement facility management contractors are engaged to deliver maintenance and minor works services.

One of the stated objectives of the Contract Arrangement is to 'deliver demonstrable energy efficiency gains and meet ESD principles'. FM Contractors are expected to identify energy efficiency opportunities at sites and develop proposals for consideration by the relevant agency. It is then up to the agency to decide whether to implement the project.

However energy efficiency measures must compete with other mandatory maintenance activities when agencies are procuring facilities management services, and are often not of high priority, with cost considerations being the key driver[17]. This is borne out by the limited take up of energy auditing services offered under the FM contract (despite the requirement in the 2002 Energy Efficiency Action Plan for agencies to undertake energy audits every five years for assets where annual energy consumption exceeds $50,000). The lack of resourcing for energy efficiency initiatives has meant that there is little impetus for FM contractors to invest time developing well-thought-out and evidence-based energy efficiency proposals, as they have a poor chance of being taken up by the agencies.

There are a number of potential ways to address this, to ensure that opportunities for continual improvement in energy management are identified and pursued:

- improve communication and engagement with FM contactors and contract managers on energy efficiency matters by having FM contract managers represented on GBE Group and by inviting FM contractors to attend GBE Group meetings periodically
- modify the FM contract such that energy efficiency opportunities identified by the contractor are provided to GBE Group as well as the Agency. These opportunities may then have a better chance of being pursued, potentially through the Energy Efficiency Investment Framework.
- establish a memorandum of understanding with the FM contractor that commits the agency to investing in energy efficiency proposals identified by the contractor, provided they satisfy certain criteria. This would provide greater motivation for contractors to develop high quality proposals for consideration.
- Provide consistent tools and templates to assist FM contractors to undertake appropriate life cycle assessments.

[17] In some cases agencies do not seek energy efficiency suggestions from FM contractors, instead preferring to use recognised energy audit providers on a government select panel

| MAINTENANCE - Actions | | Responsibility | Timing | Potential Contribution to GBE S Strategy objectives |
|---|---|---|---|---|
| 22 | Incorporate the following requirements into new facilities management contracts:<br>• energy management proposals must be provided to the GBE Group as well as the Contract Manager (via DMITRE:GBESecretariat@sa.gov.au)<br>• building management systems must be maintained at regular intervals so as to optimise efficiency | DPTI BM – Facilities Services | 2015 | Medium: Because the FM contract covers the operation and maintenance of nearly all Government buildings, energy management measures that are integrated into contracts with facilities management providers can be a significant enabler in achieving the objectives of the GBE Strategy. |
| 23 | Incorporate into the facility management agreements an agreed, standard, life cycle assessment methodology | | | |
| 24 | Incorporate the following KPIs into new facilities management contracts:<br>• number of new energy efficiency/energy management opportunities identified by the contractor.<br>• number of energy efficiency/energy management opportunities approved for action by agencies. | | | |
| 25 | Invite the Manager of the Across Government Facilities Management Arrangement to join GBE Group, and FM contractors to attend GBE Group meetings periodically to discuss barriers to achieving improved energy management and to share learnings from particular projects/ sites | DMITRE Energy Markets and Programs Division, on behalf of GBE Group | 2013, ongoing | Medium: Because the FM contract covers the operation and maintenance of nearly all Government buildings, any improvement in the way energy management provisions of the contract are implemented has the potential to impact the Government's energy performance considerably |
| * | Note: Action 16 (in Chapter 4: Equipment) also applies to maintenance | | | |

# 6 DEMAND MANAGEMENT

## Background

### Demand charges

Annual demand charge is a fixed element of many sites' electricity bills that is based on the capacity that SA Power Networks is required to supply in order to meet peak demand requirements. This peak demand is based on the highest instantaneous demand recorded for the site. Even though this capacity may only be required for a few hours every year (typically on very hot days when air conditioning loads are high), the fixed demand charge is maintained throughout the year, regardless of the total energy consumed. By introducing controls to reduce peak demand, agencies may have the opportunity to renegotiate their annual demand charge with SAPN and reduce expenditure.

There are several different ways to manage peak demand, including adjusting operational policies, using demand response technology, standby generation and embedded generators (eg photovoltaic panels, co-generation systems). Agencies should investigate options to 'flatten' the demand profile and reduce peak demand, particularly at sites where annual demand charges comprise a significant portion of energy expenditure.

### Co-generation and tri-generation systems

Co-generation and tri-generation systems, which incorporate gas-fired generators, can also potentially save energy and energy use costs over the life of a building. Whilst these systems may not improve a building's energy efficiency, they can reduce its carbon footprint, due to the lower greenhouse intensity of natural gas compared to grid-purchased electricity.

Co-generation and tri-generation systems are most suitable where there is a high thermal load alongside an electrical load and long hours of operation (eg hospitals), or where there are constraints to accessing the electricity grid. In these circumstances, a business case for their installation can often be made, particularly during design stages for new or upgraded properties. Viability will depend upon the specific circumstances of the project, but the potential should be explored.

### Solar panels

The Government's *Solar Panels for Government Funded Building Projects* policy has been operational since 2010, and requires all new or substantially refurbished Government buildings to incorporate a minimum 1.5kW solar photovoltaic (PV) system for Government owned and operated residential buildings and 5kW solar PV system for other Government buildings.

As the capital cost of photovoltaic panels decreases, larger solar PV systems are likely to become more viable, offering potential savings in terms of reduced consumption and demand charges as well as reduced greenhouse gas emissions from the operation of Government buildings. Agencies with suitable roof space may consider installing larger solar PV systems, with generation capacity in excess of that required by the *Solar Panels for Government Funded Building Projects* policy. The PV policy has been revised to remove any restrictions from agencies using the sale of Small-scale Technology Certificates to reduce the costs of installing a solar PV system. Also the policy clarifies how solar feed-in tariff applies to government buildings.

| DEMAND MANAGEMENT - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 26 | Collect and collate load profile information for buildings consuming >160MWh per year. | All agencies | Annually, ongoing | High: Understanding the load profile of sites with a large annual energy consumption enables agencies to identify where the greatest savings can be achieved, and focus efforts on these areas. |
| 27 | Assess major sites with the highest peak demand, the lowest load factor and/or the best demand response opportunities to identify priority energy cost reduction measures. | All agencies | Annually, ongoing | High: Demand charges comprise a significant portion of many sites' energy bills. Reducing peak demand has the potential to deliver significant cost savings, even without any reduction in overall usage. |
| 28 | Explore the potential for demand management or load curtailment contracts for major sites, in consultation with SA Power Networks, an energy aggregator or relevant energy retailer. | All agencies | 2014 | |
| 29 | Analyse the potential 'value' of standby generation by calculating the peak energy savings if the generation was switched on at periods of high price and connection costs. | DMITRE – Energy Markets and Programs | 2014 | |
| 30 | Devise and implement a range of measures to reduce demand for grid-purchased electricity at TAFE campuses. The following actions should be undertaken on an on-going basis, with the goal of continual improvement:<br>• Regularly monitor load profiles for each campus and seek to adjust the Agreed Maximum Demand with SA Power Networks where appropriate<br>• Utilise flexible timetabling to schedule energy-intensive classes during periods of lowest demand (eg before 12pm) where possible<br>• Adopt operational policies that limit the use of energy-intensive engineering services plant and equipment during times when | DFEEST and TAFE | ongoing | High: DFEEST buildings represent approximately 7% of Government's overall energy use. Demand charges comprise a significant portion of many campuses' energy bills. As demand is closely linked to the use of certain equipment, there is potential to manipulate the timing of peak demand through changes to operational policies and timetabling, although this must be balanced with the need to provide flexible learning |

| DEMAND MANAGEMENT - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| | peak loads are likely to be highest (eg when the forecast temperature exceeds $35^0$C)<br>• Adjust building management systems to optimise energy efficiency<br>• Explore opportunities to partner with neighbouring tenants to achieve energy savings<br>• Evaluate the potential for on-site generation | | | arrangements for students. |
| 31 | Incorporate into the ESD Guide Note a requirement that co-generation and tri-generation should be considered at the design stage for sites with a high thermal load and long hours of operation. | DPTI BM – Project Services | 2014 | Low: co-generation and tri-generation can deliver reduced greenhouse emissions and energy costs in certain situations, however they are not suitable for the vast majority of government buildings. |
| 32 | Continue to mandate the installation of solar PV systems for new and substantially refurbished Government buildings, in accordance with the Solar Panels for Government Funded Building Projects policy. | DPTI BM – Project Services, DEWNR – Sustainability and Climate Change | 2013 | Medium: Clarifying the Government's policy position regarding STC's and feed-in tariffs will potentially facilitate the preparation of successful business cases for solar PV systems on Government buildings. |

# 7 AGENCY ACCOUNTABILITY & GOVERNANCE

**Background**

One of the major limitations of the 2002 Energy Efficiency Action Plan is that its actions were not enforceable and agencies were not held accountable. A mechanism is needed to ensure that heads of departments are committed to improving energy management within their portfolios and are making their executive teams accountable for its delivery.

The Energy Efficiency Reference Group, established under the 2002 Action Plan, has an important role to play in providing Senior Managers with information and recommendations on energy management initiatives, and overseeing the implementation of actions under this Strategy. The terms of reference for the group, to be renamed the Government Buildings Energy Group (GBE Group), are provided in Appendix 3 of this Strategy.

During 2012, an Energy Efficiency Investment Facilitation Service was established to assist agencies to develop business cases and budget bids for investment in energy efficiency.

The terms of reference for this Facilitation Service are provided in Appendix 4. Agency obligations are set out in Appendix 5.

| GOVERNANCE AND ACCOUNTABILITY - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 33 | Maintain the EERG but change the name to the 'Government Buildings Energy Group' (GBE group) and expand the objective of the group to a more comprehensive energy management function. | DMITRE Energy Markets and Programs to Chair and provide secretariat duties to the GBE Group<br><br>All agencies to be represented on the GBE Group, with specific additional members to assist with specific issues | 2013-2020 | High: Cross-agency groups are an essential driver of energy management activities under this Strategy and will be very important in achieving the Strategy objectives. |
| 34 | Maintain and promote the Energy Efficiency Investment Facilitation Service to assist agencies to develop business cases and budget bids for investment in energy efficiency. | DMITRE Energy Markets and Programs (Chair), DTF, DPTI BM | 2012-2016, then review for functional relevance | |
| 35 | Propose to SMC that all agency chief executives have the following energy management accountabilities in their performance agreements:<br>• Potential opportunities for improving energy management have been investigated and assessed | DMITRE Energy Markets and Programs on behalf of GBE | 2013 | High: The tone 'from the top' is an important mobilising factor towards improved energy management. |

| GOVERNANCE AND ACCOUNTABILITY - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| | • Energy efficiency (measured as MJ/$m^2$) has improved across all sites.<br>• Greenhouse intensity (measured as kg $CO_2$-e/$m^2$) associated with operation of Government buildings has been reduced across all sites. | Group | | |

# 8 REPORTING

### Background

Tracking energy data provides Government and the community with information about performance against the objectives of this strategy. Each year agencies provide energy use data for their facilities, which is then compiled in a whole of Government Annual Energy Efficiency Report.

### Units of measurement

In order to compare performance from year to year and between agencies, it is necessary to establish a consistent reporting method, using an appropriate metric. This presents some challenges, which are addressed below.

In previous years, agencies have been able to select the business measure to normalise their energy use data. Approximately 95% of the State's energy efficiency reporting is done on an area ($m^2$) basis (i.e. GJ/ $m^2$). The remaining 5% is reported using other business measures, such as full time employees or number of buildings. Having different denominators hinders comparability among the various departments as well as the ability to report simply and consistently on a whole of Government basis. It also adds unnecessary complexity when business units are moved between departments. From the 2012/13 reporting period all agencies will be required to provide data on the area ($m^2$) of their buildings[18]. This will not preclude agencies from collating and reporting energy data using other metrics within their own Annual Reports or other documents.

In previous years, the only quantitative data provided in the Annual Energy Efficiency Report has been energy efficiency, measured in GJ of site energy consumed per square metre. While this is useful for tracking progress against SASP T61, it does not differentiate between the relative greenhouse impacts and price of the energy source (typically electricity versus gas). Nor does it account for the varying source-site ratios for different fuels[19]. As a result, the benefits of some environmentally and economically beneficial energy management measures, such as gas powered air conditioning and gas-fired co-generation systems are not conveyed. While these projects might lessen greenhouse emissions and reduce operational costs, they can result in negative progress toward an energy efficiency target measured in GJ/$m^2$. In order to track progress against the three objectives of this Strategy, and avoid perverse outcomes that can result from using a metric that can potentially favour the use of electricity over gas, agencies will also report on greenhouse intensity and energy expenditure associated with the operation of Government buildings.

### Reporting method

The current approach to reporting is decentralised, requiring agencies to take responsibility for recording their respective energy use and normalising data. This method can be problematic due to relatively frequent changes in agencies structure, which requires revisions to baseline data, and changes to reporting staff. This can cause data integrity issues and is very time consuming for annual reporting. The process would be more manageable if reporting was streamlined on a centralised, whole of Government basis.

[18] Gross Floor Area is used for working out the floor area in $m^2$. It is the sum of the "Fully Enclosed Covered Areas" and "Unenclosed Covered Area", as defined in the Annual Energy Reporting Guide, available from the sa.gov.au website.

[19] Site energy use shows only the amount of energy purchased by the buildings (ie the figure shown on the utility bill), but it does not show the total amount of raw fuel consumed to deliver that energy to the site (the source energy). Source energy accounts for the losses incurred during generation, transmission and delivery, which can be considerable. For example, the US EPA's *EnergyStar* rating scheme applies a site-source ratio of 1:3.34 to electricity, meaning that for every one MJ of electricity consumed at a site, an additional 2.34 MJ of energy are consumed in the generation and transmission process. Comparatively, the ratio for natural gas is 1:1.047, meaning that for every one MJ of natural gas consumed at a site, only 0.047 MJ of energy is consumed to deliver the gas to the site.

| REPORTING - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 36 | Continue to publish an Annual Energy Efficiency Report, reporting on progress against the 3 objectives of this strategy:<br>• Achieving SASP T61 (energy efficiency measured in GJ/$m^2$)<br>• Reducing greenhouse gas emissions associated with operation of Government buildings (greenhouse intensity measured in kg $CO_2$-e/$m^2$)<br>• Reducing energy expenditure associated with operation of Government buildings. | DMITRE – Energy Markets and Programs | Annual, ongoing | Medium: Sound reporting will assist in achieving the objectives of the GBE Strategy as it allows agencies to see which actions have delivered the greatest improvements in the past and helps to guide future investment. |
| 37 | Develop a business case to centralise energy data collection for the Annual Energy Efficiency Report. | DMITRE – Energy Markets and Programs | 2013/14 | High: A centralised data collection system would provide a stronger platform for agencies to implement energy management measures by improving agencies' ability to access and interpret reliable consumption data. |
| 38 | Report on findings from sites consuming >160MWh in relation to demand response opportunities, peak demand performance and load factor performance. | All agencies to report to GBE Group | 2013/14 | Medium: Requiring agencies to report on findings provides additional motivation for agencies to carry out thorough assessments. |
| 39 | Include in the Annual Energy Efficiency Report actions undertaken to identify and implement energy efficiency and demand management opportunities. | All agencies will provide information to DMITRE – Energy Markets and Programs Division | Annual, ongoing | Medium: Requiring agencies to report on actions undertaken provides additional motivation for agencies to act on opportunities, and ensures that inaction is brought to the attention of senior managers. |

| REPORTING - Actions | | Responsibility | Timing | Potential Contribution to GBE Strategy objectives |
|---|---|---|---|---|
| 40 | Report to SMC annually on progress against the actions in the GBE Strategy. | All agencies will provide information to DMITRE – Energy Markets and Programs Division. DMITRE to prepare a 'traffic light' report to be submitted with the Annual Energy Efficiency Report | Annual, ongoing | Medium: Providing SMC with information on the level of implementation of actions under the GBE Strategy will highlight areas where agencies are falling behind and prompt Senior Managers to assign responsibility for priority actions within their agencies. |
| 41 | Review the Government Buildings Energy Strategy | DMITRE – Energy markets and Programs Division will initiate and coordinate the review.<br>GBE Group will provide input into the review | 2016 | Medium: The deadline for achieving SASP T61 is 2020. A review of this Strategy in 2016 will provide an opportunity to modify the Government's approach to energy management if it is considered necessary to achieve the target. |

# REFERENCES


Commonwealth of Australia (2010) 'Commercial Building Disclosure Program', available at http://cbd.gov.au

Council of Australian Governments (2012) 'Baseline Energy Consumption and Greenhouse Gas Emissions In Commercial Buildings in Australia'

Government of South Australia references:

Department for Manufacturing, Innovation, Trade, Resources and Energy (2013) '2011-12 South Australian Government Annual Energy Efficiency Report', available at http://www.sa.gov.au/subject/Water,+energy+and+environment/Energy/Energy+efficiency/Improving+energy+efficiency+in+South+Australia/Improving+the+energy+efficiency+of+SA+Government+buildings

Department of Environment, Water and Natural Resources (2011) 'Water Efficient Outlets in Government Buildings', available at http://www.infrastructure.sa.gov.au/BuildingManagement/policies/esd

Department of Planning, Transport and Infrastructure (2012) 'Annual Report', available at http://www.dpti.sa.gov.au/annual_report

Department of Planning, Transport and Infrastructure (2012) 'Ecologically Sustainable Development Guide Note: Planning, Design and Delivery', available at http://www.infrastructure.sa.gov.au/BuildingManagement/policies/esd

Department of Planning, Transport and Infrastructure (2012) 'Solar Panels for Government Funded Building Projects', available at http://www.infrastructure.sa.gov.au/BuildingManagement/policies/esd

Department of the Premier and Cabinet (2008) 'Premier and Cabinet Circular 015: Procedures for submissions seeking the review of Public Works by the Public Works Committee', available at http://dpc.sa.gov.au/premier-and-cabinet-circulars

Department of the Premier and Cabinet (2009) 'Commercial Property Sector Agreement', available at http://www.sa.gov.au/upload/franchise/Water,%20energy%20and%20environment/climate_change/documents/sector_agreements/Commercial_property_sector_agreement.pdf

Department of the Premier and Cabinet (2010) 'Premier's Statement on Solar Panels for Government Buildings', available at http://www.renewablessa.sa.gov.au/files/copenhagen-solar-panels-(2).pdf

Department of the Premier and Cabinet (2011) 'South Australia's Strategic Plan', available at http://saplan.org.au/

Minister for Administrative Services (2004) Statement on requirements for Government office accommodation, available at http://www.gbca.org.au/news/green-light-for-environmentally-friendly-government-office-accomodation/616.htm

Sustainable Procurement Board of South Australia (2010) 'Sustainable Procurement Guideline', available at www.spb.sa.gov.au/public/download.aspx?id=916

Sustainable Procurement Board of South Australia (2011) 'Lifecycle Costing Guideline', available at www.spb.sa.gov.au/public/download.aspx?id=459

Green Building Council of Australia, 'Green Star' rating tools, available at http://www.gbca.org.au/green-star/rating-tools/

Sustainable Focus (2006) 'Energy Saving Scoping Study for DECS and DTEI'

Water Efficiency Labelling and Standards Scheme, 'Your guide to water efficient taps', available at http://www.waterrating.gov.au/consumers/water-efficiency/your-guide-water-efficient-taps, and 'Your guide to water efficient showerheads', available at http://www.waterrating.gov.au/consumers/water-efficiency/your-guide-water-efficient-showerheads

# APPENDIX 1 Status of previous actions under the Energy Efficiency Action Plan 2002

| ENERGY EFFICIENCY ACTION PLAN 2002 | GOVERNMENT BUILDINGS ENERGY STRATEGY 2013 |
|---|---|
| Action 1 Energy Management | |
| A Reference Group chaired by the Department of Premier and Cabinet and Energy SA will be tasked to ensure Agencies reach energy reduction targets. | The Energy Efficiency Reference Group will continue to meet, with the objective of implementing the Strategy. Membership of the group will remain the same, however the group will be renamed to *Government Buildings Energy Group,* and will be chaired by the Department for Manufacturing, Innovation, Trade, Resources and Energy (Action 33) |
| As a priority action each Agency will conduct a portfolio wide audit to establish an energy consumption baseline, identify opportunities for energy savings and develop a corporate investment strategy and implementation plan. This information will allow senior management to make an informed commitment to energy reduction targets. | SASP T61 provides a whole of Government commitment to energy efficiency targets, based on a 2000/01 energy consumption baseline. Rather than requiring agencies to develop corporate investment strategies or implementation plans in response to the Strategy, the Strategy establishes agency-specific responsibilities. |
| Action 1.1 Greenhouse Gas Targets and Inventory | |
| Agency greenhouse targets will be revised to reflect the Kyoto agreement. As part of the national inventory, agencies are to maintain records of energy consumption and report annually. | Action 36 requires agencies to report on energy efficiency, greenhouse emissions and energy expenditure associated with the operation of Government buildings. |
| Action 1.2 Energy Procurement | |
| Agency energy management and finance staff to work together to maximise value from energy contracts. Specifically through updating asset listings, communicating electricity contract information effectively with sites and developing strategies for modifying portfolio load profiles. | Actions 26-28 focus on improving energy management via a number of means, including investigating demand response opportunities, load curtailment contracts and standby generation. |
| Action 2.1 Construction and Refurbishment of Buildings | |
| The construction of new buildings and major refurbishments of existing assets will include a life cycle approach to the design and specification of the project, to ensure cost effective energy saving options are incorporated from the design stage. Specific actions are:<br>• passive design principles that reduce building energy requirements are to be incorporated. Designers are to list the passive features and show that the key issues of orientation and shape, windows, openings and shading, | Under Premier and Cabinet Circular 015, new and substantially refurbished Government buildings must be designed having regard to a set of Ecologically Sustainable Development (ESD) Guide Notes developed by DPTI Building Management. These guide notes provide direction on how to achieve compliance with the specific actions under Action 2.1 of the EEAP. Actions 4 and 5 call for these actions to be retained and a standard life cycle assessment methodology to be developed. |

| | |
|---|---|
| thermal mass and insulation have been addressed.<br>• the specification of appropriate, economically viable automatic lighting controls;<br>• life cycle costing evaluations of alternative air conditioning systems;<br>• the designs are to include an estimate of the annual energy costs of operating the building;<br>• agencies are to undertake an appraisal of the energy use over the first twelve months of operation of new and refurbished buildings. | |
| **Action 2.2 Leased Commercial Office Space** | |
| Leased accommodation arrangements that pass on uncontrolled central service energy costs to the tenant are to be avoided. Energy consumption information for leased accommodation is to be made available to tenants, where possible. | The Commonwealth's mandatory disclosure policy requires all Government-owned office buildings and all building owners seeking new or renewed leases for areas >2000m$^2$ to disclose the NABERS energy rating of the base building. |
| **Action 2.3 Building Operation and Maintenance** | |
| Operation and maintenance of existing assets are to incorporate energy management practices with energy audits being undertaken every five years in assets where the annual energy consumption exceeds $50,000. | The requirement to undertake regular energy audits has been discontinued, as it is considered an inefficient use of funds and a duplication of the activities being carried out by FM contractors. Actions 22-24 seek to improve the quantity and quality of energy efficiency proposals generated from FM contractors by ensuring proposals are forwarded to the GBE Group and given adequate consideration, improving communication and engagement with FM contractors and contract managers on energy efficiency matters, and providing tools and templates to assist FM contractors to undertake life cycle assessments. |
| **Action 2.4 Dedicated Asset Energy Efficiency Financing** | |
| Existing financing mechanisms are to be promoted to sites to encourage investment in energy efficiency projects. Energy SA, DPC and DTF are to review the success of the dedicated energy efficiency financing and make recommendations to Cabinet for future funding. Any funding will be invested in energy projects with agreed cost/benefit criteria to ensure that a positive financial return is achieved for South Australia. | DTF has not supported the establishment of a dedicated energy efficiency investment fund. In 2012 an Energy Efficiency Investment Framework and Facilitation Service was established to assist agencies develop business cases and budget bids for energy efficiency projects. Cabinet has been advised of forthcoming budget bids which will be developed using the EEIF guidelines. Actions 10 and 11 address the Energy Efficiency Investment Framework. Action 12 encourages consideration of Environmental Upgrade Financing and Energy Performance Contracting as alternative financing mechanisms. |

| Action 2.5 Energy Performance Contracting | |
|---|---|
| Opportunities to employ energy performance contracting as a means of reducing energy costs and greenhouse gas emissions are to be identified. Energy performance contracting is to be considered as a mechanism to implement suitable projects. | Only a few EPC projects have been undertaken to date. Barriers to the uptake of EPC include the amount of pre-tender work and legal overheads involved in establishing a contract, the costs associated with monitoring energy savings, and its applicability only to larger Government owned properties and longer leases[20]. Notwithstanding these issues, EPC may be a viable option in certain circumstances, and the Strategy encourages agencies to consider it alongside other financing mechanisms. A key difference between the current Strategy and the EEAP is that alternative financing options are now becoming available, ie the Energy Efficiency Investment Framework and Environmental Upgrade Financing. |
| Action 3 Office Equipment and Other Equipment Purchases | |
| Office equipment procured under contract is to comply with the US EPA ENERGYSTAR or have Power Management features and to be supplied in its enabled state, where possible. Energy consumption and potential operating costs are to be identified for equipment prior to purchasing. | Instead of specifying a minimum performance standard for office equipment, Action 17 calls for procurement contracts to incorporate principles from the State Procurement Board's Sustainable Procurement and Life Cycle Costing Guidelines. These guidelines provide a generic assessment and selection methodology that can be applied to all procurements, not just office equipment. |
| Action 4 Vehicle Fleet | |
| Vehicle fleet management under Fleet SA will continue to provide cost-effective access to alternative fuel vehicles, make vehicle operating costs transparent and promote efficient vehicle utilisation and responsible driving practices. Fleet SA is also to work with Agencies to set fleet performance targets. The South Australian Government plans to have 20% of its vehicle fleet converted to LPG by 2005. | Over half of the Government's vehicle fleet now uses lower emission fuels and FleetSA is overseeing a number of initiatives to further reduce the average greenhouse gas emissions per kilometre travelled by Government vehicles. The actions around reducing emissions from the Government vehicle fleet no longer have a place within the GBE Strategy, which is focussed solely on buildings. Actions around reducing vehicle emissions are dealt with in the Low Emission Vehicle Strategy, released 2012. |
| Action 5 Verification and Reporting | |
| Annual reporting on energy use will be carried out by agencies and performance will be independently verified. Specifically:<br>• agencies are to report annual energy use against targets, significant energy management initiatives and other achievements against the Action Plan in their annual reports.<br>• an annual Government Energy Use report is to be prepared and published by the Energy SA | DMITRE will continue to publish an Annual Energy Efficiency Report for Government Buildings (Action 36). Action 37 seeks to shift the responsibility for reporting on energy use from individual agencies to DPC through a centralised system. Agencies will continue to report on actions undertaken to identify and implement energy management initiatives (Action 39). A traffic light report will be provided to Senior Management Committee to |

[20] Pricewaterhouse Coopers 2012 'Advice on updating the SA Government Energy Efficiency Action Plan'

and is to include Agency performance and Action Plan progress.

- independent verification of performance under the Action Plan is to be coordinated annually by Energy SA

communicate the extent of implementation of actions under the GBE Strategy.

# APPENDIX 2 Energy management provisions of ESD Guide Note – *Planning, Design and Delivery*

- Minimise energy demand by adopting passive design principles e.g. orientation, shape, layout, thermal mass, glazing, shading and insulation;
- Promote installation of renewable energy systems and assess co-generation opportunities e.g. reclaiming waste heat from cogeneration systems for space heating;
- Minimise energy requirement by optimising the layout of spaces/functional areas;
- Take a holistic, life cycle approach to energy management;
- Appropriate, economically viable automatic lighting controls are to be specified;
- Optimise engineering plant and services design to minimise energy consumption;
- Life cycle costing evaluations of at least two alternative air conditioning systems are to be undertaken;
- Minimise energy consumption in the design, operation and maintenance of engineering plant and services and through the use of control systems;
- Plan for commissioning of engineering and lighting services to realise operational benefits;
- Install hot water provisions to minimise pipe runs and insulate services to realise operational benefits;
- Design for system controllability with optimum operating efficiency e.g. manual/automatic lighting controls;
- Select high efficiency fluorescent lights and fittings;
- Document design options and energy consumption forecasts in an Energy Efficiency Statement;
- Monitor and appraise of the energy use over the first twelve months of operation of the building

# APPENDIX 3 Government Buildings Energy Group – Terms of Reference

**Membership**

The Government Buildings Energy Group (GBE Group) will comprise one member from each portfolio agency, and two from DPTI Building Management (one representing the Across Government Facilities Management Arrangement).

DMITRE Energy Markets and Programs Division will Chair the Group and will provide Secretariat services.

The GBE Group may invite additional staff to provide advice on specific issues of importance. This may include staff from Shared Services SA to advise on energy contracting and data provision, and from Building Management Services to advise on facility management arrangements, capital works and operation and maintenance. Facilities management contractors may also be invited to discuss barriers to achieving improved energy management and to share learnings from projects/ sites.

**Objective**

To coordinate implementation of the Government Buildings Energy Strategy (the Strategy).

**Role**

In fulfilment of its Objective the GBE Group will:

- Oversee the implementation of actions under the Strategy.
- Oversee annual reporting to Cabinet on performance against the objectives of the Strategy.
- Oversee annual reporting to the Senior Management Council on implementation of the Strategy.
- Propose amendments to chief executives' energy management accountabilities.
- Consider energy management initiatives proposed by Facilities Management contractors under the Facilities Management contract, and make recommendations to the Energy Efficiency Investment Facilitation Service on whether to pursue proposals with the relevant agencies.
- Evaluate building design and performance rating tools as they become available, and assess their potential value to SA Government.
- Provide a forum for energy managers to share information and experiences.

**Review of terms of Reference**

The Terms of Reference outlined above can be reviewed on an as needs basis.

# APPENDIX 4 Government Buildings Energy Efficiency Investment Facilitation Service – Terms of Reference

**Membership**

One member each from DMITRE Energy Markets and Programs Division (Chair), DPTI Building Management and DTF Budget Branch.

**Background**

On 14 May 2012 Cabinet endorsed a framework for cost-effective energy efficiency investments in Government buildings. As part of the Framework Cabinet approve that a specialist facilitation service be formed with one representative from DTF, DMITRE and DPTI (three in total) to assist with the process of developing business cases of an appropriate standard using the Energy Efficiency Guidelines.

**Purpose**

The Facilitation Service will assist agencies to develop business cases of an appropriate standard to invest in energy efficiency measures in Government buildings.

**Role**

The Facilitation Service will:

- Advise agencies on the development of business cases for investment in energy efficient Government buildings, including identifying future price paths for energy and key assumptions and risks.
- Ensure project proposals are prepared to an appropriate standard and comply with the Energy Efficiency Investment Guidelines.
- Maintain and amend as necessary the Energy Efficiency Investment Guidelines.
- Assist with the progress of budget bids through the budget process, including advising Senior Management Council as required.
- Assist with the identification and analysis of funding options outside the budget process.
- Assist agencies to apply for seed funding as required to develop business cases.
- Undertake initial assessment and prioritisation of investment project options.
- Advise on procurement implementation and post-implementation review of projects.
- Participate in tender evaluations for projects.
- Consult with the Government Buildings Energy Group as required.

# APPENDIX 5 Agency obligations

| ORGANISATION | ISSUE | ACTIONS |
|---|---|---|
| All agencies | Reporting | 15, 36, 38, 39, 40 |
| | Procurement | 16, 17, 18, 19 |
| | Demand management | 26, 27, 28 |
| | Identification of energy management initiatives | 11, 12 |
| | Teleconferencing and on-line service delivery | 21 |
| DPTI | New and substantially refurbished office accommodation: energy performance standards | 1, 14 |
| | Leased office accommodation: energy performance standards and energy management | 6, 7, 9 |
| | Facilitate use of life cycle assessment in design and procurement decisions | 5 |
| | Co-generation / tri-generation | 31 |
| | Facilities management | 20, 22, 23, 24 |
| | Identification and development of energy management initiatives | 10 |
| | Facilitation of other agencies' energy efficiency investment proposals | 10, 11 |
| | Implementation of solar panels policy | 32 |
| | Reporting | 8 |
| Department for Health and Ageing | New acute and substantially refurbished healthcare facilities: energy performance standards | 2 |
| | Identification and development of energy management initiatives | 10 |
| DECD | New and substantially refurbished primary and secondary schools: energy performance standards | 3 |
| | Identification and development of energy management initiatives | 10 |
| DMITRE | Facilitation of other agencies' energy efficiency investment proposals | 10, 11, 34 |
| | Investigate standby generation potential | 29 |
| | Reporting | 35, 36, 37, 39, 40, 41 |
| | Support for GBE Group | 25, 33 |
| DTF | Facilitation of other agencies' energy efficiency investment proposals | 10 |
| DPC | Identification and development of energy management investment proposals | 10 |
| CS | Identification and development of energy management investment proposals | 10 |
| SAPOL | Identification and development of energy management investment proposals | 10 |
| DFEEST | Identification and development of energy management investment proposals | 10 |
| | Demand management | 30 |
| OCIO | Teleconferencing and on-line service delivery | 21 |
| DEWNR | Oversight of solar panel policy and water efficient outlet policy | 16, 32 |

# ACRONYMS

ABGR – Australian Building Greenhouse Rating

DECD – Department for Education and Child Development

DEWNR – Department of Environment Water and Natural Resources

DMITRE – Department of Manufacturing Innovation, Industry, Trade, Resources and Energy

DPC – Department of the Premier and Cabinet

DPTI BM – Department of Planning, Transport and Infrastructure – Building Management

DTF – Department of Treasury and Finance

EEAP – Energy Efficiency Action Plan

EERG – Energy Efficiency Reference Group

EPC – Energy Performance Contracting

EUF – Environmental Upgrade Financing

ESD – Ecologically Sustainable Development

GBE Group – Government Buildings Energy Group

GBE Strategy – Government Buildings Energy Strategy

NABERS – National Australian Built Environment Rating System

OSCAR – Online System for Comprehensive Activity Reporting

SASP – South Australia's Strategic Plan

SMC – Senior Management Council