A Review of Some Recent

Australian Government

Energy Management Programs

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Robert Passey

Iain MacGill

Muriel Watt

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Executive Summary

The energy management programs adopted by the Commonwealth and some state governments have had mixed success. While significant efficiency gains have been made in some areas, in others energy use and greenhouse emissions have increased.

In order to obtain a better understanding of the reasons for success and failure, here we review the Commonwealth, NSW and Victorian government energy management programs. Specifically we focus on key design and implementation issues, experience to date and lessons learnt, and ways forward for future policy efforts.

Of these three, the Commonwealth program has been most successful, with total energy use (excluding Defence operational fuel) falling by 15.4% since 1997/98. The NSW program has had isolated success and although energy use is estimated to have fallen by 2.3% between 1995-6 and 2001-02, this is well short of its 15% target. The Victorian program seems to be making progress in reducing transport energy use, but progress in building energy efficiency is uncertain.

The underlying problems, evident in most energy efficiency policy programs, are the low cost and hence importance of energy for decision makers compared to more pressing concerns, the wide range of factors that drive any energy-related decision making, the poor understanding decision makers have of energy efficiency, and the lack of institutional capacity for undertaking available options. All these problems are demonstrated, at least in part, within the government energy management programs implemented so far.

Specific aspects of a program that strongly influence its success are: the scope of operations covered; targets, standards and timelines; responsibility for implementation; assistance for implementation (financial and other resources); promotion of compliance; support for renewable energy; reporting arrangements; and the auditing/review process. In order for these aspects to be most effectively addressed, the following recommendations are made.

General

1.   The program should be part of a long term strategic plan.

2.   For energy use, Departments and agencies should be encouraged to focus not only on annual budgets but also on longer term rolling budgets.

3.   In addition to financial and technical support, the human factors involved in decision making and ease of implementation should be addressed.

Scope of operations

1.   To minimise energy use and emissions, programs should include all government operations.

Use of targets and standards

1.   Departments and agencies should have individual targets rather than only being required to align themselves with overall Government targets.

2.   To encourage building owners to reduce energy use, incentives should be developed that move beyond making them responsible for energy costs since these are a small proportion of building running costs.

3.   Energy intensity targets should be used to supplement absolute targets.

4.   Targets should be augmented with performance standards, and other incentives such as responsibility for energy costs.

Assistance

1.   Sufficient financial and human resource support should be directed to Departments and agencies that assist others implement energy management programs.

Financial support

1.   Financial support should be provided to implementing Departments and agencies since although energy efficiency measures save money in the long term they may have significant up-front costs.

2.   Financial support can also be provided in the form of reduced internal rate of return requirements.

Energy Performance Contracting

1.   EPC should be included in energy management programs as it can significantly reduce up-front costs, risk and the need for in-house experience.

Measures to promote compliance

1.   Reporting requirements should be enforced since they have value not only in promoting compliance, but also help to increase awareness of energy issues, give the program credibility, and identify problem areas.

2.   The effectiveness of additional mechanisms to ensure compliance should be examined, for example purchase of Green Power when energy use exceeds targets.

Transport

1.   Transport should be included in energy management programs since it significantly contributes to energy use, emissions and costs.

Renewable Energy

1.   Mandating a certain percentage of renewable energy use should be encouraged as an effective way to reduce greenhouse gas emissions and provide support for local industry.

2.   Renewable energy should not be seen as an alternative to reduced energy use because although it has significantly lower emissions than fossil fuel-based electricity, it still has greater impacts than not using energy in the first place.

Reporting and Auditing

1.   The program should be audited or reviewed within one or two years of commencement, and every three to four years after that. These reviews should make specific recommendations, and follow up on the previous review's recommendations.

CONTENTS

1   Introduction

The Commonwealth and a number of state governments in Australia have adopted government energy management programs as a key component of their climate change and energy policy frameworks. Typically these programs set energy savings targets or performance standards for government Departments and agencies, provide structured assistance to help them achieve these targets and standards, and impose reporting requirements and Departmental accountability to drive compliance.

Such programs allow governments to:

- Reduce their own energy consumption and associated costs,
- Reduce government related emissions of greenhouse gases,
- Support development and expansion of the local sustainable energy services industry, and
- Lead the rest of society towards greater energy efficiency

Australian Governments have been implementing these types of energy management programs for several decades, yet with only mixed success to date.[1] The reasons for this are complex and not fully understood. Recently, renewed efforts with energy management programs by the Commonwealth and various State Governments have produced more promising achievements in improving government energy efficiency and reducing its greenhouse emissions and energy costs. As such they can provide valuable information regarding lessons learned and so help achieve even greater reductions in energy use, not only throughout government operations but also in other sectors of society.

In this paper we review three recent government programs in Australia:[2]

- Commonwealth Energy Policy,
- NSW Government Energy Management Policy, and
- Victorian Government Greenhouse Strategy.

The focus of our review for these programs is:

- Key design and implementation issues,
- Experience to date and lessons learnt, and
- Ways forward for future policy efforts with these types of programs.

In Section 2 we first briefly outline some of the key policy design and implementation issues for these types of programs. Section 3 describes the chosen design and implementation process for the Commonwealth and state government programs, and Section 4 discusses their performance to date. This assessment is based, where possible, on formal published reviews of the schemes made as part of their compliance reporting and review processes. Finally, in Section 5 we consider how lessons from experience to date with the programs might help guide future policy efforts in designing and implementing these types of schemes. Three appendices provide detailed discussions of each program.

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[1] See, for example, Greene and Pears (2003) *Policy Options for Energy Efficiency Australia*, AEPG Report.

[2] We hope to extend this review to include recent efforts in other States such as South Australia.

2 Key aspects of policy design and implementation

A program's success will be strongly influenced by key aspects of scheme design and implementation. These include: the scope of operations covered; targets, standards and timelines; responsibility for implementation; assistance for implementation (financial and other resources); promotion of compliance; support for renewable energy; reporting arrangements; and the auditing/review process.

2.1 Scope of operations

In order to maximise reductions in energy use and greenhouse gas emissions and demonstrate the greatest possible leadership by example, government energy management program should include as much of the government's operations as feasible. However, this needs to be traded off against implementation challenges for some government operations that can include a lack of understanding and information, measurability, available resources, authority to make energy-related decisions and clear lines of accountability.

2.2 Use of targets and performance standards

Targets can be set in terms of absolute energy savings, or in terms of some measure of energy intensity. Absolute, or fixed, targets can be more effective in delivering actual reductions in energy use because they don't provide possible opportunities for claiming more lenient treatment on the basis of changed activity levels. However, relative, or energy intensity, targets (eg. average energy consumption per employee, served client or per square metre), provide greater flexibility for agencies whose operations or activity levels increase, and can be more effective than absolute targets in reducing energy use when activity levels decrease.

Standards can define the energy efficiency of appliances (star ratings) and the performance of buildings (NatHERS or ABGR). They can be a very useful adjunct to targets by providing guidance to energy managers and being a ready measure of compliance. Using them instead of targets , however, does mean that government energy use may still increase because of other factors such as changed operating procedures or behaviour.

2.3 Guidance and Assistance

The range of guidance and assistance required for these programs includes general policy formulation, reporting, and direct assistance. General policy formulation is required for the program to be operable and effective, while collation and reporting of outcomes is necessary to motivate participants, add credibility to the program and evaluate its effectiveness. Direct assistance in implementation is critical to a program's success since energy management is a non-core activity, and so agencies are likely to have little in-house experience.

2.4 Financial support

Energy efficiency can be problematic since many options require up-front capital investment. Financial support for government programs may be provided to fully or partially cover up-front capital costs or wages. Although many energy management projects have relatively short payback times (2 to 5 years), they may still be problematic for agencies wishing to balance annual budgets, especially if the capital costs are high.

Indirect financial support may also be provided in the form of reduced requirements for internal rates of return (IRR). Reducing the IRR to 12%, from the 20% normally required for Government agencies, reduces the simple payback time to 8 years.

2.5   Energy Performance Contracting (EPC)

Energy Performance Contracting involves an Energy Services Company providing an energy reduction strategy with their payment dependent on specific milestones being achieved. In general, a complete package of services is provided and the contractor is accountable for design, purchase, installation, maintenance, and operation of the equipment. However, major capital costs may be met at least in part by the client. EPC's can address some key challenges for energy efficiency – the poor understanding that many decision makers have regarding their energy efficiency options, the various risks they face in taking action, and financing hurdles. EPCs transfer the risk of achieving energy management cost savings to the contractor, but allow savings to accrue to the client in that the energy savings produced by the project must be greater than its amortised (or written off) cost.

2.6   Measures to promote compliance

Although government energy management programs are generally structured to deliver cost-effective energy savings in the long term, Departments and agencies may still choose to not act because of all the potential difficulties noted earlier. Measures to promote compliance can range from reporting energy use in annual reports, to reporting the degree of compliance directly to the relevant Minister or Parliament, to economic incentives.

2.7   Transport

Transport makes up a significant proportion of energy use in government operations, for example 15% of Commonwealth energy use in 2003-03.[3] Although transport fuels have a lower greenhouse gas intensity that electricity (they make up only 5% of Commonwealth emissions), reductions are still worth pursuing as they can be achieved relatively cheaply and can provide significant cost savings. Reduced use can also have health benefits since the fuels are generally burnt in populated areas.

2.8   Renewable Energy

The primary benefits of reduced energy usage are reduced costs and greenhouse gas emissions. While renewable energy purchases by governments are effective at reducing the greenhouse gas emissions associated with their energy use, it generally does so at increased cost to the user. However, in particular circumstances it may result in decreased costs, for example use of solar water heaters, or installation of photovoltaics or wind power in remote locations. Renewable energy may also be used as an incentive to meet energy reduction targets—for example, if use in excess of targets must be met through purchase of Green Power.

2.9   Reporting and Auditing

Reporting of both energy use and compliance with targets by participating Departments and agencies is necessary to not only measure the effectiveness of their actions, but also to give the program credibility in the eyes of participants. It also helps to increase awareness of energy issues in general, provides benchmarks, and helps to identify problem areas. Auditing of the program as a whole is essential to see whether overall targets have been met, to evaluate the effectiveness of the strategies used to meet these targets, and to modify them if necessary. The process should be both public and transparent to enhance credibility and to draw on as wide an information base as possible.

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[3] AGO (2003) *Energy Use in the Australian Government's Operations 2002-2003*, Industry, Communities & Energy Division, Australian Greenhouse Office, December 2003.

3 Programs reviewed

We consider the implementation, and outcomes to date, of three Australian government schemes:

- Commonwealth Energy Policy
- NSW Government Energy Management Policy, and
- Victorian Government Greenhouse strategy.

Both the Commonwealth and NSW programs have been reviewed or audited. The Commonwealth scheme has been audited twice internally, in 1999 and 2002. The NSW scheme was reviewed by the Legislative Assembly Standing Committee on Public Works in 2002. The NSW scheme has also been reviewed internally and the GEMP Action Plan produced, however this is currently under consideration by government and not yet public. The Victorian strategy has only been recently implemented so there is currently little publically available reporting.

The following summarises key aspects of each program's design and implementation, and their outcomes to date according to the reviews noted above, the views of a number of other independent observers, and our own observations. Although the general focus is on stationary sector energy efficiency, transport is also briefly addressed.

3.1   Commonwealth Energy Policy

The Commonwealth Energy Policy *Improving Energy Efficiency in Commonwealth Operations*[4] was included in *Safeguarding the Future: Australia's Response to Climate Change*, announced in 1997.

The Commonwealth Energy Policy applies targets to three energy-use categories, that combined make up almost 60% of Commonwealth government energy use (not including 'Defence operational fuel consumption' which alone in 2002–03 used about twice as much energy as all remaining government operations). The Policy sets a number of mandatory average minimum energy intensity levels for 2002-03 for each agency, with a fixed energy consumption target for the Defence Department. The Policy also includes a range of other performance requirements. Most funding comes from within existing budgets. Since 1997/98, total energy consumption of the combined Commonwealth operations (excluding Defence operational fuel) has fallen by 15.4%; greenhouse gas emissions have fallen by 12.7%; energy intensity or consumption has declined in 11 of 12 end-use categories (Public Buildings increased); and estimated annual energy costs have fallen by $30 million.[5]

3.2   NSW Government Energy Management Policy (GEMP)

The NSW *Government Energy Management Policy* was announced in November 1998, and is one of several initiatives aimed at reducing greenhouse gas emissions detailed in the *NSW Greenhouse Action Plan 1998*.

It covers all NSW government energy use over which government agencies have direct control, and imposes an absolute energy consumption target across all of these. There are also some renewable energy purchasing requirements. A $20 million per year Treasury fund has been established to support Energy Performance Contracting (EPC).

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[4] DISR (2000) *Measures for Improving Energy Efficiency in Commonwealth Operations*, Department of Industry Science and Resources, Commonwealth of Australia.

[5] AGO (2003) *Energy Use in the Australian Government's Operations 2002-2003*, Industry, Communities & Energy Division, Australian Greenhouse Office, December 2003.

Although the lack of public reporting of this program makes evaluation difficult, it appears the GEMP has reduced energy use, greenhouse gas emissions, and energy costs in some government operations. However, it is clear the program has achieved mixed results to date. Energy use in Government buildings is estimated to have fallen by 2.3% between 1995-6 and 2001-02, well short of the 15% target. The GEMP is currently in a state of flux, with implementing agencies undergoing major restructuring, and reports defining its future operation and funding under consideration and so not publicly available.

3.3   Victorian Greenhouse Strategy

The Victorian Greenhouse Strategy was released in June 2002 and includes 'government leadership' as one of ten modules. The 'government leadership' module involves a government-wide target for GHG emissions reductions from government buildings and moves to integrate the consideration of greenhouse issues into key government decision-making processes.

Rather than EPC, Environmental Management Systems (EMSs) are emphasised, and most funding has to come from within agencies' existing budgets.

Although a 15% building energy efficiency target was introduced in 2001, action plans to meet this objective are still being formulated, and the data on Green Power purchases are not yet available.

4 Program implementation and outcomes to date

4.1 Scope of operations

The NSW program targets energy use over which government agencies have direct control other than infrastructure and transport. Note, however, that infrastructure and transport represent some 70% of NSW government energy consumption. It is mandatory for all general government sector agencies, and public trading enterprises (PTE) such as the State Rail Authority, the State Transit Authority and the Freight Rail Corporation are encouraged to adopt it.

Victoria's program covers all energy used in buildings owned and/or occupied within the general government budget sector, and also transport. Examples of facilities covered are offices, schools, TAFEs, police stations, prisons, courts, research facilities, hospitals and health and community services. Excluded are public housing and small-scale residential services.

The Commonwealth program has a more limited scope than either of the state programs. Only three of the 12 energy end-use categories identified in its Energy Policy have targets (Office—Tenant Light and Power, Office—Central Service, and Defence Establishments). Despite the more limited focus of the Commonwealth program, energy use in most of its operations, including those lacking targets, has decreased.

Maximising the energy savings, greenhouse emission reductions, organisational learning and 'leadership by example' of these programs requires as broad a scope across government operations as possible. Against this, however, must be weighed the diversity of government services and hence potential need for tailored arrangements. This is a particular issue when setting targets, as outlined below. There are also particular challenges posed by some types of government services such as defence.

4.2 Use of targets and standards

The NSW GEMP had the original objective of reducing the total energy consumption of all NSW government buildings by 15% of the 1995/96 level by 2001/2002, and achieving 25% reductions by 2005/2006. Such targets were, however, subject to actions being cost-effective. Also, all Schedule 1 agencies must purchase at least 6% Green Power. In the scheme's implementation, this whole-of-government target was not translated into specific agency targets. Furthermore, no standards are prescribed, and transport is not addressed.

Victoria's Greenhouse Strategy aims to reduce emissions from government buildings by 15% by June 2006 compared to 1999/2000, purchase 10% of government electricity usage as Green Power by 2005/06, and reduce emissions from the government's vehicle fleet by 10% by June 2006 compared to 1999/2000. The 15% target applies to the energy used in buildings owned and/or occupied by each Department and statutory authority within the general government budget sector. Note the 15% building energy efficiency target and a 5% Green Power target were established in November 2001, and were later incorporated into the VGS. Along with absolute targets for building-related energy use and emissions from vehicles, the Victorian program prescribes specific ways to reduce vehicle emissions.

The Commonwealth Energy Policy applies intensity targets to three energy-use categories covering almost 60% of Commonwealth government energy use other than defence fuel use. These are, for 2002-3, Office buildings - tenant light and power: 10,000 MJ/person per annum; Office buildings - central services: 500 MJ/sq.m per annum; and a fixed target for Defence establishments of 2.5 peta joules per annum. The program also incorporates other measures including performance standards for office equipment and appliances; a requirement that new building leases increase the incentive for building owners to improve building energy efficiency;

regular energy audits of building space with implementation of cost-effective recommendations; the application of minimum energy performance standards for new houses, with an energy review of existing stock; the use of renewable energy; and some, as yet poorly defined, measures to reduce transport emissions.

Key differences between the schemes include their use of absolute or intensity targets, and whether specific targets are assigned to individual government Departments and agencies. The latter issue would seem to be one of the failings of the NSW scheme: Departments, and their senior management don't have individual targets against which performance could be assessed.

The role played by performance standards is also key. They provide a means to enforce some minimum amount of effort by Departments and agencies, and a clear path by which they can begin to act. There is, however, some possible loss of economic efficiency because individual Departments have less flexibility in what options they can take to achieve some given target reduction. A mix of targets and performance standards seems appropriate.

In all programs there may be a tendency to focus on 'tenancy' energy use, rather than 'building' energy use because the former involves low capital cost items that can be replaced through natural turnover. Where governments are leasing buildings, there is a need to ensure there are performance standards in place to drive energy efficiency improvements by the building owners.

4.3   Assistance

For all three government programs discussed in this review, the functions of the assisting Departments or agencies have been broadly divided into general policy formulation and reporting, and implementation and direct assistance. The assisting Departments or agencies for the different programs are listed below.

	Policy Guidance	Direct Assistance
Commonwealth	Department of Industry, Science and Resources	Australian Greenhouse Office
NSW	Ministry of Energy and Utilities	Department of Commerce [i] & Sustainable Energy Development Authority [ii]
Victoria	Department of Sustainability and Environment	Sustainable Energy Authority of Victoria

i consulting services in energy management, specific initiatives including implementation of energy performance contracting
ii EPC and GEEIP

Judging from the 2001-02 audit of the Commonwealth program, the performance of the Department of Industry, Science and Resources (DISR) and Australian Greenhouse Office (AGO) has been satisfactory. Supporting programs such as the Policy Framework for the Greening of Government and the Greenhouse Challenge Program may be helping Commonwealth operations achieve their targets.

Both the reporting and implementation components of the NSW program have been found wanting. The Standing Committee inquiry found that the MEU was under-resourced for its current GEMP function. Of additional concern is the fact that only agencies that avoided using the Department of Commerce (DoC) have successfully applied for EPC funding. Hopefully the upcoming GEMP Action Plan, and the formation of the Department of Energy, Utilities and Sustainability (DEUS), will in combination provide the NSW program with the support and direction it needs.

At this early stage it is not possible to tell how effectively the Victorian program has been implemented—although the transport component seems to be making progress.

4.4 Financial support

Both the Commonwealth and Victorian programs provide little in the way of financial support in addition to existing budgets, although in Victoria the Sustainable Energy Development Authority's (SEAVs) core annual budget can be used to meet the 15% building target, and additional assistance is provided for the transport component. The NSW program includes an interest-free $20 million loan facility from Treasury to be used for both EPC and the Government Energy Efficiency Investment Program (GEEIP). It also allows the internal rate of return (IRR) for both EPCs and the GEEIP to be reduced to 12% from the 20% normally required for Government agencies.

It seems implementation of energy efficiency measures is limited in many government Departments and agencies by the desire to generate a surplus in annual budgets. Thus although short term goals are achieved, these result in increased costs in the longer term.

4.5 Energy Performance Contracting

The Commonwealth and NSW programs emphasise EPC as a central component of their energy reduction strategy. The NSW government provides an interest-free $20 million loan facility specifically for EPC. The Victorian program doesn't refer to EPC, but instead emphasises Environmental Management Systems (EMSs).

In NSW, EPCs are promoted through the Energy Smart Government Program, and since it began, 160 Government agencies have invested about $34 million in energy efficiency upgrades. These projects are delivering $7 million in energy savings and avoiding about 68,000 tonnes of CO_2 emissions annually (equal to about 2% of NSW government annual emissions).[6]

4.6 Measures to promote compliance

At this stage compliance for the Commonwealth and state programs is promoted only through reporting requirements, although these requirements seem to be enforced to different extents in different programs. The Commonwealth program is strictest—it also requires reporting to Parliament, not just to one of the assisting agencies.

In 2002 the NSW Legislative Assembly Standing Committee on Public Works recommended that agencies that fail to meet their absolute targets be required to purchase the shortfall as Green Power, however to date this has not been implemented.

4.7 Transport

Both the Commonwealth and Victorian programs include reduction of fuel use and emissions due to transport, NSW does not. Given transport represents some 60% of NSW government energy consumption, it would certainly seem to be deserving of policy action. Although transport is clearly not emphasised in the Commonwealth program, it appears to be the most successful part of the Victorian program to date.

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[6] From Energy Smart Government web page http://www.energysmart.com.au/wes/Displaypage.asp?flash=-1&t=20042417&PageID=8, accessed 17/2/04.

4.8 Renewable Energy

While all programs require all agencies to use solar and other renewable energy technologies where relevant and cost effective, only the state programs include purchase of a specific percentage of Green Power.

4.9 Reporting and Auditing

All three programs have similar reporting requirements, although dissimilar degrees of compliance to date. However their auditing and review processes are very different.

Commonwealth: Program started in 1997, the first review or audit was one year later in 1998-99, and the second was in 2001-02.

NSW: Program started in 1998, a parliamentary inquiry was conducted four years later in 2002, and in 2004 the Action Plan in response to this inquiry is yet to be released.

Victoria: Program started in 2002, and a formal review will occur every two years, the first in 2004.

It is highly likely the early audit of the Commonwealth program was critical to its success. It identified several central aspects of the program that were not up to standard, and made recommendations for how they should be addressed. Compliance to these recommendations was then assessed in a follow-up audit. Conversely, the NSW program was unreviewed for four years, and the government responses to the review are yet to be made public another two years later.

5 Possible ways forward

From the reviews and audits mentioned above, a number of recommendations can be drawn. Some of these are specific to particular issues, while others are more generic. Generic recommendations include:

1. The program should be part of a long term strategic plan. Achievements to date have often relied on a local champion rather than being built into the operational processes of Departments and agencies. A long term strategic plan provides the framework that encourages greater net savings and emissions reductions. It can include an ongoing auditing strategy that keeps the program on track and allows it to respond to changing circumstances. It also allows implementation of programs that despite having greater short term costs, have greater long term benefits.

2. For energy use, Departments and agencies should be encouraged to focus not only on annual budgets but also on longer term rolling budgets. Focusing on annual budgets emphasises measures that have very short payback times. Longer term rolling budgets allow implementation of measures that have longer payback times, and so help to reduce both costs and emissions overall.

3. In addition to financial and technical support, the human factors involved in decision making and ease of implementation should be addressed. These factors are not easily dealt with since they change from agency to agency. However, any energy management plan should acknowledge that it has little chance of success without support from the people who are meant to be implementing it. The regular reviews should specifically focus on what is needed to make implementation as easy as possible.

5.1 Scope of operations

1. To minimise energy use and emissions, programs should include all government operations. Exclusion of transport and infrastructure from the NSW program means that some 70% of energy consumption is not covered. Although lack of targets does not necessarily mean lack of progress (as indicated by reduced energy consumption in most Commonwealth operations), it is clear Departments included in an energy management program are far more likely to reduce their energy consumption.

5.2 Use of targets and standards

1. Departments and agencies should have individual targets rather than only being required to align themselves with overall Government targets. A common factor in areas where efficiency gains are made is that programs are taken seriously by senior management. Individual targets provide a focus or benchmark against which underperforming management can be assessed.

2. To encourage building owners to reduce energy use, incentives should be developed that move beyond making them responsible for energy costs since these are a small proportion of building running costs. For example mandatory performance standards could be applied as in point 4 below.

3. Energy intensity targets should be used to supplement absolute targets. Calculating the energy intensity of specific operations allow their energy use to be measured against their output, and so can be a more accurate measure of efficiency. Energy intensity targets can be especially useful where output declines over time.

4. Targets should be augmented with performance standards (such as energy star ratings for appliances, and minimum Australian Building Greenhouse Rating performance), and

other incentives such as responsibility for energy costs. They can be a very useful adjunct to targets by providing guidance to energy managers regarding what actions to take. They are also a ready measure of compliance.

5.3 Assistance

1. Sufficient financial and human resource support should be directed to Departments and agencies that assist others implement energy management programs. Most staff have very little experience with energy efficiency and so need assistance on an ongoing basis. Thus the assisting Departments and agencies require sufficient operating budgets in addition to capital budgets.

5.4 Financial support

1. Financial support should be provided to implementing Departments and agencies since although energy efficiency measures save money in the long term they may have significant up-front costs. Support may also be required to cover operational capital and wage expenses. Such support can be in the form of interest-free loans, as occurs in the NSW Energy Smart Government Program for energy performance contracting (EPC) and the Government Energy Efficiency Investment Program (GEEIP).

2. Financial support can also be provided in the form of reduced internal rate of return requirements. This reduces the pressure on Departments and agencies to focus on measures with short payback times.

5.5 Energy Performance Contracting

1. EPC should be included in energy management programs as it can significantly reduce up-front costs and risk. It also reduces the need for in-house experience since most, if not all, of the energy management program is carried out by the Energy Services Company. Thus it can remove the three most significant barriers to initiating an energy management program.

5.6 Measures to promote compliance

1. Reporting requirements should be enforced since they have value not only in promoting compliance, but also help to increase awareness of energy issues, give the program credibility, and identify problem areas. Reporting directly to Parliament seems to be especially effective since senior management must announce their success or failure in public.

2. The effectiveness of additional mechanisms to ensure compliance should be examined, for example purchase of Green Power when energy use exceeds targets. This would both impose a penalty and reduce emissions. It would also increase the cost effectiveness of energy efficiency measures. Although some agencies already purchase 100% Green Power and so would have reduced incentive to meet targets, it is likely they are already focussed on demand management to offset their higher electricity costs.

5.7 Transport

1. Transport should be included in energy management programs since it significantly contributes to energy use, emissions and costs. As shown in Victoria, reductions can be achieved relatively easily. Reduced transport-related emissions also improves urban air quality. Promotion of public transport helps to reduce traffic congestion, and cycling and walking have health benefits.

5.8   Renewable Energy

1.   Mandating a certain percentage of renewable energy use should be encouraged as an effective way to reduce greenhouse gas emissions and provide support for local industry. It also makes energy efficiency measures relatively more cost effective.

2.   Renewable energy should not be seen as an alternative to reduced energy use because although it has significantly lower emissions than fossil fuel-based electricity, it still has greater impacts than not using energy in the first place. Green Power also currently costs about 50% more than standard electricity, and so over time will cost government significantly more than implementing energy management programs. Although one of the primary aims of such programs is reduction of greenhouse gases, another is to provide leadership regarding the use of energy efficiency measures to generate cost savings.

5.9   Reporting and Auditing

1.   The program should be audited or reviewed within one or two years of commencement, and every three to four years after that. These reviews should make specific recommendations, and follow up on the previous review's recommendations. It is clear from the Commonwealth program that regular reviews were critical to its success. Without regular reviews programs may not be kept on track and will be less able to respond to changing circumstances.

6 Appendices

6.1 Commonwealth Energy Policy

The Commonwealth Energy Policy *Improving Energy Efficiency in Commonwealth Operations*[7] was included in *Safeguarding the Future: Australia's Response to Climate Change*, announced in 1997. It applies to all Commonwealth Departments and budget-dependent agencies.

The Commonwealth Energy Efficiency Policy includes mandatory minimum energy intensity levels for new and refurbished buildings, and office equipment and appliances, the requirement that new building leases increase the incentive for building owners to improve building energy efficiency, regular energy audits of building space with implementation of cost-effective recommendations, the application of minimum energy performance standards for new houses, with an energy review of existing stock, the use of renewable energy, and measures to reduce transport emissions. It covers general office lighting and power, central services and defence.

Synopsis

The Commonwealth Energy Policy applies targets to only three of the 12 categories it identifies. These three make up almost 60% of energy use, excluding 'Defence operational fuel consumption' which in 2002–03 used about twice as much energy as the remaining Commonwealth operations. Since 1997/98, energy consumption (excluding Defence operational fuel) has fallen by 15.4%; greenhouse gas emissions have fallen by 12.7%; energy intensity or consumption has declined in 11 of 12 end-use categories (Public Buildings increased); and estimated annual energy costs have fallen by $30 million.[8]

The Commonwealth Energy Policy uses energy intensity targets rather than absolute targets, and also prescribes performance standards. Most funding comes from within existing budgets. A major strength appears to be the regular audits of both the effectiveness of the DITR and the AGO in implementation, and the degree to which targets have been met. The supporting programs *Policy Framework for the Greening of Government* and the *Greenhouse Challenge Program* would have provided valuable assistance.

Specific aims

1. Energy intensity targets: Energy intensity targets were set for 2002-03 as averages within a single agency: Office buildings - tenant light and power: 10 000 mega joules per person per annum; Office buildings - central services: 500 mega joules per square metre per annum; and Defence establishments: 2.5 peta joules per annum. No absolute targets were set.

2. Appliances and equipment: All new appliances to have 4-star or better energy rating under the Appliance Energy Efficiency Rating Label Scheme. Office equipment should comply with the US Environment Protection Agency "Energy Star" standard.

3. NatHERS rating: All new houses (owned or leased) to have a NatHERS rating of 4-star or better, where available. Assess the potential to upgrade all existing houses to 3-star or better, where NatHERS is applicable.

4. Incentives for building owners: New leases make building owners directly responsible for paying the cost of central services energy use. This will ensure that building owners have an incentive to improve the energy efficiency of building central services.

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[7] DISR (2000) *Measures for Improving Energy Efficiency in Commonwealth Operations*, Department of Industry Science and Resources, Commonwealth of Australia.

[8] AGO (2003) *Energy Use in the Australian Government's Operations 2002-2003*, Industry, Communities & Energy Division, Australian Greenhouse Office, December 2003.

5. Energy audits: Agencies to conduct energy audits (or suitable alternatives) of all building space within one year of occupancy, and then at intervals not exceeding five years. All cost effective recommendations of energy audits to be implemented. Measures shall be considered cost effective if they have an internal rate of return of 15% or better when calculated over the estimated remaining period of occupancy, the life of the equipment involved, or seven years, whichever is the lesser.

6. Energy Performance Contracting (EPC): EPC is encouraged to achieve efficiencies without committing significant levels of agency funds.

7. Renewable energy: All agencies are to use solar and other renewable energy technologies where relevant and cost effective.

8. Vehicles: AGO to develop standards and other cost options to reduce fleet fuel consumption, and the Commonwealth vehicle fleet is to meet fuel efficiency standards from 2003.

Government bodies not specifically covered by the policy are encouraged to adopt the policy measures.

Although the Energy Policy establishes a total of 12 end-use categories, targets have been set in only three of these categories: Office—Tenant Light and Power, Office—Central Service, and Defence Establishments. This is in the interests of simplicity and minimising reporting costs, and because "Targets are set only in end-use categories where there is sufficient energy use information and where a target makes sense. Targets may be set in remaining end-use categories subject to the findings of the two-year review of the program in 2000…… It is not expected that targets will be set in the *Other Transport*, *Defence Operational Fuels* or *Other Uses* categories."[9], According to the 2001-02 audit, in 2003 the CSIRO will be participating in a working party coordinated by ITR to establish energy use benchmarks and targets for the Laboratories end-use category.

1. Office – Tenant Light and Power
2. Office – Central Service
3. Public Buildings
4. Law Courts
5. Climate Controlled Stores
6. Laboratories
7. Other Buildings
8. Passenger Vehicles
9. Other Transport
10. Defence Establishments
11. Defence Operational Fuels
12. Other Uses

Reporting requirements

CEOs and Agencies

CEOs to report by the end of October each year to respective Ministers on their performance in improving energy efficiency.

Budget-dependent agencies are required to submit energy consumption data annually to the Department of Industry, Tourism and Resources (DITR) by the end of October. Reports include total consumption by fuel type and an estimate of greenhouse gas emissions. Energy intensities, such as MJ/person, MJ/square metre and MJ/kilometre, are calculated and used to track changes in energy performance over time. This data is used to prepare annual whole-of-government *Energy Use in Commonwealth Operations* reports that are tabled in Parliament

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[9] DISR (2000) *Measures for Improving Energy Efficiency in Commonwealth Operations*, Department of Industry Science and Resources, Commonwealth of Australia.

annually before the end of December, and made available to the public. Departments and agencies that did not report are identified in the report.

Reviews/Audits

The program was audited in 1998-99 and 2002-03, and the results and recommendations were presented to Parliament and made public. Both audits included recommendations, and the 2002-03 audit reviewed the extent to which the 1998-99 recommendations had been acted upon. In 2001 a related audit was released: Audit Report No.53 of 2000–01, *Commonwealth Management of Leased Office Space*.

Government as an Energy User

In 2001–02, just under 8.3 million GJ[10] of energy was consumed in Commonwealth operations, producing 1.6 Mt CO_2-equivalents, which is less than 0.5% of total Australian greenhouse gas emissions.[11]

Implementing Agencies

The Department of Industry, Science and Resources (DISR) has overall responsibility for this policy. Responsibility for its implementation is split between the DISR and the EEST (see Section 0 Assistance below) in the Australian Greenhouse Office (AGO). The Joint Working Party on Improving Energy Efficiency in Commonwealth Operations (JWP) provides a broadly representative and responsive coordinating body to oversee implementation and review of the Government's policy, and evaluate developments and progress towards meeting the Government's energy objectives.

DISR

- policy formulation;
- reviewing energy intensity targets;
- disseminating core policy information;
- provide general advice to Departments/agencies on interpretation of decisions;
- regular reviews of the policy, especially the reporting process and targets,; and
- collation of energy consumption data for preparation of the annual whole-of-Government energy report.

AGO

- vehicle policy;
- activities of the EEST (as below).

JWP

- co-ordinates planning and program development;
- develops plans, systems and procedures for conducting regular reviews and evaluation of the program, including reviews, to maintain currency and ensure that the main features are functioning effectively;
- ensures adequate and constructive communication between stakeholders;
- encourages Departments and agencies to participate fully in the program;
- oversees formulation and promotion of programs such as Energy Star and purchase of efficient appliances in Commonwealth agencies;

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[10] This does not include emissions resulting from Defence operational fuel consumption, which does not fall within the ambit of the Energy Policy. Total energy consumption from Defence operations in 2001–02 was 14.5 million GJ, around two times total Commonwealth energy consumption (excluding Defence operations).

[11] ANAO (2002) Audit Report No.24 2001–02, *Performance Audit Energy Efficiency in Commonwealth Operations—Follow up Audit*, the Auditor General, Australian National Audit Office.

- identifies opportunities for alternative approaches to improving energy efficiency; and communicates the role, functions and membership of the JWP to the stakeholders.

The core members of the JWP are the DISR, Finance and Administration, Defence and the Australian Greenhouse Office. Temporary membership of the JWP is also offered to other major energy using Departments and agencies on a rotating basis.

Assistance

Energy and Environmental Services Team

Energy and Environmental Services Team (EEST) is located in the AGO and acts as a specialist energy advisory unit to advise and assist agencies.

- provide an energy procurement advisory service and represent Commonwealth interests in the deregulated energy market;
- investigate opportunities for collaborative government energy procurement;
- assist Departments/agencies in the assessment of financial and contractual risks in the evaluation of tenders for energy supply and develop risk management and minimisation strategies;
- develop best practice energy performance contract documentation and methodology;
- establish pre-qualified panels of energy service providers;
- assist in the evaluation of energy performance contract tenders;
- identify suitable Commonwealth-owned premises for pilot projects in energy performance contracting and monitor contract performance;
- review and update energy guidelines for Commonwealth-owned and leased buildings;
- report on energy aspects of proposed major construction projects;
- develop Commonwealth resource materials, management tools and training packages;
- organise forums, training events and workshops;
- assist agencies in the development and implementation of energy management action plans;
- conduct energy efficiency evaluation of existing Commonwealth-owned and leased housing to assess potential to upgrade cost-effectively to NatHERS 3 star or better;
- evaluate specifications for planned new/leased housing acquisitions to ensure that they meet 4 star;
- develop best practice methodologies for evaluating building performance, addressing energy performance targets in the construction/public works function.

Greening of Government

In May 2001, the Commonwealth Government announced the Policy Framework for the Greening of Government.[12] This Framework encourages CEOs of all Commonwealth Departments and agencies to:

- join the Greenhouse Challenge Program; and
- develop an Environmental Management System by December 2002 and accredit at least one major site by December 2003.

The Greenhouse Challenge Program

The Greenhouse Challenge Program was launched in 1995, and is a joint initiative between the Commonwealth and industry to abate greenhouse gas emissions. Participating organisations sign agreements with the Commonwealth Government that provide a framework for voluntary actions to abate emissions.

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[12] See http://www.deh.gov.au/industry/agency-performance/greening-govt/

Outcomes

The following is taken from the audit conducted by the Australian National Audit Office for the period 2001-02.[13] It focused not only energy use during this period but also on to what degree the recommendations of the 1998-99 audit had been addressed. Both audits were not of all government operations covered by the Energy Policy, but of ten selected agencies.

Energy Use in 2001-02

Office—Tenant Light and Power category; Seven of the agencies in this audit were performing under the 10 000 mega joule per person per annum target. The Attorney-General's Department, the Department of Defence and the Department of Health and Ageing, were 85%, 25% and 1% above the target respectively. On average, the Commonwealth's energy use in 2001–02 was 3.8 per cent above the Office—Tenant Light and Power target.

Office—Central Service; consumption data was available for only four of the agencies included in this follow-up.[14] For these agencies, the weighted average was 482 mega joules per square metre per annum—3.6% under the Energy Policy target.

Defence Establishments; Energy consumption was 3.0 million GJ, 27% over the Energy Policy target. This represents a reduction of six per cent over 2000–01.

Total energy consumption and greenhouse emissions in Commonwealth operations fell by 14% and 12% respectively since 1997–98.[15]

Compliance with 1998-99 Audit Recommendations

The 1998/99 audit found there was a tendency to focus only on compliance with the mandatory Energy Policy requirements at the expense of other more cost efficient energy efficiency initiatives. The also found that CEO instructions did not clearly indicate how agencies would comply with the Energy Policy, and that CEOs could do more in reporting compliance and non-compliance.

The 2001-02 audit found that seven agencies were now focusing also on optional requirements, that all CEOs were in effect more clearly indicating how compliance would be achieved, and that reporting of compliance and non-compliance had improved.

The 1998/99 audit also made four recommendations regarding the operations of the DITR and the AGO. All of these had been complied with by the 2001-02 audit.

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[13] ANAO (2002) Audit Report No.24 2001–02, *Performance Audit Energy Efficiency in Commonwealth Operations—Follow up Audit*, the Auditor General, Australian National Audit Office.

[14] Most of the Commonwealth agencies examined are in leased office accommodation. Commonwealth agencies leasing privately owned accommodation are not required under the Energy Policy to be responsible for the energy consumption of building central services unless they have agreed to this in their lease agreement.

[15] This does not include emissions resulting from Defence operational fuel consumption, which does not fall within the ambit of the Energy Policy. ANAO (2002) Audit Report No.24 2001–02, *Performance Audit Energy Efficiency in Commonwealth Operations—Follow up Audit*, the Auditor General, Australian National Audit Office.

6.2   NSW Government Energy Management Policy (GEMP)

The NSW *Government Energy Management Policy* was announced in November 1998, and is one of several initiatives aimed at reducing greenhouse gas emissions detailed in the *NSW Greenhouse Action Plan 1998*.

It covers all NSW Government energy use over which Government agencies have direct control. It is mandatory for all general Government sector agencies, and public trading enterprises (PTE) such as the State Rail Authority, the State Transit Authority and the Freight Rail Corporation are encouraged to adopt it.

Synopsis

Although the lack of public reporting makes evaluation difficult, it appear the GEMP has reduced energy use, greenhouse gas emissions, and energy costs in some government operations. However, it is clear the program could be more successful. The major issues appear to be a general lack of awareness in government regarding energy efficiency, no mechanism for ensuring compliance, no specific targets for individual agencies, no targets set for transport or infrastructure, and a lack of funding and resourcing of implementing agencies. The GEMP is currently in a state of flux, with implementing agencies undergoing major restructuring, and reports defining its future operation and funding under consideration and so not publicly available.

Specific aims

1. GEMP aims to reduce the total energy consumption of Government buildings, *where cost-effectively feasible*, by 15% of the 1995/96 level by 2001/2002, and 25% by 2005/2006. These targets were established in 1998 against a derived baseline of energy consumption of government buildings at 1995/96 levels. Although the intention was to phase in specific reduction targets for other categories of energy use (transport or infrastructure), this has not occurred.

2. Schedule 1 agencies (as classified under the *Public Sector Management Act 1988*) are currently required to purchase electricity for their contestable sites under Government contract 777 which stipulates at least 6% Green Power, while Schedule 3 and non-scheduled agencies may choose to do so. All sites became contestable on 1st January 2002.

3. Other goals for the public sector will be developed and recommended to the Government by the Energy Management Working Group, comprising the MEU, SEDA, and the DoC.

Government as an Energy User

NSW Government agencies use about 4.3% of total electricity consumed in NSW, and in 1999/2000, resulted in the release of more than 3.2 million tonnes of greenhouse gases. In 1999/2000:[16]

•   the largest 20 agencies used over 91% of total reported energy and the largest five of these – Department of Health (including all Area Health Services and Ambulance Services), Freight Rail Corporation, State Rail Authority, State Transit Authority and Department of Education and Training, used 69%;

•   31% of total reported energy was used in Government buildings, with the remainder being used in transport (59%) and infrastructure (10%);

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[16] MEU (2000) *Energy Use in Government Operations 1999/2000,* Government Energy Management Policy: Reducing Greenhouse Emissions from Government Operations, Ministry of Energy and Utilities, New South Wales Government.

- 56% of total reported energy was used by participating public trading enterprises; and

- 59 agencies purchased over 68,000 MWh of accredited Green Power.

Implementing Agencies

The *Ministry of Energy and Utilities* (MEU; formerly the Department of Energy), is responsible for general oversight of the policy, including policy implementation and review in cooperation with the Sustainable Energy Development Authority (SEDA) and the Department of Commerce (formally the responsibility of the Department of Public Works and Services which was integrated into the DoC). The MEU is responsible for data collection from Government agencies and publicly reporting the aggregate performance against targets.

SEDA is responsible for the Energy Smart Government Program, launched in August 1996, that is designed to assist agencies with energy efficiency upgrades.

The DoC is responsible for the Government's asset management and procurement. It is meant to assist with;[17]

- implementation of sustainable energy solutions

- specific initiatives such as energy performance contracting and energy purchasing

- consulting services to the Government and agencies in energy management and environmental design

Strategy and Reporting Requirements

Flexible and non-prescriptive guidelines were emphasised, with each agency allowed to determine the way it reached its target according to its own corporate objectives and circumstances. General guidelines to reduce energy consumption as set out in the document 'Government Energy Management Policy: Reducing Greenhouse Emissions from Government Operations'[18] were:

Establish accountability by nominating an agency energy manager that reports to the chief executive, although all energy management responsibilities remain ultimately with the chief executive.

Establish performance goals by periodically setting and updating the agency's energy management goals.

Monitor Performance by regularly recording, analysing and monitoring all the agency's energy consumption (quantities and costs), as part of managing energy use.

Adopt best practice by ensuring energy efficiency is built-in during the procurement of new and refurbished assets, in accordance with the sustainable energy guidelines for new assets. This includes preparation of the Energy Efficiency Statement (EES).

In addition, agencies are required to report both to the MEU and in their annual reports as below;

Report the agency's energy consumption annually to the Ministry of Energy and Utilities. This information shall include details on cost, quantity and greenhouse gas emissions for each asset category and energy type.

Publish performance by reporting on outcomes against goals in the agency's annual report.

The MEU has additional obligations as the scheme administrator: to collate agencies' energy consumption and greenhouse gas emissions by establishing and managing the government

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[17] DEUS website http://www.deus.nsw.gov.au/eeg/gemp/Key%20Gemp%20Agencies.htm, accessed 13/2/04

[18] DoE (1998) *Government Energy Management Policy: Reducing Greenhouse Emissions from Government Operations*, Department of Energy, New South Wales Government.

energy and greenhouse gas database, and to publicly report on aggregate performance against targets.

Assistance

Energy Smart Government

SEDA provides assistance to government agencies through the Energy Smart Government Program, which is designed to assist agencies with energy efficiency upgrades. Assistance is provided through Energy Performance Contracts (EPCs) and the Government Energy Efficiency Investment Program (GEEIP).

Energy Performance Contracts

EPCs involve an annual $20 million Loan Fund from NSW Treasury, and a streamlined financing framework to facilitate major (generally greater than $500,000) energy efficiency projects. SEDA appoints an Implementation Manager (initially paid for by SEDA with agencies repaying SEDA once Treasury Funding has been approved), to help agencies through the EPC project development process. The internal rate of return (IRR) for EPCs has been lowered from the 20% normally required for Government agencies, to 12%, which equates to an 8 year simple payback time. All savings are retained by the Agency involved so once the Treasury Loan is paid off, the Agency has reduced energy costs. About 32 projects have been completed to date.

Government Energy Efficiency Investment Program (GEEIP)

The GEEIP was developed by SEDA and NSW Treasury to help agencies invest in smaller energy efficiency projects that are not suitable for Energy Performance Contracting. Like EPCs, it uses part of the $20 million Loan Fund, requires a minimum 12% IRR, and once repaid, agencies retain all the savings. It is suitable for projects costing between $10,000 and $500,000.

The GEEIP Assistance Project (GAP) allows agencies to obtain expert advice from the GEEIP Manager and GEEIP Consultants. SEDA pays all the up-front costs of the projects, which are then repaid using the Treasury Fund. This means agencies can implement projects with no up-front costs in the first instance, and no out-of-pocket expenses in the long-run.

Outcomes

Reporting

An Annual Report was released for 1998/99 in July 2000, and for 1999/2000 in August 2001, but no reports were released for 2000/01, 2001/02 or 2002/03. The 2002/03 Annual Report has been produced by the MEU but is awaiting approval by the Minister, and is expected to be released by early April.

Although no Annual Reports were released for 2000/01 or 2001/02, the MEU has continued to obtain data from all reporting agencies.

In response to the Standing Committee Inquiry into Government Energy Reduction Targets (see below), the GEMP Senior Officers Steering Committee produced a draft GEMP Action Plan with appropriate actions to strengthen the GEMP framework. This is currently being considered by the NSW Greenhouse Office.

Results for 1999/2000

In 1999/2000, of 145 agencies, including public trading enterprises (PTEs), only 45 reported by the annual agency reporting deadline of 31 August. However, with individual follow-up, energy consumption and cost data were reported by all 103 general Government sector agencies and,

on a voluntary basis, by 29 out of 39 PTEs. Three other agencies which are not classified as either general Government sector agencies or as PTEs, also reported voluntarily. It is estimated that the 10 PTEs that did not report consumed about 5% of the total energy used by the Government.

The overall performance of the government sector in meeting the building energy consumption targets between 1995/6 and 1999/2000 is as follows:[19]

- Energy use (including Green Power) in buildings increased by 0.2%;

- Energy costs fell by at least 2.2%, saving over $2.8 million; and

- Greenhouse gas emissions fell by about 2% as the fuel mix changed and agencies increased their Green Power consumption.

- These results show that reaching the Government buildings targets by 2005/65 will require reductions in energy consumption in future reporting periods of 4.7% per annum to meet the target in 2005/06.

Note that some categories and Departments were always expected to contribute more than others in meeting the target, and this has occurred eg. office buildings (tenant services) energy consumption dropped by 22.9% between 1995/96 and 1999/2000, while 'Other healthcare buildings' increased by 38.1% over the same period.

Energy needs have changed in response to demand for services. The 1999/2000 Annual Report stated that "Energy intensity decreased for a number of end use categories between 1995/96 and 1999/2000. While energy performance indicators were not considered reliable or indeed available for all categories, these indicators show that the energy efficiency of government operations is improving."

In 1999/2000 some Schedule 1 agencies opted for more than 6% Green Power (such as the Department of Public Works and Services, Environment Protection Authority, NSW Crime Commission, Olympic Coordination Authority and NSW State Forests). Non Schedule 1 agencies purchased 71% of the reported Green Power. Advance Energy and SEDA purchased 100% Green Power and EnergyAustralia purchased the largest absolute amount in the public sector (33% of total Government sector purchases), followed by the Department of Education and Training and Sydney Water.

Results for 2000 to 2003

Although no GEMP Annual Reports were released for the periods 2000/01, 2001/02 or 2002/03, the 2001/02 and 2002/03 MEU Annual Reports included some estimates of energy improvements in response to the GEMP program. The MEU 2002/03 figures were:[20]

- building energy use from Government buildings is estimated to have fallen by 2.3 per cent between 1995–96 and 2001–02. Despite increased demands on services, some agencies, notably Health, Education and Corrective Services have improved the quality of their service delivery;

- building energy costs fell by 5.3 per cent between 1995–96 and 2001–02, yielding savings of over $7.4 million;

- 28 NSW Government agencies reduced their building energy consumption each by more than 15 per cent compared with the base year, 1995–96 providing a total savings of $3.7 million; and

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[19] MEU (2000) *Energy Use in Government Operations 1999/2000,* Government Energy Management Policy: Reducing Greenhouse Emissions from Government Operations, Ministry of Energy and Utilities, New South Wales Government.

[20] MEU (2003) *Ministry of Energy and Utilities Annual Report 2002 – 2003: Strategy*, Ministry of Energy and Utilities, New South Wales Government.

- 63 NSW Government agencies purchased 78,762 MWh of green power during 2001–02, displacing approximately 75,300 tonnes of greenhouse gases.

Thus while it is clear that some government agencies are reducing their energy use, and that energy costs have fallen significantly, the original target of a 15% reduction by 2001/02 was not reached.

Energy Smart Government

Since the program began, 160 Government agencies have invested about $34 million in energy efficiency upgrades. These projects are delivering $7 million in energy savings and avoiding about 68,000 tonnes of CO_2 emissions annually (equal to about 2% of NSW government annual emissions).[21]

It has been estimated the EPC and GEEIP projects implemented in 2002-03 will deliver guaranteed savings of over 18,000 tonnes of greenhouse gas emissions and $1.84 million in annual savings.[22] However, only $11.8 million of the $20 million available for EPCs and GEEIP was committed. It is also of concern that only agencies that avoided using the DoC have successfully applied for EPC funding.[23]

Standing Committee Inquiry

In response to concern over the effectiveness of GEMP, the Legislative Assembly Standing Committee on Public Works conducted an Inquiry into Government Energy Reduction Targets in 2001/02.[24] It covered Energy Reduction Targets in government buildings, Green Power mandatory purchasing, and Implementation of the National Home Energy Rating Scheme in NSW. They found that although the Government's building energy consumption targets are achievable in a cost effective way, the building energy consumption target for 2001/02 would not be reached and the 2005/06 target is unlikely to be achieved. They also found that;

1. the problem lies not so much with the targets themselves but with compliance, accountability and implementation of the policy,

2. agencies were using the cost-effectiveness criterion as an excuse for not taking action, and

3. that MEU was under-resourced for its current GEMP function.

The Inquiry made 27 recommendations (see Appendix 6.4), and in response the GEMP Senior Officers Steering Committee was formed by the CEOs of the MEU, SEDA, and the DoC, and a representative of The Cabinet Office. By 2003 this committee had produced the draft GEMP Action Plan mentioned above.

In addition to recommendations intended to increase accountability, make reporting more rigorous, more effectively prescribe the cost-effectiveness criterion and increase resourcing to the MEU, a number of recommendations that may alter the original intent of the scheme were made.

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[21] From Energy Smart Government web page http://www.energysmart.com.au/wes/Displaypage.asp?flash=-1&t=20042417&PageID=8, accessed 17/2/04.

[22] SEDA (2003) *2002-2003 Annual Report*, Sustainable Energy Development Authority, New South Wales.

[23] Precious, B. and Gilchrist, G. (2003) Government Energy Management Policy (GEMP) Energy Conservation Systems and Big Switch Projects.

[24] LASC (2002) *Report On Government Energy Reduction Targets*, Legislative Assembly Standing Committee on Public Works, May 2002.

Energy intensity targets

Recommendation 2a) required development of energy intensity targets to augment absolute targets. This would make clear the contribution that altered activity made to an agency meeting or exceeding its targets. However, it runs the risk of being used as a second best option if the absolute targets were not met.

Green Power

A number of recommendations were made regarding Green Power.

Recommendation 14 stated "That agencies that fail to meet their absolute targets be required to purchase the shortfall in Green Power (or other accreditable renewable energy)". The aim of this recommendation is to both encourage compliance with targets and to offset the consequence of non-compliance. It is based on the assumption that since implementation of EPCs and GEEIP does not impose significant up-front costs on the relevant agency, the only reason for non-compliance is lack of motivation of CEOs. If this is the case then the recommendation is justified. However, there must be no other obstacles to implementation of demand management options. Otherwise it is possible that agencies which fail to meet their targets through no fault of their own, or for reasons that are unavoidable, will be unfairly penalised.

Recommendation 12 stated "That energy generated from renewable sources, in excess of the 6 per cent mandatory Green Power component, be credited against the agency's total energy account". While this recommendation is similar to Recommendation 14, it could result in increased greenhouse gas emissions by government. Agencies that already purchase Green Power in excess of their 6% requirement will have reduced incentive to implement demand management options (apart from the additional cost of Green Power—which was not sufficient to discourage a higher target in the first place).

In addition, both Recommendations 12 and 14 run the risk of equating energy reduction with purchase of renewable energy. This is clearly not the case since although renewable energy has significantly lower emissions than fossil fuel-based electricity, it still has greater impacts than not using energy in the first place. Green Power also currently costs about 50% more than standard electricity, and so over time will cost the government significantly more than implementing energy management programs. Although one of the primary aims of GEMP is reduction of greenhouse gases, another was to provide leadership regarding the use of energy efficiency measures to generate cost savings.

Current situation

At this point in time the GEMP is in a period of transition, and the documents likely to shed light on its current status and future direction (the GEMP 2002-03 Annual Report and the GEMP Action Plan), are being considered by government and so are not available to the public.[25] To further complicate matters two of the agencies that implement the program, the MEU and SEDA, are in the process of being combined to form the Department of Energy Utilities and Sustainability (DEUS), with some SEDA functions moving to the NSW Greenhouse Office. It is likely the GEMP is being incorporated into the NSW Greenhouse Strategy, which is expected later 2004, which will be coordinated by NSW Greenhouse Office. Thus at this stage not only the operational details of GEMP, but also the amount of funding available, are not known, possibly by anyone.

It is clear there have been outstanding success stories as a result of the GEMP (for example the Department of Health and the Attorney General's Office), however it is also clear that there is room for such stories to be more widespread.

The following lists possible problems and recommended ways forward.

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[25] The 2000/01 and 2001/02 GEMP reports have been prepared and expected to be published in the near future

Possible problems

1. GEMP was unreviewed for four years, and the responses to the review are yet to see the light of day another two years later.

2. As for most operations, commercial and government alike, energy efficiency is a non-core business. As a result there is a general lack of awareness regarding energy efficiency, and without a mechanism for ensuring compliance of either efficiency targets or of Green Power purchase, one or more local champions appears to be essential.

3. No specific targets have been set for individual agencies. Instead they are advised to align their own targets with the overall Government targets. Agencies are expected in their Annual Reports to report "on outcomes against goals", however it is unclear what this really means, and it gives agencies an easy way to cover non-compliance.

4. No targets have been set for transport or infrastructure which made up 59% and 10% of government energy use respectively in 1998.[26]

5. Lack of funding and resourcing of implementing agencies.

Possible Solutions

Review

The GEMP Action Plan and the specific roles and resourcing of implementing agencies should soon be made public.

Compliance

There are a number of ways to increase the level of compliance. The Standing Committee recommended the CEOs of agencies, both large and small, should appear before it and explain the performance of their agency on progress towards the targets. Alternatively they could appear before the NSW Greenhouse Office, or even report directly to the Premier, if their targets are not reached. The reporting "on outcomes against goals" for Annual Reports could be more specific (against a particular target) and required within a reasonable timeframe. Recommendation 14 regarding purchase of target shortfalls as Green Power could be introduced.

Targets for individual Agencies

Development of targets for each Agency would help focus their efforts on an achievable goal. Energy use/efficiency could be incorporated into Key Performance Indicators. Energy intensity targets could possibly be used if they helped to reduce overall energy use.

Targets for transport and infrastructure

Given that together these make up about 70% of government energy use, leaving them out of the energy reduction 'net' is clearly problematic.

Funding and resourcing

At this stage the final structure and funding available to DEUS, and the recommendations of the GEMP Action Plan are unknown. However it is clear that for the GEMP to be implemented effectively, not only sufficient funding but also personnel must be provided.

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[26] MEU (2000) *Energy Use in Government Operations 1999/2000,* Government Energy Management Policy: Reducing Greenhouse Emissions from Government Operations, Ministry of Energy and Utilities, New South Wales Government.

Building performance

As suggested by Precious and Gilchrist (2003)[27], GEMP should be updated to incorporate minimum ABGR performance. The Government should mandate that Government tenants will only lease new space from buildings that rate 3 stars for the base building from July 1, 2005, with that minimum performance rising 0.5 stars every six months to 5 stars by January 1, 2007. All new government tenancy fitouts should achieve 4.5 stars from January 1, 2005 and 5 stars by July 1, 2005.

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[27] Precious, B. and Gilchrist, G. (2003) Government Energy Management Policy (GEMP) Energy Conservation Systems and Big Switch Projects.

6.3   Victorian Greenhouse Strategy

The Victorian Greenhouse Strategy was released in June 2002 and includes 'government leadership' as one of ten modules. The 'government leadership' module involves government setting specific targets for reducing greenhouse gas emissions from its own operations, and integrating consideration of greenhouse issues into key government decision-making processes.

The government leadership module aims to reduce emissions from government buildings by 15%, purchase 10% of government electricity usage as Green Power, and reduce emissions from the government's vehicle fleet.

The 15% target applies to the energy used in buildings owned and/or occupied by each Department and Statutory Authority within the general government budget sector. Examples of facilities covered are offices, schools, TAFEs, police stations, prisons, courts, research facilities, hospitals and health and community services. Excluded are public housing and small-scale residential services. Note the 15% building energy efficiency target and a 5% Green Power target were established in November 2001, and were later incorporated into the VGS.

Synopsis

Although the 15% building energy efficiency target was introduced in 2001, action plans to meet this objective are still being formulated, and the data on Green Power purchase are not available. However, initial signs regarding transport emissions are encouraging with all government vehicles being subscribed to Green*fleet*, and energy efficient vehicles, including 20 Toyota Prius', have been purchased. SEAV reported in their 2002-03 annual report that their energy consumption has decreased by 5%, and they purchase 100% Green Power.

Rather than EPC, Environmental Management Systems (EMSs) are emphasised, and most funding has to come from within agencies' existing budgets.

Specific aims and reporting requirements

Action 1.1: Reduce energy consumption in Government buildings by 15% compared to a 1999/2000 baseline, to be achieved by June 2006. Interim targets increase by 3% each year. Allowances will be made if the target cannot be met through 'cost effective' measures (those with no more than a 5 year payback time). All savings are retained by Departments/Agencies.

Action 1.2: Purchase 10% of the Government's electricity needs as Green Power, to be achieved by 2005/06. This applies to all government electricity contracts, with the exception of those for the supply of electricity to acute health services (and other co-located services).

Action 1.3: Reduce greenhouse gas emissions from the Government's vehicle fleet by 10%, to be achieved by June 2006

Action 1.4: Subscribe all Government vehicles to Greenfleet in, from 2002 – 2004.

Action 1.7: Departments and Authorities are to report annually to SEAV regarding their energy use, implementation of the 15% energy reduction target and the extent to which their operations are covered by the 10% Green Power purchase. Annual Reports of Government Departments/Agencies should include (not mandatory) information on energy consumption in buildings and related greenhouse gas emissions; the purchase of Green Power; greenhouse gas emissions from motor vehicle use; and actions taken during the year to reduce energy use in buildings and the Government's vehicle fleet. Reporting of the 15% energy reduction target was to commence from 2002, and on the other Actions by 2002/03? or 2003-04? Reporting of the VGS will occur annually in October.

Progress reports of the VGS as a whole are to be published in October from 2003 onwards. A formal review of the VGS will occur every two years, starting in 2004.

Government as an Energy User

According to the VGS, the Vic government spends $80 million annually on energy, and is responsible for bout 1 Mt GHG emissions annually. Actions 1.1 and 1.2 below have the potential to reduce emissions by 175,000 tonnes CO2-e, and to save $11.5 million, annually.

Implementing Agencies

Department of Sustainability and Environment (formerly the Department of Natural Resources and Environment), with assistance provided by SEAV.

Assistance

SEAV provides assistance to Departments and agencies in the following ways.

Assisting in:
- establishing an inventory of energy usage for buildings and identifying the potential for savings;
- structuring a specific program to reduce costs associated with energy usage;
- developing Department/Agency energy management policy; and
- developing an implementation plan.

Advising on:
- developing and training an energy management team;
- adopting energy efficient best practice measures in new buildings and fitouts; and
- purchasing energy efficient office equipment and appliances.

Providing:
- energy audits and seed funding as necessary;
- an electronic database to allow accurate reporting as well as monitoring and tracking energy consumption;
- training and seminars on energy management including Government Energy Managers Network (GEMnet) meetings,
- seminars, workshops and programmed training.
- the *Building energy brief* to facilitate new construction and fitouts; and
- the Building Greenhouse Rating Scheme.

Developing:
- a staff awareness program specific for Departments or Agencies.

Support Programs related to Action 1.1 come from the Sustainable Energy Development Authority's (SEAVs) core annual budget $10.03 million. Otherwise all capital costs and funding for Actions 1.1, 1.2, 1.3 (apart from $100,000 for the Prius trial, and $200,000 for fleet manager training) and 1.7 are to be met within existing agency budgets, or obtained from 'external sources'. Agencies do not have to provide the $420,000 required for Action 1.4.

No loans for EPCs are provided.

Outcomes

According to the 2003 VGS Progress Report,[28] the following were achieved. In addition, in their 2002-03 annual report, SEAV stated their energy consumption has decreased by 88 kWh per

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[28] Victorian Greenhouse Strategy Progress Report 2003, Department of Sustainability and Environment, Victoria.

person employed (a 5% decrease), they purchase 100% GP, and use Toyota Prius vehicles and Green*fleet*.

Action 1.1

Government Departments and authorities are developing Action Plans for improving the energy efficiency of their operations in line with the 15% target. The energy component of Departmental Environmental Management Systems will be monitored against this target (see Action 1.7).

Action 1.2

Reporting on progress regarding Government purchase of Green Power will be the subject of a separate report by the Sustainable Energy Authority Victoria (SEAV). SEAV is working with the Victorian Government Purchasing Board to ensure that centrally administered electricity contracts contain a 10% Green Power component. Agencies which source electricity outside the central contracts will incorporate a 10% Green Power component by 2005/06.

Action 1.3

– 20 Toyota Prius vehicles have been purchased for trial in the Government fleet.

– More environmentally-friendly vehicles are being purchased – including more 4-cylinder vehicles (rather than standard 6-cyclinder fleet vehicles) and dedicated LPG vehicles.

– Each Department is developing baseline data against which the achievement of the 10% target will be assessed.

– As part of a whole-of-government Environmental Management System (EMS), Departments are reviewing vehicle usage and examining options including video-conferencing and car-pooling.

– Fleet manager training has commenced on opportunities for reducing greenhouse gas emissions from transport.

Action 1.4

– The Government's partnership with Green*fleet* was established in September 2002. Over the life of the Government's three-year subscription to Green*fleet*, 250,000 trees will be planted in the Murray-Darling Basin.

– Three planting sites have been completed, with 50,200 trees planted to date. The survival rate of the planted trees has been reported at 92%.

Action 1.7

– An annual report on the state Government's environmental performance will be released in 2004 as part of the whole-of-government commitment to implementing an Environmental Management System (EMS).

– Each Department is required to develop its own EMS to cover the issues of energy, waste reduction, paper use, water and sustainable transport. The EMS is focused on activities undertaken within the office and includes all activities across all Government offices in Victoria.

– The energy component of the EMS will be monitored against targets published in the *Victorian Greenhouse Strategy*, the Energy Efficient Buildings target (15% reduction in energy consumption compared with 2000 levels by 2006), and an increase of the purchase of Green Power to 10%.

6.4 Recommendations of the GEMP Standing Committee Enquiry

1 THAT the "absolute" targets be retained.

2 a)THAT energy intensity targets be developed to augment absolute targets as a means to focus on reducing waste in energy consumption.

2a) THAT energy intensity targets be developed to augment absolute targets as a means to focus on reducing waste in energy consumption.

3 THAT the GEMP Steering Committee develop a comprehensive checklist based around the strategic approach identified above. This strategic checklist should form part of an agency's energy management framework, to be monitored by MEU through GEMP.

4 THAT GEMP prescribe the cost-effectiveness criterion for agency investment in energy efficiency measures.

5 THAT renewable energy products be considered cost-effective if the pay-back period is no greater than the warranty period.

6 THAT the Ministry of Energy and Utilities publish target data for all reporting agencies (not just the largest 20) in the annual Energy Use in Government Operations Report

7 THAT the Ministry of Energy and Utilities identify in its annual Energy Use Report those agencies that do not report to the Ministry, including those for whom the policy is not mandatory.

8 THAT the Ministry of Energy and Utilities review the reporting date of its Energy Use in Government Operations Report with a view to publishing the report in a more timely manner (say within six months of the agency reporting date).

9 THAT the Ministry of Energy and Utilities be better resourced to properly carry out its GEMP functions.

10 THAT the Energy Use Report be reviewed annually by the Public Works Committee, commencing in 2003. CEOs from selected agencies, both large and small, will be requested to appear before the Committee to explain the performance of their agency on progress towards the targets.

11 THAT energy generated from renewable sources, in excess of the 6 per cent mandatory Green Power component, be credited against the agency's total energy account. The renewable sources should be suitable for accreditation as Green Power.

12 THAT energy generated from all renewable sources, including the 6 per cent mandatory Green Power component, be included in the agency's total energy account for the determination of its energy intensity performance.

13 THAT agencies that fail to meet their absolute targets be required to purchase the shortfall in Green Power (or other accreditable renewable energy).

14 THAT all new government office buildings be constructed to a minimum Building Greenhouse Rating of 4.5 stars, the policy to be implemented on a comprehensive, whole of government basis

15 THAT all government leased office accommodation should be in buildings with a BGR of 4.5 star minimum. This minimum standard should be mandated in GEMP to be phased in over four years.

16 THAT the Government complete its rating of the Crown Property Portfolio with the aim of bring all of the CPP to BGR of 4.5 stars minimum.

17 THAT all government agencies report their building and/or tenancy BGR through GEMP

18 THAT the existing expertise available in the Hunter Area Health Service be utilised to address energy management issues across the health portfolio.

19 THAT the Government make available through the GEMP Steering Group a $5 million interest free loan to address energy management issues across the health portfolio.

20 THAT the Department of Education and Training look at introducing renewable energy measures at its schools, particularly utilising Contract 7017, their cost effectiveness to be assessed in accordance with 5.

21 THAT a zero greenhouse gas emission school design be developed, perhaps via a design competition.

22 THAT the GEMP Working Party explore options and develop innovative ways to introduce energy efficiency measures into the Department's rental housing stock, including: · In the short term use could be made of Contract 7017 to procure solar water heaters and energy efficient lighting (if and when available under the contract); · In the long term renewable energy generators, such as photovoltaic power systems should be installed · the feasibility of EPCs and GEEIP funding

23 THAT all agencies reporting under GEMP advise the Ministry for Energy and Utilities of their purchases of Green Power, both through Government Contract 777 and directly from retailers. This information should be published annually as part of the GEMP reporting in the categories of Schedule 1 and non-Schedule 1 agencies.

24 THAT the requirement to purchase of Green Power by government agencies should form part of the Government Energy Management Policy.

25 THAT the GEMP Senior Officers Steering Committee oversee a strategic review of renewable energy options within the government energy management framework. The review should report on: · the development and utilisation of all renewable energy options (including RECs) with the aim of optimising the renewable energy tools available to agencies. (renewable energy tools considered should be eligible for Green Power accreditation); · availability of accredited renewable sources; · increasing the flexibility of the arrangements (including increasing the number of retailers) for Green Power (or equivalent) purchasing through the state supply contracts; · increasing the levels of Green Power (or equivalent) purchasing by agencies.

26 THAT SEDA review the extent of implementation (not adoption) of the Energy Smart Homes Policy in two years. If "implemented" new residential applications state-wide is less than 80 per cent, then action should be taken to ensure total coverage by the policy

27 THAT NatHERS (or its equivalent) be extended to existing residential buildings on a voluntary basis. Accordingly, SEDA in collaboration with PlanningNSW:

a) develop incentives to encourage the installation of energy efficiency measures by means of a NatHERS scheme into residential properties at the time of alterations and additions

b) develop a housing energy rating scheme, similar to that in operation in the ACT, for use at the time of sale of residential properties