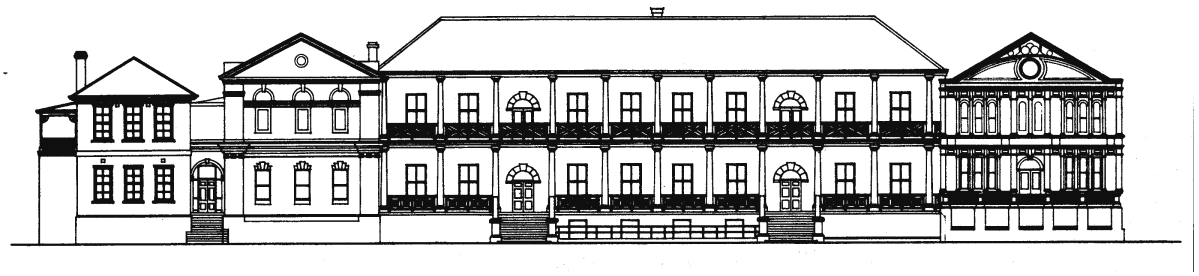
LEGISLATIVE ASSEMBLY

STANDING COMMITTEE ON PUBLIC WORKS

REPORT ON GOVERNMENT ENERGY REDUCTION TARGETS



Report No. 52/8 **MAY 2002**

LEGISLATIVE ASSEMBLY
STANDING COMMITTEE ON PUBLIC WORKS

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CHAIRMAN'S FOREWORD

The Committee's interest in the issue of government energy reduction is twofold and relates directly to its core functions. That is, to find savings in capital works programs whilst at the same time finding a net reduction in environmental impacts of these capital works programs.

The Government is to be applauded for its efforts to improve energy management for NSW is a leader in public sector energy management in Australia.

The Government has set targets for the reduction of energy use in its buildings. It has been demonstrated to the Committee that these targets are achievable and have the potential to save over $30 million and over 300,000 tonnes of CO2 emissions each year.

However, while a number of agencies were on track to achieve the targets, overall they will not be met because many agencies are putting a brake on this good progress. The Government's own reporting regime has acknowledged this problem.

Agencies can do better, particularly with greater involvement and commitment by all CEOs.

The issues are complex and there are contradictions to resolve in continuing to improve performance and achieve significant results. However, objectives of reducing greenhouse gas emissions, reducing energy costs and inefficiencies are worth pursuing. The introduction of efficiencies should reduce the need for capital intensive generating plants.

One issue of concern is the cost of renewable energy. Ultimately, the move to renewable energy will address greenhouse gas emissions and, in the words of one of our witnesses, provide the community with free energy. This is particularly important in the area of public housing and the Committee has made a recommendation on this.

There is also another payoff. The sustainable energy industry has the potential to be a big employment generator here, as is happening in Europe.

Improvements can be made to the overall policy. At the moment, the targets relate only to buildings. I hope in time the Government can expand the policy into other areas of public sector activity.

I am hopeful the Committee's recommendations can assist the Government to achieve these targets and I look forward to the Government's response to the report.

Diane Beamer MP
Chairman

EXECUTIVE SUMMARY

There were three parts to the Committee's terms of reference. These dealt with progress on:

- Energy Reduction Targets in government buildings
- Green Power mandatory purchasing
- Implementation of the National Home Energy Rating Scheme in NSW

Energy Reduction Targets in Government Buildings
In 1998 the Government released its Government Energy Management Policy (GEMP), one of a range of initiatives developed in response to the National Greenhouse Strategy. The GEMP incorporated energy reduction targets for government buildings announced by the Premier in 1996.

The targets set by the Government (for certain agencies) are **to reduce the 1995/96 energy consumption levels in government buildings by 15% by 2001/2 and by 25% by 2005/6.**

Progress to Targets
It is fair to say that progress towards the targets, measured on a aggregated statewide basis, has not been good. Energy consumption in 1999/00 **increased** by 0.2 per cent from 1995/6. The Ministry for Energy and Utilities has conceded that the 2001/2 target will not be met and that it will be difficult, but not impossible, to meet the 2005/6 targets.

Policy Objectives
It is important to remember that the targets are not an end in themselves, rather they are an instrument developed to achieve policy objectives. The Committee has identified a number of objectives in the Government Energy Management Policy. They are:

- Reduction of greenhouse gas emissions
- Reduction of energy costs
- Reduce waste in government operations by using energy more efficiently
- Stimulation of the sustainable energy industry

As the following data show, none of these objectives is being significantly reached in the government building sector:

Energy consumption has increased by 0.2 per cent from 1995/6 to 1999/00
Greenhouse gas emissions have fallen by 1.84 per cent from 1995/6 to1999/00
Energy consumption costs have fallen by 2.23 per cent from 1995/6 to1999/00

Form of Targets
Various forms of targets were put to the Committee as alternatives to the current absolute targets.

The Committee came to the conclusion that absolute targets provided the best all-round means to meet these multiple (and at times contradictory) objectives and that it was not time to make major changes the policy. The Committee does support the proposal to develop energy intensity targets to augment the absolute targets, providing a management benchmarking tool to monitor the efficient and effective use of energy by agencies and identifying areas of waste.

How to Better Achieve the Targets?
Ultimately, the problem lies not so much with the targets themselves but with compliance, accountability and implementation of the policy.

A Strategic Approach
The approaches to reducing energy consumption by successful agencies tended to reflect a similar pattern. Based on these observations and the advice of expert witnesses, the Committee identified a strategic pathway which should form the basis for better energy management. This pathway provides a strategic checklist which should form part of agency energy management plans and should be monitored under GEMP.

Accountability and Compliance
There was certainly evidence of lack of compliance by agencies with the policy The Committee has recommended a number of mechanisms to improve accountability and encourage compliance.

COST-EFFECTIVENESS
In line with the Government's broad commitment to sound fiscal management, the requirement to achieve the targets was qualified by the requirement that energy efficiency measures should be cost-effective. The Committee is concerned that agencies were using this cost-effectiveness criterion as an excuse for not taking action rather than as an incentive to invest in energy efficiency measures. The Committee does not regard the primary role of agencies as simply gaining the best return on its investment. Agencies do have broader social commitments. This is not an argument for fiscal irresponsibility. A rate of return of 20 and even 15 per cent is not, in the Committee's view, unreasonable and agencies should look very closely at their performance in this area.

The Committee has made one exception to this, in the area of renewable energy. Renewable energy is currently not cost competitive with coal-fired electricity. In order to encourage and support the sustainable energy industry, the Committee recommends that the payback period for renewable energy investments should be equal to the warranty period of the product. Ultimately renewable energy is free energy.

REPORTING ISSUES
The Committee identified a number of areas where accountability could be improved through better reporting. This included a full list of the building energy consumption of all reporting agencies; a list of those agencies that do not report; and the publishing of the annual GEMP report on a more timely basis.

MINISTRY OF ENERGY AND UTILITIES RESOURCES

The Committee came to the view that MEU was under-resourced for its current GEMP function. Given the increased responsibilities announced by the Government and those recommended by the Committee, these resources needed to be increased.

CEO ACCOUNTABILITY

Under GEMP, Chief Executive Officers are ultimately accountable through their performance contracts for the implementation of the policy. The Committee saw little to suggest that this accountability mechanism was working adequately. It is interesting to note that of the 15 agencies that appeared in hearings before the Committee, only two were represented by the CEO. These were the Ministry of Energy and Utilities and the Sustainable Energy Development Authority. The message to the Committee is the CEOs are not taking direct responsibility for this policy.

The Committee will annually review the Energy Use Report and request the CEOs of agencies, both large and small, to appear before it and explain the performance of their agency on progress towards the targets.

INCENTIVES

Energy generated from renewable sources is currently included in the total energy of agencies and is thus included in the comparison with the baseline year. This effectively discriminates against agencies that have, often at cost, sourced their building energy from renewable resources (thus addressing one of the primary objectives of the policy, the reduction in greenhouse gases). This reduction in the production of greenhouse gases needs to be recognised and rewarded. The Committee has recommended that renewable energy, in excess of the mandatory Green Power component (currently six per cent) should not be included in an agency's building consumption for the purpose of calculating the absolute energy reduction targets.

However, agencies should not be profligate with their energy use, whether it be sourced from coal-energy electricity or renewable sources. Therefore, consumption from renewable sources should be included in energy intensity targets, which will benchmark agency performance.

Sanctions

The seeming disadvantage of the cost of Green Power could be a used as a "stick" to encourage compliance. Agencies that do not meet their targets should be compelled to purchase the shortfall in Green Power (or equivalent), thus creating a financial incentive.

Building Greenhouse Rating Scheme

SEDA has developed a tool for rating the greenhouse emissions of buildings, called the Building Greenhouse Rating Scheme. The adoption of the rating for both new and leased buildings would significantly impact on energy reduction in buildings. The Committee has recommended that all new government buildings be constructed to a minimum BGR of 4.5 stars. The government is a large player in the office rental market and the adoption of minimum BGR in all government leased accommodation

would send a strong signal to the property market. The Committee has recommended a 4.5 star minimum. It is important that the Government lead the way in this area and complete the rating of all buildings in the Crown Property Portfolio with the aim of bringing them all to a minimum of 4.5 stars.

Individual Agencies
A number of agencies have key roles in achieving the targets. Because of the significant or potentially significant impact of these agencies on energy consumption in government buildings the Committee gave these agencies individual consideration. These are the Departments of Health and Education and Training. The Committee also looked at the Department of Housing because of its significant residential portfolio. The Committee made a number of recommendations in these portfolios.

Green Power
All Schedule 1 agencies (under the Public Sector Management Act) purchasing electricity through the bulk electricity contract are required to purchase 6% Green Power.

Although Green Power is not technically part of GEMP, it is a major tool in the Government's support of green technologies and the sustainable energy industry and is reported on within the GEMP reporting regime.

While Green Power issues are reported by the Ministry annually under GEMP, compliance with mandatory Green Power purchasing is not reported. The lead agencies were uncertain as to the level of compliance and only the evidence of EnergyAustralia was able to confirm that there was almost 100 per cent compliance. The Committee has recommended that mandatory Green Power purchasing mechanisms be made part of GEMP, so that it can be utilised as a policy tool and that MEU report explicitly on the compliance by Schedule 1 agencies with mandatory obligations as well as the extent of Green Power purchasing by other agencies.

The complex issue of Green Power pricing, its availability and its relationship with other renewable sources is of concern to the Committee. Accordingly, it has recommended a strategic review of Green Power/Renewable Energy issues to make them work better as an integral part of the Government Energy Management Policy, to which Green Power is currently only an adjunct.

National Home Energy Rating Scheme (NatHERS)
The third term of reference for this inquiry was the take up of the National Home Energy Rating Scheme (NatHERS). Basically this is a voluntary scheme, part of the Energy Smart Homes Program, between local councils and SEDA to introduce a form of energy evaluation into new home assessment. The Committee was advised that NatHERS was now being applied to 54% of processed new residential development applications throughout the State. While this was a good development, the Committee feels that it needs to go further. If a significant proportion of the state (say 80%) has not been achieved in the next two years, the matter should be reviewed.

NatHERS was not, however, without its critics. The Institute of Architects in particular was concerned that NatHERS was essentially designed for “project-style” housing and that it actually worked against architect designed houses, most of which were designed with energy efficiency in mind.

It was also pointed out that the current scheme applied only to new houses. There is nothing in place to address the energy inefficiencies of existing houses. Given that the new house market was worth $28 billion annually in Australia and the value of additions and renovations was $22 billion, there was scope to address energy efficiencies here.

The Committee was swayed by some of these arguments. It would like to see NatHERS (or equivalent) apply to all new and existing residential buildings. It will be necessary to develop incentives to address the existing housing stock. For example, encouraging the inclusion of energy efficiency measures at the time of alterations and additions to a house. One tool the Committee has recommended is a scheme in place in the Australian Capital Territory which rates all houses for energy efficiency. This rating must be displayed on all material relating to the sale of the property.

FINDINGS AND RECOMMENDATIONS

FINDING ONE
THAT the targets are achievable and in a cost-effective way

FINDING TWO
THAT the Government's building energy consumption target for 2001/2 will not be reached and that it is unlikely to achieve the 2005/6 target. As a consequence, the policy objectives are not being realised.

RECOMMENDATION 1
THAT the "absolute" targets be retained.

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

b) THAT energy intensity benchmarks (similar to BGRS) for major building types be developed urgently to allow comparison of the performance of facilities (eg schools, hospitals etc) and to provide targets for new building designs.

RECOMMENDATION 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.

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

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

RECOMMENDATION 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

RECOMMENDATION 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.

RECOMMENDATION 8
THAT he 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).

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

RECOMMENDATION 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.

RECOMMENDATION 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.

RECOMMENDATION 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.

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

RECOMMENDATION 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

RECOMMENDATION 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.

RECOMMENDATION 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.

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

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

RECOMMENDATION 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.

RECOMMENDATION 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 Recommendation 5.

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

RECOMMENDATION 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

FINDING THREE
THAT all Schedule 1 agencies are purchasing 6% Green Power on contestable sites as required by government policy.

RECOMMENDATION 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.

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

RECOMMENDATION 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.

FINDING FOUR
THAT the full implementation by Councils of NatHERS and the Energy Smart Homes Program has been slow. While the speed of implementation has increased over the last year, just over half of the state (in terms of new residential applications) has been covered in four years. The Committee agrees this should be improved.

RECOMMENDATION 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

RECOMMENDATION 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

BACKGROUND TO THE INQUIRY

Public Works Committee
The Standing Committee on Public Works was originally established in New South Wales in 1887. Its operations were suspended in 1930.

It was re-established by Motion of the Legislative Assembly on 25 May 1995 with the following Terms of Reference:

That a Standing Committee on Public Works be appointed to inquire into and report from time to time, with the following terms of reference:

> *As an ongoing task the Committee is to examine and report on such existing and proposed capital works projects or matters relating to capital works projects in the public sector, including the environmental impact of such works, and whether alternative management practices offer lower incremental costs, as are referred to it by:*

- *the Minister for Public Works and Services, or*
- *any Minister or by resolution of the Legislative Assembly, or*
- *by motion of the Committee.*

The Standing Committee on Public Works absorbed the functions of the Standing Committee on the Environmental Impact of Capital Works, established during the 50th Parliament.

The terms of reference were renewed on 3 June 1999.

The Committee comprises seven members of the Legislative Assembly:

- Ms Diane Beamer MP, Chairman
- Mr Matthew Brown MP, Vice Chairman
- Mr Peter Collins MP
- Mr Paul Gibson MP
- Mr Adrian Piccoli MP
- Mr Richard Torbay MP
- Mr Graham West MP[1]

The Parliament's intended role for the Committee was detailed in a speech given to the Parliament by the Hon Paul Whelan, Minister for Police and Leader of the Government in the House, on 25 May 1995:

> *The Committee may inquire into the capital works plans of State-owned corporations and joint ventures with the private sector. The Committee will seek to find savings in capital works programs whilst achieving a net reduction in environmental impacts by public sector developers. The*

[1] Mr Torbay replaced Mr Windsor by Motion of the House on 17 October 2001; Mr Collins replaced Mr George by Motion of the House on 20 March 2002; and Mr West replaced Mr Hickey by Motion of the House on 9 April 2002 .

Committee's work is expected to provide incentives to the public sector to produce more robust cost-benefit analyses within the government budgetary process and to give more emphasis to least-cost planning approaches. The Committee will be sufficiently resourced to enable it to conduct parallel inquiries into specific projects and capital works programs generally.... it will have sufficient resources to inquire into the capital works program of all government agencies whose capital works programs affect the coastal, environmental and transport sectors.

In the Fifty-First Parliament, the Committee examined health, education, Olympics, waterways and transport infrastructure as well as urban and environmental planning issues. It also investigated the development and approval processes for capital works procurement across the public sector.

In the current Parliament, the Committee has tabled six reports:

- *Report on Capital Works Procurement*.[2]
- *Report on the National Conference of Parliamentary Public Works and Environment Committees 1999, Hobart, Tasmania*
- *Infrastructure Delivery and Maintenance, Volume One – Office Accommodation Management*
- *Report on National Conference of Parliamentary Public Works and Environment Committees, 2000, Darwin, Northern Territory*
- *Follow Inquiry into Lake Illawarra Authority Report and School Facilities Report*
- *Infrastructure Delivery and Maintenance, Volume Two – Analysis of Plant and Equipment Management*

Currently, the Committee is conducting the following inquiries:

- *Infrastructure Delivery and Maintenance, Volume Three – Building Maintenance*
- *Government Energy Reduction Targets*.

Terms of Reference
In September 1999, the Committee resolved to adopt the following terms of reference for the inquiry:

The Committee to inquire into the NSW Government Energy Reduction Targets with specific reference to:

- Progress by government agencies towards meeting NSW Government targets for reducing energy consumption through the Energy Smart Government Program.

- Progress by government agencies towards meeting NSW Government targets for the introduction of Green Power in government electricity contracts.

[2] This Report represents Volume II of a joint inquiry in the Fifty-First Parliament with the NSW Public Bodies Review Committee into the Provision of Goods and Services and the Delivery of Capital Works in the NSW Public Sector. The draft Report was carried over to the Fifty-Second Parliament by a motion of the Legislative Assembly of 29 June 1999, which referred all documents and proceedings of Committees of the Fifty-First Parliament to current Committees.

- Progress towards the statewide implementation of the National Home Energy Rating Scheme (NatHERS) by local government.

Methodology
The Committee carried out its inquiry as follows:

- advertised the inquiry
- received submissions
- carried out its own research
- held public hearings
- held meetings and discussions
- prepared its report based on all the information gathered

It should be noted that the Committee instigated this inquiry in September 1999. However, following the call for submissions, the inquiry was put on hold due to other ongoing commitments. This, in the end, has been be fortuitous as the Government Energy Management Plan, announced late in 1998, contained a provision for the Ministry for Energy and Utilities to report on the energy consumption and the targets on an annual basis. This has proved to be a very useful tool for the Committee's inquiry.

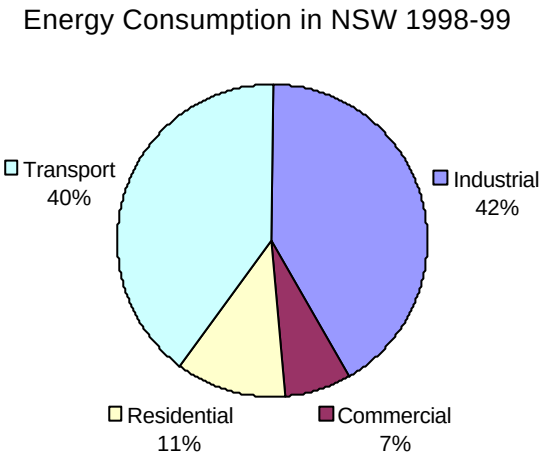
Report Structure
The report is divided into four sections. Chapter One provides background to the policies relating to the terms of reference. Chapters Two, Three and Four deal with each of the three terms of reference.

CHAPTER ONE – POLICY FRAMEWORK

1.1 INTRODUCTION

Energy has always played a vital role in the functioning and development of human society. As these societies have become more complex and industrialised, energy has assumed an even more integral role, being used in transport, heating, cooling, manufacturing and food preparation to name but a few sectors.

In New South Wales in 1998/99 the proportion of energy consumed in the various sectors was as follows:



The extent of energy use by NSW public sector agencies in providing services can be gauged from the following table.

Table One Total Energy Use in NSW Government Operations

YEAR	ENERGY USED	COST	CO2 EMISSIONS	% STATE
1998/99	18,957,460 Gigajoules	$297,956,568	2,951,795 tonnes	4.4
1999/00	23,949,558 Gigajoules	$410,928,074	3,276,047 tonnes	4.3

Source: Energy Use in Government Operations, 1998/99 p 22 & 1999/2000, p16

Significantly, both energy use and the associated costs are on the rise across the public sector.

From the figures above it is clear that good energy management by all government agencies has the potential to provide significant environmental and financial benefits to the State.

The benefits of efficient energy management have been acknowledged for some time by Government. Put simply,

> *if energy consumers invest in energy efficiency (getting the same or better benefit using less energy) then energy suppliers can delay or avoid the normally much larger investments in the provision of energy. Scarce capital is freed up for other use, such as schools and hospitals, and everyone's energy bills are lower. There is less pollution, fewer resources are depleted and business is more competitive.*[3]

1.2 ENERGY MANAGEMENT IN NSW: A BRIEF OVERVIEW

The following provides a brief review of the development of energy management policies in New South Wales, particularly as they relate to the Committee's terms of reference.

1.2.1 ENERGY MANAGEMENT BEFORE 1995

Public sector energy management policy has existed for at least twenty years. Initially, it was introduced in response to the oil crisis. In 1979, the NSW Labor Government launched an energy policy to eliminate waste and encourage efficient energy use in New South Wales. In the same year, the functions of the Electricity Authority of New South Wales were given to the Energy Authority of NSW.

To implement this energy policy and to address an electricity supply crisis, the Government Energy Management Program was formally introduced in 1981. The program required government agencies to be responsible for their energy consumption and aimed to maintain 1978/79 energy consumption levels for five years.

Policy tools such as energy reduction targets, education programs, energy management plans and facility upgrades and the annual reporting of results were utilised.

In 1988 the newly-elected Greiner Government undertook a major review of the administration of the Minerals and Energy portfolios. The Department of Minerals and Resources and the Department of Energy were amalgamated into the Department of Minerals and Energy.

Two elements of ALP's 1995 election policies dealt with public sector energy management. The Energy Policy noted that "the last NSW Labor Government led Australia in introducing energy conservation programs and energy reform legislation" and announced that "a Carr Labor Government will give the people of New South Wales *a cleaner and cheaper energy system* that will serve our and future generations better. The policy will reduce 2005 carbon dioxide emissions to 1995 levels, a massive contribution to the national greenhouse commitment, while also saving money for New South Wales energy consumers." [4]

In the Public Works Policy there was a proposal that "the Department of Public Works and Services, in conjunction with the Office of Energy, should develop

[3] Fleay B, Energy Efficiency, Integrated Least Cost Planning, A Discussion Paper, p1
[4] Australian Labor Party, NSW Branch, Labor's Energy Policy, March 1995, p1

strategies which provide efficient energy management of existing Government buildings to reduce energy costs".[5]

1.2.2 ENERGY MANAGEMENT FROM 1995-1998

In 1995 the Office of Energy became the Department of Energy. Its function was to assist the Government in choosing and implementing the best strategies for promoting the efficient, safe, reliable and ecologically sustainable supply and use of energy and urban water services. It aimed to develop and implement appropriate frameworks to improve the performance of the energy industries and urban water utilities.

The Sustainable Energy Development Authority (SEDA) was established by the Government in 1996 with twin objectives: "first, to bring about greenhouse gas emission reductions, particularly in terms of dealing with end-use efficiency; and, second, to encourage the development and commercialisation of sustainable energy technologies".[6] The establishment of SEDA was the result of a package of reforms to create greater competition in electricity supply at a national level. SEDA was set up to ensure that increased competition delivered environmental as well as economic benefits. It was provided with initial three-year funding of $39 million. In the 1998/99 Budget the Government committed a further $30 million to extend SEDA's term to five years.[7]

The Department of Energy was replaced in 1999 by the Ministry of Energy and Utilities (MEU).

1.2.2.1 ENERGY REDUCTION TARGETS 1996

Premier Carr launched SEDA's *Energy Smart Buildings Program* (also called *Energy Smart Buildings in Government* or *Energy Smart Government*) on 21 August 1996 where he announced the Government's commitment to reducing energy consumption in government buildings by 25%, where this was cost-effective. This reduction in energy use was estimated to save $50 million.[8]

The specifics of the policy, set out in more detail in the SEDA 1995/96 Annual Report, were **to reduce the 1995/96 energy consumption levels in government buildings by 15% by 2001 and by 25% by 2005.** [9]

In anticipation of this announcement, Government agencies had been invited to join the *Energy Smart Buildings Program* by the then Minister for Energy, the Hon Michael Egan, in a letter to all Ministers on 5 August 1996. The method of joining the program was by means of Memorandum of Understanding.

The Minister also advised in the letter that the Department of Public Works and Services was compiling the statistical database of 1995/6 energy consumption. That is, the baseline data for the targets. [10]

[5] Australian Labor Party, NSW Branch, Labor's Plans for Public Works, p5
[6] Transcripts of Evidence 22/8/01 p18
[7] Minister Debus press release: Green Energy Body's Lifetime Extended, undated
[8] Press Release, Premier NSW, 21 August 1996
[9] SEDA Annual Report, 1995/96 p2
[10] Letter from the Hon Michael Egan, Minister for Energy, 5 August 1996

Government agencies who joined the program were to retain cash savings from energy efficiency upgrades as part of their existing budget allocations, an incentive to invest in upgrading equipment. Agencies were also encouraged to achieve efficiency targets through innovative financing including outsourcing energy services on a performance basis.

1.2.2.2 GREEN POWER

From July 1997, Schedule 1 Departments under the Public Sector Management Act were required to purchase 5% Green Power when using the Government's bulk electricity purchasing arrangements. These are bulk purchases made with Contract 777, managed by NSW Supply through the Department of Works and Services.

1.2.2.3 NATIONAL HOME ENERGY RATING SCHEME (NATHERS)

In September 1997, SEDA, with the cooperation of the housing industry and Local Government, launched the *Energy Smart Homes Policy* with the aim of integrating energy efficiency into residential design and construction. Implementation of the program included the use of energy rating software (NatHERS) combined with a design scorecard for the assessment of house plans. The policy set a minimum standard for the energy performance for housing lots, house designs and fixed appliances.

1.2.2.4 ENERGY PERFORMANCE CONTRACTS

In March 1998 Treasury announced the provision of a $20 million fund for energy performance contracts, to facilitate energy efficiency projects. Agencies were advised in early 1999 to immediately investigate energy efficient projects with an internal rate of return of 12% and to seriously consider projects with an internal rate of return greater than 7%, where the savings were guaranteed by an energy performance contract. [11]

1.3 NEW SOUTH WALES GREENHOUSE ACTION PLAN, 1998

In November 1998, the New South Wales Government released *NSW Greenhouse Action Plan, 1998*, its response to "the greenhouse problem" and the "national commitment under the Kyoto Protocol to reduce greenhouse gas emission". The Plan included a *Greenhouse Action Update* and *New Greenhouse Initiatives*.

New Greenhouse Initiatives included two initiatives relevant to the Committee's inquiry. These were:

- The Government Energy Management Policy (GEMP), and
- The increase of compulsory purchase of Green Power for specified agencies utilising the bulk energy contract to 6 per cent (from the existing 5 per cent). [12]

[11] Energy Use in Government Operations Report 98/99 p12
[12] NSW. Greenhouse Action Plan, 1998

1.3.1 GOVERNMENT ENERGY MANAGEMENT POLICY

The Government Energy Management Policy (GEMP) was released on 30 November 1998 with Premier's Memorandum 98-35. Subtitled *Reducing Greenhouse Emissions from Government Operations*, the policy "affirms the NSW Government's commitment to sustainable energy use and lower greenhouse gas emissions. Most importantly, the policy reinforces the Government's focus on the twin goals of better financial performance and improved environmental outcomes". [13]

In a joint submission to the Inquiry, the Ministry of Energy and Utilities and SEDA advised that,

> *the Government Energy Management Policy (GEMP) …. Is a key element of the Government's commitment to achieve reduced greenhouse gas emissions and significant energy cost savings across the public sector, through improved energy management, greater use of "green" energy technologies and more efficient energy-related purchasing.*[14]

The policy applies to all energy use (except primary energy use for electricity generation) including:

- buildings
- infrastructure
- transport and motor vehicles
- plant and equipment
- goods and services

There were four strategies identified:

- Long-term strategic framework
- Education and training
- Procurement policies
- Facilitation and tools to encourage energy policy [15]

Basic elements in the GEMP process for agencies include:

- Establish accountability (by nominating a senior executive as energy manager)
- Prepare an Energy Management Plan
- Establish an energy database and monitoring systems (including baseline data)
- Set agency performance goals
- Implement staff awareness programs
- Report to MEU and publish performance in annual reports

This Policy reconfirmed the Government's 1996 commitment to reducing energy consumption in government buildings by 15% in 2001/2002 and 25% in 2005/2006 from a 1995/96 baseline.[16] The targets apply **only to government buildings** and are

[13] Premier's Memorandum 98-35
[14] Tabled Document No1 Ministry Energy and Utilities, 22 August 2001, p1
[15] Transcripts of Evidence 22 Aug p2
[16] NSW Government Energy Management Policy, 1998, p1

only mandatory for general government sector agencies. While the policy is not mandatory for other agencies, its adoption is encouraged for all public trading enterprises.[17][18]

While the only targets specified in the policy were the targets for government buildings, GEMP flags the Government's intention to develop targets in the other energy use areas. Targets in these other areas would be phased in progressively, although to date none have been developed. The Ministry for Energy and Utilities advised the Committee that "it is envisaged that targets will be developed for areas of energy use other than buildings (infrastructure, transport, plant and equipment and goods and services)…. [However,] it may be some time before we progress into other areas of energy use, mainly because most of the remaining asset categories are not homogeneous as these include a variety of assets". [19]

Three agencies have lead roles. The Ministry for Energy and Utilities is "responsible for data collection and reporting and overseeing GEMP policy development…. SEDA implements initiatives and programs that facilitate the outcomes of the policy [and] DPWS is predominantly responsible for facilitating objectives through asset management and procurement services". [20]

More specifically, these agencies roles are:

1.3.1.1 MINISTRY OF ENERGY AND UTILITIES(MEU)

The Ministry has principal responsibility for the "strategic framework" of the policy. Its role is to "oversee the policy application including advising the government and other relevant agencies, developing and advising on recommended targets; and publicly report on aggregate performance against (building energy consumption) targets." [21]

1.3.1.2 SUSTAINABLE ENERGY DEVELOPMENT AUTHORITY(SEDA)

At public hearings, the CEO of SEDA outlined its role for the Committee:

> **Mr FOGARTY:** …… SEDA was set up in 1996 by the Carr Government. Its overall objectives under the Act that was the enabling legislation were twofold: first, to bring about greenhouse gas emission reductions, particularly in terms of dealing with end-use efficiency; and second, to encourage the development and commercialisation of sustainable energy technologies. Of course, that was to be done in accordance with the provisions of the Sustainable Energy Development Act.[22]

There was some discussion of SEDA's funding at hearing, which to date has been mainly through consolidated revenue. It has a current budget of "around $14 million,

[17] "general government sector" and "public trading enterprises" are as defined by the Government Finance Statistics of ABS

[18] "government buildings" include both government-owned and leased buildings; "1995 level" means the energy consumption of the "base" year 1995-96 (July to June); 2001 means 2001/2002 (30 June 2002) and 2005 means 2005/06 (30 June 2006)]

[19] Ministry of Energy and Utilities Correspondence, 18 Dec 2001 p1

[20] Tabled Document No1 Ministry Energy and Utilities, 22 August 2001, p1

[21] Joint Submission, p 4

[22] Transcripts of Evidence Aug 22 p19

of which $11 million is basically Treasury funding, and the balance comes in from other sources of income".[23] SEDA representatives advised that :

> **Mr FOGARTY:** To date we have not really been successful in getting revenue streams from other government departments in New South Wales. We do not rule that out as a future possible strategy.

However programs had developed to the point that they can generate income. For example, "the Energy Smart Business Program has reached the point of market transformation when we are now able to attract some income". Accordingly, this was a strategy that could be developed in the future:

> **Mr FOGARTY:** We have not moved into direct consulting but that is something that we have in our timeframe…. In going out and commercialising ourselves an important part of our strategic process is that we do not damage the very programs that we set up.[24]

1.3.1.3 DEPARTMENT OF PUBLIC WORKS AND SERVICES

The Department of Public Works and Services main role in energy management is through procurement and specialist services, as detailed by Mr Campbell of the department at public hearings:

> **Mr CAMPBELL:** …Under that policy the department specifically has responsibility for facilitating the procurement of energy efficient solutions in goods and services and construction for government, the delivery of energy management services to government agencies and the provision of impartial advice to the Minister of Energy and Utilities on policy and reduction target issues.
>
> The Department of Public Works and Services also provides leadership on energy management issues in the development of a whole of government policy in areas of asset management, office accommodation, procurement and construction industry development and each of these policies integrates the principles of energy efficiency and, where appropriate, include practical tools to assist government agencies to achieve improved outcomes.
>
> As outlined in the department's submission, the Department of Public Works and Services is also involved in the implementation of a number of initiatives which support energy management and usage in government. These include the New South Wales Government offer for retail supply of electricity and this provides government agencies with access to both conventional and Green power at very competitive rates.[25]

1.3.1.4 INDIVIDUAL AGENCIES

Although the Government has given responsibility to these three lead agencies for aspects of the policy, the prime responsibility for the implementation is with individual agencies.

Agency responsibilities under the policy include:

[23] ibid p20
[24] Transcripts of Evidence 22 August pp 22,23
[25] Transcripts of Evidence 18 Oct pp 1/2

- achieving the policy goals, by setting its own targets aligned with the overall Government targets;
- Establishing agreed levels of executive accountability. The agency will nominate a senior executive as the energy manager. Ultimately chief executives were to be held accountable for achieving the energy management goals through their performance agreements;
- Establishing performance goals, monitoring and reporting on these goals in the agency's annual report along with an outline of the energy management plan;
- Reporting energy consumption to the MEU each year; and
- Adopting best practice in the procurement of new assets.

1.3.1.5 REPORTING INFORMATION

An important element of GEMP was the provision for agencies to report their energy consumption to MEU on an annual basis. Reporting is compulsory for agencies mandated under the policy and voluntary for others. The reporting date is 31 August.

The MEU collates this information and publishes the results on an annual basis.

The first report, Energy Use in NSW Government Operations 1998/99 (Energy Use Report 98/99), was released in 2000. For this report, the reporting date had been extended to 26 November 1999 in order to enable agencies to gather two sets of data (current and baseline) and to sort out teething problems.

The second report, Energy Use in Government Operations, 1999/2000 (Energy Use 99/00), was released in August 2001.

1.4 ENERGY MANAGEMENT IN THE AUSTRALIAN CONTEXT

The policy developments outlined above make New South Wales a leader in energy management initiatives and strategies.

In evidence to the Committee the Director General of MEU pointed out that GEMP was an innovative policy on which NSW has led the way.

> **Ms McALOON:**…. There are a number of things that we are looking at in New South Wales about how to meet the greenhouse gas emissions target of say 108 per cent. I think it would be fair to say that New South Wales, among all the other State jurisdictions, has led the charge on a number of greenhouse gas emission reduction strategies, particularly with the Government Energy Management Policy [GEMP] and also with electricity retailer benchmarks.[26]

Ms McAloon also advised that "It would be fair to say that New South Wales is the only State that has a Government energy management policy in place. South Australia, Victoria, Western Australia and Queensland are talking with us about adopting the approach to take, and some of those discussions have gone to Cabinet level." [27]

[26] Transcripts of Evidence Aug 22 p17
[27] ibid p3

Mr Precious, from the Sustainable Energy Industry Association explained to the Committee how Energy Performance Contracts were leading the way in NSW:

> **Mr BROWN**: Do other States have such a progressive -
>
> **Mr PRECIOUS:** They do not, and when we look at how the industry of energy performance contracting has developed, nationally there are about $40 million worth of contracts now in place. The vast majority of those are in New South Wales and testament to the initiative that has been undertaken. What that has created is an incentive for the growth of an energy efficiency industry in New South Wales. That needs further support.[28]

The Committee is certainly aware that SEDA-type agencies have been introduced in other states.

Some developments in New South Wales are generating interest overseas, as SEDA explained at hearings:

> **CHAIR:** Does the United States have a similar type of scheme to rate its buildings based on the amount of energy they use?
>
> **Mr COOPER:** Not the greenhouse performance levels. There are a number of energy benchmarks for different countries, but not such a five-star greenhouse rating for commercial office buildings, no.
>
> **Mr HIGGINS:** The interest is the other way. There is overseas interest in the SEDA scheme. [29]
>
> **Mr FOGARTY:** We are looking to project it internationally with rights through a patent and things, but as we think about the future of the 2008 games and what Beijing has to achieve with its own environmental outcomes and the gateway cities of Shanghai and Hong Kong, there is a great export opportunity associated with this if we can get it rolling forward. We are pleased with its penetration at the moment. We are constantly talking to work out how we can take it forward. Importantly for this Committee we have good support from the government sector on that. We look forward to taking that out. One of the most important issues for us is how we improve that uptake and endorse this particular product.[30]

COMMENT

Improved energy management within government agencies has been evolving for some years. In recent years, the cost and, particularly, the environmental implications of current energy use practices has attracted considerable policy attention.

The three policy threads that make up the terms of reference for this inquiry (the targets for energy consumption in buildings; the Green Power purchasing targets by Government agencies and energy efficiency through housing design) represent policies of merit with considerable potential benefit to the community. This report

[28] Transcripts of Evidence 18 Oct p24
[29] Transcripts of Evidence 22 Aug p30
[30] ibid pp 30,31

then looks at how these initiatives are being implemented by agencies and, in the case of NatHERS, through local government.

While there is little doubt that NSW is the leader in developing innovative energy management policies for government operations, the Committee felt that it was time to evaluate the effectiveness of the implementation of these policies and, if necessary, suggest ways in which this could be improved.

The above overview provides the background for a more detailed discussion of the Committee's inquiry and terms of reference, which follows. Each of the three terms of reference is addressed in a separate chapter.

CHAPTER TWO - BUILDING ENERGY REDUCTION TARGETS

2.1 BUILDING ENERGY REDUCTION TARGETS

The Government's building energy consumption targets are tools which aim to achieve a certain government policy objective (or objectives). The Committee has firstly considered what policy objectives the Government had in mind when establishing the targets.

2.1.1 POLICY OBJECTIVES

The NSW Labor Party's 1995 Energy Policy, *Cleaner and Cheaper Energy*, aimed to "reduce 2005 carbon dioxide emissions to 1995 levels, a massive contribution to the national greenhouse commitment, while also saving money for New South Wales energy consumers". [31]

Thus, prior to the election, the general energy policy was focused on reducing greenhouse gases and reducing costs for energy users.

The Premier's press release in August 1996 announcing the launch of the *Energy Smart Buildings* Program, essentially stressed a financial objective of significant savings on the energy bills for agencies, subject to the qualification that investments in efficiencies were to be cost-effective. These savings would be used to provide further services for the community. [32]

Prior to the Premier's announcement, the Minister for Energy had written to all Ministers advising of the targets and seeking their assistance in enlisting agencies to join this *Energy Smart Buildings* Program. According to Minister Egan, this "whole of government energy management strategy" met a number of the Government's objectives "for energy reform and good environmental management". Benefits identified included:

- meeting of NSW "greenhouse gas reduction targets";
- improving the environment; and
- saving money: as well as
- a better working environment resulting in "improved performance and efficiencies". [33]

As mentioned in Chapter One, the Government released the *NSW Greenhouse Action Plan, 1998*, in November 1998, as its response to "the greenhouse problem" and the "national commitment under the Kyoto Protocol to reduce greenhouse gas emissions". The Plan included a *Greenhouse Action Update* and *New Greenhouse Initiatives*.

[31] Aust Labor Party, Labor's Energy Policy, Cleaner and Cheaper Energy, March 1995, p1
[32] Premiers News Release, Aug 21, 1996
[33] Minister for Energy, Ministerial correspondence, 5 August 1996

Consequently, the Premier advised Ministers and CEOs (Memorandum 98-35) that the Government Energy Management Policy, sub-titled "Reducing Greenhouse Gas Emissions from Government Operations", affirmed the

> *NSW Government's commitment to sustainable energy use and lower greenhouse gas emissions. Most importantly, the policy reinforces the Government's focus on the twin goals of better financial performance and improved environmental outcomes.*

The Government expected the implementation of GEMP to "demonstrate NSW's commitment to the National Greenhouse Strategy" and to "facilitate the growth of a competitive and vibrant sustainable energy services industry in NSW.[34]

The building energy consumption targets announced by the Premier in 1996 were incorporated as a goal, "a whole of government objective", of GEMP. There were two qualifications. The policy only applied to the general government sector and the reduction was to take place "where cost effectively feasible".[35] In the joint MEU/SEDA submission to the Inquiry, the Committee was advised that the Government set this goal "of reducing the Statewide total energy consumption of Government buildings, where cost-effectively feasible" "as part of improving energy efficiency and greenhouse gas emissions". The goal (ie the targets) "were introduced to focus agencies on ensuring that energy efficiency measures were accorded priority and that the anticipated reductions in greenhouse gas emissions were achieved".[36]

The 1999 ALP Energy Policy identified two basic principles in its energy policy. Firstly, energy is to "exploited efficiently and distributed equitably" (with appropriate returns to investors) and, secondly, that its production, distribution and use should not compromise "ecological and environmental constraints". The policy reiterated "Labor's long-term aim of a sustainable energy economy, with a high priority being given energy conservation and the introduction of renewable energy sources and technology.

The Committee discussed the policy objective with Professor Outhred from the Australian Cooperative Research Centre for Renewable Energy.

> **Professor OUTHRED:** … there seem to us to be probably three main underlying policy objectives. One of those is to look for energy efficiency improvement opportunities that are cost effective, that allow government agencies to save costs in a lifestyle sense while delivering the same services. The second objective appears to us to be to do something about reducing climate change emissions. The third objective appears to us to be facilitating the development of an effective and competitive sustainable energy industry in New South Wales which might involve both energy efficiency and also renewable energy. [37]

[34] Premier's Memorandum, 98-35, 30 November 1998
[35] Government Energy Management Policy p1
[36] MEU/SEDA Joint Submission, Tabled Doc No1, 22 August 2001, p2
[37] Transcripts of Evidence 18 Oct p29

While these multiple objectives are in a general sense linked to each other, for example, a reduction in energy use could generally be expected to lead to a reduction in cost of energy, achieving multiple objectives can lead to contradictions, as Mr Pupilli advised:

> **Mr PUPILLI:** …We try to include, as you would see here, energy dollars and also the CO2 greenhouse gas emissions. That way it is clear. They do not always go hand in hand. We have projects that could reduce energy consumption but could increase greenhouse gases or the other way round. Generally if you are improving efficiency you are also reducing emissions. When you start substituting fuels it could go either way. [38]

A reduction in greenhouse gas emissions through the purchase of Green Power could, at the present time, increase energy costs to an agency. So purchasing Green Power addresses one objective, the reduction of greenhouse emissions, but can undermine another objective, the reduction of energy costs.

Mr Squires from Australian Municipal Energy Improvement Forum (AMEIF) described for the Committee, however, how these range of policy objectives could be made to work as part of a comprehensive strategy:

> **Mr SQUIRES**: …. The Greenhouse issues internationally have raised the attention of local governments, State governments and Federal governments around the world. Firstly they are doing it to save money. We do not pretend that they are doing it purely out of the goodness of their hearts to reduce global warming, but fortunately we know that we can save money, we can reduce Greenhouse emissions and create jobs all at the same time. The story is almost too good to be true…. And as government agencies we have an obligation to do this. The fact is that we are not. We find that in local government we are starting… [to save] a lot of money for ratepayers and reducing our impact on global warming, and then with those savings we can buy Green Power so that we are effectively reducing our consumption to zero, and it is at the same time increasing the number of jobs and getting a lot of extra benefits. Those types of lessons are easily replicated not only at State Government level but in businesses and households. [39]

Attorney-General's Department has approached energy management with twin objectives:

> **Mr W. M. BROWN:** Perhaps I ought to say that I joined Attorney General's Department just at the end of 1997 and our key focus there was the 777 contract because that offered very significant savings in costs, not in reducing energy but to get to lower cost rates. When we signed the memorandum of understanding with SEDA we moved then to focusing on energy reductions. I believe all the way through this there has been an intention to reduce our energy costs, but it has also been on the basis of reducing greenhouse gases. Prior to again 1997 we had a major submission in front of Treasury, and they did support us, where we converted a lot of our chillers, which were ozone depleting gases, and so we have had a consistent history here of being environmentally friendly and responsible. [40]

[38] Transcripts of Evidence 25 Oct pp8
[39] Transcripts of Evidence 18 Oct p53
[40] Transcripts of Evidence 25 Oct p18

The Ministry of Energy and Utilities conceded that the reduction of greenhouse emissions is a major aim of the policy and that reducing costs might not occur immediately. It observed in correspondence to the Committee that "energy reduction does not necessarily mean reduced energy costs, as energy costs are dependent on energy prices… Thus absolute or energy intensity targets do address the primary objective of reducing greenhouse gas emissions, though may not result in absolute cost savings".[41]

EnergyAustralia was confident that focusing on the objective of energy efficiency would in turn bring about the other policy objectives:

> **Mr Gordon**: Notably also 87 percent of our building energy does come from renewable resources, so Greenhouse emissions are the lowest in the country. The way we have achieved this is, as I said, our continuing focus on energy efficiency. [42]

COMMENT

It is clear that there is more than one objective to the Government's energy policy.

The evidence indicates to the Committee that the reduction of greenhouse gas emissions is the primary policy objective although this is to be achieved in a sound financial way. The incorporation of the targets as a goal of GEMP indicates that they are a tool, not just of sound financial management, but broader environmental greenhouse goals.

However, the Government is also determined to see an overall reduction in energy use, to see energy used more efficiently. This is an important objective. In fact a number of witnesses made some telling comments in this area. One pointed out that good energy management was simply a matter of reducing waste, energy waste, because "no-one wants waste".[43] The Department of Education highlighted the importance of efficiency, noting that in buying one hundred per cent Green Power you could be very efficient in terms of greenhouse gas emissions but still be the most inefficient energy user.

In summary, then, the objectives are:

- improving the environment through the reduction of greenhouse gas emissions (GEMP is subtitled *Reducing Greenhouse Emissions from Government Operations*);
- financial management - reducing energy costs with savings to be targeted to better service delivery
- improving energy management (improving efficiency and reducing energy waste)
- developing a sustainable energy industry

The targets are one tool to achieve these objectives.

[41] MEU corro 18 December 2001 p 3
[42] Transcripts of Evidence 16 Nov p1
[43] Transcripts of Evidence 19 Oct p31

2.1.2 ARE THE CURRENT TARGETS ACHIEVABLE?

A number of energy experts and experienced managers are of the view that the building targets in their present form are indeed achievable. A number of actual examples, both in the public and private sectors, indicate that energy consumption can be reduced to the specified goals in a cost-effective manner. These are summarised below:

Minister Egan
According to Minister Egan in 1996 "a conservative estimate is that government facilities can achieve between 10 and 40 per cent reduction in energy consumption.[44]

Mr Squires from Newcastle City Council and the Australian Municipal Energy Information Forum (AMEIF):

> **Mr SQUIRES:** We really think a 25 percent saving is not difficult. We think in one local government at least we have demonstrated that it is quite easy, [45]

Mr Squires also detailed financial savings achieved by Newcastle Council:

> **Mr SQUIRES**: …A few critical points here: In 1995 that bill was $1 million. In 1997, just for one year, we invested $98,000 and achieved $100,000 saving just in twelve months. In 1997 we set up that three year revolving energy fund. Now our bill is below $600,000 and we found the same type of approaches apply for water as well.[46]

Mr Stephen Pupilli (energy consultant, EMET, with long experience in the private and public sector)

> **Mr PUPILLI:** We have operated several programs, including the old Government Energy Management Program in the 1980s, and we have achieved the sorts of targets that are being aimed at by the current GEMP ….., so the objectives of the GEMP are quite achievable……We have proved in many cases, for example, that the 15 percent target can be achieved effectively almost with no expenditure, just by having a suitable process that allows you to identify where the problems are and addressing those individually. [47]

Mr Cooper from SEDA

> **Mr COOPER:** Energetics and service companies have achieved this through off-the-shelf products and cost-effective projects. Energetic's office saw an 85 per cent reduction in its lighting and energy use. It is a private sector energy service company. It did at huge lighting upgrade of its office. It had a 20 per cent internal rate of return. It showed an 85 per cent reduction in energy use on its lighting system. It is achievable. [48]

Ms Cathy Zoi

[44] Minister Egan's 1996 correspondenc op cit
[45] Transcripts of Evidence 18 Oct p45
[46] ibid p45
[47] Transcripts of Evidence 25 Oct p1
[48] Transcripts of Evidence 22 Aug p 30

The former Executive Director of SEDA advised last year's National Parliamentary Public Works Committees' Conference that the costs of energy could be cut "probably somewhere between 25 per cent and 50 per cent with existing technology, with a return on investment in excess of 30 per cent".[49]

Mr Tone Wheeler, Royal Australian Institute of Architects
He advised the Committee that his business, which looks at large scale buildings, is able to identify "anywhere between 25 and 50 percent savings through a lot of means that are not necessarily scientific."[50]

Specific Agencies
Further evidence is provided by the performance of some agencies that have already made significant reductions. The following list shows the energy consumption reduction in 1999/00 from the baseline year. (The Committee acknowledges that this is not the full list of good performances):

Hunter Area Health Service	23%
NSW Police	16%
Office of State Revenue	56%
Attorney-General's Department	19%
Integral Energy	22%
Department of Housing	33%

Attorney-General's Department

> **Mr W.M. BROWN:** The work was completed in January, so we are only really now doing the monitoring for the first six months.…we are able to report is that over the first six months we have an 18 per cent reduction in energy and a 28 per cent reduction in cost. That is over those five particular court houses, but across the whole portfolio over the 12 months we predict that it will give us a 2.7 per cent energy reduction across the whole portfolio.[51]

EnergyAustralia:

> **Mr Gordon**:….Energy Australia is the tenth largest energy consumer in the New South Wales Government, so a significant player in the issue, and over the period of time that the building energy targets have been in place we have seen a 27 percent reduction in building energy use across our organisation, which is partly due, admittedly, to closing buildings, but largely due to rolling energy efficiency improvements that we have made in our buildings over that time.….
>
> Some general principles of building energy efficiency that I thought might be interesting: When you talk about energy in buildings, it is substantially similar from one building to the next, so there are a lot of things that, I guess, are common, although there is quite a variety of buildings, as you would expect, but most we found in our experience can reduce by 10 to 30 percent of energy consumption economically. The key energy uses I have noted there are: Clearly air conditioning being the biggest one; lighting is often very considerable; and a growing area is

[49] Transcripts of Proceedings p14
[50] Transcripts of Evidence 25 Oct p28
[51] ibid p14

> computers, obviously, as more and more businesses get to the point where there is a computer on every desk, but there are now improvements in the equipment; PCs in particular are reducing in power; and other things like lifts and hot water are typical for an office building. The sorts of things that you would typically look at are their equipment, the raw equipment, the lighting equipment, the chillers, office appliances, control and management systems which can make significant inroads by better controlling the equipment and other things such as power factor correction can make some extra gains. [52]

Police Service

> **Mr Mills:** ….I can report that as of last financial year the Police Service had already achieved and bettered the 15 per cent reduction that is required under the SEDA initiatives. As of last year the Police Service had delivered 16 per cent reduction. We currently use 20 per cent less energy per person to meet the needs of our building occupants. [53]

The Attorney-General's Department also made a salient point about the role of targets generally, in that "having a target has helped us focus" and give consideration to such issues as "how can we apply a technology change and what might be the extent of the cultural change". [54]

The Committee acknowledges some problems raised by individual agencies in reaching the targets. However, based on the considerable weight of expert opinion and the evidence of successful case studies, the Committee considers these targets to be generally achievable.

FINDING ONE

THAT the targets are achievable and in a cost-effective way

The Committee now considers the progress on the targets to date to determine if they are being met.

2.1.3 PROGRESS TOWARDS BUILDING ENERGY REDUCTION TARGETS

The central element of this inquiry is to determine the progress made by agencies towards these goals set by Government policy.

An "absolute" energy reduction target is a set amount by which the energy consumption in all government buildings must be reduced over a specified period of time (from 1995/96 to 2001/2 and then 2005/6). The only qualification is that energy reduction measures are to be cost-effective (an issue discussed below).

In other words, the total energy consumption in government buildings from all reporting agencies, expressed in Gigajoules per annum, is aggregated on an annual basis and compared with the aggregated baseline value. The actual reduction of "the statewide total energy consumption of government buildings" can then be compared with the required reduction. This statewide total is of course made up of all the individual agency performances aggregated into one figure. It is this result that the

[52] Transcripts of Evidence 16 Nov pp 1,2
[53] Transcripts of Evidence 19 Oct p14
[54] Transcripts of Evidence 25 Oct p17

Ministry of Energy and Utilities reports annually on progress towards the targets from a whole of government perspective.

The total building energy consumption by public sector agencies for the last two GEMP reporting years for "all 103 Schedule 1 agencies….and 29 out of 39 public trading enterprises", (which are not obliged to report) is summarised below. [55]

Table 2

Year	Energy (GJ)	**% change (baseline)**	CO2 Emissions (tonnes)	**% change (baseline)**	Cost $	**% change (baseline)**
95/96	7,492,658		1,372,975		127,381,127	
98/99	7,445,714	**-0.6**	1,366,811	**-0.45**	114,012,536	**-10.5**
99/00	7,507,820	**+0.2**	1,347,722	**-1.84**	124,538,380	**-2.23**

Source: Energy Use in NSW Government Operations 1999/2000 p 27, & 28 & Ministry of Energy and Utilities

The trends in this table indicate strongly that achieving the 2001/2 and 2005/6 targets will be difficult, an assessment conceded as early as the 1998/99 Energy Use report which stated that, although it would be difficult, it was technically feasible, for agencies to achieve the targets. The report noted that in order to reach the targets energy consumption would have to fall annually by :

- 5.1% to meet the 2001/02 target, and
- 4% to meet the 2005/06 target.

The report also noted that "achieving these per-annum goals will require a significant commitment to energy management from all agencies, particularly the largest 20". [56]

In the following year, the 1999/2000 Report advised that reaching the Government buildings target by 2005/6 would require reductions in energy consumption in future reporting periods of 4.7 % per annum.[57] Of interest was that this report made no comment about achieving the 2001/2 target.

In hearings, the Committee raised this central issue with the Director-General of the Ministry of Energy and Utilities, who confirmed that "yes it is true that the 2001 target of 15 per cent reduction will not be achieved". [58]

At public hearings SEDA likewise acknowledged the problem of achieving the targets but was hopeful that the 2005/6 target would be achieved:

> **Mr FOGARTY:** You are probably right: there is still a long way to go in terms of the energy use component of those targets.[59]

Certainly, the Government has recognised and acknowledged that agencies are not achieving these targets and, in response to this it has recently taken action to address the problem.

[55] Transcripts of Evidence 22 August p9
[56] Energy Use in Government Operations 1998/99 p5
[57] Energy Use in Government Operations 1999/2000 p6
[58] Transcripts of Evidence 22 Aug p3
[59] Transcripts of Evidence 22 Aug p27

In the 1999/00 Energy Use Report, the Ministry conceded that the results showed there was a need to further develop the targets and had initiated a "review of the effectiveness of the policy". As part of the review consideration is being given to:

- developing energy intensity targets for differing building classes (which are being defined)
- adjusting the overall building target to include a growth factor reflecting the growing demand for energy by the broad community generally.
- a focus on achieving and sustaining energy consumption successes with the larger energy users.

In its joint submission to the Inquiry, the Ministry/SEDA advised that, in "recognising that 2001 target for energy consumption reduction in government buildings has not been achieved, a GEMP Senior Officers Steering Committee …. has been formed. It includes CEOs of MEU, SEDA, DPWS with representation from TCO.[60] In correspondence, the Acting-Director-General informed the Committee that the Government intends to put in place an "implementation plan or an action plan" to ensure that the 2005 building target is reached. [61]

2.1.3.4 WHAT THEN DOES THE FAILURE TO MEET THE TARGETS MEAN FOR THE POLICY OBJECTIVES?

Table 2 can be utilised to assess progress, on a statewide basis, on some of the GEMP objectives, identified in the previous section. Specifically, from the Baseline Year to 1999/2000:

- *CO2 Emissions* have been reduced by 25,253 tonnes. This represents a 1.8% reduction;

- *Energy Consumption* (in buildings) has increased by 15,162 GJ. This represents an increase of 0.2%;

- *Energy Costs* (in buildings) have fallen by 2.23%

The failure to meet targets translates into a failure to meet the policy objectives.

It is clear from the information above, that the targets are not likely to be reached. While the Committee takes heart that the lead agencies maintain some confidence and hope that the 2005/6 target of a 25% reduction can still be achieved, it is not convinced that this will happen without a concerted effort on the part of all agencies.

FINDING TWO

THAT the Government's building energy consumption target for 2001/2 will not be reached and that it is unlikely to achieve the 2005/6 target. As a consequence, the policy objectives are not being realised.

[60] Joint Submission op cit p7
[61] Transcripts of Evidence 22 August 2001, p1

The Committee supports the objectives of the policy. What is important to remember is that the targets are simply an instrument to achieve policy goals and the failure to achieve the targets means that the policy objectives are not being achieved. It should be recognised that the Government has conceded that there is a problem and is taking action. However, this is a significant issue and leads the Committee to consider why the targets are not being met and what can be done to address this.

2.2 FORMS OF TARGET

The Government has adopted an "absolute" energy reduction target as its policy tool, although a number of alternatives were suggested to the Committee.

2.2.1 ABSOLUTE ENERGY REDUCTION TARGETS

There are advantages and disadvantages to the absolute target approach.

2.2.1.1 ADVANTAGES

- A whole of government absolute reduction target provides a single measure of energy consumption. This is a simple method of monitoring the progress of agencies against a baseline value. All Government building energy consumption can be reduced to a single annual figure and compared with other annual results.

- This form of absolute target also provides a government wide focus which reflects the activities of all reporting agencies.

- Energy consumption is a relatively simple measure of energy activity. It is essentially "read" from existing metering.

The EPA advised the Committee that targets are the only way to go, although it was supplementing them with internal targets in problem areas.[62]

EnergyAustralia felt that the focus had to be on energy reduction, telling the Committee:

> **Mr Gordon:** …the focus should continue to be on energy reduction. I think that is the appropriate place where agencies are able to take decisions and because of the drive for renewable energy agenda coming out of the Commonwealth I think that is an appropriate way to drive that agenda rather than through what we have been doing in the State to date. Energy efficiency also reduces costs, which is obviously interesting, whereas transferring to renewable energy will increase costs. [63]

2.2.1.2 DISADVANTAGES

- The single statewide total can mask both the good and bad performances of individual agencies or agency specific problems. A number of individual agencies will reach the target (some were listed above) yet the aggregated agency target will not be reached. This can only mean that a number of agencies have not been

[62] Transcripts of Evidence 30 Nov p8
[63] Transcripts of Evidence 16 Nov p3

successful in achieving a 15% energy consumption reduction, as an inspection of the agency results in Appendix 4 shows.

- The absolute target does not make provision for specific problems faced by agencies. A number of agencies advised the Committee that they had particular circumstances which have prevented or will limit their achieving the targets.

  For example, although it had a reasonable result in progressing the 2001 target, the Attorney-General's department described its difficulties:

  > **Mr BROWN:**.… What it brings us to is that some of the uniqueness of problem we have is much of the plant is aged and when we look at it in terms of viability to pay back and replace plant and make improvements from an energy saving point of view, given that much of it is not being used every day of the week, we fall into that non-viable position in terms of a payback…… We are still in a position where I think there are as many as approximately 50 per cent of our rural court houses which are not yet fully air conditioned, so we have some issues to move to properly thermally controlled environments for the operation of the courts. [64]

  Thus, "the early indications are that the 25 percent probably is not achievable for Attorney General's Department".[65]

- The absolute target makes no allowance for improved energy performance prior to the baseline year.

  A number of agencies alerted the Committee to the fact that they had addressed energy management prior to the commencement of the GEMP and were finding it difficult to achieve the targets because they had already made significant reductions in energy consumption before the targets were introduced. This point was acknowledged by Mr Pupilli at hearings where he explained to the Committee that "the first savings are fairly easy to achieve". Typically, "you get a very high return for your investment and then it peters off". In one case he achieved "a 200 per cent rate of return in the first period" dropping off "towards the end" to "20 and 30 per cent rate of return".[66] Significant gains are, therefore, made by coming off a lower base, an advantage to agencies that have only seriously addressed energy management in the last few years.

  The Department of Public Works and Services told the Committee how it had been working with the Department of Education for many years to incorporate energy efficiency into design. This was making it difficult to now achieve significant savings since the baseline year. According to the Department of Public Works and Services it is now "very difficult" to go into a school and "take out another 15 per cent of power".[67]

Dept of Agriculture argued that it was in a similar position:

[64] Transcripts of Evidence 25 Oct p12
[65] ibid p17
[66] ibid p5
[67] Transcripts of Evidence 18 Oct p15

> **Mr Weale:** Energy, particularly electricity, has always been a keen focus of the department and we have been undertaking energy management performance targets for something like about 20 years now, and back in the 1980s we had an energy manager in the department, and where we saw key areas that were of significance where we could reduce energy we have always addressed those. [68]

As EnergyAustralia explained:

> **Mr Gordon:** …The other issue that we see is the use of flat percentage targets, so the 15 or 25 percent target is reflected directly to each agency individually without any recognition of their standing level of efficiency or the opportunities they have. This creates some difficulties for some who might be already quite efficient or who might be in a situation where they do not have a lot of opportunities, where their target perhaps should be lower, but for other agencies where in fact there is a lot of opportunity and they are terribly inefficient, it might be letting them off a bit easily. So there is probably some optimisation that could be done.[69]

On the other hand, the Hunter Area Health Service (discussed later in the report) has demonstrated that it is certainly possible to reduce energy consumption consistently over a long period of time. Since 1984 it has reduced its energy use by 56.4 per cent and since the GEMP base year by 30 per cent (to 2001).

- Increases in agency service delivery can be expected to increase energy consumption and generally work counter to absolute energy reduction targets.

  Agencies are always under pressure to increase service delivery. They face problems in achieving absolute targets when they provide these increased services. The Director-General of the Ministry of Energy and Utilities discussed this point at hearings:

  > **Ms McALOON:** ….there is a growing demand for service. I was talking to some hospital planners, trying to understand what has been happening from a different perspective as opposed to the energy perspective, and they say that there is a huge growth in day-patient services. The quality of services is increasing…. In a sense everybody is responding to growing community expectations about the level of service….[70] For example "…Hospitals are being built in Campbelltown, Nowra, Wollongong, et cetera. In that sense there is an increasing demand for services, and therefore, the quantity of energy increases.[71]

  Other examples provided for the Committee's attention include:

  Air-conditioning in schools – "it is a very similar issue with air-conditioning going into schools. We have been looking at that sort of load growth in electricity, as you can imagine. Over the last summer electricity consumption rose by 5 per cent".[72]

[68] Transcripts of Evidence 16 Nov p44
[69] ibid p3
[70] TRANSCRIPTS OF EVIDENCE 22 August p6
[71] ibid p5
[72] ibid p 5

The Department of Corrective Services advised the Committee that it too was having difficulties with energy management at a time of increasing prison populations.

2.2.2 ALTERNATIVES TO ABSOLUTE ENERGY REDUCTION TARGETS

The Committee looked at the alternatives suggested for the absolute energy reduction target, these being:

- CO2 Emissions Targets
- Financial (ie Cost) Targets
- Individual Agency Targets
- Energy Intensity Targets

2.2.2.1 CO2 EQUIVALENTS

In their current form the absolute targets focus on energy consumption. The targets do not directly address greenhouse gas production, one of the prime objectives of the policy. Some have argued that agency targets should be in the form of CO2 emission equivalents, to focus directly on this policy objective. As Mr Precious, Sustainable Energy Industry Association, explained in hearings:

> **Mr PRECIOUS**:….There are other options there in terms of if agency targets were set as absolute CO2 equivalent targets, there could be a trading regime set up amongst Government agencies, such that any agency that is able to make reductions over and above or beyond their target, could in fact sell those reductions to other agencies that were finding it more difficult, and that again would impose a financial penalty. [73]

Professor Outhred, Australian CRC for Renewable Energy, discussed this issue at hearings, pointing out that this approach did not meet his basic criterion for targets – simplicity of implementation:

> **Professor OUTHRED:** If I talk about reducing tonnage of CO2, what does that mean to someone who is trying to manage a regional hospital or whatever? If you can translate that into something they can easily understand you are much more likely to get the kind of responses that you want to see. That is the point.[74]

2.2.2.2 FINANCIAL TARGETS

Another form of target put to the Committee was a financial target. In this approach, agencies are set a dollar value reduction target on the cost of energy. This approach was adopted successfully in Newcastle by the City Council where "a 10 percent cost target that we were searching for in reducing our electricity costs [was] achieved … in the first twelve months just through being diligent and digging deeper". This has been reduced by 40 per cent. In dollar terms there have been savings of some $600,000. If the Council had maintained its "business as usual approach, it would now have been at 1.2 million where in fact it is $600,000". [75]

[73] Transcripts of Evidence 18 Oct p20
[74] ibid p30
[75] Transcripts of Evidence 18 Oct p50

It should be noted here that these cost reductions were driven by a revolving fund where the savings generated were reinvested into further energy efficiency measures.

It is also acknowledged that this approach would also directly address one of the key objectives of the policy – the significant reduction in energy costs.

2.2.2.3 INDIVIDUAL AGENCY TARGETS

EnergyAustralia made a case for differentiated targets, negotiated on an agency by agency basis:

> **Mr Gordon:**… Differentiated targets. As I said, flat targets can cause problems. Agency by agency negotiated targets will probably result in more overall energy reduction and having those based on what is achievable. I understand the ministry is very keen on the idea of intensity targets where the targets are relevant to the agencies' activities. I think that would be a very sensible way to connect the target with what the business is doing.[76]

It was conceded, however, that this could be quite a long and complicated process:

> **Mr Gordon:** In terms of trying to work out how you would set targets for individual agencies it is quite complicated and you would need a negotiated outcome based on realistic review. I think that is the way to go. So you set an overall target - the Government target is 25 percent reduction - and then you work your way through the agencies, and it is quite an intensive process, it will take some time and effort, and then some will get a target which translates to greater than 25 percent and some will end up with a target that is less, but with the overall view that when they are all added together you will get a reduction, but yes, individual negotiation is an important part of setting the targets.[77]

The Sustainable Energy Industry Association supported individual agencies targets. Mr Precious, representing the Association, outlined its position for the Committee:

> **Mr PRECIOUS:** …. We would suggest that the use of benchmarks is not the best way to focus people on making absolute reductions, and the line of thinking there is why do we want to change the energy base that we have now, the fossil fuel energy base that we have now. It is because of a range of environmental issues and one of the prime issues there is the threat of global warming. At some point in time we have got to make reductions that are not based on benchmarks. If Australia's population base continues to grow, that is not an excuse to keep on expanding our emissions of Greenhouse gasses. We have got to start making absolute reductions in Greenhouse, so we would suggest that individual agency targets should be absolute targets.[78]

According to Mr Precious the individual agency targets should form part of an accountability mechanism and "should be reported in annual reports as the Government energy management policy already states".[79]

[76] Transcripts of Evidence 16 Nov p3
[77] ibid p7
[78] Transcripts of Evidence 18 Oct p19
[79] ibid p20

A number of agencies outlined particular circumstances which they argued inhibited their ability to reach the targets. Implicit in this argument is a pleading for special circumstances such as a (reduced) agency target. For example, the Department of Corrective Services told the Committee that "…there are lots of impediments to success too…. [f]ailing those sorts of innovations, initiatives, there is not a lot else we can do".[80] The Department of Agriculture made a similar argument:

> **Mr PICCOLI:** So on that basis you would certainly argue that different departments should have different targets, depending on the nature--
>
> **Mr WEALE:** --of their activities, yes. Where you have a department that is just an office based department they could probably achieve some fairly big savings with changes in lighting. If you have a look at this report, "Energy Use in NSW Government Operations 1999/2000", they report the departments under various categories and you will see that, under "Research facilities", New South Wales Agriculture is about 20 times larger than any other government department and we are a major research agency at the moment. [81]

The weakness of absolute targets to take into account individual agency circumstances was also acknowledged by SEDA/MEU in their submission to the Committee. It said: the current approach [of absolute targets] has a weakness – "agencies do not have specific individual targets nor specific action plans".[82]

2.2.2.4 ENERGY INTENSITY TARGETS

The alternative approach most strongly advocated to the Committee is the introduction of energy intensity targets (EITs), on the grounds they provide a more tangible and meaningful indicator of an agency's energy consumption performance.

Ms McAloon explained that some agencies were calling for a change to energy intensity targets because absolute targets were too general:

> **Ms McALOON:**….This approach is being driven in part by agencies that complain when told that "you must achieve a 15% reduction" and request the Ministry to "help us translate that into something that is meaningful for us and gives us something we can actually work towards". "Hospitals say that it is not a meaningful measure for them. They are looking at energy-intensity targets." [83]

EITs are a form of benchmarking, and have two advantages over absolute targets. Firstly, the EITs make allowance for increasing demands on energy consumption brought about by increased service delivery and, secondly, various types of buildings have different performance characteristics.

Building Characteristics

Because buildings have different operational characteristics, "energy intensity targets assist agencies in focussing on appropriate benchmarks for the particular classification of services they provide in government buildings. For example, office

[80] Transcripts of Evidence 16 November p41
[81] ibid p48
[82] Joint Submission op cit p8
[83] Transcripts of Evidence 22 Aug p4

administration has different energy requirements than schools, hospitals, law courts and custodial services." [84]

According to the MEU when these factors are taken into account there has in reality been a good performance from agencies. For, when you consider the performance across the range of services provided in government buildings, by looking at building categories, "the results show that when disaggregate from that actual [absolute] target into the performance of agencies there are actually quite different results and there are some outstanding achievements". [85]

Increased Service Demands

The major argument in favour of EITs, however, is that they make allowance for increased service demands of agencies,

> **Ms McALOON:** It is not that you move away from the [absolute] target, it is just that each time you make a gain, if you have 5 per cent growth in electricity, which is massive, you are going backwards. That has been the experience. Energy-intensity targets have a growth factor built into them, and that is why they are more sensible for agencies and organisations.[86]

Ms MaCaloon described for the Committee how the Commonwealth Government had moved to energy intensity targets, explaining that the Commonwealth had originally (in 1992-93) adopted a 15 per cent absolute target. "But, as best we can gather, it was not seriously implemented". The current federal Government reintroduced targets in 1997 but as energy-intensity targets of "10,000 megajoules per person per annum". The reason the Commonwealth moved away from absolute targets is that they can be very difficult to achieve given the various kinds of services agencies have to provide.[87]

By way of contrast it needs to be observed, however, that some agencies have been able to achieve their absolute target while still expanding services.

The Police Service advised the Committee that:

> **Mr MULLINS:** I think it is worthwhile to note that 16 per cent has been achieved in the same time the Police Service's population has grown by about 6 or 7 per cent. So pro rata we are doing quite well we believe. The energy per person has dramatically improved, the building energy per person. [88]

Similarly, the Hunter Area Health Service has reduced its absolute consumption by 23 per cent while expanding health services in the area.

Representatives from the Australian Municipal Energy Improvement Facility took a similar view, arguing that even with expanding services it is possible to bring down consumption in line with targets:

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[84] Joint Submission op cit p7
[85] Transcripts of Evidence Aug 22 p4
[86] ibid p6
[87] ibid p3
[88] Transcripts of Evidence 19 Oct p14

> **Ms O'LEARY:** ….I take the point that they are expanding, but it is not an excuse. Those new facilities should be as efficient as possible if they are building, and the existing ones should be coming down, and that should all be part of the targets.[89]

Mr Pupilli supported the development of EITs. He told the Committee that "definitely I would go for performance indicators." But he also acknowledged the need for an overall target, stating that "the overall aim would be to achieve a target, but to arrive at that point you need to have performance indicators because it is too difficult to measure performance in an absolute sense without some sort of indicator". [90]

This is the also the position of the MEU and SEDA. They stressed to the Committee that the development of energy intensity targets was not an abandonment of the absolute targets. In their joint submission to the Inquiry, they advised that "the application of an absolute reduction target needs to be complemented by energy intensity benchmarks"[91] and in evidence Ms McAloon advised that, while the energy intensity targets were "seen as the appropriate way to go", the absolute target is "an important aggregate target" to which the Government "remains committed". [92]

In fact, the Ministry has been developing energy intensity targets some time.

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> **Ms MaCaloon:**… In the 1999-00 report we start talking about performance indicators for energy-intensity targets. It is certainly the sensible and rational way to go because it will result in a reduction in energy consumption for buildings that are used for a particular kind of service".[93]

MEU intends "for the next year to work with agencies and organisations in developing intensity targets, and we are looking at developing that in about five areas". [94] The development of EITs forms a core part of the policy review process now underway.

EnergyAustralia pointed out how energy intensity targets can be a useful and indeed simple tool with which to self-regulate:

> **Mr GORDON:** …The evidence that is in the government energy management reports does show that, for example, if you look at tenanted office space, which is a pretty consistent sort of a usage, the variation in the amount of energy per square metre is quite wide. There is an average about here; the best performers are about here and the worst performers are way out here. Now, without looking too hard, you would expect that you should be able to find a target and offer them a lot of opportunity to improve. On the other hand, when we reviewed the EPA's position and benchmarked it against average practice, they actually came out quite well. They were surprised at how far up the scale they were. They did not have that information themselves to be able to understand where they sat on the scale, so I think with some help from the ministry on analysis of the GEMP results and working with GEMP program managers there is probably some room for them to self-identify that they should have more opportunity than average and then the energy review

[89] Transcripts of Evidence18 Oct p51
[90] Transcripts of Evidence 25 Oct p3
[91] Joint Submission op cit. p7
[92] Transcripts of Evidence 22 Aug pp4-6
[93] ibid p5
[94] ibid p9

> will give them some idea of how much saving might be there and what avenues should be pursued. [95]

The Department of Education argued that benchmarking provides the means to set more realistic and achievable targets:

> **Mr FRANKHAM**: I guess the problem with targets is we do not know actually how to compare ourselves. We could compare if there was data available nationally from other, say, school education systems or TAFE systems, but I do not think anyone in Australia actually publishes them. I think we are the first State that has started to get into the detail. What might be better than a 15 percent target might be to look at some international experiences in countries with similar climates to New South Wales and try and get a benchmark, megajoules per student or Greenhouse emission per student, and then say where does New South Wales fit in relation to those best practice in other countries. Obviously, you cannot go to New York City or something, because they are all air conditioned, California or somewhere like that. There may be data on the Net that could better enable the agency to actually set the targets that they are meant to achieve. [96]

But EnergyAustralia did acknowledge that benchmarks were not the total solution:

> **Mr GORDON:** I think the important thing is not to try too hard to make the benchmark do more than it is able to do. I think you are quite right. Benchmarks have a role, but they are far from the be all and end all, which is why we see the first task may be to look at some broad benchmarks to provide some targeting….Benchmarking is a starting point.[97]

COMMENT

The Committee agrees that the current (absolute) targets do have their drawbacks. Unfortunately, no other form of targets on their own is likely to satisfactorily achieve all the policy objectives.

Cost targets should reduce energy costs but there is no certainty they will have any impact on greenhouse gas emissions. Focusing on cost could encourage a short term cost reduction mentality which is unlikely to encourage renewable energy options or reduce greenhouse gas emissions.

A CO2 equivalent target is notionally simple but difficult and complex to translate into action at the agency level. CO2 reduction performance can be determined from the energy consumption data so that CO2 can be monitored and targeted as part of an energy consumption regime.

The Committee concedes that there is a case to be made for the development of agency specific targets. However, it is swayed by the point made by EnergyAustralia that this would be a major task, intense and time-consuming. In addition it is likely that such a process would simply open the way for special pleading by a large number of agencies for exemptions. All the negotiations for individual targets would

[95] Transcripts of Evidence 16 Nov pp5/6
[96] ibid pp17,18
[97] ibid p6

be to reduce the current targets. The Committee cannot see too many agencies seeking higher targets.

The Government wants to reduce greenhouse gas emissions in absolute terms. All agencies have a responsibility in this policy and to water down the Government's commitment to the policy by negotiating individual agency targets would dilute the outcomes. It is better, therefore, to avoid a major change in this area and to fine tune the current system. For agencies with genuine, specific circumstances, the Committee feels that special assistance from the lead agencies and industry experts as well as development of more innovative approaches to energy management are called for.

This is not time to make a significant change to the targets. Rather it is time to seriously work at reaching them. The Committee recommends then that absolute targets be retained to ensure a clear focus on the Government's objectives.

However, Energy Intensity Targets also have merit. On their own they do not address primary goals of the policy - the absolute reduction of greenhouse gas emissions, the absolute reduction in costs and encouragement of the sustainable energy industry. The Committee agrees that they do provide a very useful tool to augment the work of the other targets by providing a tool to monitor efficiency and waste in energy use in agency operations and a means of comparing performance.

The Committee supports the current approach of the Government of combining absolute targets with energy intensity targets.

However, these energy intensity targets could themselves be augmented by the development of Building Greenhouse Ratings (see section 2.4.1) for the various building types.

Some fine-tuning of the process is warranted in order to try and resolve the current contradictions in the policy objectives and the Committee endorses the development of EITs to supplement the absolute targets.

RECOMMENDATION ONE

THAT the "absolute" targets be retained.

RECOMMENDATION TWO

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

b) THAT energy intensity benchmarks (similar to BGRS) for major building types be developed urgently to allow comparison of the performance of facilities (eg schools, hospitals etc) and to provide targets for new building designs.

The Committee has come to the view that the major problem with achieving the target is not so much due to the nature of the targets themselves but with other factors.

In the following sections, the Committee discusses these factors and makes recommendations to address the problems and improve the effectiveness of the targets.

2.3 HOW TO IMPROVE COMPLIANCE OF AGENCIES

The factors fall into two broad categories:

- The need for a strategic approach by agencies to implementing the policy
- Accountability and Compliance Issues

2.3.1 Strategic Approach To Policy Implementation

It seems to the Committee that a major factor contributing to the failure to achieve the targets has been the patchy and haphazard approach adopted by a number of agencies. It is clear from analysing the success stories and evidence from experts in the field that achieving all the policy objectives through the absolute reduction targets requires a comprehensive and strategic approach.

From the material gathered it has been possible to distil some general principles or strategies that should direct agencies' approaches to the targets.

A large number of witnesses stressed the importance of gathering useful data at the outset. For example, the Australian Municipal Energy Innovation Forum identified the need to know where the energy expenditure is going:

> **Mr SQUIRES**: …. If we are running businesses where we do not know how much we are spending on certain things and we go to our accountants and say, "How much are we spending", and they say, "I don't know", that rings alarm bells to me. ….. We find it is quite simple: If you can measure your emissions and your energy consumption, then you can manage it….. if they know where they are spending their money, they can then look at how they can address it. [98]

A point stressed by the EPA,

> **Mr RAMSEY**: ….I think probably the major thing impacting the movements in that direction have been a need to get a handle, a good understanding, of where energy was being used and where you should focus your attention, what the priorities were in energy usage. [99]

and supported by Dr Watt from the UNSW:

> **Dr WATT:** Underlying that you need to structure some support to allow the energy managers to know what they can do to reduce energy. They need to know where energy is being used, for instance, in their building. There is no point in saying you have a six percent target if they do not have any idea what energy use in their agency is or where it is, therefore where the priority is.[100]

[98] ibid pp46,52
[99] Transcripts of Evidence 30 Nov pp7,8
[100] Transcripts of Evidence 18 Oct p36

A considerable amount of this essential information will be obtained through energy audits. The energy audit "will then give you a breakdown of where the energy is going, how different parts are performing, and then you will know whether you can use item X from SEDA's program or item Y and so on, and you will know what to expect to achieve from it and what other things, which are not covered, need to be done basically through a specific process" [101]

This is relatively inexpensive exercise and thus makes good financial sense:

> **Mr WHEELER:** ….. Whereas for bigger buildings, an audit of the kind you are talking about is not difficult to achieve. An audit on a small building might be $2,500 to 3,000 worth or consultancy work and on a larger building $10,000 worth of work, to show where the energy is going and where the potential savings are. [102]

This could also mean monitoring beyond what the energy retailer provides.

> **Mr SQUIRES:** …..For example, in our administration centre we get a monthly report that breaks down to the day the amount of energy we are using in kilowatt hours for lighting, power and air conditioning…Separately, on a spreadsheet that tells us every single day of the week what the kilowatt hour, for example, is for lighting and power and air conditioning. It is on a simple bar graph. …That sort of data you do not get on your electricity bills.… so we then know how to address it..[103]

An approach endorsed by the Attorney–General's Department:

> **Mr W. M. BROWN**: Yes. We again saw that the capture of data here was fundamental to the system and we asked the industry to tell us what was the best software that might be available to capture it. [104]

Having this information on hand allows an agency to identify problem areas, as the representatives from Newcastle City Council explained:

> **Ms O'LEARY**: The amazing thing about monitoring heating and cooling and lighting separately, recently we felt we had been doing really well with our energy reductions and then we found that on weekends our city administration building was still consuming the equivalent of 40 homes domestic kilowatts power and nobody was in the building. That was another alarm bell that triggered a response, which was greater efficiency. I think there were some motors down in the carpark that were continually putting air into the carpark to get rid of the carbon monoxide but there was no-one driving in.
>
> …. I think that is your point about getting the retailers to give you a more detailed breakdown. It is expensive to do that at a household level at the moment, but for a building, when your savings could be enormous, it might be something you could work into contracts with the retailers and I think they would be interested because they recognise from a management perspective it is really important, especially in the city of Sydney. [105]

[101] Transcripts of Evidence 25 Oct p2
[102] ibid p35
[103] Transcripts of Evidence 18 Oct pp46,47
[104] Transcripts of Evidence 25 Oct p16
[105] Transcripts of Evidence18 Oct pp 47/8

Having meaningful data provides the basis for identifying the best solution for energy consumption in the building, as Mr Pupilli explained:

> **Mr PUPILLI:** Yes, the process is not difficult. ….We need to get some better performance measures in place so we can look at buildings and look at the components, see how the overall building is performing, whether the lighting is a problem, whether the air-conditioning is a problem, et cetera, the different components, and coming up with solutions for each one and then implementing those. Some of those implementations will use better light fittings from the SEDA program or maybe some solar hot water systems and so on, but, for example, in a commercial building, hot water is something like less than five percent of the total energy use, so you could go and put solar water heaters everywhere and you could only achieve a maximum of five percent. That would be part of a program perhaps, but typically air-conditioning, by better looking at the management of that and making some minor changes, we have achieved up to 70 percent improvement, but on average 20 to 25 percent is more typical. You need to look at what the specific problems are with that type of system and address it in the right way. [106]

These solutions might be management/operational or technical, according to the Royal Australian Institute of Architects:

> **Mr Wheeler:**….When my consultancy, which is using those models, goes in to look at large scale buildings, we are able to point to anywhere between 25 and 50 percent savings through a lot of means that are not necessarily scientific. They are to do with things like operation times. [107]

And the solutions need to be tailored to the individual circumstance:

> **Mr PUPILLI:** Going through individual points, the only programs that we have found successful in the past have relied on a proper initial analysis of each situation and effectively developing a program and approach specific to individual cases, and along with that would be a suitable performance measurement and an overall evaluation process….. [108]

Such an approach was supported by Mr Stanton from Hunter Area Health Service, who also identified the need to utilise suitable expertise, for the solutions to problems and options for action for agencies will most likely to be developed by experts:

> **Mr Stanton:** Once you have done your energy audits you have to select your targets, you have to get your management on-side and you have to get your staff working with you, and you need expert designers. [109]

Professor Outhred also stressed this point:

> **Professor OUTHRED:**… In other words, the line managers have to have some real options that they can take to control and achieve those objectives, and maybe that is through their own internal skills or maybe it is in association with organisations

[106] Transcripts of Evidence 25 Oct pp2,3
[107] ibid p28
[108] ibid p1
[109] Transcripts of Evidence 19 Oct p5

> such as SEDA, which seems to us I think to be doing a very excellent job of developing those kinds of skills.[110]

as did representatives from EnergyAustralia,

> **Mr Lillis:**…I guess the other shortfall is the ability of the industry to provide the sorts of skilled professionals we need to get some of these projects up and we have spent probably the last 12 months making sure that in-house we have the right skills and we can actually deliver what we say is possible in these projects, and that is a very important aspect.

> **Mr GORDON:** … we see the first task may be to look at some broad benchmarks to provide some targeting, but then the important thing is to actually go and visit and have someone who understands energy and understands the issues look at the site and make that translation: Oh, I see what the problem is, you've got this huge computer facility sitting in the middle of what we thought was otherwise just a simple office space and that means that, once we take that piece out, the rest of it is actually quite good. Or, no, what we have found is that your lights are from the 1930s and you really should think about updating them. [111]

Mr Squires also stressed the need for expert help to identify the best technical solution because "[a]ll this stuff is available on the shelf in the standard electrical supply stores. Contractors out there realise that this stuff is readily available; it is just about applying it in the right spot".[112]

Mr Wheeler, a practicing architect, agreed that in commercial buildings a two-tiered approach that addressed "not only a technical fix, which we talk about in housing, but also an operational fix" was necessary:

> **Mr WHEELER:** In larger scale buildings the lighting is a much more important issue than it is in housing. The lights consume more energy. They can be up to 50 per cent of the energy load in the building and they contribute to the heat load, so they are doubly damning.
>
> Unlike the housing, where we are talking about a technical solution, because you are not trying to change people's behaviour in houses necessarily, in commercial buildings there are ways of changing behaviour subtly as well as the technical fix. [113]

Some of the technical solutions can be very straight forward as Mr Wheeler explained:

> **Mr WHEELER:** At the very most. In many cases it is taking existing light fittings, not even changing them, taking out two globes and putting one with a better diffuser back in, so the actual physical work you have to do is fairly low. Changing the air-conditioning system to operate more effectively is a far more expensive thing to do, so lighting is a low hanging fruit in that case. In housing it is the solar water heating. In commercial buildings it is the lighting. [114]

[110] Transcripts of Evidence 18 Oct p29
[111] Transcripts of Evidence 16 Nov pp 5,6
[112] Transcripts of Evidence18 Oct p49
[113] Transcripts of Evidence 25 Oct 28
[114] ibid p34

Mr Pupilli again stressed the need for a comprehensive approach which did not just rely on energy efficient equipment but developed a focused plan based on the particular circumstances of the agency or the operation:

> **Mr PUPILLI:** The most effective programs look at management of the energy using services as the first item; the second item would be to improve the control of those and, lastly, to improve the efficiency by replacing equipment and so on. The current program effectively tries to encourage contractors to sell goods and wares - a lot of those are energy management goods and wares, we use them all the time - but it only looks at a very narrow focus of what the overall potential is and thus misses out on the overall initiative. In many cases items can be implemented without any real idea of whether they will achieve 100 percent of their potential, whether they will achieve 10 percent of their potential, whether they will achieve anything at all, because there is no overall review of each activity, so I guess that is, in general terms, the main problem with the focus.[115]

As an example he described his experience with Lend Lease where savings in the order of 15 per cent were made "with no expenditure at all. It was all done in focussing the problems they had. With the problems they had there, we reviewed every site, focused on the problems, briefed the service providers to improve those activities. Only after these steps have been taken the next steps occur where "they started to spend some money physically on initiatives". [116]

Incorporating the energy management into the capital works planning cycle was also important, according to the Hunter Area Health Service:

> **Mr Stanton:** …the other thing that is very important I felt is most of our energy projects have been considered as a capital works project. So they go through a capital works process and then it is developed into this structure. [117]

The Attorney-General's Department, an agency well on the way to achieving its 15 per cent target, provided the Committee with a detailed overview of the strategic approach it had adopted in its energy management, in order to achieve the policy objectives.

> **Mr Brown:** …..We have developed an energy management strategy. It has been endorsed by the Director-General. It is reported monthly on performance. He has allocated a special budget in there….
>
> The key to the whole approach has been the adoption of a diagnostic tool and in that instance we have adopted a one to five diagnostic tool and recognise that we have a progression that we want to go through…[I]t is a stepped approach.[118]

While acknowledging that it has some way to go, the department is starting to move up the ladder.

[115] ibid p1
[116] ibid p5
[117] Transcripts of Evidence 19 Oct p6
[118] Transcripts of Evidence 25 Oct p13

> **Mr W. M. BROWN:** ….We were at one star just six months ago. We believe we have really only just traveled to two stars and we have not really engaged the cultural aspect of AGs fully, I believe, so we think implementing some process that moves us towards best practice will take us a lot further than perhaps that 25 percent, whether it is achievable or not. We think it is process, it is practice, it is trying to convince people that it is best practice and responsibility that we ought to head for. [119]

The final step in this staged approach is to implement renewable energy measures which at this stage become the most cost effective in means of reducing energy costs.

> **Mr PUPILLI:** …. As you try to stretch your overall target you are getting more and more towards the horizontal and that is where it is time to start kicking in the renewable type processes and the green energy, where they become more cost effective in an overall sense once you reach that point. [120]

A similar approach adopted by Newcastle City Council:

> **Mr Squires:** … We find that in local government we are starting… [to save] a lot of money for ratepayers and reducing our impact on global warming, and then with those savings we can buy Green Power so that we are effectively reducing our consumption to zero, and it is at the same time increasing the number of jobs and getting a lot of extra benefits. Those types of lessons are easily replicated not only at State Government level but in businesses and households.[121]

EnergyAustralia purchases 100 per Green Power, not just for its corporate image, but because the purchase of renewables forms part of a strategic plan which includes the capital works program and asset management, as its representatives explained to the Committee:

> **Mr LILLISS**: We think EnergyAustralia has an important demonstration role in not only demonstrating to other agencies but to our customers in a broader sense the value of not only renewable energy usage but building energy efficiency. That assists us in being able to target our capital program more specifically, achieve greater capital utilisation of our assets and provide other even more profit earning products to our customers. So overall we think it makes good commercial sense to purchase renewables, apart from just the demonstration value of it in the Government and commercial sectors.
>
> **Mr GORDON**: It is important that we have reduced our energy consumption at the same time quite substantially and also costs for energy have come down, some of the basic costs have come down. So if you compare to the costs we were paying, the absolute cost of energy to our business prior to the change, back in the mid 90s I guess, our overall cost of energy has reduced, despite the fact that we are buying 100 percent Green Power. [122]

[119] ibid p17
[120] ibid p5
[121] Transcripts of Evidence 18 Oct p53
[122] Transcripts of Evidence 16 Nov pp 9,10

EnergyAustralia stressed that focusing on energy efficiency had financed the move to renewable energy:

> **Mr Gordon**: …87 percent of our building energy does come from renewable resources, so Greenhouse emissions are the lowest in the country. The way we have achieved this is, as I said, our continuing focus on energy efficiency.[123]

Finally, the Committee has reproduced in detail the views of Dr Watt and Professor Outhred on how agencies should be adopting a strategic approach to energy management:

> **Dr WATT:** ….I guess the reason why a lot of the energy management programs have failed in the past in terms of delivery is probably the emphasis not being on the whole organisational ethos and therefore not looking for the big opportunities for total change in the way you do things rather than just changing a light bulb. There is only so far you can go by changing light bulbs and once you have done that you are stuck, so you need to have people who can look more broadly at how the whole thing operates and be able to come up with more innovative solutions when you are ready to spend money on refurbishing. Often energy auditors come in and they give you an audit, but you are not in a phase of your operations to have got a capital allocation for refurbishment or something and you cannot go ahead with bits and pieces, but you need to have that sort of information build-up over time so that when the opportunity arises you can have a whole change of the way things are done….
>
> **Professor OUTHRED:** That is right, so an example would be this: Suppose we were able to define an energy efficiency instrument, perhaps a certificate. What we could then do is each organisation could essentially have, in their forward planning - they would have their work programs, the outcomes that they were trying to deliver over a five year period - either a government adviser like SEDA or an independent consultant look at their energy implications and translate that for them into a need for certificates: This is how many certificates you need to acquire over that period and, moreover, here is a set of strategies whereby, year by year, you would have opportunities to acquire certificates.
>
> Now one of the key points that Muriel was making is that many of the opportunities for energy efficiency come at the time of either initial investment or major refurbishment, so they need to be forward-planned so that with a plan, say, to refurbish this building in three years' time, if at the same time the organisation knew that it had to achieve X certificates in that time, part of the instructions to the architect should be to come back with a plan that refurbishes the building and delivers so many certificates and then that could be taken to the specialists and they would translate it and worry about all the nuts and bolts, but the line manager would be dealing with something that was understandable and worked in their language and you could then quarantine all the arcane stuff to the world of the technical consultants.
>
> **Dr WATT:** What we find often is that the people who make the decisions on capital expenditure and therefore major refurbishment are not the people who are operating things, operating and occupying, paying the energy bills. There is a total disconnect there, so that when you are setting a target, who are you setting the target for? Is the person operating the thing the one who has to meet the target and

[123] ibid p1

> the person who bought the equipment, you know, is not involved, or is it the person here who needs to know that this target has to be met? [124]

COMMENT

The evidence assembled here (and other sources) suggests to the Committee a strategic path for energy management. It comprises the following elements:

1. Obtain detailed information on the energy use within their operations.
2. Utilise relevant expertise to identify the range of options to reduce energy consumption, starting from the easiest and the cheapest – the "low hanging fruit"
   - Identify and introduce operational and behavioural changes within the organisation;
   - Introduce off-the-shelf cost-effective energy efficiencies,
3. Incorporate improvements as part of the ongoing capital works program
4. Consider renewable energy sources, particular financed from the energy efficiencies

This structured approach should see significant reduction in energy consumption and costs. As pointed out above, reductions in the order of 10 to 50 per cent are achievable with return on investment in the order of 10 to 40 per cent.

The path provides a strategy which, once data has been collected, rationally picks off the "lowest hanging fruit" until renewable energy becomes a viable option.

SEDA has pointed out that its purchase of 100 per cent Green Power increases its operating costs by 1 per cent. Clearly as the significant cost savings accrue and efficiency savings become harder to find, agencies can earmark some of these savings into renewable energy. And as EnergyAustralia and the Hunter Area Health Service has shown (see Section 3.5.1) renewable energy sources can be utilised as part of a strategic approach to cost-effective energy and greenhouse gas reduction.

There is an inevitability about this move to renewables. In its 1999 submission to the Inquiry, Macquarie Generation advised that "a transition to renewable energy forms must inevitably happen". It went on to stress that the transition "needs to be managed carefully to ensure that least cost solutions are encouraged".[125] The strategic approach identified here should assist this in the broader context of the GEMP.

This strategic pathway also provides a means to monitor the approach and progress of agencies on their energy management policy performance through the GEMP reporting process.

Some agencies will be further along this strategic path than others. This provides another form of benchmarking and means to compare agencies.

Further seeking appropriate expertise is not only good business sense but it is also driving one of the policy objectives, to stimulate the sustainable energy industry.

[124] Transcripts of Evidence 18 Oct pp36,37
[125] Submission Number 16 p1

RECOMMENDATION THREE

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.

2.3.2 Accountability And Compliance

In this section the Committee discusses a number of factors which generally relate to the agency compliance with the targets and the accountability processes to ensure compliance.

A particular area of concern to the Committee regarding compliance has been the cost-effectiveness of energy efficiency measures.

2.3.2.1 COST-EFFECTIVENESS(PAY BACK)

The Government signaled in its 1995 pre-election energy policy document that energy conservation measures were to be financially sound. The policy stated that the plans aimed at reducing CO2 emissions and reducing energy bills were to be "based on cost-effective principles, so that money savings to consumers … will outweigh the costs of implementing conservation measures".[126]

GEMP in 1998 confirmed that the targets were to be achieved "where cost-effectively feasible".[127] The term cost-effective was, however, not defined in the document.

In March 1999, the Treasurer and the Minister for Energy released a joint Memorandum to Department Heads titled *Investing in Energy Efficiency – Guidelines*. The memorandum noted that investment decisions in energy efficiency through the Energy Smart Government program had "returned savings of over $2 million per annum" to agencies taking part with the projects averaging an internal rate of return of 35 per cent. However, it noted with concern that "it appears that many identified projects are not being seized by the individual departments". The memorandum then detailed the criteria for assessing the cost effectiveness energy efficiency projects (specifically Energy Performance Contracts), as follows:

- *immediate investigation of projects that have a rate of return in excess of 20%. Where capital is a constraint, Energy Performance Contracts and the fund provided by Treasury may be used.*
- *Projects that have rates of return of >12% should also be investigated immediately where the savings are guaranteed (as in Energy Performance Contracts).*
- *Projects that have a rate of return of > 7% (T Corp + 2%) should also be seriously considered where the savings are guaranteed by an Energy Performance Contract.*

The memorandum expressed the Government's strong expectation that a far broader range of projects would be taken up. And, as a sign that savings to the public purse and the environment were the dual priorities of the policy, it was pointed

[126] ALP NSW Branch, Labor's Energy Policy, *Cleaner and Cheaper Energy,* March 1995, p5
[127] GEMP, op cit p1

out that one agency had doubled its emission reductions while still saving money by "accepting a hurdle rate of 17% rather than 22%".[128]

The recently announced Government Energy Efficiency Investment Program (GEEIP) has adopted a 12% internal rate of return as its measure of cost-effectiveness.

However, these cost-effective standards must be seen as discretionary as the MEU advised the Committee that under GEMP "ultimately it is the responsibility of the agency to decide on the cost-effectiveness of any energy efficiency project or energy management plan".[129]

A number of witnesses confirmed for the Committee that energy efficiency investment measures were very likely to be cost-effective. Indeed a number were able to cite impressive results.

Mr Wheeler from the Institute of Architects stated that

> **Mr WHEELER:** In all of the audits I have been involved in we have shown payback periods between less than a year for big lighting changes out to about 12 years. Beyond that it is not economically viable for any commercial operator. Mostly they are centred on the three to five year period, therefore the capital outlay for changes to the lighting, to the air conditioning system, to the monitoring system, security system, and so on have a payback that lies within a commercial leasehold period and therefore our clients want to do that. [130]

DPWS advised that it had invested $128,000 in energy efficiency, saving $106,000 per annum, a payback period of 15 months. In contrast to the view of Mr Wheeler, the representatives from DPWS were of the opinion that lighting upgrades had longer pay-periods, in the order of "five to six years before you will cover your cost". Even so, this represents internal rate of return of between 16 and 20 per cent.[131]

The Police Service recounted how, in the Avery Building alone, it was able to save "numbers in the order of $110,000 per annum, it had an internal rate of return of 68 per cent and the payback period was 2.4 years". These investments gave a double benefit in that the lighting upgrades, which "saved 42 per cent of our lighting energy", also reduced heat inside the building thus reducing air-conditioning energy demand.[132] These investments would explain the success of the Police Service in achieving their targets.

The private sector would certainly operate on shorter pay-back periods in the order, say, of two years beyond which "they tend to get a bit nervous…". [133]

A point confirmed by Mr Pupilli:

[128] Memorandum to Department Heads, Investing n Energy Efficiency – Guidelines, Treasurer and Minister for Energy, March 1999
[129] Correspondence, Acting Director-General, Department of Energy, 18 December 2001
[130] Transcripts of Evidence 25 Oct p35
[131] Transcripts of Evidence 18 Oct pp 5,9
[132] Transcripts of Evidence 19 Oct pp15/6
[133] Transcripts of Evidence 18 Oct p11

> **Mr PUPILLI:** Although their [Westpac's] criteria was effectively to have a one year payback. If the program did not pay for itself by the end of the first year they would have canned the whole activity. They were pretty ruthless in that respect. Four and five year paybacks, yes, are pretty unheard of the industry, unless you are talking about some very major investments such as putting in a whole new plant where you wear the amortisation period if it gets into the 20-25 years, and there is a lot of expenditure.

But even these hard-nosed approaches do not preclude successful investment in energy efficiency, as the Committee learnt:

> **Mr PUPILLI:** ……With a company like Westpac, basically at the time they were spending $25 million roughly on energy.... They said to just go ahead and do it and we made the thing pay for itself within four months….We saved $10.5 million in two years, so about $5 million a year, so about 20 per cent. [134]

However, a number of agencies were disinclined to embrace the policy. The Department of Juvenile Justice felt that a pay back of five or six years was not enough of an incentive:

> **Mr HERMANN:**….. "Well, if you spend about another 20 or 30 thousand dollars you might save $5000 a year. The payback is about 5 or 6 years. I do not know why we would spend that amount of money when we can just simply spend more time focusing on the car usage and reduce those and save significantly more with really minimal input at all. So that is where we have been concentrating. [At another facility] the energy audit suggested that we could save about 15 per cent by spending about 20 to 30 thousand dollars and again the payback is 5 plus years. The internal rate of return on both those projects is only 15 per cent…. [135]

Similarly the Department of Corrective Services advised the Committee that, in assessing its energy efficiency investments, it applied a tighter standard than suggested by the Government:

> **Mr DESBOROUGH:** Anything up to three years. Above that they start to question whether it is really necessary to go ahead. The GEMP guidelines actually state that a project has to be cost effective in order for it to go ahead. The GEMP does not require us or expect us to just go ahead and blindly put in energy efficiencies across the department if it is not going to give us a reasonable pay-back or be cost effective.[136]

With respect to cost-effectiveness, the former Executive Officer of SEDA, Ms Cathy Zoi, made a particularly salient point at the National Conference of Public Works Committees in Canberra last year when she said that the money spent on energy in government buildings in New South Wales is in the order of $150 million per annum and that this figure "could be cut somewhere between 25 and 50 per cent with existing technology, with a return on investment in excess of 30 per cent." She went on:

[134] Transcripts of Evidence 25 Oct pp 4-6
[135] Transcripts of Evidence 19 Oct p23
[136] Transcripts of Evidence 16 November p39

> *I don't know where you are putting your money these days but my guess is that you are not getting 30 per cent on your money. So we are saying through investment in energy efficiency you can get venture capital style returns at no risk, yet we do not do it.* [137]

COMMENT

The Committee is concerned that agencies are ignoring this cost-effectiveness criterion or using it as an excuse for not taking action rather than as an incentive to invest in energy efficiency measures.

Some agencies suggested that three and four year paybacks were not attractive rates of return and that they could get a better rate of return elsewhere. The Committee does not regard the primary role of agencies as simply gaining the best return on its investment. Agencies do have broader social commitments. This is not an argument for fiscal irresponsibility but a rate of return of 20 and even 15 per cent is not, in the Committee's view, unreasonable and is in line with criteria established by the Government.

Agencies should look very closely at their performance in this area.

Significant improvement in energy efficiency through sound financial investment is one of the keys to this policy. Yet the assessment of financial benefit and the decision to invest in energy efficiency measures, a crucial tool in the policy, is effectively optional, On the other hand, the building targets themselves are mandatory. This does appear to be an inconsistency in the policy.

Accordingly, it makes sense to address this inconsistency by prescribing the cost-effectiveness threshold for energy efficiency investment in GEMP.

RECOMMENDATION FOUR

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

The Committee has recommended one variation to this cost-effective criterion, in the area of renewable energy. Renewable energy is currently not cost competitive with coal-fired electricity. In order to encourage and support the sustainable energy industry, the Committee recommends that the payback period for renewable energy products should be equal to the warranty period of the product. The reason for this is that any problems with the equipment will be the problem of the supplier. At the end of the warranty/pay back period, the agency will gain the benefit of significantly reduce energy costs, indeed free energy, and the community will gain the benefit of the reduction in greenhouse gas emissions.

RECOMMENDATION FIVE

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

[137] Transcript of Proceedings op cit p14

2.3.2.2 REPORTING ISSUES

Representatives from EnergyAustralia were critical of the current GEMP reporting regime:

> **Mr Gordon**: …I guess one of the problems with the Government Energy Management Policy reports, they are enormous on statistics, but there is very little that you can actually pull out of that and activate. You need to drill through the next layer down on an agency by agency level to actually derive useful statistics that give you some targeting and then you need to go to the next stage which involves some expertise. [138]

The Committee is inclined to agree with this criticism. It has identified some GEMP reporting problems relating both to data collation and the presentation of information.

With regard to the information provided in the reports, the Committee has observed that both the 1998/99 and 1999/00 editions of the Energy Use in NSW Government Operations Reports contain a considerable range of data and information, particularly in the appendices.

However, neither report contains a complete list of the building energy consumption for **all** the reporting agencies. The Committee acknowledges that the report does contain details the of performance of the twenty largest energy users in public sector buildings. This is understandable as the twenty largest building energy users consume over 90 per cent of the building energy use in the public sector.

However, the performance of agencies with regard to their policy obligations and those that participate voluntarily should be reported. This would seem to be the most basic of accountability mechanisms.

RECOMMENDATION SIX

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

While only general government sector agencies are obliged by the policy to report under GEMP, all other agencies are encouraged to do so. The Committee understand that most, but not all, do. As an accountability mechanism, the Committee believes that all agencies that have chosen not to report should be identified.

RECOMMENDATION SEVEN

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 which the policy is not mandatory.

Under current arrangements agencies report on energy consumption to the Ministry of Energy and Utilities by 31 August (although a significant extension to this date was granted in the first year of reporting). The consolidated GEMP Report is

[138] Transcripts of Evidence 16 Nov p7

available the following August. There is effectively a year's delay in producing the report.

The Department of Health noted in evidence that "there is equally a fairly significant time lag between when they [the data] are supplied and when the feedback occurs".[139]

The Committee agrees and is concerned that a delay of this kind can undermine the effectiveness of the report.

RECOMMENDATION EIGHT

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).

The Department of Agriculture detailed a problem it had regarding data reporting:

> **Mr WEALE:** We have actually written to the Ministry of Energy about that, and we can give you a copy of the letter, but what we seem to think has happened is that it has compared our total energy usage in 1998-99 to the electricity usage in 1995-96 to get that figure. If you look at our electricity usage in 1995-96 against 1998-99 we have actually gone down by 8 percent in electricity consumption, but they have compared the total energy consumption of 1998-99.
>
> **The COMMITTEE:** So they have misinterpreted the data you have given them?
>
> **Mr WEALE:** Yes, they have misinterpreted the data completely, and I can give you a graph on that.[140]

These types of problems with data reporting were not uncommon. However, the Committee is not of the view that these reporting problems are signs of systemic problems within MEU. It has more to do with resources available to do the job required by the Government.

The Action Plan currently being developed by the Government includes increased accountability measures for agencies through improved reporting, such as reporting against benchmarks and on their energy management plans.[141] The Director-General of the Ministry of Energy and Utilities expanded on this at hearings:

> **Ms McALOON:**….. That is where we think the gains are to be made. We will work with the agencies and organisations, along with DPWS and SEDA, to establish a benchmark and an accountability through the CEOs for strategies that aim to make that benchmark.
>
> We would propose — and I think this is one of the questions you have asked — that that be part of the government energy management policy annual reporting process. There is an accountability through that process of talking about the strategies that people have put in place: Do they have benchmarks that are

[139] Transcripts of Evidence 30Nov p12
[140] Transcripts of Evidence 16 Nov p46
[141] Joint Submission op cit p 7

> achievable? We think that it should be considered at a whole-of-government level, probably with the Premier's Cabinet Office, Public Works and ourselves. You will be familiar with the accommodation policy which goes through the Government Asset Management Committee. I should say that there has not been an agreement by government that that is the appropriate forum, but we think that increasingly the reduction of greenhouse gas emissions is a high priority of the government in a number of areas. It is important that we ensure the framework that supports the policies are rigorous enough to achieve those targets. [142]

There is clearly an intention to increase accountability procedures and MEU will be expected to perform these extra functions.

At public hearings the Committee sought information on the resources available to the Ministry to carry out its current functions under GEMP. The Director-General advised that it had "… the equivalent of two EFTs—two equivalent full time staff. Dr Prasad works on that and there are other officers who work on it and it is the equivalent of two full-time staff. [143]

The Committee was surprised to learn that what appears to be a significant amount of work is carried out with such limited resources.

The Committee certainly agrees that there needs to be greater accountability mechanisms established to ensure compliance with what the Government regards as a "high priority" policy and that the framework supporting the policy must be "rigorous enough to achieve those targets". However, it is concerned that the Ministry is experiencing difficulties in carrying out its existing functions with its available resources and does not think the expanded role proposed under the Action Plan can be achieved without an increase in resources for the MEU.

RECOMMENDATION NINE

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

The Committee needs to report on one other matter relating to reporting and the quality of information.

A considerable number of agencies reported to the Committee on the problems they encountered in establishing concrete baseline data. The EPA summed up the problem neatly, explaining that "we are now in a position, I think, to have accurate base line data. We will never have accurate base line data for 95/96; that is beyond us. We have accurate data from last year and going forward…" [144]

An inspection of the data (see Appendix 4) shows extensive estimation of the 1995/96 baseline data.

[142] Transcripts of Evidence August 22 p7
[143] ibid p14
[144] Transcripts of Evidence 30 Nov p4

The Ministry of Energy and Utilities commented on the difficulties of collating the baseline information in its first Energy Use in Government Operations Report. In that report the Ministry observed that

> *A major task facing the Ministry in this inaugural reporting year under the Policy was the establishment of the 1995/96 baseline….Agencies were therefore requested to submit their 1995/96 building energy consumption along with their 1998/99 reports. However….. significant gaps remained in the 1995/96 data. In a number of cases, data gaps were beyond individual agencies' control…. The result was a baseline that had a number of actual data gaps in it, in addition to a large amount of estimated data.*[145]

The Ministry again commented on the problem in the next report (1999/00) stating that "this year's baseline data is not comparable to that reported last year", because some categories had been removed from the baseline due to the fact that a large proportion of the energy consumed was non-building related and because "some agencies have discovered errors in their original 1995/96 data or obtained new data that was previously unavailable".[146]

The Director-General of MEU summarised these problems at hearings:

> **Ms McALOON:** … When we went to the 1995-96 baseline to pull all that together we found that a lot of estimation needed to be done because the data was not available. When it was updated in 1998-99 we realised that it was wrong so the benchmark needed to be changed. There is this constant growth in knowledge about the amount of quality of data that is required for the results to be meaningful.[147]

This of course raises the question of why these problems occurred if the baseline information was collated, according to Minister Egan, by the Department of Public Works and Services in 1996.

As the Minister for Energy, he had written to all agencies advising them of the Energy Smart Buildings Program and its energy reduction targets and advising that the "DPWS is currently compiling the necessary statistical database for 1995/96 energy consumption and will be contacting agencies soon to seek their assistance in obtaining this information".[148]

The Committee raised the Minister's letter regarding the baseline with DPWS in correspondence. The Department simply advised that "DPWS provided its own data to the Department of Energy but was not involved in the compilation of the whole of government database". [149]

COMMENT

The Committee has not pursued this issue any further. However, it wishes to stress strongly its view that the accurate establishment of baseline information was a vital

[145] Energy Use in Government Operations Report 1998/99 p33
[146] Energy Use in Government Operations Report 1999/00 p26
[147] Transcripts of Evidence August 22 p10
[148] Correspondence from Minister Egan, 5 August 1996
[149] Correspondence from Minister for Public Works to Committee, 14 December 2001

component of the absolute energy reduction target policy. That agencies with a central role in the matter could not coordinate and ensure the capture of such basic information merits those agencies some censure. The Committee is not apportioning blame but criticising collectively the agencies involved.

2.3.2.3 CEO ACCOUNTABILITY

An area of particular concern to the Committee has been the apparent degree of commitment of the CEOs to the GEMP.

Under the policy, Chief Executive Officers are ultimately accountable through their performance contracts for the implementation of the policy. The Committee saw little to suggest that this accountability mechanism was working adequately, an issue the Committee pursued at public hearings:

> **Mr BROWN:** ….I was under the impression that many chief executives or director-generals have built into their agreements that they are to achieve these reductions……. How do you administer that with them? Do you have regular meetings with executive officers and other director-generals? To whom do you report when those executive officers do not meet their targets? What sanctions are being brought against those executive officers for lack of achieving those result?
>
> **Ms McALOON:** Yes, it is true that they are among the number of standard provisions that go into chief executive officer performance contracts. There are number of other requirements that go into performance agreements as well. What you have raised is a very important issue. It is probably not an issue of chasing up the chief executive officer and saying, "Have you performed or not?" But instead putting in place, which is what we intend to do, stronger accountability on the agencies.[150]

It is interesting to note that of the 15 agencies that appeared in hearings before the Committee, only two were represented by the CEO. These were from two of the lead agencies, the Ministry of Energy and Utilities and the Sustainable Energy Development Authority.

The Committee put the question directly to the EPA

> **Mr BROWN**: I might just ask if it is taken so seriously why your Director General or Assistant Director General are not here today and why they have sent you?
>
> **Mr RAMSEY**: I think probably it was considered that I, Mr Meredith and Mr Barrett had more detailed knowledge of the matters that the Committee would want to enquire into, quite apart from the fact the Director General is interstate today. Certainly it was not intended to be a second division team. The people you have giving evidence are those who are directly responsible to the Director General for energy management in the Authority and it was probably felt that it was more appropriate and we would have a more detailed knowledge to assist the Committee.[151]

[150] Transcripts of Evidence August 22 p7
[151] Transcripts of Evidence 30 nov p3

Mr Pupilli from EMET consultancy pointed out to the Committee that it was vital for the whole organisation to be involved in energy management to be successful:

> **Mr PUPILLI:** It is definitely necessary to have an energy manager or coordinator in a department to drive the program, but they need to have, depending on the type of organisation, the support of people in the various types of activities, and obviously need senior management support to provide the cross-department control and authority of the program, because if it is left to a coordinator, to too low a level, they may be able to do something, they may be able to control some very specific things, but they would not be able to run programs across the whole organisation. There needs to be expertise or certainly knowledge of what the energy uses are and there also needs to be sufficient administrative clout to get sufficient support across the organisation.[152]

Implicit in view is that it needed to have support from the very top of the organisation.

Dr Watt simply observed when the issue of effectiveness of the CEO accountability was raised that "the evidence is in the numbers".[153]

COMMENT

The Committee has come to the view that a lack of commitment on the part of many agencies is hindering them from reaching the targets. CEOs have to take ultimate responsibility for this.

Certainly a number of agencies have been successful in reducing energy consumption, supported actively by their CEOs. However, the Committee is of the view, as Dr Watt pointed out, across the agencies generally, the CEOs have to be judged by the results.

The Committee sees an ongoing role for itself in this process. To assist the public accountability for this policy, the Committee will annually hold CEOs accountable by reviewing the annual Energy Use Report at a public hearing.

RECOMMENDATION TEN

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.

2.3.2.4 INCENTIVES

One way to deal with non-compliance is to "raise the pain". That is, the targets be enforced by penalties or sanctions. The other approach is to encourage compliance through incentives. The Committee has developed recommendations in both these areas below.

Compliance with policy requirements can be improved by suitable incentives.

[152] Transcripts of Evidence 25 Oct p9
[153] Transcripts of Evidence 18 Oct p37

Under the current structure of the targets, energy generated from renewable sources is included in the total energy of agencies. Thus renewable energy consumed, which is not contributing to greenhouse gas emissions, is included in the comparison with the baseline year. This effectively discriminates against agencies that have, often at cost, sourced their building energy from renewable resources. As the reduction of greenhouse gases is a primary long-term objective of the policy, it makes little sense to discourage agencies from adopting approaches that actually do reduce their production of greenhouse gases. For example, some agencies have installed on site renewable generation, a practice which deserves acknowledgement in the operation of the targets.

This reduction in the production of greenhouse gases needs to be recognised and rewarded. Crediting this renewable energy component against an agency's total energy account from the calculation of absolute building energy consumption is one way of recognising this. This would, however, only apply to renewable energy in excess of the 6 per cent mandatory Green Power component.

There are of course cost implications for agencies adopting this approach. However, there could be a number of reasons why agencies would do this. It might be paid for through energy savings already made. The agency might have a corporate commitment to renewable energy and fund it through savings elsewhere in the organisation. Agencies might look at investing in renewable technologies as part of a capital investment program with the long term pay off in reduced operating (ie energy) costs and the short term advantage of achieving their targets.

RECOMMENDATION ELEVEN

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.

Agencies, however, should not be profligate with their energy use, whether it be sourced from coal-fired electricity or renewable sources. The reduction of waste in energy use is another policy objective. Therefore, consumption from renewable sources should be included in energy intensity targets. This will allow monitoring of total energy use by agencies and allow assessment of the energy management practices to identify wasteful energy use and to encourage the reduction of energy costs.

RECOMMENDATION TWELVE

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.

The other side of the incentive coin is a sanction, which can also be useful in driving compliance with a policy.

2.3.2.5 SANCTIONS

The issue of penalising lack of compliance was raised with the Director-General of the Ministry of Energy and Utilities at public hearings:

> **Mr PICCOLI:** In the future can you envisage different departments being compelled to comply with targets? There is none at the moment. There is no penalty if you do not achieve whatever target. Can you see that occurring in the future? I have no idea what sort of penalty you could impose—turn the lights off or something.
>
> **Ms McALOON:** …It is very important that the government has placed a lot of emphasis on reducing greenhouse gas emissions, which is directly related to a reduction in energy consumption, particularly because the most significant fuel type that the government uses is electricity. The government has put a number of policies in place to address those kinds of issues in other areas, for example, electricity retailers. In terms of the contribution of government energy consumption in buildings to overall greenhouse gas emissions, it is important but it is not a determining factor. I guess there is a context within which government energy reduction needs to be seen, and in the end it will be a decision for government. [154]

The Sustainable Energy Industry Association argued before the Committee that, in addition to other approaches, there needed to be sanctions developed as a penalty for failing to comply.

Mr Precious outlined the Association's thinking on this at hearings:

> **Mr PRECIOUS**: …. those mandatory targets should be backed with some form of penalty. There is a range of discussion about how that penalty could be arrived at, but we believe that there needs to be that level of determination in the targets, that there is some penalty if the target is non-achieved.
>
> **CHAIR**: In terms of penalty you said there are some discussions. Is it things like saying, "If you do not reduce your payment for energy, then we will further reduce your budget", so that it makes it even more -
>
> **Mr PRECIOUS**: Raises the pain?
>
> **CHAIR**: Raises the pain.
>
> **Mr PRECIOUS**: That would be an extreme way of doing it but it could be couched in terms of, "If you are not going to make energy reductions, then you should increase the proportion of Green Power that you purchase." That is a penalty in itself. Green Power, unfortunately, does cost more than fossil fuel based electricity. So that could be a type of penalty.
>
> **CHAIR**: So that type of penalty?
>
> **Mr PRECIOUS**: Yes, could be applied. There are other options there in terms of if agency targets were set as absolute CO2 equivalent targets, there could be a trading regime set up amongst Government agencies, such that any agency that is able to make reductions over and above or beyond their target, could in fact sell

[154] Transcripts of Evidence 22 Aug pp10/11

> those reductions to other agencies that were finding it more difficult, and that again would impose a financial penalty.[155]

Given the poor level of compliance, the Committee has concluded that some form of sanction needs to be introduced to focus the attention of those agencies not meeting their targets.

The sanction proposed by SEIA has merit in view of the Committee because the penalty also creates a number of benefits. Agencies obliged to purchase the shortfall in Green Power equivalents under this arrangement will be paying a cost premium. That is the penalty. However, from this will accrue the reduction of greenhouse gas emissions, increased activity in the sustainable energy industry and possibly a reduction in the cost of renewable energy over time (through its greater take-up). This recommendation will, of course, depend on the availability of Green Power and will require some flexibility in the energy supply contract.

RECOMMENDATION THIRTEEN

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

2.4 ENERGY MANAGEMENT TOOLS

A number of tools or mechanisms can be utilised for improved energy management. These are discussed in this section.

2.4.1 OFFICE BUILDING RATING

Over $4 billion is spent annually across Australia on energy in commercial buildings, a sector which produces over 30 per cent of Australia's greenhouse gases.[156] Significantly the Committee was advised that in this sector greenhouse emissions were predicted to grow considerably over the next few years. According to the SEIA, "… the commercial property sector is one of the sectors forecast to have the highest growth in Greenhouse emissions over the next ten year period, potentially doubling in a ten year period was one of the reports from the Australian Greenhouse Office." [157]

In New South Wales the commercial sector uses over 5 per cent of the total state energy, with the major consumption in lighting (33 per cent), heating, cooling and ventilation (23.5 per cent) and office equipment (20.4 per cent).[158]

It is, therefore, an area that justifies attention.

In 1999/2000 the total Office Building category represented 16.2% of total building energy consumption (behind hospitals 46.2% and education 21.6 %) in the NSW public sector. The total office building category was 5.1% of the total government energy consumption.

[155] Transcripts of Evidence 18 Oct p20
[156] Transcripts of Proceedings op cit
[157] Transcripts of Evidence 18 Oct p21
[158] Energy Use in NSW Commercial Sector, Dept Energy, 1996

Of the ten end use categories of public sector buildings reported by the Ministry of Energy and Utilities three relate to office buildings. These are:

Office Buildings – Tenant Services
Office Buildings – Central Services
Office Buildings – Combined Services

The Ministry of Energy and Utilities is developing intensity targets for two of these categories, Tenant Services and Combined Services. Energy consumption in these categories is as follows:

Table 3

CATEGORY	GJ 95/96	GJ 98/99	% CHANGE	GJ 99/00	% CHANGE (BASELINE)
Tenant Services	489,827	399,475	-18.4	377,811	-22.9
Central Services	85,117	68,658	-19.3	88,717	4.2
Combined Services	735,229	694,268	-5.6	752,695	2.4

Source: Energy Use in Government Operations, 1998/99 and 1999/00

The government office accommodation portfolio comprises 35 per cent government owned and 65 per cent leased premises. The nature of the tenure is an important issue in the current discussion.

The size of the Government's office accommodation portfolio provides the Government with considerable leverage, which can drive change across the industry. In 2000, this Committee inquired into the Management of Government Office Accommodation (Report 52/3). The report noted that the New South Wales Government occupied some one million square metres of office space throughout New South Wales. In the CBD, the public sector was the largest lessee, occupying approximately 10 per cent of the office space. The report also noted that the Government Office Accommodation reform program provided a central role for the Department of Public Works and Services so that expertise of the Department could harness the significant market power of the government sector to ensure the best deals for agencies.

As EnergyAustralia pointed out to the Committee, the Government can be an important driver of change:

> **Mr GORDON:** I think the Government has a very significant role in most of these things to be a market leader and to create that, you know, the Government buys so much and is able to influence those sorts of things. Where the commercial markets might not have delivered that outcome because of their focus, the Government is in a position to make a change.[159]

Building Greenhouse Rating Scheme (BGRS)

The Government has recognised the importance of addressing the energy efficiency of commercial buildings. In the NSW Greenhouse Action Plan 1998 it announced that it was, though SEDA, developing a greenhouse rating for commercial buildings. It was expected that the rating scheme would apply to existing buildings, new developments and refurbishments. The aim was to contribute to a reduction in

[159] Transcripts of Evidence 16 Nov p6

greenhouse gases by driving demand for energy efficient commercial buildings. In particular, the Government expected the rating scheme to:

- encourage best practice for energy efficiency in the design, operation and maintenance of commercial buildings;
- provide market recognition for energy-efficient buildings;
- encourage the use of sustainable energy technologies; and
- raise awareness of the environmental impact of commercial buildings

SEDA launched the scheme, called the *Building Greenhouse Rating Scheme (BGRS)*, in September 1999. The scheme utilises a rating tool that allows building owners and tenants to rate the greenhouse intensity (not energy efficiency) of their office space. There is both a performance rating (for existing buildings) and a design rating (for new buildings).

This scheme is a voluntary mechanism to encourage emission reductions in the commercial property sector through a simple benchmarking system. The scheme provides a comparison of the greenhouse performance of commercial buildings through a star rating on a scale of one (poor) to five (excellent). A building with a good star rating (3 or more stars) is energy efficient and therefore emits low levels of greenhouse gases per square metre.

Using the rating scheme allows prospective buyers and tenants of commercial buildings to identify and compare the greenhouse performances and savings. A higher rating provides a competitive advantage in the real estate market because of reduced outgoings for building owners and tenants. The base building (ie central services), a tenancy or a whole building can be rated.

If action in the Government's portfolio can drive change across the broader industry, the impact on reducing greenhouse gas emissions could be substantial.

The Committee sought further information on the effect of the introduction of such a rating scheme. Mr Precious from the Sustainable Industry Energy Association explained:

> **Mr PRECIOUS**: ….if you were to go from a one star building to a four star building, now this is from memory, but it is a very significant reduction in Greenhouse emissions per square metre per annum, per person, per whatever, in the order of a half. So you are reducing Greenhouse emissions there by fifty percent if you go from a one star building to a four star building. The average performance of buildings is somewhere around two to two and a half stars. So if we were to get our average building stock up to four, five star level, then yes, you are making very significant reductions in Greenhouse emissions…[160]

New Public Sector Buildings

Implementation of such a scheme in new buildings is the probably the easiest area approach, as Mr Campbell from DPWS explained to the Committee:

[160] Transcripts of Evidence 18 Oct p21

> **Mr CAMPBELL:** Obviously the best starting point would be as you are planning the building, before you build it, so in the initial plans. That is why, when we have looked at new buildings, pre-commitments when a building is going to be constructed, from our first expression of interest, from day one and right through our development agreements and everything, it actually sets the performance standards. [161]

An recent example brought to the attention of the Committee is the new police building in Parramatta, as Mr Mullins of the Police Service outlined:

> **Mr MULLINS:** …… the Police Service is in the process of negotiating a 32,000 square metre new corporate headquarters at Parramatta. … We have insisted that the building comply with the SEDA building greenhouse rating of 4.5 and the tender specifications are quite detailed. We are pleased to advise that the preferred tenderer has been able to meet that and indeed the engineering services they are offering us will enable that to be met upon the building being built and operating. There are penalties if the four and half star SEDA rating is not met. So we did take this fairly seriously and we have insisted on that in our new building which helps us and helps everybody else. [162]

Other examples provided by DPWS were "the Gosford building for WorkCover and the building in Nowra".

According to the Department of Public Works and Services, it is currently working with SEDA to ensure wider acceptance of the building rating scheme".[163] So the Government is already taking some action in this area, as Mr Campbell, from DPWS explained:

> **Mr CAMPBELL:** … Since the introduction of the scheme when we were preparing these new major buildings and essentially pre-committing and having them built, it is a condition of the contract that they reach the minimum four and a half stars, so everyone I speak to in terms of the property industry who are looking to build buildings, we make it very clear that the Government would only be interested in looking at four and a half star buildings and I think that is leading them to wider acceptance of the private sector because that is the quality we are looking for. [164]

However, the Sustainable Energy Industry Association argued that the rating scheme was not being applied comprehensively. Mr Precious acknowledged that the new Police Service was an example of how the scheme is impacting on the market for the better. However, while this represented "quite a marked change" it was "only one example only and there need to be many more". [165]

The Minister for Public Works and Services advised the Committee in correspondence that, in support of the BGRS, the Department has "integrated requirements in relation to the scheme into its procurement". Thus, "for new buildings, DPWS is increasingly incorporating a minimum building greenhouse rating of 4.5 stars into the requirements for the development".

[161] ibid p7
[162] Transcripts of Evidence 19 Oct pp 13/14
[163] Transcripts of Evidence 18 Oct p2
[164] ibid p6
[165] ibid p21

The comment that this is being "increasingly incorporated" into development requirements, does not suggest that it is as yet a total policy commitment. The Minister went on to say that the requirement "while not a whole of government policy, is consistent with the whole of government frameworks developed for asset management and procurement in TAM 2000, the *NSW Government Procurement Polic*y and *Construct NSW*". [166]

It would seem that, at least in part, the energy consumption of the Government's own new buildings is being addressed by requiring four and a half star ratings in some of its new buildings.

SEDA also advised the Committee that MEU and DPWS "have agreed to integrate this [Building Greenhouse Rating] scheme into the Government energy management operations to assist agencies to meet their targets so that this scheme is a driver both for government and commercial buildings, and the greater the uptake the bigger the driver". [167]

DPWS observed that the introduction of the BGRS into the construction of new government buildings is having some positive results.

> **CHAIR:** Can you see any flow-ons? Is that occurring?
>
> **Mr OH:** That is occurring, yes. I am on the Property Council's Sustainable Development Committee and we are producing a guideline which is encouraging the take-up by property owners of the Building Greenhouse Rating before they start building because they recognise that the Government tenancies and other private sector tenancies are starting to demand energy efficiency as part of the general make-up of the building. [168]

At the moment the Building Code of Australia is under review and it is likely that every building will have to meet a minimum performance standard on energy consumption. This will only affect new construction, not existing buildings and it does not necessarily set high standards, as Mr Oh from DPWS explained:

> **Mr OH**: It will not encourage best practice. That is the worst, quote unquote from Peter Verwer, the chairman of the property council. It is basically a cut-off for the bottom end of the market, not an encouragement for the top end.[169]

The Committee is of the view that it is important to lift the bar for the quality of building construction in New South Wales, an issue the Committee has addressed in its report into Sick Building Syndrome. The Committee has concluded that all new government office buildings should be constructed to a minimum Building Greenhouse Rating of four and one half stars. The Government, through the Department of Public Works and Services, should ensure that this policy is implemented on a whole of government basis.

[166] Minister's Correspondence, 14 Dec 2001 p2
[167] Transcripts of Evidence 22 Aug p30
[168] Transcripts of Evidence 18 Oct p8
[169] ibid pp 11/12

RECOMMENDATION FOURTEEN

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

Leasing

The Sustainable Energy Industry Association argued that the rating scheme was not being applied comprehensively, as it was only being applied to a small number of new buildings. As the scheme was only impacting upon new buildings and there was "a need to see also many more of our existing buildings being brought up to a high Greenhouse standard".[170]

The Committee heard of the considerable difficulties encountered by agencies in trying to implement energy efficiency improvements into their operations when those operations are in leased accommodation. The very nature of leasing can create problems for tenants trying to reduce energy consumption, for example, the lease can preclude action in certain areas. More fundamentally there is no incentive for owners to take action in those areas for which they have responsibility.

The committee asked DPWS about the implications of this for government building leases.

> **Mr CAMPBELL:** In terms of the issue of achieving energy savings in leased buildings where probably the majority of energy use would be the responsibility of the building owner which we have no control over, and where there are existing leases it would be a lot more difficult for us to put energy saving measures in place because essentially there is nothing for the building owner. He has to invest the capital, but he gets nothing out of it. …. In other leases, going into new leases in the future, we are looking at energy management issues more going into new leases, but with existing leases it is a lot more difficult. [171]

Some of the problems experienced by agencies were brought to the Committee's attention. The Ministry for Energy and Utilities was experiencing problems with another government agency:

> **Ms McALOON:** We have increased our consumption by 10 per cent. We are caught up in a tenancy agreement with the Department of Mineral Resources, so that our energy consumption— [172]

The Department of Public Works and Services itself was not without problems:

> **Mr CRADDOCK:** ….Over 70 percent of the energy consumed by DPWS in office buildings is consumed within the McKell Building. However, as noted in the department's 1999 submission, there are limitations to the works that can be undertaken within the building due to its private ownership and leasing arrangements…in 1998 there were legal barriers due to litigation between the owners and the tenant, DPWS, of the McKell Building which placed further energy upgrades on hold….. Funding, however, has now been secured to implement a

[170] ibid p21
[171] ibid p4
[172] Transcripts of Evidence August 22 p4

> number of key items contained in the department's energy management plan which will result in significant reduction in energy consumption across DPWS. These works include upgrades to the hot water system and lighting within the McKell Building which are expected to cost in excess of $600,000.
>
> **Mr CAMPBELL:** … the building owner would not permit us to do works in the building, and basically toing and froing during that litigation. He was uncooperative, that is basically the best way of putting it.[173]

The Committee has to be concerned if the Government's leasing expert is having problems.

However, some agencies were able to describe to the Committee how they were able to make the leasing arrangements work in their favour. The Attorney-General's Department advised of the advantages of having a long lease which made retrofitting financially viable, at least in terms of its tenant operations.

.

> **Mr W. M. BROWN:** Yes, although as new leases are coming up we are having discussions, particularly retrofitting lights, because we are often a reasonably long tenant and we will be able to get, we believe, the energy savings to justify retrofitting with efficient lights.. [174]

SEDA sees considerable opportunity in the leasing area. Mr Fogarty explained in some detail the potential such a tool as the Building Greenhouse Rating Scheme has for addressing some of these problems in order to improve energy consumption in commercial buildings:

> **Mr FOGARTY:** It is a very important opportunity for us …We are finding increasing interest from tenants who wish to offer their employees an energy efficient, environmentally friendly outcome with added financial benefits. Many building owners are very interested in how they can use this as a marketing tool for the leasing of these buildings. We have a great deal of hope for this. As we said, we already have good support from some of the government agencies on having their buildings or the buildings they lease rated. It is not improbable that one day the sort of credits that may come from that if we ever get a trading scheme up, we commoditise carbon if you like, the sorts of saving that have been achieved may be even worth something in a financial sense. That is a longer-term vision. That is the way the property sector is approaching high rise. [175]

GOVERNOR MACQUARIE TOWER (GMT)

A specific case of a problem lease arrangement with consequences for energy efficiency was Governor Macquarie Tower. The Committee reported adversely on the GMT lease as part of its report into Government Office Accommodation. The Committee discussed in some detail at the hearings the energy efficiency aspects of the building as it relates to its lease operation.

At the outset the Committee was surprised to learn that such a relatively new building had such the low tenant building greenhouse rating. The Department of

[173] Transcripts of Evidence 18 Oct p4
[174] Transcripts of Evidence 25 Oct p20
[175] Transcripts of Evidence 22 Aug p30

Public Works and Services "did an energy rating on the tenancy there. I think it came out at about one and a half stars", a result the department acknowledged "was very poor". [176]

The Department explained how the lease term actually worked to discourage investing in energy consumption reduction:

> **Mr FRY**: GMT….There are a number of initiatives. We are unlikely to do that in GMT because of the building owner issue and the pay-back period. If you have got a lease say going for four years, and generally, particularly in lighting upgrades, you are talking of a pay-back period of five to six years before you will cover your cost, if you have only got a lease going for another four years it is not cost effective to do that. [177]

The Department acknowledged that under the arrangement, there was no incentive for the owner to invest:

> **Mr FRY:** With GMT, like most of the other leased buildings, we only pay for what is called the tenant light and power and the power for the air-conditioning and all the rest of it is paid for by Deutsche, the building owner, who in turn in fact bills us back, so something like GMT, the actual energy component is only about $7 or $8 a square metre on a building where you are paying $400 or $500 a metre rent, so the energy component is a tiny part of that. Even in an owned building the total power costs $25 to $30 a square metre.
>
> **Mr GIBSON:** We are still paying for it, although it is a hidden factor.
>
> **Mr FRY:** Yes.
>
> **Mr GIBSON:** So we could be paying through the nose really.
>
> **Mr FRY:** And there is no incentive on the owner to reduce that cost either. [178]

According to DPWS, the only opportunity to resolve the problem was in the new negotiations:

> **Mr CAMPBELL**: We will be starting to look at strategies at 2006 in terms of office accommodation, and as part of that strategy, improving the star rating of our buildings.
>
> **CHAIR:** If it does not work, you have to find other accommodation?
>
> **Mr CAMPBELL**: We will we have to look at those options, yes. [179]

Ultimately, the energy rating was seen by DPWS as simply another element, among a number, to be negotiated in the new lease:

[176] Transcripts of Evidence 18 Oct p7
[177] ibid p9
[178] ibid p6
[179] ibid p13

> **CHAIR:** Given that the GMT lease is up in four and a half years and it has a one and a half star rating, when we demand a four star, does that mean they will have to get out if they do not lift their standards in four and a half years?
>
> **Mr CAMPBELL**: No, we would have to assess it in terms of -
>
> **CHAIR:** We would lower our standard to it then?
>
> **Mr CAMPBELL**: No, we would assess it over the whole lease. Ideally we would say, yes, we would like to get it to a four star, but we would look at all the issues, and as part of the negotiations on a new lease we would be more adamant about it…. In terms of a new lease we can bring a lot more pressure, whereas now we are still negotiating.[180]

The Governor Macquarie Tower case study raises the issue more generally of the Government excercising its clout in the rental market in New South Wales. It would seem that the Government's accommodation manager does not see the lease negotiations as an opportunity to unequivocally improve the energy performance of buildings:

> **Mr GIBSON:** Have you ever knocked back a lease because of energy savings not being what they should be?
>
> **Mr CAMPBELL:** In the past, before the building Greenhouse rating scheme came into place, generally the approach to looking at a lease was that you would look at overall cost and compare buildings, so you would not single out the energy issues, you would look at the overall cost saving, but logically if the building is horribly energy inefficient it would be more expensive compared to a similar building next door…. As you said, in terms of existing lease buildings obviously it is going to be a longer term process and in future they move away from those buildings. It is all about balancing the overall costs in terms of the tenancy. We have obviously got to balance the overall cost. Energy management is just one component of a number of components in a leasing arrangement and it has got to be balanced in terms of the agency as well. [181]

However, in the joint MEU/SEDA submission, the Committee was advised that SEDA is currently working with government office building owners and tenants to rate their greenhouse performance under the Building Greenhouse Rating scheme. The GEMP Working Group was looking at a number issues including, the "further development of targets and baselines such as the inclusion of the Building Greenhouse Rating scheme targets for government office building and tenancies…"[182]

COMMENT

The Committee has come to the view that the powerful position of the Government in the office leasing market provides an ideal opportunity to drive energy efficiency across the community. A BGRS of 4.5 stars should be adopted for all government leased office accommodation. As this should be a minimum standard for government operations, the Committee does not think that it should be part of the lease

[180] ibid pp 12,14
[181] ibid pp 6,12
[182] Joint Submission op cit p6

negotiations. The standard should, therefore, be included in GEMP. In order to give industry time to adjust to this measure, it should be phased in over a four year period.

RECOMMENDATION FIFTEEN

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.

Crown Property Portfolio

The Government is also a significant building owner in its own right.

The SEDA 1999/2000 annual report advised that four buildings in the Crown Property Portfolio that were rated achieved a rating of three stars.

DPWS is systematically applying the BGR through the Crown Portfolio. Buildings rated include Education Department, Goodsell, Government Office Blocks in Wollongong, Blacktown, Newcastle, Tamworth and the McKell Bld, as well as GMT.[183]

> **Mr CAMPBELL:** Some examples of what we have done: Installation of energy efficient equipment in Crown property portfolio buildings, for example lighting upgrades in buildings in the CPP have reduced electricity usage in lighting by up to 60 percent and overall energy savings in the order of 30 percent in the Dubbo office, 25 percent in Murwillumbah and 15 percent in Wollongong. Upgrades to air-conditioning systems using appropriate energy efficient technology has also realised significant savings. A good example of that is the Griffith government office block where some of that work has produced energy savings of 25 percent. [184]

However, costs of the auditing have restricted the rating of a significant proportion of the CPP to date, although this currently being addressed:

> **Mr FRY**: We have been working with SEDA for years on and off. BGRS, when that first came in, the Greenhouse rating scheme, we worked very closely with SEDA then and gave them a lot of our data to set up their initial plans and what have you for the star rating, and then once that was formally brought into play, we agreed that we would have our major buildings formally rated, which we did.
>
> We have not formally rated all our country buildings because there is a cost penalty. SEDA insists on sending a consultant to every building to view it and talk to the tenants, and there is a cost penalty obviously in sending a consultant to Griffith or Bourke or what have you. So those country ones we have only audited ourselves informally and SEDA now recognise there is a real cost penalty in this and they are now bringing in a new system of self-assessment whereby agencies such as ourselves can our own accredited ratings. [185]

[183] ibid
[184] Transcripts of Evidence 18 Oct p2
[185] ibid p9

DPWS advised that seven of the largest buildings had been rated, representing 52 per cent of the total CPP floor area. The estimated cost for rating the remainder of the buildings was estimated to be $75,000. In order to address this SEDA is training selected employees as accredited BGRS assessors.

COMMENT

The Government can and should lead by example in this area. Indeed, the Government should ensure standards it is encouraging in other quarters apply in its own buildings.

Accordingly, the Crown Property Portfolio should be fully brought up to 4.5 star minimum BGR.

The Committee appreciates that the annual cost of the rating could be material, however, the potential savings in energy efficiency would be expected to outweigh these rating costs. Furthermore, the accreditation system currently being implemented should reduce these costs significantly.

The Committee also feels that accountability can be improved by all agencies reporting their BGR standards as part of GEMP.

RECOMMENDATION SIXTEEN

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.

RECOMMENDATION SEVENTEEN

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

2.4.2 PROCUREMENT

Procurement (both capital works and goods and services) can and is utilised to support and drive government policy.

As pointed out in Section 3.3.1 above, capital works procurement plays an important role in introducing energy efficiencies into assets at a strategic level.

The Department of Public Works oversees government procurement and it advised the Committee, with regard to capital works procurement for energy efficiency, that it supported the Government's philosophy of ecologically sustainable development through the Sustainable Development Guidelines released through TAM 2000. In addition DPWS has produced Environmental Guidelines for NSW Government Procurement to assist agencies with their construction procurement strategies to drive energy efficiencies.

Goods and Services procurement is another area where the government can drive some change.

On behalf of the State Contracts Control Board, DPWS recently developed Ecological Sustainable Product Contract 7017. Its purpose is to "provide agencies with a means to conserve energy and reduce greenhouse emissions by substituting

the use of electricity with alternative energy sources, and employing products that are more efficient in their consumption of electricity". The products that are available under this contract are:

- (grid connected) photovoltaic power systems
- solar thermal water heaters
- heat pump water heaters
- high efficiency gas water heaters
- flow restricting water outlets.

DPWS advised that the contract is "designed to support the achievement of the GEMP 2005 target".

DPWS will continue to investigate opportunities to add new products to the contract.

The Committee commends DPWS and the Government for this type of innovation. The Committee can see, however, where other products could assist specific agencies in addressing energy efficiency targets. Suggestions for expanding the range of products on this contract are made elsewhere in this report.

2.4.3 ENERGY PERFORMANCE CONTRACTING

Prior to the release of GEMP, the Government identified Energy Performance Contracts (EPC) as a tool for agencies to utilise in meeting the Energy Smart Building targets.

An EPC is an arrangement by which an energy service contractor is engaged to improve the energy efficiency of an agency's operations. The improved energy efficiency of the site is achieved by upgrading inefficient and old equipment with the new equipment being paid for from the energy cost savings. The contractor examines the viability of the site for such a project and, if it is deemed viable, the contractor guarantees the savings, being paid a management fee from those savings. At the end of the contract the benefit of the savings revert to the site owner.[186]

EnergyAustralia told the Committee that EPCs had an important role in energy reduction :

> **Mr Gordon:** ….Obviously we start where the biggest gains are, and I think that is very sensible, with an emphasis on performance contracting, which is a particular approach which is suitable for large agencies, [187]

Mr Precious from the SEIA provided an example of how they operate and what the benefits are:

> **Mr PRECIOUS:** …. I will take the example of a CEO of a hospital that may have quite old air conditioning, plant and equipment, old lighting equipment, old boilers out the back. All of those things could be upgraded at least at a capital cost and deliver him significant energy savings for the rest of that equipment's life. He does

[186] Tabled Document 18 October: A Best Practice Guide To Energy Performance Contracts p6
[187] Transcripts of Evidence 16 Nov p2

> not have that capital funding for that project, and energy performance contracting is a methodology that can bring external funding to that project but also guarantees the saving over an agreed pay-back period. So the project is essentially, in terms of the CEO's budget, budget neutral; he does not see the capital cost; what he sees after the project has paid itself off are the ongoing annual savings.…It starts flowing back basically the next year, the loan repayments. The investment goes into the new boilers and the new air conditioning equipment. Next year that hospital will have significantly lower energy bills and it is the difference between what they were paying before in energy bills and the new energy bill that they will pay back to Treasury, and they have quite a formal loan agreement with Treasury that stipulates when those loans are paid back. [188]

In the New South Wales public sector context, the funding for the contracts has come from Treasury which has, since 1998, provided annually a $20 million fund from which agencies can draw down to finance the capital upgrade. Generally, it is accepted that the project needs to be in excess of $500,000 to be viable under this scheme.

SEIA discussed the issue of EPCs in detail with the Committee. While the EPC concept was good its ongoing viability was vital to the sustainable energy industry.

> **Mr PRECIOUS:** One of the toughest things for any business in the energy performance contracting market place now is finding skilled people. It is a complex engineering task to analyse a complex energy using system in a hospital and to come up with a strategy that will guarantee savings to that hospital, so that the industry development initiatives are extremely important now that we have got this industry off the ground, projects are proceeding, industry development, training, accreditation of suppliers is extremely important. As an industry association, we would seek Government endorsement of building capacity within the industry providing some resources to ensure that that industry can grow and reach the critical mass that sees it going on into the future….[189]

Thus EPCs are a means to "promote the development of the industry", one of the policy objectives but it was not without its teething problems.

Initially, agencies were expected to share the savings equally with Treasury, once the project had paid for itself, an issue taken up by the SEIA in its 1999 submission to the Committee. At hearings, the representative of the SEIA observed that this "was a significant disincentive to agencies" to take up the contracts because they resented not being able to "keep all of their future savings".

The SEIA was happy to report that, since their submission, the arrangement had been changed with agencies retaining all the savings upon repayment of the loan. Since the change projects started to flow again. [190]

Attorney-General's Department had found the process "frustrating", initially:

[188] Transcripts of Evidence 18 Oct 23
[189] ibid p 26
[190] ibid p23

> **Mr W. M. BROWN:** We found that first EPC extremely frustrating. For all that this industry stood up and said we are ready, Treasury put out some incentives, I do not think I have ever done anything as frustrating in my life as that first EPC…. In all, that first time through - we then got appointed an energy facilitator that knew nothing about our business - was very frustrating. [191]

The Sustainable Energy Industry Association observed to the Committee that the Department of Public Works and Services had contributed, in the early days, to the slow implementation of EPCs. "Many agencies felt obliged to use the Department of Public Works and Services as their risk manager and their service provider in bringing this form of contracting to them." However, "average times to negotiate an energy performance contract with Public Works is in the order of years, up to two years" On the other hand "agencies have chosen to use private sector facilitators to help them go through the process of introducing this concept to them and the contract negotiations tend to take months rather than years"[192] According to the SEIA, not only was this an issue in its own right, it was impacting on the energy reduction target timeframe.

The Government has now streamlined the process a change which seems to have worked. While A-Gs had not found EPCs an "easy road", it now finds that things have improved:

> **Mr W. M. BROWN:** That was SEDA, but we believe, now that we have gone through it the first time, the industry now has a contract, we now have a prioritised list of courts, we now have a facilitator who is knowledgeable and we are more knowledgeable of the system as well, the second EPC will be a lot easier to undertake. The whole industry has matured, we have realised. I think Treasury has matured as well, because I believe that first time through everybody thought they were going to get knocked down in the rush, but what we found was everybody was totally overwhelmed, Treasury deadlines were extremely tight and could not be achieved, but this time through Treasury certainly has relaxed the deadlines and there is even money now available, we are following very carefully and looking to take opportunity - money outside the EPC - but it certainly has not been an easy road for any of those people early in the EPC process.[193]

MEU was able to report on examples of the success of EPCs:

> **Ms MaCaloon**:….There is the Parramatta linen service, Western Sydney Area Health Service. An improved lighting system will reduce lighting energy consumption by 48 per cent, resulting in savings of more than $30,000 per year. The Attorney General's Department has taken an holistic approach by looking at upgrading its lighting and air-conditioning systems in its five courthouses. This will result in guaranteed energy savings of more than $100,000 per year and reduce energy by 3.9 per cent. [194]

As of May 2001, eight EPCs worth over $7.5 million had been signed leading to savings of $1.5 m pa in energy costs and 12,500 tonnes of greenhouse gas emission

[191] Transcripts of Evidence 25 Oct pp 18/19
[192] Transcripts of Evidence 18 Oct p 26
[193] Transcripts of Evidence 25 October p19
[194] Transcripts of Evidence Aug 22 p28

reductions." Recent forecasting reveals that approximately 25 EPC will be signed in the next two years leading to a further $32m of investment in energy efficiency". [195]

The Committee learnt that not all the available funding through the Treasury arrangement had been utilised. Since its inception, Treasury has made available $20 million per annum for EPCs. The SEIA estimated that over the first two years only 17 million or 18 million dollars were taken up out of a maximum of 40 million dollars.

The Committee is disappointed that all the funding is not being utilised and some of the pool is being returned to consolidated revenue. While it is of the view that significant energy reduction can occur through cost-effective investments by agencies, it is disappointing to see this funding is underutilised. In these circumstances the Government could consider using the unused balance for stringently targeted projects in major problem areas on an interest free-loan basis (see below).

2.4.4 GOVERNMENT ENERGY EQUIPMENT INVESTMENT PROGRAM (GEEIP)

The other major criticism of the EPC program was that it excluded a number of smaller projects, a point acknowledged by EnergyAustralia:

> **Mr Gordon:** ….but it is less useful for smaller agencies and agencies that have got a lot of small buildings. They might be very large in themselves but very spread out, perhaps like police and education. It can be done because there is a lot of commonality, but it can be difficult. The other thing is we have typically got fairly long lead times. [196]

One of the reasons why agencies have not utilised EPCs is that by their nature they are complex projects, best suited to quite large projects, as Mr Pupilli explained to the Committee:

> Individual projects need to be substantial to make it worthwhile. [They] require a minimum spend, maybe half a million dollars or so, in order to make the economics work ….. and also it means that you would need a contract, some times around an eight year contract.[197]

The Government has addressed some of these issues with the recent release by SEDA of the Government Energy Efficiency Investment Program (GEEIP), which aims to fill the gap by making funds available for small projects.[198]

Mr Craddock of DPWS acknowledged that EPC funding structure had been a major stumbling block with smaller projects such as upgrades in schools. He hoped that the GEEIP funds would be available for such issues as lighting upgrades in schools.[199]

The Police Service told the Committee it saw potential in this small project initiative, seeing it "as a possibility of giving us the next great leap forward" and that if it "is

195

196 Transcripts of Evidence 16 Nov p2
197 Transcripts of Evidence 25 Oct p7
198 Transcripts of Evidence 18 Oct p26
199 ibid p16

successful we would be very interested to see what we could source out of that and then look to going forward with that and bringing our targets down even further". [200]

The new GEEIP was a sensible development then according to EnergyAustralia:

> **Mr GORDON:** I would think so. Again it would come back to each individual agency and I think the sort of thing we would see now is that the smaller agencies, which are the ones we think have practically been left out of the focus to date, the new funding arrangement, the GEEIP program I think it is called, is obviously a quite useful tool in identifying where it would be sensible to spend money to improve. If it does not meet the hurdle rates for the GEEIP program, those ones should be left alone; the ones that do meet the hurdle rates would be the first ones to do. [201]

The Committee again notes this commendable development of a tool which should fill a much needed gap for agencies in funding smaller energy efficiency projects.

2.5 INDIVIDUAL AGENCIES

The Departments of Health and Education and Training consume, respectively, 49 and 22 per cent of the total energy consumed in public sector buildings.

The lead agencies have acknowledged that there is considerable benefit in focusing on these large agencies if a significant reduction in total building energy consumption is to be achieved.

According to the Joint Submission, "SEDA is developing ways to accelerate agency implementation by proposing to fast track energy savings for key selected large government agencies" including a proven structured program with specific milestones and specialist energy consultants. [202]

This is an approach endorsed by EnergyAustralia:

> **Mr Gordon:** ..The focus has quite correctly been on the very large energy using agencies. Obviously we start where the biggest gains are, and I think that is very sensible…" [203]

The Committee supports this principle and looks more closely at these two agencies:

2.5.1 DEPARTMENT OF HEALTH

The Department of Health is the largest user of energy in government buildings, consuming 49 per cent, in 1999/00. As the total cost of energy for buildings in this period was in excess of $127 million, the department's energy costs would be in the order of $60 million per annum.

[200] Transcripts of Evidence 19 Oct p20
[201] Transcripts of Evidence 16 Nov p7

[202] Joint Submission op cit p 8
[203] Transcripts of Evidence 16 Nov p2

This justifies close attention because, as the Director General of the Ministry of Energy and Utilities put it to the Committee, "there has been a lot of focus on Area Health Services because health is a huge consumer of energy".[204]

To date, this "huge consumer of energy" has been falling short of achieving the targets, consuming the same amount of energy in 1999/2000 as the base year.

Representatives from the Department of Health acknowledged that, while there had been good performances in "isolated pockets" (like the Hunter Area Health Service), the Department needed to address the targets generally. To that end Health acknowledged the need to operate strategically and was setting up the appropriate mechanisms to do this. More specifically, the Department advised the Committee that:

> **Mr Gates:** …. we have recently prepared an asset management framework for the health system which establishes an asset performance regime for how the whole portfolio of assets is managed. The next framework, I believe, that we are planning to complete by next March, is a utilities framework…. What we need to do within that framework is to establish how we get better information, how we use the asset performance management system to give us better information meaningful to the managers, how we establish a best practice model and what requirements we will further place on the areas, in addition to what the Government has suggested.[205]

The Department's short term aim is to "actually make the business managers see and use those targets within the running of their business". In addition, Mr Gates advised that the best practice model in place needs to be reassessed to "ensure that it is consistently applied. The tenets of the best practice model that I think are most important are having an energy plan or utilities plan supported by an audit and then connecting that plan into the business management of the respective Area Health Service".[206]

Energy Management has been switched from Finance and Commercial Services to within Asset and Procurement Management as part of a major corporate reform agenda with the aim of focusing on procurement management as an area of specific activity within the health system and… developing a series of strategies which relate to the Government's energy management programs. While the energy savings in the health area are of the order of 6 – 10 million dollars, this is "a small cousin" of the major corporate service savings (for example, the supply chain) of around $50 million. However, the establishment of a senior procurement manager will be focusing this corporate reform agenda. [207]

2.5.1.1 HUNTER AREA HEALTH SERVICE

The Hunter Area Health Service was identified as one of the energy reduction success stories having reduced consumption in its buildings by 1999/00 by some 23 per cent.

[204] Transcripts of Evidence 22 Aug p2
[205] Transcripts of Evidence 30 Nov p13
[206] ibid p11
[207] ibid pp 15,16

The Committee took evidence from Mr Stanton of the Hunter Area Health Service (HAHS) in order to discover the reasons for this success.

The HAHS has certainly been successful in reducing energy consumption. In addition to the 23 per cent it has achieved from the GEMP base year, Mr Stanton advised the Committee that it had reduced energy consumption by 56.5 per cent since 1983/4. In hearings he advised that for the 2001 figure " we are at 30 per cent, in that range" of energy reduction.

According to Mr Stanton the Hunter Area Health Service contributes about "7.3 [per cent] of the overall health energy use". Given that total energy use by the Department of Health is almost 5 million Gigajoules per annum, the HAHS itself would be in the top ten public sector energy using organisations.

According to Hunter Health "the object of any Energy Management Plan is to decrease energy input into an establishment without decreasing service delivery, such as patient care and comfort".[208]

Mr Stanton provided details on the approaches HAHS has adopted. These are reproduced in Appendix 5. They set out a comprehensive agency model based around commitment across the Area Health Service; management plans with both a centralised and decentralised focus; a range of financing options; project management approaches and a need for ownership. The project management model aligns closely with the strategic approach identified by the Committee in Section 3.3.1

Mr Stanton made the point that the service delivery and the energy consumption levels should not be linked. He then described how this could be achieved:

> **Mr Stanton:** ….All hospitals have an energy target and maintain standards of hospital care so it is important that the two are separated. That is emphasised in our earlier article …[if] I may just read that to you:
>
> *The object of any energy management plan is to decrease energy input into an establishment without decreasing service deliveries such as patient care and comfort. Maintaining service outputs with less energy inputs might at first seem unobtainable but it is actually quite achievable in three ways. Firstly, if you can obtain extra energy inputs for free; secondly, by switching or more efficient fuels and, thirdly, by investing in more energy efficient equipment.* [209]

In the health area maintenance of the service is essential "for 365 days, 24 hours a day".

This success have been built on careful financial planning because, in the words of Mr Stanton "chief executive officers do not like to see people like us there asking for money". In fact, he advised that the Committee that "Hunter Health have allocated our own funds in most cases to achieve that result." And, in using capital funding, it

[208] Tabled Doc No1 19 Oct 2001
[209] Transcripts of Evidence 19 Oct pp 2,3

was absolutely vital to use new technologies and take a longer term perspective on paybacks.

> **Mr Stanton:** …In a lot of cases in hospitals you want to put equipment in that will have a 12-year warranty period or it will last 20 years and so on. If you look at paybacks in 5 years or 2 years on major facilities, it is not the right way to think about it. [210]

While the HAHS has achieved these results through a strategic, planned approach using its own funds, Mr Stanton made a case to the Committee for a $5 million injection of funds into the department to "kick-start it down the path of getting new technologies in or free energy" It could be repaid "within 10 years, subject to how you get your renewable credits, energy renewable certificates and how you use it".

The utilisation of solar energy was a particularly interesting feature of this model. The Committee heard that "the Hunter Area Health is placed as the biggest commercial solar users in Australia." This has been a unique approach according to Mr Stanton, "I do not think there is a medical facility around that has been placed into a clinical area with photo-voltaic". [211]

There has also been some innovation in financing with internal loan funds being made available to fund projects that were not eligible for funds from other sources.

COMMENT

The Committee notes the strategic approach taken by the Department of Health in acknowledging its need to take action on energy consumption.

The achievement of the HAHS in reducing energy consumption while maintaining and ensuring critical health services shows what commitment and strategic planning can achieve. What is of considerable note in these achievements is that these energy savings have been made in the health area where the need to ensure reliability of the service is absolute.

There are certainly significant lessons to be learnt from the approaches here. These principles have application to all agencies but in particular to other Area Health Services .

MEU should consider this model as a benchmark for assessing agency energy management frameworks under the Improvement Plan signaled by the Government.

The other noteworthy element in this success story has been the "strong commitment to solar technologies". The Committee was struck by Mr Stanton's use of the term "free energy". This is a clear message that, once a renewable energy source is paid for, it does indeed provide "free energy". Again there must be lessons to be learnt here than can be used to drive towards the GEMP policy objectives.

[210] ibid p4
[211] ibid p6

The Department of Health should give a lot consideration to making use of the expertise available at the Hunter Area Health Service in addressing energy reduction across the health portfolio.

The request for a $5 million injection would seem be at odds with the philosophy of cost-effective solutions to so effective in the Hunter Area Health Service. However, the Committee has been critical of the lack of uptake of EPC funds and, swayed by sheer size of the Health portfolio energy consumption and the need for some urgent action, feels that an injection of urgent funds can be warranted. It recommends that $5 million from the unused EPC funding could be earmarked through the Working Group for the health portfolio as an interest free loan, to be paid back in ten years.

RECOMMENDATION EIGHTEEN

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

RECOMMENDATION NINETEEN

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.

2.5.2 DEPARTMENT OF EDUCATION

The department is the second largest user of energy in the government building sector, consuming 22 per cent of building energy in 1999/00 (representing approximately $28 million per annum). It has reduced consumption by 3.6 per cent from the baseline year to 1999/00. Clearly, this too is an agency that merits particular attention.

The Department has been working with DPWS for a long time to improve energy efficiency in schools. It is now finding it hard to make the inroads expected by the Government into its building energy consumption.

As DPWS explained:

> **CHAIR:** …..Do you have specialists going to schools and hospitals which look specifically at how you can reduce the targets in those buildings, and how widespread have you done this?
>
> **Mr OH:** I used to be one of them. Essentially, right from the very start, with schools, for example, we have a special group of people who are not just engineers and architects but also educators and users of school buildings and they work together as a team to deliver the best quality schools possible for the lowest dollar, so energy is just one of the issues being considered. We are talking about ratios of teachers to pupils, size of windows, size of blackboards and so on.
>
> …..For example, a 49 square metre classroom, standard primary school, only has four lights in it, so the energy consumed by a school is very low. It is very difficult to go into a school and say "I will take out another 15 percent of power here". One of the things we designed years ago was that when the school bell rings it turns off all

> the lights in all the classrooms, because when the school bell is rung everyone is going to leave the room. Similarly with high schools. We just finished a school in Camden. Camden High School is the first high school to be naturally day-lit and naturally ventilated, so the process of improving schools is a continuous thing - I was doing it 20 years ago.
>
> …There is an ongoing program, it has been going on for years, called Improved Electrical Services in Schools where we go out to schools. I remember going out to country areas and we would go to a school and count all the lights in every classroom, the power points and so on. We are constantly upgrading facilities in schools. At the same time you are designing energy efficiency into classrooms. That has been an ongoing program.[212]

The pressure to provide air-conditioning in schools has the potential to impact on the Department's energy consumption:

> **Mr BROWN:** The Government has a policy at the moment to make a lot of country schools more comfortable, particularly in the summer months, by installing air-conditioning units. This surely would have a negative impact on the energy efficiency of the school?
>
> **Mr CRADDOCK:** That is correct. [213]

A point made by the Ministry of Energy and Utilities:

> **Ms MaCaloon:** …. There has also been a lot of focus on schools because many schools are now air-conditioned, which chomps through power. [214]

These particular circumstances - current service delivery demands (such as air conditioning) and the long-term introduction of energy efficiencies into schools – suggest reasons why the Department will not be able to reach the targets:

> **Mr FRANKHAM:** I do not think we will reach the targets that have been set and the reason is I think because schools are fairly efficient buildings. I mean the only energy they use are the lights. Increasingly they use computers, we have 100,000 extra computers out there now and they are driving things the other way, instead of driving energy down, and we are, as you know, organising some air-conditioning in demountables.
>
> **Mr BROWN:** Yes, I was going to ask about that. We often hear, when we look at schools, that the thing they want more than anything is air-conditioning and the Government is putting more into those schools. Obviously we have a policy of putting air-conditioning into the hottest schools first, but that is certainly not going to help with the energy efficiency targets, is it?
>
> **Mr FRANKHAM:** No. Well, we have a policy that says we will air-condition demountables down to 27.5 degrees mean January temperature. Once they are all done we move into hot-spots in schools and they will be school buildings that are orientated wrongly and get hot during the course of the day, so we will target those, and we are actually doing some of that now, but, as you know, there are $10 million

[212] Transcripts of Evidence 18 Oct pp 15,16
[213] ibid p17
[214] Transcripts of Evidence 22 Aug p2,3

> a year basically going into that program and I do not know how many units have been air-conditioned. … Anyway, in terms of the targets, I do not think we could reach the big targets just because of the way we operate. [215]

For these reasons the Department supports the development of individual agency targets.

> **CHAIR:** We have just heard from EnergyAustralia which argued that targets were not the way to go but individual agencies should negotiate their own reduction targets, their own systems that they think are achievable for them. Do you think that is the way to go?
>
> **Mr FRANKHAM:** Yes, I think that could be the way to go. Now that we have actually started to get a lot data in we can see what might be achievable and what is not achievable. [216]

The Committee discussed funding issues at hearings:

> **CHAIR:** If I am at a school which was built 20 years ago which does not have these light bulbs, how do I access capital expenditure to do those kind of upgrades?
>
> **Mr CRADDOCK:** Funding has been a major stumbling block with upgrades. SEDA is about to launch a funding issue that will release funds for energy upgrades….
>
> **CHAIR:** So would you suggest that older schools are still behind in lighting upgrades?
>
> **Mr CAMPBELL:** Well, they would be behind new schools because new schools are getting them built-in, but I think what we are saying is that part of the program is to eventually retro-fit those older schools as the opportunity arises.
>
> As schools "now pay for their own electricity out of their global budget", so it is very much in their own interests to reduce energy.[217]

The Department found that EPCs were not suitable for its circumstances:

> **Mr FRANKHAM:** We have been investigating it - we were just saying before we came in - for about ten years between all of us now. We tried three school districts - Dubbo, Central Coast and Liverpool - and we found that Dubbo and Central Coast would not stack up under the guidelines in terms of the amount of return you are supposed to get. [218]

Accordingly, the Department of Education has utilised its own capital works funding to address energy efficiency on a distinct basis:

> **Mr FRANKHAM:** ….We now have signed up Liverpool. In 1999 we let a contract for about $1 million for the 57 schools in the Liverpool district. They have been fitted with energy saving devices and over five years we assume we will recover the cost of that $1 million. Rather than take a Treasury loan for it we paid for it ourselves out

[215] Transcripts of Evidence 16 Nov pp14,15
[216]
[217] Transcripts of Evidence 18 Oct pp 16,17
[218] Transcripts of Evidence 16 Nov p12

> of our capital program. A Treasury loan would have involved interest payments and there was a problem in making the schools pay that back.[219]

But even so the Department makes a case for grant funding:

> **Mr FRANKHAM**: If Treasury opened the coffers, provided you have got a case, provided you could justify it and there were no interest payments associated with it, it would be great if the individual schools could go to the Treasury or SEDA to get that. Garry has got a budget of $100,000 a year which he uses to fund research projects such as relighting schools.[220]

On a more general level the Department is addressing its energy efficiency obligations in a strategic manner:

> **Mr Frankham**: …We have also taken a number of initiatives, including setting up an Energy Management Policy Committee, which is the peak body within DET. I am the chair of it, but it has representatives from our Finance Directorate, our Audit Directorate, our Curriculum Directorate, from TAFE Institutes and from Primary and Secondary School Principals. That committee sets research targets and undertakes a lot of initiatives in relation to energy research and development. [221]

COMMENT

The Committee acknowledges that the Department of Education has been active, particularly with its association and cooperation with the Department of Public Works and Services, in addressing energy efficiency in schools.

The gains made in the past could be seen to put the department in a difficult position in regard to the current energy reduction targets.

However, the Committee does not resile from its belief that all agencies should be making efforts to reach these targets. After all this department is consuming over 20 per cent of energy in buildings (and 8 per cent of all public sector energy).

The Committee supports the policy of specifically focusing on these large agencies. It is prepared to accept special pleading to the extent that an interest free loan be made available (from unused balance of the EPC fund) on projects, as with the Department of Health.

Perhaps it is time to be more innovative, seeking specialist assistance and GEEIP funding.

While it is absolutely essential that our school students have the most comfortable environment possible, this does not necessarily require the installation of air-conditioning. In fact, if this quality environment can be provided without air-conditioning, this should be the approach adopted. The solution to this problem lies in innovative and quality design. In section 2.4.1 the Committee discussed the greenhouse rating of new buildings. The principles underpinning low greenhouse emission buildings should be drawn on to develop designs for low or even non-

[219] ibid p12
[220] ibid p18
[221] ibid p11

greenhouse gas emitting schools. This could be, perhaps, developed via a design competition.

A small number of schools currently have photovoltaic cells installed. The Department advised the Committee that these were small demonstration models, part of a single program, for the use of students.

The Committee also sees the potential to introduce on-site renewable energy sources in the state's schools to supplement or even replace grid electricity. The beauty of this approach, if economically feasible in line with recommendation 5, is that it would ultimately provide schools with free energy. Such on site renewable energy generators would provide an invaluable educational resource for the use of students of all ages. Products from SCCB Contract 7017 should be considered. The Committee feels that this could be expanded to include on-site wind generators.

This approach would turning these schools into, in the words of Professor Outhred, renewable energy generators.

RECOMMENDATION TWENTY

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 Recommendation 5.

RECOMMENDATION TWENTY ONE

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

2.5.3 DEPARTMENT OF HOUSING

The Committee also turned its attention to one aspect of the Department of Housing portfolio.

The Department of Housing is a relatively small user of energy in government buildings. However, it is the government's landlord for over 130,000 public housing dwellings. Under GEMP, the Department is not obliged to report on this stock of housing. However, a rough calculation suggests that this housing stock could be consuming as much energy as a large agency.

The Department has a typical landlord relationship with its tenants:

> **Mr BROWN:** So the department pays for water and the tenant pays the electricity.
>
> **Mr GREGORY:** Yes, and gas.
>
> **Mr BROWN:** And gas.
>
> **Mr GREGORY:** So that drives some distortion in the sort of strategies that you can undertake. As well, we have also been undertaking initiatives with SEDA to retro-fit 3000 plus properties with low voltage globes and other things but we know that after they finish their useful life the energy usage will go back up because the tenants will purchase the globes and the cheapest globe is the dirtiest in a way. We have also

had talks with SEDA about replacing electric hot water systems with gas. That has an impact more on greenhouse gas emission than underlying energy usage but it is an issue that may also produce some benefit in energy usage anyway because of its greater effectiveness…..

Mr GREGORY: Yes, with manufacturers to support innovation and a number of other things. For example, we are now going to 10-year water heaters. We are looking at stainless steel lined water heaters which have been developed in Australia so it has got a few things going for it if we can get that purchasing power which previously was with our private subcontractors rather than us.[222]

While the agency had itself done well in reducing energy consumption, it was acknowledged that there could be overall benefits if its tenancies could reduce consumption:

CHAIR: I see with the 32 per cent reduction you have actually been working hard at this …. help[ing] your customers or clients with more energy efficiency… would … have a significant impact on greenhouse as well.

Mr GREGORY: Absolutely. Even a small increment per household would deliver fairly big savings. There are some issues around that about awareness and that and that is why we are really expecting some significant benefits although the problem is they will not necessarily be measured, but some significant benefits from some of the initiatives we are already doing in terms of the appliances we are putting in and the suggestion that we look at putting the gas water heaters in where we can. [223]

The Department is trying to address the matter:

Mr GREGORY: Yes. SEDA advises that by installing a gas hot water, when we replace a system and if there is gas in the street, then it is equivalent to putting a solar hot water system in that is boosted by electric. The only system that is better is one that has a gas boosted solar hot water. So they were fairly happy about that initiative. Again, that is one that we can accommodate within our existing organisational concerns if you like because we are also currently reforming maintenance and the way we go about purchasing the large amounts of equipment that we use each year. Of 130,000 assets we are replacing something like 10 to 12 thousand stoves a year. We should be able to use that as a -

CHAIR: Between manufacturers.

Mr GREGORY: Yes, with manufacturers to support innovation and a number of other things. For example, we are now going to 10-year water heaters. We are looking at stainless steel lined water heaters which have been developed in Australia so it has got a few things going for it if we can get that purchasing power which previously was with our private subcontractors rather than us.

Mr GREGORY: Yes; dual-flush toilets is another one. So we are gradually changing the assets over to more efficient devices internally. We are also obviously concerned about benefits to our customers. [224]

[222] Transcripts of Evidence 19 Oct p29
[223] ibid p31
[224] ibid p29

But doing this is not without its problems

> **Mr GREGORY:** So that drives some distortion in the sort of strategies that you can undertake. As well, we have also been undertaking initiatives with SEDA to retro-fit 3000 plus properties with low voltage globes and other things but we know that after they finish their useful life the energy usage will go back up because the tenants will purchase the globes and the cheapest globe is the dirtiest in a way. We have also had talks with SEDA about replacing electric hot water systems with gas. That has an impact more on greenhouse gas emission than underlying energy usage but it is an issue that may also produce some benefit in energy usage anyway because of its greater effectiveness. [225]

The Department of Housing has not utilised Treasury funding. The department acknowledged to the Committee that it funded energy savings "internally which made it very hard because it meant that we had to convince the organisation there were still savings in doing that, monetary savings".[226] A matter discussed at hearings:

> **CHAIR:** But if you did the same kind of thing in some of the offices that you have around the state, had an audit, did all your whatever, issues came up, if you went to Treasury, if Treasury was looking at doing that, and put to them cases whereby you could repay them instead of taking it out of Department of Housing and fighting -
>
> **Mr GREGORY:** I think that is a good idea, although because of the situation we have been in for the last 10 years, we generally have cut those sorts of recurring costs where we can and where we have direct control. I think our next step is to look at the 130,000 dwellings we have got, do you know what I mean, because there will be - [227]

The Institute of Architects argued that the simplest approach to introducing energy efficiency was via solar water heaters:

> **Mr WHEELER:** Absolutely, yes. There should be audits on the Department of Housing's stock. The easiest things would be to look at direct solar water panel heaters or what is called reverse cycle water heaters - Quantum is one brand of that - or a gas heater; then looking at light fittings and all the lighting fixtures in those houses. [228]

COMMENT

The Committee appreciates that the Department's client base does not fall within the mandatory component of GEMP. However, it does point out that under GEMP the Government is encouraging all agencies to pursue the aims of the policy.

Furthermore, while GEMP is driven by the need to reduce greenhouse gas emissions and cost savings, it is worth stressing that any energy cost savings that can be introduced to this housing stock will financially benefit a significant section of society least able to afford the cost of energy while at the same time reducing greenhouse gas emissions.

[225] ibid
[226] ibid p30
[227] ibid p31
[228] Transcripts of Evidence 25 Oct p26

The Committee is of the view then that the Department's housing stock is an area that justifies close attention in reducing energy consumption and makes the following comments and recommendations accordingly.

There should be continued efforts to introduce energy efficient lighting. The Committee acknowledges the problems identified by the Department but feels that some innovative approaches, perhaps with the procurement assistance of DPWS, could find ways to ensure the long-term supply and use of efficient lighting.

Solar water heaters are now part of Contract 7017 and there should be a program to eventually convert to solar water heaters.

In the long term the Committee would like to see the Department's tenant housing stock become, like schools, renewable energy generators.

In pursuing these ends, all options for funding should be explored, including EPCs and GEEIP.

RECOMMENDATION TWENTY TWO

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

2.6 EMPLOYMENT BENEFITS

During the course of the inquiry there were a number of references to the employment implications of sustainable energy.

Mr Higgins from SEDA advised that sustainable energy industry was "a major job creator" and that studies had indicated that "it is one of the largest generators of new jobs of any sector".[229]

Dr Watt advised the Committee that not only does renewable energy appear to be creating more jobs than coal-fired energy, they are being created in regional New South Wales and require a range of skills:

> **Dr WATT**: ….. what we are finding is that a lot of the new renewable energy projects that are going in, where we get generating size I suppose in connecting into the grid, do appear to have a higher employment indicator, if you like, than has been the case with coal gas fired power stations. Also, interestingly, because of where the renewable energy resource is, a lot of those jobs are in regional areas of Australia. That is an important, I guess, opportunity for each new development and regional employment, and the renewable energy technologies are quite diverse, so

[229] Transcripts of Evidence 22 Aug p31

> we might have a wind farm, we might have a solar array, we might have a biomass base plant using sugar cane waste, we might have a landfill gas plant. There is a whole range of technologies, therefore there is a whole range of skills, and in addition to the direct employment indicators, the Australian content can be quite a lot higher. For instance, some of the wind projects that are going in now, the Australian content, the next lot that go in will be 90 percent Australian content, because the industry has developed sufficiently in the last five years to be able to make most of the components in Australia. So that is a huge impact on smaller interregional. …. In a time when, for instance, in the electricity industry employment has been halved over the last decade, and a lot of those jobs have been regional jobs, so that the move towards increased renewable energy penetration into the energy system I think is a very good opportunity for employment creation.[230]

And later

> **THE COMMITTEE**: I just want to ask a bit more about regional employment. Talking about it from a renewable energy perspective, what about from energy efficiency, retro-fitting buildings and all that activity, is there identifiable job potential in that area?
>
> **Dr WATT:** There have been a few studies looking at that, yes. Typically in fact most of the programs that were done, I guess during the 1980s, were tied up with job creation schemes for young people, for instance, and so they trained youth who were looking for things to do in how to assess insulation levels, how to install insulation, how to look at orientation in a building, just basic energy efficiency criteria, and certainly once you start to install insulation and any other retro-fit things it is going to be locally done.[231]

Newcastle City Council has found that it pursuit of energy efficiencies has had a positive effect on employment:

> **Mr SQUIRES:** There are two main areas that I will quickly touch on. Firstly, CSIRO's energy technology division is moving its headquarters from North Ryde to Newcastle, bringing 128 jobs with it. That has come about partly due to our approach to put our hand up and say we want to be the leader of in this energy industry for south-east Asia in Newcastle, we are really taking a visionary attitude to it, and that has led to this sort of growth and explosion of work in Newcastle.
>
> The second point is that last year when we presented to the Senate inquiry's response to global warming, Australia's response to global warming, we did a prediction based on the work that we had achieved at the time. We had invested $400,000 to achieve the savings we had to that point. Half of that money, $200,000, went to labour and half to materials. If you work it out, an electrician makes about $50,000 per year. If you divide that into $200,000 it works out at four jobs for one year or one job for four years. We extrapolated those types of savings that were in the order of 20 percent, so achieving a 20 percent saving and we managed to employ four people, if you like, for one year. If you extrapolate that across the country where we spend $12 billion per year, same scenario of half going to materials, half labour, it works out at 48,000 jobs, just by cutting the waste, not by doing anything fancy, just by reducing our energy consumption by 20

[230] Transcripts of Evidence 18 Oct pp 32,33
[231] ibid p34

> percent. It is very simple, but it gives an idea of the number of jobs that are available out there if you just stop wasting so much.
>
> ….[W]e find that the industry is almost like a tap waiting to be turned off and there are so many opportunities there, only because we have been so wasteful with our electricity, there are so many opportunities for new products and services and companies that can provide them. We are all so wasteful and in all the work we have done in the local government sector I think there were only two local governments around the country that could actually tell us how much money they were spending on electricity. [232]

In order to throw more light on this issue, the Committee commissioned a brief study into the implications for employment in New South Wales of introducing energy efficiencies into government agencies (of the type to achieve the government targets). The report is reproduced in Appendix 7.

The report found that to reach the 2005/6 energy reduction goal of 25% would required an investment of $150 million. Such an investment (which is equivalent to a 20% rate of return on investment) could create 1.15 million man-hours of work within NSW, equivalent to 600 direct full-time jobs for a year, half of which would be in regional NSW. Additional local employment would be generated through various multiplier effects.

The long term benefits to employment through introducing energy efficiencies and, particularly, the development of sustainable energy should not be overlooked. Every opportunity to encourage this should be seized.

[232] ibid p52

CHAPTER THREE – GREEN POWER

3.1 WHAT IS GREEN POWER?

Renewable energy is energy generated from a source which is sustainable, such as wind, water or solar. All renewable sources have the advantage of not producing greenhouse gas emissions.

Some renewable sources can, however, have negative environmental impacts. For example wind generation is regarded by some as creating visual pollution and hydro-electricity from large schemes is regarded by some as impacting adversely on the environment. To address potential problems in this area, in New South Wales, Green Power has been defined as electricity generated from a renewable energy source accredited by SEDA. This point was pursued by the Committee in hearings.

Dr Prasad from MEU advised that "the hydro that is generated by the Snowy Mountains scheme, for example, is not considered to be green power. Green power is only what has been accredited by SEDA". [233]

Mr Fogarty, CEO of SEDA expanded on the issue of energy from the Snowy Mountains that:

> **Mr FOGARTY:** The decision was made at the time that the greenhouse rules were established. Basically, renewable energy from hydro is defined as new energy. So it is energy that is in a definitive sense created after 1997. I guess that from the perspective of particularly Snowy hydro there are other environmental issues associated with Snowy hydro that probably make it a factor that mitigates against it in terms of the markets that we are aiming to secure support from, particularly in terms of the damage to flows associated with the Snowy.[234]

When asked about the difference between renewable energy and green energy, Dr Watt from the Centre for Photovoltaic Engineering, UNSW advised that

> **Dr WATT**: There probably is not a difference. Green energy has been, I suppose, the common phrase because we had Green Power. It can be defined in different ways. The Green Power schemes that are audited have a set of renewable energy sources that are considered acceptable. Green energy generally can be wider than that. For instance, the Green Power schemes that are audited do not allow large hydro from new dams because environmentally that is not acceptable.
>
> **Mr PICCOLI**: So that does not fit in with green but it fits in with -
>
> **Dr WATT**: It does not fit in with Green Power but it would still be a renewable energy project. [235]

SEDA established its Green Power Accreditation Program in April 1997. The aim of the program was to facilitate the installation of new "green" electricity generators in

[233] Transcripts of Evidence 22 Aug p 12
[234] ibid p21
[235] Transcripts of Evidence 18 Oct p33

NSW by increasing consumer confidence in Green Power products developed by electricity retailers. SEDA's main strategy was to assist the entry and market penetration of Green Power through the development, delivery and ongoing maintenance of a comprehensive marketing campaign.

The Green Power Program goals included:

- access to an energy-based Green Power scheme (ie a Green Power tariff) for 95 per cent of consumers by December 1999;
- 5 per cent of consumers taking part in a Green Power Scheme by the end of 2001;
- have 500,000 MWh of new generation installed by the end of 2001.[236]

3.2 GOVERNMENT PURCHASE OF GREEN POWER

The Government has attempted to directly support Green Power, particularly through the reforms of the energy industry.

As part of the these reforms, bulk electricity contracts were negotiated for agencies. In the original bulk contracts in April 1997, the purchase of Green Power was optional for agencies. In the second, larger tender in May 1997, it was decided that the contracts include a minimum proportion (5%) of approved Green Power. While there was an additional cost for the Green Power, this cost was minor compared with the savings these contracts were generating (40% without Green Power, 39% with Green Power). Thus the Green Power component was paid for by the savings created by the energy industry reforms.

This bulk electricity supply contract, more correctly known as Retail Supply of Electricity Contract 991/777, is held by EnergyAustralia. It is a standing offer between the State Contracts Control Board and EnergyAustralia and was awarded after an open tender process managed by DPWS.[237] This contract must be utilised by Schedule 1 agencies, under the Public Sector Management Act, on all contestable sites. A contestable site was one using more than 40 MWh per annum.

From January this year all sites were made contestable.

This arrangement is not compulsory for non-Schedule 1 agencies, though they may utilise the contract.

Agencies are also able to buy Green Power from their own retailers on non-contestable sites.

As pointed out in Chapter One, the 1998 NSW Greenhouse Action Plan included a provision to increase the Green Power component for the inner budget bulk electricity purchase from 5 per cent to 6 per cent. Thus all Schedule 1 agencies are currently required to purchase a minimum of 6 per cent Green Power on electricity purchases made through NSW State Supply Contract 777.

[236] SEDA 1997/98 Annual Report
[237] Minister Iemma correspondence, 14 Dec 2001, p3

This mandatory purchase of Green Power is technically not part of the Government Energy Management Policy, as the Committee was advised at hearings:

> **Ms McALOON:** …... That [Green Power] is not necessarily part of the government energy management policy. I do not want to be technical about that.
>
> **CHAIR:** It is a little adjunct to it. [238]

But the encouragement of green energy technologies is an important component of GEMP and Green Power is seen to have a role in this, as SEDA/MEU explained in their joint submission to the inquiry.

> *"In addition to building targets, GEMP contained a commitment by the NSW Government to encourage greater use of green energy technologies. The mechanism through which this objective is being met, is Green Power….. GEMP does not include a specific requirement for agencies to purchase Green Power, [but] GEMP supporting documents refer to the inclusion of Green Power in Government electricity contracts available to departments".* [239]

3.3 COMPLIANCE WITH GREEN POWER PURCHASING POLICY

In absolute terms Green Power is still a relatively small element in electricity consumption by government agencies. Dr Prasad told the Committee that:

> **Dr PRASAD:** The total green power that has been reported in 1999-2000 is 68,000 megawatt hours of green power which constitutes 2.8 per cent of the total electricity purchased by government agencies and 1.8 per cent of the total schedule one agencies. [240]

According to Ms McAloon, the then Director-General of MEU, the Green Power mandatory take up was progressing "well".

> **CHAIR:** I was going to ask about that because included was a minimum component of six per cent green power. How is that going?…
>
> **Ms McALOON:** … That is going well.

In more detail, the Director-General advised:

> **Ms McALOON:** ….A number of agencies are buying a minimum of six per cent and some of them are buying 100 per cent of green power. There are some issues about ensuring that as we move forward on that supply and demand are matched appropriately but it is a very successful policy. It is recognised around Australia that it is a good way of going, and it is also a good way of supporting the renewable energy industry. [241]

[238] Transcripts of Evidence 22 Aug p8
[239] Joint Submission op cit p2
[240] Transcripts of Evidence August 22 p11
[241] ibid pp 7,8

However, just how well agencies are complying with the policy was a bit difficult to determine.

While technically not part of the GEMP "Green Power reporting takes place under GEMP"[242] and the Ministry of Energy and Utilities reports on Green Power in the annual Energy Use Report.

But it does not report specifically on compliance with the Green Power purchasing policy.

The 1999/00 Energy Use Report provides the following information with regard to Green Power purchases by government agencies, in 1999/2000:

- 59 agencies (34 Schedule 1 and 25 other) purchased over 68,000 MWh of accredited Green Power;
- Some 1.8 per cent of total electricity used by Schedule 1 agencies was Green Power, reflecting the fact that not all sites were contestable;
- The decision to make all sites contestable should see the government purchases of Green Power increase;
- A number of Schedule 1 agencies purchased in excess of the minimum 6 per cent, including EPA [19.3%], DPWS [12%], NSW Crime Commission, Olympic Coordination Authority and NSW State Forests;
- Green Power purchases by non Schedule 1 agencies totaled 71 per cent of all reported Green Power purchases;
- Advance Energy, SEDA and EnergyAustralia purchased 100 per cent Green Power, with EnergyAustralia's purchase representing 33 per cent of all government sector purchases. [243]

The Committee sought precise information from the three lead agencies on agency compliance with the bulk contract purchasing requirement.

In its joint submission to the Inquiry, MEU/SEDA addressed progress towards meeting the Government targets for Green Power purchases in electricity contracts. However, there was no specific detail on the actual compliance levels. [244]

In correspondence, the Minister for Public Works and Services advised that although "monitoring of the use of green power by government agencies is not a DPWS role", the department "as part of its procurement role" "monitors the usage of the Standing Offer Arrangement between the NSW Government and EnergyAustralia". "This summary information indicates that on aggregate around 99% of Schedule 1 agencies are complying with the Government's requirement to purchase 6% green power".[245] As the department's role is limited to Contract 777, it does not receive information on energy consumption for non-contestable sites.

[242] Correspondence, Acting D-G MEU 18 December 2001 p 6
[243] Energy Use Report 1999/00 op cit pp 28/9
[244] Joint Sub op cit p10
[245] Minister Iemma' Correspondence op cit p4

SEDA advised the Committee that, "with the limited data available to SEDA", of the 60 Schedule 1 agencies

- 11 are purchasing 6% or greater;
- 21 are purchasing 6% or less: and
- 28 are not purchasing Green Power.

SEDA notes in this advice that these figures are likely to be diluted by the inclusion of non-contestable electricity sites.

Interestingly, the Joint MEU/SEDA Submission noted that a GEMP Working Group is addressing the "…enforcement and expansion of the Green Power targets for Schedule 1 and 3 agencies". [246]

The Sustainable Energy Industry Association could not throw any light on this matter, for it did "not have information available on how the Government is going against meeting the six percent target that has been nominated so far". Something that it felt needed to be addressed.[247]

However, EnergyAustralia was satisfied that the policy was being complied with:

> **Mr Gordon:** ….We also supply the majority of government agencies via the State supply contract. Acceptance amongst government agencies when I checked last, which was only a few months ago, was virtually 100 percent buying the minimum six percent, so acceptance is very good amongst agencies and I was unable to detect any agency that you would consider was not pulling their weight, and some agencies in fact were purchasing more than that, up to 100 percent for agencies like SEDA. [248]

COMMENT

The evidence provided by the lead agencies on compliance in this area can only be described as confusing, a situation that is unsatisfactory. Without the explicit evidence from EnergyAustralia, the Committee would not have been able to report on the level of compliance with this government requirement. Based on the evidence of EnergyAustralia the Committee accepts that agencies are complying with this requirement to purchase Green Power.

FINDING THREE

THAT all Schedule 1 agencies are purchasing 6% Green Power on contestable sites as required by government policy.

However, the Committee is not satisfied with the accountability in this area.

None of the lead agencies was able to positively confirm or detail compliance levels with this requirement. Of the lead agencies, only DPWS was able to provide the Committee with a view on compliance. This was based only, however, on "summary

[246] Joint Submission op cit p 6
[247] Transcripts of Evidence 18 Oct p22
[248] Transcripts of Evidence 16 November, p3

information" and the Department made the qualification that it does not have a role in monitoring Green Power.

The lack of specific information on the exact details of the Green Power purchases and the assertion by MEU/SEDA that the Working Group is looking at this issues suggested to the Committee that there might be a problem with compliance here. These concerns were only dispelled by the EnergyAustralia's evidence.

This situation has probably been brought about because Green Power does not technically form part of GEMP. Yet, evidence from MEU made it clear that Green Power is an important tool in the government energy policy, particularly as a means to support the renewable energy industry.

It is essential to ensure that existing policies are being complied with. Without adequate monitoring, the policy can become rhetoric. Certainly monitoring and associated accountability should be done through GEMP and the Ministry of Energy and Utilities.

RECOMMENDATION TWENTY THREE

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.

3.4 SHOULD THE COMPONENT BE INCREASED?

Given that Green Power is a renewable energy source, purchasing Green Power would seem to be a simple mechanism with which to directly address the problem of greenhouse gas emissions. Accordingly, it has been argued that the mandatory component of Green Power purchased by agencies should be significantly increased.

It was put to the committee by the SEIA the Green Power component should be increased to 25% over a period of time.

> **Mr Precious:**… we would recommend increasing the Green Power component …but also there should be a very clear signal given to the market that that should be increased over time, and we would be suggesting that over a period a target of 25 percent Green Power should be the next step in that progression. [249]

However, there are two factors which mitigate against increasing this Green Power component. These are the cost of Green Power, which is greater than coal-fired electricity, and the availability of Green Power.

As EnergyAustralia explained to the Committee:

> **Mr Gordon:**…..The future for renewable energy I know is an interesting issue. What we see in the future - and this is a view of the future - is rising costs and some constraints of availability that would cause difficulty often in the future. This is driven

[249] Transcripts of Evidence 18 Oct p22

by competing demand from the Commonwealth legislation on renewable energy which has been very successful in creating a drive for investment and the growth of renewable energy but, in effect, it does compete with availability figures of Green Power and that competing and increase in demand is pushing costs up.[250]

3.4.1 COST OF GREEN POWER

Green Power is currently more expensive than coal fired electricity, as Mr Precious advised in hearings:

CHAIR: How much more is Green Power, in terms of the commercial rate?…

Mr PRECIOUS: As a residential consumer, your standard electricity is around 10 cents per kilowatt hour; one hundred percent pure energy is about 12.8 cents per kilowatt hour. So it is not significant. [251]

While "not significant" it is still more expensive, and for this reason Green Power and other renewable energy is not regarded as a cost-effective solution for state agencies in reducing the production of greenhouse gas emissions, as representatives from the Department of Public Works and Services advised the Committee:

CHAIR: Given your star rating, if people are going out to buy Green Power and it is all used - trying to market something that is already sold - it would have an effect on your star system as well, would it not?

Mr FRY: It sure does. That is an inefficient way of improving your star rating, of course.[252]

The dilemma for agencies with imperatives to cut costs in taking up Green Power was sketched by the Department of Housing representative:

Mr GREGORY: …..The problem for us is largely financial and the reason I am mentioning that is because it is where our financial imperatives in terms of being without a debt drive our assessment of the energy initiatives that we can take in terms of how well they align with that organisational need. So our organisational need is to reduce costs, base costs. Where does that align with reducing energy? My job has been to try and get some of the initiatives, such as green power, increasing in an environment where we are really trying to save every bit of money that we can. [253]

Agriculture advised that it complied with the policy obligations but would go no further simply because of the cost implications:

Mr WEALE: Well, the Green electricity usage is basically the policy of government that we had to purchase six percent Green electricity, and that is what we do.

Mr PICCOLI: And you have stuck to the six percent?

[250] Transcripts of Evidence 16 Nov p4
[251] Transcripts of Evidence 18 Oct p23
[252] ibid p17
[253] Transcripts of Evidence 19 Oct pp 28,29

Mr WEALE: Yes, we have stuck to the six percent.

Mr PICCOLI: I guess there would not be any particular incentive, based on your budget, to go anywhere beyond that because of the cost.

Mr WEALE: No.[254]

As Green Power is seen as an important tool in encouraging renewable energy, the Committee sought the advice of the key agencies on the implications of increasing the Green Power component. MEU advised that:

> *It is not possible at this stage to estimate monetary benefits associated with increased use of Green Power by agencies as no agreed monetary value has been assigned to unit reductions in greenhouse gas emissions. In the absence of this monetary benefit, it is difficult for agencies to justify the extra costs in purchasing Green Power.*[255]

SEDA on the other hand pointed out that for SEDA itself "a 100% purchase of Green Power results in less than 1% increase in overall operational expenses". More generally, "the 6% purchase of Green Power by Schedule 1 agencies only results in a 4% increase in total electricity costs on average". Given that "current purchases by Schedule 1 Agencies cost $1,554,000 and therefore an additional 1% of that would cost $260,000". It concluded with the observation that "a 1% increase in Green Power purchases in Schedule 1 agencies would be around 11GWh. Total sales of Green Power in NSW last financial year were 244 GWh, therefore a 1% increase would produce insufficient economies of scale.[256]

3.4.2 AVAILABILITY OF GREEN POWER

There were concerns raised with the Committee about the availability of Green Power. Clearly, if such a renewable source is unavailable then this too will have implications for compliance with the government's requirement (to purchase certain levels of Green Power) and the availability of Green Power for the broader community.

The Committee endeavored to find out about any problems with the availability of Green Power. Representatives of Public Works and Services acknowledged that any shortage would be a concern:

CHAIR: Are you aware of a cap on the buying of Green Power that has been placed on retailers? There is only so much Green Power--

Mr CAMPBELL: I do not know if there is a cap. There might be an issue of how much they can supply, like there is only so much available at the moment. I think that would be an issue. We can check that out. I do not think it is a cap as such, I think it is that they can only supply so much. [257]

Representatives of the Australian Cooperative Research Centre for Renewable Energy were aware of a supply problem:

[254] Transcripts of Evidence 16 Nov p 49
[255] Acting D-G Correspondence op cit p5
[256] SEDA Correspondence 23 Oct 2001
[257] Transcripts of Evidence 18 Oct p17

> **Ms Watt:** …The second issue is whether or not customers can buy Green Power if they wish.….What we understand is happening with some retailers is that either because they have not got the capacity, the Green Power installations in place and/or they are not willing to put more in place quickly, they are not able to connect new customers up to Green Power, and so while we are still in the situation where individual customers such as us cannot choose another retailer, then we are stuck if our retailer says, "No, sorry, we can't sign you up", then we have not got a Green Power option. [258]

The question was put EnergyAustralia, the sole provider of Green Power to government agencies under contract:

> **CHAIR:** Is there much capacity left to buy Green Power?
>
> **Mr GORDON**: It is limited. As I said before, the Commonwealth legislation has driven a significant demand for renewable energy certificates, which is in effect another usage, and because that has dramatically increased the demand for say generators to provide, then it has pushed up the cost and reduced availability somewhat. Where that goes in the next couple of years, given that the form of legislation has only been in place since April, so we are just starting to see those effects, first a reporting period is end of this calendar year, so we are just starting to see those effects in the market place, but it is certainly getting more difficult to buy renewable energy and more expensive.
>
> **Mr PICCOLI**: How much of that is coming on line in the near future?
>
> **Mr GORDON**: Well, substantial quantities. I can only assume. I cannot say that I know specifically, but I know about quite a lot of projects that have been mooted that have been pulled through by the establishment of the legislation that would not have gone otherwise. Quite a bit in Victoria. The wind farms in Victoria are proceeding in several places that would not have otherwise, and some biomass projects that I am aware of that I believe are proceeding, but again it is more anecdotal evidence, rather than hard evidence that we offer. [259]

The Sustainable Energy Industry Association was somewhat perplexed at the failure of projects to get off the ground. According to SEIA, there were many projects waiting in the wings:

> **CHAIR:** Is there that much Green Power?
>
> **Mr PRECIOUS**: There is and there will be if the correct signals are given to the market. It is extraordinary at the moment, and I really do not understand why, and our association needs to do some work on it at the moment, that there are many projects waiting there in the wings. There are many energy projects waiting in the wings that need what is called a power purchase agreement to get off the ground. That is a commitment that a retailer will buy the energy from that green source. Our members have got, I would guess, hundreds of projects across the country that are awaiting a power purchase agreement. There are plenty of technologies and well known applications now that would be cost effective should they get that power purchase agreement, but they have got to strike that with the existing retailers.

[258] ibid p32
[259] Transcripts of Evidence 16 Nov p10

> If I, even as a private citizen, ring up Energy Australia today and ask to be diverted across to their pure energy product, they say, "Sure, we will put you on the waiting list". I do not quite understand the nexus between all these projects waiting there in the wings and Energy Australia saying, "We are not buying any more. We will put you on the waiting list." [260]

3.4.2.1 RENEWABLE ENERGY CERTIFICATES (RECS)

EnergyAustralia's comments on the conflict between Green Power and Renewable Energy Certificates (RECs) are worth further consideration.

In order to encourage investment in the renewable energy industry the federal government now requires electricity retailers to source approximately 2 per cent of their product from renewable energy sources by 2010 (based on 1997 output). This is known as the Mandatory Renewable Energy Target.

Renewable Energy Certificates are a mechanism for tracking the generation of renewable energy. RECs are created by the production of renewable energy, with one REC being created for every megawatt hour of renewable energy produced. RECs can be bought and sold. The process is regulated by the Office of the Renewable Energy Regulator.

SEDA has observed that "an accredited Green Power product will not be allowed to include this renewable energy generation as part of the requirements under the Mandatory Renewable Energy Targets. This will ensure an increase in new generation over and above mandatory targets and keep the two markets separate". [261]

Anyone who owns a renewable energy generator can register the generator to create RECs. This includes solar water heaters and domestic solar power systems. To be eligible for a REC a solar water heater must, generally, replace an existing electric hot water heater.

The potential role of RECs in government energy policy was discussed in detail with Professor Outhred, from the Australian Cooperative Research Centre for Renewable Energy and Dr Watt from the Centre for Photovoltaic Engineering UNSW:

Professor Outhred made an interesting point on the relationship between Green Power and renewable energy:

> **Professor OUTHRED**: …while the Green Power schemes are very important as an early initiative, what they do not do is give the final consumer a choice in how they support renewable energy, nor do they allow the consumers to decouple their energy consumption from their support for electricity. The only way you can, if you like, express your support for Green Power is by buying more electricity, and this is a problem for your Government agencies. You do not want to encourage them to buy electricity, but you do want them to support renewable energy. You can decouple that by moving away from the Green Power concept to the renewable energy certificates. So there is a way of doing it better. It is another example of how

[260] Transcripts of Evidence 18 Oct p22
[261] SEDA Fact Sheet Renewable Energy Certificates December 01

> you achieve your underlying cost objectives better, by thinking carefully about how you process it. [262]

Professor Outhred explored this with regard to being locked into the one retailer:

> **Professor OUTHRED**: Another major weakness is the one you were exploring before, you obviously can only deal with your specific retailer, you effectively have to deal with a monopoly supplier. So if EnergyAustralia says, "Sorry, guys, we can only put you on a waiting list", there is no reason why we have to get ourselves into that mess. It is really only the way the policy is set up that has created that monopoly. The renewable energy certificates approach, for example, does not do that. You can buy certificates from anyone. It is decoupled from electricity, so they can buy as many certificates as they like, independent of how much electricity they consume, so that overcomes a lot of my frustrations, but I can also buy them from whomever I like and they will still be renewable energy generators, so I am not locked into Energy Australia or whoever happens to be my retailer. The Government has the same problem. The Government has signed a contract with an electricity retailer and that means none of your individual agencies now have any authority in making a Green Power decision because it is dealt with as part of the Government's contract.

It made no sense then

> "if they purchase above the six percent. …So you are putting an unnecessary barrier in the way of a policy objective, but you are also removing their autonomy to do something which meets other of their organisation's objectives". [263]

According to Professor Outhred, RECs had the major advantage of simplifying the targets from a complex technical issue to a simple monetary value which was easily understood and implemented by line managers:

Professor Outhred outlined the reasoning at pubic hearings:

> **Professor OUTHRED:** With regard to those objectives and our prior experience we believe that it is important to change or translate those quite complex technical objectives into ones that are much more readily accessible for the line managers that are actually working in the government organisations.....What I am trying to stress is that, instead of having some sort of nice technical criterion which can be understood by someone who has studied in the area for 20 years, who has a PhD and so on, it has to be something that is translated into a mechanism that is understandable by the real people, if you like, that have the real jobs in those organisations. That is the point I am trying to make. At the moment I do not believe enough is being done to make it accessible.
>
> **CHAIR:** Like a plain English policy?
>
> **Professor OUTHRED:** Yes, exactly, but there needs to be more than plain language, there need to be plain ideas.
>
> **CHAIR:** And you are also saying it would be easier if you translated energy targets or benchmarks?…..

[262] Transcripts of Evidence 18 Oct p32
[263] ibid p39

> **Professor OUTHRED:** Yes, basically I believe that the most plausible way of doing this is to translate it into things that are budget related, are monetised. For example, the Federal Government introduced legislation that has created renewable energy certificates which are now tradable certificates which have a value, but it is just as simple as that, a certificate. It has a price and the regulated entities there have to accumulate a certain number of certificates. That is understandable.
>
> **Mr BROWN:** They achieve a certificate depending on how much renewable energy they consume?
>
> **Professor OUTHRED:** In that case it is related to renewable energy, but in your case it depends on the policy objectives. We could create, for example, an energy efficiency certificate, so again it means they do not have to worry about whether it is a more efficient refrigerator or a change to the air-conditioning system - somebody in the background needs to know that.[264]

One of the problems identified was the lack of knowledge of RECs, a lack which was missing opportunities to utilise them to refine and target the policy:

> **Dr WATT**: And, again, the certificates have only just started to operate and the general community has no awareness that they can approach the certificates. There is no marketing of that at all. If the Government were to be pro-active and to start to press the certificates and to talk about that and promote it, it would be playing quite a large community role in just opening up that whole area of how you can buy green electricity in some other way, because the retailers, it is just part of their license, their requirements now, they are not going to put any marketing effort into that, or no-one has got any incentive to put any marketing effort into it, and so the general consumer will never find out what the opportunities are at all.
>
> **Professor OUTHRED**: From the Government's perspective the nice thing about these certificates is that they are each traceable back to a particular generator, so the Government can say to organisations, "You can buy these things but you can only buy them from within New South Wales" or you can only buy whatever they support, whether it is hydro or wind or thermal tanks. You can build into it those policy objectives, and then, because it is all audited, then you do not have to worry any further about whether the organisation is doing the right thing, because all the auditing is already done through the Australian Greenhouse Office and it is a very simple matter to check whether they are meeting that policy objective.[265]

COMMENT

Policy objectives are more readily achieved when all the available tools are focused and integrated. At the moment, Green Power seems to be partly in and partly out of GEMP. The Committee has come to the view that Green Power purchasing requirements on agencies should be included in GEMP so that it operates seamlessly as part of the energy policy framework. After all the reduction of greenhouse gases is one of the main objectives of the policy and renewable energy is an important tool in pursuing these objectives. Green Power, therefore, should be an integral part of the Government's energy policy. This would improve the Government's ability to utilise Green Power in pursuing policy outcomes, particularly

[264] ibid p31
[265] ibid p 40

as circumstances (eg availability/price of Green Power) vary over time. At the same time all the available, acceptable renewable energy options should be assessed as part of the policy.

The Committee is concerned that limitations on and higher costs for Green Power is hindering a move to renewable energy by government agencies. It is particularly concerned that renewable energy sources (Green Power and Renewable Energy Credits) could be competing against each other and thus, in the words of EnergyAustralia, pushing up the cost and reducing the availability.

The Committee needs to register strongly its concern in this area.

The issue of the cost of Green Power in relation to coal-fired electricity poses a significant dilemma in trying to achieve all the objectives of the energy management policy.

SEDA argues that the increase is not significant, pointing out that its purchase of 100 per cent Green Power is currently costing it one per cent extra in overall operational expenses. This in a regime where the Government is looking for consumption (and hence cost reductions) in the order of 25 per cent. Savings of this magnitude could fund significant Green Power purchases.

Nonetheless it is still a cost impost.

The limits on the availability of Green Power appear at odds with advice from the Sustainable Energy Industry Association that there are many renewable projects ready to proceed.

The government needs to look at ways to encourage flexibility in its own contract system. Professor Outhred has called the current arrangement a monopoly If, say EnergyAustralia, cannot provide all the renewable energy required by the Government or sought by agencies then alternative sources should be available. As all sites are now contestable, agencies should be able to purchase their Green Power from any retailer.

The Committee also sees the merit in Professor Outhred's argument of the need to decouple the support for renewable energy from the actual purchasing of electricity.

These are complex yet vital issues. The Committee came to the view that they need further investigation to identify the best way to utilise all aspects of available renewable energy within the Government Energy Management Policy.

RECOMMENDATION TWENTY FOUR

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

This recommendation should be considered with the following:

RECOMMENDATION TWENTY FIVE

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.

CHAPTER FOUR – NatHERS

4.1 BACKGROUND

The third term of reference for this inquiry was "progress towards the statewide implementation of the National Home Energy Rating Scheme (NatHERS) by local government".

Residential buildings consume more than $1.5 billion in electricity each year, creating more than 15 million tonnes of greenhouse gas emissions. They use one third of the State's energy.

According to SEDA most homes could reduce greenhouse gas emissions by 30 per cent through cost-effective means. This would result in energy savings of over $300 per annum for each household and, for the state, a saving of $450 million to the economy and over 4.5 million tonnes of greenhouse gas emissions per year.

In order to integrate energy reduction objectives into residential design and construction SEDA, with the cooperation of the housing industry and Local Government, launched the *Energy Smart Homes Policy* in September 1997. The policy and its program of implementation aims to promote the construction and marketing of energy efficient, low greenhouse gas emission homes which are cost-effective, quality built and comfortable to live in.

The policy sets a minimum standard for the energy performance of housing lots, house designs and fixed appliances (eg water heaters). House plans are assessed by the combinations of energy rating software with a design scorecard. The energy rating software is the National Home Energy Rating Scheme (NatHERS) which estimates the heating and cooling energy consumption of a dwelling design. The NatHERS scheme is based on the accrual of points for compliance with energy saving components such as ceiling insulation, correctly oriented windows, shaded eaves and high-efficiency hot water systems. A specific number of points must be accrued before the DA is approved.

The Executive Director of SEDA detailed aspects of the program for the Committee at public hearings:

> **Mr FOGARTY:** …..The Nationwide Home Energy Rating scheme is a house energy rating software application that estimates the heating and cooling energy consumption of dwelling design in single, dual occupancy and medium-density multi-unit sites. It was developed originally by the CSIRO in consultation with some of the State, Territory and Federal governments. In order to assist with the roll out of the Nationwide Home Energy Rating scheme, we developed an energy smart homes policy using that together with an energy scorecard to evaluate the performances of residential houses and units.
>
> SEDA has been instrumental in securing the active participation of many councils in our energy smart homes policy. We have done that without any need for a legislative base. We have managed to connect with the leadership of many councils—we have a list of those that we are talking about. I suppose that we might

> focus on western Sydney. We have received strong support from that area and from the Hunter. Councils such as Baulkham Hills, Bankstown and Penrith have adopted our energy smart homes policy, which allows them to accept or incorporate into a development control plan or some existing planning authorities the energy smart homes policy—or the 3.5 star rating scheme—for those particular houses. At the moment about 38 councils have signed up to the program. They have been targeted strategically and cover about 60 per cent of new development applications. We are very much about hitting the new subdivisions and working with councils to see whether, in rolling out their development processes, they can adopt the Nationwide Home Energy Rating scheme and the 3.5 star rating scheme.
>
> The policy has been particularly successful, and we are looking now to build upon it by working with the building community to see whether we can extract some leadership from that industry before council approval. We have received support from certain quarters, including the Housing Industry Association. Builders have said that they will incorporate that sort of approach in their new developments and new project homes so that existing purchases will be 3.5 star housing. Hopefully one day not too far away there will be solar hot water systems and so on. [266]

4.2 PROGRESS ON NATHERS

As noted above, the scheme does not have a legislative foundation as it is implemented by Councils on a voluntary basis in conjunction with SEDA.

It should be noted here that the implementation of the policy has two stages, the "joining" (the signing on) and the "implementation" (or adoption). The initial step in committing to the Energy Smart Homes Program (the joining) is by means of a Memorandum of Understanding between SEDA and the Council. The arrangement is concluded (the implementing) when the Council adopts and implements the policy (which must contain the full requirements of the SEDA model) by means of deemed environmental planning instrument (eg Local Environment Plan or Development Control Plan). [267]

The program initially targeted 40 Councils which represented approximately 50 per cent of all new residential buildings in the State. By June 1998 37 Councils (representing 46 per cent of residential development approvals) had "signed onto the program" with "several" of these having "adopted" the policy.

A year later (June 1999), 51 councils, representing 65 per cent of all new residential development applications, had joined. However, only four of the 51 had fully implemented the policy. Perhaps in acknowledgement of this low implementation rate, SEDA noted at the time in its annual report that "the major barrier preventing full implementation of the policy is council's limited resources and competing priorities".

By 2000, the total number of Councils "signed up" had risen to 55. These Councils represented 69 per cent of all new residential development applications. However, at this time still only 9 of the 55 councils, representing 10.4 per cent of new homes in NSW, had fully implemented the policy.

[266] Transcripts of Evidence 22 Aug p26
[267] SEDA Correspondence op cit

SEDA reported to the Committee that at June 2001 30 Councils were fully implementing the policy (ie 42 % of residential development applications), a significant increase on earlier figures.

4.2.1 CURRENT IMPLEMENTATION

In the joint submission to the Inquiry, SEDA/MEU reported that, at August 2001, 38 councils had now implemented the policy. These 38 Councils represented 53.9 per cent of processed Development Applications. In addition, another 26 councils have committed to adopting the policy, representing a further 20 per cent of Development Applications.[268]

COMMENT

The Committee is of the view that progress on the NatHERS and the policy should be judged on the full implementation of the program. To date, 38 Councils, making up 22 per cent of the Councils in New South Wales, have implemented the policy over a period of four years. However, these 38 Councils represent 53.9 per cent of all residential development applications.

The uptake to full implementation in the first three years of the program was quite slow. The last year has seen a significant increase, from 9 to 38, of Councils fully implementing the policy. This perhaps, reflects the time lag between Councils signing up for the policy and actually being able to ratify the necessary planning instrument.

SEDA is correct on focusing on Councils with significant levels of residential development applications. Even so, after four years just over half of the state's new residential development applications are covered by this program.

The Committee is of the view that this only a satisfactory outcome. In order to be regarded as a success, the Committee would expect to see a significant proportion of the state's residential development applications (to say 75 per cent) incorporated into the policy within the next two years.

FINDING 4

THAT the full implementation by Councils of NatHERS and the Energy Smart Homes Program has been slow. While the speed of implementation has increased over the last year, just over half of the state (in terms of new residential applications) has been covered in four years.

4.2.2 STATE ENVIRONMENT PLANNING POLICY (SEPP) 60

While the primary mechanism for the implementation of NatHERS is SEDA's Energy Smart Homes Policy, the scheme also falls with State Environmental Planning Policy (SEPP) 60 – Exempt and Complying Development.

Councils can elect not to be covered by SEPP 60 by adopting their own Exempt and Complying Local Environment Plan.

[268] Joint Submission op cit p11

Complying development applies to those developments with little or no environmental impacts and compliance is assessed against predetermined development standards. One of those development standards for a residential dwelling house is a 3.5 star NatHERS rating which would have to be met (along with all other standards) in order to qualify as a complying development either under SEPP 60 or and exempt and complying LEP.

If the proposal does not comply with all the requirements of a complying development it becomes subject to a normal Development Application process, which may or may not include energy efficiency requirements.

The whole state is effectively covered by these provisions. Currently some 100 Councils have adopted their own Exempt and Complying LEPs and, by definition therefore, the remaining (approximately 73) Councils are covered by SEPP 60.

However, this does not capture all new applications. Figures are not available to determine what proportion of residential developments would be processed under SEPP 60/Exempt and Complying LEPs but based on Committee Members own experiences of these matters, the Committee would be surprised if it were more than 50 per cent.

4.3 PROBLEMS

4.3.1 ISSUES RAISED BY ROYAL AUSTRALIAN INSTITUTE OF ARCHITECTS

The Committee heard some major criticisms of the NatHERS and the Energy Smart Home Policy scheme. These were not criticisms of the principle behind the policy, that is, the improved energy efficiency of new residential buildings, rather, the criticisms related to the limitations and operations of the scheme, although some would certainly be regarded as significant in nature.

The Royal Australian Institute of Architects (RAIA) made a detailed presentation to the Committee on what it regarded as the failings of the scheme.

The general criticism of the scheme is that it is too narrow in that “it does not really deal with environmentally sustainable design, it deals with only one small portion of it, that is energy and CO2 targets for thermal comfort.” The Institute suggested adopting the National Building Environmental Rating Scheme (NABERS) because it takes a “much more holistic approach.”[269]

The representative of the Institute, Mr Wheeler, outlined to the Committee seven specific areas of concern [see tabled document in Appendix 6] These areas are summarised here with additional material where appropriate:

1. Scope

NatHERS is far too limited in scope, according to RAIA, dealing with on one aspect of ESD (thermal comfort). A whole of building approach is needed to look at other energy uses and environmental concerns.

[269] Transcripts of Evidence 25 Oct p17

2. Coverage

NatHERS (or any similar scheme) should apply to all housing planning applications, not just new housing.

Mr Wheeler pointed out that a significant section of the residential market was not being captured under the current policy, which applied only to new housing (in council areas which have implemented the scheme). Figures indicate that there has been a 12 per cent increase in the number of people not moving house. They are "staying put and therefore more likely to do alterations and additions". Now, in Australia, alterations and additions to existing residential properties based on figures from over two years ago are worth about $22 billion (and increasing) while new buildings are worth about $28 billion.

> **Mr Wheeler:**…On that basis most people are doing alterations and additions to a house on a seven to 10 year cycle. In other words, they are seeking permission from council to change a house. What we at the Institute of Architects are saying is when that happens it should include a clause that says that the house should be looked at retrospectively to improve its performance. [270]

Because such alterations and additions require permission from councils, this is a perfect opportunity to upgrade housing but using a more holistic model such as NABERS.

3. Application

The application of the scheme is creating anomalies. Because the current 5 star rating system is based on energy use per square metre, the scheme disadvantages little houses for "it is very hard to get a five star rating [on a small house] but a huge house is relatively easy". This "means that developers get away with it because they are designing bigger and bigger houses and the bigger the house the easier it is. It is completely the wrong way around" and is "completely counter-intuitive to what it should be doing." [271]

4. Implementation

NatHERS has been implemented in a haphazard way. The individual interpretation open to councils can create unnecessary confusion for design professionals. The FirstRate scheme in the Victorian ResCode planning documents is a much more preferable approach.

5. Program Choice

NatHERS is not the best tool available. Other rating tools such as FirstRate or BERS are preferable.

6. Program Shortcomings

NatHERS has modeling shortcomings which adversely affect architect designed houses. Particular areas of concern are the modeling of complex spaces, measurement of summer comfort from natural ventilation, and the use of innovative materials.

7. Individual Design

[270] Transcripts of Evidence 25 Oct p31
[271] ibid p23

Certain designs fall outside the NatHERS parameters of thermal comfort levels. As well certain ESD design features such as stack ventilation and mechanical diurnal cooling, are not modeled by NatHERS.

4.3.2 OTHER VIEWS

Through the course of the inquiry, a number of other views were put to the Committee on NatHERS.

Armidale City Council

This issue of a state-wide approach was taken up by Armidale City Council in its 1999 submission. It had been advised by the NSW Department of Urban Affairs and Planning (DUAP) "that it would make a NatHERS rating of 3½ Stars a State benchmark for new dwellings following 1997 amendments to the Environmental Planning and Assessment Act. Specifically, such a rating was to be one of the preconditions for the certification of dwellings as "Complying Development" under the Act." In the interim, because of its ongoing commitment to the development and implementation of energy efficiency policies, Armidale Council had became involved with the NatHERS scheme by training two staff as accredited NatHERS assessors and providing a free advisory rating service for new homes. However, according to the Council, when the Policy was released there was no mention of NatHERS.

The Council concluded that "NatHERS will only have the fundamental effect on home design in NSW which was intended by its designers if and when it becomes a mandatory part of the domestic building approval process".[272]

It is clear from Section 4.2.2 above that these Complying Development arrangements have now been introduced. Thus, while this issue has been resolved to some extent, the use of a rating scheme for new residential development is still not mandatory, as recommended by Armidale Council.

PlanningNSW:

Mr Fielding from PlanningNSW suggested to the Committee that there was room to improve NatHERS: "we do not believe that NatHERS is necessarily the best energy rating system, but it appears to the best available to us at this stage". [273]

Camden City Council

It advised the Committee in its submission that it had introduced the NatHERS scheme, vie DCP 94 – Building Energy Conservation, which "has proven to be an effective design and assessment tool". The Council also noted that it had introduced the scheme following research which indicated that "good design costs no more than bad design",[274] a point supported by Mr Fielding in evidence: "my personal view, based on years of experience in planning, is that I do not believe it [good design] is going to cost significantly more, but there will be some additional cost".[275]

[272] Submission No 1, Armidale City Council p2
[273] Transcripts of Evidence 30 Nov p 19
[274] Submission No 17, Camden City Council
[275] Transcripts of Evidence 30 Nov p21

SEDA

SEDA acknowledged that there "has been concern with regard to the ability of NatHERS to rate certain dwelling types. It has been accepted that it is in need of refinement for certain applications". SEDA pointed out that it was setting up "concession-based policies" for those circumstances where "NatHERS does not provide an appropriate rating".

SEDA was, from a longer-term perspective, actively addressing NatHERS limitation. It is a member of a NatHERS Management Committee which intends to address various issues on a national basis. At the moment there has been a "Call for Submissions" which SEDA has been facilitating in NSW. [276]

Mr Stephen Pupilli

A consultant in the energy industry, he was not as critical as the RAIA of NatHERS, although did concede it was only suitable for "simple domestic buildings" so that for "a fairly complicated house with a lot of unusual features" "you have to resort to more complicated programs". He was of the view that NatHERS is not suitable for "commercial or more complicated buildings" or "even high rise residential" because NatHERS will not address the issues involved in those sort of developments". Accordingly, the rating tool needs to be "appropriate for the type of building".[277]

Some Councils have run into trouble when applying NatHERS incorrectly:

> **Mr PUPILLI:** I think all should go through some sort of process. I think that is one of the key strategies, that there is a review appropriate for the type of building. NatHERS is fine for simple domestic buildings. Several councils tried to apply it to everything and it does not make sense, so we find often that in those situations we use our own more complicated programs which are designed to do major commercial type buildings, because it is just not feasible to use something like NatHERS.[278]

It was Mr Pupilli's view that cost can be an issue:

> **Mr PUPILLI:** Certainly for domestic dwellings you could not expect private citizens to spend $500 or $ 600 to do a detailed modeling of just a house, so NatHERS type analysis is quite satisfactory. Even in those cases we have had to resort to more complicated programs if you get a fairly complicated house with a lot of unusual features.[279]

Penrith City Council

The Committee spoke with Penrith City Council in order to gauge the experience of a Council with NatHERS. Penrith adopted SEDA's Energy Smart Homes Program in line with Council's broader policy framework of its "plan of management of energy efficiency in the local government area". The policy was incorporated as a development control plan. It required a NatHERS rating of three and a half stars.

[276] SEDA Correspondence op cit
[277] Transcripts of Evidence 25 October p5
[278] Transcripts of Evidence 25 Oct p6
[279] ibid pp 6,7

Council advised that its attraction was that the tool has been developed by experts and has not required Council resources to develop.

> **Mr BRODERICK:** We, at the time, recognised that it was a tool for rating the energy efficiency of a house. It is not the only way of doing it, but SEDA had developed a formula and a method that was easy to adapt. Our local council did not have the staff or the expertise to develop anything like that itself, so I suppose it was presented in a way that was palatable; three-and-a-half stars was not setting the bar too high and it could be introduced without upsetting the apple cart too much for the local building industry, or new home owners for that matter. [280]

The Council advised that NatHERS was only being applied to new residential dwellings and acknowledged that this "is just a small part of what is out there" and that it had "not even begun to think about how we retrofit the efficiency of the vast majority of existing houses for example". [281]

For the Council this might be an emerging issue, as Mr Broderick explained. The new release areas are "easy targets" for energy efficiency because with a new development control plan for the whole new area "you have got a captured audience". However, the Council is now looking at infill development and

> **Mr Broderick:**…now approving multi-unit housing within a lot of residential areas, as an example, with the Energy Smart criteria and everything else in amongst a row of 1950 homes that have no insulation and are probably very inefficient. So it is a bit of a lumpy environment that is emerging out there. That is why I would be interested in how you address retrospectively the existing homes.[282]

While not currently "a big selling point", one or two of the bigger home building companies, the project home companies, market their homes with a star rating. [283]

Council concluded on the important point that "there is a lot of misconceptions about all of those things, that you somehow have to lower your standard of living to be energy efficient. It is not the case". [284]

4.4 RELATED ISSUES:

4.4.1 ACT HOUSING ENERGY RATING SCHEME

In evidence, Mr Wheeler had raised the ACT Housing Energy Rating Scheme with the Committee:

> **Mr WHEELER:** ….The ACTHERS, as it is called, the ACT Housing Energy Rating Scheme, which is basically NatHERS rebranded, operates there. It has two advantages. Canberra has a very cold climate. NatHERS is really a cold climate rating tool. It does not work very well at Coffs Harbour but it works great in Canberra. In Canberra it has been operating for longer than it has anywhere else in Australia and now it is mandatory before you sell a house in the ACT that, as part of

[280] Transcripts of Evidence 16 Nov pp 22/3
[281] ibid p26
[282] ibid p33
[283] ibid p31
[284] ibid p34

> the advertising, part of the contract for sale, it would have a rating. If there are two houses on the market in similar locations, similar form, and one has a much higher rating than the other, there is evidence in the ACT that it will attract a higher price. In other words, that rating has a real estate premium attached to it. It is early days yet and the evidence is not conclusive, but certainly the anecdotal evidence in Canberra is that people are concerned about the rating of their house. You have to remember though that in Canberra the energy use per house for thermal comfort, particularly for heating, is twice what it is in Sydney, the expenditure is twice, so they are much more concerned about it. [285]

The Committee raised this with PlanningNSW. From 1995 all new residences in the ACT were required to achieve a minimum of four-star rating. In 1999, the *Energy Efficiency Ratings (Sale of Premises) Act 1997* came into operation. The Act requires the energy rating of an existing dwelling to be disclosed in advertisements for sale as well as the provision of the Energy Rating Report by the vendor to the purchaser prior to entering into a contract for sale. The ACT Home Energy Rating Scheme utilises the Victorian *FirstRate* model and conforms with NatHERS.

Mr Fielding advised that the scheme appeared to be having a good effect but it was more suited to cold climates:

> **Mr FIELDING:** I think it is a very effective means of getting up front this whole energy efficiency issue for people wishing to buy dwellings. In talking to my counterparts in the ACT it has been a very positive innovation, if I can term it that. People are starting to look at preferring, of course, to buy a house say with a four star rating as opposed to one that might have a two star rating. Can I say down there, in many respects because of how cold it gets in winter, the energy rating is probably viewed as being of more importance than perhaps it is in Sydney but I would not see it as being more important in say the ACT than it would be in Armidale.
>
> **CHAIR:** Has it led, to your knowledge, to people looking at ways to upgrade their energy efficiency of their homes so that you are selling your star rating increases?
>
> **Mr FIELDING:** Yes. The Department of Planning and Land Management in the ACT says that people contemplating selling their houses do look at what measures they can take to increase the energy rating. I guess what they do is balance it out. Is it worth spending that? Is it going to return me at least my outlay? [286]

4.4.2 BUILDING CODE OF AUSTRALIA

The Australian Building Codes Board and the Australian Greenhouse Office have been developing proposals for the incorporating energy efficiency measures for building design and construction into the Building Code of Australia. Mr Fielding from PlanningNSW described for the Committee developments in this area, particularly as they relate to a joint report tabled in April last year:

> **Mr Fielding:** … The report you will see describes in conceptual terms the energy efficiency measures that are being proposed for incorporation into the Building Code of Australia. On page 16 of that report those measures are described. They are intended to achieve significant improvement in energy usage and eliminate

[285] Transcripts of Evidence 25 Oct p23
[286] Transcripts of Evidence 30 Nov p22

> worst practice as far as building activity is concerned, but also avoid excessive technical and commercial risks and other reasonable costs in doing that.
>
> ….The report has been prepared in association with Australian Greenhouse Office, the Commonwealth Department of Industry Science and Resources, the Property Council of Australia, and I think importantly also the Housing Industry Association, the Master Builders' Association and peak bodies represented by the Australian Building Energy Council, amongst others.
>
> New South Wales in its input into the Australian Building Codes Board report consulted with other key stakeholders, including the New South Wales Ministry of Energy, SEDA, and Solarch from the University of New South Wales in the preparation of that report.
>
> …..It is proposed to release corresponding documentation for all other buildings, principally commercial buildings, by mid 2003. The focus initially is on housing, so in the amendments in respect of housing we anticipate that the energy efficiency measures for houses will be incorporated into the Building Code of Australia in January 2003. That is when all those recommended changes, if they are adopted by the Australian Building Codes Board, will come into legal effect throughout Australia, throughout each State and Territory.[287]

COMMENT

The Committee is of the view that the Energy Smart Homes Program and its associated tool the NatHERS has been a good start in addressing the greenhouse gas emission issues at the residential level.

While it is good to see that half of the state's new residential development applications covered by the program, it would like to see the coverage extended considerably as soon as possible. There is some merit in argument that it should be applied uniformly on a state-wide basis. The method to date has avoided a mandatory approach. If significant inroads are not made in incorporating the remainder of the state in the next two years, then compulsion should be considered.

At the moment only new residential developments are addressing energy efficiency in housing design. The Committee agrees that the application of a suitable rating scheme only to new residential developments is missing a huge segment of the housing stock. An application to Council for alterations or additions to an existing dwelling is an ideal opportunity to address energy efficiency of the whole residence However, there are likely to be significant costs involved in this approach. The Committee does not agree that measures to improve energy efficiency of houses should be mandatory. Instead it incentives should be developed.

One mechanism to encourage consumer awareness and drive energy efficiency is he energy rating of houses at the time of sale as operates in the ACT. It is unlikely that the cost of producing such a rating should be onerous. The Committee has concluded that the development of a similar mechanism for New South Wales conditions is worth careful consideration. However, this should only occur with a rating scheme suitable for the range of conditions in New South Wales.

[287] ibid pp 20,21

In response to the type of concerns raised by the RAIA regarding NatHERS, SEDA has advised that it has established a “concession-based policies” for those situations where NatHERS does not give the appropriate rating. This indicates to the Committee that the NatHERS tool is not working properly. Rather than create exemptions (concessions) it would be far better to have rating tool that adequately addresses all circumstances. If this cannot be achieved then a range of rating tools should be available for the particular task at hand (as observed by Mr Pupilli). The Committee expects the current review of the NatHERS is addressing these issues.

In this regard, SEDA has recognised the current limitations of NatHERS and is currently involved in a process to deal with them. The Committee strongly urges that the limitations to NatHERS outlined by the Royal Australian Institute of Architects are addressed in the review process.

RECOMMENDATION 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

RECOMMENDATION 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

GLOSSARY and ***LIST OF APPENDICES***

AMEIF	Australian Municipal Energy Improvement Facility
BGRS	Building Greenhouse Rating Scheme
CPP	Crown Property Portfolio
DPWS	Department of Public Works and Services
EIT	Energy Intensity Target
EPC	Energy Performance Contract
GEEIP	Government Energy Efficiency Investment Program
GEMP	Government Energy Management Policy
MEU	Ministry of Energy and Utilities
NATHERS	National Home Energy Rating Scheme
REC	Renewable Energy Certificate
SCCB	State Contracts Control Board
SEDA	Sustainable Energy Development Authority
SEIA	Sustainable Energy Industry Association

1. Submissions

2. Witnesses

3. Joint Submission, Ministry of Energy and Utilities and SEDA

4. Building Consumption Data

5. Hunter Area Health Service

6. Royal Institute of Australian Architects

7. *Jobs from Saving Energy*, Big Switch Projects

APPENDIX ONE

List of Submissions

1. *The Council of the City of Armidale*
2. *Parliament House of New South Wales*
3. *New South Wales Ombudsman*
4. *Department of Gaming and Racing*
5. *STARK Energy Information Systems*
6. *Parramatta City Council*
7. *Australasian Energy Performance Contracting Association*
8. *The University of New South Wales*
9. *North Power*
10. *Transgrid*
11. *DPP Office of the Director of Public Prosecutions*
12. *Darling Harbour Authority*
13. *Great Southern Energy*
14. *Department of Industrial Relations*
15. *AdvanceEnergy*
16. *Macquarie Generation*
17. *Camden Council*
18. *New South Wales Lotteries Corporation*
19. *New South Wales EPA*
20. *Department of Corrective Services*
21. *New South Wales Fire Brigades*
22. *Waste Services New South Wales*
23. *New South Wales Rural Fire Services*
24. *State Emergency Services*
25. *Sydney Catchment Authority*
26. *Office for Emergency Services*
27. *Sustainable Energy Industry Association (SEIA)*
28. *Sydney Harbour Foreshore Authority*
29. *Energy Australia*
30. *Department of Community Services*
31. *Ageing and Disability Services*
32. *Department for Women*
33. *Home Care Services of New South Wales*
34. *Department of Local Government*
35. *Ministry of Energy and Utilities*
36. *Department of Information Technology and Management*
37. *Land Titles Office*
38. *Valuer-General's Office*
39. *Land Information Centre*
40. *Sustainable Energy Development Authority*
41. *State Forests*
42. *Pacific Power*
43. *Sydney Water*
44. *Hunter Water*

45. *Department of Mineral Resources*
46. *New South Wales Fisheries*
47. *New South Wales Department of Housing*
48. *Department of Urban Affairs and Planning*
49. *Community Services Commission*
50. *Public Trustee*
51. *New South Wales Treasury*
52. *Motor Accident Authority*
53. *New South Wales Agriculture*
54. *Department of Land and Water Conservation*
55. *Department of State and Regional Development*
56. *New South Wales Health*
57. *Department of Juvenile Justice*
58. *Department of Transport*
59. *Roads and Traffic Authority*
60. *State Rail Authority*
61. *State Transit Authority*
62. *Waterways Authority*
63. *Aboriginal Affairs*
64. *Regional Development*
65. *The Ministry for the Arts*
66. *The Ethnic Affairs Commission*
67. *The Parliamentary Counsels Office*
68. *Ministry for the Arts*
69. *Department of Public Works and Services*
70. *National Parks and Wildlife Services*

APPENDIX TWO

List of Witnesses

WEDNESDAY 22 AUGUST 2001

MINISTRY OF ENERGY AND UTILITIES

Ms. Jane McAloon, Director- General
Dr. Tadipatri Prasad, Principal Project Officer

SUSTAINABLE ENERGY DEVELOPMENT AUTHORITY

Mr Mark Fogarty, Executive Director
Mr Ian Higgins, Group Manager, Business Energy Efficiency
Mr Daniel Cooper, Project Leader, Energy Efficiency

THURSDAY 18 OCTOBER 2001

DEPARTMENT OF PUBLIC WORKS AND SERVICES

Mr Graham Fry, Senior Portfolio Manager, Capital Works - Crown Property Portfolio,
Mr Colin Campbell**,** Manager, Asset Policy and Strategy
Mr Christopher Oh, Policy Manager, Construction Industry and Environment,
Mr Roy Craddock, Team Leader, Energy Services

SUSTAINABLE ENERGY INDUSTRY ASSOCIATION & AUSTRALIAN ENERGY PERFORMANCE CONTRACTING ASSOCIATION

Mr Bruce Precious, Director

AUSTRALIAN CO-OPERATIVE RESEARCH CENTRE FOR RENEWABLE ENERGY (UNSW) AND CENTRE FOR PHOTOVOLTAIC ENGINEERING UNSW

Associate Professor Hugh Outhred
Dr Muriel Watt

AUSTRALIAN MUNICIPAL ENERGY IMPROVEMENT FACILITY (NEWCASTLE CITY COUNCIL)

Mr Mark Squires, Acting Director
Ms Rachael O'leary, Community Partnership and Research, Newcastle City Council,

FRIDAY 19 OCTOBER 2001

HUNTER AREA HEALTH SERVICE

Mr John Stanton, Project Co-ordinator, Capital Works and Physical Resources,

NSW POLICE SERVICE

Mr Barry Mullins, Manager, Property Services,
Mr Ross Mills, Facility Manager, Asset Maintenance Unit, Property Services,

DEPARTMENT OF JUVENILE JUSTICE

Mr Robert Hermann**,** Director, Corporate Services,

Ms Stephanie Cross**,** Director of Human Resources

DEPARTMENT OF HOUSING

Mr John Gordon, Manager, Maintenance Improvement Policy,

THURSDAY 25 OCTOBER 2001

EMET CONSULTANTS PTY LTD

Mr Stephen Pupilli, Managing Director

ATTORNEY-GENERAL'S DEPARTMENT

Mr Bill Brown, Director Capital Works, and Energy Manager,
Mr Brian Huttly**,** Energy and Environment Coordinator,

INSTITUTE OF ARCHITECTS

Mr Tone Wheeler, Deputy Chair, Environmentally Sustainable Design Committee, Royal Australian Institute of Architects

FRIDAY 16 NOVEMBER 2001

ENERGYAUSTRALIA

Mr Geoff Lilliss, General Manager, Customer Service
Mr Neil Gordon, Manager, Sustainable Energy

DEPT OF EDUCATION AND TRAINING

Mr Brian Frankham, Director, Properties Support
Mr Garry Stevenson, Ecological Sustainable Development Officer

PENRITH CITY COUNCIL

Ms Louise Petchell, Senior Environmental Planner
Mr Mark Broderick, Senior Environmental Planner

DEPT OF CORRECTIVE SERVICES

Mr John Desborough, Property Manager

NSW AGRICULTURE

Mr Tony Heffernan, Acting Executive Director, Administration
Mr Chris Weale, Assets Manager

FRIDAY 30 NOVEMBER 2001

ENVIRONMENT PROTECTION AUTHORITY

Mr Alan Ramsey Executive Director, Finance and Administration
Mr Terry Meredith, A/Director, Corporate Services
Mr James Barrett, Facilities and Energy Coordinator

DEPARTMENT OF HEALTH

Mr David Gates, General Manager, Asset and Procurement Services
Mr Matthew Pedrana, Acting Associate Director, Strategic Procurement

DEPARTMENT OF URBAN AFFAIRS AND PLANNING

Mr Garry Fielding, Executive Director, Planning and Building System

APPENDIX THREE

Joint Submission Ministry of Energy and Utilities and Sustainable Energy Development Authority

(Tabled 22 August 2001)

APPENDIX FOUR

Building Consumption Data for All Reporting Agencies with Percentage Change

APPENDIX FIVE

Hunter Area Health Service (Mr John Stanton)

APPENDIX SIX

Royal Australian Institute of Architects
(Mr Tone Wheeler)

APPENDIX SEVEN

JOBS FROM SAVING ENERGY
BIG SWITCH PROJECTS