



**Submission to the Victorian Parliamentary
Environment and Natural Resources Committee**

Inquiry into Energy Efficiency Services

**Australasian Energy Performance Contracting
Association**

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Introduction

The Australasian Energy Performance Contracting Association (AEPCA) comprises members from Energy Service Companies (ESCO's), State Government Departments and private companies interested in energy efficiency and the energy performance contracting process. Its mission is to support the commercial growth of members and their market through education, industry promotion, self-regulation and industry standards.

Efficient use of energy should be the cornerstone of the energy policy of all governments. Energy efficiency improves productivity and economic competitiveness; avoids supply and transmission infrastructure investments; and provides employment, economic growth, export opportunities and cost effective greenhouse abatement, all at a net economic benefit.

Energy-efficient buildings, appliances and equipment use less power in hot conditions, and reduce the load on electricity supply infrastructure, making them critical to avoiding power blackouts in hot weather. Reducing peak electricity demand not only reduces the risk of loss of economic output through supply interruptions, it also reduces the required investment to expand supply and transmission infrastructure.

Energy Performance Contracting (EPC) has been proven to be an effective mechanism for improving energy efficiency across a wide range of facilities. Over \$100 million of energy system upgrades have now been completed using this method. In addition it has created jobs in a new energy services sector of the economy. This submission focuses energy efficiency services from the perspective of the further contribution that can be made through EPC, and how energy efficiency improvements can be realised through an effective program of implementation.

Defining energy efficiency and the Energy Efficiency Services industry

Responsibility for energy efficiency is diffuse and pursued through many different fields. For instance, some architects will specialise in energy efficient homes; engineers can design energy efficient systems depending on a client's brief, or salespeople can influence consumer electrical appliance purchases.

AEPCA notes comments by the Australian Business Council for Sustainable Energy (BCSE) that typically, considerations of energy efficiency or greenhouse form a sub-component of a wider set of considerations in most organisations' delivery of products and services to customers. Builders, engineers, plumbers, architects, appliance and motor vehicle manufacturers and retailers all have a vital role in delivering energy services, but it is rare for them to identify themselves as being in the business of energy or energy services. It is therefore difficult to define a discernible energy efficiency "industry"; having said this, however, there are a small

number of companies that specialise in energy efficiency services, and those that do exist are very small companies, partnership or sole-proprietorship energy audit consultancies.

Adding to the lack of industry critical mass is a business and community indifference to energy costs. Energy costs are typically less than 3% of total turnover for most sectors of the economy (*Greenhouse Challenge for Energy*, Victorian Government 2004), which means that demand does not respond strongly to the price incentives offered by energy efficiency services. The gap between identified potential for cost-effective energy efficiency improvement and actual response is often described as the 'efficiency gap'. While part of the efficiency gap can be linked to rational behaviour, a substantial part of it also results from the impact of barriers such as market failures, unfavourable behavioural norms, incomplete information within and between organisations, and so on.

By way of definition, AEPCA strongly recommends that the Committee use *primary energy* as its working basis for evaluating energy efficiency improvement. Primary energy takes into account all conversion, delivery and point-of-use losses. This is particularly important where different types of energy sources are being compared, e.g. on-site cogeneration (production of heat and power on-site) typically increases end-use energy per unit of useful output, but reduces primary energy per unit of useful output, because energy that would normally be wasted at the power station is utilised in processes on the site. Similarly, using greenhouse impacts as an indicator of energy efficiency is actually much closer to primary energy efficiency than using end-use efficiency, as it takes into account conversion and/or delivery losses. Using end-use energy as an indicator can send perverse signals about overall energy use and greenhouse impacts.

In AEPCA's view, reliance upon end-use energy to set policy priorities in the analysis completed for the National Framework for Energy Efficiency (NFEE) led to a greater focus on large industry, which uses a high proportion of gas, coal and oil at point of use, than would have been justified if primary energy or greenhouse gas emissions had been used as the criterion.

Energy Performance Contracting

The International Energy Agency has described the Energy Performance Contract (EPC) as "...a promising instrument for promoting the installation and operation of energy efficient building equipment and systems" (IEADSM, *Competitive Energy Services*, 29/07/2005). An EPC is a type of contract where an Energy Services Company (ESCO) identifies and then guarantees the amount of energy saved as a result of implementing a range of energy conservation measures in a facility or range of facilities. It is the guarantee, driven by stringent processes to measure and verify the savings, that makes the contract unique, and which enables the customer to transfer the majority of the technical and financial risk of the project to the ESCO.



EPC's are typically used as a process for implementing energy and water efficiency, demand reduction or greenhouse abatement projects in existing facilities. As the ESCO is obliged to guarantee the savings, it generally looks to well tried and proven technologies, where it has a degree of comfort in guaranteeing the outcomes. Examples include more efficient lighting systems and lighting control systems, upgrades to air-conditioning, solar hot water heaters and photovoltaic cells.

In general, while the emphasis is usually on energy saving, any outcome which can be defined and ultimately measured can be incorporated into an EPC. This often includes the replacement of large capital plant, such as a chiller or boiler, where the savings from other projects offsets some of the capital cost. Typically a contract lasts 5–10 years and ends when the accumulated savings, discounted for inflation, equal the capital value of the contract. Before the contract is signed, the ESCO and customer agree on how savings under the contract will be measured and verified. The customer can (and often does) choose to appoint a third party to review measurement & verification (M&V) reports provided by the ESCO over the contract term. For a full explanation of the EPC process, refer www.aepca.asn.au.

As at March 2005 there were over 100 EPC's implemented in Australia with Commonwealth, State and Local Governments and the private sector, accounting for capital expenditure of \$206 million, annual energy savings of \$36 million, and annual CO2 reductions of 282,000 tonnes.

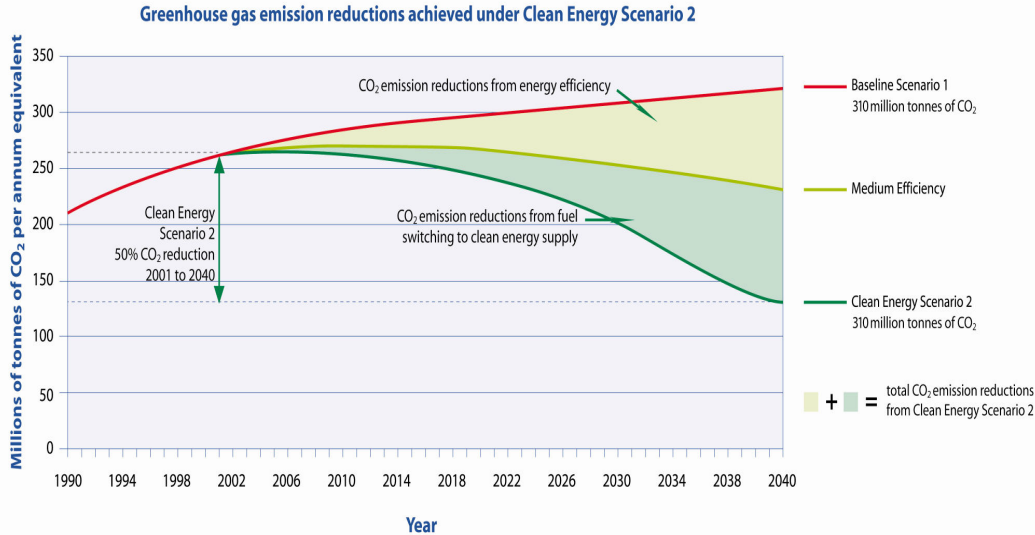
Significantly, only one of the more than 100 EPCs implemented in Australia is known to have been in Victoria given a lack of Government leadership in this field. A significant opportunity exists for the Victorian Government to bolster its commitments to energy efficiency using the Energy Performance Contracting model.

Potential benefits from energy efficiency and energy performance contracting

The scope for cost-effective energy efficiency improvements is vast and, with appropriate policy support, this potential can be increased. "Cost effective" is defined in this paper as having a positive Net Present Value (NPV) over the life cycle using a discount rate of 2.5% above the long term bond rate (this is a similar definition as used by the Australian Building Codes Board).

AEPCA jointly sponsored the recent study *A Clean Energy Future for Australia* (Saddler et al, 2004). In this study, it is estimated that energy efficiency measures could halve the projected baseline energy growth to 2040. The criteria used for these measures were that they had to be commercially available today, and that they would be cost-effective under the conditions and energy prices expected in 2040. The study was deliberately very conservative with regard to energy efficiency, but still showed that it had a very important role to play. The relative importance of

energy efficiency to achieving deep cuts in greenhouse gas emissions is illustrated in the chart below:



Note: The time path shown on this diagram is a notional one, based on the assumption that our policy recommendations are adopted

On the demand side, the Commonwealth’s Energy White Paper predicted electrical energy consumption to increase in real dollar terms from almost \$20bn in 2003 to more than \$29bn in 2020. The White Paper also highlighted the need for an investment of \$37bn to meet this increased demand under “business as usual” projections (i.e. for electricity demand increasing at 2.3% pa from 2003 to 2020).

It is estimated that a national program to reduce electricity consumption by 1% pa would deliver \$3.6bn (in real terms) in annual savings by 2020. Put another way, a program that increased the efficient use of electricity by 1% pa of national consumption would offset 38% of new electricity demand, resulting in avoided infrastructure investment of approximately \$14bn. This in turn would result in an additional \$850m to \$1b in avoided annual interest costs, and the greenhouse abatement resulting from such a program would be worth an additional \$540m per annum in carbon credits (at current EU trading prices). In Victoria, it can be assumed that savings of approximately one-quarter of these figures could be achieved, given that Victoria accounts for approximately one-quarter of national electrical energy consumption (*Energy Consumption by Victorian Industries – Data Analysis*, NEIR, 2003).

The energy performance contracting industry has the potential to contribute a minimum 10% of such a 1% national energy efficiency program. The industry is currently estimated to have annual sales of approximately \$40m per year and is projected to grow at 20% pa under the correct policy environment. Growth such as this would deliver in excess of \$50m of new, guaranteed annual electrical energy savings nationally per year.

Cumulatively by 2020, conservatively estimated national energy efficiency savings would avoid the need to invest in four new 1000MW generators.

In relation to the role of energy performance contracting, it is worth noting that commercial buildings play a key role in energy demand. This is especially so given the high rates of growth in energy consumption for commercial buildings, which is forecast to more than double by 2010 (compared to a 1990 baseline year) according to AGO studies. Further, existing commercial buildings in Australia are relatively inefficient and the property industry is highly resistant to moving from a “least first cost” procurement practice to whole-of-life cost procurement assessments.

The US report “Green Building Cost and Financial Benefits” by Gregory H. Kats (2003) quantifies the various non energy related cost savings and benefits of green buildings. The key point is that energy savings accounts for only around 10% of the total financial benefits. A summary table of these benefits is reproduced below:

Energy Savings	\$5.79/ft ²
Emissions Value	\$1.18/ft ²
Water Value	\$0.51/ft ²
Waste Value (1 yr construction)	\$0.03/ft ²
Commissioning O&M	\$8.47/ft ²
Productivity and Health	\$36.89 - \$55.33/ft ²
Green Premium	(\$4.0/ft ²)
20 Yr NPV	\$48.87-\$67.31/ft²

This indicates both a role for government and the fact that more research is needed to help qualify these additional cost savings and benefits, to provide a sound engineering basis for their inclusion in the cost/benefit analysis of energy efficiency projects.

Economic modelling undertaken for the Council of Australian Government’s National Framework for Energy Efficiency (NFEE) has shown that significant economic benefits would be delivered under the very conservative scenario of only a 50% penetration over a 12 year period of its low energy-efficiency improvement scenario (excluding the electricity supply sector). The modelling results for the more conservative scenario show that in year 12, after the energy efficiency improvement has commenced, enhanced energy efficiency delivers the following economic benefits:

- Real GDP would be \$1.8 billion higher;
- Employment would increase by around 9000;
- A 9% reduction in stationary final energy consumption; and
- A 9% reduction in greenhouse emissions from the stationary energy sector.



Electricity network constraints in light of growing demand and the very real threat posed by global warming both suggest that a target should be set to deliver outright reductions in energy use. This would deliver a competitive edge to Victorian businesses, generate profitable spin-off local business, and provide lowest cost greenhouse abatement.

Barriers to the uptake of energy efficiency

Barriers to Energy Efficiency are well documented in the NFEE Discussion Paper and the BCSE submission to this Inquiry. For further detail, AEPCA specifically refers the Committee to the AEPCA NFEE submission, which can be found at www.nfee.gov.au/images/docs/written_submissions/AE_Performance_Contracting_Association.pdf.

A lack of policy emphasis and the absence of long term energy efficiency targets are major issues in understanding barriers to the uptake of energy efficiency in Victoria. This is reflected in the low priority afforded energy efficiency and the assumption that energy efficiency gains will occur under “business as usual” scenarios. However, the impact of barriers is demonstrated through the NFEE modelling mentioned above, with conservative assumptions revealing gains available at a 43% rate of return, that still require significant market intervention to encourage uptake.

Barriers that specifically impact the Energy Performance Contracting Industry include:

1. Limited access to capital and a long budgetary cycle often leading to energy audit reports and proposal being outdated prior to funding being approved.
2. Limited access to technical resources especially those required to cover the wide variety of disciplines that make up Energy Efficiency (mechanical, electrical, water, waste, co-generation, greenhouse abatement, facilities management, maintenance, equipment upgrades, project management & renewable energy)
3. High transaction costs in aggregating, measuring and verifying relatively small savings from multiple technologies and/or sites
4. Energy Efficiency tenders based on lowest common denominator to enable an apples for apples comparison (rather than maximizing savings)
5. Picking low hanging (short payback) fruit makes it even more difficult to undertake longer payback projects.
6. A lack of standards and industry development (including a lack of standard processes, contracts, accredited suppliers, facilitators, M&V, etc.)

7. The traditional procurement process for Energy Efficiency that involves an energy audit where the auditor is not accountable for project outcomes
8. Energy Efficiency is a non-core activity concerning a small percentage of costs (despite directly affecting bottom line profits)
9. Perceived high risk results in a requirement for Energy Efficiency projects to deliver high rates of return
10. A failure to incorporate externalities including Greenhouse and Demand Management impacts
11. A failure of accurate price signals including a failure of full DSM avoided costs to be passed through and barriers to Energy Efficiency savings accessing the NEM
12. High transaction costs for Demand Side actions compared to supply side options including aggregation cost, M&V costs, facilitation costs of reaching end users, risks to aggregators of not meeting minimum levels of savings and information failures
13. The widespread use of Least First Cost procurement processes
14. Owner tenant split incentives
15. Limited Minimum performance standards for products, buildings and appliances.

The myriad of internal barriers to adoption of cost-effective energy efficiency measures have been widely documented. Organisational and cultural barriers also exist within government, particularly within economic and industry portfolios. Examples of the kinds of barriers arising from the culture within government include:

- Tax deductions for exploration for oil, with no matching incentive for people to invest in plant and equipment that uses less oil
- Energy supply projects are eligible for 'large project' status and associated benefits, while large numbers of small energy efficiency investments fail to gain matching benefits
- The assessment of innovation potential in the Federal Government's recent White Paper on energy categorised all energy efficiency as 'fast follower' status instead of 'market leader' – presumably this will influence allocation of R&D funds away from energy efficiency and towards other areas designated to have greater potential.
- While coordination of energy efficiency policy and programs potentially reduces the costs and time spent in delivery and enhances compliance, history shows very long delays or complete failures in the delivery of such energy efficiency programs when attempts have been made to coordinate programs nationally.



- Most national processes lead to “lowest common denominator” outcomes rather than ‘best practice’, as leaders compromise in response to jurisdictions that are less committed.
- Problems with allocation of adequate resources also commonly occur in national processes, as each jurisdiction tries to capture maximum benefits at minimum cost.

Within business, a particular cultural barrier seems to be a focus on cashflow at the expense of long-term net benefit to the business. Short-termism is driven by short employment contracts, and pressure to make sure annual balance sheets look good.

In this context, it is not surprising that a finance manager prefers to repair equipment than to upgrade its efficiency, or even invest in more efficient (and probably more productive) replacement equipment. The repair can claim 100% tax deductibility that year, and leaves cashflow looking good. The alternative energy efficient investment is more likely to secure a successful future for the business – but the business can only claim depreciation.

Another cultural issue is that capital funding is treated very differently from recurrent funding. Where the recurrent cost of energy is relatively small for most businesses, capital investments in new equipment are seen as major issues. In a context where technical staff are generally not very good at putting strong business cases, and energy is a minor issue, it is not surprising that there is a reluctance to invest in energy efficiency.

Victorian competitiveness and environment for energy efficiency services

In the experience of AEPCA members, those projects that are in the market are keenly contested. As most energy efficiency projects are predicated on a payback period, the very low prices for Australian energy provide a significant incentive to keeping the price of energy efficiency services comparatively low.

Australia’s energy prices are amongst the lowest in the world. On this basis alone it would be fair to expect that this provides less financial incentive for consumers to engage with energy service providers. Nonetheless there are a number of effective programs that have been created by Governments that have either directly generated scope for energy efficiency companies or by transforming markets so that energy efficiency is a lasting consideration in a given market sector. Examples include government programs to adopt energy performance contracting (especially NSW, Qld and SA), the Australian Building Greenhouse Rating (ABGR), and various Energy Smart Business programs.

Notably absent from much of the Australian market are the utility companies that offer “demand management” or energy efficiency options. The combination of



deregulation and privatisation appears to have worked against this delivery method in Australia.

Examples of other State Government programs to promote the EPC approach include:

1. NSW Energy Smart program

A key element of the SEDA (now DEUS) Energy Smart program was the use of EPCs as a delivery mechanism. Key elements of the program that saw approximately \$30m investment in energy efficiency in NSW government operations are:

- a) Facilitating EPC uptake with agencies (including preliminary feasibility studies, developing and evaluating EOIs, developing M&V plans and independent technical support).
- b) Development of standard contracts and processes
- c) Use of accredited or pre-qualified ESCOs
- d) Clear and short approval cycle for capital funding from Treasury with pre-defined financial hurdle rates for projects with guaranteed savings (EPC's).

2. Queensland Government Energy Management Strategy (GEMS)

The Queensland Government have recognized the contribution EPC's can make to reducing energy consumption and delivering cost savings to government agencies and enterprises. The key policy initiatives taken to deliver the outcomes are similar to the NSW program but also included:

- a) Setting clear and measurable targets: \$20m in annual energy cost savings to the Queensland Government by 2008.
- b) Industry capacity building to ensure capacity to deliver results

3. South Australian Transport SA program

Transport SA's Walkerville headquarters - a 19,000 square metre, 8-storey building - is the site of South Australia's first EPC. The EPC contract's capital value is \$980,000 and is delivering guaranteed energy and maintenance savings of \$183,000 per annum, against baseline energy expenditure of \$400,000 per annum. The contract works include a lighting refurbishment, optimisation of air conditioning controls and water conservation measures. Construction activities on the EPC were completed in July 2004.

There is currently no substantial incentive offered through policy to promote the energy performance contracting approach in Victoria. Consistent government support and capacity building has yielded benefits in other Australian States.



The adequacy of training, accreditation and performance guarantee arrangements for the sector

As the peak association for energy performance contracting businesses, AEPCA has developed a robust accreditation process for the accreditation of energy efficiency services companies. The accreditation process ensures that companies have the technical skills and experience along with the financial stability to enter into energy performance contracts.

AEPCA has also developed a recommended procurement process, adopted by Commonwealth and State Governments, as well as local governments. This is described in the Best Practice Guide to EPC available free on the AEPCA website.

Lastly, AEPCA has developed a set of 2 standard contract documents for EPC; these were necessary as an EPC is a distinctly different type of arrangement, with shared risks and responsibilities, and existing 'building' contracts were not suitable. These have been endorsed by most levels of Government and are available from any AEPCA member on payment of a small fee.

The AEPCA accreditation process, Best Practice Guides and standard documents provide an excellent basis on which to deliver energy efficiency through performance contracts.

Rationale for Government Intervention

To date, the cost of government intervention to support energy efficiency has typically been a small percentage of the benefits produced. The benefits of appliance energy efficiency schemes relative to their costs (hundreds of millions of dollars per annum by 2010) would alone offset a major investment in energy efficiency programs. Of course this investment will return further benefits worth many times the original investment.

Many of the costs of energy efficiency measures are associated with transaction costs and high prices (often due to low production volume and lack of mainstream acceptance). These costs can be reduced by effective policy intervention by government. A good example of the potential is the introduction of Minimum Energy Performance Standards for household refrigerators. The cost-benefit study for the Regulatory Impact Statement showed that MEPS was cost-effective, despite assumed increases in appliance price. In reality, showroom prices of MEPS compliant refrigerators are actually similar to those of competing products. Further, the Australian Greenhouse Office has shown that the appliance and equipment efficiency program has delivered large energy savings and greenhouse emission reductions at a cost of ~\$30 per tonne – this is equivalent to around a one year payback period. Clearly it would still be cost-effective to drive much more aggressive energy efficiency improvements.



It is also AEPCA's view that distortions in the taxation system exist that offer 100% tax deductibility for maintenance and repair, but only standard depreciation rates for upgrades in energy efficiency. Further, distortions such as rural energy price subsidies, lack of price signals to buyers of air conditioners which add enormous peak demand cost imposts in all consumers, the outcomes of historical subsidies to fossil fuels, taxation mechanisms (including discrimination against investment in efficient technologies and against small projects that compete with large supply-side projects eligible for taxation incentives), and other impediments to demand management are unlikely to be fully removed in the short term. This creates a case for compensating subsidies to be applied, again requiring Government action, if market distortions are removed then the market can and will deliver energy efficiency improvement, but this will still require government action to create appropriate delivery mechanisms.

A wide range of measures are available for State Governments to promote the energy efficiency services industry. State Governments play a significant role in setting energy prices. In response State Governments should also play a significant role in advocating for sustainable energy generation and use. A mixture of leadership, target/benchmark setting, incentives (such as a carbon price signal + demand management rebates), facilitation and potentially funding is required to ensure energy efficiency is applied, bearing in mind the many existing industry barriers.

The potential of a state-based interjurisdictional emissions trading scheme is to provide a relatively small additional financial incentive for energy efficiency projects. Of itself, it will not overcome the barriers to EPC identified in NFREE. Experience in NSW suggests that the transaction costs involved in demonstrating to an extraordinarily high level of confidence that emission reductions have been created have acted as a disincentive. This is evidenced by the fact that only 900,000 certificates out of a total of 17 million certificates generated under the NSW NGAS scheme so far have been from energy efficiency (or demand management) projects.

As a footnote, another environmental issue for government's consideration is the water used in electricity and gas production in Australia which, according to ABS (1997), was 1307.8 GL or 6% of Australia's total water use. By comparison, households accounted for 8% of Australia's water use. Significant savings in water can be made through implementing energy efficiency initiatives that will result in decreased generation of electrical and gas energy.

Policy Directions and Recommendations

AEPCA endorses the five broad elements needed for an effective energy efficiency services strategy, set out below.

An important first step is to commit to energy efficiency targets. The target could be stated in a number of different ways and in the *A Clean Energy Future for Australia* study, we believe that energy consumption growth should be limited to a minimum 25 per cent increase in 2040 compared to 2001. Given that electricity supply dominates greenhouse emissions, a separate target needs to be established for electricity use.

AEPCA recommends a National Energy Savings Target for electrical energy that increases the efficient use of the electrical energy at a rate of 1% pa of national electrical energy consumption or, put another way, a target of reducing national energy consumption by 36TWh by 2020 compared to the business as usual case. Victoria could lead the way by announcing such a target at a State level.

1. Introduce broad-based market signals to drive new investment in energy efficiency.

Two major types of signal can be used, preferably in combination:

- a. A greenhouse market signal, such as provided through a comprehensive emissions trading scheme. While this will provide a significant signal to large energy consumers, it is likely that, to limit administrative cost and complexity, emissions trading will focus on large emitters and energy conversion facilities and, as such, will be seen by smaller consumers as just a small increase in energy price. As noted above, this is likely to have little impact on their behaviour. Further, for business development reasons, power stations seem more likely to try to limit their greenhouse costs by reducing the greenhouse intensity of their electricity, rather than by encouraging customers to buy less of the product they sell. So, while emissions trading will be important, it is unlikely to be sufficient to drive energy efficiency at point of use.
- b. An energy efficiency certificate trading scheme, such as the 'white' certificate schemes being developed overseas, or a scheme focused on energy suppliers, for example a scheme similar to the NSW Greenhouse Abatement Scheme (with fair treatment of demand side action). In late 2005 the Victorian Government has already committed to the development of a renewables obligation for electricity supply; this scheme could consider the inclusion of greenhouse abatement through energy efficiency projects as eligible activities for wholesale purchasers of electricity to meet their liabilities. Creation of a tangible market in energy efficiency certificates, especially one that offers deeming (that is, creates certificates covering the lifetime of the efficiency measure) at time of installation provides a way of focusing attention on energy efficiency. Deeming also provides a way of reducing the negative impact on adoption

rates due to application of high discount rates by investors, as it provides a lifecycle benefit 'up front'.

2. Make energy markets work for demand side measures.

- a. It is now widely recognised that reformed energy markets are failing to facilitate active involvement from the demand side. This is leading to over-investment in supply-side solutions. Price signals to energy customers should reflect their impact on network investments, and benefits provided by energy efficiency investments should be rewarded. DSM solutions to meet energy demand – of all levels of sophistication – should be rewarded equally with network solutions, through the following measures:
 - i. Require electricity distributors to develop strategies and implement pricing approaches that encourage energy efficiency and implementation of greenhouse abatement activities;
 - ii. Charge customers for the actual impact that they have on electricity system costs, specifically on a peak demand basis; and
 - iii. Require distribution businesses to provide a series of standard offer rates that are available to energy efficiency, and other demand management options (including embedded generation). This would take the form of a negative congestion price that would be available for any activity that resulted in a reduction of power consumption. This creates a standard forward price, to which energy efficiency and DSM proponents would respond.
- b. Establishment of an energy conservation or demand side management (DSM) fund, similar to that introduced in NSW, to support the development and implementation of demand-side and local generation alternatives to network augmentation. Financing for a DSM fund could be sourced from a number of areas, including as a proportion of future capital expenditure a \$/kWh charge or as \$/kW on peak power needs. The funds need to be administered by an organisation independent of the distribution businesses and government.
- c. Remove distortions beyond energy markets that work against energy efficiency. For example, installation of an air conditioner by a business attracts the higher depreciation rate for machinery, while installing building improvements such as double glazing attracts the lower depreciation rate for buildings. The cost of the extra electricity wasted by the air conditioner is also tax deductible. Similarly, where a business replaces or repairs faulty equipment with similar equipment, it can claim the cost as maintenance, and receive a full tax deduction in that year. But if they upgrade efficiency, the Tax Office considers this to be a capital

investment, so the business can only claim depreciation. For businesses focused on cash flow, this is a major barrier.

3. Regulate for minimum energy performance in the built environment.

It is now accepted by State and Commonwealth Governments, and by the building industry itself, that regulation is essential if building energy performance is to be improved. However, regulation should extend beyond just the building envelope: the NSW Government's BASIX system provides a useful model of how this could be done.

Further, it is critical that regulation includes mechanisms for ensuring accountability based on actual performance. The Australian Building Greenhouse rating Scheme's commitment agreement provides a model for linking development and construction of buildings to accountability for performance, and this approach must be applied more widely. There is also an urgent need to apply regulation to renovations and existing buildings.

The Australian Building Greenhouse Rating scheme (ABGR) is the most widely used building energy performance rating tool in Australia having been adopted by most governments at most levels. It relies on the measuring the actual annual energy performance of a building. Other rating tools such as the Green Buildings Council of Australia 'green star' rating tool suite rely on design intent and as such have the potential of distorting market outcomes. The ACCC have also been asked to examine the potential for such a design intent rating scheme to mislead the market about the final performance of a building. AEPCA strongly recommends the use of performance based rating systems that measure actual performance. Any design intent rating system must include make good clauses to ensure that actual performance matches the claimed design intent.

The Ministerial Council on Energy has agreed to introduce requirements for disclosure of energy performance at time of resale and leasing. However, it is important that this disclosure goes beyond a design-based building thermal rating (such as EERSOP in ACT) and reflects the efficiencies and likely running costs of fixed equipment such as water heaters, lighting and space conditioning, as well as any on-site generation such as PV. These factors feed into energy bills, so that an effective disclosure mechanism could play an important role in improving the competitiveness of business tenants, and improving equity for residential tenants. It is also desirable that there be incentives to move beyond basic compliance with regulations.

4. Drive a more energy efficient manufacturing industry.

The energy efficiency performance of Australian business is not outstanding; indeed the NREE claimed that it is below average for developed countries. While Australia's

relatively low energy prices account for part of the explanation, programs such as Energy Efficiency Best Practice and State Government programs have shown that there is substantial potential for cost-effective savings, many of which also add to business success by improving product quality or plant productivity. A combination of requirements for implementation of economic energy efficiency measures (based on experience of programs such as EPA Victoria's greenhouse requirements for industrial licence holders) and information, analysis and demonstration are needed.

Appropriate policy measures would include:

- a. Mandatory requirement for large energy users to undertake energy audits and report on performance, be required to undertake investment if meets minimum four year pay-back.
- b. Development of cogeneration targets and incentives to support the assessment and implementation of cogeneration
- c. Support the funding of feasibility studies for cogeneration and innovation in energy efficiency based on the SEAV Business Energy Innovation Initiative (BEII) model.
- d. Re-institute funding support for the successful Energy Efficiency Best Practice Program that worked on an industry basis to improve energy efficiency.

5. Develop the emerging energy services industry.

This means building capacity within energy consuming businesses, suppliers and installers of products and services. To achieve this requires a multi-faceted approach that includes creating sustained demand for energy efficient goods and services by driving commercialisation, innovation and regulation, while providing training and education.