Energy Supply Association of Australia

Submission to the Productivity Commission

Inquiry into the economic and environmental potential offered by energy efficiency

6 January 2005

INTRODUCTION

The Energy Supply Association of Australia (esaa) welcomes the opportunity to make a submission in response to the Productivity Commission's 'Inquiry into Energy Efficiency' Issues Paper. esaa is the peak industry body representing the electricity and downstream gas industries in Australia, which includes more than 50 member businesses with over $110 billion in assets. In the electricity sector, esaa's members include generators, transmission and distribution network owners and retailers.

esaa believes that there is a need for better links between government policy objectives, community awareness and business decision-making. No single policy approach is likely to unlock the energy efficiency improvement potential of the economy. In some cases, where there is a clear market failure, regulatory intervention may be justified. In other cases, where there are market impediments imposed by rigid government regulation these should be removed. Education and awareness programs are also key to changing the way customers and communities think about energy in order to improve the efficiency of its use.

A key message in this submission is that esaa believes that, as a priority, customers should be made more aware of the real cost of their energy use. Until this occurs, policies to address other barriers to the uptake of energy efficiency improvements and demand side action are likely to be less effective. While energy prices may increase for some customers as a result, progressive pricing options and energy efficiency improvements have the potential to prevent overall energy bills from necessarily increasing.

ISSUES

In this submission esaa has chosen to focus on a small number of issues that are of particular relevance to the energy supply industry overall. The following responses to the key questions posed in the terms of reference are not intended to cover all of the issues identified in the Issues Paper.

1. What are the environmental and economic costs and benefits of cost-effective energy efficiency improvements?

From the perspective of the energy supply industry, there are two key benefits that energy efficiency improvements (EEI) have the potential to provide:

- EEI can reduce the need for inefficient investment in supply infrastructure needed to meet increasing demand for electricity at peak times.
- EEI can help to reduce greenhouse gas emissions from the energy sector.

<u>Reducing the need for inefficient investment in energy supplies</u>

The Issues Paper correctly notes that demand side management (DSM) and EEI are not the same thing and that in some cases a demand side response may not result in less energy being consumed. However, esaa believes that, to the extent that both EEI and DSM have the potential to provide economic benefits by reducing the need for inefficient investment in energy supply infrastructure, they should be seen as means to a common end. esaa encourages the Productivity Commission to adopt the widest possible definition of energy efficiency and to consider DSM and EEI together where appropriate.

Peak demand for electricity (very high demand typically observed for less than 10 percent of the year) usually occurs on particularly hot summer days - often as a result of a dramatic increase in air-conditioning usage[1]. According to a report by the National Institute for Economic and Industry Research for the National Electricity Market Management Company (NEMMCO) (June 2004):

- Summer maximum demands in National Electricity Market (NEM) participating jurisdictions have increased significantly over recent years reflecting strong recorded economic growth and increases in the penetration of space cooling equipment.
- The annual increase in summer temperature sensitive load in the NEM over the last four years is four to five times the annual increase over the first part of the 1990s and explains the steadily rising summer maximum demands over the last five years.
- The penetration of space cooling equipment has increased dramatically in NEM States over recent years because of:
    i. the impact of hot summer temperatures on discretionary purchases of space cooling equipment;
    ii. improved marketing penetration and technological advances in space cooling equipment;
    iii. the coincident increase in construction activity in both the commercial and residential sectors. The increase in townhouse and apartment construction for residential dwellings is a key factor, as these buildings are particularly suited to reverse cycle units; and
    iv. the continued ageing of the population and the associated expansion in retirement villages for senior persons.

The increased uptake of air conditioning is changing the demand profile of residential customers. Some of esaa's members have reported that even with the increased cost of the total electricity bill from installing air conditioning, householders are not implementing energy efficiency measures at any significant rate. This is despite the fact that many electricity retailers do provide practical, cost effective energy saving information to their customers. Some likely reasons for this behaviour are suggested in Section 2 below.

As an example of the impact that these trends have on energy demands, consider the case of a hot summer day in Sydney:

- The top 15 percent of peak demand occurs for just 24 hours per year; around three quarters of this is required to meet domestic air conditioning needs.
- A particularly hot day (for example, a maximum of 44 degrees) would lead to an increase of around 57 percent in electricity demand for domestic and small commercial consumers without a time of use price signal (which could be made possible with the installation of an interval meter coupled with time of use related billing practices or remote load control mechanisms).

[1] The use of reverse cycle systems for heating in winter also results in peak demands on cold winter days in some regions such as NSW.

- This results in a cross-subsidy (from customers without air conditioners to those who use air conditioners) of around 1.5-2.0 cents/kWh, for the whole year. One NSW retailer has estimated that the cross subsidy could amount to approximately $70 being paid by a non-air-conditioned customer to an air-conditioned customer over the year[2].

It should also be noted that, prior to the extremely hot summer of 2002-03, summer peak demand had never exceeded the previous winter peak demand in NSW. The stronger trend in the growth of summer peak demand relative to winter in recent years, largely due to air conditioning trends, has led to the widespread expectation that NSW is now becoming summer peaking[3].

Electricity demand in Victoria and South Australia shows the greatest weather sensitivity in the NEM[4]. In Victoria, the top 15 percent of demand occurs in summer but for less than 1 percent of time in the year. Peak demands are growing at around 200-250 MW (2.4 percent) per year - faster than average demand growth of around 130-180 MW (1.9 percent) per year. These demands are typically met by peaking plants, typically open cycle gas turbines, that are only run for a limited time each year to augment intermediate and base load generators at times of maximum demand [5]. The NEM is characterised by short but extremely high 'spikes' in demand that can drive the wholesale price of electricity up to $10,000/MWh (compared with the average price of around $25-30/MWh)[6]. Investors in such plants determine that it will be commercially viable to recover their costs by running the plant for very limited periods of time when the wholesale price of electricity is high enough to justify start-up. Some of these investors are the owners of retail businesses, in which case the peaking plant also provides a physical 'hedge' against extreme wholesale price increases.

Increasing peak demand also leads to the need for additional investment in the transmission and distribution network to carry additional load and maintain system reliability. Take NSW for example:

- Integral Energy estimates that 11 percent of its network capacity, reflecting approximately $260 million of network assets, is only used for 25 hours of the year.
- EnergyAustralia similarly estimates that around 10 percent of its assets, or around $1 billion, is required for only 1 percent of the time, or around four days per year.

esaa recognises that air conditioning is not the only factor affecting peak demand growth and that many other opportunities for EEI are likely to exist across the residential, commercial and industrial sectors. This submission explicitly discusses the impact of increased air conditioning usage because it is widely recognised as being a particularly strong driver of peak demand growth in Australia.

In this context, esaa believes that there is the potential to reduce the need for inefficient investment in supply infrastructure through EEI. Improvements in residential and commercial building design, for example, would reduce the air conditioning requirements of households

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[2] EnergyAustralia (2004). Based on average household energy use of around 5 MWh (no air conditioning) and 7 MWh (air conditioning).
[3] The winter peak of 2004 was higher than the 2002/03 summer peak, but the 2004/05 summer peak is expected to be higher again.
[4] Due to the coincidence of peak demands, Victoria and South Australia are generally considered together by NEMCCO when assessing reserves and the supply-demand balance.
[5] Peaking plants in Victoria for example typically run at a capacity factor of less than 5 percent (less than 5 percent of the time).
[6] On 30 November 2004 for example, Sydney temperatures reached above 40 degrees and the wholesale price reached close to the cap of $10,000/MWh.

and businesses, which could in turn significantly reduce peak summer and winter demands. However, esaa recognises that unless customers are educated to better understand the link between their electricity use and the impact on capital investment requirements (with the attendant implications for prices), and are exposed to the real cost of their usage, they will have no direct incentive to alter their behaviour. The issue of exposing consumers to an effective price signal is discussed in Section 2 below.

The increased uptake of EEI opportunities also has the potential to delay the need for new investment in base load electricity generation (defined here as generation needed to meet average demands observed for at least 60 percent of the time). This could provide substantial cost savings and would be likely to slow the growth in greenhouse gas emissions from the stationary energy sector. Estimates for Victoria suggest that a reduction in the rate of demand growth from an average of 1.9 per cent per year to 1.6 per cent per year over 2004-2012 would extend the horizon for base load augmentation by about a year (about 200 MW)[7]. However, a more detailed analysis of the level of demand reduction that may be feasible and the necessary measures to achieve this (including increased uptake of EEI opportunities) is needed.

<u>Reducing greenhouse gas emissions from the stationary energy sector</u>

Increased efficiency in the end use of energy is likely to lead to reductions in greenhouse gas emissions, all other things being equal. EEI in the primary conversion of energy may reduce greenhouse gas emissions depending on the fuel source and generation technology employed by the specific plant. Conversely, an increased demand side response such as load shifting may not reduce greenhouse gas emissions because it can lead to a decreased reliance on (less greenhouse-intensive) gas-fired electricity and a relative increased reliance on (more greenhouse intensive) coal-fired electricity. In this respect at least, it is useful for the Commission to differentiate between demand side responses such as load shifting and peak clipping and general energy efficiency measures.

Much has been written about the potential reductions in greenhouse gas emissions that could be achieved through EEI. The attractiveness of EEI is that, up to a certain marginal cost of abatement, these actions represent ‘no regrets’ reductions because they result in cost savings as well as achieving environmental benefits. Opportunities for low and zero cost emissions reductions through EEI are naturally preferred to more costly supply side measures.

Modelling by the Centre of Policy Studies (Monash University) for the Sustainable Energy Authority Victoria (SEAV) (2003) estimated that at the end of a 12 year period, assuming a 50 percent take-up rate for energy efficient technologies and based on conservative estimates of the national EEI potential (including taking into account the rebound effect):

- national greenhouse gas emissions from the stationary energy sector would be around 32 megatonnes CO_2 lower than would otherwise have been the case; and
- GDP would be around $1.8 billion higher than would otherwise have been the case.

The extent to which the rebound effect will offset reductions in greenhouse gas emissions is debated by analysts. For example, in the general equilibrium modelling conducted by CoPS Monash in the above study, an efficiency gain that leads to a 1 percent increase in GDP would typically result in an increase in demand for energy of around 0.7 percent (as a result

[7] Graham Armstrong, Saturn Corporate Resources (2004).

of a range of demand side factors). This increase in demand is likely to be met by increased generation, which will lead to an increase in greenhouse gas emissions depending on the fuel type and generation technology. Other models factor in an explicit rebound effect; for example 20 percent was factored in by McLellan Magasanik & Associates in their related work for SEAV (2003) to estimate the effects of a national energy efficiency target.

2. What are the barriers and impediments to adopting cost-effective energy efficiency improvements?

The Issues Paper correctly identifies a number of barriers to the uptake of EEI opportunities, which fall under the broad categories of market failures, organisational structures and behavioural norms. Much has been written about these barriers in economic literature. In this submission, esaa focuses on two key issues that are of particular relevance to the industry:

- Small customers are not exposed to the real cost of the energy they use.
- Industry often faces 'lumpy' investments to improve its energy efficiency.

<u>Small customers are not exposed to the real cost of the energy they use</u>

Australian electricity customers pay some of the lowest average electricity prices in the developed world. As the Issues Paper notes, the fact that energy accounts for a small proportion of household and most business expenditure is probably a key reason why EEI opportunities are not being taken up. esaa believes that this issue is compounded by the lack of cost–reflective pricing in most Australian jurisdictions.

Current electricity retail price controls constitute a significant impediment to EEI. For smaller customers (the vast majority of end users) there is little incentive to seek out opportunities to increase the efficiency of their energy use since the necessary price signals have been removed by the introduction of price caps. Regulated price controls, particularly caps, generally inhibit retailers from offering progressive electricity tariffs that provide an incentive to improve energy efficiency. Even jurisdictions that have proceeded to enable full retail contestability (FRC) impose price cap arrangements, while those yet to move to FRC continue to set uniform tariffs.

A recent announcement by the NSW economic regulator highlights the issue. In releasing its draft pricing determination in July 2004, NSW's Independent Pricing and Regulatory Tribunal (IPART) noted that since the early 1990s average retail prices for residential customers have decreased in real terms by 10 percent and that these existing prices are much lower than the cost of supply.

Smaller electricity users (using less than 100 MWh per year) consume around 75 percent of electricity peak load and a substantial portion of base load (accounting for around 40-50 percent of total load). Yet these customers pay the same rate regardless of what the wholesale price is at their time of use. Because the price signal is weak and energy costs typically do not represent a large proportion of household or business expenditure, it is rational for these customers to undervalue the energy that they use.

In its report into the electricity and gas industries in May 1992, the Industry Commission recommended the introduction of cost reflective pricing. This was intended to affect the efficiency of the industry in two ways:

- Meeting the real cost of generation in peak periods would drive greater efficiencies in energy use.
- Meeting the real cost of networks in rural and remote areas would promote the use of cheaper distributed generation or stand-alone renewable supply.

More than ten years later, in December 2002, the Parer Report listed the fact that residential consumers do not face price signals as one of the three key reasons for the relatively low level of demand side involvement in the NEM. The report recommended the removal of retail price caps and introduction of FRC in all NEM markets as soon as practical, 'but in any case within the next three years'.

For political reasons, most state governments have been reluctant to expose smaller customers to wholesale market related prices. In Victoria for example, where FRC has been introduced, load profiling is used to settle the wholesale market. Under such circumstances, where individual customers are not exposed to the costs associated with their individual consumption patterns, a cross–subsidy is effectively paid by lighter users of peak electricity to heavier users of peak electricity. In other words, a heavy peak user doesn't pay the full cost of their contribution to the need for investment in generation to meet peak demand. This cross-subsidy represents an equity issue and is a disincentive to small customers to improve the efficiency of their energy use. As an indication of magnitude, Integral Energy, in its 2004 IPART Network Price Determination submission, estimated that a cross subsidy of between $80-100 per annum can occur through predominantly off-peak customers paying an inequitable share of the costs of heavy peak users.

In addition, retail tariffs in all state jurisdictions do not closely reflect the network costs associated with the delivery of electricity, either in terms of the time or location of usage. There is no signal for a small customer to avoid stressing the network during times of high demand and thus contributing to the need for early network augmentation, which also results in inefficient investment. Instead, network charges are 'bundled' into the usage component of a customer's electricity bill by the retailer and averaged across users in a particular region. Heavy peak electricity users thus only pay a small part of the total costs of delivering their electricity at times of peak demand and have little incentive to seek out opportunities to improve the efficiency of their energy use.

Network charges represent a substantial proportion of total delivered electricity costs to end users, particularly in remote areas. In its submission to the Parer Review in 2002, Queensland Treasury noted that network charges can represent between 60 and 80 percent of total delivered electricity costs for most rural and regional users in Queensland and over 80 percent of total charges in far North Queensland. The Queensland Government has decided against FRC for the time being because it believes it would increase rural prices to unacceptable levels. In NSW and Victoria, transmission and distribution costs typically account for around 45-50 percent of final electricity charges.

This is not to argue that stronger price signals will necessarily drive energy users to improve their energy efficiency or reduce consumption in itself. For example, many residential consumers will still use inefficient appliances, buy houses with poor insulation or install a second air conditioner that they may not really need for a range of reasons correctly identified in the Issues Paper. esaa suggests that the slow turnover of energy-intensive appliances (air conditioners, fridges, washing machines etc) is a key impediment to increasing the uptake of EEI opportunities in the residential sector. Even when new appliances are bought, many people choose to retain their old appliances for ancillary use (for example, a consumer buys a new fridge but continues to use their old fridge for cooling drinks, often in a hot location such as the patio or garage, where the fridge is less efficient).

However, while electricity demand is known to be very price inelastic in the short term at least, esaa believes that behavioural patterns will change over time as consumers are made increasingly aware of the economic and environmental costs of the energy they use and are equipped with the information required to make better consumer choices. For example, a residential customer may not immediately alter their air conditioning usage pattern when they are exposed to time of use tariffs; however, over time as they start to notice the difference in their bills and are educated about the economic and environmental implications of their behaviour, they are more likely to factor energy efficiency considerations into their next purchase of an appliance or a house.

Therefore, esaa believes that an effective policy approach to driving the uptake of EEI and DSM opportunities must start with a more cost-reflective price signal. In the absence of better price signals, government efforts through education campaigns, more stringent performance standards for appliances and so on will send mixed messages to energy users, reducing the effectiveness of each of these programs. Similarly, while more cost-reflective prices are a necessary prerequisite, they are unlikely to be sufficient on their own. Reinforcement through education campaigns and other forms of assistance will be required to achieve a sustained customer response to more cost-reflective prices. Cost-reflective pricing should thus be the first step, but esaa recognises that it is only a first step.

Industry often faces the 'lumpy' investment barrier to improving energy efficiency.

For large electricity customers, the level of consumption tends to be embedded in existing plant and equipment and only replacement investment can effect a substantial change in the efficiency of their energy use. Replacing older, less energy efficient plant with newer, more energy efficient plant tends to represent a 'lumpy' investment. Thus EEI in energy intensive industries often occurs in step changes with the natural capital stock replacement cycle.

Not all industries face a significant energy cost in their factors of production; hence the cost-saving incentive of investing in more energy efficient plant and technology will vary. Those industries that are highly energy intensive are typically also highly capital intensive with particularly large-scale, long-lived assets (for example, aluminium smelting and paper manufacturing). In Australia these industries have demonstrated that they are very capable of identifying and capturing EEI opportunities where it is cost-effective to do so.

Energy efficiency projects will always have to compete with other possible uses of scarce capital within firms. The net present value of energy efficiency investments may be small relative to alternative 'core business' investment projects and may not be pursued as a result. This does not represent a market failure as such, but is instead a reflection of the realities of commercial decision-making.

There would be cases where the internal rate of return of a smaller EEI project (with a short payback period) is greater than that of a larger 'core business' project. In this case, take up of the EEI project would also depend on whether the two projects were mutually exclusive with respect to the availability of capital and other resources.

Significant efficiency improvements in the primary conversion of energy in electricity generation and gas production are also largely constrained by the 'lumpiness' of the investment associated with the replacement of capital stock. While cost-effective improvements are likely to be achieved over the longer term (as new technologies become commercially viable and new plants are built or existing generation assets are replaced), there is less scope for such improvements in the short to medium term.

Most electricity generators in Australia already have agreements with the Australian Government to improve their efficiency under the Generator Efficiency Standards and Greenhouse Challenge programs. Thus many low cost energy efficiency improvements will have already been captured, making further significant improvements based on existing technology unlikely or at least more costly to achieve.

If a more rapid turnover of the capital stock is considered to be desirable in the interests of achieving environmental objectives, esaa believes that Government could provide appropriate financial incentives to do so.

3. Would government intervention to address these barriers and impediments produce net benefits to the Australian community? What form should that intervention take?

The Issues Paper correctly identifies a number of barriers to the uptake of EEI opportunities and discusses a range of policy options to overcome these. This section focuses on key areas where esaa believes that government action is warranted. The question of a national energy efficiency target is also addressed.

<u>The need for national consistency and coordination</u>

The Issues Paper notes that the Commission has been asked to examine the coordination of the energy efficiency programs of different governments, observing that numerous national, state, territory and local government initiatives are directed at improving energy efficiency. esaa believes that it should be a priority for the Australian Government to improve the consistency and coordination of these various measures.

Multiple and uncoordinated government schemes can lead to duplication, are often ineffective, create large compliance costs for industry and act as a disincentive to investment. As mentioned above, most generators already have agreements with the Australian Government under the Commonwealth Government's Greenhouse Challenge and Generator Efficiency Standards programs. In addition, many state jurisdictions have their own greenhouse and energy efficiency-related policy measures. For example, the Victorian EPA requires licensees who are large users of energy or large greenhouse gas emitters to conduct energy efficiency assessments and to implement EEI opportunities with a payback of up to three years or less. In June 2004 the Australian Government announced in its Energy White Paper that large energy users will be required to conduct energy audits every five years to identify EEI opportunities with a payback of four years or less (without mandatory implementation). This new requirement may capture generators already covered by the aforementioned programs – this has not yet been clarified by government.

Compliance costs associated with multiple energy efficiency programs and related greenhouse emissions reduction programs are unduly high and an increasing burden on management. National coordination and national uniformity of these programs is an imperative for economic efficiency and policy effectiveness and is likely to reduce the costs of compliance for participants. In this respect, esaa supports the agreement within the Ministerial Council on Energy to proceed with EEI initiatives on a national basis through the

National Framework for Energy Efficiency (NFEE). Similarly, if EEI is to be pursued on the basis of its potential greenhouse benefits it should be in the context of a coordinated, national greenhouse policy approach.

The need to focus on the whole energy services supply chain

As the Issues Paper notes, recent estimates of the EEI improvement potential of the Australian economy have been calculated as part of the NFEE process. To capture this potential, esaa believes that it will be necessary for Government to develop practical strategies to target the full supply chain for energy services. This will involve a wide range of stakeholders including appliance designers and manufacturers, architects, builders, engineers, businesses that market energy-consuming products, energy retailers, training institutions and the community in general (as the beneficiary of energy services).

The appliance industry could be compared to that of the motor vehicle fleet some years ago in so far as an old fleet was turned over with the assistance of stronger environmental and safety regulation. In some cases, esaa believes that regulatory intervention such as setting progressive Minimum Energy Performance Standards (MEPS) is justified as a means of driving energy efficiency improvements through technology choice. A well designed MEPS program should complement other policy measures such as the introduction of time of use tariffs. The combined effect of these two measures is likely to achieve greater energy efficiency gains on average than either one operating alone.

Initiatives to build capacity and capability of the energy services industry can deliver increasing energy performance across all sectors. Governments have a central role to play in fostering improved capabilities and capacity through technical training and tertiary education to engrain a greater focus on energy efficiency in our society and industries.

It has been suggested by some experts that one of the key changes required is a shift in our thinking away from the concept of consuming units of gas and electricity towards one of consuming energy services (lighting, heating, cooling etc). For residential customers there are challenges in achieving this, which are well identified in the Issues Paper (information problems, the large number of customers, the fact that energy is a small proportion of total expenditure and so on). esaa suggests that it is likely that reducing the barriers to competitive, cost-reflective pricing will drive growth in this industry as it will create greater opportunity for the development of tailored pricing packages for individual customers (as it did in the UK for example).

It is probable that many commercial and industrial customers are reluctant to invest money in energy efficiency improvement projects because they find it difficult to quantify the savings that are likely to be achieved. The growth of the energy services industry is likely to help overcome this barrier. For practical examples, please refer to the submissions from AGL and Origin Energy which provide details of their energy services businesses.

Increasing the level of awareness and understanding across the economy and the community through education and access to information is another key role for government. Compared with other sustainability issues there is a clear lack of emphasis on the importance of energy efficiency improvement and conservation in Australia, particularly in the residential sector. The comparative emphasis on water usage and efficiency is instructive. According to ABARE (2004), final energy use in the residential sector accounted for around 13 percent of total final energy consumption. By comparison, residential water use represents less than 10 percent of total consumption in Australia (agriculture accounts for around two thirds of total water usage). Both energy and water are relatively inexpensive and are consumed at a large number of points in the residential sector, making efficiency gains hard to achieve. Despite this, government has committed significantly more resources towards improving the efficiency of the residential sector's water usage than its energy use. The key difference is that water is considered to be a more scare resource than energy, which is a questionable approach when viewed in the context of the contemporary sustainability debate.

The linkages between energy usage, electricity generation and the effects of climate change are complex and not well understood by most customers. For this reason, it is much harder to market the concept of energy efficiency compared with say, saving water or using 'green' shopping bags – there is no tangible benefit associated with the desired behavioural change. More effective education campaigns need to be developed if consumer awareness is to reach the critical mass required to initiate significant change in the way our society uses energy.

<u>The need for progressive energy market reform to improve price signals</u>

Government must create a market environment where suppliers and consumers of energy are exposed to real price signals. Government must set the broad framework and market rules for demand response opportunities in competitive energy markets and empower consumers who want to participate. This includes opportunities for demand response aggregation. Network businesses must be empowered to offer a commercially-viable, network-driven demand response as part of network charges. Energy retail businesses must be empowered to offer a wide range of commercially-attractive demand response options to all consumer classes.

Interval metering can provide a key for unlocking demand response opportunities because it makes time of use pricing possible. esaa supports the introduction of interval meters provided that the transition is managed in a way that allows for effective systems and facilities to support the new technology to be put in place. The Victorian Essential Services Commission has determined that a staged rollout (targeting customer classes where the net benefits are greatest first) is warranted on the basis of its cost benefit analysis. The South Australian Essential Services Commission, on the other hand, has decided against the introduction of interval meters, opting for a remote load control trial at this stage*.* esaa notes that MCE is planning to develop a common set of principles for the cost/benefit analysis of interval metering as part of its demand side program and supports this work.

A progressive package of pricing reforms should allow retailers to utilise the widest possible range of pricing options, which might include:

- Basic tariff reform options: seasonal tariffs, increasing rate block tariffs.
- More effective tariff options: time of use pricing, coincident peak demand tariffs, maximum demand tariffs.
- Demand-side response: curtailable and interruptible tariffs applying to air-conditioning and/or other loads, competitive demand response options.

Charging a higher price for electricity during summer or at times of daily peak demand would improve the price signal to operators of discretionary air conditioning. Similarly, time of use tariffs might encourage load shifting (where, for example, a residential customer chooses to run their dishwasher after the peak evening period). The response is likely to be highly dependent on the strength of the price signal and the customer's awareness of EEI and DSM opportunities. Time of use pricing applied throughout the year may not have as strong an effect as a critical peak price closely related to the real marginal cost of supplying load at times coincident with the annual system peak demand. The argument is that, over the longer term, customers may become 'desensitised' to the time of use price signal if it is applied continuously throughout the year. A stronger price signal, in the form of an annual coincident peak demand charge for example, may therefore be more likely to encourage customers to shift their load on peak day(s). Such a charge could reduce the very system peak demand growth that drives the need for investment in peaking generation and network augmentation and would also be likely to encourage greater take-up of EEI opportunities.

Another element of a clearer price signal to reflect the implications of usage patterns is to provide an opportunity for a differentiated network charge related to peak and off peak times. Currently, while retailers may be exposed to differentiated network tariffs, there is no pass-through of this price signal to smaller end users. The introduction of such a price signal could provide an additional incentive to seek EEI and demand side response opportunities. As a first step, esaa suggests that a peak, or maximum demand, tariff might include a component that reflects the costs of augmenting the network to carry peak load and maintain system reliability.

The removal of price capping for small customers may lead to price increases for certain customers, particularly heavy users of peak electricity. esaa believes, however, that the introduction of more progressive pricing packages, combined with interval metering and an increased emphasis on energy efficiency, has the potential to prevent significant overall increases in energy bills for the majority of small customers.

It has been suggested that the introduction of time of use pricing could, in some circumstances, impact negatively on lower income customers. esaa recognises the need for government to protect certain vulnerable customers. However, esaa believes that fewer market distortions would result if this was done explicitly rather than by bluntly limiting the exposure of all small customers to the cost of their usage through price capping. esaa is not suggesting that small customers should be exposed to the actual wholesale price of electricity and recognises that managing wholesale volatility is the appropriate role of electricity retailers.

A national energy efficiency target

The Issues Paper asks respondents to comment on the merits of a national energy efficiency target (NEET) and tradeable certificates scheme, noting that there are a range of design and implementation issues that would need to be considered. esaa believes that the objective of a NEET should first be carefully considered, and that there is no merit in further developing such a scheme while the barriers to energy efficiency remain in place.

Is the objective to drive EEI across the economy or to reduce energy consumption? esaa believes that since the target would not address the underlying barriers to the uptake of EEI opportunities, particularly information asymmetries and capital investment hurdles, it would be unlikely to drive significant energy efficiency gains. Introduction of a NEET would be more likely to force firms to allocate capital away from other more productive uses towards energy conservation projects in an attempt to achieve their target.

If the primary objective is to drive a reduction in greenhouse gas emissions, esaa believes that this would be better achieved through a coordinated, national approach, rather than adding an energy efficiency target to the existing mix of state and federal measures. esaa believes that a priority for the Australian Government is to move towards rationalising this policy mix by deciding on a single, long term greenhouse abatement target for the whole economy and developing a single, national policy approach.

As the Issues Paper notes, there are a range of design and implementation issues related to a NEET that would also need to be addressed. Not least of these is the setting of benchmarks. Major energy users would have an incentive to understate their energy efficiency prior to the commencement of the scheme in order to gain credit for business as usual (BAU) activities. This would clearly undermine the effectiveness of the scheme. As with all schemes that rely on the setting of benchmarks, there are likely to be firms that are rewarded for BAU action and/or firms that are discriminated against for taking early action. The administrative infrastructure required for setting up and running such a scheme is also likely to be extensive and costly to maintain. For these reasons, esaa contends that more practical, less costly approaches should be explored first.

Governments' first priority should be to address the key barriers to the increased uptake of EEI, including the existing government-imposed regulatory rigidities. Until customers are exposed to the costs of the energy they use at the time of consumption they will see no direct incentive to identify and implement opportunities for improving the efficiency of their energy use.