Australian Industry Greenhouse Network

Submission

on

Productivity Commission Inquiry into Energy Efficiency

The Australian Industry Greenhouse Network (AIGN) welcomes the opportunity to provide input to the Productivity Commission's Inquiry into Energy Efficiency and to comment on questions raised in the Commission's Issues Paper.

AIGN is a network of industry associations and individual businesses which contribute to the greenhouse policy debate and see value in collaborative industry action on climate change policy issues in order to promote sustainable industry development.

Decreasing Australia's "greenhouse signature" is mentioned in the Commission's terms of reference, though Australia's policy response to climate change is beyond the scope of its inquiry. Energy efficiency improvement, nonetheless, is a critical component of an effective Australian greenhouse response.

This submission focuses on the greenhouse-related issues. It has the support of the following industry association members of the AIGN:

Australian Aluminium Council, Australian Coal Association, Australian Institute of Petroleum, Australian Plantation Products and Paper Industry Council, Australian Petroleum Production and Exploration Association, Australasian Slag Association, Cement Industry Federation, Minerals Council of Australia, Plastics and Chemicals Industries Association.

Individual AIGN members are addressing the broader range of energy efficiency improvement opportunities in their own submissions.

Introduction

Energy efficiency is an important driver for all companies represented in AIGN's membership, many of which are energy intensive and/or are producers of energy commodities and services. To all of them, reducing energy use is directly analogous to reducing costs. However, saving energy, like saving costs, is not always synonymous with making profits and creating wealth. The "costs" of making savings can be high, and the worth of outputs or services can sometimes also be affected adversely, for instance if product quality or ancillary attributes are somehow diminished when less energy is used.

In AIGN members' industries, technical energy efficiency (physical energy input per unit of physical output) tends to be very closely correlated with the age of plant and equipment. The

latest plant designs and latest equipment invariably incorporate the most energy efficient technologies extant, and these tend to be the most economical[1]. Quite often, new features providing the capability to produce an improved product, or to produce products and services more safely, induce the rational decision to consume somewhat more energy than a design without those qualitative enhancements[2]. That this conundrum is common suggests that value of output may be generally a more realistic denominator than quantity when assessing improvements in energy efficiency through time.

Importantly, in AIGN members' industries, new plants tend to be large or 'lumpy' investments and energy efficiency often improves in step changes. The fact that older, less energy efficient plant, continues to operate alongside latest, 'best practice' facilities is not proof of inefficiency, as is sometimes asserted, but simply confirmation that the older assets remain competitive, if only at perhaps significantly lower book values. Proponents of replacing capital stock with new plant incorporating latest energy efficient technologies, or of accelerating that process, do not understand the ordinary dynamics of any capital consuming, private enterprise industry. Premature capital stock replacement costs money, just like any other investment in energy efficiency, and energy savings need to offset that cost.

Competent firms understand this trade-off, and those for whom energy represents a significant cost also monitor the energy saving potential of new equipment, new processes and new technologies pertinent to their operations.

It is possible that organisational structures, by separating personnel responsible for investments from those responsible for operations, to use one example identified in the Issues Paper, might result in a failure to recognise a commercially viable energy efficiency opportunity. But such opportunities are unlikely to go unnoticed for long by competitors, and in a competitive market, failures on account of competence or information are not likely to be long-lived. Perhaps the most dependable way to achieve energy efficiency, in its economic meaning[3], is to persist with efforts to ensure an open, competitive economy with effective competition in all market sectors.

The Background to the Inquiry's terms of reference was put in the following terms:

> *Australia's access to low cost, reliable energy is a source of competitive advantage for Australia. However, Australia's historic energy efficiency*

[1] Technology risk will often lean investors to proven, but still leading edge technologies rather than pioneering but commercially unproven technologies that may offer somewhat higher energy efficiency.

[2] There may also be examples of equipment capable of serving multiple purposes being chosen over specific purpose equipment which may be more energy efficient.

[3] Energy is analogous to a factor of production. In a narrow technical sense, energy efficiency can be measured as a ratio of input to output. The intensity of energy use with respect to other factors of production is also pertinent when seeking to maximise wealth or welfare and, with Australia's resource endowment and generally low energy costs, this country must be expected to have a high level of energy use relative to the size of our economy — assuming economic efficiency is a national objective. The Commission's definition of energy efficiency — "achieving the same or greater output or outcome using less energy" is satisfactory in this context. The insertion of the word "useful" before "output" in the Inquiry terms of reference seems to be rather judgemental.

> *performance has been weak in comparison with other OECD countries. In this context, improvements in energy use which are cost-effective for individual producers and consumers have the potential to enhance Australia's economic prosperity and at the same time lower Australia's greenhouse signature.*
>
> *Energy efficiency in this context refers to maintaining or increasing the level of useful output or outcome delivered, while reducing energy consumption, and encompasses both supply side and demand side efficiency.*

There is no doubt Australia's energy endowment and energy industries provide competitive advantage. But AIGN members are not persuaded that energy efficiency performance, in energy intensive industries anyway, has been deficient.

It is true that Australia uses a large amount of energy to generate power, one of our biggest energy needs. This is because the technologies for converting coal to electricity, and brown coal especially, are not as efficient as technologies for generating power from natural gas, for example. Our most prominent energy abundance is in coal. Australian industry undertakes a number of energy intensive activities, like refining alumina, smelting aluminium and liquefying natural gas, which account for a significant share of Australia's energy use, that are much less represented in other OECD countries' corresponding sectoral industry classifications. Australia's aluminium smelting and alumina refining energy efficiency has been and continues to be better than any other region, and Australia's LNG plants use best practice technology when installed. In transport, the commercial fleet (vehicles, aeroplanes, etc) is comparably efficient, but distances traveled are generally much longer.

That is not to say that cost effective energy efficiency improvements do not exist. What we do say is that:

- for comparisons to be helpful, they must be made at very micro levels (apples with apples)[4]; and,
- the so-called "energy efficiency gap" between current practice and theoretical cost effective potential for a specific industry will always exist at any instant in time, and not least because information and capital markets are never perfect, and hence is a mirage as a measure of realistic potential; and
- as to identifying the cost effective potentials, these are likely to lie in end use segments where energy is but a small part of a production cost or of the price of a consumer product or service.

[4] Energy input per megawatt hour of electricity generated, for example, is a helpful measure of efficiency only at a highly disaggregated level. It is impossible, for instance, to generate power from high moisture content, low calorific value brown coal at the energy efficiencies achievable with inherently dry, high calorific value black coal. At the consumer end, the "driving cycle" selected to compare the fuel economy of motor vehicles can alter the rankings. Similarly, the "star ratings" of domestic appliances don't necessarily indicate the efficiency ranking of appliances in different uses: the frequency a refrigerator door is opened, or the proportion of short or hot cycles a washing machine is operated at, can be important in determining which appliance is most efficient for a particular application. Alleged "energy efficiency gaps" which are not cognisant of these realities are methodologically deficient.

Finding these opportunities, and realizing them, is therefore difficult and explains in large measure why investigations into energy efficiency canvass the same ground today that they did twenty and more years ago. The policy prescriptions are also very similar.

Stronger imperatives to deal effectively with greenhouse gas emissions add to the motive to renew efforts to find policy measures to induce greater energy efficiency. Energy efficiency programs are properly part — and an important part — of greenhouse response and, to the extent this is addressing an externality in competitive energy markets[5], some additional incentives for the uptake or accelerated uptake of energy efficiency technologies and practices may be warranted.

The increasing national character of energy markets means that a nationally integrated approach to energy efficiency has a greater potential to deliver considerable net economic benefits, as well as associated greenhouse gas abatement, than fragmented State and regional approaches.

Energy efficiency improvement programs can have the potential to offer cost-effective greenhouse gas emission abatement and at the same time maintain and strengthen the competitiveness of Australian industry.

In developing energy efficiency improvements AIGN considers the following principles to be fundamental:

- *National Consistency and Co-ordination* – a nationally consistent and co-ordinated approach is necessary to maximise the potential benefits.

- *Cost-effectiveness* – policies and programs should only target those energy efficiency improvements which are cost-effective and practicable.

- *Comprehensiveness* – the national framework should address energy efficiency improvement opportunities across all energy sources and across all relevant sectors of the Australian economy;

- *Targets Market and Regulatory Impediments* – programs and policies should be targeted to address market and regulatory impediments to the uptake of practicable energy efficiency actions. Governments have a legitimate role in addressing barriers provided action taken is cost-effective and leads to a demonstrable and significant improvement in national welfare

- *No Disadvantage Principle* – energy efficiency programs should explicitly acknowledge that programs and policies under their auspices are underpinned by, and are consistent with, the Federal Government's commitment to avoid greenhouse policy measures which disadvantage 'early movers' or discriminate against new entrants.

[5] If energy markets are not competitive, and as a result energy is already over-priced, there may be no case for further loading the energy prices with the estimated externality. For example, excise on petroleum fuels distorts the competitiveness of energy markets by over-pricing these fuels.

- *Streamlined and Effective Administration* – amongst other things, the implementation design of energy efficiency programs should aim to minimise transaction and compliance costs.

Issues paper

AIGN would like to commend the Commission for canvassing the issues so insightfully in its Issues Paper and for raising all the pertinent questions. The comments that follow respond to those questions which our members collectively are able to answer.

1 Background

The Commission has noted that all Australian governments have policies and programs aimed directly or indirectly at improving energy efficiency. The Ministerial Council on Energy (MCE) last year endorsed a proposal to develop a National Framework for Energy Efficiency (NFEE) and recently agreed to the implementation of nine policy packages which constitute the first stage of the NFEE.

The first stage package, as announced in August, is included as Attachment 1 to this submission. The terms of reference for this inquiry specifically ask the Commission to examine existing and recent government energy efficiency programs, including the level of coordination between those programs. AIGN is generally supportive of the package, and strongly supportive of the imperative of Federal and State coordination, as reflected in our annotations on the attachment.

The MCE also agreed to the investigation of "broad-based incentive measures" for possible inclusion in a second stage of the NFEE, and the Productivity Commission's Inquiry is an important element of that investigation.

The key questions arising from the PC's terms of reference, as identified in the Issues Paper, are:

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

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

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

The terms of reference make it clear that the focus is to be on those energy efficiency improvements that appear to be privately worthwhile but are not being taken up because of various 'barriers and impediments'.

2 Energy efficiency

The Issues Paper notes that rational explanations for at least part of the perceived "energy efficiency gap" (the difference between best practice and actual) might include:

- the hidden costs of changing established processes;
- the difficulty of achieving theoretical savings in a real world environment ; and
- the existence of sunk costs that mean it is not yet economic to upgrade to more energy efficient plant and equipment.

The PC says there might also be barriers and impediments caused by market failures, organisational structures and behavioural norms.

AIGN is inclined to the view that most of the energy efficiency gap can be explained by rational behaviour, certainly in energy intensive industry. As noted in our introduction above, in competitive industries in which energy is a significant cost, there are powerful pressures to quickly take up any economically rational opportunities for energy efficiency improvement (EEI.) In other contexts, where competitive pressures are less and energy costs less significant, the drivers for EEI are considerably more subtle and there can be a role for governments in devising measures to highlight benefits and sharpen incentives.

One of the benefits of EEI is the concomitant reduction in greenhouse gas emissions which the public (of the planet) is the beneficiary.

The Issues Paper mentioned the "rebound effect" of EEI which, through lower costs, might elevate demand and subsequently soak up some of the overall energy savings and hence some of the environmental gains. AIGN would contend that, in a rigorous sense, this effect is negligible and, to the extent it might exist, the benefit would be demonstrable. Where it has sometimes raised concerns (as with improvements in coal-fired generating technologies possibly displacing still lower greenhouse gas emitting gas-fired stations) the efficiency measure has been confused and, as foreshadowed in our introduction, apples have been compared with oranges.

3 Barriers and impediments to EEI

Barriers and impediments in the market for energy

AIGN agrees that barriers and impediments that prevent the energy efficiency gap being closed might justify some form of government action, but not all barriers necessarily warrant intervention and the appropriate intervention may not be an explicit energy efficiency program. This is particularly the case in regard to the problem of market power, created by *natural monopoly* in the market for energy. Persisting with the implementation of energy market reforms to promote contestability where feasible and to regulate monopoly elements is the appropriate course.

The PC notes that if the cost of *negative externalities* is not reflected in the price of energy, users have incentives to consume more energy than is socially desirable. Clearly, externalities associated with greenhouse gas emissions are relevant in this context.

The key question that arises, assuming competitive energy markets, is: if energy prices were higher to reflect these externalities (assuming they could be valued) would energy efficiency be improved? Private consumers would probably be induced to buy smaller vehicles and drive them less. But we know from recent price experience that this effect is small. Higher energy prices would probably induce changes in purchasing decisions and behaviour in all walks of life, and higher prices for greenhouse intensive energy would induce some

switching to alternative sources. But there is limited scope for achieving either outcome without severely affecting competitiveness.

Most of AIGN's members are in industries which are already highly conscious of energy costs and highly vulnerable to import competition or loss of export markets. Australia's competitive advantage in energy costs is a key to growth, especially for new investment. If our attractiveness for new investment is lost, one outcome (amongst others) is certain, an energy efficiency gap between Australia and world best practice will quickly open up in these industries, as Australian plants are 'fossilised' with old technologies.

Barriers and impediments in the market for energy efficient technologies

The market for energy efficient technologies encompasses the supply of, and demand for, appliances and equipment that use energy. Potential barriers and impediments to EEI are often grouped under headings such as 'market failures', 'organisational structures' and 'behavioural norms'.

Market failures

The PC notes that the most important market failures in the market for energy efficient technologies, as in other markets, appear to concern a variety of information failures.

- *Public goods* — information can have public good characteristics that result in it being undersupplied in private markets.

- *Information asymmetries* — including *a*dverse selection; principal–agent problems; split incentives.

Most markets suffer from some degree of information failure but function well enough without government intervention. In many markets a variety of intermediaries help address information failures. Governments can also play a role but they may not have sufficient information to warrant intervention, nor may they be sure that the benefits of intervention will outweigh the costs.

As noted earlier, AIGN supports most of the initiatives being undertaken in stage one of the NFEE, many of which seek to address these kinds of problems. Dissemination of information on EEI technologies and practices has potential to yield cost-effective results, as do mandatory efficiency labeling and, with qualifications, minimum performance standards (refer our annotations on the NFEE packages in the attachment).

Organisational structures

The organisational structure of firms can create barriers and impediments to energy efficiency improvements. The pursuit of energy efficiency improvements may be influenced by factors such as: the firm's size and corporate structure; information asymmetries within the firm; alignment of management incentives with company objectives; decision-making authority of management and rules of procedure; and management acumen.

These things are all symptoms of poor management and no doubt energy efficiency is prejudiced[6] when it is prevalent. AIGN does not find the proposition compelling that governments can repair these kinds of shortcomings in industry. Governments should, however, continuously seek to improve management within their own agencies, including to ensure that energy costs are borne by those most directly responsible for them being incurred.

Behavioural norms

The Issues Paper reports that firms and individuals simplify their decision-making through 'behavioural norms', such as adopting generalised rules of thumb, continuing established routines, and doing what others do (following the pack). Firms and individuals end up settling for satisfactory rather than 'optimal' outcomes. It has been argued that this approach is relatively common in households and small businesses, especially when dealing with 'non-core' issues such as energy efficiency.

AIGN is unconvinced that these kinds of failures in large businesses would account for any significantly poorer energy efficiency results. The assertions — more believable in respect of households and small businesses — are only provable in specific instances and the costs and benefits of government intervention to remedy them would differ in each case.

4 Policy options for cost-effective EEI

The terms of reference require the Commission to consider coordination between various government programs and comparisons with 'international experiences'.

Coordination

The Commission notes that it has been asked to examine the coordination of the energy efficiency programs of different governments, observing that numerous Australian, State, Territory and local government initiatives are directed at improving energy efficiency. National coordination can have benefits, such as economies of scope and scale and reduced costs of compliance. However, there may also be benefits from so-called 'regulatory competition', where different approaches in different States provide opportunities for identifying the most effective policies.

AIGN is utterly convinced that national coordination and national uniformity of these programs, as with practically all economic activities, is an imperative for the efficient governance of the economy. Compliance costs associated with energy efficiency programs and related greenhouse emissions reduction programs are unduly high and an increasing burden on management. Most firms represented in AIGN operate across the country and differing programs and requirements in each jurisdiction diminish enthusiasm to cooperate with all of them and significantly increase compliance burdens. Regulatory competition diminishes the effectiveness of these programs.

International comparisons, monitored for example through the International Energy Agency, should be sufficient to exploit any regulatory competition benefits by identifying new program

[6] Poor management might equally be responsible, of course, for over-investment in energy efficiency technologies and practices — and this is a risk when governments intervene, especially with mandates.

enhancements and providing critiques of Australian programs. The IEA has been undertaking these reviews for over two decades.

The AIGN applauds the agreement within the Ministerial Council for Energy (MCE) to proceed with EEI initiatives on a national basis through the NFEE framework. If the NFEE delivers in coordinating and delivering uniform national programs in this area, it will be a success.

AIGN would hope the Framework enjoys the political commitment necessary for this outcome. As to the institutional and administrative arrangements needed to support it, AIGN would only urge that parallel institutions concerned with reducing greenhouse emissions develop appropriately integrated connections rather than evolving in divergent directions. The two subject areas share very similar data sets, very similar objectives and overlapping programs. The recent agreement by MCE ministers to join with the Ministerial Council on Environment and Heritage, establishing a joint working group to examine the streamlining of greenhouse and energy reporting, is very welcome.

Pricing and the influence of market reforms

The Issues Paper notes that the amount of energy consumed will depend in part on its price, and that prices also influence incentives to invest in EEI. If competition in energy supply markets is sufficiently robust, prices will reflect costs. However, market failures such as externalities and market power, or inappropriate regulation, can distort prices. Higher prices can constrain overall economic growth.

AIGN's position on the externalities question is reflected in our comments under the heading 'barriers and impediments in the market for energy' above. There is a separate question as to whether, if externalities were fully encompassed in the energy price, energy efficiency would be significantly different. For large, energy intensive industry, our contention is that except in relation to new plant decisions, energy usage (as distinct from energy cost) would be essentially unchanged; and if the value of the externalities is judged to be high, then new investment will be substantially deterred — manifesting itself in other countries. This would be a distortion of a different kind — probably of immensely more significance for Australia — arising from the fact that common global market prices incorporating harmonized emissions charges are not in prospect.

The PC's question as to whether price uncertainty has an effect on investment in energy efficient technologies is a loaded one if it is taken to refer to uncertainty about the imposition or increase of some future carbon penalty (whether an extension to MRET, various State schemes which penalise carbon emissions from power stations, emissions permits, taxes, or whatever). This is not an 'uncertainty' that should be resolved in the interest of promoting EEI, since it raises much more important issues for the Australian economy.

Demand management

The Commission notes that prices play an important part in demand management. If price does not reflect the costs of supplying energy at different times and to different locations, consumption patterns and investment incentives can be distorted. Especially in the electricity industry, capacity must be available to meet peak demands but most consumers are charged a flat price for electricity, which does not reflect these demand periods.

AIGN agrees that time of day pricing of electricity at the consumer level could achieve important gains in economic efficiency. New 'interval meters' will facilitate that economic gain, though they are currently relatively costly to install.

The Commission is correct in noting that if shifting demand to off-peak generation means consumers use electricity that otherwise would have been dissipated, or if it reduces the distribution losses associated with meeting peak demand, total energy consumption would fall and overall energy efficiency would improve. No doubt the same can be said of congestion pricing in cities and in other analogous circumstances.

Correct locational pricing signals also offer some prospect of improved system efficiency, and may result in better aggregate energy efficiency overall in power generation. But this is not a straightforward issue by any means and it is problematic whether it is best tackled in the narrower context of energy efficiency.

Information provision

The Commission has been asked to consider the potential for improving information flows in two areas:

- to firms' internal and external investors and decision makers; and
- to consumers of plant and equipment, appliances, vehicles and fuels, and residential and non-residential buildings.

The first area reflects concerns about access to capital to fund energy efficiency improvements, and managements' accountability to owners and shareholders, as well as the general community, about their energy use, efficiency and environmental impact.

As previously noted, involvement in Greenhouse Challenge, by AIGN members and many others, goes a long way to addressing legitimate concerns about public accountability on these matters. We find it fanciful; however, to suggest that access to capital to fund EEI projects might rely on accountability to anyone other than the financier or investor concerned.

AIGN agrees, however, that final consumers are often exposed to traditional information failures. Firms and consumers do not always have the best information on which to make decisions about energy usage and investments in energy efficiency, notwithstanding the numbers of competing product suppliers, energy service companies and advisers active in the marketplace. Perhaps, as with food and medicines, and water management, government involvement in information provision about energy efficiency opportunities can be warranted, though it is important that the value of government programs is routinely scrutinized. As previously noted, AIGN supports many of the kinds of initiatives being implemented under the first stage of the NFEE.

Labeling

All state/territory governments plus the Australian Government participate in a compulsory labeling scheme for household electrical appliances — the Energy Rating Label Scheme. Programs of this kind are in place in practically all IEA member countries and the consensus opinion is that they are worthwhile.

Minimum standards

The Commission notes that the more severe approach is to impose compulsory minimum energy standards. Energy efficiency standards are applied in Australia to a range of products under the Minimum Energy Performance Standards (MEPS). Standards have recently been introduced to ensure a minimum level of energy efficiency in homes and other buildings, but there is not uniformity between all the States and Territories.

Regulatory mechanisms like minimum standards impose administration and compliance costs. Firms must design appliances to suit and have them tested and approved, and regulators must design testing procedures and conduct the tests. The standards are set by Standards Australia and consumers and producers must pay a fee to obtain the details of mandatory requirements.

Minimum efficiency standards may well preclude some products from the marketplace or enforce investment in energy saving practices or technologies and thereby induce some benefit to energy efficiency. If minimum standards are set too low there is a clear risk that the degree of competition in markets for appliances and equipment could suffer and result in higher prices and limited consumer choices. AIGN would urge caution in proceeding too far with MEPS although, if in particular instances, concerns about adverse effects on competition can be allayed, the benefits of MEPS can exceed the costs. Further, to meet economic efficiency objectives, it would be necessary to adopt equivalent minimum efficiency standards in all forms of energy use, since to do otherwise would further distort these energy markets.

Incentives to develop and adopt new technologies

Government policies regarding EEI efficiency are relevant to two broad areas, research and development (the invention and commercialisation of new technologies, R&D) and the adoption of more efficient technologies by energy users (diffusion).

There are no impediments to R&D particular to EEI. However, there is a case for additional incentives to induce private sector expenditure in this area. Energy efficiency improvement may provide unusual public benefit, in terms of enhanced energy security, reduced greenhouse gas emissions, etc. In the long term time frames in which these public good values might be realised, expenditure now on R&D may well have more beneficial (public good) value than expenditure to induce short term efficiency improvements.

AIGN has welcomed the energy specific R&D programs, notably the $500 million Low Emissions Technology Fund, announced in the Energy White Paper, and would expect some of that money will inevitably be spent on projects which offer significant energy efficiency improvement.

AIGN agrees that new technologies take time to ‘diffuse’ through the economy — tending to be adopted at first gradually and then with increasing rapidity. In the energy intensive (and typically capital intensive) industries represented in AIGN, diffusion proceeds rather differently than with consumer items like mobile phones or iPods. The long life and ‘lumpiness’ of the capital stock in our industries means that diffusion on average can be slow, though at the margin of new investment, new best practice technologies are almost invariably deployed.

If governments were persuaded that capital stock turnover should be more rapid, in the interest of the public at large, then it would be appropriate for the relevant government to

provide suitable financial incentives. Not to provide these incentives and instead insist on efficiency improvements by mandate, would be inequitable and would send very negative signals to all prospective investors in Australia.

Financial penalties

The Commission has been asked to consider the use of levies on energy use. As the PC notes, levies can be used to discourage particular energy inefficient practices and technologies or to tax certain products or activities in order to raise funds for investment in energy efficient improvements.

AIGN agrees with the Issues Paper in that any uniform levy on all energy users would penalise both energy efficient and energy inefficient users, and that targeting only those deemed to be inefficient would be difficult, arbitrary and discriminatory. Levies and other non-rebatable penalties risk affecting the competitiveness of Australian industry adversely and, in consequence, the jobs and living standards of many Australians.

On the other side of the coin, it has been suggested that there may be tax disincentives to adopting new technology — for instance, by encouraging investment in renewal of equipment components rather than complete replacement. It would be very helpful for the Commission to examine this question.

A national energy efficiency target (NEET)

The PC's terms of reference, under the chapeau of investigating "policy options for energy efficiency improvements which are cost-effective for individual producers and consumers", propose "introducing a NEET, including, but not limited to, the establishment of an annual requirement for major users of stationary energy to generate, or otherwise acquire, a target level of efficiency related energy savings".

AIGN is opposed to the concept of introducing a national energy efficiency target. This unequivocal position is influenced, in particular, by the proposition in the terms of reference that an annual *requirement* may be imposed on major users.

Targets with deadline dates, as Australia and many other countries have learnt from the Kyoto Protocol experience, are not sensible policy instruments. If they are meaningful they create failures, and the political prospect of failures induces unwise policy measures to avert them[7]. Long term planning horizons, such as 5 year, 10 year, 20 year objectives, revised but rolled on each year perhaps, as common in commercial practice, can provide comparable guidance to "targets" without the regulatory policy risks.

The mandatory tone of the expression "requirement" is clearly a cause for concern, as is the express selection of major energy users of stationary energy. AIGN has always maintained,

[7] At the sector, industry and, particularly, at the firm level, the probability of government regulators setting unrealistic or unattainable targets, somewhere in the myriad of targets that seem to be contemplated in the PC's terms of reference, is very high. If measures are then imposed to coerce compliance or enforce penalties, the firms or industries affected could suffer intolerable harm — all inadvertently and all because it is often impossible for a regulator to discern whether a failure to achieve a target is attributable to recalcitrance or an impossible bar height. Unfortunately, there is an observable propensity on the part of regulators to blindly take targets to be important.

on strong economic grounds, that measures like these must be comprehensive of all industry and all energy use. As pointed out earlier in this submission, the prospect of percentage-wise large energy efficiency improvements that will not otherwise occur being identified amongst major energy users, relative to other users, is negligible. There is no reason whatever to mandate such a requirement on large users and every reason to expect that the response to such imposts will be a diversion of investment elsewhere. In that case a developing "energy efficiency gap" can be all but guaranteed.

The targets issue also confronts another tenet of AIGN policy: the "no disadvantage rule". Clearly, any target that might have reference to a contemporary or recent benchmark or baseline risks penalizing those businesses which have already achieved a high level of energy efficiency, and face much higher marginal costs to improve further.

AIGN agrees with the Issues Paper that a NEET might encourage conservation rather than energy efficiency and thereby become a direct instrument of slowing economic activity.

The Issues Paper also canvasses the possibility of a trading scheme in 'White Certificates', under which those covered could acquire someone else's 'energy savings' to meet their own targets. AIGN accepts that such a scheme would help ensure the arbitrarily mandated energy efficiency improvements are met at least cost. However, artificial markets in government-created property rights (if indeed the certificates were to be 'property' in a legal sense) are problematic in themselves, for all sorts of reasons. And this would be a market created for completely misguided reasons. Energy efficiency improvement is not an end in itself. It can benefit profits, consumer welfare and energy security and the mitigation of climate change. Policy makers would do better to address and improve markets more directly related to those benefits than to a partial objective like energy efficiency improvement.

5 Sectoral issues

The Productivity Commissions Issues paper invites comment on specific sectoral issues. Many of the general opportunities and barriers to EEI have already been commented on in the previous sections of this submission, however, some general sectoral comments can be made

Industrial and commercial

As the Issues Paper suggests, the industrial and commercial sector comprises a wide range of firms. The industrial sector includes firms that use energy in the manufacturing process. The commercial sector includes firms that use energy to produce services.

Industrial

A great deal has been achieved over the past couple of decades in improving the efficiency of energy use in industry. There is a much narrower gap now between what is possible with best practice technologies and what is actually practised. Indeed, whether that gap broadens or narrows in the future will depend most importantly on the rate of investment in new plant, equipment and processes — with the key determinant of that being the growth of the economy.

EEI of industrial plant and equipment needs to be dealt with on a case by case basis, assisted by the provision of energy efficiency information, education and technical assistance, possibly as part of coordinated and nationally consistent programs.

Potential options include:

- Expansion of voluntary programs such as the Energy Efficiency Best Practice Program
- Opportunities for industry and energy providers to choose between an MRET obligation and an energy efficiency obligation on a unit of energy or greenhouse basis.
- Provision of modest investment incentives, such as higher rate of depreciation for more energy efficient plant and equipment or schemes that reward better energy productivity.

As already discussed barriers do exist to cost effective implementing EEI in the industrial sector. The significant barrier is that for energy intensive industries efficiency is generally fixed at the stages of plant design, and significant opportunities for EEI improvements tend to only exist at times of major plant upgrades and refurbishment, and in the design of new plant.

Commercial

Opportunities exist for improving energy efficiency in the commercial sector, through improvements in heating, ventilation and air-conditioning and office. This is particularly relevant for new office buildings and office refurbishment.

An appropriate approach to improving the energy efficiency of commercial buildings is through a combination of regulated measures and targeted demonstrations.

Consumer and household

The relatively small cost of energy and correspondingly low incentive to seek EEI, combined with a lack of knowledge and/or information regarding EEI opportunities within households, are the main barriers to EEI for consumers and households.

In developing EEI for consumers and households, a range of approaches could include;

- Advance nationally consistent time-of-use metering that empower domestic customers to make energy consumption and appliance choices.
- Extend gas reticulation enabling more consumers to choose the right energy source for the required energy service.

The transport industry

The transport sector is the single largest user of energy in Australia, and is a major source of greenhouse gas emissions. Energy use in transport is also growing more rapidly than stationary energy use.

Energy efficiency improvement potentials in transport relate mainly to congestion, traffic flows and urban planning. Improvements in these areas are likely to provide other benefits as well at relatively low cost — but they offer significant scope for emissions reduction and are important to AIGN members for that reason.

There are potential opportunities to pursue EEI through approaches that include:

- Incentives to entice the purchase of smaller, more energy efficient vehicles.
- Differentiated road and toll charges.
- Integrating registration and other on-road costs into fuel pricing.
- Improving public transport, and public transport access and priority, particularly for

congested cities.

- Congestion pricing based on vehicle occupancy.

Measures along these lines generally address multiple objectives. It is important that these objectives are clearly specified and that, before measures are implemented, care is taken to ensure conflicts between objectives do not result in adverse consequences for particular industries or activities.

Energy Efficiency Agreements and Public Reporting

Energy efficiency in the commercial and residential sectors is far more exposed to principal/agent problems. Innovative commercial practices to reduce these impediments may have real application in these areas. Electronic metering systems now becoming available at reasonable cost should help, and might be more economic if deployed under some regulatory arrangement.

The Inquiry is to examine the value of energy efficiency agreements with government and the efficacy of public reporting in encouraging best practice. As the PC noted, Greenhouse Challenge (a voluntary program) and Generator Efficiency Standards are partnerships between industry and government designed for these purposes. Greenhouse Challenge is strongly supported by AIGN and its members and there is little doubt that it has delivered in terms of emissions reduction, particularly as an awareness program (not only within industry but also in raising public and government awareness of the high level of energy efficiency being achieved).

Industrial energy efficiency, however, is so close to CO_2 emissions intensity, that any separate scheme of voluntary agreements would be quite redundant. Greenhouse Challenge already encompasses all the elements that any industrial energy efficiency agreement might envisage.

Public reporting of energy efficiency too, is almost synonymous with public reporting of emissions (in this industrial context). Because in some industries there are only small numbers of competitors, this information can be commercially sensitive and should not be publicly released except in aggregates of at least three respondents. In Greenhouse Challenge, some industries are reporting on an aggregate basis for that reason, with independent accounting firms acting to aggregate the confidential data. The Government's mandatory energy efficiency opportunity assessments for large energy users will need to be designed to ensure these commercial sensitivities are respected.

Industry understands that the impediments these schemes are designed to address are largely related to information deficiencies, facilitating relevant performance comparisons and highlighting innovative practices that might be more widely deployed. In large energy using industries if these benefits are significant then voluntary arrangements should be sufficient; the need to mandate participation can be taken as an indication that industry perceives the potential benefits to be small. There is a stronger case to require participation in such schemes in respect of industries for which energy use is a smaller component of operating costs.

Industry will comply, of course, with the Government's decision to require the regular EE opportunity assessments. It is to be hoped, however, that the value of the program itself is assessed at an appropriate time to confirm its continuation is warranted. AIGN and its members will be participating in the forthcoming consultations on the design and implementation of the opportunity assessments program with a view to maximising its value.

Industry's main objective in respect of cost minimisation is to encourage governments to avoid duplication at State and Commonwealth levels (and between energy and greenhouse programs) and to streamline reporting with common definitions and single entry data points.

Attachment

The National Framework for Energy Efficiency Stage One Packages

Extract from MCE Communiqué 27 August 2004 with AIGN Annotations in Italics

The nine energy efficiency policy packages included in Stage One of the National Energy Efficiency Framework are:

Residential buildings

To improve the energy performance of the residential building stock over time and to inform consumer decision making, the package encompasses:

- nationally consistent minimum energy efficiency design standards for new homes, units and apartments;.
- minimum energy efficiency design standards for major renovations; and
- mandatory disclosure of the energy performance of homes, units and apartments at the time of sale or lease.

Supported by AIGN

Commercial buildings

To improve the energy performance of the commercial building stock over time and to inform owner and tenant decision-making, the package will introduce:

- nationally consistent minimum energy efficiency design standards for new and refurbished buildings; and
- mandatory disclosure of building energy performance at time of sale or lease.

Supported by AIGN

Commercial/industrial energy efficiency

To raise the awareness of senior management and motivate action, and to improve the skill base to identify energy efficiency opportunities, this package includes:

- the requirement for large energy consumers to undertake mandatory energy assessments and report on the energy efficiency opportunities that these identify, as announced in the Australian Government's Energy White paper; and
- nationally coordinated training and accreditation for energy auditors and energy performance contractors in conjunction with programs and protocols already in place.

AIGN members participate in the Australian Greenhouse Office's voluntary Greenhouse Challenge program and will comply and cooperate with the mandatory energy efficiency

opportunities assessments decision which is to be accommodated within "Challenge Plus". As intimated elsewhere in this submission, large energy users are least likely to benefit from the assessments since, one way or another, they conduct them anyway and a prescribed form of assessment may impose significant compliance costs.

The training and accreditation of energy auditors will be of benefit if the consultants involved also have or acquire specific industry knowledge and specialize in energy auditing in particular industries. Experience to date suggests that energy efficiency skills alone are insufficient if indicated EEI opportunities are to be translated to practical initiatives which businesses can implement. AIGN most definitely supports nationally coordinated training if accredited auditors are to be relied upon under a mandatory program.

Government energy efficiency

To demonstrate leadership to the business sector and wider community, Governments will:

- develop nationally consistent standards for measuring and reporting on government energy efficiency programs;
- introduce public annual reporting by all jurisdictions on energy use and progress towards achieving the targets set for government agencies;
- establish minimum energy performance standards for government buildings; and
- develop best practice models for government departments to implement energy efficiency programs.

Supported by AIGN

Appliance & equipment energy efficiency

To improve the energy efficiency of major energy using appliances and equipment, the National Appliance & Equipment Energy Efficiency Program (NAEEEP) for electrical products will be:

- broadened in scope to include mandatory minimum energy performance standards (MEPS) and labeling for gas products; and
- expanded through the introduction of new or more stringent MEPS for residential, commercial and industrial products, with a key focus on increasing the number of commercial and industrial products regulated.

Supported by AIGN, always on the proviso that the minimum standards are well within the capability of most equipment and appliances on the market. Unless implemented with the full support of the industry involved, MEPS should not be used as a means of introducing completely new technologies. Neither should they be used to entrench a dominant position for any product supplier.

Trade and professional training & accreditation

To develop the capacity of the relevant professions and trades to identify opportunities and implement energy efficient solutions, the package will:

- undertake a nationally coordinated effort to integrate energy efficiency concepts into the courses for the key trades and professions that influence energy efficiency outcomes; and

- develop training and accreditation courses for practicing (sic) tradespersons.

Supported by AIGN (but see comment on auditors above).

Commercial / industrial sector capacity building

To demonstrate the benefits of energy efficiency, build industry capacity to deliver energy efficient solutions, and reduce energy efficiency investment risks, the package will:

- develop a nationally coordinated program to generate highly visible examples of energy efficient equipment or processes in key industrial sectors and new or refurbished commercial buildings;

- link industry and government to key centres for leading edge energy efficiency research and development; and

- establish nationally coordinated energy efficiency best practice networks.

Supported by AIGN. These have potential to be highly beneficial initiatives.

General consumer awareness

To raise the awareness of general consumers (householders and small business) and motivate energy saving actions, the package comprises:

- the requirement for energy retailers to provide benchmark data on energy bills;

- development of a nationally coordinated network to facilitate easy and timely access to high quality and relevant information;

- targeted promotional campaigns for specific energy efficiency issues; and

- the integration of energy efficiency concepts into the school curriculum.

Supported by AIGN

Finance sector awareness

To increase the type and availability of finance products for energy efficiency, government agencies will work with the finance sector to:

- raise awareness of the opportunities for, and benefits of, energy efficiency investments; and

- provide tools for the valuation and risk assessment of proposals.

Supported by AIGN