Australian Aluminium Council

Submission to the Productivity Commission Inquiry into Energy Efficiency

The Australian Aluminium Council (AAC) welcomes the opportunity to make the following submission to the Productivity Commission inquiry into the economic and environmental potential offered by energy efficiency.

Conclusions for the alumina/aluminium sectors

- **welcome this Productivity Commission Energy Efficiency Inquiry**
- **our industry sector is energy intensive … energy sensitive**
- **long life assets, large and lumpy investments**
- **global industry structure**
- **global market focus, competitiveness**
- **energy efficiency is part of business**
- **support national approach to energy efficiency, not multiple different state based schemes**
- **opposed to mandated sector/industry/plant targets**
- **taxation treatment (depreciation, life of assets) impacts energy efficiency**
- **welcome Energy Efficiency Opportunity Assessments … have offered to pilot the scheme.**

Industry Background and Exposure to International Competition

The Australian aluminium industry has experienced very strong growth over the last three decades driven by expansion in global demand for aluminium and alumina, Australia's world-class bauxite resources, R & D and alumina processing facilities – and the availability of internationally competitive energy, a key element in Australia's success in the transformation of bauxite into higher-value energy-intensive alumina and aluminium.

We represent 38% of world bauxite production – and 34% of world alumina production, making Australia the world's largest alumina producer (16.8 Mt) and exporter (13.1 Mt) in 2003. We are also the fifth largest aluminium producer (7%; 1.8 Mt) and third largest aluminium exporter (10%; 1.5 Mt).

The industry is a major contributor to the Australian economy and the second largest commodity export sector ($7.5 billion in 2003). The industry's operations, along with employment and support industries (including electricity supply) are located in regional Australia and are major contributors to the economic well-being of these regions.

The Australian aluminium industry has been competitive because of abundant raw materials, reliable and affordable infrastructure, a positive investment climate, alumina at world's best quality and price, a high level of technology expertise enabling world's best practice in smelter operation and competitively priced electricity based on Australia's world-class coal resources.

A major achievement for our industry over the last decade has been the very strong industry growth in Australia:

- aluminium production in 2001 up 558,000 tonnes on 1990 (45%)
- alumina production up 5.1 Mt on 1990 (46%).

The industry is continually improving its energy efficiency – energy intensity has fallen per unit of output, although overall energy consumption has risen due to the 50% production increase since 1990.

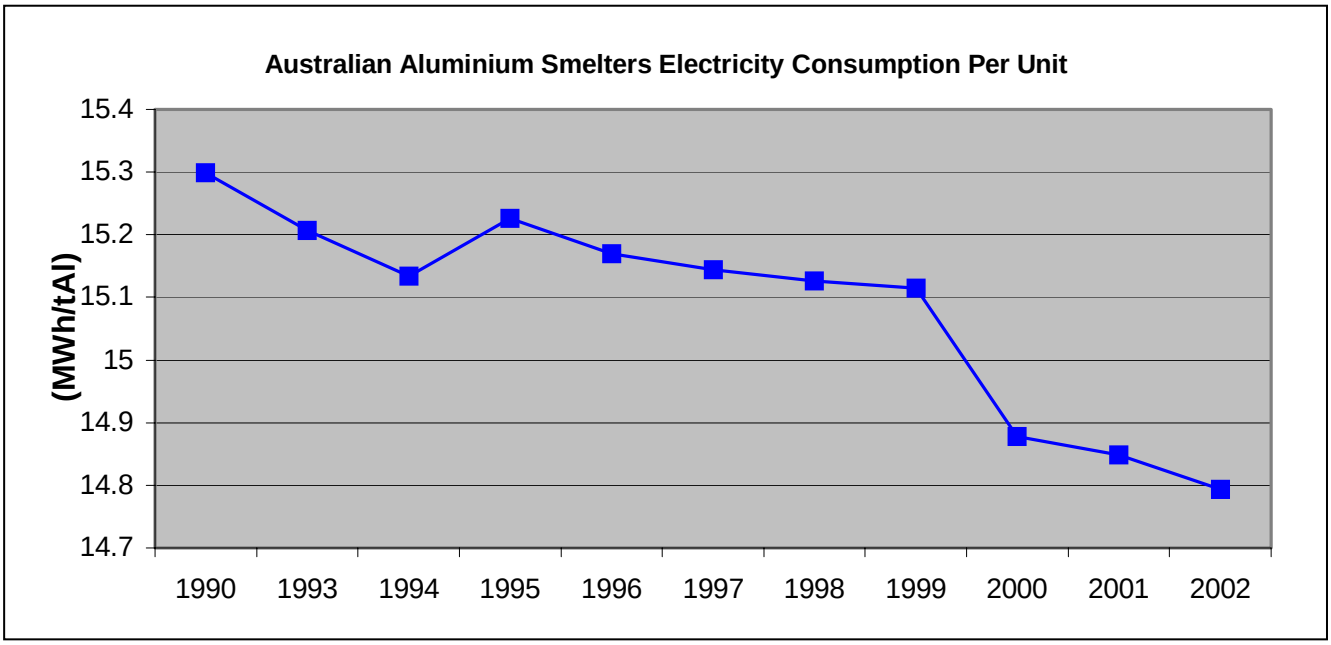

Figure 1: Australian Aluminium Smelters Electricity Consumption Per Unit

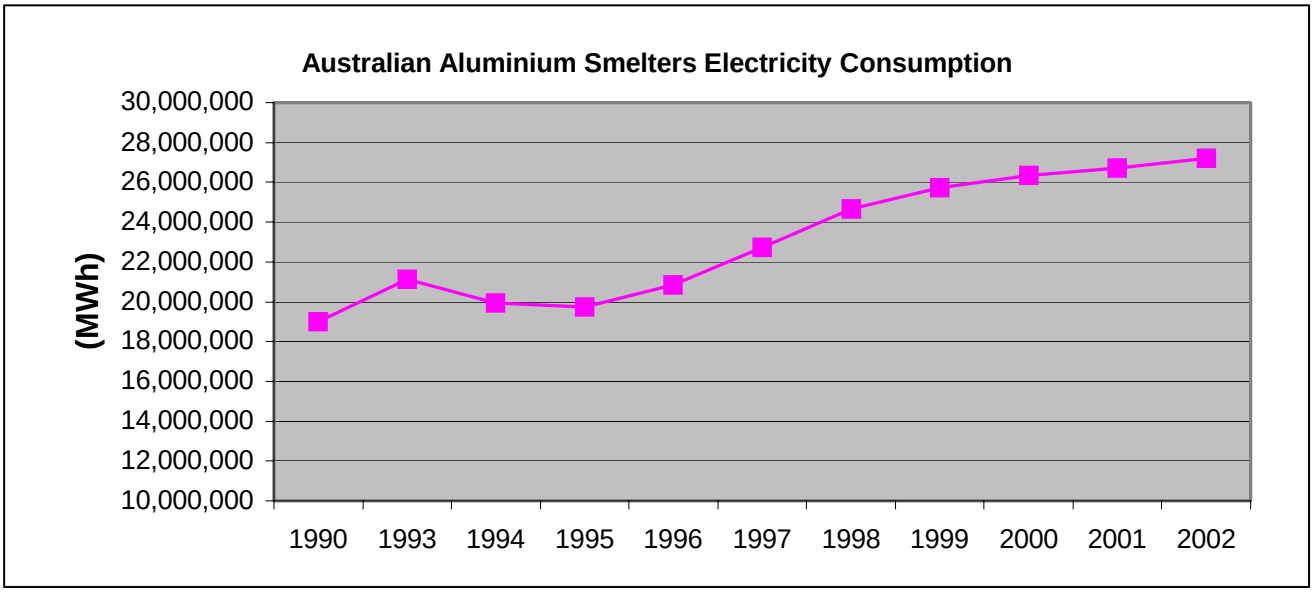

Figure 2: Australian Aluminium Smelters Electricity Consumption

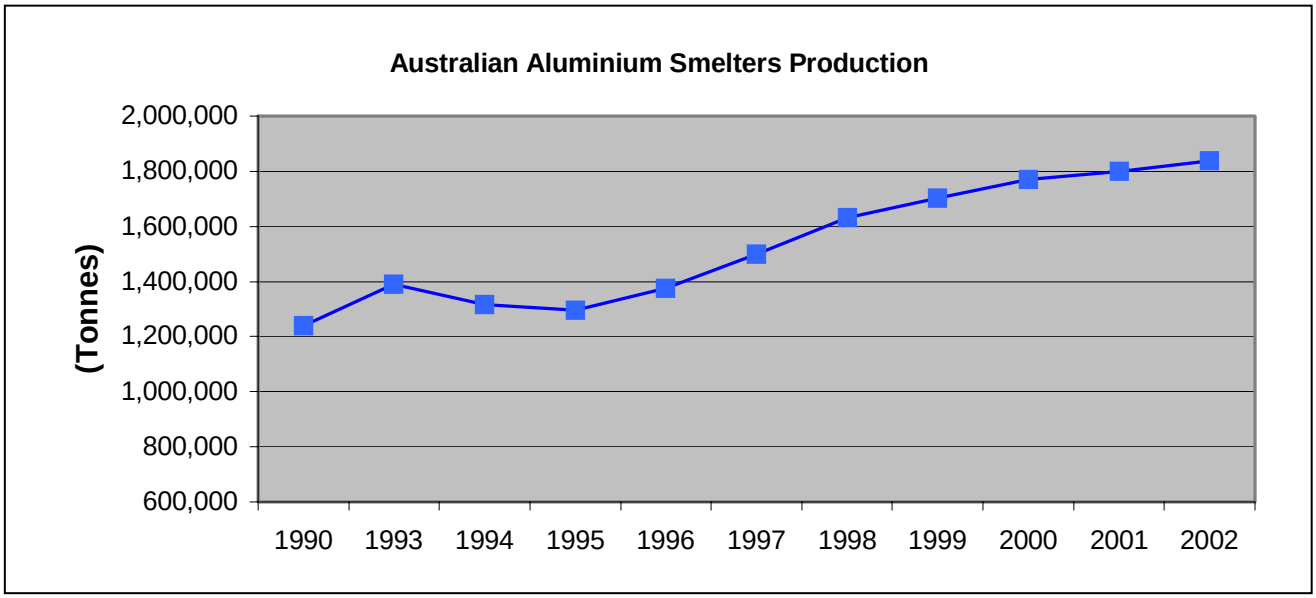

Figure 3: Australian Aluminium Smelters Production

Strong growth in bauxite, alumina and aluminium here in Australia is projected to continue, provided long-term international competitiveness and policy environments support investment in our industries which are competing in global markets.

Industry estimates have predicted further Australian growth for our sector, with alumina and aluminium production capacity to increase between 25% and 60% by 2010.

Growth projections depend greatly on the emerging policy environment, principally in energy and greenhouse policy … and our future competitiveness vis-à-vis alternative locations such as South Africa, Dubai, Bahrain, Malaysia, Russia, China, Brazil, Canada and Iceland (the last three with extensive hydro electricity prospects).

The Need for Competitive Energy without Supply Reservations

The price of aluminium is set globally on the London Metal Exchange (LME). Energy price increases imposed on the Australian aluminium industry cannot be passed on to customers. Such cost impacts at national and/or state level not imposed on our competitors will undermine Australia's international competitiveness.

Without competitive energy, growth in Australian aluminium production and the associated energy demand will not materialise – and existing operations may be prematurely phased out.

The aluminium smelters are all located in eastern Australia and consume about 15-16% of Australia's electricity production. However, it is important to recognise that Australia is highly efficient in its use of electricity in the smelting process being at the leading edge in global terms. A similar situation exists in alumina.

With electricity dominating the controllable costs in aluminium smelting, the AAC has serious reservations with any policy initiatives which impose or mandate market conditions or limits within the electricity market that result in unrecoverable increased energy costs for the industry.

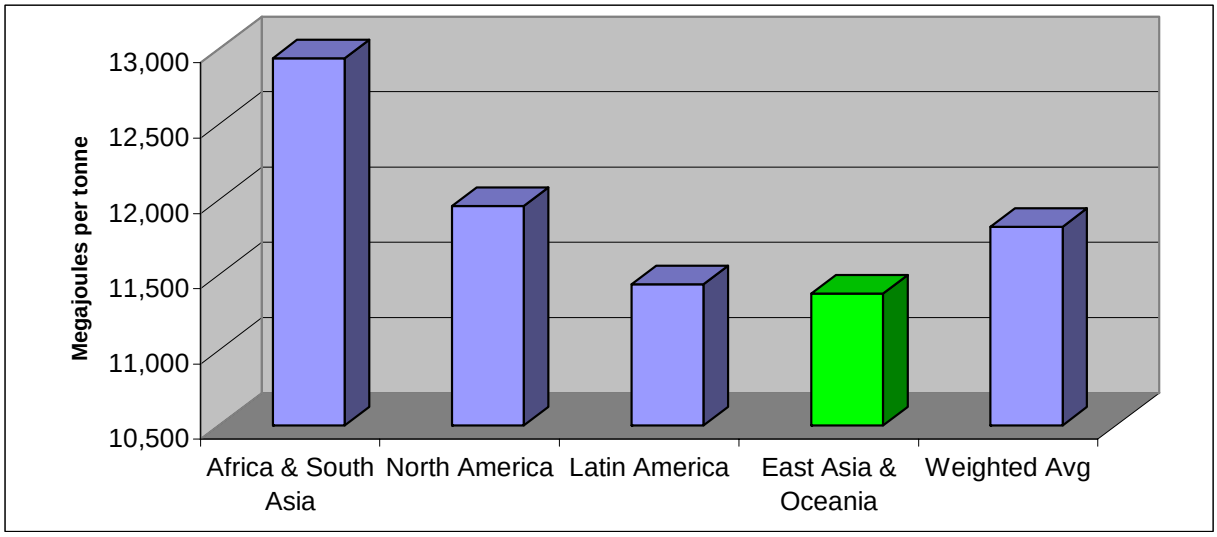

Figure 4: Global Comparison of Energy Consumption for Alumina Production - 2002

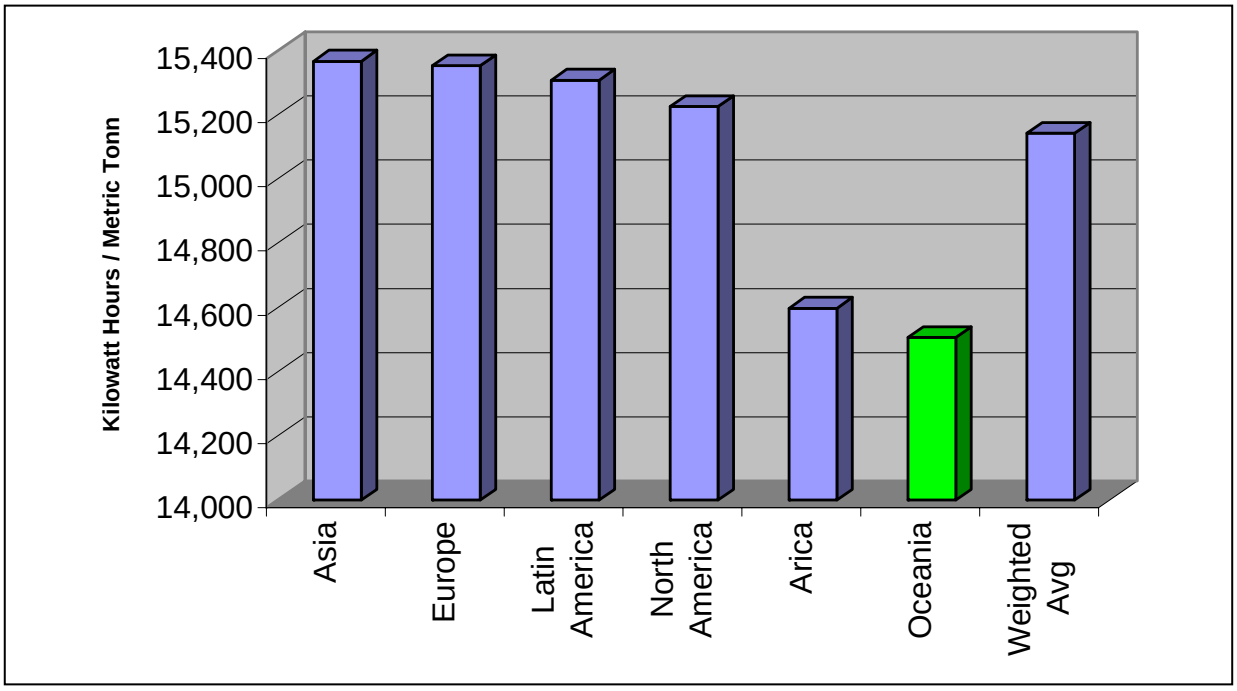

Figure 5: Global Comparison of Energy Consumption for Aluminium Production - 2002

Australian aluminium industry - a major energy consumer

- **Energy is critical input for aluminium smelting with 22% of operating costs (30% when pet coke and carbon are included; 36% with energy in alumina)**
- **dominated by electricity inputs, particularly continuous base load electricity demand**
- **six aluminium smelters representing around 15-16% of Australian electricity consumption**
- **alumina production also significant energy consumption (23% of costs), but mainly gas (growing share) and petroleum products/coal (declining share).**

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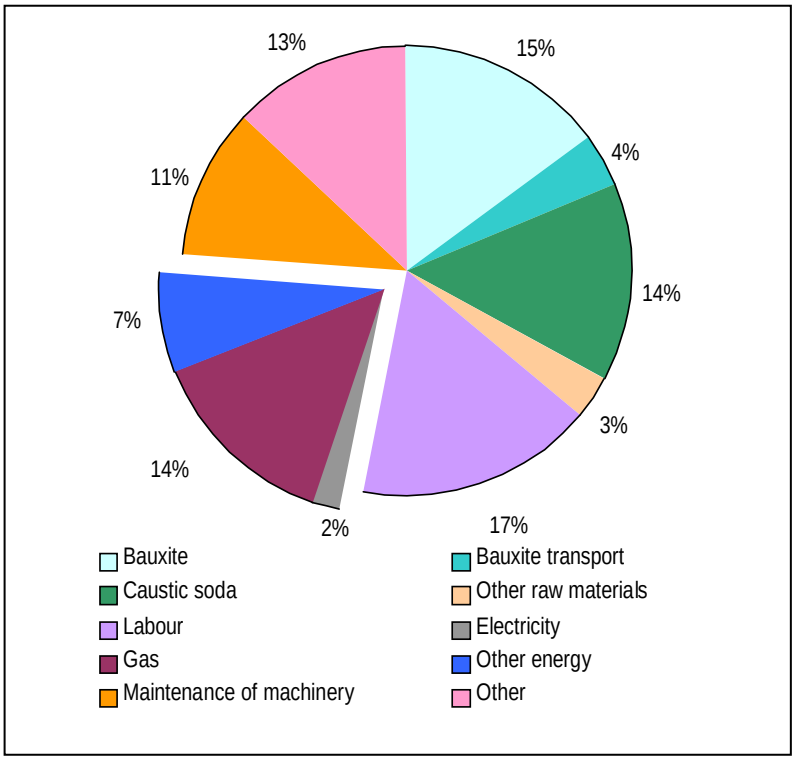

Figure 6: Australian Alumina Industry Cost Structure (Industry Commission – 1998)

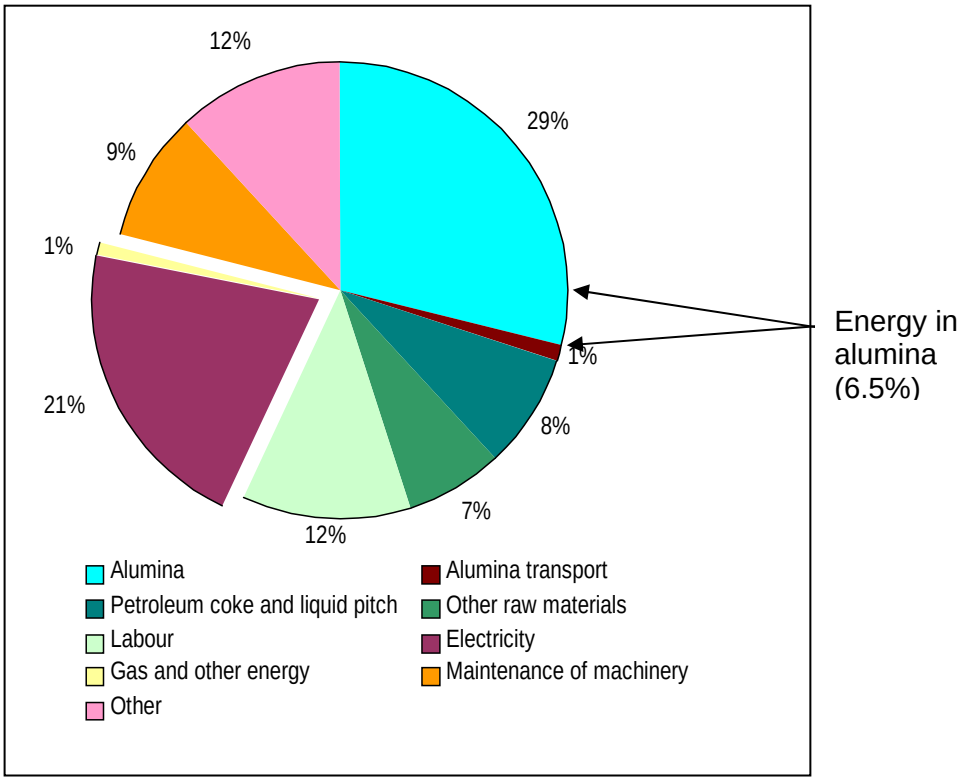

Figure 7: Australian Aluminium Industry Cost Structure (Industry Commission – 1998)

Any increases in the cost of electricity from policy interventions undermine our competitive position and discourage the flow of investment funds into expanding and/or maintaining the current Australian smelting asset base, driving Australia's aluminium industry away from downstream value-adding smelting and back to mining and refining – at the cost of lost value-adding opportunities for our mineral resources.

International competitiveness is hard won, but easy to lose. For industries such as aluminium that cannot pass on costs, policy interventions that have negative impacts on the cost of electricity adversely impact the competitiveness of the Australian aluminium industry. A simple example is the existing mandatory renewable electricity target (MRET), which is likely to add an additional $5 billion onto the national electricity bill over the life of the scheme (to 2020); another example is the NSW electricity benchmarking scheme, affecting the competitiveness of NSW-based firms, at both international and national levels. These schemes are also examples of existing policies where the price impact will continue for some years to significantly increase from today's level.

In the broader context of energy market reform and in the consideration of future greenhouse policies – often applied through the convenient medium/proxy of electricity consumption – the AAC has called for no additional or increased national or state/territory government market interventions that undermine Australian competitiveness.
The AAC is concerned with the array of arrangements in energy, energy efficiency and greenhouse policies applied and the cost impacts imposed on industry.

The AAC supports the approach by the Federal Government to implement measures to put Australia on track to meet its international commitments. These measures aim to balance improved energy efficiency and greenhouse gas reduction with maintaining industries' international competitiveness.

The AAC supports the ongoing commitment of the Federal Government for Australia to pursue effective global action on climate change, and the Government's commitment not to introduce an emissions trading scheme in the absence of an effective global response emerging.

While the mix of current measures may not be ideal, they cannot be replaced with a broad based instrument such as emissions trading. The Federal Government has correctly concluded that such an instrument applied to Australia and not to most of our competitors would shift geographically mobile investments and relocate emissions rather than reduce them globally.

Given Australia's circumstances – structure of economy, natural areas of competitive advantage and the circumstances of our competitors, Australia must ensure that any measures introduced to address climate change are globally effective (do not result in carbon leakage) and do not impact the competitiveness of key Australian industries

The National Framework for Energy Efficiency (NFEE)
The purpose of the National Framework for Energy Efficiency (NFEE), under the auspices of the Ministerial Council on Energy (MCE), is to unlock 'the significant economic potential associated with increased implementation of energy efficient technologies and processes to deliver a least cost approach to energy provision in Australia'.

While the Framework is to be developed cooperatively with all jurisdictions and key stakeholders, little evidence has emerged to-date to indicate a cooperative approach

is going to be central to the modus operandi of the Working Group established by the MCE to undertake this work .

Based on the evidence available from our industry, the initial estimates of the potential gains over and above the established improvement trends from energy efficiency appear to have been significantly overstated,. An alternative explanation may be that the assessment of the potential gains takes no account of important reasons why some energy efficient opportunities are not cost effective for the individual producer/consumer.

Energy Efficiency Best Practice Aluminium Sector Conclusion (2000)

"Australia has the lowest energy intensity aluminium in the world. While there are individual state-of-the-art operations recently begun or being built overseas are lower in energy intensity, in each of its subsectors on average the Australian industry performs at least as well as the industry on average in competitor nations."

"Maintaining this competitive advantage remains a challenge. While extensions to existing operations and greenfields plant will adopt the most energy efficient options available, Australian industry must compete for new investment capital with alternative investment locations."

Energy Efficiency Best Practice in the Australian Industry - Conclusion (July 2000)

The AAC is encouraged by the NFEE Stage One package of nine measures designed to improve coordination among jurisdictions in delivering energy efficiency programs, recently announced by the MCE. The measures involve nationally consistent minimum energy efficiency design standards (including expansion of the existing minimum energy performance standards scheme), mandatory disclosure of energy performance, mandatory assessment and reporting of energy efficiency opportunities for large users, government leadership on energy efficiency, and education and training for consumers, the finance sector and a range of industry operatives – all of these measures are supported by the AAC.

Energy efficiency gap

An 'energy efficiency gap' can exist for a variety of reasons, such as technological developments.

The difference between the most energy efficient processes and technologies available and those actually in use will vary widely across different sectors due to a number of factors.

In aluminium smelting the most likely barriers and impediments preventing Australian aluminium smelters from closing this gap are technology replacement inertia caused by the life of asset lock-in, the impact of other policy uncertainties such as future greenhouse policies, availability of globally-competitive long-term electricity contracts and taxation depreciation arrangements.

The role of state governments should not be over-looked in this situation, given their engagement in energy infrastructure and greenhouse activities – this creates an additional impediment to future investment in major technology change in smelting due to the high capital commitment for any replacement capacity.

Case Study: Hydro Kurri Kurri Smelter Upgrade

- **$38 million Potline No 1 upgrade to increase metal production, reduce emissions, improve safety (Potline No 1 originally built in 1968)**
- **annual capacity increase of 6,800 tonnes from increased amperage, improved current efficiency**
- **emissions of dust, fluorides and the greenhouse gas PFC will be reduced by 50 to 95 per cent**
- **no increase in energy consumption – hence reduced energy intensity as a co-benefit.**

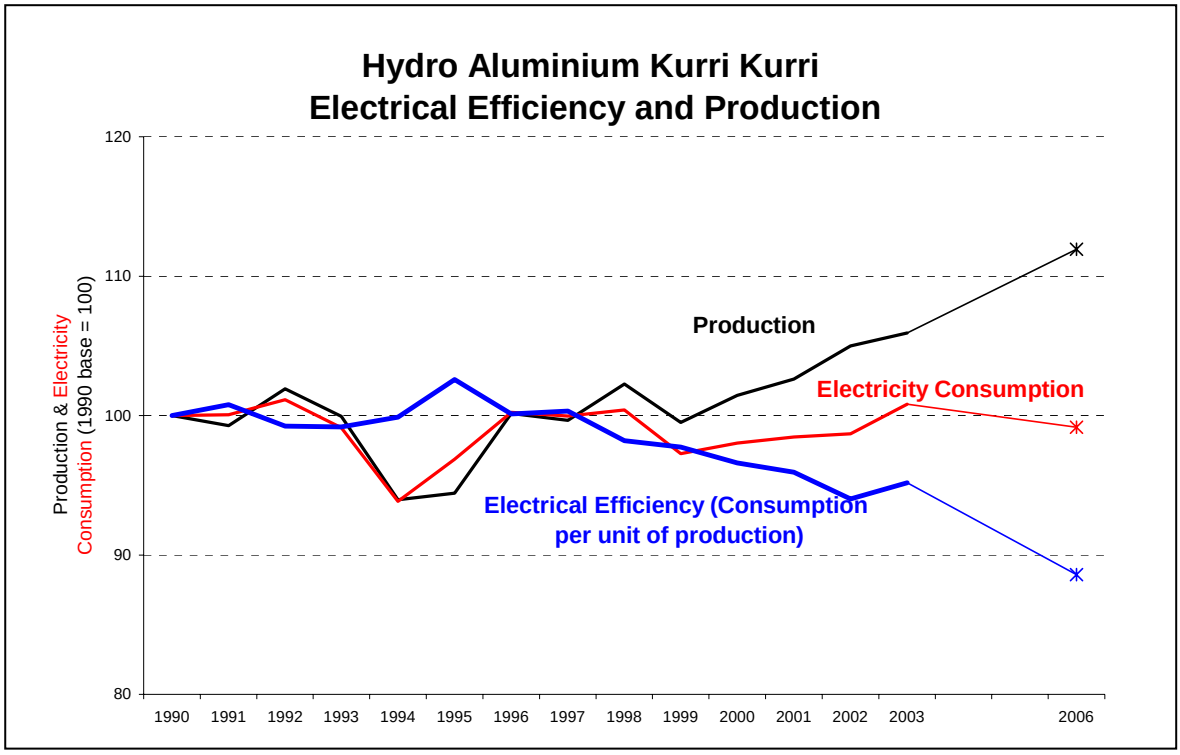

Figure 8: Hydro Aluminium Kurri Kurri Electrical Production

Cost effective energy efficiency improvements

The AAC welcomes the clear interpretation by the Productivity Commission of the terms of reference explicitly referring to energy efficiency improvements that are cost-effective for individual producers and consumers to mean "energy efficiency improvements that have net benefits from the point of view of the person making the improvement (that is, the *private* benefits to that person outweigh the costs of making the improvement)".

The AAC is strongly opposed to mandated approaches to investment in energy efficiency projects such as that set out in the Victorian Environmental Protection Agency's policy on Energy Efficiency. Significantly more will be achieved by governments and industry working together in partnership.

Case Study: Energy efficiency at Alcoa's Point Henry smelter

- **Partnership with Sustainable Energy Authority of Victoria (SEAV)**
- **primary focus on examining combustion efficiency in the anode baking process (representing about 3% of overall smelter energy usage)**
- **results show a gas consumption reduction, a reduction in process variability and a greater energy focus with improved productivity**

Alcoa-SEAV Partnership … conclusions

- **do not assume that all operations have been fully optimised for energy efficiency**
- **industry must remaining open-minded and embrace new initiatives**
- **small gains, but broader value is that collaboration between Government and industry can drive additional energy performance … particularly in energy services and supporting operations of energy intensive industries.**

Economic benefits

The suggestion by many commentators that the economic benefits from improved energy efficiency are substantial is noted. The PC Issues Paper refers to the Energy White Paper statement that '… many business and households can save 10 to 30 per cent of their energy costs without reducing productivity or comfort levels' and to modelling undertaken for the NFEE which estimated 'that annual energy savings of one per cent a year over and above business-as-usual improvements would increase GDP by $12 billion in net present value terms (over a 20 year period)'.

The AAC endorses the comment contained in the PC Issues Paper that 'estimates like these create a perception that the gains can be made relatively easily. But on closer inspection the economic benefits can turn out to be somewhat more elusive'.

Energy efficiency

- **Energy efficiency is important, but not to the overall detriment of the business**
- **energy is one of the inputs to the business and hence one of the factors that, in the appropriate combination, can deliver the best bottom line sustainable outcome for the shareholders**
- **other factors must also be balanced with actions to reduce energy inputs**
- **just as policy decisions by governments must take broad whole-of-government approach, so too in the corporate world**
- **energy is one factor … project and business risks, capex constraints, asset life, other raw material costs and other priorities are also relevant.**

For the aluminium sector, there are rational explanations for the perceived efficiency gap as identified by the PC Issues Paper, namely:

- the 'usual' assumed 10% gap does not exist for the core energy consuming processes – for each vintage of smelting technology being used in Australia, the energy efficiency is a priority for continually improvement because of the cost impact. International data confirms that the scope for improvement is relatively small and of the same order as the 'usual' assumption for BAU improvement

- the hidden costs of changing established processes, particularly the implementing of new technology in a brownfields situation and the disruption and impacts on other parts of the operation
- the existence of sunk costs that mean it is not yet economic to upgrade to more energy efficient plant and equipment.

Equally rational is the decision not to proceed with energy efficiency investments where policy certainty is not adequate to support the investment required; this is exacerabated by the large capital requirements and by the length of time required to recover the new capital investment; the involvement of state governments often causes further uncertainty within the market, with policy activity directly and indirectly (eg greenhouse policy actions).

In the situation where the industry/firm is operating in an energy intensive sector, the likelihood is that there will be a high correlation with rational behaviour in explaining the energy efficiency gap.

Environmental benefits
What effect would cost-effective energy efficiency improvements have on greenhouse gas emissions?

Cost-effective energy efficiency improvements would be expected to have a positive impact on greenhouse gas emissions ie reducing greenhouse gas emissions.

Case Study: Pinjarra Refinery Co-generation and Efficiency Upgrade Project

- **An alumina refinery is an excellent co-generation host … the constant high year-round demand for heat results in base-load co-generation opportunities.**
- **two new Alinta co-generation units at Alcoa's Pinjarra Refinery will utilise gas-fired turbines to generate electricity for third party customers, with the (exhaust) heat producing steam for use by the refinery**
- **both electricity and steam will be produced more efficiently than current practice**
- **The Pinjarra efficiency upgrade project will improve the refinery's energy efficiency (and greenhouse gas intensity) by about 5%**
- **combining the efficiency project with the new Alinta co-generation project will reduce the greenhouse intensity of the Pinjarra Refinery about 14%, giving annual net CO_2 saving of around 380,000 tonnes.**

However, there is very likely to be a rebound effect from economic growth, if the gains here in Australia maintain or enhance our competitiveness vis-à-vis alternative investment locations.

Growth is critical for the sustainability of current Australian living standards, employment rates and indeed for delivering improvements in living standards sought by the majority in the community, at least in terms on their own situation.

Are there barriers and impediments in the market for energy?
What are the barriers and impediments to energy efficiency in the market for energy?

The aluminium industry is in a position to avoid or minimise serious information failure in the market for energy efficient technology due to the global exposure of the companies involved here in Australia.

The opportunity to access global in-house resources to address energy and energy efficiency issues, as part of a broader corporate entity, is an advantage available to alumina and aluminium facilities here in Australia.

While there are opportunities for the engagement of consultants who offer the promise of sharing the benefits from reduced energy consumption, care needs to be taken in avoiding the use of a single metric (energy consumption) when the bottom line may be influenced by changes in the other inputs to the activity. There is little point in engaging the services of an "energy efficiency specialist" who is focussed on a single performance metric without reflecting the impact on the "whole-of-business" outcome.

Taxation arrangements affect energy efficiency opportunities
Taxation treatment of assets (depreciation rates) also has a significant influence on introduction of new energy efficient technology/equipment

Recent Federal Government ATO decisions on depreciation in the alumina/aluminium sectors as part of the effective lives exercise will work against early opportunities for replacement of less energy efficient plant/equipment.

The AAC suggests that the Productivity Commission examine the impact of Federal Government tax treatment on energy efficiency particularly in respect of long life assets.

Coordination of energy efficiency programs
The AAC supports the coordination of energy efficiency programs at the national level.

While recognising the need for variations to accommodate differing climatic conditions across Australia and hence the need to be flexible around any notion of national uniformity in some areas such as building standards, national coordination can have benefits, such as economies of scale in the development of programs and reduced costs of compliance for national businesses.

However, the AAC questions the benefits from so-called 'regulatory competition': where different approaches in different States provide opportunities for identifying the most effective policies, these can be accommodated within the policy development process of the National Framework for Energy Efficiency under the MCE.

The current situation of differing policy interventions in the electricity market (for example, the mandated scheme in NSW for the achievement of greenhouse gas emission goals) causes an adverse impact on NSW operations in comparison to operations in other jurisdictions.

International comparisons of energy efficiency programs

The AAC agrees that it is difficult to compare international experiences in energy efficiency, given differences across national borders in natural endowments (such as resources, climate and geography), the relative importance of specific sectors to the

individual economy and the availability of other factors including capital and labour which can be used as substitutes for energy in many situations.

However, there is a need to better understand and explain the apparently lower and slower improving energy intensity of the national economy compared to other OECD countries.

At a sector level, other difficulties arise in international comparisons because of the differing age profile of an industry such as aluminium smelting.

All Australian alumina refineries and aluminium smelters participate in the International Aluminium Institute (IAI) annual survey of energy efficiency. The industry reports overall energy use to the IAI and results are fed back to each refinery and smelter showing their position on de-identified energy efficiency curves for refining and for smelting – i.e. a form of benchmarking across the international aluminium industry. Differing technologies are also identified to allow plant comparisons on a "best of class" basis.

Companies with multiple alumina and/or aluminium plants also have internal benchmarking arrangements.

Study Alcoa Energy Efficiency Network

A company-wide network for identifying energy savings … key factors include:

- **a roadmap for success**
- **a voluntary network that allows locations to request their own assessments**
- **top-level commitment to energy efficiency improvements**
- **local commitment to energy projects**
- **company wide system to report project results**
- **recognition of achievements.**

35 Alcoa facilities assessed by the end of 2003, with more than $60 million in savings opportunities identified:

- **$40 million committed to pursue the energy savings**
- **20% of opportunities can achieve savings through "no-cost" projects**
- **80% of opportunities could be realised through projects with less than 2-year paybacks**
- **more than $15 million has been captured to date**

Energy management is a corporate commitment

- **benefits include reduced energy use, reduced energy costs and reduced emissions of NOx, SOx and CO2 … as well as public recognition.**

Type of Emission	Reduction opportunities identified (tonnes/year)	Reductions achieved (tonnes/year)
NOx	2,600	770
SOx	5,600	1,600
CO2	1,300,000	420,000

In recognition of the importance of energy efficiency and the energy intensive nature of the industry's production processes, the International Aluminium Institute (IAI) Global Aluminium Sustainability Development Initiative has adopted a global energy

efficiency objective, seeking to achieve a 10% reduction in smelting energy usage for the global industry as a whole per tonne of aluminium produced by 2010 vs 1990

Energy Pricing and the influence of market reforms
Reflecting the critical nature of an input responsible for over 20% of total operating costs, the price of electrical energy is a major determinant in the investment decision/location for an aluminium smelter. Allied to this is the requirement for the power contract to match the financial risk associated with the project.

Recent experience in Australia suggests that the risk profile associated with long term power contracts may have changed significantly through the change in the ownership of the major generating assets and/or increased policy uncertainty causing the long-term price to become unpredictable. These circumstances appear to have been of such a magnitude as to have removed any advantage afforded to Australia, resulting in no current commitments to introduce any new smelter or potline.

Therefore, while acknowledging the truism associated with the statements in the Issue Paper that "the amount of energy consumed in the Australian economy will depend in part on its price" and that "Other things being equal, an increase in the price of energy can be expected to lead to a decrease in consumption, particularly over the medium to long term', the uncertainty of the policy interventions that may impact on energy prices (for example, greenhouse gas emission policies that could increase electricity prices) can be enough to shift the locational preference of an international investor in an international industry.

Inappropriate policy interventions at the national level to address externalities with an international reach or impact could be extremely detrimental to national economic performance where similar or equivalent action is not taken in a broadly global manner.

While accepting the thesis stated in the Issues Paper that "market failures such as externalities and market power …, or inappropriate regulation, can distort prices", it is important to recognise that externalities of a global nature can create market disadvantage at the national level in the situation where similar action is not applied on a global scale and, in effect, creating a classic situation of inappropriate regulation if sectors of the economy are singled out to deliver against these national policy objectives.

Demand management
Alumina and aluminium production is a continuous year round operation and energy demand reflects this situation.

Aluminium production is dependent on reliable electricity supply. Loss of supply is a major risk exposure for an aluminium potline. A disruption in supply of 2-3 hours would place the potline in a critical state and loss of supply in the range of 4-6 hours would cause a potline to "freeze" [solidify] with the re-start cost likely to be in the order of $50 to 70 million for the average smelter.

The electricity and gas requirements of these facilities are at a constant level (load) under normal operating conditions.

The level of electricity consumed by an aluminium smelter creates a very significant baseload demand. For example, a smelter with an annual output of 300,000 tonnes will require around 4,440 GWh of electricity. This situation provides an economic synergy between smelter and power plant … the opportunity to sell a significant proportion of the generation capacity to a customer with a constant high demand has

provided the guarantee (or minimised the risk) for the development of major base load generating plants in the recent past.

Minimum standards
The AAC notes that minimum standards have been introduced for homes and other buildings to ensure a minimum level of energy efficiency and that sustainability measures are to be incorporated into the Australian Building Code (ABC), but that some States and Territories have chosen to vary their requirements from those set out in the ABC. The AAC also notes that the Productivity Commission is currently undertaking a commissioned study into the Reform of Building Regulation.

Growth delivers the opportunity to introduce new technology
Industry growth provides the simplest way to introduce state-of-the-art technology. Long life assets such as base load power stations and aluminium smelters result in extended timelines for opportunities to introduce newer more efficient technology

Australia's advantage in per unit energy consumption in aluminium smelters was created by the growth in the industry in the 20-30 years up to 2000, but is now being eroded by the introduction of new capacity in other countries and the relative faster growth being experienced in those countries, eg South Africa, Mozambique, Iceland, Brazil, Dubai, Bahrain.

Financial incentives to improve energy efficiency in the energy supply market and the market for energy efficiency products
What are the costs and benefits of financial incentives?
Why are levies necessary if cost-effective energy efficiency improvements already provide net private benefits?
What is the rationale for levies to raise funds for energy efficiency improvements?

Financial incentives to improve energy efficiency in the energy supply market and the market for energy efficiency products would appear inconsistent with the Productivity Commission thesis that there should be "net benefits from the point of view of the person making the improvement (that is, the *private* benefits to that person outweigh the costs of making the improvement)". Exceptions to this thesis would therefore seem to be limited to barriers and impediments that cannot be efficiently addressed by attacking and exorcising the root problem to this situation.

Most financial incentives have been directed at activities where the *private* benefits to that person do not outweigh the costs of making the improvement … and hence the justification relies on the social benefits from the action.

The AAC is opposed to the use of levies (tax) to drive energy efficiency improvements or to raise funds for energy efficiency improvements. A levy would increase the cost of energy to the consumer and would distort/change resource allocation and competitiveness away from those sectors who use more energy to those who use less energy. This suggests that this policy option is based on the assumption that energy is incorrectly priced in the market. Economic growth will be reduced to the extent that the levy/tax and its subsequent redistribution results in a shift of resources away from more efficient or productive sectors of the economy.

A national energy efficiency target
The AAC is strongly opposed to any form of a national energy efficiency target (NEET).

A NEET would cause economic inefficiency due to the enforcement of a particular outcome irrespective of the cost imposed on the economy and individual enterprises to achieve the specific target. It would be impossible to establish a single national

target on an equitable basis given the very differing circumstances both across industries and within industries. For example, the impact would be very different on short and long term assets, on recent investments versus end-of-life investments. Benchmarks would also need to accommodate alternative technologies within the same industry. Also, a national target based on energy per unit of economic output would place a relatively greater burden on energy intensive industries, who are typically quite efficient in terms of energy per unit of production.

A NEET would have a negative impact on overall economic growth due to the enforced actions required to meet the target rather than a company being able to determine its investments under normal commercial conditions.

The administration and compliance costs of a NEET scheme would be very significant given the individual circumstances of firms even within the same industry. Establishing benchmarks for each business, accounting for 'business as usual' improvements, setting uniform industry or individual targets for each business, avoiding the danger of penalising those who have achieved a high level of energy efficiency make such a policy almost unworkable, very costly and counter-productive to achieving economic efficiency.

The suggestion of an energy savings acquisition scheme to meet a required national or industry-specific energy efficiency target is opposed.

Such a scheme would mean that energy efficiency is not being undertaken for economic efficiency grounds but being enforced by a policy intervention that has determined the appropriate level of energy efficiency and has created a price for such improvements which would be determined by the setting of the target. Again, this appears to be attempting to change the price of energy in the economy for external reasons.

Policies that introduce mandated targets to achieve certain outcomes impose additional costs on consumers.

Sectoral issues

The AAC recognises that there are significant differences in the attitudes towards energy efficiency between different sectors and, indeed, within sectors such as the industrial and commercial sector driven by the relative importance of energy and its contribution to the cost structure of the particular enterprise.

This circumstance will drive the necessity for the application of different, specific policy options for certain sectors of the economy. This is particularly the case where the price of energy may not be reflected in the tariff due to regulated conditions or where the difference in unit consumption is small but significant when multiplied by the large number of units in use, such as in the consumer and household sector. The application of minimum standards for domestic appliances could be the most effective policy intervention to achieve energy efficiency improvements in this sector.

The PC Issues Paper noted that "the industrial and commercial sector accounts for 47 per cent of total energy use and 79 per cent of non-transport related energy use. Manufacturing and mining account for 40 per cent of total energy use, and 67 per cent of stationary energy use, while commercial users account for 7 and 12 per cent respectively. The White Paper estimated potential energy efficiency savings of 6 per cent in the manufacturing and mining sector, and 10 per cent in the commercial sector."

The AAC questions the level of potential energy efficiency savings identified, given the limited contribution available from energy intensive industries such as aluminium smelting. These figures appear to be driven off the broad assumptions put forward claiming a major gap between Australian and OECD energy efficiency performance – this is a metric which does not reflect the experience within the aluminium smelting sector.

Energy efficiency agreements and public reporting

The AAC supports the Australian Government's initiative for Energy Efficiency Opportunity Assessments (EEOAs) and public reporting by large energy users. The AAC and its member companies have volunteered to work with relevant government agencies to pilot this scheme. A key feature of this scheme is reliance on identification of opportunities to drive change underpinned by the public reporting exposure rather than mandatory requirements to undertake action against a pre-determined criteria (such as ROR thresholds).

All Australian alumina refineries and aluminium smelters will be covered by the energy efficiency opportunity assessments scheme. It should be noted that all refineries and smelters are also engaged in the Greenhouse Challenge program. Australian smelters and refineries are already very focussed on energy efficiency given its importance and significant cost to the business. For this reason we welcome the EEOA scheme as a complement to what we see as good business practice.

A number of key parameters remain to be determined for the operation of the energy efficiency opportunity assessments scheme – and these will have an important bearing on the eventual cost and effectiveness of the scheme. The AAC is pursuing a number of issues as part of the consultation process established by the Department of Industry Tourism and Resources for developing the arrangements to apply under the scheme. We look forward to assisting with the development of this important initiative.

Future for the Australian alumina/aluminium industry

- **alumina (and bauxite) likely to grow at a rate equal to, or higher than, the rate of growth in global primary metal production**
- **aluminium growth requires long-term competitive electrical energy situation:**
  - without it, existing operations will be starved of capital for upgrading and prematurely phased-out
  - greenfields developments do not occur
- **energy price and energy efficiency contribute to energy cost impacts.**