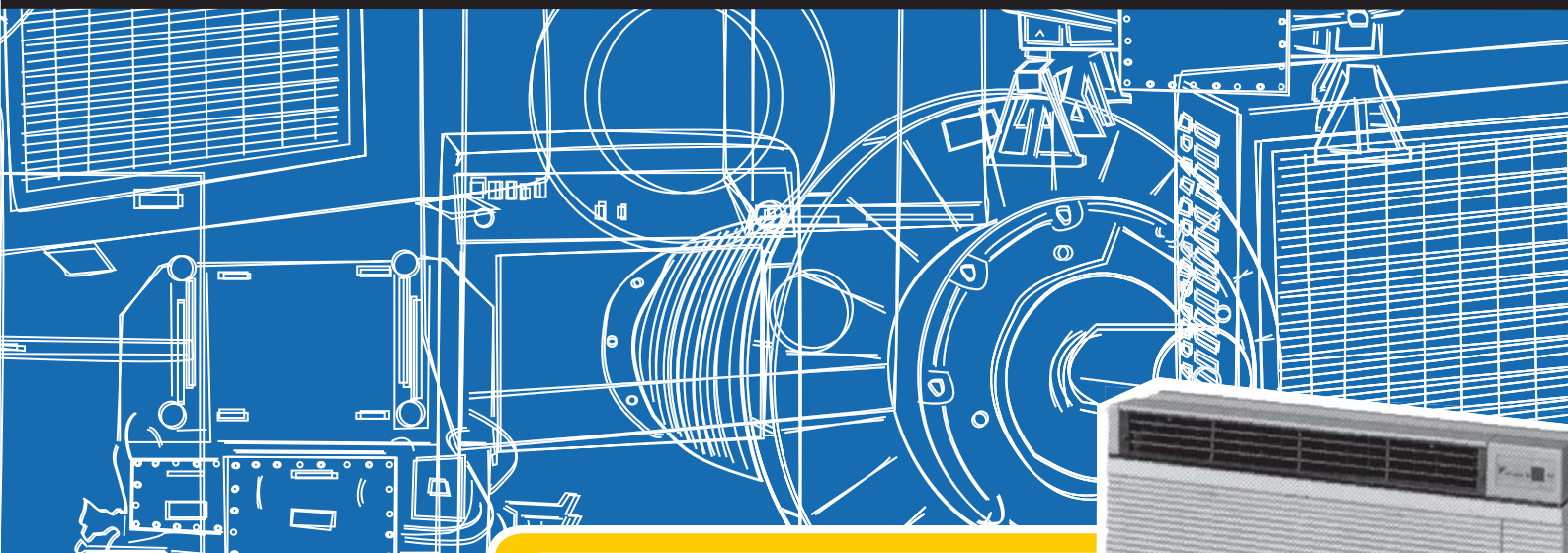


NATIONAL APPLIANCE AND EQUIPMENT ENERGY EFFICIENCY COMMITTEE

Minimum Energy Performance Standards



AIR CONDITIONERS



The August 2002 of the plan by the National Appliance and Equipment Energy Efficiency Committee to improve product energy efficiency

AN INITIATIVE OF THE MINISTERIAL COUNCIL OF ENERGY
FORMING PART OF THE NATIONAL GREENHOUSE STRATEGY

Minimum Energy Performance Standards: Airconditioners

OVERVIEW

The National Appliance and Equipment Energy Efficiency Committee (NAEEEC) is collecting information for consideration by the Australian Ministerial Council on Energy (MCE). NAEEEC is exploring the benefit of mandating minimum energy performance standards (MEPS) for single phase airconditioners and increasing the stringency of existing MEPS for three phase airconditioners. In addition, NAEEEC is supporting the industry with a range of complementary voluntary measures.

MEPS is a government regulatory program stipulated in state and territory law that excludes from the market products which do not meet the minimum energy performance levels. NAEEEC comprises energy efficiency officials and regulators that implement the MEPS program in Australian and New Zealand. MCE comprises the Minister of Energy from each Australian jurisdiction responsible for energy matters.

This plan for Australia represents the first stage of a public process to develop nationally consistent standards for single phase airconditioners and a review of the MEPS program for three phase airconditioners. At its essence, NAEEEC seeks community and stakeholder comment on proposals to improve the energy efficiency of these products by:

- Mandating a two stage process for MEPS for single phase airconditioners within relevant state and territory legislation, the first stage commencing in or around July 2004 which removes the lowest efficiency models on the market, with a second stage that matches world best regulatory

standards (the 2001 Taiwanese standards) from around July 2007

- Mandating more stringent MEPS for three phase airconditioners within relevant state and territory legislation commencing around July 2007 that match the proposed 2003/2004 USA standards, the most stringent proposed in the world at present
- exploring stakeholder support for developing energy performance standards for products to be marketed as "high efficiency" airconditioners, and
- helping industry to promote and market the best-available air conditioning products to the Australian marketplace.

PUBLIC COMMENTS INVITED



AUSTRALIAN
Greenhouse
Office

NAEEEC seeks comment on the proposals contained in this plan from any interested person or organisation. Please address your comments in writing to:

Built Environment Team
Australian Greenhouse Office
GPO Box 621
CANBERRA ACT 2601

Facsimile: (02) 6274 1884

Email: energy.efficiency@greenhouse.gov.au

Comments received by 1 November 2002 will help NAEEEC shape the future program.

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INTRODUCTION

Program goals

Energy consumed by equipment and appliances is a major source of greenhouse emissions. Codes and performance standards programs are amongst the most effective and widely used measures throughout the world to reduce greenhouse emissions attributable to this source.

The Australian Appliance and Equipment Energy Efficiency Program provides an important stimulus for the development of world-class energy efficient products. Benefits can flow through to the general community in the form of monetary savings from lower operating costs and increased employment levels resulting from Australian industry's ability to exploit potential export markets.

Under the 1998 National Greenhouse Strategy, responsibility for this program rests with MCE. It is committed to improving this national program and has authorised NAEEEEC to develop and publish plans for those products targeted for MEPS. These plans represent a transparent way for government agencies to explore community and stakeholder support (for both mandatory and voluntary measures) to reduce greenhouse gas emissions produced by these types of equipment.

NAEEEC examines any item of industrial or commercial equipment identified as a significant contributor to the growth in energy demand or greenhouse gas emissions for possible inclusion in the national program. Each product proposed for MEPS will be subject to both a feasibility assessment and public consultation before any final decision is made. These assessments will include technical and economic cost-benefit analyses as well as consideration of all supervisory measures available (voluntary, mandatory or a combination of both) to ensure that the most appropriate energy efficiency regime for that specific product is chosen. The NAEEEEC work program contains a list of all products scheduled for consideration and is available at the Australian Greenhouse office website.

This plan for airconditioners plays an important role in the ANZMEC process, communicating the potential levels and timetable for regulatory initiatives in general terms. It also demonstrates the extent to which Governments want all stakeholders to participate in the development of policies to meet the challenge of reducing the climatic affects of energy intensive products.



AIRCONDITIONERS

In simple terms, airconditioners (excluding large chilled water types used in multi-storey office buildings and evaporative types used for residential purposes) can be divided into two groups:

1. those with a single phase electricity supply which are used mostly in residential applications; and
2. those with a three phase electricity supply which are used mostly commercial or industrial applications.

These two groups can be subdivided into several types, including:

- room or window/wall types
- single and multi split types
- packaged types
- cooling only or reverse cycle



WHY ARE AIRCONDITIONERS BEING CONSIDERED FOR MEPS?

MEPS already applies to three phase airconditioners, which was mandated through nationally consistent state and territory legislation, from October 2001. MEPS for three phase airconditioners is expected to reduce greenhouse emissions by a cumulative total of 14.6 MTCO₂-e over 15 years with a benefit cost ratio of 6.

MEPS for single phase airconditioners was considered but rejected by government in the early 1990s. In 2001, NAEEEEC accepted the proposal from consultants to recommend overturning that decision:

MEPS should be considered for all airconditioner classes now subject to mandatory energy labelling (ie single phase products) as well as multi-split models, once the test procedure is finalised; and

For airconditioners, the determination of the optimum MEPS level should take into account the increasing stringency in other countries' MEPS levels, and the objective of eliminating the possible leakage of low-efficiency products from other markets;

Extract from "The Scope for Application of Minimum Energy Performance Standards to Additional Household Appliances" George Wilkenfeld and Associates Pty Ltd, Sydney, 2001

WHY AUSTRALIAN GOVERNMENTS ARE CONSIDERING MEPS

MEPS is a government policy that imposes a better rate of improvement for energy efficiency of airconditioners in Australia than market forces and less interventionist policies might otherwise achieve. MEPS can demonstrably improve the energy efficiency of appliances and equipment, particularly overcoming situations where the purchaser is not responsible for ongoing energy operating costs. In addition, where Australia does not have MEPS (such as for single phase airconditioners), importers of products may supply Australian consumers with airconditioners, which may not even meet the MEPS levels of the country of manufacture. Many of Australia's major trading partners for airconditioners have MEPS, including Taiwan, China, USA, Japan, Philippines and soon, Thailand.

NAEEEC commissioned consultants to examine international developments (EnergyConsult Pty Ltd May 2002, see the web site www.energyefficient.com.au under documents for a copy). The results were tested with key representatives from industry and other stakeholders groups and the outcome of this process is reported in this public profile.

In general, USA MEPS being implemented in 2003/4 were considered the basis for MEPS proposed for Australia for three phase airconditioners while the Taiwanese MEPS levels implemented in 2001 were considered the basis for MEPS proposed for Australia for single phase airconditioners. These were chosen after detailed comparison of testing methods and comparison with Australian products showed they were the most stringent currently or proposed by the major trading partners. Although Japan has proposed more stringent levels for certain sizes of single phase airconditioners, they are based on a sales weighted average efficiency and not directly translatable to Australian conditions. They do, however, establish that more efficient product will be readily available.

ELEMENTS OF THE PLANNED PROGRAM

Regulatory – Three Phase Airconditioners

NAEEEC proposes to increase the MEPS levels of airconditioners taking three phase supply within the scope of the joint Australian and New Zealand Standard AS/NZS 3823. This standard includes packaged type airconditioners with a cooling capacity up to 65kW. The proposed new MEPS levels are targeted to commence in mid 2007. The proposed start date for these increased levels is timed to coincide with the proposed final MEPS for single phase airconditioners.

NAEEEC proposes to closely adopt the MEPS levels contained in the USA Department of Energy (DOE) Final Rule, Federal Register Vol.66, No.9, January 12 2001. This final rule specifies the minimum efficiency levels that will apply from October 2003 for small commercial units and from October 2004 for large commercial units. NAEEEC proposes to adopt a slightly more stringent level for product less than 19kW than is currently proposed in the USA. Reports from the USA are that regulators and industry are engaged in resolving the precise level for those products at this time. To provide certainty to Australia, NAEEEC proposes to adopt a level comparable to single phase units in mid 2007. The extra three or four years should ensure the technology to meet this level is freely available.

Table 1 provides the proposed EER levels which meet or exceed world best regulatory practice. As at registrations in April 2002, approximately 90% of models would not meet the 2007 proposed MEPS in five years time.

The graphical representation of these proposed levels with the current registrations is shown in Figure 1.

NAEEEC also seeks feedback on the idea that marketing claims about "high efficiency" product should also meet an agreed standard. NAEEEC proposes to establish a "high efficiency" level in the standard.

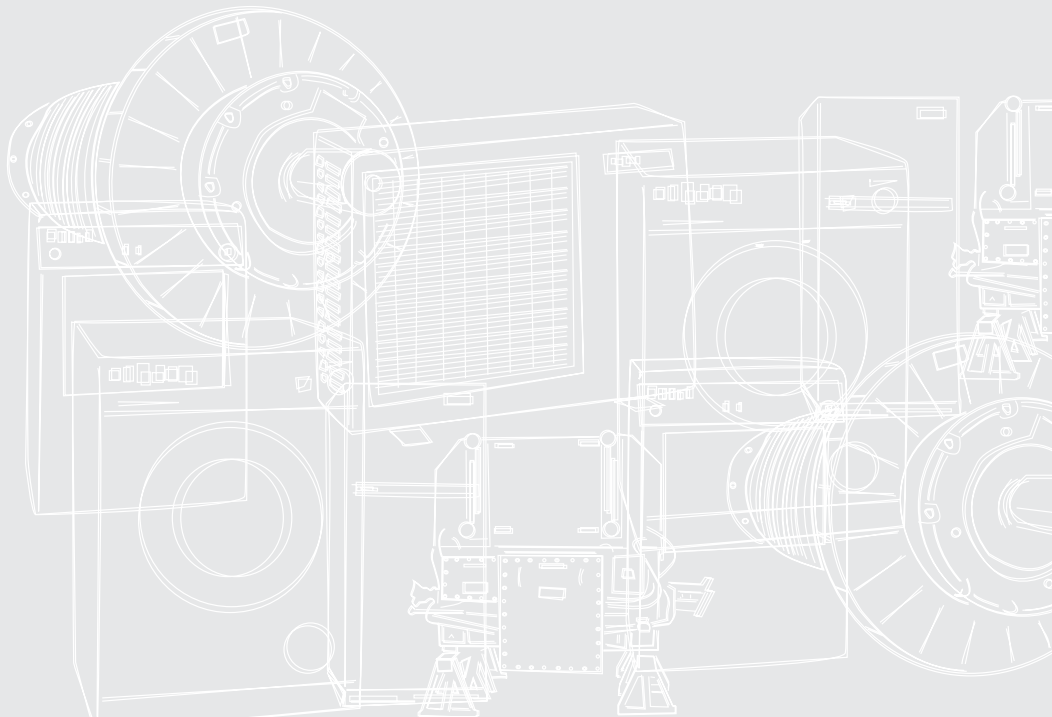
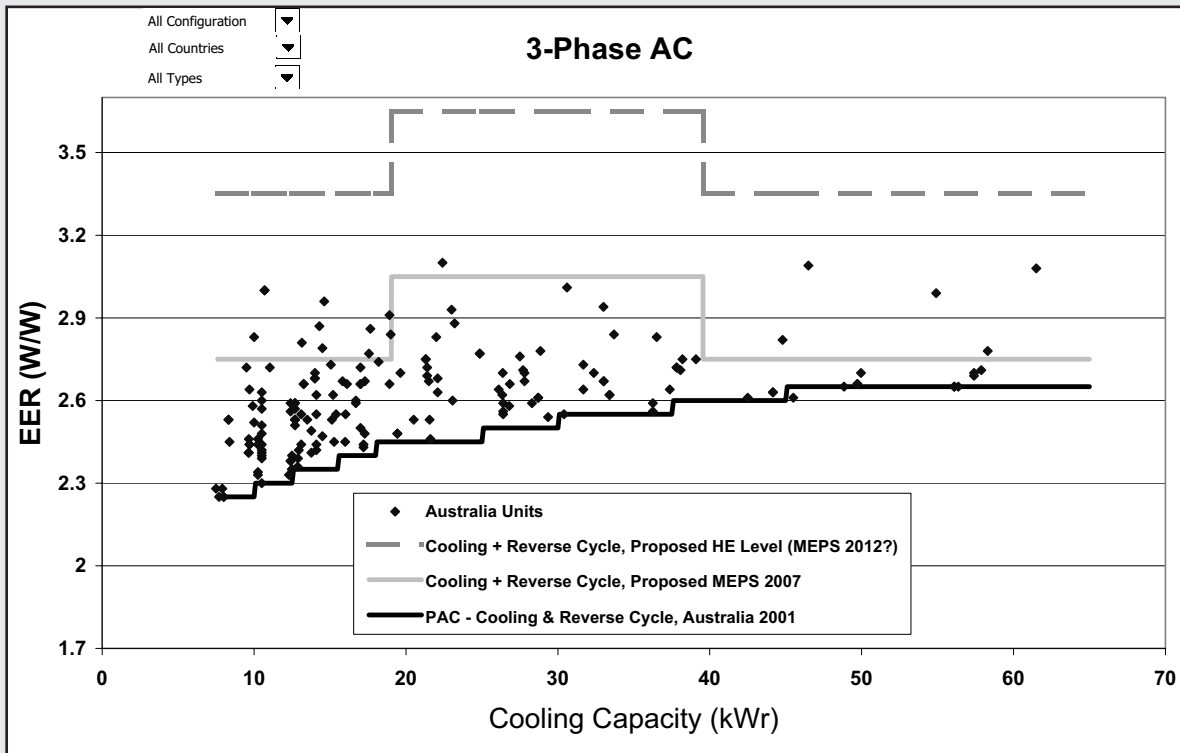


Table 1: Proposed MEPS for Package AC Cooling and Reverse Cycle

SIZE RANGE (KW)	MEPS (2007)		HIGH EFFICIENCY	
	Min EER	SRI *	Min EER	SRI *
19 kW	2.75	3.5	3.35	5.5
<19 39	3.05	4.0	3.65	6.5
> 39 kW	2.75	3.5	3.35	5.5

Note *: SRI is the current star rating index (stars) under the AS/NZS3823.2-2000 algorithm.

Figure 1: Proposed MEPS and HE Target for 3 Phase AC



Regulatory – Single Phase Airconditioners

NAEEEC proposes to specify MEPS levels of airconditioners taking single phase supply within the scope of the joint Australian and New Zealand Standard AS/NZS 3823. NAEEEC proposes to closely match the MEPS levels of the 2001 Taiwanese standards in July 2007 and to introduce initial MEPS levels in July 2004 that remove the least efficient products. The two-stage process is proposed to assist with a more orderly transition to the final MEPS. The proposed levels for MEPS for single phase airconditioners would also remove approximately 85-90% of the models on the market currently in Australia.



The MEPS levels for single phase airconditioners are proposed for different configurations of airconditioners. Airconditioners have technical differences that make a significant difference to their efficiency levels when comparing the same required cooling capacity. The configurations suggested are

- Room or window/wall type
 - Cooling only
 - Reverse cycle
- Split type
 - Cooling only
 - Reverse cycle

The proposed MEPS levels and timing are shown in Table 2 and Table 3.

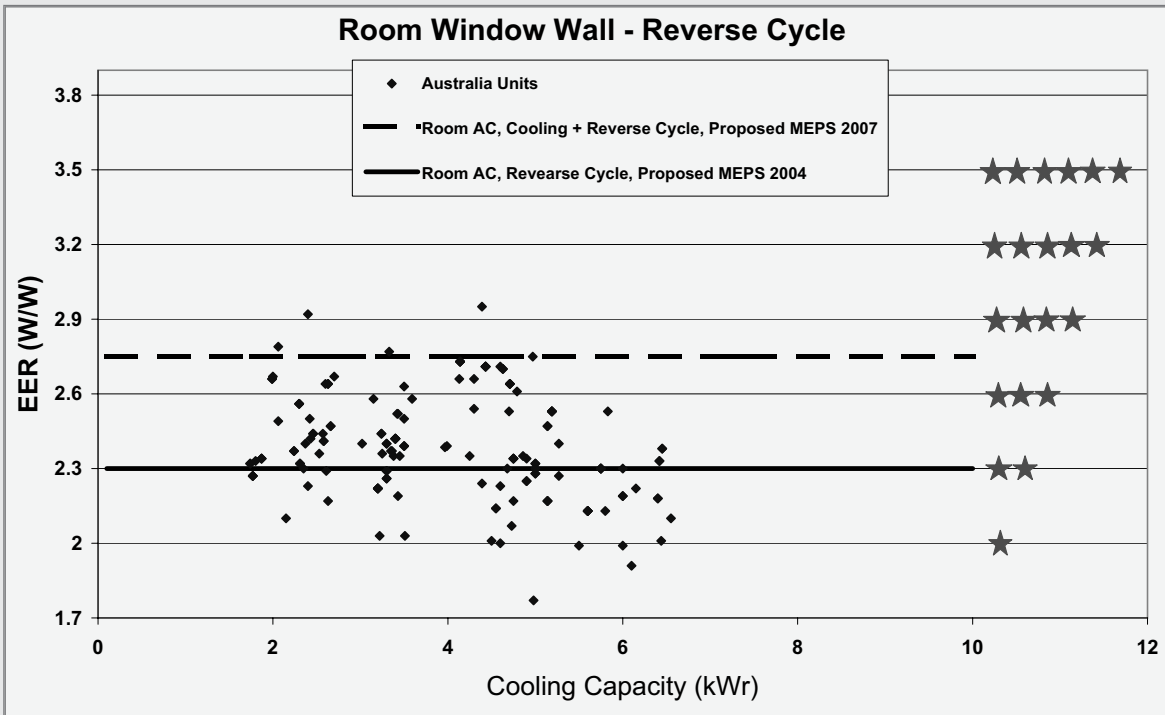
With these proposed MEPS, around 37% to 53% of current registered product would not meet the 2004 levels with 95% not meeting the proposed 2007 levels. The graphical representation of these proposed levels with the current registrations for reverse cycle room types is shown in Figure 2.

Table 2: Proposed MEPS for Room Type

ROOM TYPE	INTERIM MEPS (MID 2004)		FINAL MEPS (2007)	
	Min EER	SRI *	Min EER	SRI *
Cooling Only	2.45	2.5	2.75	3.5
Reverse Cycle	2.3	2	2.75	3.5

Note *: SRI is the current star rating index (stars) under the AS/NZS3823.2-2000 algorithm.

Figure 2: Proposed MEPS for Single Phase Room AC – Reverse Cycle



Note *: Star rating levels shown are the current system under the AS/NZS3823.2-2000 algorithm

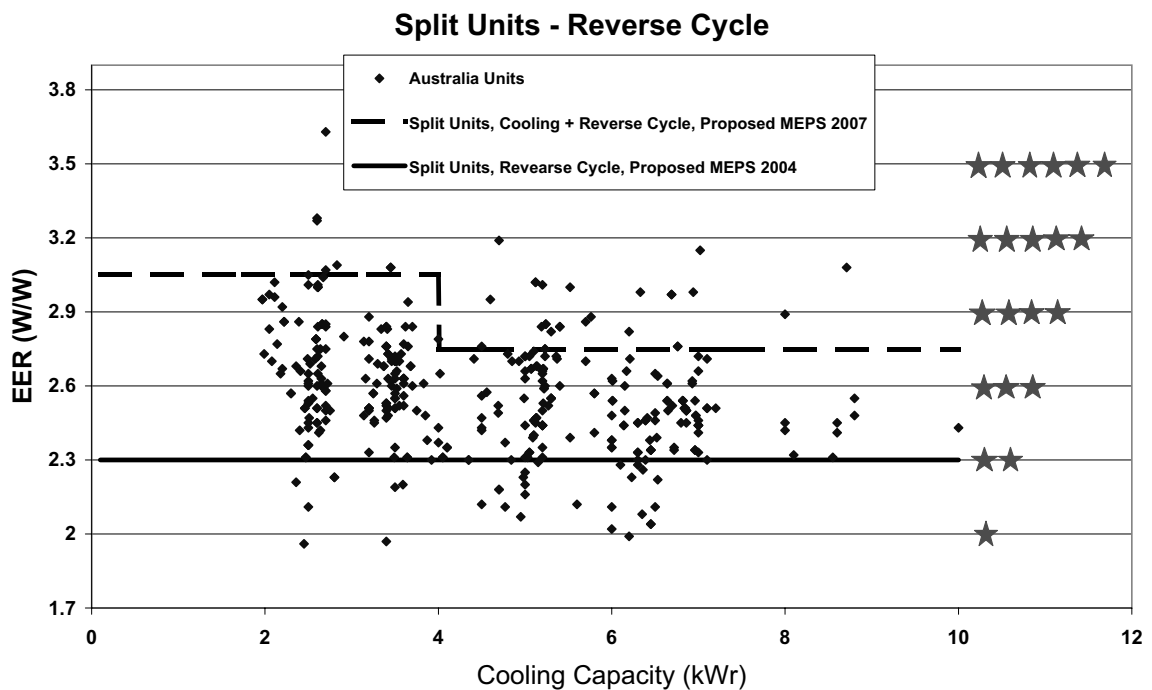
Table 3: Proposed MEPS for Split AC

SPLIT TYPE	INTERIM MEPS (MID 2004)		MEPS (2007)	
	Min EER	SRI *	Min EER	SRI *
Cooling Only	2.45	2.5	3.05 (≤ 4 kW)	4.0
Reverse Cycle	2.3	2	2.75 (> 4 kW)	3.5

Note *: SRI is the current star rating index (stars) under the AS/NZS3823.2-2000 algorithm.

With these proposed MEPS, around 13% to 22% of current registered product would not meet the 2004 levels with 85% not meeting the proposed 2007 levels. The graphical representation of these proposed levels with the current registrations for reverse cycle Split types is shown Figure 3.

Figure 3: Proposed MEPS for Single Phase Split Unit AC – Reverse Cycle



Note *: Star rating levels shown are the current system under the AS/NZS3823.2-2000 algorithm.

Voluntary

NAEEEC has in place several assistance programs to voluntarily encourage the use and promotion of efficient airconditioners systems. NAEEEC wants to explore whether suppliers are interested in a voluntary endorsement scheme (and even possibly an endorsement label used under license) to identify “high efficiency” products.

NAEEEC is currently working with industry trade and professional stakeholder organisations to develop projects that support their members addressing the challenge of MEPS. Although not intended to be exhaustive, some of the options already implemented or being considered include:

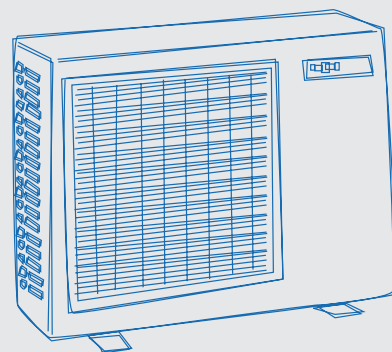
- Provision of database search via the internet for product information by efficiency, size and type
- Development of training and education programs in efficiency topics for airconditioning professionals for accreditation and professional development
- Codes of practice and conduct to encourage accurate disclosure of information
- Web base directory of accredited professionals and companies with expertise or products supporting energy efficient airconditioning systems
- Provide training and assistance to industry in the testing and measurement of airconditioners energy performance, and
- Development of best practice programs in conjunction with industry groups to encourage energy efficiency in airconditioning systems.

Greenhouse Reduction Potential

According to recent studies, airconditioning is estimated to represent approximately 1.2Mt CO₂-e for the residential sector and 24.4Mt CO₂-e for the commercial sector in 2000. Electricity consumption from airconditioning is predicted to grow rapidly in both sectors and hence increase greenhouse gas emissions over the next decade.

The estimated greenhouse and energy reductions are modelled on the basis of model average efficiency changes, as sales by units are not available, and these estimates are based on the initial analysis undertaken within the International Review of Minimum Energy Performance Standards for Air Conditioners. This analysis suggests the following:

- The proposed MEPS for three phase airconditioners would reduce greenhouse emissions by approximately 38kt CO₂-e per annum, with a successively larger impact in subsequent years. Cumulative savings from MEPS over 15 years are estimated to be 4.5Mt CO₂-e.
- The proposed MEPS for single phase airconditioners would reduce greenhouse emissions by approximately 15kt CO₂-e per annum, with a successively larger impact in subsequent years. Cumulative savings from MEPS over 15 years are estimated to be 1.9Mt CO₂-e.



Economic Implications

Almost all single phase airconditioners are imported to Australia from countries subject to MEPS. Many of these countries that supply airconditioners have MEPS that are just as stringent as proposed in Australia. Given the long notice period and the two stage approach to MEPS, Australian suppliers should have ample opportunity to source suitably complying units for sale in Australia. For three phase airconditioners, the industry is already subject to MEPS and, as the scheduled date for increases in MEPS levels will be delayed from October 2005 to July 2007, industry should have ample time to comply. The full cost benefit implications of the proposed MEPS levels will be examined in the Regulatory Impact Statement. Consultants to NAEEEEC believe that Australia risks becoming a market where international suppliers can “dump” their least efficient products if Australia does not match the MEPS levels of its major trading partners.



TIMETABLE AND IMPLEMENTATION

NAEEEC proposes to recommend to MCE the following target timeframe for the introduction of MEPS, giving industry an appropriate period of notice to undertake any necessary modifications to production procedures. This proposed timeframe can be modified to take into account specific circumstances that may arise from stakeholder feedback:

1. DEVELOPMENT STAGE

Following the publication of the desk-top review (the full report is available upon request) of the energy impacts of mandatory and / or voluntary measures, the following steps will occur

- A steering committee will work to refine the initial MEPS proposals.
- Cost/benefit analysis of potential legislative options.
- Industry and stakeholder consultation on potential legislative proposals.
- Development of Australian and New Zealand Standards for inclusion in regulations.
- Ministerial approval required before introduction of any new regulations.

TIMETABLE

Commenced from April 2002 and completed by July 2003

2. NOTIFICATION STAGE

Period of notification will depend on the level of manufacture undertaken in Australia. Longer periods would apply if Australian industry required to undertake substantial development or re-tooling

The Australian standard will be published by July 2003 containing the MEPS levels and the MEPS will come into effect from around July 2004 (accelerated by 2 years with industry support) and the final MEPS levels to come into effect from around July 2007

3. DURATION STAGE

This is the 'stability period' in which no changes to regulations are made (ie MEPS levels unchanged).

Commenced from July 2007 and scheduled for reconsideration by not earlier than July 2011

In addition to commenting on this paper, stakeholders will have further opportunities to comment throughout the process. For example, when Standards Australia seeks public views when circulating discussions drafts of Standard and when the draft regulatory impact statement provides stakeholders with an opportunity to comment on the detailed cost benefit studies and the draft regulation for distribution transformers

COMMENTS SOUGHT

The Australian Greenhouse Office would like to hear your views on these proposals.