



AUSTRALIAN INDUSTRY

GROUP

**Ai Group Submission**

in response to the

**Minimum Energy Performance Standards for Air Conditioners  
-Consultation Regulation Impact Statement**

**August 2010**

## EXECUTIVE SUMMARY

The Australian Industry Group (Ai Group) welcomes the opportunity to comment on the *Minimum Energy Performance Standards (MEPS) for Air Conditioners - Consultation Regulation Impact Statement*.

Ai Group supports the objectives of MEPS level increases to improve the energy efficiency of air conditioners only where this is proven to be the most appropriate and cost-effective means of addressing market failure.

Ai Group welcomes the undertaking of the *Consultation RIS* and is broadly supportive of the proposed move to higher MEPS levels for air conditioners where the outcomes from such an increase can be demonstrated to benefit all stakeholders: industry, community, environment and government.

Ai Group supports the following approach to MEPS level increases for air conditioners:

- All categories of air conditioners should be regulated including portable and multi-split systems; and
- the provisions around the use of simulation instead of testing should be tightened.

Ai Group **does not** support:

- the approach to increase MEPS levels for all categories, which is simplistic and does not account for the wide range and application of air conditioners .
- the impact on energy use and Greenhouse Gas Emissions (GHG) presented in the *Consultation RIS*;
- the pricing assumptions contained in the *Consultation RIS*;
- the data analysis contained in the *Consultation RIS*;
- the *Consultation RIS* proposal for Australia to mandate world's highest MEPS levels in some air conditioner categories; and
- the implementation time frames proposed for increased MEPS levels. Suitable product development time frames, after an agreed standard is published, must be available for suppliers and manufacturers.

Ai Group recommends that:

- further cost benefit analysis be conducted incorporating the information provided in this submission;
- a complete cost benefit analysis study and GHG emission study be conducted specifically on the Window Wall (WW) category of air conditioners
- The Australian standard for air conditioners should be re-published (including SEER testing methodology) and then a minimum of two, preferably three years given to suppliers to develop products before MEPS level changes are mandatory;

- Concessions to MEPS levels for categories as outlined in this submission; and
- Further MEPS revisions should align internationally with time lines, MEPS levels and standardisation methodologies.

## **RESPONSE TO THE CONSULTATION REGULATORY IMPACT STATEMENT**

### Glossary and Abbreviations

BCA – Building Code of Australia

EER – Energy Efficiency Ratio

GHG – Green house gas

MEPS – Minimum Energy Performance Standards

SEER - Seasonal Energy Efficiency Ratio

WW - single phase non-ducted unitary air conditioners (Window Wall air conditioners)

### **Introduction**

Ai Group is very supportive of the general move towards the improved energy efficiency of air conditioners.

Ai Group supports energy labelling and the MEPS registration website that provides consumers with information to enable comparison of operating costs of air conditioners and welcomes moves to improve the communication of this information.

Ai Group has always supported MEPS for air conditioners, particularly as a way to counter the split incentives faced by builders and developers to install cheaper, less efficient products and informed building occupants who may be more likely to consider the life cycle costs of a product.

However, Ai Group has a number of concerns about many of the assumptions made within the *Consultation RIS* and requests that the information provided below be considered in the further review of MEPS levels for air conditioners.

### **Suitable time frames must be available for product development**

Ai Group is concerned with the suggested short time span between MEPS level changes. Industry requires both regulatory certainty and appropriate product development time frames. Certainty is given by published standards arrived at through consensus. An appropriate time frame for product development is at least two and preferably three years after a standard is published. Three years is preferred as it allows for more cost effective development processes to occur.

Industry typically budgets for five year product lifetimes and will amortise research and development costs over this period. Regulation prematurely forcing products off the market disrupts the product business cycle and results in increased costs to business. These costs, which have not been accounted for in the *Consultation RIS*, will need to be passed on to the consumer.

Ai Group strongly urges the adoption of a long term MEPS implementation strategy. Ai Group suggests the following approach:

- Consider concessions to MEPS levels for categories as outlined in this submission
- Publish a new Australian air conditioner standard including seasonal energy efficiency (SEER) rating testing methodology
- A minimum of two, preferably three year period be allowed before MEPS level changes are mandatory
- Further MEPS revisions align internationally with time lines, MEPS levels and standardisation methodologies.

### **Product standard testing methods**

International standards are moving towards a seasonal energy efficiency rating (SEER). SEER ratings align more closely with installed operating conditions than EER ratings and encourage appropriately designed air conditioners. It is a sensible and reasonable approach.

The *Consultation RIS* overstates the projected energy savings by assuming that air conditioners are operating at full load as long as they are turned on. This is not the case as full load is determined at 35°C whereas the average temperature during the air conditioner on time will be around 29°C. This is acknowledged by the methodologies used in attaining a SEER rating.

Ai Group suggests that time is given to the Australian Standard committee to adopt a SEER rating test methodology. It is expected that international and Australian consensus regarding a SEER standard will take up to two years.

### **MEPS implementation dates**

Ai Group believes that October is not the best month to mandate MEPS level increases for air conditioners. At that time, suppliers who wish to do so, can import a whole summer season of old MEPS level compliant stock. The grandfather provisions of MEPS legislation allow this stock to be sold.

Ai Group points out that maximum compliance with increased MEPS levels are likely to occur when the implementation date is April as it is not cost effective for suppliers to warehouse non-compliant stock for six to seven months before the summer sales season.

## **What will happen when Australian MEPS levels are the highest in the world?**

Until now, manufacturers and suppliers have provided new products to the market to meet new MEPS requirements each time MEPS levels have increased. This has been possible because compliant products have been available (or under development using new technology) on the world market at the time new Australian MEPS levels were implemented.

The *Consultation RIS* assumes, “Consequently, it is reasonable to expect that industry will again in the future years be able to respond to the proposed new MEPS levels presented in this RIS.” (p34 paragraph 2). Ai Group does not agree with this assumption and is concerned that the *Consultation RIS* proposes that Australia introduce, in some categories, the highest MEPS levels in the world. Current supply chains may be disrupted with potential for flow on effects to adversely impact on Australian businesses and jobs.

The *Consultation RIS* details the result of global searches for alternative supply paths. While the search claimed to identify potential solutions for some product categories it failed to identify long term solutions for all product categories. Australia is 1% of the world air conditioner market and Ai Group is concerned that it may become difficult for industry to secure and supply an appropriate range of air conditioners in all categories following a move to higher MEPS.

Ai Group believes the reference to similar Korean MEPS levels (3.36 EER quoted in *Consultation RIS*) fails to acknowledge:

- the 8% tolerance allowed in Korea; and
- that the MEPS levels referenced are for cooling models only. The Korean MEPS levels for reverse cycle air conditioners (typical Australian type products) are much lower at 2.4 EER or under.

Ai Group believes the comparison between the Australian and North American market is not justified. Installation practices between the two markets differ considerably and the North American market includes regulatory exceptions for noise or space restricted installations. Also, the MEPS levels allowed in North America for reverse cycle air conditioners are much lower than the “cooling only” MEPS levels quoted in the *Consultation RIS*.

Other issues and potential effects of the implementation in Australia of world leading MEPS and increased MEPS levels that have either not been considered or considered erroneously in the *Consultation RIS* include:

- the lack of available technology to reasonably enable manufacturers to produce compliant products;
- requirement for a volume, weight and noise level increase in air conditioners which will have flow on effects to building design costs;

- price increases due to the increased raw material quantities required, Australian specific designs and higher quality components;
- the de-rating of currently available products to meet new MEPS levels and the implications of this practice;
- a discontinuity at 65kW between the MEPS level requirements and those of the Building Code of Australia (BCA);
- the model registration EER level lower tolerance and Australian Standard MEPS level lower tolerance differ by approximately 6% (varies between suppliers). The *Consultation RIS* assumes they are either identical or does not realise that manufacturers register the average model EER level and not the absolute minimum EER level;
- retail market pricing has been extrapolated to cover all air conditioner categories including the large commercial market. The retail and commercial markets are quite distinct and Ai Group highlights that the comparison is not appropriate; and
- the potential disappearance of air conditioner categories and the effect of unregulated product categories on the market.

These issues are addressed in more detail below.

### **Lack of available technology**

Technology improvements such as inverter technology provided step changes in efficiency in 2005. This was associated with the move away from HCFC refrigerants where the industry had to completely redesign all core components to suit the higher working pressure of the replacement gases. Components were optimised for efficiency at that time but further step improvements are yet to be identified. It is true that smaller improvements have recently been achieved with the use of new heat exchangers and higher air flow rates, but there are no technological improvements available now or in the foreseeable future to reasonably allow manufacturers to meet future step increases in MEPS levels as proposed in the *Consultation RIS*.

The result is that small improvements in efficiency can only be made by increasing the quality of specific components, the physical size of air conditioners and the air flow rates. These modifications will cause price, volume, weight and noise increases and take time to achieve.

### **Volume, weight and noise increases will result**

Ai Group states that a typical Australian made roof top model has recently increased in weight by 27% in order to achieve a 5.45% increase in MEPS level. A typical imported roof top model has increased in volume by 27% and weight by 29% in order to achieve a 10.9% increase in MEPS level. Ai Group cautions that further increases in EER levels will not be obtainable with proportional increases in volume and weight to the figures quoted here because the ratio of air conditioner coil size to EER levels increases with higher EER levels.

Relatively larger air conditioners with higher air flow rates will be required to further increase air conditioner efficiency. A side effect will be increased noise levels. Air conditioners need to meet noise level restrictions imposed by consumer demands, state government and local council noise regulations. Ai Group believes building noise control measures will likely be required in addition to current requirements.

The acceptance of noisier air conditioners in Australian installations will be difficult. United States regulations have lower MEPS levels for noise or size constrained installations. Many Australian installations would qualify as noise or size constrained under U.S. regulations, however Australian building regulations do not allow for such concessions.

The consequences of larger, heavier and noisier air conditioners are:

- For existing installations - the replacement market for ducted systems will become difficult to service. Mechanical plant rooms may need to increase in size, support platforms may need to be re-engineered to accommodate the increased weight and complete system modifications may be required as multiple units may be required to fit into roof spaces to replace single units. Noise abatement measures may be required.
- New installations: The building industry will need to be educated to accommodate the new size weight and noise levels that will occur. The *Consultation RIS* has not considered the education of architects, builders and engineers. Plant room size will increase (causing increased building costs) and noise abatement measures may be required causing increased building costs.

Ai Group further highlights the likely need to redesign or modify buildings and air conditioning systems in the case of building design and construction which commenced before the introduction of increased MEPS levels but is completed post introduction of increased MEPS levels.

Increased building costs and industry education costs have not been included in the *Consultation RIS*.

### **Price increase**

The technical parameters required to meet the proposed Australian MEPS levels presented in the *Consultation RIS* will, in some categories, be greater than those required to meet MEPS levels anywhere else in the world. These categories will be in a position where they require an exclusive design specialised for the relatively small Australian market. Australian products would no longer share common components with main production. The manufacturer will be required source small volumes of specialised parts for these products. Due to the nature of these specialised parts, they will be made to order, more expensive and on time availability will likely be a difficult issue for suppliers.

The Australian air conditioning market is around 1% of the world market so economies of scale are not achievable for such a small market size. In any field, technology leaders pay a premium to remain in front. Considering supply and demand economics, made to order products, specific to the Australian market will be more expensive than current products. This effect is not considered by the *Consultation RIS*.

Some suppliers may cheaply manufacture a higher efficiency product by removing key reliability features such as sump heaters and suction line accumulators. Increased air conditioner failure rates would add to costs and has not been considered by the *Consultation RIS*.

### **De-rating currently available products to meet increased MEPS levels**

To a certain degree, compliance with increased MEPS levels can be achieved by de-rating some existing registered air conditioners. The full load EER of these products will remain unchanged and peak demand issues will not be addressed. The *Consultation RIS* should consider this issue.

A similar issue arises if categories of air conditioners disappear from the market. This may happen because products can no longer meet increased MEPS levels (eg the single phase non ducted unitary air conditioner category) or larger products are less expensive. Consumers may choose either less efficient unregulated products (portable air conditioners) or oversized units for a given application that will draw higher current each time the compressor motor starts and higher current while first cooling a space. The unintended consequence will be increased overall consumption and higher peak demand.

### **Discontinuity at 65kW between MEPS requirements and BCA requirements**

For air conditioners rated above 65kW, the BCA EER minimum level of 2.6 applies. For air conditioners rated up to 65kW, the MEPS EER levels apply. Some of the proposals contained in the *Consultation RIS* would result in a significant discontinuity between the levels on either side of 65kW. This would likely cause 40kW and 50kW air conditioners to be more expensive than a 66kW air conditioner.

40kW to 65kW air conditioners may be voluntarily withdrawn from the market leaving oversized 66kW air conditioners to service their market. Oversized air conditioners are inefficient as they operate for most of their time in a less efficient part of their operating curve (below MEPS EER). One solution is to taper the MEPS EER levels to meet the BCA EER levels.

### **Registration tolerance lower bound versus MEPS tolerance lower bound**

Ai Group provides the following additional information to the data analysis of the *Consultation RIS*. The information registered by suppliers on the [www.energyrating.com.au](http://www.energyrating.com.au) website is based on average model EER levels. Manufacturing tolerance is typically around  $\pm 6\%$  and supplier dependant. Minimum



model performance is the registered number minus approximately 6%. So the registered model MEPS level and the Australian Standard MEPS level tolerance lower bounds differ by approximately 6% (varies between suppliers).

The *Consultation RIS* assumes the registered EER and MEPS level are either identical or does not realise that manufacturers register the average model EER level (or in many cases a higher than average model EER) and not the absolute minimum EER level.

### **Check testing methodology and tolerance**

Ai Group suggests a review be conducted into the methodology and tolerances allowed during check testing. Such a review is needed to verify and provide recommendations to issues surrounding check test tolerances, MEPS tolerances and product supply tolerances.

### **Extrapolation of retail market pricing**

Retail price data alone was used in the *Consultation RIS*. The *Consultation RIS* extrapolates the retail price data to make assumptions about commercial market pricing. Ai Group would argue that retail and commercial market pricing differ greatly in their influences and as such cannot be directly compared.

Ai Group understands that the proposals contained in the *Consultation RIS* will result in significant supplier cost increases. These cost increases are highly likely to be passed on to both retail and commercial consumers.

### **Specific concerns for single phase non ducted unitary air conditioners**

*(Commonly referred to as "Window Walls"-WW)*

Ai Group argues that a complete cost benefit analysis study and GHG emission study should be undertaken specifically in relation to WW. Ai Group contends that the WW data presented in the *Consultation RIS* is not up to date, is unrefined and has not been validated to remove incorrect, duplicate and superseded registrations. Consequently, the *Consultation RIS* gives an incorrect assessment of the state of the WW category.

Ai Group believes that WW are very near the upper limit of their EER performance and any further improvements will be marginal. Inverter technology may provide an incremental performance increase, however the technology is expensive and cost benefit analysis should be performed. Ai Group is concerned that some of the proposal announced are not achievable with current technology given the size and weight constraints imposed on WW.

This claim is supported by the fact that major suppliers such as Toshiba, Sanyo, Samsung, Panasonic, NEC, Daewoo, Fujitsu, Haier, LG and Mitsubishi have voluntarily withdrawn from the WW supply market. Ai Group believes the two main reasons for this withdrawal are the contracting market and an inability to meet the energy efficiency requirements. There is a real risk that if MEPS levels are further increased, competition will further diminish at the expense of the consumer.

Regarding the relationship between efficiency and price in the WW category, Ai Group suggests that WW pricing would have dropped without the introduction of MEPS 2007. The pricing information presented in the *Consultation RIS* dates from 2008 and does not consider this possibility. Forward looking pricing information available to Ai Group suggests strongly that price increases will occur in this market to meet MEPS 2010.

WW represent less than 10% of the total air conditioning market in Australia. The WW market size is decreasing. Ai Group notes that WW are the only self installed, regulated category. As such, they play a significant role in the replacement and budget market segments. WW are typically less than half the cost of a split air conditioner (including installation costs).

Ai Group would argue strongly that Proposals B and C are not able to be cost effectively achieved for WW. Ai Group's concern is that Proposal B will encourage exaggerated claims at the expense of consumers, the environment and honest suppliers. Proposal C would likely see the WW category disappear from the market completely.

The removal of the WW supply segment would likely cause consumers to turn to the unregulated portable air conditioner market. A move in this direction would increase GHG emissions overall. Ai Group argues that in the light of the information provided here, a complete cost benefit and technology analysis should be completed on the WW market alone before any changes in MEPS levels for WW are implemented.

#### **Specific concerns for air conditioners rated greater than 35kW (larger units)**

Ai Group highlights that the large unit data presented in the *Consultation RIS* is not up to date, is unrefined and has not been validated to remove incorrect, duplicate and superseded registrations. Also, when models that base their registrations on simulation are removed (as is proposed in the *Consultation RIS*), there are no currently available products that would meet Proposal A MEPS levels.

Ai Group reiterates that minimum performance is likely to be the registered number minus approximately 6%. The *Consultation RIS* proposes the highest MEPS levels in the world for large units.

### **Specific concession request regarding economisers**

Ai Group requests that a 0.3 concession to MEPS levels be given to air conditioning equipment that incorporates economisers. These systems provide greater overall efficiency than is captured by an EER test. Ai Group suggests that the BCA acknowledges the efficiency gains provided by economisers in mandating the EEP level at 2.6 for air conditioners rated greater than 65kW.

### **Unregulated products**

Ai Group suggests that unregulated air conditioners such as the portable and multi-split categories should be captured by MEPS.

### **Use of simulation reports**

Ai Group notes that simulation reports should be able to be used when no Australian testing facility is available. Also, simulation should be able to be performed for models in the same family that use the same components. Mix match simulation should be allowed.

As balance to the above allowances, Ai Group suggests that selective check testing be performed on products using simulation results. As stated in the Ai Group response to the Supplementary Discussion Paper on Compliance Obligations and Enforcement Measures, penalties including mandatory NATA testing, compensation and adverse publicity should be considered in legislation.

### **Ai Group comments regarding the interim state based MEPS (SA and QLD)**

Ai Group states that inconsistencies between jurisdictions are costly to industry and should not continue.

### **Ai Group proposal**

Ai Group urges the adoption of a long term MEPS implementation strategy. Ai Group suggests the following approach:

- The deficiencies of the *Consultation RIS* should be addressed and the document revised including further cost benefit analysis incorporating the information provided in this submission;
- A complete cost benefit analysis study and GHG emission study should be conducted specifically on the WW category;
- Consideration should be given to concessions to MEPS levels for categories as outlined in this submission;

- The Australian standard for air conditioners should be re-published (including SEER testing methodology) and then a minimum of two, preferably three years should be allowed before MEPS level changes are mandatory; and
- Further MEPS revisions should align internationally with time lines, MEPS levels and standardisation methodologies.

## **ABOUT Ai GROUP**

The Australian Industry Group (Ai Group) is a leading industry association in Australia. Ai Group member businesses employ around 750,000 staff in an expanding range of industry sectors including: manufacturing; engineering; construction; automotive; food; transport; information technology; telecommunications; call centres; labour hire; printing; defence; mining equipment and supplies; airlines; and other related service industries.

In response to the *Consultation RIS*, Ai Group conducted industry consultations with members of our Electrical Appliances and Accessories Forum and directly with Australian air conditioner manufacturers and suppliers.

### ***Electrical Appliances and Accessories Forum***

Electrical Appliances & Accessories (EA&A) Forum addresses the technical and regulatory environment affecting supply of electrical appliances and electrical accessories through interaction with regulators and participation in standards bodies. This Forum is particularly focused on electrical safety, energy efficiency and environmental issues associated with appliances.