



## **Outcomes of the Equipment Energy Efficiency Program LED Stakeholder Consultation Workshop 29 November 2010, Canberra**

LED lighting is a rapidly developing lighting technology that is in some cases already offering effective and efficient alternatives to traditional lighting. However, evaluation of LED products currently available in the marketplace indicates a wide variation in quality and efficacy.

The Equipment Energy Efficiency Committee (E3) under the Ministerial Council on Energy is currently considering whether there is a need for government involvement to help ensure that consumers are protected from poor quality products and are able to differentiate high performing LED products.

As part of this consideration, a meeting of a range of LED industry stakeholders was held on Monday 29 November 2010 in Canberra. While LED lighting has the potential to be used in a broad range of lighting applications, the workshop had a particular focus on LED products aimed at the domestic market, in particular retrofit products.

The meeting heard from the Department of Climate Change and Energy Efficiency about current government initiatives on lighting energy efficiency as well as the outcomes of LED product testing. Presentations were also given by the New Zealand Government on the Energy Star Program and by Lighting Council Australia on their SSL Quality Scheme. Industry stakeholders gave presentations on their perspective of efficacy and quality issues related to LED lighting.

International activities aimed at developing standards for LED lighting were also discussed. It was noted that while these initiatives were underway, they would take some time and there may be a need for interim national level action.

The meeting agreed that the presence of low quality LED products in the Australian marketplace has the potential to cause negative impacts upon consumer perception of LED lighting and threatens future uptake of LED products as they emerge as a viable, efficient lighting alternative over the coming years. The meeting discussed a range of possible options for government involvement to help address this issue and agreed that the following initiatives should be investigated further:

**Education.** Provision of internet based consumer oriented educational materials to assist consumers in understanding LED lighting technology, raising awareness of variations in product quality and assistance in identifying good quality efficient lighting products that provide equivalent lighting services to traditional products. Participants noted the difficulty of educating the public

within the current context where performance claims are inconsistent and in some cases unreliable.

**Minimum Energy Performance Standards (MEPS)** - Performance standards target manufacturers and importers, regulating that specified products meet minimum energy performance standards. MEPS remove the worst performing products from the market. MEPS are currently applied to 17 electrical appliance products in the Australian marketplace including single and three-phase air conditioners, set top boxes, refrigerators and televisions. The workshop discussed the option of the development of a minimum standard for LED lighting that would initially be available as a voluntary standard, and could potentially become a regulatory standard at some stage in the future. Some participants noted the challenge of setting MEPS within the context of a rapidly moving technology, both in terms of setting performance levels and in terms of short product lifecycles. As a first step a list of proposed performance criteria has been compiled (attached) and comment is invited.

**Energy Rating Labels** - Labelling targets consumers, providing information at the point of sale to enable the comparison of like products on the basis of energy consumption and other parameters and gives manufacturers a competitive marketing tool to promote efficiency improvements. In Australia, mandatory labels currently apply to seven products, including televisions, single phase air conditioners, and clothes washers and dishwashers. Voluntary labelling schemes apply to three-phase air conditioners and swimming pool pumps. The meeting agreed to further investigation of two approaches:

- **SSL Quality Scheme.** The Solid State Lighting Quality Scheme is a voluntary industry scheme available to Lighting Council Australia members to provide confidence to the market that a luminaire carrying the Scheme's label matches certain performance claims made by the supplier. The current scheme is not targeted at members of the public and does not set minimum levels for the products displaying the label. Options for the expansion of the scheme will be discussed with Lighting Council Australia.
- **Endorsement Label / Energy Star Label.** Labels identifying high performance products assist consumers in selecting good quality products in the marketplace. The Energy Star Label is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. It is typically awarded to the top 25 percent most energy efficient appliances, home electronic products and office equipment in each category. The workshop noted that the label helps consumers purchase high performing products but does not remove poor performing products from the market. The meeting heard from the New Zealand Government Energy Efficiency and Conservation Authority about the development of an LED Energy Star label for the New Zealand Market based on the US Energy Star LED specifications and adjusted for local requirements. Consideration will be given to options for Australian involvement in the development of this label and making it available in the Australian market.

These options will be further developed by the Department of Climate Change and Energy Efficiency in consultation with the E3 committee and stakeholders.

## **LED Lighting – Possible Performance Parameters**

Flux – truth in claim

Light Distribution – truth in claim

Direction - (beam angle, peak intensity)

Efficacy – specified minimum lumens per watt.

Lumen maintenance – absolute limit, specify ambient temperature (up to 40°) potentially use same temp for CFLs., (more than one point in life (eg 2000 hrs and 10000hrs??))

Colour – CRI - minimum

Colour – CCT / matching

Colour shift – maintenance / stability / dimming

Colour – spatial uniformity

Colour – spectral output

Colour – UV

Life – lifetime – possibly ladder of levels (ballast lifetime must be considered).

Life – premature failure

Life – rapid cycle switching

Life – end of life behaviour

Electrical – dimming / controls

Electrical – power factor & harmonics

Equivalency – claimed shape equivalency.

Acoustic – noise level

Flicker - dimming