



**Lighting Council Australia Submission**

in response to the

*E3 Product Profile:*

*Incandescent, Halogen and Compact Fluorescent Lamps (November 2014)*

**February 2015**

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## EXECUTIVE SUMMARY

Lighting Council Australia (Lighting Council) welcomes the opportunity to comment on the *E3 Product Profile: Incandescent, Halogen and Compact Fluorescent Lamps, November 2014*.

Lighting Council's response to the *Product Profile* is based on substantial consultation with the lighting and lamp supply industry through both our Lamp Suppliers and Solid State Lighting Sub-Industry Groups including lamp and luminaire manufacturers, importers and suppliers.

Lighting Council welcomes the development and publication of the *Product Profile* and would broadly support a move toward harmonisation with EU directives and IEC standards.

It is essential that outcomes from a move to increase regulatory controls on lamps benefit all stakeholders: industry, community, environment and government. Importantly, Lighting Council supports the objectives of the *Product Profile* to provide a vehicle for improving the efficiency levels of lamps placed onto the Australian market where this is proven to be the most appropriate and cost-effective means of addressing market failure.

In principle, Lighting Council supports the E3 program as it facilitates a level playing field for product suppliers by removing the worst performing products from the market and provides an authority able to undertake monitoring, verification and enforcement. Further, Lighting Council supports the E3 program where: timing allows products and markets to develop naturally and along with major markets; the levels set remove only the least efficient products from the market; regulation does not impose overly costly burdens on business (a current example is the restrictive definition of product "families" and a potential burden, as mentioned in the *Product Profile*, would be slightly tweaked levels requiring existing products to be re-developed, re-tested and re-registered).

Given the current state of the various lamp technologies combined with the current research and development focus only on LED lamps and luminaires (in regard to efficacy development), Lighting Council supports:

- The use of MEPS to provide a reasonable means to regulate the efficiency of lighting equipment provided that an effective monitoring, verification and enforcement mechanism is also present. Additionally, the state energy efficiency obligation schemes are effective complementary measures.
- Permanent adoption of the 5% reduction in MEPS efficacy for mains voltage halogen non-directional lamps;
- Abandoning efforts to include incandescent and halogen directional lamps in a MEPS program;
- A staged approach to the next round of MEPS starting with the lower power (lumen) end of the market (the market is not currently at a point where incandescent and halogen lamps can be phased out entirely);
- An implementation to allow the LED market to develop further and allow major markets such as Europe to, at least, flag their intended standards and levels;
- Mandatory marking of LED lamps to state whether 'dimnable' or 'non-dimnable'. Also dimmable lamps must be compatible with popular (but not all) transformer and universal dimmer technology to avoid consumer disappointment;
- A minimum CRI value of 80;
- Alignment of Australian MEPS with future MEPS developments in major markets such as Europe;
- A simplified and preferred (non-mandatory) lumen range;
- Lighting Council agrees that an appropriate level of tolerance between the marked value and measured value should be agreed and published in the MEPS standards;
- Lighting Council does not object to the removal of the import restriction on GLS lamps as long as GEMS regulator monitoring, verification and enforcement in the lighting sector is increased.
- Updating the Energy Efficient Lighting Training resource and point-of-sale resources;
- A greater regulatory focus on monitoring, verification and enforcement of the GEMS Act as well as requirements under the National Construction Code.

Lighting Council suggests:

- Retaining the existing MEPS levels on lighting equipment until the LED lamp and luminaire market is sufficiently developed to take over from incandescent and halogen products, including comparable costs for consumers;
- Caution regarding further development of MEPS that would require re-development, re-testing or re-registration of existing incandescent, halogen and CFL products;
- That when new MEPS level are introduced, there will be added consumer costs due to incompatibility issues and the need for electrical contractors to install new dimmers and luminaires;
- LED starting times are relatively quick and a non-issue;
- Traffic signal lamps have already moved to LED technology;
- Air and sea navigation lamps are currently moving to LED technology;
- There is a need to retain exemptions for oven and refrigeration lamps;
- There is no proven data on the effects of vibration on LED lamps when in rough use however experience indicates the LED component itself is robust. The lamp assembly robustness is a function of the product design and manufacturing process;
- Clarification of the coloured lamp exemption is needed and a move to LEDs promoted;
- There is not a complete range of candle, fancy round and pilot lamps available at reasonable prices, so the current exemptions should be retained until sufficient replacements, comparable prices and a benefit cost ratio exceeding one exists;
- The exclusion for lamps rated  $\leq 25W$  should be maintained until there is a complete range of retrofit alternatives that are easily accessible and reasonably priced.
- Consumer stockpiling has not been a significant issue in Australia;
- There is currently no compliance regime and negligible consumer and market awareness in Australia of the ENERGY STAR program. Product suppliers are able to voluntarily mark products now with the ENERGY STAR label; however, without robust monitoring, verification, enforcement, marketing and promotion, Lighting Council is unable to support such endorsement labelling schemes in Australia;
- There is potential to address issues encountered in the program so far including definitions and alignment of test methods and lamp categories;
- There should be additional emphasis on lighting controls such as occupancy sensors and timers to control certain lighting applications.

Lighting Council does not agree with the proposals to:

- Further regulate the mercury content and the stringency of MEPS for fluorescent lamps as this technology is not being developed further and forced development/ testing/ re-registration would add costs and reduce development resources in the LED area;
- Require new luminaires to be compatible or to be sold with registered MEPS lamps as this would be logistically difficult to administer and impact on consumer choice;
- Regulate wattage limits for mains voltage halogen lamps to certain categories and would prefer consumer education on equivalence lumens and appropriate product selection. The current regulatory arrangements should remain in place until the LED lamp market is fully developed;
- Include a high switching category CFL for bathroom applications;

## RESPONSE TO THE PRODUCT PROFILE – INCANDESCENT, HALOGEN AND COMPACT FLUORESCENT LAMPS

### General Comments

This submission is provided in response to The Department of Industry Equipment Energy Efficiency Program consultation document “Product Profile – Incandescent, Halogen and Compact Fluorescent Lamps” (the *Product Profile*) and the policy options put forward in that document. Lighting Council Australia has prepared this submission based on consultation with our member networks and provides this submission to aid the Australian Government in determining the most appropriate policy approach for electrical lamps.

The analysis in the *Product Profile* is based on 4 year old studies (for Australia) or is anecdotal and would benefit from up to date surveys of residential installed lamp types. Lighting Council understands that a residential market survey will be undertaken by the Department of Industry and results included in a Regulatory Impact Statement (if regulation is preferred). Such a survey would add to the following informed industry views on the current state of the various lamp technologies available as well as current product availability and market forecasts.

In general, robust aggregated market data is not available to Lighting Council. Our members obtain their own brand sales information from large Australian retail outlets, however this data is commercially sensitive and not available to Lighting Council. We have sought from our members their current and forecast percentage (by volume) sales data across four lamp technology categories (incandescent, halogen, fluorescent, LED) and this basic market data may be available in the near future but was not available at the time this submission was due. As suggested by industry representatives at the Sydney consultation meeting (December 2014), the large retail outlets may be willing to provide their aggregated sales data (by volume and lamp type) directly to the GEMS Regulator.

Lighting Council asks that a government and industry advisory forum be formed and used to develop the details such as regulatory timing, test methods and efficacy levels.

The information below is provided in response to the Policy Options of Section 8 of the *Product Profile*.

### Product Profile Options

The following includes the *Product Profile* options and discussion points (*in bold Italics*) and Lighting Council responses.

1. ***Option: Adopt permanently the current 5% reduction in MEPS efficacy for MV halogen non-directional lamps in Australia. (see Option 1, Section 8.2.1, p42 of Product Profile)***

Currently, halogen lamp efficacy is state of the art (considering the balance between commercial reality, technical feasibility, product quality and reliability), there is not expected to be any research and development focus on halogen lamps in the foreseeable future and it is difficult for halogen lamps to pass the full MEPS limit.

72W lamps may be able to pass the full MEPS limit, however 28W lamps are unlikely to pass the full MEPS limit - the higher wattage lamps being more efficient. There would be few or no halogen lamps available on the market if full MEPS were to be enforced on halogen lamps. Lighting Council proposes that the 5% reduction in MEPS for mains voltage halogen lamps be permanently adopted until the market (industry and consumers) is ready for a complete transition away from halogen lamps.

The *Product Profile* contains the statement, “there is currently limited potential to increase the efficacy of halogen lamps on the market, without significant investment in the commercial development of lamps such as those with a voltage converter in the base of the lamp”<sup>1</sup>. Lighting Council members highlight that the only research and development of halogen and compact

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<sup>1</sup> *Product Profile* - p42, Section 8.2.1, paragraph 2

fluorescent lamps (CFL) is directed towards cost reduction and not improving efficacy. Also, trying to improve the efficacy of halogen products further would provide relatively very little energy savings when compared to LED technology.

Current research and development efforts on efficiency are focused only on LED products. Industry would not welcome any increase in MEPS for halogen products and instead suggests that all efficacy gains from now on will be based on the further development and widespread adoption of LED technology.

Investigation should be undertaken to determine the appropriate timeframe when the LED product market will be sufficiently mature (including benefits at reasonable costs) to be able to remove the majority of halogen, incandescent (and possibly CFL) products from the market.

**2. Option: Apply the full incandescent MEPS efficacy for MV halogen non-directional lamps in Australia.**

Lighting Council does not support this proposal. See 1 above.

**3. Option: abandon MEPS for MV directional lamps in Australia. (see Option 3, Section 8.2.1, p42 of Product Profile)**

Lighting Council would argue there should not be a continued focus on trying to include mains voltage incandescent or halogen directional lamps in a MEPS program. Directional lamps are around 60-70% as efficient as non-directional lamps and development of these products has ceased. All R&D is now focused on LED developments including LED luminaires. Directional incandescent and halogen lamps will not achieve the current full or 5% reduced MEPS requirement, let alone an increased MEPS level.

The existing MEPS level for compact fluorescent directional lamps should be maintained as this is achievable, however, increased MEPS for compact fluorescent directional lamps should be abandoned as these products are not being developed further.

Further market investigations are required to determine an appropriate point at which LEDs will be in a position to take over entirely from incandescent, halogen and CFL directional lamps. Technically, such a transition may be able to occur in a relatively short time frame however the current relatively high cost of LED reflector lamps and the small size of the range currently available should be considered before such a step is taken.

When the market is ready for such a transition, incandescent and halogen directional lamps should be removed from the MEPS exempt list and be subject to MEPS (i.e this step will remove incandescent and halogen products from the market) leaving existing compact fluorescent and new LED alternatives on the market.

The Product Profile suggests a transition from mains voltage directional lamps to CFL/LED technology<sup>2</sup> for directional lamps. Lighting Council suggests that the current development focus only on LED lamps and luminaires should result in a market transition straight to LED technology (and not CFL) as LEDs are a superior technology (to CFL) for the Australian market.

**4. Option: Section 8.3 (p45) of the Product Profile asks whether the market is ready for a full transition to CFL and LED lamps for both mains voltage and ELV lamps? (see also Options 4 and 6, Section 8.2.1, p42 of Product Profile)**

Lighting Council Australia members consider the Australian market is not currently ready for a full transition away from incandescent and halogen technology and to LED and CFL technology products. Major manufacturers believe the market may be sufficiently developed for such a transition by around 2018 – 2020 as this timing is being discussed between regulators and

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<sup>2</sup> Product Profile, p28 Section 5.3 (C) and (D),

industry in major markets such as Europe. Australia should align with major markets in terms of timing and levels.

It is estimated there are around 300 Million extra low voltage (ELV) halogen lamps installed in Australia. Lighting Council anticipates there will be some difficulties associated with updating (with retrofit LED lamps) the entire stock of these fixtures, as they have various combinations of transformers, dimmers and luminaires and there will be incompatibilities. As well, in the move to LEDs, an LED driver is introduced into the system which brings an added complication.

Some installations will experience compatibility problems between the different system components. The cost of LED replacements and replacing dimmers and luminaires will be significant as an electrical contractor will be required in some cases. Also, it is important to make fair comparisons between products and technologies and in this regard, defined lumens such as cone lumens (90° cone lumens) should be the measure by which comparisons are made.

Lighting Council highlights the following relevant points to consider in a transition away from incandescent and halogen products:

- Lighting Council members highlight that comparisons between technologies should be conducted on a 'like for like' basis and include comparison of lumens output, cone lumens (90° cone lumens), 'dimmability' and light and lamp quality so that the comparison is fair and the consumer experience is positive.
- LEDs are penetrating the residential lower wattage (lumen) market categories and are increasingly moving into higher wattage (lumen) ratings, however the higher wattage (lumen) end of the market is not yet sufficiently mature to enable a full transition. This is occurring for both mains voltage LED and LED lamps operated at ELV. For example, suitable ELV operated MR16 replacement lamps may be available in lower wattage ratings and lumen outputs (i.e. 5W, 220 lumen). However, many existing MR16 halogen lamps have ratings of around 700 lumens and the limited number and incompatibility of replacement LED products is currently an issue.

The current lack of a complete replacement range of LED products has the potential to result in consumer disappointment. This next round of MEPS for lamps in Australia may need to start with the lower wattage categories and move towards higher wattage ratings in a staged manner. The industry is not currently at a point where incandescent and halogen lamps can be phased out entirely. Product availability, accessibility and pricing in the various categories should be surveyed and decisions made to apply new MEPS requirements for the various categories, when alternatives (easily accessible and at appropriate prices) are available.

- Early adopter consumers have started installing LED lamps, however, there is not yet a comprehensive solution available for all lamp types.
- The cost of LED lamps is coming down year by year, however they are still a more expensive option compared to other lamp types available on the market. There would likely be consumer concerns regarding pricing and 'dimmability' with a move right now to remove halogen lamps from the market.
- LED lamps and luminaires are currently being developed, increasing in efficacy levels and have a relatively long lifetime. There will be missed opportunities for greater energy savings in the longer term if a full transition to LED technology occurs too soon.

Lighting Council members highlight that some LED manufacturers are incorrectly claiming light output based on the chip test report figures instead of the complete lamp figures. The output of the chip when cold and not included in a luminaire will be markedly different to the output of the lamp/luminaire when at operating temperature. Such non-conformance may be due to the shift towards electronics companies manufacturing lamps and luminaires and away from manufacturers with specific lighting equipment manufacturing experience. Electronics manufacturers may have relatively little experience manufacturing lighting products and may not be aware of requirements around the performance claims made.

- In any move away from halogen and incandescent lamps, replacement solutions for enclosed luminaires should be considered. Where the replacement lamp is unable to fit into the existing luminaire there is potential for consumer disappointment and greater costs due to entire luminaires needing to be replaced rather than simply the lamps.
- The different components of a dimmed ELV system (e.g. dimmer, transformer, LED driver and lamp) are unlikely to have been purpose designed to be compatible. The market is currently experiencing compatibility problems between replacement LEDs, existing transformers, dimmers and luminaires. Lamp dimmability and overall system compatibility should also be considered.
- The building market is now predominantly installing LED lighting in new homes.
- Currently around 50% of ELV 'downlight' kits sold contain halogen lamps, however these are predominantly being installed by the residential renovation 'do-it-yourself' market. Lighting Council members expect this percentage of halogen sales to fall over the next 12 months as halogen products are trailed out of the market. Perhaps a regulatory / retailer voluntary agreement to restrict sale of such products could be negotiated with retailers.
- There are also unrealistic lifetime claims placed on some LED replacement lamps currently in the market and factors such as overall performance, quality of light and cost are factors that consumers consider important.

**5. *Are there sufficient alternatives at reasonable cost?***

The LED range is increasing however cost is still an issue as LED lamps are in the order of twice the cost of halogen for a standard product (yet still not comparable in terms of cone lumens output) and 3 – 4 times the cost for a dimmable product.

**6. *If so, does the industry foresee consumer acceptance issues?***

Yes, as with the previous MEPS implementation, there may be consumer acceptance issues such as: complaints about increased initial lamp costs; complaints regarding incompatibility between new LED lamps and existing transformers, dimmers and luminaires; complaints regarding electromagnetic interference; comments regarding interference by a nanny state; and claims of stockpiling etc.

In addition, the aesthetic appeal of tungsten filament lamps due to omni-directional light beam, colour appearance, colour rendering, continuous spectral output and dimming behaviour are aspects that consumers appreciate and lighting designers seek out for specific applications.

**7. *Compatibility issues with existing dimmers and light fittings?***

Consumers have long term experience with incandescent and halogen lamps being fully dimmable. Proven methods of dimming LEDs are still emerging and there will continue to be dimming difficulties due to legacy dimmers, the wide variety of transformers installed / available and the lack of a dimming standard. The incompatibility of LED lamps with dimmers and transformers is currently a significant issue, causing complaints and additional cost for consumers who then need to upgrade installations. A dimming standard is currently being developed within the International Electrotechnical Commission.

Dimmable LED lamps are available at a higher cost than non-dimmable LED lamps, however, not all legacy dimmers will be compatible. Incompatibility between LEDs and existing dimmers, transformers and luminaires are and will continue to be the subject of consumer complaints.

In order to claim true "retrofit" capability a LED lamp would need to be compatible with every dimmer and transformer combination – no such product exists in the market at the moment and such a product would be prohibitively expensive because of its complexity. Some product suppliers have dimmer compatibility charts showing compatible combinations, however,

consumers are likely to continue having difficulty understanding the equipment they have installed as dimmers are usually located behind wall switch plates and transformers are located in the ceiling. Most electrical connection and technical issues will require resolution by an electrical contractor.

In regard to consumer costs, the higher cost of LEDs, dimmable LEDs, as well as the likely need for consumers to sub-contract electrical contractors for the installation of new dimmers and light fittings should be included and may be significant.

There should be mandatory marking for LEDs to state that they are either 'dimmable' or 'non-dimmable'. If dimmable, regulation should mandate they be adaptive and compatible with the most popular transformer and 'universal' dimmer technology in order to avoid customer disappointment, maintain a fair market for all suppliers and minimise product complaints and returns.

MEPS should be set at a level that allows CFLs (dimmable and non-dimmable) to remain in the market. CFL sales are already on a slow, natural decline and Lighting Council expects this trend to continue.

#### **8. Comment on the LED colour rendering index (CRI)?**

Lighting Europe, NEMA (USA)<sup>3</sup> and the Global Lighting Association agree that the minimum CRI value should be 80 (for indoor applications) and no higher.

Lighting Council agrees with Lighting Europe's<sup>4</sup> stated position on colour quality:

"Requiring higher CRI levels for products is not desired for the following reasons:

- Higher legal minimum requirements on CRI will not result in a higher total Colour Quality as Colour Fidelity is only one aspect of Colour Quality.
- Higher legal minimum requirements on CRI will block new innovations on the other aspects of Colour Quality, such as Colour Saturation and personal preference.
- Higher legal minimum requirements on CRI will in general result in less energy efficient light sources which are contrary to the objective to minimize energy use."

#### **9. Are there concerns regarding disposal (Mercury)?**

Mercury will only be a concern regarding compact and linear fluorescent lamps.

At present the maximum mercury content of fluorescent lamps is 5mg. Lighting Council understands that businesses are not currently funding research and development into fluorescent lamp technology – the vast majority of effort is now focused on LED technology.

Lighting Council Australia's "Fluorocycle" scheme should be promoted by all market stakeholders as a responsible voluntary program funded by industry that diverts mercury containing lamps from landfill and recycles the mercury content.

#### **10. LED lifetime – The product profile states LED lifetime will outlast halogen by a factor of 10. (see p46, Section 8.3, fourth dot point)**

In regard to LED lifetime, professional consumers (commercial and industrial installations) expect a long lifetime (e.g. 25 000 hours) in order to save on maintenance costs.

Residential consumers do not have the same expectations and may prefer more light and a more affordable product (e.g. 15 000 hours). We suggest that 15 000 hours lifetime for residential LEDs

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<sup>3</sup><https://www.nema.org/Policy/Documents/NEMA%20Lighting%20Division%20Position%20Paper%20on%20Color%20Rendering%20Index%2021Nov14.pdf>

<sup>4</sup> [http://www.lightingeurope.org/uploads/files/LightingEurope\\_position\\_paper\\_on\\_color\\_quality\\_06102014.pdf](http://www.lightingeurope.org/uploads/files/LightingEurope_position_paper_on_color_quality_06102014.pdf)

will be a 'tipping point' to convert consumers from halogen and CFL technology across to LEDs. Also, when we consider the total cost of a lamp per 1000 hours, LEDs are better value over CFLs and halogen lamps but have a higher upfront cost (this assumes halogen lifetime = 2 000 hours, CFL lifetime = 6 000 – 8 000 hours and LED lifetime = 15 000 hours).

**11. LED starting time compared to ELV halogen? (See p46, Section 8.3, 5<sup>th</sup> dot point)**

Lighting Council believes this is a non-issue as LED start times are comparable to halogen and certainly much quicker than compact fluorescent lamps.

Also, some lighting dimmers now incorporate 'soft start' which involves ramping up the dimmer output voltage over a 200 - 400ms period in order to reduce the inrush current and extend the lifetime of halogen lamps. Some consumers regard this as a sophisticated option and are becoming used to this quick ramp up in light levels even for traditional lamps.

**12. Increase the stringency of MEPS for CFLs in Australia? (see p 43, Section 8.2.3 and option 7)**

Lighting Council would caution against increasing the stringency of MEPS for compact fluorescent lamps (CFLs). As mentioned above, the focus on efficiency developments by manufacturers is currently only occurring with LED technology and not compact fluorescent technology. CFLs are only being reverse engineered in order to reduce materials used and costs.

Increasing the stringency of MEPS for CFLs would cause research and development resources to be diverted away from LED technology and toward CFLs. This would increase the cost of CFLs (which are currently a cost competitive option for consumers in comparison to LEDs) and would delay the efficiency developments of LED lamps and luminaires.

Lighting Council members forecast that CFL sales will continue to decrease and be overtaken by LED sales in the next few years. Commercial considerations will result in the continued withdrawal of CFL products from the Australian market. Increasing the stringency of MEPS for CFLs would be counterproductive.

**13. The EU is currently reviewing MEPS levels aiming to introduce new regulation in 2016. Should Australia align with the EU? (see pp43-44, Section 8.2.4 and option 8)**

Lighting Council Australia understands that a discussions between the European lighting industry and European regulators are currently underway and that dates for proposed regulation have not yet been agreed or finalised.

**Current EU regulations:** Lighting Council recommends against aligning any new Australian regulations with the current EU regulations. The current EU regulations are being considered for revision and such alignment would be an unwanted intermediate step on the way to alignment with future EU regulations. Such a step would lead to additional compliance costs for manufacturers (and consumers) due to different and in some cases slightly more stringent regulatory requirements.

**Future EU regulations:** Lighting Council recommends considering alignment with future EU regulations. This should reduce costs due to harmonisation of product requirements between Australia and Europe. Lighting Council suggests alignment with future European regulations would be the least cost and preferred option.

**14. Option: Require all new luminaires sold to be compatible with CFL or LED lamps. A regulatory or voluntary approach could be put in place to ensure or encourage that all new luminaires are fitted with MEPS-registered CFL or LED lamps when sold. (see page 46, Section 8.3 and option 9a)**

Lighting Council would prefer that luminaires not be included in the discussion about MEPS because of the large number of lamps that can potentially be used in luminaires. Such a requirement would be logistically extremely difficult for suppliers to contend with and potentially very difficult to enforce.

Regarding the proposal to apply regulation or seek a voluntary approach requiring that all new luminaires are fitted with MEPS registered CFL or LED lamps when sold, Lighting Council would argue against such a proposal on the grounds that consumers prefer to have a choice in lamp type based on light output and colour temperature rather than being forced to purchase a specific lamp with a luminaire. Supplying all possible combinations of lamps and luminaires is not practical and would cause the retail space required for lighting products to dramatically increase (retailers would not agree for this to occur).

**15. Option: In the lamp MEPS standards, clarify an appropriate level of tolerance between the market value and measured value for use on product packaging. (see p46, section 8.4.1, option 10)**

Lighting Council agrees that an appropriate level of tolerance between the marked value and measured value should be agreed and published in the MEPS standards. An appropriate technical forum for such an agreement to be reached is the Australian standards committee, EL-041. Where the value is shown in an IEC standard this value should be adopted

**16. Option: A wattage limit for MV halogen lamps be discussed with industry, either as a voluntary agreement to eliminate any offending lamps and/or as MEPS. (see pp46-47, section 8.4.2, option 11)**

A restriction on mains voltage halogen lamps to limit the power (Watts) ratings to specific categories (including a tolerance) would not be welcomed by lamp manufacturers. Instead, it would be preferable to educate consumers to select appropriate replacement lamps based on equivalent lumens output.

Lighting Council would prefer for the current regulatory requirements to remain in place until the LED market and range is sufficiently developed to enable a transition away from halogen and incandescent lamps.

**17. Require that wattage markings are made less prominent than lumens, along with the adoption of simplified preferred lumen ratings (e.g. 100lm, 150lm, 250lm, 350lm, 500lm, 800lm, 1000lm, 1500lm, 2000lm, 3000lm)**

Lighting Council agrees with preferred values of luminous flux and not mandatory values. Internationally, MEPS requirements including marking is moving towards lumens output and efficacy.

**18. Require a prominent statement of equivalency.**

Lighting Council has found that statements of equivalence can be problematic and attract the attention of the Australian Competition and Consumer Commission (ACCC). Specific guidance or statements agreed between industry and the GEMS regulator and determined by the GEMS Regulator would be welcomed so that the lighting industry does not attract the attention of the ACCC in this regard.

**19. Option: Guidance may be provided in the MEPS on a preferred range of rated luminous flux values to be used on lamp packaging, along with a requirement for lumens per Watt to be included on packaging (p47, Section 8.4.3, Option 14)**

Lamp suppliers are already marking lamps with luminous flux. Lighting Council agrees this is a positive step, however information that assists older users will be needed in the market. Point of sale and web based education information should be made available.

Internationally, MEPS requirements including marking is moving towards lumens output. Efficacy is not included in the product packaging or marking as a mandatory requirement.

**20. Are the current exclusions still valid or do alternatives exist for the following lamp types: (pp47-48, Section 8.4.4, Options 15-21)**

**a. Traffic signals?**

The traffic signal market is quickly moving or has already moved to LED technology.

**b. Air or sea navigation?**

The air and sea navigation market is currently moving to LED technology.

**c. Ovens and fridges?**

There is a need to retain the existing exemption for halogen oven lamps as solid state technology is not yet available to cope with the 300°C oven standard requirement. There are no refrigerator alternative lamps available either. The power use of these lamps is low (low wattage) and use is intermittent.

**d. Infrared?**

The current exclusion should be continued as no development of this technology is anticipated in the near future and no suitable alternatives are available.

**e. Rough use and carbon filament lamps?**

There are some LED products available although there is no proven data on the capability of LED lamps when used in rough use. Lighting Council agrees the definition of “rough service and carbon lamps” needs to be clarified to exclude those only designed for non-general purpose illumination. The move to LEDs for these applications should be promoted.

**f. Coloured lamps?**

Lighting Council agrees the definition of “coloured lamps” needs to be clarified to exclude those only designed for non-general purpose illumination. Also, the move to coloured LEDs should be promoted.

**g. Candle, fancy round, pilot and decorative carbon filament?**

Regarding the current candle, fancy round and pilot lamp exemption, this should be retained until a complete range of suitable alternatives at reasonable prices are available on the market. This is not currently the case.

Regarding carbon filament lamps, where these are to be used for decorative purposes the 25W limit should suffice.

**h. Other applications?**

Currently the chicken meat and egg industry use PAR38 lamps to supply both heat and light to production sheds. An exemption would be required for replacement PAR38 lamps when used in this industry and application.

**21. Is the exclusion for lamps rated  $\leq 25W$  still valid? (see p47, Section 8.4.4, option 16)**

The exemption for lamps rated less than or equal to 25W should be maintained until there are viable alternatives. There is not currently a complete retrofit range of CFL and LED lamps that can cover all the incandescent and halogen lamps rated less than or equal to 25W, particular for dimming applications and enclosed or restricted size luminaires.

Also, if the exclusion for lamps rated less than or equal to 25W is lifted, economies of scale will be reversed forcing manufacturers of pilot lamps to significantly increase their prices to remain in business. A cost benefit study should factor in a large increase in the cost of pilot lamps for this scenario.

**22. *Is mercury content and UV radiation still a concern with CFLs? (see pp49-50, Section 8.5.2)***

At present the maximum mercury content of fluorescent lamps is 5mg. Lighting Council understands that businesses are not currently funding research and development into fluorescent lamp technology – the vast majority of effort is now focused on LED technology. Further regulation in this area is not recommended by Lighting Council. LED lamps will take over from CFLs in terms of sales volume and installed products.

The Lighting Council Australia “Fluorocycle” scheme should be promoted by all stakeholders as a responsible voluntary program funded by industry that diverts mercury containing lamps from landfill and recycles the mercury content.

Regarding UV radiation, this is a site specific issue affected by the quantity and distance of luminaires to workers and so should be dealt with through lighting design regulation (i.e. National Construction Code). Instead of focusing on fluorescent lamp developments, focus should be applied to the move to LED lamp technology.

**23. *Has consumer stockpiling been an issue in Australia? (see p51, Section 8.6)***

It is Lighting Council’s understanding that stockpiling has only been a very marginal issue.

**24. *Are programs such as ENERGY STAR worthwhile to pursue? (see p 52, Section 8.7)***

There is currently no compliance regime and negligible consumer and market awareness in Australia of the ENERGY STAR program. Product suppliers are able to voluntarily mark products now with the ENERGY STAR label, however, without robust monitoring, verification, enforcement, marketing and promotion, Lighting Council is unable to support such endorsement labelling schemes in Australia.

There is potential for such programs to add costs, which would be passed on to consumers. Also, if there was marketing and promotion without a strong compliance regime, there is the potential to create an unfair market amongst competitors through companies making illegitimate claims.

**25. *This project provides an opportunity to address various issues encountered during the MEPS program to date. i.e. Standards issues:***

**a. *Definitions in standards (See p48, Section 8.5.1i)***

Lighting Council agrees that alignment of definitions is needed.

**b. *IEC test methods (see p48, Section 8.5.1 iv)***

On the question of Australia moving towards IEC test methods, Lighting Council would support such a move on the proviso that EU specified testing tolerances are also considered to be included within the overall approach to testing.

**c. *Alignment of lamp categories with customs categories? (See p49, Section 8.5.1 vi)***

Lighting Council agrees that alignment of lamp categories with customs categories will assist in understanding the overall mix of lamps being imported and used in Australia.

**d. CFL high switching category (eg bathrooms)? (See p 49, Section 8.5.2 viii)**

Such a category would not be welcomed as this would require development efforts to be re-focused on CFLs for little long term benefit.

**e. Are there CFL and LED power factor issues?**

The power factor values adopted in the EU would be reasonable to adopt in Australia.

**26. Is the incandescent import restriction still valid? (see p51, Section 8.6)**

On the removal of the import restriction on GLS lamps, Lighting Council does not object to such a removal provided that GEMS regulator monitoring, verification and enforcement efforts are increased in the lighting sector. We understand the department have received information regarding importer requests to import significant quantities of incandescent lamps. We too have recently received information regarding 40W incandescent lamps available on the market in Australia and will pass this information to the GEMS Regulator enforcement team.

Our point is that restricted products are still being imported even with the import restriction. Removing the import restriction will require increased market monitoring and we would agree with the removal of the import restriction only if GEMS monitoring, verification and enforcement in the lighting sector is increased to compensate for the removal of the current control at the border.

**27. Would it be useful to update the Energy Efficient Lighting Training resource? (see p52, Section 8.8.1)**

Yes, it would be useful to have government approved education information available as a means to educate all stakeholders on changes to MEPS for lamps. Such material is useful not just for educating the retail public but also all supply chain participants. The regulator and industry could distribute this information up and down its supply chain networks to help educate all stakeholders from manufacturers, wholesalers, retailers, designers, consultants, installers and the public.

Also, clear guidance provided by the GEMS Regulator and agreed with the ACCC on the topic of consumer education and product carton marking allowances for new lamp technology (eg equivalence claims such as 10 Watts LED = 60 Watts Incandescent) would assist the industry remain compliant and assist consumers in appropriate product selection.

**28. Is point of sale information of value? (see pp52-53, , Section 8.8.2)**

Yes, industry believes point of sale information is of value to help educate consumers. Smart phone accessible QR code information would also be beneficial.

**29. Grants and subsidies – The energy efficiency obligation schemes (white certificate) would continue to exist as a complimentary measure. Increasing MEPS improves the ‘business as usual’ case and has the effect of lowering the credits applicable under the white certificate programs.(see pp53-54, Section 8.8.3).**

Industry supports the use of MEPS as it provides a reasonable means to regulate the efficiency of lighting equipment and importantly includes monitoring, verification and enforcement – thus providing a reasonably fair market for equipment suppliers. Industry agrees the MEPS program is most efficiently applied to well developed markets and removes the least efficient products from

the market. Otherwise, MEPS can impose high regulatory costs on industry sectors when product design life is shortened prematurely (the costs of product development are usually amortised over a 5 – 10 year product life) and where the costs of compliance is high (product testing and registration costs).

Additionally, the state energy efficiency obligation schemes and programs under the emissions reduction fund (ERF) are effective complimentary measures as costs are passed on to energy consumers and there is increased incentive to reduce consumption and install more efficient energy using equipment.

Lighting Council is working with Commonwealth Government staff on the development of an appropriate lighting method under the ERF.

**30. *Should the scope limit of 150W be applied to all residential lamp categories? Currently this scope limit applies only to tungsten filament GLS lamps?***

Lighting Council does not believe that the 150W scope limit should be applied to all residential lamp categories as there are limited application lamps such as double ended halogen lamps available in 150W, 200W, 300W and 500W etc. ratings. These lamps are currently not included within MEPS determinations and would not be able to meet the current MEPS requirements. Also, these products are not likely to be generally used in residential applications although may occasionally be used in residences.

We support retaining the present limit on tungsten filament GLS lamps only. There are no CFL or LED lamps available that provide equivalent output to the double ended TH lamps.

**31. *What additional costs do you think increasing MEPS for lamps would place on industry compared to business as usual?***

There would be added costs to manufacturers and equipment suppliers due to increased lamp specifications and added compliance costs (testing, registration and administration).

Compliance costs would be highest if new regulations are applied to underdeveloped markets (like the current LED market) as additional resources would be needed to increase development capacities. Compliance costs are lowest when new regulations apply to well developed markets and remove only the worst performing products.

**32. *What do you think would be the best way for governments to facilitate an increase in the average energy efficiency of residential lighting sold?***

As well as using MEPS as a market mechanism, there should be additional emphasis on lighting controls (i.e. occupancy sensors, photoelectric cells, dimmers and timers) applied to certain applications so that lighting levels are appropriate and lights are only used when needed and not left on indefinitely.

Also, a greater compliance focus on building regulations, as required under the National Construction Code, and product performance claims would assist to reduce energy used and maintain a fair market for all competitors.

**Note on compliance and enforcement under the GEMS Act:**

Lighting Council agrees some of the policy options outlined in section 8 of the Product Profile could feasibly address the market failure problems outlined in section 2, however new regulations and standards are only one part of the requirement to increasing the energy efficiency of lighting products. Another major component is monitoring, verification and enforcement by regulators. The last compliance survey of lighting products showed there is a large number of non-compliant lamp

suppliers in the Australian market and we would encourage enforcement action against these suppliers to remove non-conforming products from the market.

### **Comment on the Equipment Energy Efficiency Program under the GEMS Act and the GEMS Review**

Lighting Council Australia is generally supportive of MEPS as a reasonable mechanism for limiting market failures in regard to the efficiency of energy using equipment. Lighting technology is currently evolving with the development of LED products and the coming years will provide an opportunity to redefine the expected efficiency levels of lighting equipment.

In saying this we would caution that the Lighting industry is currently struggling with some aspects of the E3 program. For example, the definitions of “families” and the costs of compliance (testing and registration) if maintained, will continue to limit the ranges of lighting products available in Australia.

Consumer outlay on lighting equipment is relatively small compared to other larger household appliances and the market size is relatively small. Restrictive definitions of families (eg not allowing multiple brands and not simply requiring testing and registration of the least efficient product in a family) and the increased costs of registration under the GEMS Act means that lighting equipment suppliers will tend to limit the range of products marketed to those with higher volume sales. This will continue to have the effect of limiting consumer choice. The compliance costs associated with the current testing and registration requirements are significant. Further development of the family definition for lighting products should be able to produce the same compliance outcome with decreased costs for equipment suppliers.

The practices, approaches and rationale taken by the E3 program should be reviewed on a regular basis to make sure these are still valid. For example, regulation of product installation and maintenance may eventually be more productive than continually re-targeting the efficiency of particular products. Likewise, emphasis should be placed on improving the efficiency of energy using systems and not simply some of the components in the systems.

Government should demonstrate that regulation will achieve its objectives at minimum costs to business and consumers. Priority should be given to:

- Providing sufficient time and information to industry to implement the changes necessary to comply with planned MEPS. A Decision RIS, Australian Standard (even if only a direct text adoption of an international standard) and Ministerial Determination is needed before product planning can be started. Sufficient time to implement changes to meet MEPS is required. Minimising costs to industry would mean including MEPS review cycles worked in with accepted product review cycles (so that MEPS modifications are one of only a number of product review considerations).
- Removing only the least efficient products from the market;
- Australian alignment with international markets including the scope, levels and dates of application of international regulations.
- The MEPS process being mainly managed through the Australian Standards process, with published standards picked up by basic regulations and with sufficient time frames to implement;
- Minimising compliance costs including registration costs. Streamlining is required and should be continued, not just within the Department of Industry, but considered for review across departments and also across to state and local government level. Ultimately, one product test report and one product registration for all regulatory requirements would minimise the administration burden on industry;
- The use of the Regulatory Compliance Mark (RCM) as implemented for electrical safety and EMC regulatory schemes should be implemented for MEPS compliance. Rules for the use of the RCM are outlined in the Australian and New Zealand standard AS/NZS 4417 and Lighting Council sees merit in the RCM also applying to GEMS conformance;
- Surveillance and compliance – Industry has surveyed the building products market and found that gaps and weaknesses in the product conformance framework, including a lack of surveillance and compliance activity, is contributing to the current high levels of non-

conforming building products on the Australian market<sup>5</sup>. Industry would argue that surveillance and enforcement actions are of primary importance to regulatory schemes.

- A greater level of input to the development of the work program;
- Developing a cooperative culture between industry and regulators – In other regulatory areas (eg safety standards) there is a high degree of cooperation between industry and regulators and the Australian standards process is the primary area for engagement on safety level setting. Industry suggests that the Australian standards process currently allows for all relevant stakeholders to provide input and the same approach should occur for energy efficiency standards;
- Improving the accuracy of forecast and calculated energy savings through updated consumer use surveys. Continued regulation should require accurate data that justifies the approach.

## **ABOUT LIGHTING COUNCIL AUSTRALIA**

Lighting Council Australia is the peak body for Australia's lighting industry. We: advocate the use of environmentally appropriate, energy efficient, quality lighting systems; represent the Australian lighting industry to policy-makers and other key stakeholders nationally and internationally; promote the use of electrically safe lighting that complies with relevant Australian and international standards; encourage good lighting design, education and training; and engage in international and Australian standards development relating to the lighting industry.

In response to the *Product Profile*, Lighting Council conducted industry consultations with members of our Lamp Suppliers and Solid State Lighting Sub-Industry Groups in order to compile this submission.

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<sup>5</sup> The Australian Industry Group report, "The quest for a level playing field, The non-conforming building products dilemma", November 2013.