NSW Energy Savings Scheme

Rule Change 17-18 Consultation Paper December 2017

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Energy Savings Scheme

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Lighting Council Australia (LCA) welcomes the opportunity to comment on the *Energy Savings Scheme Rule Change 17-18 Consultation Paper December 2017 (Consultation Paper).*

LCA's response to the *Consultation Paper* is based on consultation with the lighting luminaire and lamp supply industry through our member network. LCA Members supply around 80% of all lighting equipment in Australia in the residential, commercial, industrial and public lighting markets.

Responses to specific questions outlined in the *Consultation Paper*

Question 1: Do you agree with the proposal to preserve preceding transitional arrangements within the Rule? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA does not agree there is a need to delay the introduction of proposed discount factors to commercial lighting upgrades and suggests that discount factors for commercial lighting should be applied along with other changes commencing on 31 July 2017.

Question 2: Do you agree with the intention to collect additional customer data, including NMI and DPI? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA agrees with the intention to collect additional customer data to evaluate the effectiveness of the ESS. To date, the savings claimed are only estimates. This type of data gathering could be used at a macro level to evaluate the effectiveness of the scheme and at a micro level to indicate possible audit and enforcement targets.

Question 3: Do you agree with the proposal that ACPs are required to ensure that the LED lights installed under the PIAM&V method meet the relevant equipment requirements outlined in the ESS Rule? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA agrees with the proposal that LED lights installed under the PIAM&V method meet the relevant equipment requirements outlined in the ESS Rule and be registered with NSW IPART. It is important to ensure that lighting products installed under different ESS methods meet the same standards, otherwise there is an increased chance that lower quality and unsafe equipment will be installed. Consistency in the application of standards should apply across all methods.

Question 6: Do you agree with the proposal that ACPs are required to ensure that the LED lights installed under the Metered Baseline Method meet the relevant equipment requirements outlined in the ESS Rule? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA agrees with the proposal that LED lights installed under the MBM method meet the relevant equipment requirements outlined in the ESS Rule and be registered with NSW IPART. It is important to ensure that lighting products installed under different ESS methods meet the same standards, otherwise there is an increased chance that lower quality and unsafe equipment will be installed. Consistency in the application of standards should apply across all methods.

Question 8: Do you agree with the proposed Asset Lifetime values? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA considers that there is no need for an incentive scheme for lighting upgrades.

There has been considerable change in the lighting market over the past five years; and the range of efficient lighting products available on the market today is markedly different from those available in 2009 when the NSW Energy Savings Scheme was introduced.

To illustrate these changes, in the last five years alone:

- LED products have come down in price by around 60 per cent;
- LED products have increased in efficacy by between 50 per cent (for quality LED luminaires with low colour temperature, high colour rendering index and low glare features) and 100 per cent (for higher CCT, CRI around 70 and higher glare luminaires);
- LED products are now suitable for almost all lighting applications with the exception of special purpose lamps (e.g. high temperature oven lamps);
- The vast majority of lighting suppliers are now focused on supplying mainly LED products. Replacement products including fluorescent lamps are being withdrawn from the market as the cost of producing these products is increasing due to reduced component and manufacturer availability. This situation will further drive the business as usual case toward LED products;
- Quality fittings, coupled with correct installation, reduce lighting maintenance costs by more than 50 percent. Increased end-user awareness on the demand side of the market means that the vast majority of new and retro-fit activities have turned towards energy efficient LED lighting products; and
- Energy prices have recently increased by around 50 per cent leading installation owners to seek out more energy efficient products. Lighting products are relatively quick and easy to upgrade.

Additional relevant changes have and will soon further affect the market for lighting equipment:

- Incandescent and halogen products will likely disappear from the market in 2019 to 2020 due to interventions at the Federal level. The Commonwealth Government Equipment Energy Efficiency (E3) program will likely remove from the market a great number of inefficient filament lamp technology lighting products. This does not seem to have been taken into account in the assumptions made in the *Consultation Paper Appendix C* modelling.

- The widespread ratification of the Minamata Convention by major manufacturing countries and economies such as China and the EU will likely have the effect of bringing the export and import of mercury vapour lamps to a halt in 2020. If Australia ratifies the Minamata Convention then lamp suppliers will no longer be able to import mercury vapour lamps. There is no manufacturing of these lamps in Australia.

  Mercury vapour lamps comprise around 50% of all local government responsible street lighting (e.g. residential or pedestrian category street lighting as defined by AS/NZS 1158.3.1).

  Lighting Council Australia estimates there are an additional 200,000 to 500,000 non-street lighting mercury vapour luminaires still installed in industrial installations.

  The average life of a mercury vapour lamp is around 20,000 hours or less than five years when installed in an industrial or street lighting application.

  Lighting Council Australia estimates that all mercury vapour luminaires will be upgraded to LED technology naturally when installed lamps expire after 2020 and so there is no justification for maintaining the NSW Energy Savings Scheme incentive for mercury vapour upgrades after around 2022.

  The above does not seem to have been taken into account in the assumptions made in the *Consultation Paper Appendix C* modelling. LCA requests that assumptions taking into account the above factors should be included in modelling.

- The National Construction Code (NCC) is under review and will likely significantly increase the stringency of the maximum illumination power density figures allowed under the NCC 2019 edition. This will have the effect of driving the NCC market business as usual case wholly to LED products as it is likely under current proposals that only LED products would be able to comply. This would have a further flow on effect of raising the cost of non-LED products and further drive these products out of the general lighting market.

  The additional cost increases to non-LED products created by the declining market for these products does not seem to have been taken into account in the assumptions made in the *Consultation Paper Appendix C* modelling. We request that assumptions along these lines should be included in the modelling.

- LCA understands that new EU eco-design requirements propose to ban the manufacture and importation of T8 fluorescent lamps in the EU from 2022 onwards. If this proposal proceeds, the availability of T8 lamps will decrease and the cost of fluorescent lamps will likely further increase globally. A decision on the EU proposal is likely to occur in mid-2018 with publication likely by the end of 2018.

- The *Consultation Paper Appendix C (table 1)* makes the assumption that non-office commercial spaces would be renovated every 15 years. This seems excessive considering this category would include all retail outlets. LCA members tell us that their retail customers typically undertake major upgrades every five years. We suggest the figure of 15 years is excessive and should be revised down.

  Also, with online sales increasing, bricks and mortar retailers must seek new ways to engage their customers, create a memorable in-store experience and highlight their brand. Eye catching dynamic lighting displays attract attention and can guide customers. A customised lighting approach applied across all stores will create unique brand identity. Retail owners are realising that the right balance of lighting is needed for their application and the right type of lighting does make a significant difference to converting foot traffic into sales. Retail owners are waking up to the benefits of a positive retail lighting experience.

  LCA believe that non-office commercial spaces such as retail will be renovated every 5 years and not 15 years.

- The *Consultation Paper Appendix C (table 1)* makes the assumption that industrial spaces are renovated every 20 years. While this may be true from a historical perspective, LCA highlights that this period is not likely to be relevant going forward due to the likely cost increases in HID and fluorescent lamps and corresponding control gear, the continued forecast decline in the price of LED products, the forecast increase in efficiency of LED products, the decline in the availability of products such as mercury vapour lamps (Minamata Convention), the significant maintenance savings that can be achieved and the additional energy savings and decreased cost of onboard controls (e.g. presence detection, daylight harvesting, dimming).

  LCA requests that assumptions in the above areas should be included in modelling and if included the forecast 20-year life should be considerably reduced.

- From a qualitative perspective, research study information is becoming available that indicates there are well-being and productivity benefits to be gained from a mix of direct and indirect lighting and higher lighting levels than those currently recommended by national standards as well as tuneable white lighting[12]. The lighting industry is responding by developing products that vary colour temperature and brightness throughout the day to

[1] Kelter, Lighting quality perceived in offices, Fraunhofer IAO, Stuttgart, March 2014
[2] Schlangan, Lang, Novotny, Plischke, Smolders, Beersma, Wulff, Foster, Cajochen, Nikunen, Tahkamo, Bhusal, Halonen, 'Lighting for health and well-being in education, workplaces, nursing homes, domestic applications, and smart cities', Accelerate SSL Innovation for Europe, 2014

mimic natural light. This is resulting in tangible increases in user concentration levels, lower stress levels, better mood and improved health, well-being and productivity outcomes.

Biologically based artificial lighting systems, based on daylight, help to stabilise circadian rhythm. Standards[3] are now being published that include specific design recommendations for biologically effective lighting. This brings together technology solutions and research findings. Synchronising lighting with occupants' circadian rhythms is important to stimulate activity during the day and ensure sound sleep at night. To this end, the lighting of walls and other vertical surfaces is just as important as the lighting of work surfaces.

These research, technology and standards development aspects are all building a stronger case for the upgrading of lighting and have not been considered in the modelling undertaken in the *Consultation Paper.* The lighting industry is changing quickly, not just in terms of product efficacy and LCA forecast that other aspects besides energy efficiency will provide more compelling reasons for installation owners to upgrade their lighting in the near future.

Further on this point, the most profitable investments will maximise employee satisfaction, well-being and motivation. In the vast majority of businesses, employees are the largest cost component of operations, meaning that maximising employee productivity will produce a benefit far exceeding savings on energy consumption.

- The number of environmentally certified buildings is growing strongly indicating the business case for such buildings stacks up well. Tenants are willing to pay higher rents to reduce operating costs, improve employee well-being and increase productivity. Well-designed LED lighting systems are an important aspect of these high-tech buildings and they apply to renovated buildings as well as new buildings.

  This aspect has not been included in the modelling undertaken as outlined in the *Consultation Paper.*

- Lighting upgrade funding opportunities are growing through bank investment schemes including various ownership models from low risk bank ownership through to higher return installation owned models.

  The additional incentive to upgrade lighting systems as provided by these private investment schemes has not been included in the modelling undertaken as outlined in the *Consultation Paper*.

Lighting Council Australia considers that the business-as-usual case has changed significantly over the previous five years and will continue to change more quickly than forecast by the *NSW ESS Consultation Paper Appendix C*. The rationale for the policy position reflected in commercial lighting upgrade aspects of the NSW Energy Savings Scheme is disappearing more quickly than forecast by the *Consultation Paper*.

[3] DIN SPEC 67600:2013-04 *Biologically effective illumination - Design guidelines*

LCA request that the modelling be refined to include assumptions relating to all the aspects outlined above. These all provide reasons to further reduce the incumbent product asset life and we estimate that the asset lifetimes listed in Table 1 (page 12) of the *Consultation Paper* should be further reduced by around 50% when the factors outlined above are included. Lighting Council would be available to assist the consultants to further refine their modelling regarding the above items.

LCA acknowledges that policymakers find aspects of the NSW Energy Savings Scheme framework useful to achieve policy objectives in other target areas, and as a result proposes that the framework remain unchanged. However, we suggest discounting to nil the value of NSW Energy Saving Certificates in relation to commercial lighting upgrades or at the very least revision of the modelling undertaken to include assumptions around the aspects highlighted above should lead to significantly reduced incumbent lighting lifetimes than estimated in the *NSW ESS Consultation Paper Appendix C* .

Question 9: Do you agree with the proposed transition period? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA does not agree there is a need to delay the introduction of proposed discount factors to commercial lighting upgrades and suggests that discount factors for commercial lighting should be applied along with other changes commencing on 31 July 2017.

Question 10: Do you consider that the proposed Asset Lifetime values should be rounded to the nearest year, or that that the proposal for portions of years is more appropriate?

LCA does not agree with the estimated asset lifetime values. These should be revised based on the additional information provided above.

Question 11: Do you agree that a Maximum NLP cap should be applied to all types of HID highbay lamps, or do you think it should only be applied to specific technology types of highbay lamps? Please provide supporting evidence to justify your response.

LCA agrees that a maximum NLP should be applied to all types of HID lamps. We have highlighted for some time that rorting of these schemes through overclaiming the wattage value of removed lamps is occurring and the proposal is one way to reduce the incentive to overclaim.

Question 12: Do you have any comments on the proposed maximum NLP cap?

The proposed maximum Nominal Lamp Power (NLP) cap for removed HID high-bay lamps of 400W for replacement of lamps with non-integrated ballasts, and 450W for replacement of lamps with integrated ballasts seems reasonable to try to reduce the opportunities for overclaiming.

Question 13: Do you agree with the inclusion of a sub-clause for Maintained Emergency Lighting? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA agrees with the proposal to include a sub-clause for maintained emergency lighting as this will remove a current loophole that currently provides and incentive to replace luminaires with low operating hours with 'always on' maintained emergency lighting.

Question 14: Do you agree with including a "built in" category for mercury vapour and metal halide lamps with integrated ballasts? If not, please provide an alternative approach and supporting evidence to justify your response.

As above, LCA is of the understanding that mercury vapour lamps will be subject to an import ban in 2020. We suggest that no incentive to upgrade mercury vapour lamps after around 2022 is needed as these products will naturally be replaced by LED products.

Question 15: Do you agree with introducing standalone, simplified equations to the public lighting sub-method? If not, please provide an alternative approach and supporting evidence to justify your response.

LCA agrees the inclusion of control multipliers and air-conditioning multipliers is not relevant to the public lighting sub-method and the equations for this sub-method should be simplified.

A further comment in regard to the public lighting sub-method is that we request consistency between Clause 9.4A.4 (a) (i.e. the allowance to use the load value as listed on the national electricity market load table in calculations under the NSW ESS to determine savings created) and the LED product registration requirements as outlined under NSW IPART *Lighting Equipment Requirements, Commercial Lighting Energy Savings Formula, November 2016, Clause 3.1 Lamp Circuit Power* which does not specifically allow the load value as listed on the national electricity market load table to be used for product registration purposes.

We request that this inconsistency be rectified as soon as possible by allowing the load value as listed on the national electricity market load table to be used for product registration purposes.

General comments

Policymakers should also be aware of the unintended negative consequences of the NSW Energy Savings Scheme in its current form:

- Government incentive schemes skew market operator behaviour. There is an incentive to cut corners on the quality of the lighting outcome and installation owners would likely achieve better lighting outcomes without the schemes. Importantly, we question whether the lighting outcome after upgrades is being sufficiently audited and checked against the requirements in the ESS Rule and we would encourage more monitoring, verification and

enforcement in this area. Also, the NSW Energy Savings Scheme does not consider product failure rates over time but should factor this into the costs of the Scheme.

- Incentive schemes that heavily discount upgrade installations change behaviour on the demand side of the market. Installation owners have less incentive to question the quality of the products proposed by unscrupulous market participants. The imprimatur of the NSW Energy Savings Scheme has the effect of endorsing all products used and installations completed regardless of the products used, applications and lighting outcomes.
- Incentive schemes create a market for fly-by-night operators who have no commitment to creating a long-term, sustainable business presence in the lighting market.
- Legitimate market participants—such as LCA Members—are negatively affected by the operations of market participants who are responding simply to a short-term distortion created by a government incentive scheme. Long-term market participants create jobs, meaningful and long-term economic activity, and provide a quality service to the public.
- The use of incentives in the NSW Energy Savings Scheme may have the effect of overstating the actual environmental performance of the scheme, as the use of lower quality equipment undermines the environmental benefits intended.
- The lighting market in Australia already faces a critical challenge through the presence of non-compliant products that present the community with very real risks of electrical shock, poor performance, and fire hazards. Legitimate market participants face increasingly high compliance costs; further driving the price wedge between legitimate participants committed to manufacturing, supplying and installing quality products and unscrupulous operators who have their goods and services appear ever-cheaper in comparison.
- Policymakers should be acutely aware of failed government schemes that bear some resemblance to the NSW ESS. The Home Insulation Program (HIP) had the effect of heavily distorting an existing industry by creating incentives for unscrupulous operators. The Royal Commission into the Home Insulation Program found that there was a perceived break in the chain of accountability around responsibility. Policymakers should be concerned not only with the number of upgrades or the volume and value of lighting installations, but also the quality and safety of those installations, as well as the long-run effects of short-term interventions. Under the NSW Energy Savings Scheme, many of the agent-principal problems of the building and construction industry are exacerbated, as those installing lighting equipment have incentives to cut costs while end-users are rarely able to intercede.
- The key concern of LCA Members, however, continues to be rorting of the scheme and the creation of an unsustainable market for unscrupulous operators. As raised previously, LCA notes that an unintended consequence of the NSW ESS in recent years has been the rise of the new market operators who are not interested in being long-term market participants supplying quality products to the community, rather focussing their efforts on taking advantage of government rebates to the fullest extent. This is not a matter that can be easily remediated within the NSW ESS framework.

- Where policymakers create direct subsidies in an established market with high compliance costs for legitimate operators (and, as a corollary, lower costs for corner-cutting operators), where goods and services are being provided within a market with agent-principal problems and information asymmetries, rorting and poor policy outcomes should be expected.

  As an example, LCA Members note that government incentive schemes have had had the effect of incentivising the production, import and installation of less bright units in order to maximise the rebate available. We question the quality of the lighting outcome achieved when a 400W high intensity discharge luminaire (lumen output above 30,000 lm) is replaced by a 100W LED product (lumen output generally less than 15,000 lm).

- Members also highlight that the effect of heavily discounted units has distorted consumer demand, with poorly suited replacement products being installed in lieu of more appropriate lighting equipment.

Suggested way forward

LCA estimates the value of economic activity in the lighting industry to be more than $400 million in New South Wales. The lighting industry is sustainable, creates local jobs, manufactures domestically, and provides goods and services required by all Australians. The NSW ESS is an unhelpful intervention into this legitimate market.

Moreover, LCA considers that there are real questions about whether the stated policy aims of the NSW ESS have been met. As stated previously, the Scheme has created incentives for low quality installations and encouraged a focus on installations that maximise the certificate value. This problem is exacerbated by an absence of independent energy audits of installations. In short, it is unclear whether the anticipated benefits of the subsidy program will materialise because there is an absence of validation that new installations are high quality.

Again, LCA considers that the New South Wales Government would achieve more sustainable and effective policy outcomes by shifting emphasis away from NSW ESS subsidies and towards compliance and enforcement of existing regulations and education of consumer and installers regarding choosing and installing suitable LED products.

Suggested scheme consolidation or use of a model scheme

The following Commonwealth, state and territory energy efficiency incentive schemes exist under separate legislation and regulations and include different product requirements, administrative requirements and registration requirements.

- Commonwealth Government Emissions Reduction Fund.
- NSW Government Energy Savings Scheme.
- Victorian Energy Upgrades program.
- South Australia Retailer Energy Efficiency Scheme

- ACT Energy Efficiency Incentive Scheme

In some cases, products that are registered under one scheme are allowed to be used under another scheme. In other cases, different product requirements and separate product registrations are required.

The schemes operate in fundamentally different ways with different responsibilities, product requirements, registration systems, incentive payment arrangements, lighting verification arrangements, record keeping arrangements and audit processes. These differences decrease the efficiency of the administrative arrangements and increase compliance costs for product and service suppliers.

Lighting Council Australia recommendations:

- The schemes should be consolidated under a single agreed model arrangement.
- As outlined above, the schemes should be reviewed to discount or remove entirely the financial incentives for lighting upgrades due to the quickly changing business-as-usual case.
- Any product registration requirements should be part of a larger single national compliance portal applicable to all lighting product regulations, standards and schemes.

Request for additional product audit focus

The IPART Energy Savings Scheme annual report (2016) highlighted:

- IPART's monitoring and audit approach focused on auditing of accredited certificate providers and not on auditing LED products.
- IPART approved 2120 new LED products including 129 products previously approved under the VEET Scheme.

LCA highlights that over recent years other regulators have undertaken LED product audit checks and these have resulted in the following outcomes:

- The Victorian Essential Services Commission (ESC) 2016 VEET performance report reported that 20 LED products were tested. Of these, seven products have been suspended from the scheme (four failed performance testing and 3 failed safety testing) and a further 3 are awaiting outcomes. The ESC also reported the cancellation of 25 lighting products after falsified performance test reports were identified.
- The QLD electrical safety office recently undertook a check testing program on 15 lighting products. Eight of 15 products were found to be non-compliant in regard to electrical safety compliance.

The above failure rates indicate that significant non-compliance continues to exist in some parts of the lighting market. LCA would encourage the NSW Government to undertake more LED product audit checks including testing.