



8 August 2014

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Dear Mr Anderson,

**RE: Ausgrid Public Lighting Pricing Proposal 2014-19**

Thank you for the opportunity to comment on the public lighting aspects of Ausgrid's Regulatory Proposal for 2014 -19. SSROC makes this submission in its roll of managing a Street Lighting Improvement Program on behalf of 35 councils served by Ausgrid in metropolitan Sydney, the Central Coast and the Hunter. These councils encompass approximately 95% of all the 250,000 street lights in Ausgrid's distribution area and about 40% of all the street lighting in NSW.

I would like to firstly acknowledge the significant amount of work done by the AER on public lighting in the lead-up to the current review including involving councils in the Better Regulation review, organising forums to take early input from councils from around NSW, producing a discussion paper on public lighting issues and holding a number of meetings with council representatives. Councils recognise that public lighting forms only a small part of the overall NSW determination and are therefore particularly appreciative of the effort that has been devoted by the AER to seeking equitable outcomes for public lighting customers in what has been a highly contentious aspect of previous reviews.

## SUMMARY

Under the proposals made by Ausgrid, the councils it serves will pay more than \$206,000,000<sup>1</sup> in street lighting capital and maintenance charges in the 2014-19 regulatory period. In addition, councils are being asked to pay Ausgrid some \$67,000,000<sup>2</sup> in public lighting network distribution charges over this period as well as pay their electricity retailers an estimated \$10,000,000<sup>3</sup> per year for street lighting electricity consumption.

The regulated portion of street lighting costs that are overseen by the AER amounts to 85% of total street lighting costs for councils in Ausgrid's region. This cost has risen at multiples of CPI over the

<sup>1</sup> Based on Ausgrid Consolidated RIN Template June 2014

<sup>2</sup> Based on Ausgrid Consolidated RIN Template June 2014, published network pricing and estimated average energy consumption per luminaire derived from Ausgrid's RIN

<sup>3</sup> Based on typical council electricity contracts and estimated average energy consumption per luminaire derived from Ausgrid's RIN

past decade and, as a significant public expenditure, should be subject to the fullest possible scrutiny.

In its submissions to the AER, Ausgrid has proposed increasing street lighting capital and maintenance charges by 13% from 1 July 2015 and by CPI in each of the other years of the determination period 2014-19. Ausgrid has also proposed substantial capital investment programs.

Noting that councils have been unable to review public lighting pricing models or specific details of Ausgrid investment plans (see box on confidentiality claims below), a number of issues have been identified in what has been released that warrant further investigations:

- 1. Need for detailed AER review of pricing model & assumptions**
- 2. Need for review of claimed RAB<sup>4</sup> values**
- 3. Need for review of implications on RAB of TF2\*20 replacement**
- 4. Need for review of implications on RAB of withdrawal from parks & reserves**
- 5. Need for review of apparent double-counting of CFL maintenance charges and history of CFL installations**
- 6. Need to review Ausgrid maintenance assumptions**
- 7. Need to review LED maintenance assumptions**
- 8. Need to consider Networks NSW tender outcomes**
- 9. Need to consider mandating option of all new and replacement assets being installed under Rate 2**
- 10. Need to consider non-compliance with NSW Public Lighting Code**
- 11. Need to consider mandating reporting of underground supply faults**
- 12. Need to review network tariff EA 401**
- 13. Need to consider implications of price simplification assumptions**
- 14. Need to consider implications of installation labour reallocation**
- 15. Need to consider implications of bulk deployment economics**
- 16. Need to consider implications of shared assets**

#### ***Ausgrid Confidentiality Claims***

Ausgrid has made significant confidentiality claims with respect to its submissions to the AER on 2014-19 public lighting pricing including over some or all of documents dealing with its investment plans (Ausgrid – Attachment 8.09, 8.10 & 8.11), its public lighting pricing models (Ausgrid Attachments 8.13 A-D) and customer-specific aspects of its public lighting price list (Ausgrid – Attachment 8.14). Essential Energy and Endeavour Energy have withheld aspects of their public price proposals. As per an SSROC SLI Program submission on 29 July 2014 to the AER, these confidentiality claims markedly limit the ability of councils to scrutinise DNSP pricing proposals and provide meaningful comment to the AER. Councils reserve the right to make further submissions to the AER should additional material become available to them.

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<sup>4</sup> Regulatory Asset Base – the value attributed to Ausgrid public lighting assets for regulatory pricing purposes

## CONTEXT FOR REVIEW OF AUSGRID PUBLIC LIGHTING PRICING

With extremely limited exceptions<sup>5</sup>, street lighting for councils in Ausgrid's region is provided as a non-contestable monopoly service by the utility. This is acknowledged by the AER<sup>6</sup> and Ausgrid<sup>7</sup>. At present, there are neither contracts nor any binding service regulations covering the street lighting services provided by Ausgrid to councils.

There is a limited and voluntary NSW Public Lighting Code<sup>8</sup> but overall, little binding clarity about what appropriate service levels are, no recourse for NSW councils when things go wrong and no meaningful control over key aspects of an essential public service which councils, not the utilities, are legally responsible for providing to the community. In short, street lighting arrangements are without a clear governance framework for the 85% of total street lighting costs in Ausgrid's region that are encompassed by this AER determination.

Exclusive powers under the *NSW Roads Act 1993* and *NSW Local Government Act 1993* empower councils to provide street lighting and create a duty of care to exercise these powers appropriately. In exercising these powers, councils (and in some cases Roads & Maritime Services) must consider whether to provide street lighting, develop appropriate street lighting policies and manage the provision of the service for the community.

So, while the utilities own the street lighting assets under a non-contestable monopoly, it is councils that are legally responsible for providing the service yet have limited control over key aspects of the service because there is no clear service definition (either contractual or regulatory). This has inevitably led to a fundamental and growing misalignment of interests.

Public lighting is unlike other aspects of AER pricing decisions in that the electricity distributors own the end-user electrical appliance, the luminaire. Under the current framework, the utilities are incentivised to maximise the returns from their street lighting businesses and minimise liability exposures but little else. In contrast, the councils have a much wider set of street lighting priorities for which there are no drivers on the utility to incorporate including:

- Minimising total long-term costs to the community
- Reducing energy consumption and Greenhouse Gas (GHG) emissions
- Providing good quality lighting for the community with consideration to:
  - Public safety & security
  - All aspects of standards compliance
  - Public amenity

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<sup>5</sup> Under the NSW Electricity Supply Act, enabling regulations and Code of Practice Contestable Works, the design and installation of completely new street lighting installations is contestable in NSW but this work involves less than 0.5% of total Ausgrid street lighting assets each year. Replacement and maintenance of the other 99.5% of Ausgrid street lighting assets is non-contestable.

<sup>6</sup> The lack of contestability let alone competition in NSW public lighting was confirmed by the AER in the lead up to the previous NSW pricing review (Control Mechanism for Alternative Control Services for the ACT and NSW 2009 Distribution Determinations – Final Decision, AER, February 2008). There have been no subsequent changes to NSW legislation, regulation or codes that alter this situation. To achieve meaningful contestability and any resulting competition, extensive development of a NSW Public Lighting Contestability Framework would be required.

<sup>7</sup> Ausgrid submission to the AER on public lighting May 2012 p1 [http://www.aer.gov.au/sites/default/files/Ausgrid%20-%20submission%20on%20public%20lighting%20services%20in%20NSW%20-%20May%202012\\_0.pdf](http://www.aer.gov.au/sites/default/files/Ausgrid%20-%20submission%20on%20public%20lighting%20services%20in%20NSW%20-%20May%202012_0.pdf)

<sup>8</sup> A review of the NSW Public Lighting Code (1 Jan 2006) initiated by the Department of Trade & Investment – Resources & Energy has been abandoned and reference to the review removed from the Department website

- Colour and colour rendering
- Light pollution in all its forms (obtrusive light, upward waste light & glare)

SSROC notes that all stakeholders including councils, utilities and regulators have struggled to deal with the current absence of a clear governance framework and the growing misalignment of interests. Recent AER street lighting pricing reviews have been highly contentious as a consequence.

In the lead up to the 2014-19 pricing review, SSROC made representations to Ausgrid, Networks NSW and the Australian Energy Regulator about the challenges created by a lack of a clear service framework for street lighting. SSROC's view is that assessing pricing without a clearly defined service-level and without the users of that service having meaningful control over what service they are provided with, presents a fundamentally unresolvable task for all parties.

Unfortunately, there has been no meaningful progress to report in formalising service-levels between Ausgrid and councils from limited discussions that took place in 2013-2014. With the enormous negotiating imbalance in the current monopoly arrangements, lack of competitive tension and absence of incentive for the utility, this is not surprising.

SSROC recognises that many of challenges in administering public lighting pricing are beyond the current powers of the AER under its Rules and the National Electricity Law. However, there are some steps the AER can take to partially address the situation, as outlined in this submission.

More broadly, SSROC suggests that, after successive fraught public lighting determinations in a number of jurisdictions, the AER now has a responsibility to make clear representations to the AEMC, COAG and state governments about the extraordinary and growing challenges in administering public lighting effectively under the current regime or lack thereof. SSROC is of the view that the structure of regulation established under the National Electricity Law is wholly inappropriate and incomplete for street lighting based on the reasons outlined above.

SSROC notes that, without urgent regulatory reform in this area, the pressure on all parties will continue to increase because:

- the proposed privatisation of Ausgrid and Endeavour Energy poses an even greater risk to NSW councils in the absence of a defined service regime with reasonable protections and control for users of the public lighting service;
- the large legacy of aged, obsolete assets and highly overvalued public lighting assets at Ausgrid and the barrier this presents to new technology deployment; and
- the growing pressure for large-scale re-investment in public lighting now that LED street lighting has matured.

## **1. NEED FOR DETAILED AER REVIEW OF PRICING MODELS & ASSUMPTIONS**

While classification of street lighting as an Alternative Control Service may be intended to imply lesser need for review by the AER, the degree to which Ausgrid's cost modelling and investment plans have been kept confidential from external scrutiny places an additional responsibility on the AER to examine Ausgrid's public lighting pricing proposal in greater detail. This is particularly the case in view of the lack of any further development of a contestable framework since the last pricing review in 2009-10.

Using either its own resources or that of an external consultant that is independent of the utility, the AER should conduct a detailed review of Ausgrid's street lighting cost claims and undertake benchmarking against other Australian utilities and against international reference points.

The need for intensive scrutiny by the AER of Ausgrid's public lighting proposal is re-enforced by the 13 April 2010 pricing redetermination where the AER concluded that EnergyAustralia (now Ausgrid) has assumed labour rates, travel times, failure rates, capital inputs and other assumptions that were far too high and overall, that a number of significant adjustments to pricing assumptions were required to bring EnergyAustralia's public lighting pricing to an efficient level. As a result, the AER, with the support of an external consultant, made significant adjustments to Ausgrid's opex model and annuity capital prices in its final 2010 redetermination.

Any similar errors in this determination may not be identified without similar scrutiny and benchmarking by the AER.

## **2. NEED FOR REVIEW OF CLAIMED RAB VALUES**

As outlined in the following sections, there is a specific need to review the RAB value claimed by Ausgrid with respect to TF2\*20s and decorative lighting. However, there is a more general need for the AER to reconsider the high RAB value claimed by Ausgrid in view of the following:

- Ausgrid has one of the highest RAB values claimed for its public lighting assets yet, still has the largest remaining population of obsolete high wattage mercury vapour lights on main roads, the largest remaining population of obsolete TF2\*20 luminaires and a variety of other obsolete legacy technologies that other utilities and public lighting owners stopped using up to three decades ago.
- Street lighting is in a period of unprecedented technological change as old analogue lighting technologies are being rapidly supplanted by LED lighting. Obsolescence and changes in technology are valid considerations under NSW ODRC guidelines in reconsidering the valuation of electricity distribution assets.
- When the AER did consider the RAB value of Ausgrid's street lighting assets in 2009, it proposed a substantial write-down. While this was overturned on appeal to the Australian Competition Tribunal, it was not the merits of the write-down that were overturned but the power of the AER to make this change under the transitional rules that applied at the time that were found to be lacking.
- Neither IPART (under its 'light-handed' approach in previous decisions) nor the AER (following the Australian Competition Tribunal decision of 2010 under transitional pricing rules) have been free to properly consider the fair value of historic Ausgrid street lighting assets at any point during past determinations.

- Council concerns from previous determinations about their historic ownership of the county councils that formed Ausgrid not being properly recognised in current arrangements, hidden arrangements on deferred depreciation and substantial street lighting misinvestment up to 2004 by Ausgrid remain unresolved.
- The proposed privatisation of Ausgrid and the implications that locking in an incorrectly high RAB value would have for future lighting costs and the ability of councils to migrate to energy efficient lighting.

The AER should carefully consider what scope it has to review Ausgrid's claimed RAB value prior to finalising this determination.

### **3. NEED FOR REVIEW OF IMPLICATIONS ON RAB OF TF2\*20 REPLACEMENT**

As outlined in detail in Attachment 1 of an SSROC submission to the AER of 11 March 2010<sup>9</sup>, Ausgrid's continued use of TF2\*20 luminaires for up to 20 years after they had been discontinued by other utilities was a material case of misinvestment. Ausgrid failed, with regards to this technology, in its responsibility to ensure that street lighting technology practices were reasonably efficient and effective over a very long period of time from the mid-1980s when demonstrably superior technologies emerged and were widely adopted. Ausgrid did not stop installing new but by then highly obsolete, poorly performing and unreliable TF2\*20 technology until July 2004.

In Ausgrid's Regulatory Proposal – Attachment 8.10, Ausgrid proposes to replace its remaining population of over 22,668 TF2\*20 lights with LEDs between June 2015 and June 2017. It has not however clarified the implications on the pre-2009 RAB of this decision.

In proposals to council General Managers after the 2010 public lighting pricing redetermination (see sample letter in Appendix 1), Ausgrid similarly offered to replace all remaining TF2\*20 luminaires and waive any residual amounts owing. Ausgrid said that, *"This is a collective write off of about \$12.3 million across the remaining TF2\*20 luminaires"*. These proposals<sup>10</sup> were accepted by all councils that Ausgrid serves but have not yet been implemented by Ausgrid because of problems it cited with its previous standard lighting choice, 42W CFL lighting, and reluctance to deploy LEDs on an accelerated basis.

Recognising the extraordinary obsolescence of the TF2\*20 luminaires and that an offer to accept their replacement in conjunction with a write-down of the RAB value, was accepted by all councils that Ausgrid serves, a RAB adjustment should accompany this proposed replacement program.

### **4. NEED FOR REVIEW OF IMPLICATIONS ON RAB OF WITHDRAWAL FROM PARKS & RESERVES**

In Ausgrid's Regulatory Proposal – Attachment 8.03, it proposes to no longer offer decorative lighting types, no longer provide any replacement decorative luminaires for existing installations or purchase any further replacement spare parts once current stocks are exhausted. There are currently about 4000 decorative luminaires on Ausgrid's network which councils understand have a claimed RAB value of several million dollars though this is unstated in the Regulatory Proposal.

<sup>9</sup> <http://www.aer.gov.au/sites/default/files/SSROC%20submission%2011%20March%202010.pdf>

<sup>10</sup> Consisting of letters to council General Managers of 27 July 2010, 16 August 2010, 8 September 2010 and 15 October 2010 samples of which are available on request

As standard street lighting luminaires cannot be retrofitted to most decorative lighting columns, this policy change is effectively a decision by Ausgrid to exit parks and reserves as well as decorative lighting installations on streets. This exit could be triggered by even a relatively minor failure if no replacement parts are to be purchased by Ausgrid from now on.

Of particular importance is that the AER considers the implications of this unilateral Ausgrid decision to exit decorative lighting on the RAB. SSROC notes that:

- ODRC and other similar bases of RAB calculations are intended to preserve the value of the future revenue stream for the company from an on-going service, irrespective of whether the asset providing that service remains in place or is replaced early and a written-up residual value, based on the gross replacement cost of the modern engineering equivalent, is paid out. The RAB approach thus attempts to preserve the future enterprise value of a service. As such, it has little relationship to the actual depreciated value of the asset, its age or obsolescence.
- If Ausgrid is intending to exit the provision of decorative lighting, application of the RAB value based on the gross replacement cost of the modern engineering equivalent as an 'exit' charge for councils would be a completely inappropriate application of this regulatory pricing mechanism and inconsistent with NSW Treasury guidance from 1995 onwards about the application of ODRC valuations.
- Consistent with the above, councils' experience in the previous regulatory period was that claimed Ausgrid RAB values for old decorative light installations that councils wanted to exit from were often a very substantial fraction of the cost of new assets despite their obsolescence, poor state and obvious age.

Councils' contention is that if Ausgrid has made a decision to exit decorative lighting, it should absorb the write down of the RAB value for these assets.

Beyond the RAB value, the AER should recognise that the decision of Ausgrid to withdraw from supporting existing decorative lighting installations has significant financial costs for councils including that:

- Ausgrid may not be able to transfer existing lighting installations to councils without complete re-wiring because Ausgrid wiring does not typically meet AS3000 requirements;
- Ausgrid's requirement for replacement lighting to be metered adds cost for councils and again may require an entirely different wiring approach as current connection points may be unsuitable; and
- If councils have to replace existing Ausgrid decorative lighting installations, this typically involves using many more lights in different locations because current Ausgrid decorative lighting typically does not meet AS/NZS 1158 requirements in a number of respects including that obsolete lighting types with poor optical outcomes have been used by Ausgrid up to the present day.

If Ausgrid is indeed to exit all parks, reserves and other areas with decorative lighting, councils would strongly prefer a planned handover over several years that can be accommodated within their capital budgets. A sudden handover of responsibility for a whole set of assets because Ausgrid deems one or more lights defective and in need of replacement, would be unmanageable for councils and present a public safety risk while new lighting is arranged (e.g. as it takes some time to arrange handover of old assets, complete a new design, seek quotes, place orders and install new lighting). In many cases, other changes in the public domain will be required as a result of wholesale changes to public lighting.

## 5. NEED FOR REVIEW OF APPARENT DOUBLE-COUNTING OF CFL MAINTENANCE CHARGES & HISTORY OF CFL INSTALLATIONS

In Ausgrid's Regulatory Proposal – Attachment 8.11, it proposes to begin replacing 42W CFLs on a spot failure basis with LEDs. Based on discussions with Ausgrid, councils understand that any CFL that fails on a spot basis will be replaced with an LED from now onwards. However, with such significant redactions of Attachment 8.11, the details of Ausgrid's assessment and proposed approach to CFL replacements are unclear to councils.

Ausgrid used the 42W CFL as its default luminaire from 2008 to October 2013. It was adopted only after field trials and a technical study conducted by Ausgrid (then EnergyAustralia) and provided to councils showed low spot failure rates. There are approximately 50,000 42W CFLs on the Ausgrid network at present as a result of it being the Standard Luminaire for residential roads for the past five years.

In Ausgrid's Regulatory Proposal – Attachment 8.14, it also proposes raising the 42W CFL maintenance charge from \$48.21 in 2014/15 to \$68.52 in 2015/16 (an increase of 42%). In view of the proposal to not provide spot maintenance services to CFL luminaires (e.g. because CFL luminaires are replaced with LED luminaires on spot failure), this charge appears to include significant double-counting. If this maintenance charge for 42W CFLs were approved, councils would be paying for assumed high spot failure rates even though each site visit was also recorded as a capital expenditure including the replacement labour and the cost of the new LED luminaire.

More broadly, SSROC believes that the AER should consider that Ausgrid has not met material requirements of the NSW Public Lighting Code and other obligations with respect to failed CFL deployments. Specifically:

- **Ausgrid has not met the condition monitoring requirements of the NSW Public Lighting Code**

Under AS/NZS 1158 Section 3.1 and the NSW Public Lighting Code Section 7.3, items F & G, a service provider's maintenance program must cover condition monitoring, maintenance recording and performance review.

Consistent with AS/NZS 1158 and the NSW Public Lighting Code, Ausgrid's Public Lighting Management Plan undertakes, in Section 3.5, to capture maintenance data and conduct regular street lighting maintenance analysis sufficient to optimise equipment selection in keeping with the requirements of AS/NZS 1158.

Ausgrid does not appear to have met the condition monitoring requirements of AS/NZS 1158, the NSW Public Lighting Code or its own Street Lighting Management Plan, as evidenced by the six year delay from the data that the Code was introduced to the time that Ausgrid had implemented a street lighting management reporting system that was able to properly identify the magnitude of the CFL problem and that this problem had been occurring at this magnitude since CFL installations began in 2008.

That up to 50,000 CFLs were installed between 2008 and 2013 with such high defect rates that substantial portions now have to be proactively removed in the early part of their



expected life is compelling evidence of the failure to properly implement a robust maintenance reporting system.

- **Ausgrid has not met information provision obligations of the NSW Public Lighting Code**  
Under the NSW Public Lighting Code Section 9.1, “A Service Provider must provide to each of its Customers a) an annual performance report....; and b) any other reports and documents relevant to that Customer....which the Service Provider’s Customer may reasonably require.”

Maintenance data is reasonably required by councils as they ultimately must choose which luminaires to accept as Standard Luminaires and maintenance costs are one of the single largest components of total street lighting costs.

The SSROC SLI Program has been requesting network-wide street lighting maintenance data from Ausgrid on behalf of its participating councils since December 2009 in letters, emails, verbally and at regular Street Lighting Technical Working Group meetings with Ausgrid management. To date, none of these requests have been agreed to with respect to CFLs or other legacy technologies and it is therefore clear that information provision requirements of the NSW Public Lighting Code have not been met.

SSROC notes that, if councils were in possession of adequate information on actual CFL failure rates and the extent of the luminaire’s unreliability on the Ausgrid network, they would have called for the complete suspension of CFL installations some time ago and pushed strongly for an urgent tender for a replacement technology (e.g., with LED lighting).

## **6. NEED TO INVESTIGATE AUSGRID MAINTENANCE ASSUMPTIONS**

Councils are not privy to the spot failure rates and other maintenance assumptions that have been assumed in Ausgrid pricing models as this information has been withheld from public scrutiny. However, there is sufficient information available to suggest that the AER should investigate and benchmark Ausgrid street lighting maintenance assumptions in particular because this appears to be the largest cause of claimed under-recovery. SSROC notes that:

- The failure to properly identify and respond to a substantial technical issue with CFLs on the Ausgrid network for some years (as outlined in the previous section) may point to a systemic failure to properly monitor lighting technology performance, to investigate underlying technical causes and most importantly, to change technical approaches to minimise total costs for customers.

Ausgrid has noted in Attachment 8.12, that annual spot failure rates of its main lamp types are in some cases at multiples of that assumed in the last AER determination but also acknowledges that failure rates can be cut with a change in lamp types and that this has happened in some cases.

Benchmarking of apparently high Ausgrid lamp failure rates against other DNSPs should be undertaken to determine whether there are indeed anomalies in Ausgrid’s maintenance data and whether improper lamp or photocell choice may have contributed to higher than efficient spot failure rates.

The AER should also investigate apparent inconsistencies between actual spot failure rates of 19.09% over a 2.5 year study period (or 7.6% average spot failures per year) in Table 12 of Attachment 8.12 and Table 13 results suggesting much higher average spot failure rates. Table 12 also appears to suggest that the required bulk lamp replacement only happened in 73.43% of cases over the study period and not 100% as one would assume because the study period encompassed one full BLR cycle. If Ausgrid has not been performing a full BLR in all parts of its network on the stated cycle, its spot lamp failure rate assumptions in pricing models could be markedly in error as lamp mortality curves are non-linear.

- Overall, Ausgrid indicates that it is experiencing much higher than expected maintenance faults. In response, it is proposing a fairly intensive capital expenditure of some \$46,000,000 on LEDs for residential roads and high reliability main road lights (as per Figure 4 of Attachment 8.08). However, as a result of this substantial investment to remove some of the most unreliable lights (e.g. CFLs, T8\*20s and high wattage mercury vapour lights), it expects to see only a 10% reduction in operating costs of some \$2.1 million a year by the end of the regulatory period (as per Table 7 of Attachment 8.01). At a high level, this seems inconsistent with the dramatic maintenance gains that technologies like LEDs and HPS Active Reactor offer as compared to the least reliable technologies that are proposed to be removed.

## 7. NEED TO REVIEW LED MAINTENANCE ASSUMPTIONS

Councils will welcome Ausgrid's proposal to lower LED maintenance costs from \$34.86 per year in 2014/15 to \$29.19 in 2015/16. However, SSROC notes that this is still approximately 50% higher than annual LED maintenance prices for the same luminaire from the same manufacturer that has been proposed to Victorian councils by their DNSPs.

A higher service level or more robust maintenance assumptions may be inherent in Ausgrid's LED pricing proposal but, without disclosure of those assumptions, councils are unable to tell. As an important new lighting technology, the AER needs to review LED maintenance assumptions with care.

With respect to LED reliability and maintenance costs, SSROC notes that:

- After a fault in a small initial batch of LEDs was rectified under warranty, Ausgrid's next 5000 LED street lighting installations are understood to be operating without any spot failures to date.
- The City of Sydney's 4,100 LED street lights have experienced less than 0.05% failures to date from all causes<sup>11</sup>.
- In the first four years of large-scale LED deployments in Los Angeles LEDs have experienced an extraordinarily low cumulative spot failure rate of 0.3% from 140,000 luminaires<sup>12</sup>.
- A widely used LED street lighting contract negotiated by the Association of Municipalities of Ontario on behalf of 45 municipalities in that province contains guaranteed maintenance savings of up to 80%<sup>13</sup> compared to previous lighting maintenance cost.

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<sup>11</sup> Paul Gowans, City of Sydney, principal Engineer Electrical & Furniture

<sup>12</sup> Ed Ebrahimian, Director City of Los Angeles Bureau of Street Lighting, Sydney presentations March 2014

<sup>13</sup> <http://www.las.on.ca/Services/Streetlight-Program.aspx>

If Ausgrid LED spot failures are as low as initially experienced and the superb maintenance savings are consistent with other LED installations, how is any over-recovery in Ausgrid LED maintenance tariffs to be recouped by councils? How are LED maintenance tariffs to be adjusted through the regulatory period to avoid over-recovery?

## 8. NEED TO CONSIDER NETWORKS NSW TENDER OUTCOMES

A key factor influencing total street lighting costs is the capital cost of luminaires, brackets and poles.

The three NSW distribution utilities have informed councils that they are conducting a joint street lighting equipment tender in 2014 under their Networks NSW joint venture. Networks NSW have recently closed the initial stage of this tender process, a Request-For-Information from equipment suppliers.

With a combined portfolio of about 600,000 luminaires, a normal replacement rate of 5% per annum and several large scale accelerated replacement programs planned, this joint venture tender will be globally significant. It is expected to elicit highly competitive offers particularly from major global LED luminaire suppliers.

In this context, there are four reasons that currently assumed capital costs in NSW DNSP submissions may be inappropriate and in need of complete review later in 2014 before a determination is made:

1. Prices for LED street lighting luminaires in particular have fallen dramatically in recent years. Internationally, the price of LED street lighting luminaires dropped by broadly 50% in the four years to 2013<sup>14</sup>. LED luminaire prices in the US appear to now be directly comparable to that of traditional luminaires. Parties such as the City of Los Angeles<sup>15</sup> report an average price per LED luminaire in 2013 of US\$141 and the City of Seattle<sup>16</sup> reports an average price of US\$152 per luminaire in 2013. In staging a tender on an internationally significant scale, there is every reason to believe that Networks NSW will attract internationally competitive pricing for LED luminaires and other street lighting components. Current capital cost assumptions in proposals, which may be up to 100% higher than international benchmarks, may have little relevance after this tender is complete.
2. While a break from the norm in the price modelling approach under the AER, the determination should be able to take into consideration declining capital cost inputs through the course of the regulatory period. Fixing pricing based on 2014 costs may lead to over-recovery, inappropriate price signals and slower than warranted adoption of new energy-efficient lighting.
3. The scale of the Networks NSW street lighting equipment tender, for all classes of street lighting assets, is without precedence in Australia. As such, lower capital costs, superior performance guarantees and a range of other benefits can reasonably be expected. These cost benefits from greater scale and other efficiencies are precisely the purpose for which Networks NSW was established by the NSW government and should be considered in this AER determination.
4. On 17 July, Standards Australia rejected proposed changes to the current road lighting luminaire standard, AS/NZS 1158.6, citing insufficient alignment with international standards and therefore an unreasonable barrier to imported products<sup>17</sup>. The international standard,

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<sup>14</sup> Dr James Broderick, US Dept. of Energy, MSSLC Presentation Sept 2013

[http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/brodrick\\_msslc-phoenix2013.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/brodrick_msslc-phoenix2013.pdf)

<sup>15</sup> Ed Ebrahimian, Director City of Los Angeles Bureau of Street Lighting, Sydney presentations March 2014

<sup>16</sup> Edward Smalley, Director Seattle City Light, Sydney presentations March 2014

<sup>17</sup> <http://www.standards.org.au/OurOrganisation/News/Documents/AS-NZS%201158%206-SA%20Statement.pdf>

LED 60598-2-3 is likely to be adopted in place of AS/NZS 1158.6 later this year. This fundamental change in approach should lower LED luminaire prices through increased competition as even the world’s largest lighting suppliers have found it difficult to supply LED street lights to Australia so far. The barrier to trade presented by the current standard appears to partly explain why LED street lights have cost, on average, twice as much in Australia as in the United States.

## **9. NEED TO CONSIDER MANDATING OPTION OF ALL NEW AND REPLACEMENT ASSETS BEING INSTALLED UNDER RATE 2**

One key step that the AER could take to help promote both lower costs for customers and help prepare for future street lighting contestability is to mandate an Ausgrid option of all new and replacement lighting being installed under Rate 2 arrangements (e.g. council funded).

At present councils understand that only new (e.g. greenfield lighting assets) can be council-funded. If any current Rate 1 assets (e.g. utility-funded) need replacing, they are replaced as Rate 1 assets. More than 95% of assets on the Ausgrid network are understood to be Rate 1 assets.

Allowing all replacement assets to be council-funded would lower capital costs for councils by about 25-30% compared to the Weighted Average Cost of Capital applied to Ausgrid-funded assets. It would also cap the amount to be financed at the capital cost of the asset as installed rather than expose councils to the continually escalating revaluation of the asset against a ‘modern engineering equivalent’ under an ODRC annuity approach. Notably, most Essential Energy and a substantial portion of Endeavour Energy street lighting assets are on Rate 2-type arrangements.

A further step that the AER could take is to mandate an energy-only tariff option for all assets as is an option in other jurisdictions.

## **10. NEED TO CONSIDER NON-COMPLIANCE WITH NSW PUBLIC LIGHTING CODE**

SSROC acknowledges that Ausgrid has improved its service levels in a number of important respects in the past regulatory period. However, in assessing pricing and the implications of investment decisions, the AER should give consideration to areas of non-compliance with the NSW Public Lighting Code as outlined in the table below:

<b>NSW PUBLIC CODE PROVISION</b>	<b>NON-COMPLIANT ASPECTS OF AUSGRID’S SERVICE</b>
7.1 Management Plan	Ausgrid, as part of its regulatory proposal, has submitted a Public Lighting Management Plan dated May 2014. It has said to council representatives that this is a draft document but has now removed its previous Management Plan, dated July 2011, from its website. It has not consulted with councils on changes in the new Public Lighting Management Plan as required by Section 7.1 of the Code.
7.1 & 7.3 A Maintenance of Underground Supply Faults	Ausgrid does not appear to be meeting the requirements in its own Management Plan, under the NSW Public Lighting Code or in AS/NZS 1158 in dealing with underground supply faults to public lighting.  Prolonged underground supply faults are a widespread issue across Ausgrid’s network as demonstrated by surveys of main road outages conducted by the

	<p>Southern Sydney Regional Organisation of Councils in 2012/13 of over 3600 lights across 13 LGAs. These surveys found that 68% of main road outages were from underground supplied lights while these made up only 30% of lights surveyed. Ausgrid’s outage rate from overhead supplied lights on main roads was a respectable 1.8% while, in contrast, the outage rate for underground supplied lights was at 9%. Previous SSROC surveys have shown Ausgrid lighting installations that are underground supplied to have outage rates well in excess of 5%.</p> <p>The road lighting standard, AS/NZS 1158, sets a maximum outage rate of 5% in AS/NZS 11158 Part 1.2 section 14.5.2. Ausgrid, in its responses to councils, appears to have misinterpreted this as applying to all the lights in a local government area (LGA) as a group and not to each lighting installation. Ausgrid’s interpretation is inappropriate as the Standard is aimed at designing and maintaining safe lighting installations along individual roadways and makes no reference to populations of lights across an entire LGA.</p> <p>Taken to its extreme, Ausgrid’s interpretation would imply that having whole blocks of lights out on a major arterial road is acceptable provided that they constitute less than 5% of the lights in an entire LGA.</p> <p>More broadly, Ausgrid’s interpretation would imply that an overall outage rate of 12% on main roads is acceptable as the average across the LGA could still be 5% overall if outage rates on residential roads are 2% or less (a typical figure).</p> <p>Given the safety risks on main roads, Ausgrid’s interpretation of the Standard is neither reasonable nor consistent with the intent of a standard that is focused on community safety.</p> <p>In Section 10.0 of Ausgrid’s Public Lighting Management Plan, it states that, “Ausgrid will operate the Public Lighting Network, efficiently and effectively over the economic life in accordance with ‘in-service’ values specified for ‘Category V’ and ‘Category P’ lighting detailed in AS/NZS1158 series of standards pertaining to the lighting of roads and public spaces.”</p> <p>With respect to groups of underground supplied lights and the failure to address supply faults in a reasonable timeframe, SSROC does not believe that Ausgrid is meeting the requirements in its own Management Plan, under the NSW Public Lighting Code or in AS/NZS 1158.</p>
7.3 A Night Patrols	<p>With regards to Ausgrid’s outage detection program, AS/NZS 1158 states in AS/NZS 1158 Part 1.2 Section 14.5.2 that “...inspection patrols or other detection methods will be required for lighting installations on major roads (i.e. Category V lighting).”</p> <p>Ausgrid is providing quarterly night patrols on “major traffic roads” but not for all main roads with Category V lighting. There does not appear to be any solid basis for the current Ausgrid approach and those roads selected for patrols are unclear to councils.</p>

	Night patrols of all main roads are quite reasonably mandated under AS/NZS 1158 because these roads, in contrast to residential roads, usually have no natural reporting party (e.g. adjacent residents) to make fault reports.
7.3 F & G Maintenance Reporting System	As per Section 5 above, it appears that Ausgrid did not implement a robust street lighting maintenance reporting system until 2012, some six years after being required by the NSW Public Lighting Code under Section 7.3 items F and G. This appears to have resulted in material misinvestment in up to 50,000 CFL luminaires over five years that, for unknown technical reasons, performed very poorly on the Ausgrid network.
9.1 Reporting	As per Section 5 above, Ausgrid has not met the information disclosure requirements of Section 9.1 of the Public Lighting Code by failing to disclose street lighting maintenance data to councils which is reasonably required by councils as they ultimately must choose which luminaires to accept as Standard Luminaires and maintenance costs are one of the single largest components of total street lighting costs.
10 Minor Capital Works	Councils indicate that they are experiencing lengthy delays in completing minor capital works involving street lighting, often with major implications for other associated public works.
11.2c Minimum Service Standards	Ausgrid is not meeting its obligations under Section 11.2 c to keep councils and the Road Authority (where they are not one and the same) on the timeframe for repairs of network supply faults affecting multiple lights. Underground supplied street lighting is most commonly found on main roads where average vehicle speeds are greater, traffic volumes are larger and the risk of injury and death from traffic accidents it at its highest. Underground supplies for street lighting typically feed a number of lights and hence, supply failure usually results in multiple lighting outages which are a significant public safety hazard.

Ausgrid's statement in Attachment 8.01 that, "*Ausgrid will be working towards meeting the targets of the Code throughout the 2014-19 regulatory period*" does not seem particularly robust more than eight years after the implementation of a Code which it agreed with councils and the then Department of Energy Utilities and Sustainability in writing that it would implement in full.

## **11. NEED TO CONSIDER MANDATING REPORTING OF UNDERGROUND SUPPLY FAULTS**

Underground supply faults to street lights are inappropriately excluded from the key measure of electricity network reliability, the Service Target Performance Improvement Scheme (STPIS).

Underground supply faults to street lights are also excluded from performance measures in the NSW Public Lighting Code (although NSW DNSPs are expected under Code Section 11.2c to provide reporting on network supply faults to councils and/or Roads and Maritime Services although even this limited requirement of the NSW Public Lighting Code is not met by Ausgrid at present as indicated in the previous section).

Further, underground supply faults to street lights are excluded from Ausgrid's measurements of street lighting faults in annual performance reports to councils.

Performance that is unmeasured and unreported tends not to be well managed. This is certainly council's experience with underground supply faults. And, this is not a new issue.

As per SSROC's submission to the AER of 12 February 2009<sup>18</sup>, a report provided to SSROC by EnergyAustralia (now Ausgrid) for 06/07 indicated that outages exceeding 50 days had occurred in 30 of 41 councils served. In 17 council areas outages exceeding 100 days occurred and in at least 4 cases outages exceeded 200 days. Network supply faults appeared to be responsible for these prolonged outages.

In view of the public safety implications of the multiple outages typically caused by a supply fault, the AER should consider what tools it has available to mandate reporting of underground supply faults to street lights (including location, number of lights involved and duration).

## **12. NEED TO REVIEW NETWORK TARIFF EA401**

In view of the above discussion of underground supply faults and the lesser standard that public lighting supply is held to, the AER should consider the assumptions behind network tariff EA 401 for public lighting.

While Ausgrid aims for very high levels of reliability on its network overall exceeding 99.9%, network availability of public lighting supply is held to a much lower standard.

The NSW Public Lighting Code cites the need to maintain the in-service values of the Australia Standard AS/NZ 1158 which sets a minimum 95% availability at any given point. However, under the enabling Act, Regulation and Public Lighting Code, there are no current penalties or apparent consequence for sustained power supply outages to public lighting. Indeed, councils are expected to keep paying capital, maintenance, network and energy charges even for lights that have been out for a sustained period of many weeks or months. As such, public lighting supply is clearly held to a much lower reliability standard than other network distribution tariffs. This should be reflected in network Tariff EA 401.

## **13. NEED TO CONSIDER IMPLICATIONS OF PRICE SIMPLIFICATION ASSUMPTIONS**

Ausgrid has indicated that it has modelled a simplified pricing structure that takes 300 prices down to a standard list of 24 prices. Councils are entirely unclear from the material provided what simplifying assumptions have been made and what the impacts on individual councils and technologies are of these simplifying assumptions.

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<sup>18</sup> <http://www.aer.gov.au/sites/default/files/SSROC%20-%20submission%20on%20public%20lighting%20draft%20decision%20-%2012%20February%202009.pdf>

Councils would be pleased to work with the AER and Ausgrid to review any proposal as suggested in Attachment 8.01.

#### **14. NEED TO CONSIDER IMPLICATIONS OF INSTALLATION LABOUR REALLOCATION**

Ausgrid has indicated in Attachment 8.01 and other portions of its submission that it is proposing to change the allocation of installation labour between bracket and luminaire. SSROC cannot identify the new allocation approach in the submissions and notes that this needs to be reviewed with care.

Of particular note is that main road bracket installation can be highly cost intensive, requiring a hoist for heavy structural brackets of up to 6m in length. To misallocate an appreciable chunk of this installation labour to main road luminaires could result in them being prohibitively costly to replace in the future because of inappropriately high valuations. Whether Ausgrid has considered the marked differences between main road brackets and residential road brackets in its reallocation proposal is unclear and should be examined by the AER and benchmarked against other utilities.

#### **15. NEED TO CONSIDER IMPLICATIONS OF BULK DEPLOYMENT ECONOMICS**

Ausgrid has proposed two major bulk luminaire replacement programs to remove up to 44,000 TF2\*20s and high wattage mercury vapour lights in the coming regulatory period and appears to have considered a third possible bulk replacement program for defective CFLs. Similar bulk luminaire replacement programs to replace obsolete TF2\*20s occurred in the last two regulatory periods.

From what SSROC understands of Ausgrid's modelling approach, it only has one installation labour assumption based on the cost of a spot replacement. The AER and Ausgrid should however consider how the cost savings from large bulk deployment programs can be properly reflected in price setting.

Recent bulk luminaire replacement programs in Los Angeles and Las Vegas have achieved installation rates of up to 45 luminaires per day per crew (e.g. multiples of that assumed by Ausgrid). These are no less safety conscious jurisdictions than Australia. Consideration should be given to process improvements that can secure savings for Ausgrid and its customer from bulk deployment.

#### **16. NEED TO CONSIDER IMPLICATIONS OF SHARED ASSETS**

As per a submission by SSROC to the AER on 17 May 2013<sup>19</sup>, dedicated public lighting assets constitute a unique sub-class of public lighting that a single customer, namely the local Council, is fully funding.

Ausgrid has indicated in its RIN on worksheet 3.5 that there are 60,797 dedicated street lighting poles (about 24% of all street lights)<sup>20</sup>.

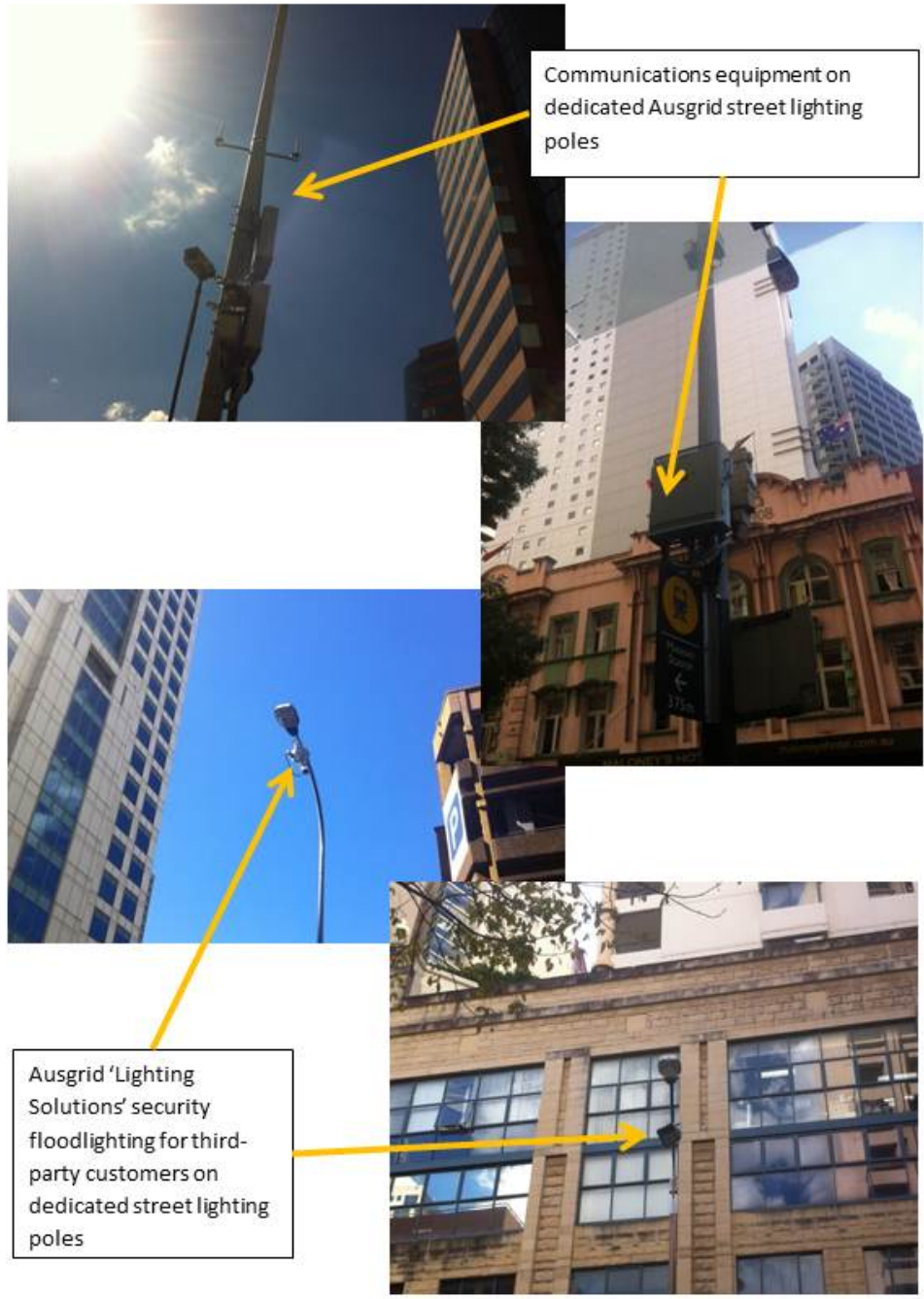
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<sup>19</sup> <http://www.aer.gov.au/sites/default/files/SSROC%20-%20Shared%20asset%20guideline%20submission%20-%2017%20May%202013.pdf>

<sup>20</sup> <http://www.aer.gov.au/sites/default/files/20140619%20Ausgrid%20Consolidated%20RIN%20Template%20Public.XLSX>



Dedicated street lighting poles are being widely used by Ausgrid to support 3rd party telecommunication devices, private lighting and other services being operated as unregulated services (see sample pictures below from Sydney CBD).



Dedicated public lighting capital charges paid by councils cover 100% of the capital costs of these assets as well as installation labour, maintenance and DNSP overheads. Alternatively, councils may have fully funded the capital costs of these assets at installation (e.g. under Tariff 2 or Tariff 4). As

such, dedicated public lighting assets constitute a unique sub-class of assets with one specific customer fully funding their presence on the network.

As the councils are fully funding these shared assets, they should reasonably be entitled to either reduced capital charges (as assessed by the AER in this determination) or alternatively, the majority of unregulated revenue derived from the 3<sup>rd</sup> party assets mounted on the poles they are fully funding.

As it stands, Ausgrid is not discounting capital costs for these dedicated lighting assets, not sharing any of the revenue they generate from 3rd party assets mounted on these poles and do not appear to have sought the consent of the councils for the placement of 3rd party assets on these poles.

Should you have any questions about this submission, please contact me on 02 9330 6455 and [hs@ssroc.nsw.gov.au](mailto:hs@ssroc.nsw.gov.au) or Graham Mawer on 02 8966 9444 and [gmawer@nextenergy.com.au](mailto:gmawer@nextenergy.com.au).

Yours Sincerely,

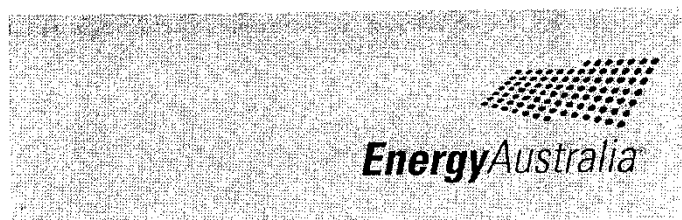
A handwritten signature in black ink that reads "Helen Sloan". The signature is written in a cursive, slightly slanted style.

Helen Sloan  
Acting General Manager

*Cc: SLI Program Councils*

## APPENDIX 1 – Sample TF2\*20 letter to council General Managers 27 July 2010

570 George Street  
Sydney NSW 2000  
  
Address all mail to  
GPO Box 4009 Sydney  
NSW 2001 Australia  
  
Telephone +61 13 15 25  
Facsimile +61 2 9269 2830



27<sup>th</sup> July 2010

[REDACTED]  
General Manager  
[REDACTED] Council

Dear [REDACTED]

### Approved 2010-11 public lighting service charges

As you may be aware the Australian Energy Regulator (AER) recently released its final determination for public lighting services. More recently, the AER has also approved EnergyAustralia's public lighting service charges for 2010-11. This has resulted in an average 50% increase in public lighting costs to Councils from 1 July 2010 which includes a catch-up amount determined by the AER.

As a result of the AER decision, there will be two schedules of prices. One for assets constructed and installed before 1<sup>st</sup> July 2009 and another for assets constructed and installed after 30<sup>th</sup> June 2009.

The Annual Public Lighting Service Charges for 2010/11, for assets constructed and installed before 1<sup>st</sup> July 2009 for [REDACTED] Council is \$419,254.53, and is effective from 1 July 2010.

The Annual Public Lighting Charges for 2010/11 for assets constructed and installed after 30<sup>th</sup> June 2009 is available on EnergyAustralia's website at [www.energyaustralia.com.au/Common/Network-Supply-and-Services/Electricity-supply/Network-prices.aspx](http://www.energyaustralia.com.au/Common/Network-Supply-and-Services/Electricity-supply/Network-prices.aspx)

The maintenance charges are uniform for both schedules and are also available on the abovementioned website.

### New proposal for replacement of Twin20 luminaires

EnergyAustralia is also offering to assist councils in the replacement of Twin20 luminaires across its area. In the past, if councils request these lights to be replaced, they have been required to pay any residual amounts owing on each light.

EnergyAustralia is now offering to waive any residual amounts owing if council agree to the replacement of the Twin20 luminaires with a new energy efficient light – either the 42Watt CFL or 28Watt T5.

This is a collective write off of about \$12.3 million across the remaining Twin20 luminaires. It will also result in a reduction of ongoing maintenance charges.

As per standard practice, councils will pay no up front charge for the replacement light, but will continue to pay an annual capital and maintenance charge for the new luminaires

EnergyAustralia will be writing to Councils with Twin20 luminaries in the near future to explain this offer and the amount of residual that will be waived.

**Changes to the way residual payments are made on replaced assets**

In the past, councils were required to pay the residual amount owing on an asset at the time it approved the early replacement of that public lighting asset. Under the AER determination, this now changes.

EnergyAustralia will still seek Council approval on projects, however EnergyAustralia will invoice councils for residual payments owing at the end of the financial year. It is advisable that Council keep a tab on all projects that you approve to determine the total residual costs for the financial year that will have to be paid when the invoice is issued at the end of the financial year.

Please contact Shobha Nambiar on (02) 9272 6227 in our Street Lighting Team if you have any question about this or other pricing issues.

Should you have any other questions please do not hesitate to contact me directly on (02) 8001 3339. If you require any further information relating to public lighting electricity tariffs please contact your nominated energy retailer.

Yours sincerely,



Phil Mckee  
Manager - Street Lighting