

4 February 2019

Submission prepared  
for  
North Western Councils

in relation to

Essential Energy's Revised Regulatory Proposal  
Public Lighting  
Regulatory Period 2019 – 24



## Contents

1	Engagement .....	3
2	Introduction .....	4
3	Executive Summary .....	5
4	Issues Raised by OROC and Responded to by the AER and EE .....	6
4.1	AER 1 – Life of wood poles and steel columns .....	6
4.2	AER 2 – The AER should not approve the costs associated with the removal of stranded assets .....	6
4.2.1	Removal of control wire .....	6
4.2.2	Redundant Choke Boxes .....	8
4.3	AER 3 – CAT V Night Patrol Costs .....	9
4.4	AER 4 – Incorrect labour hours per spot repair and replacement – Opex Input Sheet .....	10
4.5	AER 5 – Comparison on luminaire opex costs between Essential Energy and Endeavour proposed prizes for 2019-20 .....	10
4.6	AER 6 – Other maintenance costs \$155,124 in cell C351 of “opex input” sheet of attachment 17.5 is incorrect .....	10
4.7	AER 7 – Similar to issue AER 4, but affecting non-PE cell callouts and non-lamp labour .....	11
4.8	AER 8 – “Other Maintenance” - Non-PE cell and non-lamp related labour costs (7489 attendances in Cell C356 on opex input sheet) applied evenly across luminaire technology .....	11
4.9	AER 9 – Opex Input sheet cell C382 shows additional material costs for bulk replacement .....	14
4.10	AER 10 – Pole design cost “capex input” sheet cell G45 (cell G46 in revised model). Secondly Merging of Tariff class 3 and 5 to new capital charge is not clear in the public lighting proposal .....	14
4.10.1	AER 10A - Pole design cost “capex input” sheet G45 (cell G46 in revised model) .....	14
4.10.2	AER 10B - Merging of Tariff class 3 and 5 to new capital charge is not clear in the public lighting proposal .....	17
4.11	AER 11 – Very high failure rate of 70W HPS lamps .....	17
4.12	AER 12 – Impact analysis tool for new tariff structure .....	20
5	Additional Issues with EE’s Revised Proposal .....	21
5.1	AER 13 - Bulk Lamp Replacement .....	21
5.2	AER 14 - LED Maintenance Only Tariff rates .....	22
5.3	AER 15 - Corporate Overheads .....	24
6	Appendix 1 – Gerard Lighting lamp survival data supplied by EE .....	26
7	Appendix 2 – EE Email of estimated External & Internal Ignitor Luminaires for 70W HPS .....	27



## 1 Engagement

Energy and Management Services (EMS) have been engaged by the Western Councils of NSW listed below to respond collectively to the Revised Regulatory Proposal submitted by Essential Energy in relation to public lighting. Specifically, we refer to the following attachments to EE's Revised Regulatory Proposal, submitted to the AER on 8<sup>th</sup> January 2019 including:

- Attachment 13.1 - Revised Regulatory Proposal – Public Lighting Proposal; and
- Attachment 13.2 – Public Lighting Model – December 2018

Clients for whom this submission is prepared:

<p>Orana Joint Organisation of Councils including:</p> <ul style="list-style-type: none"><li>○ Bogan Shire Council</li><li>○ Gilgandra Shire Council</li><li>○ Mid-Western Regional Council</li><li>○ Narromine Shire Council</li><li>○ Warren Shire Council</li><li>○ Warrumbungle Shire Council</li></ul> <p>Far West Joint Organisation of Councils including:</p> <ul style="list-style-type: none"><li>○ Bourke Shire Council</li><li>○ Cobar Shire Council</li><li>○ Walgett Shire Council</li></ul>	<p>Non JOC Councils including:</p> <ul style="list-style-type: none"><li>○ Coonamble Shire Council</li><li>○ Brewarrina Shire Council</li></ul>
--	---



## 2 Introduction

Energy and Management Services (EMS) were engaged by the then Orana Regional Organisation of Councils (OROC) <sup>1</sup> to provide analysis and a response to the Essential Energy (EE) Draft Proposal for Public Lighting. The AER have since considered the Draft Proposal and issued their Draft Decision. Subsequently EE submitted its Final Proposal on the 8<sup>th</sup> of January 2019.

The EMS response, “*Essential Energy’s Public Lighting Proposal for the Regulatory Period 2019 – 24*” prepared and submitted by us argued for a material reduction in Street Light Use of System (SLUOS) charges. Based on the AER’s Draft Decision, the EMS response provided significant evidence and argument that informed the AER’s evaluation such that the Draft Decision of the AER, based on the current lighting inventory would be approximately 20% lower than the Draft Proposal of EE.

The Final Proposal submitted by EE accepted much of the argument made by EMS in our report on their Draft Proposal and during five review meetings held with EE to shape their Revised Regulatory Proposal. EE has also accepted much of the AER’s Draft Decision, rejected some components and in the case of Corporate Overheads included a further significant step change increasing these from 50.36% to 65.77%. This significant increase in Overheads above the already high starting point of 50.36% has reduced the savings on the current inventory basis to approximately 13.4%.

The proposed overheads at Essential mean that for every \$1000.00 spent on direct costs (including stores and labour on costs) EE is proposing that they have indirect corporate costs of \$657.70 which compares poorly with other distributors supplying similar services.

This report, “*Submission prepared for North Western Councils in relation to Essential Energy’s Revised Regulatory Proposal - Public Lighting Regulatory Period 2019 – 24*” reviews both the EE Revised Proposal and the AER’s Draft Decision relating to the provision of Public Lighting, in particular the proposed charges to ensure that they align with the efficient delivery of Public Lighting Services. Unlike our report for the EE Draft Proposal it does not include and restate non-regulatory matters more appropriately dealt with by EE’s Street Lighting Consultative Committee (SLCC). Council members of EE’s SLCC are encouraged to table the matters listed in our prior report at the next SLCC meeting to collaboratively contribute to the improvement of asset management relating to Public Lighting which member Councils fund.

This report will principally address:

- Issues Raised by OROC and Responded to by the AER in their Draft Determination in Section 4;
- The EE response to the AER’s Draft Determination also in Section 4; and
- Additional Issues identified with EE’s Revised Regulatory Proposal, Section 5.

---

<sup>1</sup> OROC ceased to operate in late 2018 when the NSW Government replaced the then Regional Organisation of Councils with new Joint Operating Council (JOC) organisations



### 3 Executive Summary

This submission details a review of the AER's Draft Determination of the Essential Energy 2019-24 Regulatory Proposal for Public Lighting and EE's Revised Regulatory Proposal. The report has identified details that will assist the AER to make their Final Determination of Essential Energy's Revised Proposal.

Through engagement with EE and the AER we have contributed to improvement in EE's proposal however, there remain several areas which if not dealt with will allow less than efficient tariff charging to continue. These areas are summarised in **Table 1** below for the attention of the AER in making their Final Determination:

**Table 1** – Areas for further consideration by the AER

Ref	Focus Area
AER 2	Costs associated with the removal of control wire is standard control and removal of choke boxes is due to prior poor work practice. Both should be rejected in the Final Determination
AER 8	A standard "Other Maintenance" (non-lamp and non PE-cell) across all technologies including modern LED technology of 4.77% overstates the "Other Maintenance" failure rate of a modern LED fleet resulting in cross subsidies and uneconomic drivers. EE should be required as a minimum to apply separate rates to conventional technologies and modern LED technology
AER 10A	Design costs for Pole Replacement have not been established by EE and should be rejected in the Final Determination
AER 10B	The AER should require EE to prepare analysis that compares the existing capital only component of Tariffs T3, T5 and the new proposed blended tariff for all components under the new component tariff model with current population and by Council to ensure that there is no over recovery or adversely impacted Council
AER 11	The AER should review EE's proposed 70W HPS lamp failure rate of 10.88% and substitute with the manufactures survival rates weighted between External and Internal Ignitor installations calculated at 5.0%
AER 13	The AER is requested to review EE's unit rate for the standard activity of bulk lamp replacement as it is materially higher than that of comparable distributors. The Powercor distribution area being similar in nature to EE's may be a suitable benchmark at approximately \$32 rather than the EE claimed XXXX
AER 14	The AER is requested to review EE's maintenance only charges for modern LED installations. For CAT P installations EE's proposed charge is \$38.21 compared to an average of their peers of \$22.74. This is largely contributed to by comparatively high corporate overheads (AER 15) compared to peers and an "Other Maintenance" failure rate (AER 8) for LED technology which is overstated at 4.77% due to the use of an average across all technologies
AER 15	The AER is requested to review EE's Overhead Rates which are well outside their peers and are driving a high cost to provide Public Lighting Services. A rate similar to Ausgrid at 33% or EE's current determined rate of 35% would be more aligned with their industry peers and that of an efficient operator



## 4 Issues Raised by OROC and Responded to by the AER and EE

For clarity the matters raised by the OROC submission, dealt with by the AER in their Draft Determination and responded to by EE in their Revised Regulatory Proposal are addressed below referenced with the same AER issue numbers used in our original report for OROC. This report details our response and recommendations to the AER.

### 4.1 AER 1 – Life of wood poles and steel columns

The AER and EE have proposed to continue the use of 35 years as the economic life of wood poles and steel columns. We accept that although this understates the engineering life that 35 years is appropriate for the economic life for EE to recover their investment through capital tariffs.

#### AER 1 – No action required

### 4.2 AER 2 – The AER should not approve the costs associated with the removal of stranded assets

The EE Public Lighting Asset Management Plan (AMP) lists four safety initiatives including:

- Removal of control wire
- Redundant choke boxes
- Redundant control boxes – Nil SLUOS cost
- Pot belly and triangular columns – Nil SLUOS cost

#### 4.2.1 Removal of control wire

We do not agree that the costs of removal of the stranded control wire should be recovered through Streetlight Use of System (SLUOS) charges.

The tariff model includes an allowance for the removal of 20km per year at \$15,000 per km (\$24,865 with overheads) built into the maintenance charge for each luminaire. This amounts to a contribution from public lighting customers of some \$2.49M over the regulatory period and will only remove an estimated 5%<sup>2</sup> of the control wire that is in service. Full removal over time of all control wire at the proposed rate will cost customers \$49.7M. We do not contest the need for the removal of some aged control wire however and note EE's intention to undertake further risk analysis which at present is not evident in their publicly available Public Lighting documents.

Control wires have traditionally been considered as part of the general low voltage network being bare overhead conductors intermixed with standard distribution mains on standard distribution poles and often sharing cross arm supports with distribution mains. Control wires are also used to connect security lighting for private properties which is not Public Lighting. There is no historical evidence in Essential Energy's prior regulatory submissions or tariff

---

<sup>2</sup> Essential Energy provided the estimate of 2,000km of control wire at a meeting to review the tariff model on the 30<sup>th</sup> of July 2018



charging models to indicate that these control wires are not included in the Standard Control regulatory asset base along with the general low voltage distribution network. It is argued that this is the case and what is proposed is a cost shifting exercise where the costs have traditionally been incurred and hence charged for as Standard Control. EE in their Revised Regulator Proposal state:

*“ .....cost of installation of dedicated control wire was most likely recovered through the equivalent of standard control services historically .....”<sup>3</sup>*

In such circumstances the control wire would appear to be embedded in the standard control RAB not the Alternate Control RAB and what EE are proposing is a change in treatment.

A review of the current Ausgrid determination shows that control wires are listed as “Dedicated low Voltage Circuits” at section 3 of Attachment 5.13.C “Project justifications for overhead conductors replacement programs” as submitted by Ausgrid in their Draft Proposal. The programme description is extracted from the Ausgrid attachment below:

*“Ausgrid has initiated a program to reconfigure supply arrangements for dedicated LV overhead circuits supplying street lights by improving the functionality of the LV network. This program has been introduced to mitigate public safety risks associated with superseded circuit configurations. Ausgrid has one program related to this replacement:*

- *Dedicated LV circuit reconfiguration program (DOC\_11.03.73).*

*This program commenced in 2017/18 and will continue into subsequent regulatory periods. This program is expected to reconfigure 2,900km of overhead mains at a total cost of \$42.9 million during the 2019-24 regulatory period.”<sup>4</sup>*

Further at Attachment 5.02.1 “Master list of Ausgrid forecast capex portfolio” the Dedicated LV Circuit Reconfiguration (removal of control wire) is listed as “Standard Control” not “Alternate Control” as proposed by Essential Energy. **Figure 1** below is an extract from Ausgrid Attachment 5.02.01.<sup>5</sup>

DOC_11.03.73	DOC Dedicated LV Circuit Reconfiguration			1 - Planned	Compliance
REP & DOC	Replacement	Standard Control	N/A	LV Distribution Mains	

**Figure 1:** Extract from Ausgrid capex portfolio document 5.02.1 showing control wire as Standard Control

<sup>3</sup> Essential Revised Regulatory Proposal – Attachment 13.1 – Public Lighting Proposal – Section 3.2 page 4

<sup>4</sup> Ausgrid Regulatory Proposal – Attachment 5.13.C – Project justifications for overhead conductors replacement programs – page 13

<sup>5</sup> Ausgrid Regulatory Proposal – Attachment 5.02.01 – Master list of Ausgrid forecast capex portfolio – page 6



A review of both the Endeavour and Ausgrid pricing models could find no reference to applying the costs of control wire removal to Public Lighting Tariffs. It is argued that the Essential Energy approach is not appropriate for the following reasons:

- The control wire has not been traditionally included as part of the Public Lighting regulatory asset base (RAB);
- EE benefits and will continue to benefit from the control wire being under the Standard Control RAB;
- There is no prior history of EE ever treating the control wire as Alternate Control in relation to tariff charges. The inherent costs of management of the control wire are therefore built into the Standard Control cost base;
- Allowing EE to change the approach will result in “double dipping” of regulatory allowances;
- Ausgrid by example are treating the control wire as Standard Control;
- Control Wire is also used to supply Security Lighting not associated with Public Lighting and such is not dedicated to Public Lighting; and
- Control Wire is intermixed with low voltage distribution mains with the separation of costs and allocation directly to Public Lighting being not possible as has been determined by the Ausgrid approach.

Should the AER determine that Public Lighting customers are to fund the removal of the control wire then some consideration of the cost is required. As proposed the cost is \$15,000 direct per km and with Corporate Overheads of 65.77% the cost to Public Lighting Customers is \$24,865 per km. For removal of the estimated 2,000 km's in service the total cost will be \$49.7M. If approved the unit rate should be reviewed since:

- The unit rate of \$15,000 direct seems somewhat arbitrary indicating that the unit rate may not be robust and efficient;
- Ausgrid have a similar unit rate for removal of control wire of \$14,937 to \$14,721 direct however in the case of Ausgrid the control wire is typically above the low voltage mains rather than below or beside as is the case at EE which would require significantly less effort to remove;
- With corporate overheads as calculated in the EE model it incurs a total cost of \$24,865 per km; and
- Would, as proposed require 6 employees full time for a week to remove a control wire typically from 20 poles per km which seems an excessive allocation of resources to achieve such a small activity.

#### 4.2.2 Redundant Choke Boxes

We do not agree with EE that they should be funded to remove redundant choke boxes. While the expense is minor, they are components left in service due to poor workpractice at the time that the luminaires were replaced. Removed





at the time of luminaire replacement the cost would have been nil. Although this is a minimal annual cost at \$4,060 plus Corporate Overheads (total \$6,730) it should be a cost borne by Essential Energy as it is essentially a clean-up of poor execution at an earlier point in time that a prudent operator would not be exposed to.

**AER 2 - The AER are requested to reconsider the acceptance of the following safety programmes in the Essential Energy Tariff Model Proposal:**

- *The charges to remove control wire at an annual cost of \$300,000 direct (\$497,310 including corporate overheads)*
- *The charges to remove stranded choke boxes at an annual cost of \$4,060 (\$6,730 including Corporate Overheads)*

#### 4.3 AER 3 – CAT V Night Patrol Costs

In our review for the OROC response we argued that EE's proposal of \$360,860 direct for the undertaking of CAT V Night Patrols was materially excessive. The AER accepted the proposed cost and requested that EE undertake further discussions with stakeholders. EE had several discussions with us, and they determined that their proposed cost was incorrect and reduced the direct cost from \$360,860 direct (\$598,197 with Overheads) to \$195,468 direct (\$324,027 with Overheads).

Based on the AER Draft Determination and EE's Revised Proposal our concern has been misinterpreted to be that we wanted CAT P to attract night patrol costs. This is not the case. We used some examples to indicate that given the source code reported against many CAT P installation faults it was likely that the cost number was being misused and the underlying cost assumption was wrong.

EE's investigation has shown that the cost number was misused with repairs being allocated to the cost number inflating the cost which they have reviewed and reduced. We remain concerned that the cost is still high. EE partly explained this by the use of two-person crews where our calculations were for single person crews. We compared EE's Revised Proposal to our revised base build with two-person crews and while our base build is lower at \$147,000 it is not materially so. While we question the need for two-person crews in smaller rural towns we are prepared to accept EE's Revised Proposal of \$195,468 (Direct).

**AER 3 – No action required**



#### 4.4 **AER 4 – Incorrect labour hours per spot repair and replacement – Opex Input Sheet**

EE in their Draft proposal used 2.2 labour hours per spot repair in their model and in their Draft Proposal document used two values being 1.9 labour hours and 1.64 labour hours. The 1.64 labour hours was due to a proposed initiative supported by Councils to batch repairs to 2.74 repairs per mobilisation.

The EE Revised Proposal uses the 1.64 hours per repair (2.74 repairs per mobilisation) as recommended in our report for OROC. EE note in their Revised Proposal that this reduces revenue approximately \$1 million annually.

- **AER 4 – The AER in considering spot repair hours should Accept EE’s proposed 1.64 hours per repair**

#### 4.5 **AER 5 – Comparison on luminaire opex costs between Essential Energy and Endeavour proposed prizes for 2019-20**

This matter was raised in the OROC report in relation to the high failure rate of EE’s 70W HPS luminaires to highlight the high cost base of these installations. The AER has subsequently reduced the lamp failure rate and EE has accepted this position. The high failure rate is discussed further at **AER 11**.

**AER 5 – No action required**

#### 4.6 **AER 6 – Other maintenance costs \$155,124 in cell C351 of “opex input” sheet of attachment 17.5 is incorrect**

EE provided in their draft proposal a cost of \$155,124 for materials associated with “Other Maintenance”. The listing of materials provided was almost all not related to lighting maintenance with only \$4,063 being relevant materials. EE in its Revised Proposal acknowledged that the materials listing was not appropriate in its entirety. EE have submitted a new listing in their Revised Proposal totalling \$31,275.76 (Direct). The materials have been reviewed and they are considered appropriate in type and reasonable in volume.

**AER 6 – We have no objection to the incorporation of the revised “Other Maintenance” materials at a total cost of \$31,275.76 being incorporated into the tariff model**



#### 4.7 AER 7 – Similar to issue AER 4, but affecting non-PE cell callouts and non-lamp labour

This issue is similar to AER 4 where for spot repairs non-PE Cell and non-lamp related each failure is costed at the spot attendance rate in regard to labour and plant. EE in their Draft proposal used 2.2 labour hours per spot repair in their model and in their Draft Proposal document used two values being 1.9 labour hours and 1.64 labour hours. The 1.64 labour hours was due to a proposed initiative supported by Councils to batch repairs to 2.74 repairs per mobilisation.

The EE Revised Proposal uses the 1.64 hours per repair (2.74 repairs per mobilisation) as recommended in our report for OROC.

- **AER 7 – The AER in considering spot repair hours should Accept EE’s proposed 1.64 hours per repair**

#### 4.8 AER 8 – “Other Maintenance” - Non-PE cell and non-lamp related labour costs (7489 attendances in Cell C356 on opex input sheet) applied evenly across luminaire technology

The “Other Maintenance - Callouts non-lamp and non-PE Cell related” is material in the proposed maintenance component of the Draft Proposal Luminaire tariffs at \$1,355,315 direct. In EE’s Revised Proposal this has reduced to \$1,010,326 due to a general reduction in the cost of spot maintenance after EE corrected an error in the Draft Proposal Model subsequently increasing the repairs per mobilisation from an average of 1.5 to 2.74 resulting in a reduction in labour hours per repair.

While the reduction in cost is helpful the allowance has been applied as a simple rate equal across the luminaire population regardless of technology and amounts to an additional attendance rate of 4.77% per annum. This lifts the unweighted average failure rates in the “OPEX Calc” sheet and is a material addition and of concern in that it has not been applied based on technology to drive appropriate investment decisions.

The additional failure rate has been applied equally to new LED technology which would be expected to have lesser incidences of these additional attendances compared to an aged fleet which is likely driving the high additional attendance rate. In several meetings with EE this matter was raised and minuted. When the Revised Proposal model was supplied with no variance on the common rate of 4.77% for all technologies EE were requested to supply failure data by technology and additional evidence of how the 7,489 attendances were calculated. At the time of writing EE had not provided the requested data, likely because it does show a material difference by technology and likely because modern LED installations are showing far lower additional (non-lamp and non-PE cell) failures rates.

EE’s response was sent by email on 23<sup>rd</sup> January 2018 in a spreadsheet with the following comment:

*“Essentials view is that smearing this particular cost equally across all luminaire types enables Essential to consistently recover costs associated with Other Maintenance in the fairest way. It is Essentials opinion that*



*applying Other Maintenance by technology type simply increases tariffs associated with luminaires that form part of future replacement programs and would leave little to no allowance for Other Maintenance for new luminaires in the future.”*

“.....Smearing this particular cost.....” indicates a non-cost reflective approach which does not signal to customers the most effective investment strategy. Applied by Technology it would allocate higher costs to those luminaires which form part of future replacement programmes correctly in that they are being replaced in part due to lesser performance in this regard to modern technology installations.

It is this application of a standard additional failure rate which is high at 4.77%, by comparison Ausgrid use 3.26%<sup>6</sup>, that drives EE’s maintenance only charges on LED luminaires higher than typical of other distributors. Specifics around this additional failure rate for modern LED technology luminaires is also dealt with at AER 14 of this report where it is shown that EE’s proposed LED tariff rate is higher than industry benchmarks.

EE state in their Revised Proposal that:

*“In further support of our calculations, it is worth noting that the typical sources of these faults include damage to visors through vandalism, supply issues due to fuses failing or underground cable supply failures, and damage to wiring from weather events. We acknowledge OROC’s position that older technology will fail at a higher rate than new technology. However, modelling is by technology type rather than age, so applying a lower failure rate to LEDs compared to for example Mercury Vapour luminaires on the assumption that LEDs are newer does not allow for accurate recovery of these costs as LEDs age.”<sup>7</sup>*

We suggest that EE’s position is incorrect for the following reasons:

- In EE’s Revised Proposal they state that modern LED luminaires have a life of 10 years whereas traditional technologies are exposed to the elements for twice the period with a life of 20 years. With fewer years exposure to the elements wiring, diffusers and seals will become less degraded and failure rates will be lower;
- Modern LED luminaires are not subject to removal of diffusers for lamp replacement such that there is far less chance of seal and clip damage allowing the ingress of moisture, dust and insects;
- As diffusers are only exposed for half the life of traditional luminaires they will be less prone to diffusers becoming brittle from UV degradation and provide superior resistance to vandalism;
- For the most common luminaires, CAT P, EE’s specification for diffusers on modern LED technology requires an impact rating to EN50102<sup>8</sup> of IK08 compared to a traditional Gerard 70W HPS luminaire<sup>9</sup> with

---

<sup>6</sup> Ausgrid Regulatory Proposal – Attachment 8.11 – Public Lighting Investment Plan – Table 5 page 10

<sup>7</sup> Essential Energy Attachment 13.1 – Revised Regulatory Proposal – Public Lighting Proposal – page 6

<sup>8</sup> EN 50102 – European standard for Degrees of protection provided by enclosures for electrical equipment against external mechanical impact (IK code)

<sup>9</sup> EE Item number 502025 from their approved materials listing CEOM7004 – Gerard Lighting Suburban Series Data Sheet



an impact rating of IK07. An IK08 rating to Standard EN 50102 provides protection against 5 joules impact compared to an IK07 rating which only provides protection against 2 joules impact. The difference is a material in relation to vandalism and other impact damage typically associated with “Other Maintenance” failures;

- For the most common luminaires, CAT P, EE’s specification for Modern LED’s for ingress of moisture and solid particles on modern LED technology requires an IEC 60529<sup>10</sup> rating of IP66 for the optical chamber compared to a traditional Gerard 70W HPS luminaire<sup>11</sup> with an IP rating of IP64. A rating of IP66 to Standard IEC 60529 provides protection such that the luminaire is dust tight and prevents the entry of water under a powerful jet compared to an IP64 rating which only provides protection against objects over 1mm and splashing water. The difference is material in relation to aging of non-lamp and non-PEC cell failures attributed to “Other Maintenance” by EE; and
- On installation the wiring of new LED installations is renewed where required and as the life of the luminaire is half of a traditional luminaire this renewal opportunity ensures an improved average service condition compared to traditional luminaires which is less prone to failure from exposure to the elements over time.

In our discussions with EE over this matter they indicated that they were reluctant to apply the “Other Maintenance” rates by technology as over time the failure rates of LED technology may degrade. Our position is that every 5 years they will have the opportunity to review the failure rates and apply rates that are being experienced. Further there is no reason in the case of LED installations they could not review the existing 15,000 installations for performance to date and apply some reasonable allowance for future performance degradation based on the average age of the technology in service over the regulatory period. There is no evidence that EE has conducted such analysis.

In summary EE have taken a simplistic approach to the application of “Other Maintenance” that overstates the failure rate leading to higher charges for the modern technology effectively providing a cross subsidy that will act to discourage the replacement of the aged inefficient technology with a modern efficient technology. Such an approach does not comply with prudent asset management nor the objectives of the National Electricity Rules.

**AER 8 - The AER should require EE to provide the current “Other Maintenance” failure rates by technology and as a minimum require the application of “Other Maintenance” failure rates split by traditional technologies and modern LED technology. Should EE not be able to provide the LED technology failure rate the AER should consider determining a “Other Maintenance” failure rate of 2% for this technology in lieu of the EE proposed 4.77%**

<sup>10</sup> IEC 60529 – International Standard for Degrees of protection provided by enclosures (IP Code)

<sup>11</sup> EE Item number 502025 from their approved materials listing CEOM7004 – Gerard Lighting Suburban Series Data Sheet



#### 4.9 AER 9 – Opex Input sheet cell C382 shows additional material costs for bulk replacement

EE's Draft Proposal included an allowance for "bulk maintenance additional materials" of \$310,885 (Direct). In our report for OROC we argued that we considered this allowance doubtful and noted that EE were not able to provide a listing of the materials used. The AER in their Draft Determination disallowed this cost.

In their Revised Proposal EE have agreed that this cost is invalid and not related to bulk maintenance but rather expenditure related to capital associated with new installations more correctly recovered through capital tariffs

- **AER 9 – The AER in considering additional material costs for spot repairs should approve EE's Revised Proposal of \$ Nil cost**

#### 4.10 AER 10 – Pole design cost "capex input" sheet cell G45 (cell G46 in revised model). Secondly Merging of Tariff class 3 and 5 to new capital charge is not clear in the public lighting proposal

##### 4.10.1 AER 10A - Pole design cost "capex input" sheet G45 (cell G46 in revised model)

In our proposal to the AER for OROC we provided argument that the design costs allocated for pole replacement on capital tariffs could not be substantiated by EE and should be removed from the capital tariff base build. Our argument centred around these be simple like for like replacement when poles or columns are condemned and deemed no longer serviceable. The AER in their Draft Determination agreed with our argument and removed these costs from the tariff model.

We have had several discussions with EE regarding these costs. Initially EE claimed that they were valid for all pole replacements however on further review have modified their claim deleting pole design costs from standard steel columns between 7.5m and 9.0m but retaining for all other columns and timber poles. In their Revised Proposal EE have claimed:

*"The pole design costs are associated with the electrical, construction and lighting design work involved in **installing** non-contestable dedicated lighting columns. This work is significant and often involves negotiations with councils and can involve several Essential Energy staff. We acknowledge that this does not occur in all cases, however a cost recovery mechanism needs to be in place for when it does."*

The word installing has been highlighted because where a new installation is deemed "non-contestable" for network reasons the cost, including design cost should be passed onto the proponent or person that has necessitated the need for the works. It should not be passed onto Councils through capital tariffs.

EE provided us with two examples that show they were required to expend design effort:

- Bray Street Coffs Harbour – This installation involved the replacement of a shared pole that carried road crossing mains to a school and a luminaire. There was a project to upgrade the mains crossing necessitating the replacement of the existing timber pole with a larger pole and the transfer of the existing luminaire to the new pole. A photograph provided by EE is shown below in **Figure 2**.



**Figure 2** – Bray Street Coffs Harbour – New road crossing pole inserted behind existing road crossing pole

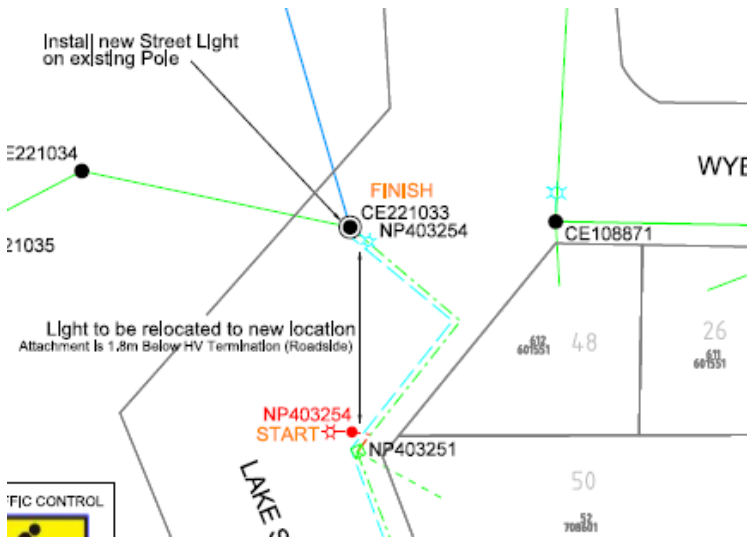
The photograph clearly shows the old road crossing pole with mains still attached and underground service to the local school attached. A new higher rated pole has been installed behind the existing pole and larger street crossing mains run. In an additional photograph supplied by EE it shows the schools UG service on the pole in a broken asbestos pipe. It is apparent that the new pole was installed, larger street mains (ABC run) and new UG service connected for the school.

Project details provided by EE indicate some concern over the management of the asbestos pipe on the pole unrelated to the lighting installation. In this circumstance if there was any design effort involved for the pole structure or in relocating the light to the new pole that is clearly a cost and design effort that is the responsibility of the proponent of the new work and not a cost which Councils should be responsible for.

- Lake Street Merrimbla – The drawing provided by EE associated with this project involved the removal of a “newly installed” column NP403254 with the associated Street Light to be relocated to existing pole CE221033. The combination of the drawing in **Figure 4** and the notes in **Figure 3** clearly indicate that this project has nothing to do with pole or column replacement and all costs, including pole and lighting design costs should be recovered from the proponent of the works that required column NP403254 to be removed

OVERHEAD CONSTRUCTION SCHEDULE			
PEG NO.	ASSET NO.	CEOM CEM.NO.	CONSTRUCTION NOTES
Existing Column	NP403254		Recover Newly Installed Street Light Column & Footing Existing Light Fitting to be Relocated to Pole CE221033
Existing Pillar	NP403251		Disconnect Street Light Supply - Remove U/G Cables
Existing Pole	CE221033	7107.03	Install Street Lighting Using PE Control
		7107.05	Install 2m Outreach (CE6) Bracket
		7206.05	Relocate 17W LED Luminaire - 17W Street LED with Aeroscreen Style

**Figure 3** – Overhead Construction Schedule from EE Drawing 755597 – Remove street light pole complete – Lake Street Merimbla



**Figure 4** – Extract from EE drawing 755597 – Remove street light pole complete – Lake Street Merimbula

On receipt of the two examples that EE supplied they were emailed on 20<sup>th</sup> November 2018 and requested to supply two further examples where they believed they incurred design costs for pole replacement. At the time of writing this report no further examples had been provided by EE.

The EE Revised Proposal also includes the following statement with bold added for clarity:

*“We have reviewed these charges and reduced the baseline charge from \$518.88 to \$448.56. Furthermore, the charge has been removed from smaller steel support types that would typically be used for Category P installations and therefore **applies only to Essential Energy funded Category V and decorative steel support installations**. In some circumstance’s customers may fund new installations. **Where design works are undertaken by us for these installations, recovery of costs will be through regulated ancillary charges.**”*

There are two points that can be taken from the statement above:

- While EE have removed the charge for typical Category P steel supports the assertion that the charge therefore only applies to Category V and decorative columns is incorrect in that many small timber poles 9.5m and 11.0m are used for dedicated support of Category P lighting and the Revised Model still carries this cost; and
- More importantly EE’s statement is correct in that *“where design works are undertaken by us for these installations, recovery of costs will be through regulated ancillary charges”* is the correct approach and the approach is equally valid for all lighting supports regardless of lighting category or material.

EE in several discussions and by email have been given the opportunity to evidence that they are incurring the design costs allocated to poles in their Revised Proposal tariff model, but they have been unable to. It remains our position that the charges are not valid to be levied on Councils through SLUOS and the costs if they do occur in rare circumstances should be recovered through ancillary charges.





- **AER 10A – The AER in considering the capital build of EE’s Tariff Model should reject all costs associated with design effort for pole replacement at cells I55 to I70 in sheet “Capex Build Up”**

#### 4.10.2 AER 10B - Merging of Tariff class 3 and 5 to new capital charge is not clear in the public lighting proposal

At a meeting to discuss the tariff charging model on Monday the 30<sup>th</sup> of July Essential Energy indicated an intention to incorporate the existing capital tariffs of type 3 and 5 into the new capital tariff charge. This change is not evident in the Draft Proposal or tariff model. If the existing type 3 and 5 tariffs are to be merged into a new capital tariff Essential Energy should be required to provide this analysis to ensure that customers are not disadvantaged by the change.

We agree with EE that the merging of the old T3 and T5 tariffs into the new capital tariff will reduce complexity and administration costs. At the time of writing this report EE had supplied some data although it was not in a form that it was possible to evaluate the impact of the change. Further detail was requested on 23<sup>rd</sup> January 2019 such that it is possible to assess the impact by tariff, total population and Council effected.

**AER 10B - The AER should require EE to prepare analysis that compares the existing capital only component of Tariffs T3, T5 and the new proposed blended tariff for all components under the new component tariff model with current population and by Council.**

#### 4.11 AER 11 – Very high failure rate of 70W HPS lamps

The EE Draft Proposal included a lamp failure rate of 13.2% for 70W HPS luminaires. In our report for OROC to the AER we claimed this to be excessive. The AER in its Draft Determination reduced this failure rate to 10.88%. In their Revised Proposal EE have agreed to accept the AER’s position. Through discussions with EE we have gained a deeper understanding of the 70W HPS sodium fleet in service and present some additional analysis that shows that even the reduced failure rate of 10.88% is still excessive and requires further reduction.

The EE fleet of 70W HPS luminaires is a mixture of Internal and External Ignitor design. The External Ignitor having the better performing lamp mortality while the Internal Ignitor are older installations with a much higher lamp mortality rate. EE do not have accurate records of which installations are External and Internal Ignitor type and as such the 70W HPS tariff is for a blended rate. During discussions with EE they stated that from maintenance records



and lamp inventory they estimated that External Ignitor luminaires make up 70% of the population and Internal Ignitor 30%. This aligns with anecdotal reports from local maintenance crews.

Essential Energy provided an email response regarding 70W HPS lamp failures attached at **Appendix 2** for information. Extracted from the email is the table in **Figure 5** below of 70W HPS lamp purchases over 5 years from 2014 to 2018.

The first row “Lamp 70W HPS Elliptical” are Internal Ignitor lamps. The 2<sup>nd</sup> row Lamp 70W HPS Elliptical E are the more common External Ignitor type. The 3<sup>rd</sup> row is for the Twin Arc lamp which is on a separate tariff class and not relevant.

From data supplied and discussions with EE a 70/30 split of External to Ignitor luminaires is considered reasonable.

Description	Sum of 2018 (10 mths only)	Sum of 2017	Sum of 2016	Sum of 2015	Sum of 2014	Total usage	% of 70WHPS usage
Lamp 70W HPS Elliptical	1,389	1,089	2,098	2,154	4,314	11,044	28.6%
Lamp 70W HPS Elliptical E"	5,400	4,965	4,149	4,294	8,191	26,999	69.9%
Lamp 70W HPS Twin Arc C/H Elliptical	117	93	30	79	279	598	1.5%
<b>Grand Total</b>	<b>6,906</b>	<b>6,147</b>	<b>6,277</b>	<b>6,527</b>	<b>12,784</b>	<b>38,641</b>	<b>100.0%</b>

**Figure 5** – Extract from EE email showing 70W HPS lamp use Internal and External Ignitor

EE have indicated in their Revised Proposal section 3.11 that:

*“Failure rates of lamps are a function of the lamp technology and the length of time between bulk lamp replacements. We have moved to a 4-year bulk lamp replacement program across our network. Our current LED replacement program is based on installing LEDs in lieu of bulk lamp replacement. This, in some instances, has delayed the bulk lamp replacement which in turn increases the lamp spot failure rate.”<sup>12</sup>*

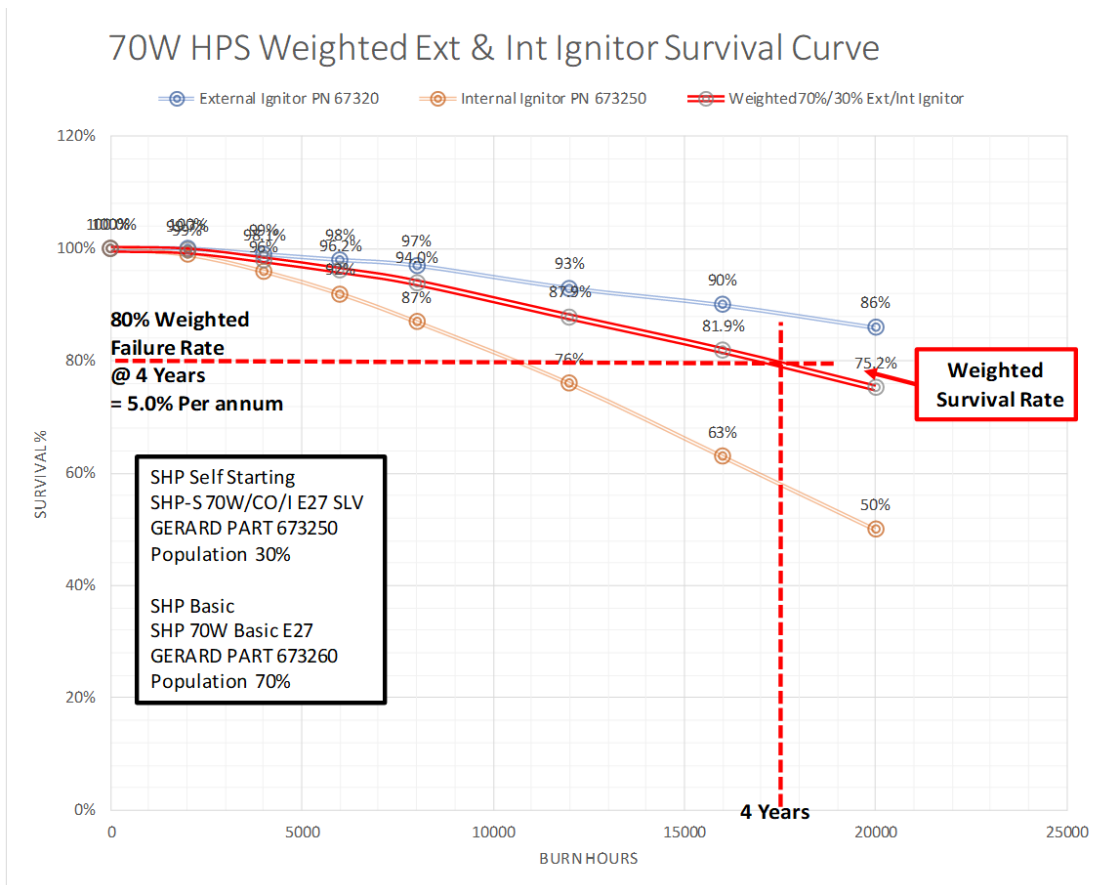
Based on EE’s statement we can conclude that the failure rate experienced is not reflective of a 4 yearly bulk lamp replacement cycle and therefore rather than rely on historical data the use of manufacturer data will provide a more accurate result.

<sup>12</sup> Essential Energy Attachment 13.1 – Revised Regulatory Proposal – Public Lighting Proposal – Section 3.11 page 7



**Figure 6** below shows the survival curve for Sylvania 70W High Pressure Sodium lamps used by EE with data sheets supplied by EE at **Appendix 1**. The blue line (top curve) is the External Ignitor Lamp, SHP 70W Basic E27 part number 673260 and the orange line (bottom curve) is the Internal Ignitor Lamp, SHP-S 70W/CO/I E27 SLV part number 673250. As EE claim the performance is markedly different with the Internal Ignitor lamp performing particularly poorly.

Given that the 70W HPS tariff is blended between Internal and External Ignitor installations the weighted average of the two survival curves is required to determine the average annual mortality on a four yearly bulk lamp replacement cycle. The red curve (middle curve) is the weighted average survival curve for 70% External Ignitor and 30% Internal Ignitor. The graph shows for 17,500 burn hours approximating 4 years a survival rate of 80% being an annual weighted failure rate of 5% and significantly less than the 10.88% of EE's Revised Proposal.



**Figure 6 – Survival Curve - Sylvania 70W HPS Lamps – Weighted average Internal and External Ignitor**



The analysis shows EE's Revised Proposal Failure rate of 10.88% to be excessive based on:

- EE's estimated population split between External and Internal Ignitor Lamps of 70% & 30% respectively;
- The weighted survival curves shown in **Figure 3** indicates an annual failure rate of approximately 5%; and
- EE has indicated that their failure rates recorded are influenced by delays to the bulk lamp replacement programme

A review of Ausgrid's Regulatory Proposal indicated that where they do not have reliable failure data, they have elected to use manufacture failure rates as stated below:

*"Ausgrid has adopted manufacturers' failure rates based on a four-year bulk lamp replacement. This was necessary due to having no actual data available on the failure rates of lamps aged greater than three years. As the failure rates are not linear this is the best available data."<sup>13</sup>*

EE finds itself in a similar position given that they acknowledge their lamp failure data is over stated due to delays in the four yearly bulk lamp replacement cycle.

- **AER 11 - The AER should review EE's proposed lamp failure rate of 10.88% and substitute with the manufactures survival rates weighted between External and Internal Ignitor calculated at 5.0%**

#### 4.12 AER 12 – Impact analysis tool for new tariff structure

EE provided a cost comparison by Council of 18/19 and 19/20 total SLUOS assuming no inventory change. This document is inadvertently misleading due to the steep step change in prices of the current regulatory period being smoothed such that later years resulted in a significant over recovery. This is most pronounced in FY 18/19. The result being that the reduction between the years is overstated in real terms. EE have been asked to provide a comparison on real terms assuming no smoothing in the prior regulatory period.

At a high level we have reviewed EE's proposal to adopt a component pricing methodology. From our high level review, we support the approach.

**AER 12 – The AER should request EE to prepare a comparison by Council of the last year of the current Regulatory Period "unsmoothed" against to Revised Proposal for current inventory as the comparison against the "smoothed" rate is misleading**

<sup>13</sup> Ausgrid's Regulatory Proposal – Attachment 8.07 – Ausgrid's public lighting services – section 4.3



## 5 Additional Issues with EE's Revised Proposal

### 5.1 AER 13 - Bulk Lamp Replacement

EE operates a 4 yearly bulk lamp replacement cycle. The Proposal at **Section 6.3.2** explains the delivery strategy for bulk lamp replacement including:

*"We secured this service through an open market tender and it is the most efficient available"*<sup>14</sup>

The direct contract cost of the programme per lamp change is detailed in the model as XXXX direct and XXXX with Corporate Overheads applied. It is accepted that a competitive market process was undertaken to establish the contract rate however it appears to be expensive when compared to other distributors.

Ausgrid's proposal sets out the costs of bulk lamp maintenance derived from 2016/17 contract rates escalated by CPI and are shown in **Figure 7** below extracted from their proposal:

**Table 6. BLR task cycle times and rates**

Description of task	Cycle Time	FY 20 Rate (\$)
Servicing of Minor Luminaire - Scheduled	4.00	\$25.86
Servicing of Major Luminaire - Scheduled	4.00	\$30.12
Servicing of Minor LED Luminaire - Scheduled	6.00	\$25.86
Servicing of Major LED Luminaire - Scheduled	6.00	\$30.12

**Figure 7** – Ausgrid Regulatory Proposal bulk lamp replacement cycle times and rates<sup>15</sup>

The Ausgrid rates are materially less and while their assets are less remote, they do have significant traffic issues to manage.

A review of the Powercor<sup>16</sup> and Ausnet<sup>17</sup> determinations for 2016/20 shown in **Table 2** shows materially lower costs for bulk lamp replacement. The detail is embedded within their respective Public Lighting models with the cost of labour and plant, the equivalent of the EE contract arrangement and the EE rate of XXXX (Direct).

<sup>14</sup> Essential Energy – 17.4 Public Lighting Proposal – Section 6.3.2 page 10

<sup>15</sup> Ausgrid's Regulatory Proposal – Attachment 8.11 – Public Lighting Investment Plan – Section 4.3

<sup>16</sup> AER Final Decision – Powercor- Public Lighting Model – May 2016

<sup>17</sup> AER Final Decision – AusNet Services- Public Lighting Model – May 2016

**Table 2** – Powercor and Ausnet Bulk Lamp Replacement rates from their 2016-20 determination

	PowerCor			Ausnet		
	Urban	Rural	Remote	Urban	Rural	Remote
Annualised Unit Cost BLR	\$6.82	\$8.59	\$10.30	\$6.69	\$9.38	\$13.10
Cell Number	G83	N83	U83	G89	N89	U89
Weighting	75%	19%	6%	96%	4%	0%
Weighted Average Annualised Cost	\$7.37			\$6.80		
Cost per BLP @ 4 Years \$ FY2015	\$29.46			\$27.19		
CPI to \$ 2019 (assume 4 years @ 2% compounding)	\$31.89			\$29.43		

The EE unit cost at XXXX is materially higher than that for Ausgrid at \$25.86 to \$30.12, Powercor at \$31.89 and Ausnet at \$29.43. We reviewed this charge in our original submission and suggested that the contract structure may be leading to high unit cost. While EE claim it to be efficient because it was market tested it is evident from the comparisons above that it is not an efficient rate and there is significant opportunity to reduce this cost

**AER 13 – The AER is requested to review EE’s unit rate for the standard activity of bulk lamp replacement as it is materially higher than that of comparable distributors. The Powercor distribution area being similar in nature to EE’s may be a suitable benchmark at approximately \$32 rather than the claimed XXXX**

## 5.2 AER 14 - LED Maintenance Only Tariff rates

We consider it important that Tariff rates for new LED technology are cost reflective to encourage the correct allocation of capital for bulk replacement programmes to modern efficient LED technology. We have reviewed EE’s proposed LED maintenance only rates (tariff 4) for the most common luminaires being the 17W Gerard (Cat P4/5) and the 36W Gerard (Cat P3) luminaires against comparable maintenance only LED luminaires of industry peers.

**Table 3** below shows a comparison of the rates charged by EE’s peers for maintenance only tariffs where these were readily available. Annuity tariffs which account for future replacement are more expensive and excluded hence not all peers can be included. **Table 3** shows the EE rate for CAT P LED maintenance only tariff rates to be an outlier to their industry peers at \$38.21 compared to an average of \$22.74 for four of their peers including Augrid, Powercor, Ausnet and City Power. Powercor is a particularly good comparator also having low density and mostly rural small towns to service not unlike EE.

**Table 3 – Comparison of CAT P LED Maintenance only tariff rates**

Distribution Network Service Provider	LED Watts	Annual Maintenance Only Charge (\$)
Essential Energy <sup>18</sup>	17W	\$38.21
Essential Energy <sup>19</sup>	36W	\$38.21
City Power <sup>20</sup>	(Cat P standard and high Output)	\$29.89
Powercor <sup>21</sup>	(Cat P standard and high Output)	\$25.99
Ausgrid <sup>22</sup>	17W	\$23.80
Ausgrid <sup>23</sup>	33W	\$23.85
Ausnet <sup>24</sup>	(17*114) 18W	\$16.75 to \$17.20
<b>Average DNSP Cost Excluding EE</b>		<b>\$22.74</b>

The driver behind the high cost at EE needs to be established. On reviewing the model and our discussions on “Other Maintenance” at **Section 4.8** and Corporate Overheads at **Section 5.3** it is apparent that EE’s high tariff for CAT P LED luminaires is driven by:

- High Corporate Overheads at 65.77% compared to their peers of 25% to 33%; and
- High “Other Maintenance”, non-lamp and PEC Cell failure rate of 4.77%

If EE’s Corporate OH rate is reduced to 35.49% in alignment with their Prior Regulatory Proposal for the 2016/19 Determination being more in line with industry peers and if a technology based “Other Maintenance” Failure rate of 2% rather than 4.77% is applied then EE’s CAT P LED tariff reduces to be more in keeping with their industry peers to be \$25.43. compared to the peer average of \$22.74.

The cost of the LED maintenance only tariff is important as Council pursue bulk replacement programmes to upgrade installations to modern LED technology. The inefficient “Other Maintenance” rate of 4.77% is

<sup>18</sup> Essential Energy - Revised Proposal – 13.2 Public Lighting Model – December 2018 Cell L12

<sup>19</sup> Essential Energy - Revised Proposal – 13.2 Public Lighting Model – December 2018 Cell L10

<sup>20</sup> <https://www.powercor.com.au/media/3768/2019-citipower-gsc-pricing-schedule.pdf> - CityPower Service Charge Pricing Schedule - Page 21

<sup>21</sup> <https://www.powercor.com.au/media/3769/2019-powercor-gsc-pricing-schedule.pdf> - Powercor Service Charge Pricing Schedule - Page 21

<sup>22</sup> Ausgrid Attachment - 8.12 – Public Lighting Price List – April 2018 – Public – Cell D14

<sup>23</sup> Ausgrid Attachment - 8.12 – Public Lighting Price List – April 2018 – Public – Cell D23

<sup>24</sup> <https://www.ausnetservices.com.au/en/Misc-Pages/Links/About-Us/Charges-and-revenues/Network-tariffs> - Public Lighting Prices



“smeared” across all technologies which will over recover the “other maintenance” costs as discussed at **Section 4.8**. We do not suggest that EE should not use a 4.77% “Other Maintenance” failure rate, high as it is, but rather that this should be the weighted failure rate for the period it was determined under and the failure rate by technology should be applied such that over time as the in service fleet varies the failure rate reflects the performance of the fleet. To do otherwise locks in a high “Other Maintenance” failure rate and as the fleet changes overtime will lead to over or under recovery and not send a cost reflective price signal to Councils.

**AER 14 – The AER is requested to review EE’s maintenance only charges for modern LED installations. For CAT P installations EE’s proposed charge is \$38.21 compared to an average of their peers of \$22.74. This is largely contributed due to by comparatively high corporate overheads (AER 15) compared to peers and an “Other Maintenance” failure rate (AER 8) for LED technology which is overstated at 4.77% due to the use of an average across all technologies**

### 5.3 AER 15 - Corporate Overheads

For the 2016/19 Regulatory Control Period EE’s Draft Proposal included a Corporate and Divisional Overhead rate of 41.25%. In its Draft Determination the AER reject this high overhead rate with the statement below:

*“Essential Energy’s proposal to apply a 41 per cent divisional and corporate overhead cost on top of its public lighting charges in not considered efficient. We have not seen overheads for distribution businesses set at such high rates and the evidence from other jurisdictions calls into question the quantum of overheads Essential Energy sought. We consider an efficient benchmark is the application of a 25 per cent indirect charge as applied in Victoria and as proposed by Ausgrid. We have adopted this for Essential Energy”<sup>25</sup>*

Essential Energy reviewed their position in their Revised Regulatory Proposal to a rate of 35.49% (average) which the AER accepted in their Final Determination<sup>26</sup>.

Of concern is that EE have increased their total Overheads from their Draft Proposal from a high 50.36% further to a total of 65.77%. At this rate for every \$1,000.00 of direct expenditure EE will recover \$657.70 of overheads. The application of such an overhead rate brings into question the efficacy of EE’s allocation of overheads and their overhead efficiency. An almost doubling of overheads between two regulatory periods is questionable.

The overhead rates applied by EE to Public Lighting compare poorly to other distributors. While data for all distributors is difficult to locate in their regulatory submissions **Table 4** below provides some relevant examples.

<sup>25</sup> Attachment 16: Essential Energy Draft Decision, Attachment 16: Alternative control services, p58

<sup>26</sup> Final Decision Essential Energy distribution determination 2015–16 to 2018–19 Attachment 16 – Alternative control services – page 26



**Table 4** – Comparison of DNSP Overhead Rates applied to Public Lighting

Distribution Network Service Provider	Total Overhead Rate Public Lighting Opex	Bulk Lamp Replacement Cost Direct \$	Bulk Lamp Replacement Cost with Overheads
Essential Energy	65.77%	XXXX	XXXX
Ausgrid <sup>27</sup>	11% + 22% = 33%	\$25.86 Minor \$30.12 Major	\$47.69 \$40.06
Ausnet Services <sup>28</sup>	25%	\$29.43	\$36.79
Powercor <sup>29</sup>	25%	\$31.89	\$39.86

**Table 4** shows the material impact of EE's high Corporate Overhead rates which result in the costs of bulk lamp replacement activity being approximately double that of its peers. Data for Endeavour Energy was not accessible from their highly redacted model which the AER should review for a further comparison.

**AER 15 – The AER is requested to review EE's Overhead Rates which are well outside that of their peers and is driving a high cost to provide a basic Public Lighting Service. A rate similar to Ausgrid at 33% or EE's prior Regulatory Determination of 35% would be more aligned with their industry peers and that of an efficient operator**

<sup>27</sup> Ausgrid's Regulatory Proposal – Attachment 8.11 – Public Lighting Investment Plan – Tables 3 & 4 page 8

<sup>28</sup> AER Final Decision – AusNet Services- Public Lighting Model – May 2016

<sup>29</sup> AER Final Decision – Powercor- Public Lighting Model – May 2016



## 6 Appendix 1 – Gerard Lighting lamp survival data supplied by EE

### SHP Basic

*Shp 70w Basic E27*

**Code Number 673260**

Rated survival factor at 2000 h 50Hz	1.00
Rated survival factor at 4000 h 50Hz	0.99
Rated survival factor at 6000 h 50Hz	0.98
Rated survival factor at 8000 h 50Hz	0.97
Rated survival factor at 12000 h 50Hz	0.93
Rated survival factor at 16000 h 50Hz	0.90
Rated survival factor at 20000 h 50Hz	0.86

### SHP Self-Starting

*SHP 70W/CO/I E27 SLV*

**Code Number 673250**

Rated survival factor at 2000 h 50Hz	0.99
Rated survival factor at 4000 h 50Hz	0.96
Rated survival factor at 6000 h 50Hz	0.92
Rated survival factor at 8000 h 50Hz	0.87
Rated survival factor at 12000 h 50Hz	0.76
Rated survival factor at 16000 h 50Hz	0.63
Rated survival factor at 20000 h 50Hz	0.50

Weighted Failure Rate Table 70W HPS – 70%/30% population ratio – External /Internal Ignitor Lamps

SHP Self Starting  
 SHP-S 70W/CO/I E27 SLV  
 GERARD PART 673250  
 Population % 30%

SHP Basic  
 SHP 70W Basic E27  
 GERARD PART 673260  
 Population % 70%

Burn Hours	External Ignitor PN 67320	Internal Ignitor PN 673250	Weighted70%/30% Ext/Int Ignitor
0	100%	100%	100.0%
2000	100%	99%	99.7%
4000	99%	96%	98.1%
6000	98%	92%	96.2%
8000	97%	87%	94.0%
12000	93%	76%	87.9%
16000	90%	63%	81.9%
20000	86%	50%	75.2%



## 7 Appendix 2 – EE Email of estimated External & Internal Ignitor Luminaires for 70W HPS

18/01/2019 Gmail - AER revised submission - information request

**M Gmail**

**AER revised submission - information request**  
1 message

Thu, Jan 17, 2019 at 9:28 AM

Hi [redacted]

Apologies for the delay in responding. Please find below responses and attached information as requested.

**70WHPS lamp failures**

At the time of our original submission we were experiencing over 14% failure rate on average of our 70HPS technology, and this is increasing further which we believe to be a combination of lamps not performing to manufacturer data sheet claims, and in some areas delays in BLR whilst councils decide whether to upgrade to LED. This is increasing costs to Essential above the current failure rate and AER approved current position of 10.88% failure rate, however we have agreed in our revised proposal to accept the AER's draft determination of 10.88%, where Essential will continue to carry the risk of managing the timing of councils upgrade decisions and technology performance.

In regards to the information you requested to support our position of internal vs external ignitors to support our position, we have used our WASP records and against inventory orders, shown below. The challenge with this information is accuracy, and we know through our BLR program and data cleansing process that there is a higher population of internal ignitors than our records suggest, and we are updating records to reflect this as we go.

The table below shows for the periods defined orders totalling 28.6% of internal ignitor lamps, however this does not pickup stores on hand prior to these periods. Essential Energy was holding large volumes of stock pre ordered for BLR prior to councils electing to rollout 42W CFL, hence this remaining stock supplemented the %'s below. I know this from my time as a contractor to Essential undertaking BLR where 2 shipping containers of lamps were transferred from northern NSW where BLR was cancelled for CFL upgrade and we were required to use this stock. Fortunately there were internal ignitor lamps in the container as based on records if lamps had been pre-ordered (and external lamps supplied as per records) we would not have had stock to complete works.

Description	Sum of 2018 (10 mths only)	Sum of 2017	Sum of 2016	Sum of 2015	Sum of 2014	Total usage	% of 70WHPS usage
Lamp 70W HPS Elliptical	1,389	1,089	2,098	2,154	4,314	11,044	28.6%
Lamp 70W HPS Elliptical E™	5,400	4,965	4,149	4,294	8,191	26,999	69.9%
Lamp 70W HPS Twin Arc C/H Elliptical	117	93	30	79	279	598	1.5%
<b>Grand Total</b>	<b>6,906</b>	<b>6,147</b>	<b>6,277</b>	<b>6,527</b>	<b>12,784</b>	<b>38,641</b>	<b>100.0%</b>

I trust this information above provides assurance to your enquiry around our current technology types, and our reason for accepting the AER's draft determination.