Essential Energy

10.05 Public Lighting Explanatory Document

November 2023

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1. Background

Essential Energy's public lighting service includes the design, construction, operation, and maintenance of public lighting installations. Essential Energy services more than 160,000 public lights for over 86 customers including Councils and government authorities across the network footprint.

At the time of lodging our Proposal in January 2023, Essential Energy had already engaged extensively with our customers on the development of our Proposal but acknowledged that several aspects would be subject to further engagement as part of developing our Revised Proposal.

In its Draft Decision, the Australian Energy Regulator (AER) did not accept Essential Energy's Public Lighting Proposal, and instead provided top-down price adjustments that were, on average, 21.8% lower than Essential Energy's proposed prices. The AER noted and supported our continuing engagement with our customers, stakeholders and their representatives to refine our position ahead of submitting the Revised Proposal.

Our Revised Proposal summarises the final rounds of formal engagement with Councils and their representative bodies during May and August 2023, as well as further engagement with Southern Lights[1] between August and November 2023. Our Revised Proposal addresses specific issues raised by Southern Lights in their submission to the AER[2] and by the AER in their Draft Decision.

2. Our Engagement

In our Proposal we committed to our customers that we would continue our engagement during the development of our Revised Proposal.

In May 2023, we held an engagement session that provided further information on several of the open items acknowledged in our Proposal and sought further feedback from our customers on some of these items. This included proposed changes to luminaire failure rates, floodlight design, compliance testing costs of unmetered supply (audit costs), as well as additional information explaining our position on night patrols, smart controls, LED cleaning, management team costs, overheads, and category V pricing. We also provided updates on the Proposal expenditure and implications for prices of luminaires (category P and category V, as well as steel columns). Some important changes resulted from this engagement (refer Our Revised Proposal section below).

To help customers better understand our public lighting services and increase the depth and quality of engagement on our Proposal, Essential Energy held a two-day face-to-face Public Lighting forum in August 2023. All customers that receive our public lighting services, Southern Lights representatives and the AER were invited to attend. The forum was attended by 20 Council representatives, two Joint Organisation representatives and two Southern Lights consultants. Attendees were presented with an overview of Public Lighting regulations and services, and an explanation of how to interpret our Street Lighting Use of System (SLUoS) bills. In addition, a breakdown of all costs and assumptions that make up opex and capex charges for one category V LED was presented. The Public Lighting forum allowed for constructive engagement and provided clarity and increased transparency to all parties. It also resulted in several important adjustments to our public lighting model that have been reflected in our Revised Proposal. Further information on the Public Lighting forum can be found in **Attachment 2.02 Public Lighting Phase 5 Engagement Report.**

Submissions on our Proposal were made to the AER by Southern Lights (supported by several associated Councils and a Joint Organisation). The Southern Lights NSW Group is a consortium made up of Central NSW Joint Organisation (CNSWJO), Riverina Eastern Regional Organisation of Councils (REROC), Riverina and Murray Joint Organisation (RAMJO), Dubbo City Council and Broken Hill City Council, covering 31 Local Government Areas (LGAs) of the 85 LGAs served by Essential Energy's public lighting services. The AER encouraged Essential Energy to engage on the issues raised by Southern Lights[3]. In addition to our May engagement session and Public Lighting Forum, we began a targeted engagement with Southern Lights intending to reach an agreed set of revised public lighting prices that would be supported by Southern Lights in our Revised Proposal submission. Following

[1] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023

[2] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023

[3] AER Draft Determination Essential Energy Electricity Distribution Determination 2024-29 Attachment 16 Alternate Control Services, 16.2.4.2.

the Public Lighting forum in August, four further meetings were held with Southern Lights representatives to discuss potential changes to our Revised Proposal.

Essential Energy presented a revised position to Southern Lights for consideration on 25 October 2023, providing an average real reduction of 8.8% in SLUoS bills, compared to FY24. Southern Lights did not accept this proposal and countered that an additional efficiency gain of 1-2% to be applied each year across all services, that weighted capex continue to apply to bracket and support costs, and requested Essential Energy agree, in writing, to a firm timeframe for Essential Energy to implement and deploy smart street lighting controls.

Essential Energy does not consider these additional items proposed would achieve a fair and reasonable outcome. This counter proposal would result in approximately one third of our rates reducing below the AER Draft Decision rates by June 2029, which Essential Energy considers to be unsustainable and would likely lead to bill shock in the subsequent regulatory period. Furthermore, Essential Energy is currently conducting a smart lighting trial in Bathurst, the outcomes of which will be used to inform the future strategy for smart lighting.

Following the counter proposal from Southern Lights, we have made some additional changes to our Revised Proposal. This included updating our asset volumes and forecasts to adopt the most recent asset data, reinstating the weighted capex pricing methodology for category V brackets to significantly reduce the extent of price increases in that asset category, and minor updates to our overheads.

Our Revised Proposal results in an average real reduction in our customers FY25 SLUoS bills of 11% compared to FY24. These reduced SLUoS prices are in addition to the benefits Councils have already realised from energy savings stemming from the bulk LED rollout.

3. Our Revised Proposal

Our Revised Proposal represents an average 11% real decrease to SLUoS bills for our customers compared to FY24.

This decrease is a result of:

- Accepting the AER's Draft Decision on CPI, WACC and labour rates
- Removing audit costs and floodlight design time
- Increasing labour productivity to reflect achievable productivity targets based on analysis of current data
- Updating warranty calculations, warranty acceptance, and LED failure rates based on current data
- Reducing the traffic controller hourly rate to reflect revised average contract values
- Correcting a few minor errors throughout the Public Lighting model for labour, materials, and plant
- Updating asset volumes to reflect current and forecast inventory levels which reduces costs
- Removing the weighted capex approach for all asset categories (excluding category V brackets).

In developing our Revised Proposal, we have carefully considered stakeholder feedback received in our engagement sessions and from Southern Lights. The key issues, and our Revised Proposal position is discussed below.

3.1 Smart Streetlighting

The AER noted in its Draft Decision that Southern Lights submitted its desire for smart lighting controls and its disappointment that Essential Energy is not yet offering this technology. Southern Lights considers smart controls are one of the best methods available to be able to control and reduce the costs Councils face in providing public lighting to its residents.[4] Southern Lights stated in their submission that Councils have now missed the opportunity to co-deploy smart controls with LEDs.[5]

Around 96% of Essential Energy's streetlighting network has already been upgraded to LEDs. Essential Energy rolled out LEDs without smart controllers to ensure energy saving benefits were delivered to customers. Smart

[4] AER Draft Determination Essential Energy Electricity Distribution Determination 2024-29 Attachment 16 Alternate Control Services, 16.2.4.4.

[5] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.8

lighting was in its infancy when Essential Energy went to tender and some of the major benefits, such as energy savings resulting from dimming and trimming lights, could not be realised without metering regulation changes.

During our engagement with Councils in 2022, it became clear that most Councils are interested in understanding more about smart streetlighting and the potential benefits it can bring. We also heard how Councils wanted more education and awareness on smart streetlighting, and a clearer understanding of the costs and benefits that would result.

To better understand the costs and benefits, Essential Energy is currently undertaking a smart streetlighting trial with Bathurst City Council. The smart streetlighting trial has recently been extended and is expected to conclude in June 2024. Following this, analysis of the learnings will help inform how we and our customers move forward on smart streetlighting.

Essential Energy supports the AER's intention to include a mechanism that enables the introduction of smart streetlighting services in the 2024-29 regulatory period.

3.2 Management Team

Southern Lights stated in their submission that Essential Energy intended to hire two additional project management staff for the public lighting team and that these costs were accounted for in its 2024-29 pricing proposal. Southern Lights were unclear on the basis for expanding the team and that this would make it proportionally larger than other distribution network service providers (DNSPs).[6]

Our management team allocation has reduced from 5.1 full time equivalents (FTE) to 4.6 FTE. This reduction was received positively by Councils and Southern Lights at the Public Lighting forum.

This reduction in labour costs is in comparison to our Draft Proposal - it was incorporated into our Proposal modelling and is confirmed in this Revised Proposal.

Our resourcing levels have been developed to ensure that Essential Energy can meet its compliance obligations under the NSW Public Lighting Code, as well as deliver on the desired service levels that Councils identified as priorities during the engagement forums in 2022 and 2023. This includes:

- Annual review of the Public Lighting Management Plan and associated underlying documents as required under the revised NSW Public Lighting Code - including consultation with Councils
- Facilitating smart lighting trials and exploring other new technologies
- Improving inventory data and reporting

Our Public Lighting management team services over 86 Public Lighting customers, providing a broad range of services including:

- Technical input and advice
- Engagement with stakeholders
- Billing and invoicing
- Compliance reporting to the Independent Pricing and Regulatory Tribunal (IPART), the Australian Energy Market Operator (AEMO) and the AER
- Market research and tender management
- Coordination of minor capital works and glare shields
- Project management, packaging, and scheduling
- Warranty claims management
- Energy Savings Certificate management
- Manage night patrol, asset testing and cleaning programs

[6] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.3

- Data maintenance and reporting
- Defect management.

3.3 Night Patrols

The AER stated in its Draft Decision that Essential Energy is proposing an average increase in opex prices of 6.8% on medium to high wattage category V LEDs, driven by increased night patrol costs.[7] Further, Southern Lights indicated in their submission that Essential Energy's costs are high and that it is unclear what is being patrolled.[8]

Our Revised Proposal includes a 17% reduction to night patrol rates resulting in rates which are lower than those in the AER's Draft Decision. This reduction is due to updated asset volumes which spread the total cost to provide night patrols across a larger asset base. Essential Energy patrols all lights on category V roads twice a year. A list of the night patrols conducted at an asset level is provided to customers as part of the annual reporting under the NSW Public Lighting Code. Additionally, Essential Energy has not included escalation on the total night patrol cost to keep night patrol costs down, retaining our cost base as FY22 actuals.

Night patrols are a requirement of Australian/New Zealand Standard (AS/NZ) 1158 and the NSW Public Lighting Code and are essential for identifying light outages on category V (major) roads to maintain 95% service availability.

Night patrol costs are for labour hours charged at overtime rates due to work being conducted outside of office hours. Based on the charges we are proposing, night patrols represent 1.14 minutes per light per patrol.

3.4 Labour productivity

Southern Lights stated in their submission that labour productivity assumptions had not been resolved[9]. Labour productivity was discussed in detail at the Public Lighting Forum in August 2023.

Updated labour productivity assumptions have been included in our Revised Proposal as follows:

- Average number of lights maintained per four-hour trip: Increased from 2.74 lights to 2.96 lights for capex and 1.5 to 2.96 lights for non-routine tasks impacting a luminaire or photo electric (PE) cell for opex.
- Spot replacement man hours: Reduced 1.64 hours to 1.62 hours.

The time per maintenance task and average travel time remain unchanged from prior regulatory periods.

3.4.1 Average number of lights maintained per trip

The average number of lights maintained per four-hour trip has increased from 2.74 lights to 2.96 lights for capex and 1.5 to 2.96 lights for non-routine tasks impacting a luminaire or PE cell for opex.

A review of all public lighting task data from 2011 to 2023 was undertaken to determine the average number of lights being maintained per trip. Even though work tasks might be completed on two different trips in a day, they are counted as one trip. Due to the NSW Public Lighting Code service standards, grouping of tasks is not always possible and decreasing failure rates for most of our lights results in lower volumes of lights being maintained per trip.

Our analysis identified that 2.96 lights was the average number of lights maintained per trip for routine and non-routine PE cell and luminaire related tasks. At the Public Lighting forum, most participants accepted these assumptions.

3.4.2 Spot replacement hours

Spot replacement man hours have reduced from 1.64 to 1.62 hours in our Revised Proposal based on the revision of the number of lights that can be maintained per trip. The table below provides the calculation of the spot replacement man hours.

[7] AER Draft Determination Essential Energy Electricity Distribution Determination 2024-29 Attachment 16 Alternate Control Services, 16.2.2.2.

[8] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.6

[9] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.9

Table 1: Spot replacement labour hours per light

Trip Information:	No.			Additional Information
No. of lights to repair (quantity)	2.96			The number of lights being repaired or replaced in one trip.
No. of field staff working together	2.0			The number of field staff working together as a crew to complete the light repair tasks.
Time to Complete One Trip:		**Mins**	**Hours**	
Time to mobilise		10.0		Time taken to prepare the team and truck before leaving the field service centre
Travel time to site		10.3		Weighted average time to travel from the depot to the faulty light(s)
Time to repair luminaires		74.0		Time taken to repair 2.96 lights (average lights per trip)
Travel time between lights		29.4		Total time taken to travel between faulty lights (15 mins between each light)
Travel time from site		10.3		Weighted average time taken to travel to the depot from the faulty light(s)
Time to demobilise		10.0		Time taken to demobilise the team and truck after arriving back at the depot
Total time to complete one trip		**144.0**		**Total time taken to complete 2.96 light repairs/replacements**
Total time to complete one trip			**2.40**	**Per person**
Average Time:			**Hours**	
Average time taken per light to complete the task			0.81	Average time taken to complete one light repair/replacement per person.
Average labour hours per faulty light			1.62	Average labour hours to complete one light repair/replacement.

3.5 Traffic Control

Our Proposal included material changes to our traffic control assumptions which saw a decrease, on average, to traffic control costs compared to the 2019-24 decision. We heard from our Public Lighting forum that traffic control costs were still high and as such, we reviewed our hourly traffic controller rate and labour productivity (detailed above). Traffic control costs have decreased by 36% for opex and 28% for luminaire capex from our Proposal due to changes in labour productivity and the traffic controller labour rate.

Traffic control is required for maintenance tasks conducted on busy roads, bridges, and roundabouts to ensure our crews can conduct their work safely. Essential Energy has upgraded 96% of our public lights to LED across the past four years. Over half of this upgrade was delivered by external contractors who provided data from over 35,000 traffic control tasks. The analysis of this data led to changes in our assumptions relating to the number of traffic controllers and percentage of lights that required traffic control. Refer to the table below for a summary of the results of this analysis and a comparison to our previous assumptions.

Table 2: Traffic Control (TC) Assumption Analysis

Category of LED	Lights needing TC: 2019-24 Assumption	Lights needing TC: Actuals	Crew Size: 2019-24 Assumption	Crew Size: Actuals
Category V	80%	**67.8%**	2 crew	**3.6 crew**
Category P	10%	**5.2%**	2 crew	**3.4 crew**

Based on this analysis, the following was reflected in our Proposal:

- three traffic controllers rather than the 3.4 and 3.6, to minimise the increasing cost
- 68% of lights on category V roads require traffic control
- 5% of lights on category P roads require traffic control

Following a review of traffic control panel contract rates for FY23, the average traffic controller hourly rate was calculated to be $61.09 and this has been reflected in our Revised Proposal.

3.6 Category V prices

The AER stated in its Draft Decision that the proposed prices do not reflect the reduction in the costs of purchasing high wattage LEDs resulting in lower capex charges.[10] The AER cut all our LED's 36W and above by 30% for opex and 50% for capex to bring our prices into line with Endeavour Energy and Ausgrid.[11]

The Revised Proposal reduces average category V prices by 14% for standard[12] LEDs and 21% for High Intensity Discharge (HID) lights because of the labour productivity, traffic control and night patrol amendments detailed above. All the opex and capex rates for category V HID lights are now below the AERs Draft Decision rates, however all LED rates remain above them.

Category V lights are more expensive to maintain than category P lights, as they require a higher percentage of traffic control and night patrols. Additionally, material costs are slightly more expensive as these lights are often larger or have more LED panels.

Essential Energy has LED contract prices with three suppliers that have been in place for several years after an open market tender involving Southern Lights. These contracts cease in FY25, however our Proposal includes stock costs from current supply contracts which are lower due to volume based discounts from the Bulk LED Program. Essential Energy's category V luminaire stock costs are comparable to Endeavour Energy's available stock costs.

Table 3: Comparison of category V luminaire stock costs ($FY22)

Luminaire	Essential Energy	Endeavour Energy[13]
80W RoadLED	[redacted]	[redacted]
71W Ignis / 70W RoadLED Midi	[redacted]	[redacted]
150W RoadLED / 165W RoadLED	[redacted]	[redacted]

3.7 Audit Costs

Southern Lights stated in their submission that the costs of compliance testing for unmetered supply was an issue that had not been resolved.[14] Audit costs were discussed in the May 2023 engagement session. Essential Energy reviewed the audit costs and have removed these costs from the Revised Proposal as lights will be audited as part of existing maintenance tasks.

Changes to the NSW Public Lighting Code came into effect on 1 July 2023 which require Essential Energy to develop and implement a process for verifying its total Public Lighting inventory. This requirement is in addition to the validation of Type 7 (unmetered) meter data required by AEMO under section 12.5 of the Metrology Procedure: Part A. Our Proposal included a placeholder of $150,000 to cover the cost of this new requirement. Councils and

[10] AER Draft Determination Essential Energy Electricity Distribution Determination 2024-29 Attachment 16 Alternate Control Services, 16.2.4.1

[11] AER Draft Determination Essential Energy Electricity Distribution Determination 2024-29 Attachment 16 Alternate Control Services, 16.2.4.1

[12] Standard is defined as a luminaire available on our Approved Materials List (AML).

[13] Refer to AER-Draft Decision – Endeavour Energy – 2024-29 Distr bution revenue proposal – Public lighting model – September 2023 - Public, I_CAPEX - Stock Costs column M or D.

[14] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.9

Southern Lights did not support this additional cost on the basis that Essential Energy should already have these processes in place.

To reduce costs to customers, this new audit requirement will be addressed under our existing defect rectification process which reduces the need to develop a new process with a separate visit to a light. As such, audit costs have been removed from our Revised Proposal. At our May engagement session, 82% of Council and Southern Light representatives surveyed were supportive of this with only one representative not supporting this proposal.

3.8 LED Floodlight Design

Southern Lights stated in their submission that LED floodlight design component assumptions had not been resolved.[15] LED floodlight design was discussed in the May 2023 engagement session. At our May engagement session, we heard that 63% of Councils and Southern Light representatives would prefer to engage Essential Energy when a design was required under ANS with 13% wanting it to be included in every replacement.

LED floodlight design time has been removed from our Revised Proposal and will be offered as a quoted service under Ancillary Network Services (ANS).

Essential Energy has 1,350 floodlights across the network with 22% of these covering pedestrian crossings. 38% of floodlights have already been upgraded to LEDs. LED floodlights distribute light differently to our HID floodlights and as such in some situations, an LED floodlight may result in over lighting.

Our Proposal included one hour of design time for replacement of a floodlight which represented an approximate cost of $90. We heard varying views on whether customers wanted a design service for floodlights to be included for every floodlight upgrade, with customers generally seeking to reduce costs. As such, we removed this design time and offered this design work to be conducted as a quoted service using ANS rates. This approach allows customers who want the service to engage Essential Energy on a case-by-case basis without all customers paying for the service.

Essential Energy notes that there is a change underway to AS/NZ 1158.4 which will impact lighting levels for pedestrian crossings and can provide a design review of these lights under ANS rates.

3.9 Weighted Capex

Weighted capex has been applied only to category V brackets in our Revised Proposal. The use of weighted capex for category V brackets reduces the rate charged to customers by 34%. Weighted capex has been removed from all other categories because the amendments we have made in this Revised Proposal, on balance, make it cheaper for customers.

Essential Energy acknowledges that there are some material price increases in the supports category by moving away from weighted capex, however support costs, on balance, are lower or comparable with Ausgrid and Endeavour Energy.

Table 4: Support cost comparison ($FY25)

Support category	Essential Energy	Ausgrid[16]	Endeavour Energy[17]
7.5m Steel Column Single Outreach or equivalent	$203.84	$392.96	$179.92
9.0m Steel Column Single Outreach or equivalent	$226.28	$392.96	$274.42
15m Roundabout Column or equivalent	$555.07	$427.76	$274.42
9.5m Timber Pole or equivalent	$105.47	$376.75	$171.34

[15] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.9

[16] Refer to AER-Draft Decision – Ausgrid – 2024-29 Distribution revenue proposal – Public lighting model – Public – September 2023, "Detailed price list" tab.

[17] Refer to AER-Draft Decision – Endeavour Energy – 2024-29 Distr bution revenue proposal – Public lighting model – September 2023 - Public, "O_New Component SLUOS" tab.

3.10 Overheads

Southern Lights stated in their submission that they believe the overheads are excessive for what is effectively a separate business unit with many of its own systems and administrative staff.[18]

Essential Energy's Revised Proposal overheads are lower than the approved overheads for the current regulatory period by 5.77% for opex and 0.22% for capex. There has been a small increase in our Revised Proposal of 0.05% for capex and 0.97% for opex resulting from movements in direct costs across Alternate Control Services (ACS) and Standard Control Services (SCS).

Table 5: Overhead comparison

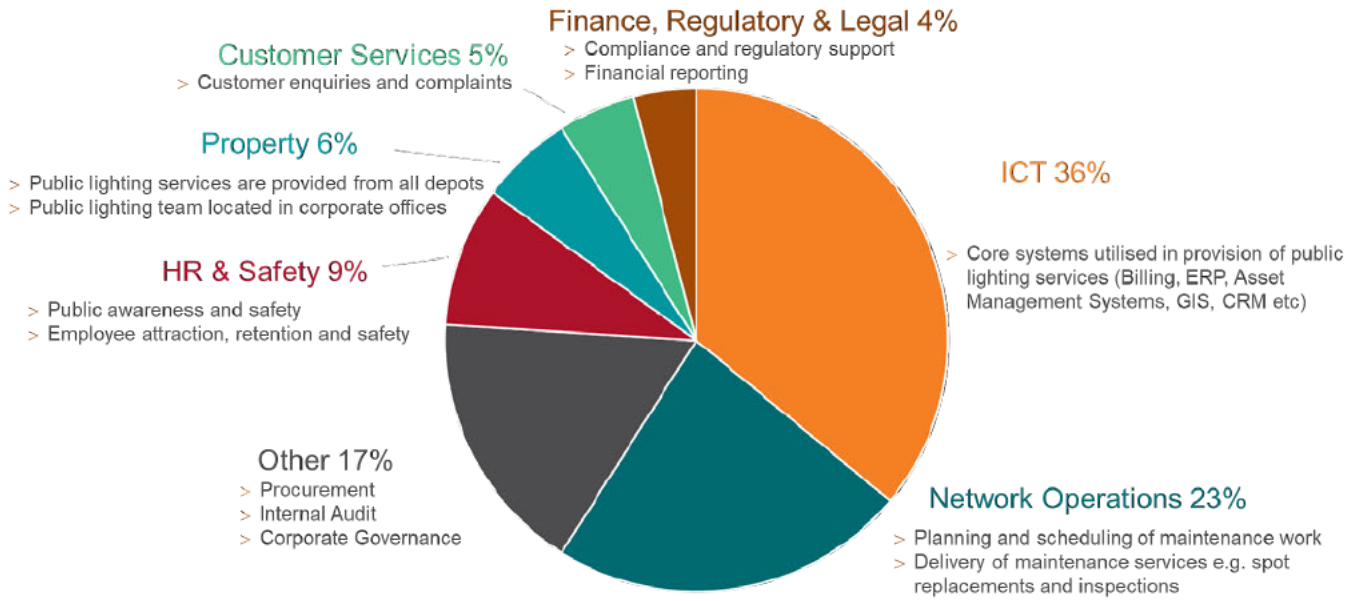
	FY19-24 Decision	Our Proposal	Revised Proposal
Opex	50.36%	43.62%	44.59%
Capex	42.05%	41.78%	41.83%

Endeavour Energy revised its overhead to 70.68% for opex prices which was considered reasonable by the AER. The AER stated that different accounting practices explain at least some of the variation in overheads between Ausgrid, Essential Energy and Endeavour Energy, as would different network conditions and associated practices.[19]

Essential Energy removed the non-system overhead to Essential Energy's overall overhead rates. Furthermore, Essential Energy's overheads for opex are 26.09% lower than those for Endeavour Energy.

Overheads are allocated based on direct costs and are in line with the Cost Allocation Methodology (CAM) approved by the AER.

Figure 1: Indicative breakdown of support costs attributed to public lighting



[18] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.2

[19] AER Draft Determination Endeavour Energy Electricity Distribution Determination 2024-29 – Attachment 16 Alternate Control Services, 16.2.4.2

3.11 LED Failures and Warranty

Southern Lights submission stated that LED failure rates were an issue that was unresolved.[20] LED failure rates and warranty calculations were discussed in detail at the Public Lighting forum in August 2023.

Warranty acceptance rates are increasing, LED failure rates are increasing, and amendments have been made to warranty calculations in our Revised Proposal due to revised data and rectification of minor errors.

3.11.1 Average LED failure rate

The average LED failure rate has increased from 0.64% to 1.05% per annum in our Revised Proposal based on revised data.

Essential Energy uses three suppliers to de-risk our supply chain and failure rates. As such, an average LED failure rate was used in our Proposal to not unfairly disadvantage any customer, where a particular supplier's light may have higher failure rates than others for the same lighting category. We heard from Councils and Southern Lights representatives that outliers may skew our average LED failure rate, however we presented at our Public Lighting forum that there were only three LED lights considered an "outlier". These ranged from a 1.5% to 2.46% failure rate which would not be considered material enough to skew the average failure rate. The average LED failure rates per lighting category are provided below.

Table 6: Predicted rate of failure per lighting category (2017 - 2022)

Lighting Category	Population	Annual Predicted Failure Rate
PR5/PR6	67,742	1.04%
PR3	32,932	1.30%
V3	7,898	0.46%
V1	18,465	0.85%
V1 High	1,113	0.66%

We heard from our Public Lighting forum that Councils and Southern Lights representatives felt that the failure rates quoted by Essential Energy seemed appropriate and that they were supportive of using the average LED failure rate rather than individual failure rates.

3.11.2 Warranty Acceptance Rate

The warranty acceptance rate has increased from 61% to 80% based on revised data. Essential Energy's LED contracts cover the cost of labour to replace a LED luminaire within three years of installation. An LED has an assumed economic life of 10 years, as such if the LED fails more than three years after the installation, warranty for the labour costs of replacing that light cannot be recovered from the supplier. A warranty acceptance rate is used to calculate the net present value of labour costs not covered by warranty. In our Proposal a 61% warranty acceptance rate was proposed, however based on revised data from suppliers an 80% warranty acceptance rate is proposed in our Revised Proposal. At our Public Lighting forum, we heard positive feedback on the increase in the warranty acceptance rate.

3.12 Minor Capital Works

Southern Lights submission raised concerns around the proposed fee pricing for Minor Capital Works[21]. Refer to **Attachment 10.01 ANS Model Response** for further information on our revised position on Minor Capital Works.

[20] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 19.9

[21] Central NSW Joint Organisations - Southern Lights - 2024-29 Electricity Determination - May 2023, 20

4. Benchmarking

Benchmarking of Public Lighting prices across different DNSPs is challenging due to significant differences in the operating environments (for example asset mix, asset density and travel times), customers numbers, different CAMs and component pricing approaches, amongst others. The AER should not rely on simple price comparisons when assessing the merits of the Revised Proposal without consideration of these critical differences.

Noting these challenges, Essential Energy has developed price comparisons for common public lighting assemblies. The comparisons show Essential Energy's Revised Proposal prices against the Draft Decision prices for nearest equivalent public lighting assemblies of Ausgrid and Endeavour Energy.

Essential Energy:

- is cheaper than Ausgrid and Endeavour Energy on average for opex support costs. Essential Energy's opex support costs range between $16.33 to $37.56 across 18 categories in comparison to Ausgrid who charge between $34.09 to $102.28 across three categories[22] and Endeavour Energy who charge between $17.70 and $32.01 across six categories[23]. Ausgrid's charges are forecasted to apply to 57,554[24] assets and Endeavour's across 73,836[25] assets on their network in FY25.
- is cheaper than Ausgrid's capex support costs across most comparable categories.
- is cheaper than Endeavour Energy across the timber support categories.
- does not charge any opex on brackets or outreaches, however Endeavour Energy does.
- is cheaper than Endeavour Energy for category V bracket capex for an equivalent bracket.
- charges for category P LED opex are comparable with Endeavour Energy.

Category P Price Comparisons

Two scenarios have been developed for common category P lighting assemblies.

Scenario 1: The most common situation for a category P road is a light and bracket that are installed on an existing network pole, with the bracket gifted to Essential Energy and the light either being gifted or capital paid upfront during the Bulk LED Program.

51% of category P lights are installed on shared network poles and do not receive a capex or opex charge for the support. 95% of category P brackets do not receive a capex charge and 81% of category P LED luminaires do not receive a capex charge.

Table 7: Scenario 1 Category P price comparisons

DNSP	Essential Energy (17W LED)		Ausgrid (17W LED)		Endeavour Energy (17W LED and minor bracket)	
	Opex	Capex	Opex	Capex	Opex	Capex
Pole	N/A	N/A	N/A	N/A	N/A	N/A
Bracket	N/A	N/A	N/A	N/A	$9.33	N/A
Luminaire	$36.36	N/A	$23.44	N/A	$33.79	N/A
Total	**$36.36**		**$23.44**		**$43.12**	

[22] Refer to AER-Draft Decision – Ausgrid – 2024-29 Distribution revenue proposal – Public lighting model – Public – September 2023, "Detailed price list" tab cells D5-D7.

[23] Refer to AER-Draft Decision – Endeavour Energy – 2024-29 Distr bution revenue proposal – Public lighting model – September 2023 - Public, "O_New Component SLUOS" tab cells D5-D10

[24] Refer to AER-Draft Decision – Ausgrid – 2024-29 Distribution revenue proposal – Public lighting model – Public – September 2023, "I_Asset number input" tab cells K5-K7.

[25] Refer to AER-Draft Decision – Endeavour Energy – 2024-29 Distr bution revenue proposal – Public lighting model – September 2023 - Public, "O_OPEX Tariff Summary" tab cells I34,I35, I128 – I131.

Scenario 2: 26% of category P lights are installed on 7.5M steel column single outreach. This scenario looks at a situation where the DNSP installs a new pole and light. This scenario assumes that no outreach is charged for by Endeavour Energy or Ausgrid as the outreach is part of the column.

Table 8: Scenario 2 Category P price comparisons

DNSP	Essential Energy (17W LED and 7.5M steel column single outreach)		Ausgrid (17W LED, 7M-10M column and UGR1)		Endeavour Energy (17W LED and minor steel column)	
	Opex	Capex	Opex	Capex	Opex	Capex
Pole	$16.33	$203.84	$93.76	$392.96	$17.70	$162.23
Bracket	N/A	N/A	N/A	N/A	N/A	N/A
Luminaire	$36.36	$57.24	$23.44	$63.16	$33.79	$44.90[26]
Total	**$313.77**		**$573.32**		**$258.62**	

Category V Price Comparisons

Two scenarios have been developed for common category V lighting assemblies.

54% of category V lights are installed on shared network poles and do not receive a capex or opex charge for support. Essential Energy does not charge opex for brackets and 96% of category V brackets do not receive a capex charge. 72% of category V LED luminaires do not receive a capex charge.

Scenario 1: The most common situation for a category V road is a light and bracket installed on an existing network pole, with the bracket gifted to Essential Energy and the light has either been gifted or capital paid upfront during the Bulk LED Program.

Table 9: Scenario 1 Category V price comparisons

DNSP	Essential Energy (150W LED)		Ausgrid (140W LED)		Endeavour Energy (165W LED and major bracket)	
	Opex	Capex	Opex	Capex	Opex	Capex
Pole	N/A	N/A	N/A	N/A	N/A	N/A
Bracket	N/A	N/A	N/A	N/A	$12.44	N/A
Luminaire	$52.63	N/A	$31.94	N/A	$38.18	N/A
Total	**$52.63**		**$31.94**		**$50.62**	

[26] Endeavour use a 16-year capital recovery as such this rate has been estimated based on their 16-year recovery rate of $31.99 for a 17W LED using an annuity payment formula used by Southern Lights in category V pricing comparisons provided 10 October 2023.

Scenario 2: The most common support used for a light on a category V road is a 10.5M steel column with a single outreach and represents 10% of all support type charges. This scenario looks at a situation where the DNSP installs a new pole and light. This scenario assumes that no outreach is charged for by Endeavour Energy or Ausgrid as the outreach is part of the column.

Table 10: Scenario 2 Category V price comparisons

DNSP	Essential Energy (150W LED and 10.5M steel column)		Ausgrid (140W LED, column 10.5M-13.5M and UGR1)		Endeavour Energy (165W LED and major steel column)	
	Opex	Capex	Opex	Capex	Opex	Capex
Pole	$16.33	$361.72	$93.76	$427.76	$23.14	$251.28
Bracket	N/A	N/A	N/A	N/A	N/A	N/A
Luminaire	$52.63	$135.20	$31.94	$75.51	$38.18	$72.75[27]
Total	**$565.88**		**$628.97**		**$385.35**	

[27] A bracket or outreach opex charge may also apply of $12-$13. Endeavour use a 16-year capital recovery as such this rate has been estimated based on their 16-year recovery rate of $51.83 for a 165W LED using an annuity payment formula used by Southern Lights in category V pricing comparisons provided 10 October 2023.