CITIPOWER

PUBLIC LIGHTING

CP ATT 11.01 - PUBLIC
2026–31 REGULATORY PROPOSAL

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1. Public lighting

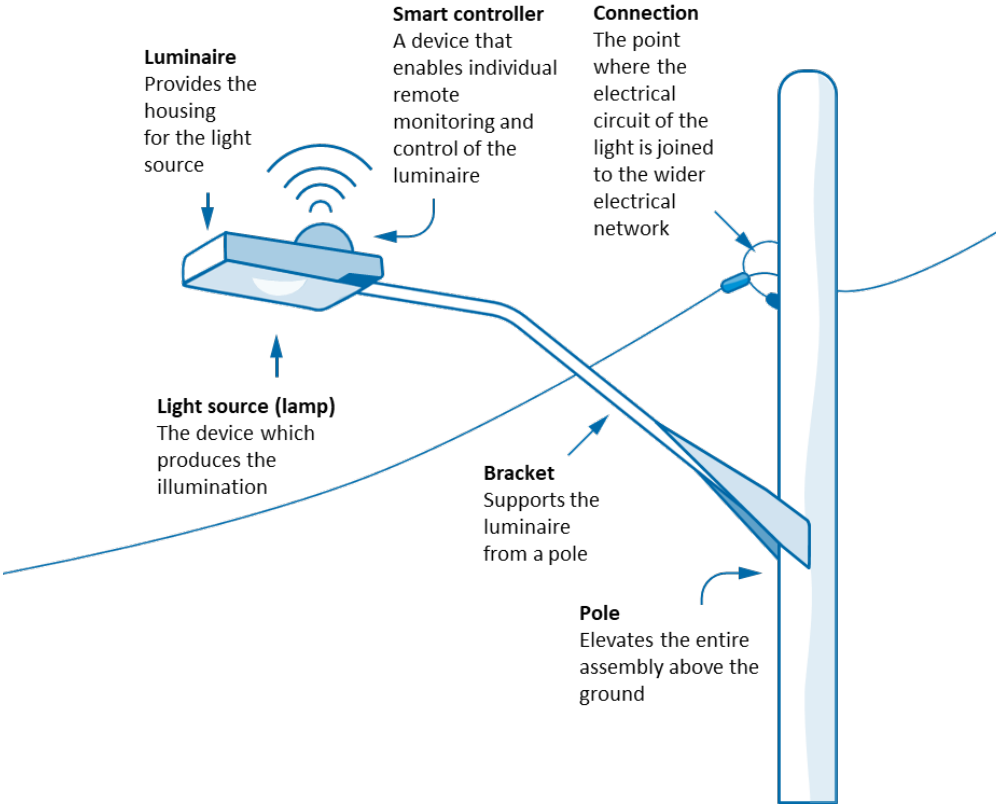
CitiPower provides public lighting services to 9 local councils and the Department of Transport and Planning (DTP).

We construct, operate, and maintain public lighting to meet the requirements set by the Essential Services Commission (ESC) and the needs of our public lighting customers.

We are responsible for operating, maintaining, repair and replacement the public lighting assets in our distribution area. The provision of public lighting is a critical service that plays an important role in enhancing public safety and security in public areas.

The costs of providing this service are recovered through published Operation, Maintenance, Repair and Replacement (OMR&R) tariffs and billed to councils and Department of Transport and Planning for roads that are cost shared as defined in the Road Management Act.

The main components of public lights are shown below.



Public lighting systems include all infrastructure associated with providing lighting in public spaces, including the point of connection to the electricity distribution network.

There are approximately 53,000 public lights installed across our network. Of these, 33,000 (63%) have been upgraded to Light Emitting Diodes (LEDs), providing improved energy efficiency and maintenance outcomes for our customers.

1.1 Consultation with stakeholders

In mid-July 2024, we conducted a structured stakeholder consultation session with representatives from local councils and the DTP.

Prior to the scheduled webinar, we distributed a consultation paper to all participants, outlining the proposed timeline and key focus areas for public lighting in the forthcoming regulatory reset period. This package provided stakeholders with an overview of the primary topics for discussion, enabling them to prepare questions and insights in advance.

The consultation itself was conducted as a live webinar, during which we presented each key topic in detail. Following the presentations, stakeholders were invited to participate in a Q&A session, where they could seek clarification and offer input on the issues discussed.

This interactive format ensured that all participants had the opportunity to engage meaningfully with the proposed plans and raise any concerns.

1.2 Key focus areas for public lighting

The below section presents the most important public lighting related topics for the forthcoming 2026–31 regulatory period.

1.2.1 Transition to LED public lighting

LED lights use about 60% less energy compared to legacy lights. Furthermore, their prolonged lifespan and reduced maintenance needs translate to decreased operational costs.

We are currently part way through the transition, so our public lighting infrastructure includes a combination of legacy lights and new LED lights.

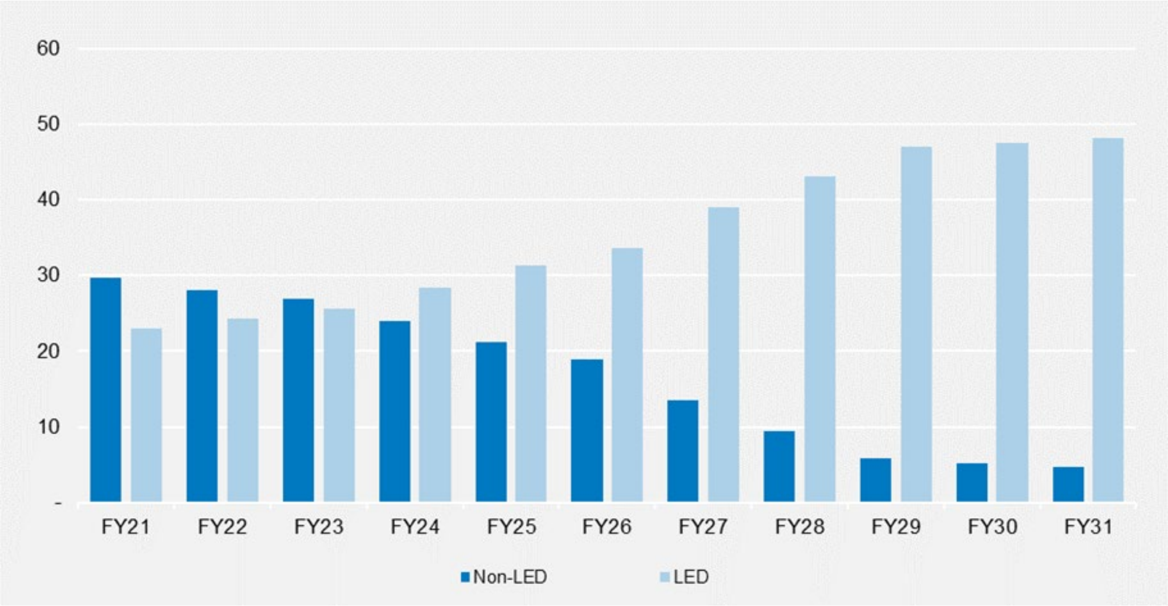
What we have achieved together so far

- Since 2009, we have replaced approximately 33,000 or 63% of legacy lights with LED lights in streetlights, mainly on minor roads (for example residential roads) across our network.
- In 2017, we started replacing legacy luminaires on major high-traffic roads, including introducing smart controllers (PE cells). We also approved the use of LED decorative lights and in the case of legacy minor road decorative lights, the use of a LED lamp to extend the serviceable life of the light.
- In response to customer expectations, environmental concerns about mercury products, and global winding down of legacy lamp production, we have adopted a phased approach to LED conversion. We started with the replacement of our legacy MV lights with LED lights and have commenced the replacement of compact fluorescent lights which can no longer be reliably sourced.

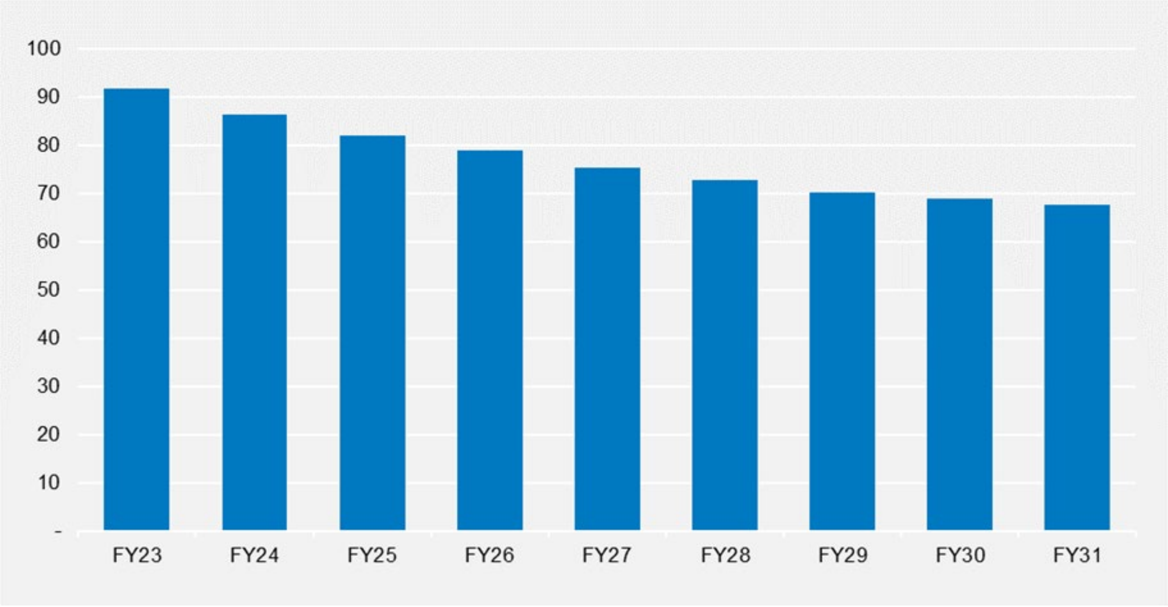
Our proposed strategy going forward is to convert all public lighting to LED over time to:

- meet Australia's commitments in the Minamata Convention in 2021 to eliminate the use of mercury in lamps and more recently to also prohibit the use of compact fluorescent lamps (CFL) from the end of 2026 and T5 fluorescent lamps from end of 2027. This will accelerate the transition of these light types to LED.
- respond to customer expectations regarding potential energy cost savings.
- support both Victorian and Commonwealth Governments' commitment to lower carbon emissions, through lower energy consumption.
- proactively put CitiPower in the best position to support public lighting, given manufacturers across the world are transitioning toward LED technology, and
- provide further energy efficiency opportunities when combining LED lights with smart control devices. This approach will be an enabler for significant energy cost savings for our customers in the future.

The following chart shows the planned LED deployment across the CitiPower area from FY2021/22 to FY2030/31.



The following chart shows the potential, estimated average wattage per light as our public lighting network is transitioned to LED technology. The graph assumes all lights except for sodium high pressure lanterns would be converted to LED by 2030-31.



For CitiPower, there is a reduction of nearly 27 per cent in the average wattage per light from 92W in 2022–23 down to 68W by 2030–31.

This significant reduction in energy consumption (and associated lower energy costs and lower carbon emissions) is one of the drivers for the proposed acceleration of conversion to LED.

We plan to:

- achieve 100 per cent MV replacement by 2026
- commence CFL replacement from 2024
- commence T5 replacement from 2026

- continue transition of major road high pressure sodium lights at end of serviceable life to LED . We acknowledge the outstanding efforts made by some councils in proactively replacing these lights, however, lantern replacements for non-banned light types will be undertaken upon reaching the end of their operational life due to the high cost that would be incurred if high pressure sodium lights were replaced before the end of their operational life. Councils who would like us to proactively replace major road lights will pay for the replacement as a separate quoted service.
- transition to 3000k warmer colour lanterns in residential areas when energy efficiency is comparable. DTP minimum standards currently requires 4000k to be used on all major roads.
- continue to approve non-standard lanterns where reasonable and appropriate, enabling Council's to install in sensitive areas.

1.2.2 Implementation of a Central Management System (CMS)

Currently, most public lights are controlled by photoelectric (PE) cells that include a photo-sensitive element which measures the ambient light levels and switches the light on and off.

Over the past few years, several Councils have invested in the installation of smart PE cells as part of their LED rollout program. CitiPower has been supportive of this initiative and assisted with back-office integration.

Active management of streetlights will need implementation of a Central Management System (CMS) which will be an enabler for smart lighting opportunities. Due to demand from some councils, CitiPower will install the CMS before 2026.

Initially, CitiPower is proposing a basic CMS service where Councils would initially be provided access to data through a portal and also be able to control the light output with further development of an agreed smart PE cell operation protocol as part of the initial release.

Benefits of the basic CMS for public lighting customers would include:

- public lighting faults will be resolved more quickly
- control capability to enable dimming per device or group of devices which would reduce energy consumption and greenhouse gas emissions
- enabling constant light output maintenance (CLO). Lighting output at prescribed compliance levels throughout the lifespan of the luminaire is achieved by gradually adjusting power to counteract lumen depreciation.

We project the ongoing cost of the system to be approximately $6.90 per smart cell, attributable to the following primary costs:

- IT vendor-related expenses (accounting for approximately 66% of the ongoing costs), which encompass software maintenance, system updates, and support services provided by external IT vendors.
- AMI communications network expenses (representing around 29% of ongoing costs), covering the operation and maintenance of the advanced metering infrastructure (AMI) mesh network that enables reliable data transmission for smart cells.
- Internal IT support (approximately 5% of ongoing costs), which includes resources dedicated to maintaining the functionality and performance of smart cells.

We propose to distribute these ongoing system costs of the CMS across all public light types, incurring a minimal incremental average OMR&R charge of approximately $2.20 per light annually throughout the upcoming regulatory period.

We believe that this ensures that all public lighting customers will benefit from improved services.

The basic CMS service could potentially be enhanced in the future to provide:

- Optimisation of energy consumption and cost reduction facilitated by remote control functionalities inherent in smart devices. These devices can be programmed to regulate the activation and deactivation of lights at specific times or adjust brightness levels according to the time of day or prevailing conditions.
- Dimming and brightening functionalities: Dimming is typically executed during non-peak periods or in accordance with ambient light conditions, offering benefits to wildlife conservation and minimizing sky glow. Brightening capabilities beyond the baseline during peak times respond to adverse weather conditions, special events, or emergencies.
- Trimming operations: This involves the optimization of both activation and deactivation times.
- Metering capabilities: Actual energy consumption measurement rather than relying on estimations, potentially delivering energy savings.
- Emission reduction support: Aligning with the Victorian Government's commitment of net-zero target by 2045 through the implementation of emission reduction measures.

Councils and DTP supported the introduction of the CMS to enable dimming, constant light output and improve fault restoration.

1.2.3 LED lamps in decorative lanterns

The cessation of MV and Compact Fluorescent lamps presents a challenge for CitiPower and Councils, especially concerning existing decorative non-standard lanterns. These unique fixtures often hold historical or aesthetic significance within communities, making their preservation essential.

To address this issue, the introduction of a service to fit LED lamps to these non-standard lanterns serves several crucial purposes:

- Preservation of aesthetics: Many of these decorative lanterns contribute to the visual identity and ambiance of local areas. Retrofitting them with LED lamps allows councils to maintain the original charm and appearance of these fixtures while upgrading their lighting technology.
- Environmental considerations: LED lamps are energy-efficient and eco-friendly, offering a more sustainable alternative to mercury vapor or compact fluorescent lamps. By transitioning to LED, councils can reduce energy consumption and lower the environmental impact associated with older lighting technologies.
- Cost-effectiveness: Retrofitting existing non-standard lanterns with LED lamps extends their lifespan and reduces the frequency of replacements or refurbishments. This approach offers a cost-effective solution compared to completely replacing the fixtures, allowing councils to allocate resources more efficiently.
- Compatibility and adaptability: LED lamps are versatile and can often be adapted to fit various types of fixtures, including non-standard decorative lanterns. This adaptability ensures that councils can embrace modern lighting technology without compromising the unique design or functionality of these fixtures.
- Community satisfaction: Preserving these decorative fixtures through LED retrofitting addresses community sentiment and attachment to these elements of local heritage. It demonstrates a commitment to preserving historical or aesthetically significant features that residents value.
- Compliance with regulations: The transition from MV and CFL lamps aligns with evolving regulations and standards, promoting the use of safer and more efficient lighting technologies in line with contemporary environmental and safety guidelines.

The cost for fitting LED lamps is included in our current OMR&R services and avoids additional costs involved in removing and refitting lanterns. We propose to continue retrofitting LED lamps to existing non-standard decorative lanterns.

It allows councils to navigate the discontinuation of MV and CFL lamps effectively and enables the continuation of the functional and aesthetic benefits of these fixtures while embracing modern, energy-efficient, and environmentally friendly lighting solutions.

1.2.4 Solar powered lights

In the last few years, we have been trialling solar lights on our network. These streetlights offer a sustainable, cost-effective, and reliable solution for public lighting, addressing both environmental and economic concerns.

- Energy efficiency: They reduce reliance on the network, thus lowering energy costs to local authorities.
- Cost savings: Once installed, solar streetlights have minimal operational costs since they don't require electricity from the grid. However, there is also increased maintenance due to requirement to monitor and replace batteries at end of life.
- Environmentally friendly: Solar streetlights generate clean energy, reducing carbon emissions and contributing to a more sustainable environment.
- Remote locations: They can be installed in remote or off-grid areas where access to the grid is limited, providing illumination and safety to these areas. However, access may be compromised if placed in parks and gardens that are not suitable for our vehicles.
- Easy installation: These lights are relatively easy to install since they don't require extensive wiring or infrastructure, which can reduce installation time and costs. However, theft of equipment (battery, solar panel and lantern) is a concern as they are not connected to our network.
- Reliability: Solar streetlights often include backup mechanisms like batteries to store energy, ensuring continuous operation even during cloudy days or in areas with limited sunlight. There are also safety concerns if the light is not operational due to extended duration of minimal solar gain.

The ongoing cost to operate and manage these solar lights would be similar to equivalent light types with allowance for higher capital replacement costs in the future.

During the consultations Councils indicated interest in Solar Lighting as a potential OM&R service. We will continue to complete current trials to be in a position to include this service in our 2031-36 price period.

1.2.5 Transitioning legacy lighting schemes

Councils have shown an interest to manage and control public lighting schemes in areas generally inaccessible for standard public lighting maintenance vehicles. Working together, we would like to support this transition for the following reasons.

- Safety: The primary concern revolves around lighting that is attached to both residential and commercial buildings in laneways. Removing low voltage assets is a positive safety step, enabling installation of extra low voltage lighting which is safer and more flexible. Also, although parks and gardens are more controlled by Councils there is significant risks with electrical assets installed underground in these areas.
- Access: Over the past ten years we have seen a re-vitalisation of laneways, parks and increasing pedestrian activity. These changes have resulted in significant challenges to operate and maintain low voltage public lighting assets.

To achieve this outcome, costs would be recovered though proposed OMR&R services.

We propose to give Councils management and control of public lighting in non-trafficable parks, gardens and laneways to help ensure safety and access.

1.3 New services identified within the regulatory period

Periodically, within a regulatory period, we encounter newly identified services or light types lacking pricing established by the AER. We intend to develop pricing consistent with other services within the corresponding classification.

This approach grants us the flexibility to offer new, unanticipated services while ensuring our customers benefit from the safeguard of a regulated pricing framework.

1.4 Form of control mechanism

The AER decided in its final 2026–31 Framework & Approach paper for the Victorian distributors (F&A paper) that public lighting services are to continue to be regulated via a price cap form of control.

1.5 Proposed control mechanisms

The AER decided in its F&A paper that the control mechanism would remain the same as for the current regulatory control period which is shown below.

Formula	Equation	where
1.	$\bar{p}_t^i \geq p_t^i$	$i = 1, \ldots, n$ $t = 1, 2, 3, 4, 5$
2.	$\bar{p}_t^i = \bar{p}_{t-1}^i \times (1 + \Delta CPI_t) \times (1 - X_t^i) \times (1 + A_t^i)$	$i = 1, \ldots, n$ $t = 2, 3, 4, 5$

where:

Variable	represents
t	the regulatory year with t = 1 being the 2026–27 financial year.
$\bar{p}_t^i$	the cap on the price of service 'i' for year t.
p_t^i	the price of service 'i' in year t. The initial value is to be decided in the distribution determination.
$\bar{p}_{t-1}^i$	the cap on the price of service 'i' for year t-1.
ΔCPI_t	the annual percentage change in the Australian Bureau of Statistics' (ABS) Consumer Price Index (CPI) All Groups, Weighted Average of Eight Capital Cities[35] from December in year t–2 to December in year t–1. For example, for 2026–27, t–2 is December 2024 and t–1 is December 2025.
X_t^i	the X factor for service i in year t. The X factors are to be decided in the distribution determination.
A_t^i	the sum of any adjustments for service 'i' in year t. To be decided in the distribution determination.

1.6 Price calculation

Our proposed prices and X factors have been calculated by building up opex, capex and volume forecasts and then calculating the revenue requirement and price caps which are forecast to achieve the required revenue.

We have applied the same placeholder rate of return and inflation as for Standard Control Services. These will be updated in the AER's final determination.

We are not proposing to change depreciation asset standard lives.

We propose that depreciation which is used to roll forward the Regulated Asset Base (RAB) in the next regulatory period is based on actual net capital expenditure.

Our cost-build up and RAB roll forward model are calculated in CP MOD 11.06 - Public lighting cost model - Jan2025 – Public.

Our prices have been calculated using the AER's standard post tax revenue model (PTRM) which is model attachment CP MOD 11.05 - Public lighting PTRM - Jan2025 – Public.

Table 1 shows our proposed prices for 2026-27.

TABLE 1 PROPOSED 2026– 27 PUBLIC LIGHTING PRICES ($ NOMINAL, GST EXCLUSIVE)

LIGHT TYPE	PRODUCT CODE	PER LIGHT CHARGE
Mercury vapour 80 watt	510269	$144.03
Sodium high pressure 150 watt	510246	$193.74
Sodium high pressure 250 watt	510251	$195.61
Sodium high pressure 70 watt	510238	$305.34
Sodium high pressure 100 watt	510242	$197.62
Sodium high pressure 400 watt	510257	$215.17
Metal halide 70 watt	510289	$305.34
Metal halide 100 watt	510290	$304.18
Metal halide 150 watt	510294	$306.11
Metal halide 250 watt	510302	$234.73
Metal halide 400 watt	510306	$234.73
T5 2X14W	510683	$71.91
T5 2X24W	510684	$71.91
CF32	511053	$69.66
CF42	511054	$69.66
Category P LED Standard Output	511163	$38.27

LIGHT TYPE	PRODUCT CODE	PER LIGHT CHARGE
Category P LED High Output	511148	$38.27
Category V LED L1 Standard Output	511240	$75.18
Category V LED L2 Medium Output	511241	$82.70
Category V LED L4 High Output	511242	$93.97
Written down value	420372	$107.66
Avoidable cost	420371	-$28.83

We propose to use the same X factors for all light types. Our proposed X factors for the subsequent four years are shown in Table 2.

TABLE 2 PROPOSED X FACTORS FOR PUBLIC LIGHTING

	2027–28	2028–29	2029– 30	2030– 31
X factor	-0.42%	-0.42%	-0.42%	-0.42%

For further information visit:

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