

Public Lighting Management Plan

August 2023



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Executive Summary

Endeavour Energy is committed to the application of best practice asset management strategies for its Public Lighting assets.

This plan outlines how Endeavour Energy will provide and manage a safe and reliable Public Lighting network on behalf of its Public Lighting Customers.

The plan aligns with Endeavour Energy's regulatory requirements, as well as the NSW Public Lighting Code

Overview

Endeavour Energy distributes and provides power to over 2.7 million people, in households and businesses across a network franchise spanning approximately 25,000 square kilometres in Greater Western Sydney, the Illawarra, the Blue Mountains and the Southern Highlands.

Illumination on residential streets, main roads, pedestrian crossings and pathways is provided by approximately 240,000 streetlights connected to the network, which are operated and managed on behalf of our Public Lighting Customers, including 23 local councils.

As a Public Lighting Service Provider, Endeavour Energy recognises that well designed, maintained and managed Public Lighting offers a safe, secure and attractive visual environment for pedestrians and drivers during times of inadequate natural light.

The NSW Public Lighting Code, December 2022 (Code) has provided Endeavour Energy with an opportunity to work closely with its customers to maintain and improve Public Lighting services.

Endeavour Energy is committed to providing a level of service that meets the requirements of the Code within the framework approved by the Australian Energy Regulator (AER). As an endorsement of our commitment, this Public Lighting Management Plan (PLMP) has been developed to provide an overview of the business structure, processes and decision support systems Endeavour Energy has in place to manage and operate a safe and reliable Public Lighting network.

It also provides an overview of strategies Endeavour Energy has put in place for continuous improvement in the standard of Public Lighting services provided to the customers.

Endeavour Energy's focus is on providing a safe and reliable electricity supply and Public Lighting services to our customers and, in doing so, delivering ongoing excellence in customer service. This plan is a further endorsement of that commitment and our undertaking to our Public Lighting Customers in respect of compliance with the Code.

Introduction

Purpose

This Management Plan is intended to provide all Public Lighting Customers with a clear understanding of the Endeavour Energy asset management strategy for Public Lighting assets and how it intends to meet its obligations under the:

- NSW Public Lighting Code.
- final determination by the Australian Energy Regulator (AER).
- relevant Australian Standards.
- internal asset management policies and standards.

The Code does not apply to community title developments and their management associations or developers, private roads, and other private precincts including those serviced via Nightwatch (e.g. private security outdoor floodlights) as they fall outside the definition of a Public Lighting Customer as per the Code.

Scope

This plan has been developed to align with Endeavour Energy's regulatory period and in accordance with the Code, this plan covers the following areas:

- Endeavour Energy's strategy for operation, maintenance, refurbishment, replacement, repair and disposal of Public Lighting assets.
- Annual and Quarterly Reporting requirements.
- Service Level Agreements for response times with Public Lighting Customers.
- Endeavour Energy's / Public Lighting Customer responsibilities

Compliance with Codes and Standards

Endeavour Energy will adhere to the following standards and codes when installing and maintaining Public Lighting assets:

- NSW Public Lighting Code December 2022 (Code)
- Roads Act 1993
- AS/NZS 1158 series of standards pertaining to the lighting of roads and public places.
- Electricity Supply Act 1995
- Endeavour Energy Electrical Safety Rules
- Endeavour Energy Company Policy 9.6.8 – Public Lighting

Public Lighting Customers are responsible for the environment in which lighting schemes are installed and should be mindful of the impact the environment has upon lighting. If the environment is subsequently altered (for example, by trees or vegetation planted subsequent to the installation), Endeavour Energy cannot warrant that the installation will still comply with the customer's initial nominated design requirements.

Nominated Representatives

The Code requires each Public Lighting Customer and Endeavour Energy to nominate a single Representative. This individual will be the primary point of contact for all Public Lighting matters between the Public Lighting Customer's organisation and Endeavour Energy.

This includes specific Public Lighting issues, annual and quarterly reporting, and the revision of the Public Lighting Management Plan.

Endeavour Energy will reconfirm its Public Lighting Service Provider Representative and each Public Lighting Customers Representative each year.

Any changes to a Public Lighting Customers Representative are to be sent to mainsenquiry@endeavourenergy.com.au

The following contacts are for works deemed non-constable.

Regional Contacts

Council	Endeavour Energy Contact	Email
Bathurst Regional Council * Oberon Council * Blue Mountains City Council Lithgow City Council Mid-Western Regional Council	Kelly Hamilton Project Manager Bowenfels	Kelly.Hamilton@endeavourenergy.com.au
Blacktown City Council City of Ryde Council * Hawkesbury City Council Hornsby Shire Council * City of Parramatta Council Penrith City Council The Hills Shire Council	Balvinder Kumar Project Manager Kings Park	Balvinder.Kumar@endeavourenergy.com.au
Bankstown City Council * Camden City Council Campbelltown City Council Wollondilly Shire Council Fairfield City Council Cumberland Council Liverpool Council Wingecarribee Shire Council	Ernest Estacio Project Manager Kings Park	Ernest.Estacio@endeavourenergy.com.au
Kiama Municipal Council Shellharbour City Council Shoalhaven City Council Wollongong City Council	Jason Bond Project Manager Springhill Adrian Hogan Project Manager Nowra	Jason.Bond@endeavourenergy.com.au Adrian.Hogan@endeavourenergy.com.au

* Council shared with other DNSP

Design & Construction

Connection Criteria

Endeavour Energy will only accept Public Lighting assets that are designed and constructed to Endeavour Energy's standards using Endeavour Energy's nominated standard equipment. Additionally, suitable tenure over the asset location, inclusive of site access and electrical supply infrastructure location is required to Endeavour Energy's requirements. Ongoing responsibility for maintenance and renewal of such Public Lighting assets will be vested in Endeavour Energy.

With respect to tenure for assets, access routes and supply infrastructure the following scenarios are acceptable:

- Dedicated Public Roadway.
- Designated Public Lighting Customer owned land where easements have been established in favour of Endeavour Energy for the prescribed use.

With respect to access arrangements:

- The new lighting assets must be accessible using an Elevating Work Platform (EWP); and,
- Hinged columns are to be installed for lighting in pathways and laneways without EWP access. Hinged columns are to be located within 100m (nominally) of the EWP access. Endeavour Energy will continue to maintain existing pathway and laneway lights provided Public Lighting Customers maintain existing accessibility arrangements to their current standard. Additional access constraints applied to existing lighting may result in Endeavour Energy no longer maintaining the asset.

Endeavour Energy will not accept Public Lighting installation where the above conditions are not met. In situations where Endeavour Energy is unable to take over ownership and maintenance of a new Public Lighting installation, the customer must arrange for the installation of an appropriate service connection point in accordance with the Service and Installation Rules of NSW and the relevant Australian standard (currently AS/NZS 3000 Wiring Rules) and will remain or will need to negotiate with the developer the responsible owner of the installation.

Installation of Public Lighting Services

The installation of new Public Lighting Services (including the relocation of existing assets) is generally deemed Contestable Work and an Accredited Service Provider (ASP) will need to be engaged to design and construct the proposed works.

For efficiency purposes the Code allows for up to 10 standard luminaires to be requested to be installed by a Public Lighting Customer and for the works to be deemed Non-Contestable.

The installation of up to 10 standard luminaires are to be on existing vertical support structures (e.g. poles or columns) with existing low voltage wiring with capacity for the requested additional luminaires. Any works associated with the installation of additional columns and/or poles is deemed Contestable.

All applications for the installation of Non-Contestable Public Lighting assets are to be email to newstreetlightrequests@endeavourenergy.com.au

Non-Contestable Public Lighting projects will be completed within 90 Business Days, or at a time mutually agreed between Endeavour Energy and Public Lighting Customer, from the date of receipt of a written approval of a quote by the Public Lighting Customer (including all required information). Public Lighting Customers will be notified of the completion of the works within 20 business days of the works being completed.

On receipt of a completed and acceptable design brief from the Public Lighting Customer, Endeavour Energy will assign a reference number to each project and communicate this number to the Public Lighting Customer.

Where Endeavour Energy cannot meet these timeframes, it will notify the Customer of the expected delay and give reasons as to why delays are expected in relation to the work.

Tenure & Easement Arrangements

All new Public Lighting assets must be installed within a dedicated public roadway or easement benefiting Endeavour Energy.

The easement must cover all ancillary supply cables and equipment associated with the physical and electrical support of the lighting assets.

The easement area must be sufficient to allow 24/7 access for Endeavour Energy's standard plant and equipment to gain access, operate, construct, and maintain the Public Lighting assets proposed to be installed. Public Lighting Customers must not permit erection of any obstruction or barricades on the easement without Endeavour Energy's written approval.

Street Lights installed as part of strata title developments will not be considered as part of the Public Lighting network and will not be maintained by Endeavour Energy, unless written permission from Endeavour Energy and confirmed all assets are installed as per Endeavour Energy's design and construction standards and unrestricted access is provided. Where the assets within the development are not owned by Endeavour Energy, the connection to these assets will be fed via a special small service as per the NSW Service & Installation Rules.

Design Requirements

As part of any Contestable or Non-Contestable Public Lighting work the Public Lighting Customer requesting the work must provide a completed design brief in accordance with Endeavour Energy's Public Lighting standards for design and construction of new assets.

Public Lighting Customers make all decisions regarding the requirement and level of road lighting in public spaces and outdoor areas within their local government area.

The design brief shall include all necessary information for design of the new, altered or replaced Public Lighting assets. The information provided shall be clear and acceptable so as to clearly set out the lighting level required and the location of the project.

Asset Residual Value

When Public Lighting assets (where Endeavour Energy has funded upfront capital costs) are removed at the request of a third party prior to the end of the asset's financial life, a residual payment (Tariff Class 5 charge) will be payable to Endeavour Energy.

The residual charges for all Public Lighting assets are as per the AER approved rates and a function of the assets original capital cost and remaining life.

Glare Complaints

Where glare complaints are raised by residents direct to Endeavour Energy, Endeavour Energy will in the first instance, assess the situation and if required install a glare reducing device.

The Public Lighting Customer acknowledges and accepts consequences of potential non-compliance with the Australian Public Lighting Standards caused by any modification to the luminaire/s.

If this does not resolve the issue to the resident's satisfaction, Endeavour Energy will redirect the complaint to the Public Lighting Customer for review.

Fitting of internal or external shields or other such glare reducing measures interferes with the light distribution of the luminaire to a degree that may result in non-compliance with the Public Lighting Standard.

Endeavour Energy will fit a shield, or any other measures requested by the Public Lighting Customer where the customer expressly recognises and acknowledges their intention to potentially vary compliance with the standard by requesting such measures.

By approving a glare reduction measure, the Public Lighting Customer acknowledges and accepts consequences of potential non-compliance with the Australian Public Lighting Standards caused by any modification to the luminaire/s.

All costs associated with the installation of Aeroscreen (full cut-off) luminaires or other glare control measures shall be borne by the Public Lighting Customer.

Examples of Minor roads, but not confirming, glare shields that may be used.



Asset Management

Planned Maintenance

Endeavour Energy regularly monitors the Public Lighting asset base and emerging technologies to re-evaluate the optimal asset management processes.

The asset management strategy aims to find an appropriate balance between planned maintenance and repair of spot failures, whilst maintaining compliance with original design lighting level requirements. Additionally, the reduction of energy consumption and availability of emerging technologies is a key focus to ensure the Public Lighting asset is meeting the changing needs of Public Lighting customers and the community.

The planned maintenance activities performed by Endeavour Energy on the Public Lighting asset base are detailed below:

Routine Cleaning – a continuous maintenance program that currently operates on six-year cycle (dependant on the lantern installation date) across all of Endeavour Energy's network. This cleaning process replaces the previous Bulk Lamp Replacement program that replaced the bulbs in traditional technology lanterns before their light output was below the original design requirements or the assets failure rate increases to an unacceptable point. As part of this maintenance activity the lantern is also visually checked for any other defects (eg missing visors, loose connections, faulty PE Cells etc) to establish they are in working order. Any variations between Endeavour Energy's asset register and what is identified in the field are also flagged and updated.

Night Patrol – A visual audit will be conducted during non-daylight hours on roads identified by the appropriate authority to have a category V illumination no less than once per calendar year. Any non-functioning luminaires identified are reported and repaired accordingly.

External Column Inspection – in order to check the mechanical integrity of street light columns and outreaches a five-yearly inspection of these assets are completed. As part of this inspection, columns are checked for corrosion above and below ground, vehicle impacts, electrical safety hazards (eg exposed wires), accessibility issues, rag bolt integrity, loose fittings and vegetation defects impacting the asset.

Thermal Inspection – Public Lighting columns that incorporate both Public Lighting circuits and Low Voltage reticulation are inspected via a thermovision camera on a four yearly frequency to check for poor electrical connections. Assets identified as having a higher-than-expected temperature differential are flagged for a further internal electrical inspection to repair any faults prior to them causing an outage.

Overhead Line Inspection – Public Lighting assets installed on timber poles undergo a 5.5 yearly visual inspection of the Public Lighting bracket, lanterns, electrical conductors, and connections to identify any defects that may progress into a future failure. These defects are raised within Endeavour Energy's asset management system and prioritised for repair according to the defects potential to fail in accordance with the requirements of the Maintenance Standards.

Unplanned Maintenance

Where the above planned maintenance activities capture a defect prior to it causing a fault and a defect is reported to Endeavour Energy, the defect is recorded in the organisations Streetlight Outage App. Faults (e.g. lights out) recorded in this system are categorised and prioritised based on the requirements of the code into the following categories:

Fault Type	Description
General Fault	Means any Fault, other than a Complex Fault, that may be subject to an Excluded Fault Condition.
Complex Fault	Means a Fault, that may become a Priority Fault and may be subject to an Excluded Fault Condition, where: i. A site-specific traffic management plan and an additional dedicated traffic control crew are required; or ii. A site-specific Road Occupancy Licence or other specific authority for road occupancy is required; or iii. Identification of an underground fault is required.
Priority Fault	Means a Fault relating to lighting at pedestrian crossings or groups of three or more consecutive lights that are Category V Lighting (whether or not subject to an Excluded Fault Condition).
Excluded Fault	Means a condition affecting the Repair time for a Fault as described below. i. Where there is a Fault to a Non-Standard luminaire, and the Service Provider does not have spare parts available and where the Service Provider has taken all reasonable steps to source those parts as soon as practicable. ii. Where the Service Provider must give notice to third parties or access as required by the Regulatory Requirements or otherwise iii. Where there are delays in undertaking the Repairs as communicated to the Customer or as requested by the Customer

All reasonable steps will be taken to repair Priority faults more quickly. Priority faults will be reported separately to allow more visibility to Public Lighting Customers.

Reporting Faulty Public Lights

In addition to the routine maintenance programs, the external reporting of faulty Public Lights is the next source of identifying and repairing faulty lights. Endeavour Energy has a number of ways for a faulty light to be reported as needing repair, including:

- Via a 24-hour call centre
- An online web page

Service Standard

The service standards for each fault type are as per the requirements in the Code and are detailed below.

Asset Fault Type	Individual Repair Standard	Average Repair Standard
General Fault	10 Business Days of Fault Notification	8 Business Days of Fault Notification on average
Complex Fault	30 Business Days of Fault Notification	25 Business Days of Fault Notification on average
Priority Fault	Not Applicable	4 Business Days of Fault Notification on average

General and Complex Faults identified as being Priority Faults (as per the Code) will have all reasonable steps taken to be repaired more quickly than the timeframes above.

As per the Code the service standards outlined above do not apply where a Force Majeure Event (e.g. major storm) occurs or when the distribution pole is required to be replaced.

If Endeavour Energy exceeds the Individual Repair Standard for a Fault, Endeavour Energy must pay \$25 to the first person who made the Fault Report if that person is:

- i. The owner or occupier of a premises that abuts the part of the street that, but for the Fault, would ordinarily be illuminated by the Public Lighting Asset: or
- ii. A Customer of the Service Provider for the Public Lighting Asset affected by the Fault.

If the Service Provider exceeds the Average Repair Standard for a General or Complex Fault for the relevant financial year, Endeavour Energy must credit the relevant Customer's account with 0.25% of the total annual maintenance charge for that Customer for that year.

Where a Service Provider receives a Fault Notification for a Priority Fault, the Service Provider must:

- a. As soon as reasonably possible notify the Roads Authority
- b. As soon as practicable, inform the Roads Authority of the expected timeframe for Repairs.
- c. Inform the Roads Authority when the Repairs are completed.

Vegetation Management

In planning to achieve the objectives of Public Lighting, the spacing, spread and density of foliage and ground clearance of trees are important factors affecting the selection of installation geometry and luminaire performance. Conversely, in new plantings, the type and location of trees should be considered in relation to the lighting requirements. In addition, consideration should be given to the problems of seasonal change, and growth between trimming periods.

As road managers, Public Lighting Customers are responsible for specification, culture and trimming of trees in public areas. It is therefore important that the above factors are considered by the Public Lighting Customers when determining their vegetation management policy.

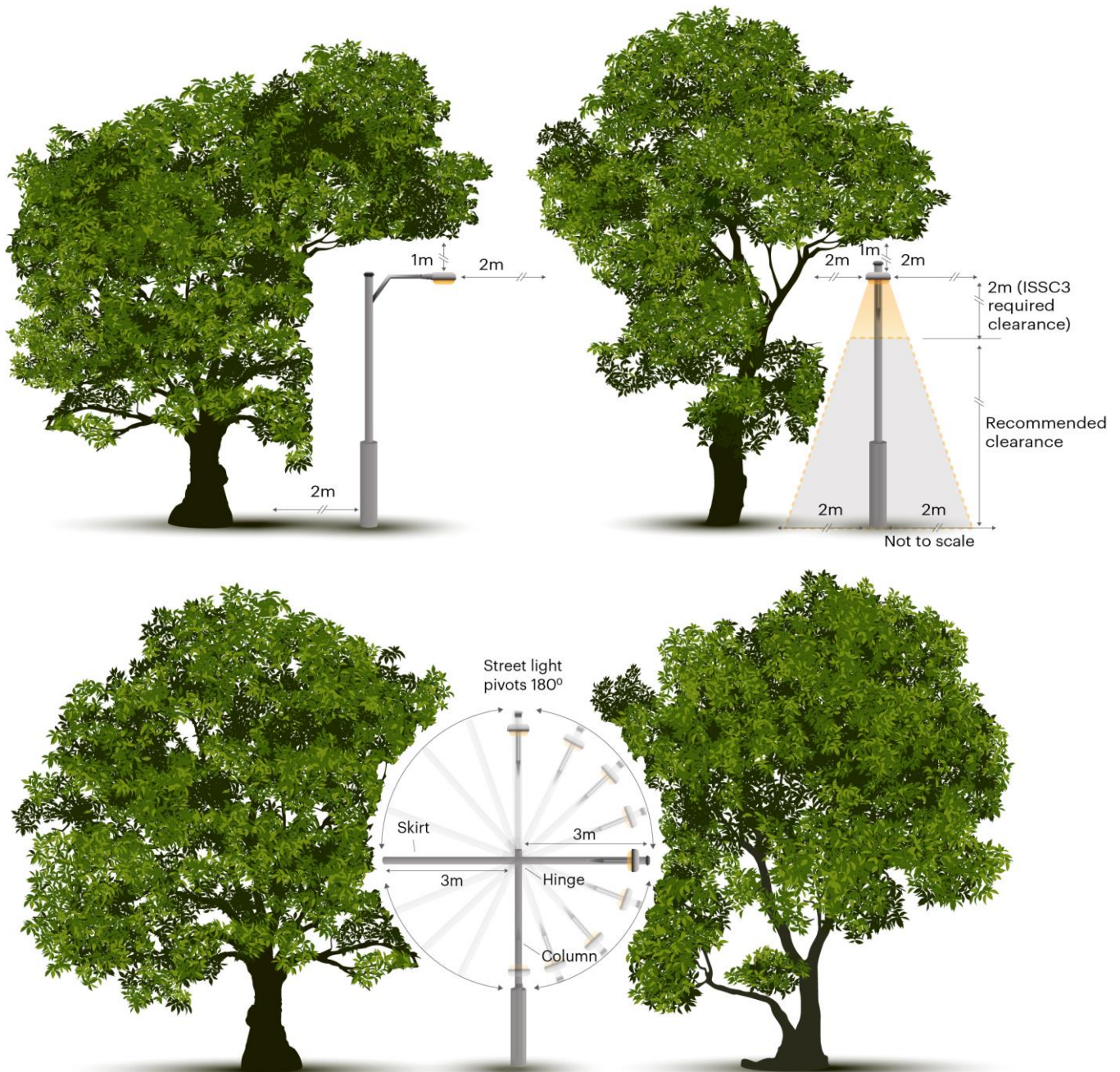
Where the luminaire is supplied by overhead electrical conductors and Endeavour Energy currently manages the vegetation around the pole / conductor, it will also manage the vegetation around the luminaire.

Where the luminaire is supplied by underground assets (e.g., cables and columns) the responsibility of vegetation management around the Public Lighting assets resides with the Public Lighting Customer. The Public Lighting Customer must ensure that the luminaire and column are both clear of vegetation as [defined](#)

in [ISSC](#) to avoid any inadvertent contact / pressure and access is available to the door at the bottom of the column.

“A roads authority may, despite any other Act or law to the contrary, remove or lop any tree or other vegetation that is on or overhanging a public road if, in its opinion, it is necessary to do so for the purpose of carrying out road work or removing a traffic hazard”. – [Roads Act 1993 Section 88 – Tree Felling](#)

Where access to a Public Lighting asset for repair or maintenance is constrained by vegetation as per [ISSC3](#), the Public Lighting Customer will be notified. If the vegetation is not trimmed within the requested time, Endeavour Energy will be unable to guarantee repair response time or service levels in accordance with the Code. In such situations, any public liability due to inadequate lighting or failure of the column will be borne by the Public Lighting Customer.



Vandalism

Endeavour Energy reserves the right to modify, remove, disconnect or transfer to maintenance only rates (unregulated tariff class) any Public Lighting installation that is subjected to repeated vandal attack. The customer will be advised, and the options discussed prior to any action by Endeavour Energy.

Lamp Disposal

Endeavour Energy is fully committed to conducting its operations in an environmentally sustainable manner and maintaining a safe environment by introducing processes, equipment and work practices that reduce the environmental footprint. All lamps replaced as a result of the bulk lamp change program, or fault and emergency repairs are recycled.

Public Lighting crews bring all lamps back to an Endeavour Energy depot, where they are transferred into a recycling bin and collected by a recycling service.

Standard Equipment

The variety and type of equipment that may be connected as Public Lighting is regularly reviewed and standardised to the minimum number of assets possible. This standardisation is done for the following reasons, primarily: Endeavour Energy is committed to repair all reported faults within the customer service guarantee period and, if a large variety of equipment is connected as Public Lighting, the ability to meet the guaranteed service level commitment in a cost-effective manner would be seriously jeopardised.

Endeavour Energy will own and maintain new lighting installations that use standard columns, outreach arms, brackets or luminaires so that it can effectively and efficiently manage them in the future.

Where a customer wishes to own and maintain a new lighting installation using equipment that is not to Endeavour Energy's standard, the installation will be connected in accordance with the Service and Installation Rules of NSW and the relevant Australian standard (AS/NZS 3000) through a metered supply.

Endeavour Energy will provide maintenance limited to the replacement of the lamp, fuse and photoelectric cell provided an Endeavour Energy approved lamp is used. Maintenance-only rates (Tariff Class 6) apply to such installations. Existing Tariff Class 6 arrangements will stay in place, but no future installation of this type will be accepted.

New equipment is introduced following its assessment and successful results from the extensive field trials that may run for a period of more than a year, depending on the type of equipment. Factors such as cost, performance, energy efficiency and environmental sustainability are considered while assessing new equipment for introduction.

Luminaires are particularly trialled in the field for their performance, including failure rates, deterioration in light output over time, and colour shift, before they are accepted for use on the network. The field trials are conducted in consultation with the relevant Public Lighting Customer/s. Public Lighting Customers are kept informed about the progress of the trials through regular meetings.

Endeavour Energy will consult with its Public Lighting Customers before any changes are made to the standard luminaire list.

Endeavour Energy will give reasonable consideration to trial new luminaires proposed by customers for inclusion on the standard luminaire list, Public Lighting Customers need to be mindful of the fact that the trial process is costly and time consuming and may yield results that do not justify addition of a new technology luminaire to the standard list. Where, a majority of the Customers agree on the technical specifications for the addition of a specific lighting technology, Endeavour Energy will not unreasonably refuse the Luminaire selected for addition to the Standard Luminaire List provided the conditions of clause 12 (g) of the Code are met.

Endeavour Energy aim is to ensure the best outcome is achieved for all Public Lighting Customers and their needs.

Replacement of Existing Luminaires

Endeavour Energy will continue to maintain luminaires that are no longer used as standard until the end of their useful economic life, provided the spare parts (including lamps and visors) are available for them and it is cost effective to do so.

Luminaires that are no longer supported or obsolete are replaced with current standard luminaires at the end of their useful life.

Tariff class 3 rates apply for obsolete assets replaced with new standard equipment where the capital has been funded by Endeavour Energy.

Endeavour Energy current replacement strategy for brownfield assets is outlined in Annexure 1. LED technology is currently available for approximately 98% of the asset base and can be nominated by a Public Lighting Customer to be used as the default option (where available) in either brownfield or greenfield locations.

Post-top and heritage style luminaires are dealt with on a case-by-case basis depending on the availability of replacements and the needs of the Public Lighting Customer.

Painted Columns

Public Lighting Customers are responsible for the maintenance of the painted finish (including repainting of columns) associated with any painted columns. Endeavour Energy will accept ownership and all other maintenance responsibility for Public Lighting on painted columns provided Endeavour Energy's standard galvanised tapered street lighting columns have been installed.

If a painted column needs replacement, Endeavour Energy will replace them with a standard galvanised steel column. Subsequently, Public Lighting Customers may have the replaced galvanised steel column painted by an ASP, if they wish. Painting must be done by an ASP as this is defined as works on Endeavour Energy's network.

Reporting

Annual Reporting

Annual performance reporting will be provided to each Public Lighting Customer (under the Code) electronically. The annual performance report will include details of:

- The maintenance activities undertaken;
- Compliance with the service standards outlines within this document and the Code;
- Compliance with other obligations within this document and the code;
- A current version of the Public Lighting Customers Public Lighting inventory

Where there has been widespread Non-conformity and/or there has been non-compliance with the Average Repair Standard as a result of, or in connection with, a specific factor or reasonably related factors, the following will be included in the annual report:

- i. Specific factors that contributed to the Widespread Non-conformity and/or the non-compliance with the Average Repair Standard;
- ii. The actions taken, or proposed to be taken, in order to rectify the Widespread Non-conformity and/or the non-compliance with the Average Repair Standard; and.
- iii. The expected timeframe to address the Widespread Non-conformity and/or the non-compliance with the Average Repair Standard.

Annual Public Lighting performance reports will be sent directly to the customers nominated representative by no later than the 31st of August each year.

Quarterly Reporting

Quarterly reporting will be provided to each Public Lighting Customer (under the Code) electronically. The quarterly performance reports will include details of:

- Repaired faults, including details about its location and time to repair;
- Faults yet to be repaired and current service levels associated with them;
- Services levels (General, Complex and Priority faults) against the targets in this document and the Code;
- Timeframes associated with the installation of Public Lighting services.

Where there have been any instances of Widespread Non-conformity the following will also be included in the report for the relevant Quarter:

- i. Details of the specific factors that contributed to the Widespread Non-conformity for the quarter;
- ii. Any actions taken, or proposed, to address the Widespread Non-conformity; and
- iii. The expected timeframe to address the Widespread Non-conformity.

Quarterly Public Lighting performance reports will be sent directly to the customers nominated representative within one month of the end of the relevant quarter.

Definitions (key extracts from NSW Public Lighting Code)

AS/NZS 1158 means the series of standards applying to the lighting of roads and public spaces set out in **AS/NZS 1158** as updated from time to time.

Business Day means a day that is not a Saturday, Sunday, or public holiday in Sydney, New South Wales.

Code means the Public Lighting Code.

Complex Fault means a Fault, that may become a Priority Fault and may be subject to an Excluded Fault Condition, where:

- i. A site-specific traffic management plan and an additional dedicated traffic control crew are required; or
- ii. A site-specific Road Occupancy Licence or other specific authority for road occupancy is required; or
- iii. Identification of an underground fault is required.

Customer means a council (as defined by the Local Government Act 1993) or a Public Authority of a Local, State or Federal Government.

Excluded Fault Condition means a condition affecting the Repair time for a Fault as described the Code.

Fault means circumstances where the lumen output of a Luminaire used for the provision of Public Lighting Services has dropped below the standards set out in AS/NZS 1158, or a Luminaire is operating inconsistently with the operating times agreed with the Customer ("day-burner"). A Fault includes a Complex Fault, General Fault and Priority Fault.

Force Majeure Event means, without limiting its generality, any of the following events or occurrences not within a Service Provider's control, but only to the extent that the Service Provider is prevented from, or delayed in, performing the Service Provider's obligations under this Code, taking into account contingency measures that the Service Provider should reasonably have in place:

- i. Acts of God, including Natural Disasters;
- ii. War, revolution or other state of armed hostility of a like nature;
- iii. Insurrection, an act of terrorism, civil disturbances or riot;
- iv. Collisions or accidents which constitute a major catastrophe, an example being an aircraft crash or;
- v. State-wide or national industrial disputation that prevents delivery of Public Lighting Services.

General Fault means any Fault, other than a Complex Fault, that may be subject to an Excluded Fault Condition.

Luminaire means an apparatus that distributes, filters or transforms the light transmitted from one or more light sources and includes, other than the light source(s) themselves, all the parts necessary for fixing and protecting the light source(s) and where necessary, circuit auxiliaries together with the means for connecting them to the electricity distribution system.

Natural Disaster means an event that is declared as a natural disaster by the responsible NSW Minister for the purposes of the NSW Disaster Assistance Arrangements.

Non-Standard Luminaire means a Luminaire which does not appear on Endeavour Energy's Standard Luminaire List.

Priority Fault means a Fault relating to lighting at pedestrian crossings or groups of three or more consecutive lights that are Category V Lighting (whether or not subject to an Excluded Fault Condition).

Public Lighting Assets means all assets of:

- i. Endeavour Energy; or

- ii. The Customer that the Service Provider has agreed to maintain, that are used for the provision of Public Lighting Services, including Luminaires, mounting brackets and supports on which the fixtures are mounted, supply cables and control equipment (for example, photoelectric cells and control circuitry) but not including the Service Provider's protection equipment (for example, fuses and circuit breakers).

Public Lighting Charges means the charges payable with respect to the Public Lighting Services provided in relation to the Public Lighting Asset and where applicable, the charges approved by the Australian Energy Regulator.

Public Lighting Inventory means the inventory list prepared for Public Lighting Assets in accordance with the Code.

Repair means the fixing of a Fault and could include the provision of alternative lighting, provided the alternative lighting is adequate (having regard to the purpose of the lighting) and remains in place until the Fault is otherwise fixed, repaired or replaced.

Road Occupancy Licence means a consent granted by a Roads Authority under section 138 of the Roads Act 1993 (NSW).

Service Standards means the standards of service that Endeavour Energy must meet in the delivery of Public Lighting Services as specified in the Code.

Standard Luminaire means a Luminaire appearing on Endeavour Energy's Standard Luminaire List from time to time.

Widespread Non-conformity occurs where a Service Provider fails to meet a Service Standard within the required timeframe (or annually where no timeframe is stated) for over 50% of a Service Provider's total Customers.

Annexures

Annexure 1 – Standard Replacement List (Fault & Emergency response)

Category P Luminaire detail		
Lighting Category	Redundant HID Luminaire to be Upgraded to LED	LED Equivalent
P3	70W HPS / 2 x 24W T5	StreetLED 3 - 24W 3K
P4/P5	42W CFL / 80W MV / 2 x 14W T5	StreetLED 3 - 13W 3K
Category V Luminaire detail		
Lighting category	Redundant HID Luminaire to be Upgraded to LED	LED Equivalent
V5	100W HPS / 150W MH	RoadLED Midi - 40W 3K
V3	150W HPS / 250W MH	RoadLED Midi - 61W 3K
V1	250W HPS / 400W MH / 400W MV	RoadLED Midi - 120W 4K
V1	400W HPS	Avento 2 - 225W 4K
Pedestrian Crossing Floodlight detail		
Lighting category	Redundant HID Luminaire to be Upgraded to LED	LED Equivalent
PX3	250W HPS / 250W MH Asymmetrical Floodlight	Sasta MaXimus 150W Floodlight
PX1/PX2	400W HPS / 400W MH Asymmetrical Floodlight	Sasta MaXimus 175W Floodlight
Post Top detail		
Lighting category	Redundant HID Luminaire to be Upgraded to LED	LED Equivalent
P3	70W HPS / 125W MF	B2001 Mk2 28W 3K
PR5 (P4)	80W MF / 70W HPS / 125W MF	B2001 Mk2 28W 3K
PR6 (P5)	80W MF / 125W MF	B2001 Mk2 17W 3K / B2001 Mk2 28W 3K
Public Lighting Floodlight detail		
Lighting category	Redundant HID Luminaire to be Upgraded to LED	LED Equivalent
	125W MF / 120W HPS / 150W HPS / 150W MH	Aglo Nilum Plus 75W LED Floodlight
	250W HPS / 250W MH	Aglo Nilum Plus 100W LED Floodlight
	400W HPS / 400W MH	Aglo Nilum Plus 150W LED Floodlight
	1000W MH	Aglo Nilum Plus 300W LED Floodlight
Bourke Hill detail		
Lighting category	Redundant HID Luminaire to be Upgraded to LED	LED Equivalent
P3		BOURKE HILL MK2 24W 3K
PR5 (P4)	80W MF / 42W CFL	BOURKE HILL MK2 24W 3K/BOURKE HILL MK2 14W 3K
PR5 (P5)	80W MF / 42W CFL	BOURKE HILL MK2 24W 3K/BOURKE HILL MK2 14W 3K

Annexure 2 – Public Lighting Tariff Structure

Tariff Class 1 and 2 (Legacy rates)

Legacy rates apply to assets constructed prior to 8 August 2009. Under the AER determination, adjustments have been made for both inflation and redistribution of the asset base existing prior to 1 July 2009 across asset classes in a way that more closely reflects the age of each asset class.

Even though the AER cut-off date for switchover of charges from legacy rates to annuity rates was 1 July 2009, on demand from its Public Lighting Customers and ASPs, Endeavour Energy agreed to a date of 8 August 2009 to cater for completion of projects that were already under way and to give time for Public Lighting Customers and ASPs to understand the new rates.

Tariff Class 1 charges apply where Endeavour Energy provided installation capital.

Tariff Class 2 charges apply where the Public Lighting Customer or the developer provided installation capital.

These rates are not available for new assets approved for construction after 8 August 2009.

Tariff Class 3 and 4 (Annuity rates)

Annuity rates apply to assets constructed after 8 August 2009 and represent cost reflective rates, recovered over the life of the asset.

Tariff Class 3 rates apply where Endeavour Energy provides installation capital or has renewed the asset.

Tariff Class 4 rates apply where the Public Lighting Customer or the developer provides installation capital.

Tariff class 5 (Residual capital value)

Tariff Class 5 applies where Endeavour Energy has funded the capital or incurred tax liability for developer funded installations, but the asset is removed, replaced or modified before the end of its economic life.

Tariff Class 6 (Maintenance only rates)

These rates apply to customer-owned assets on a metered and / or isolation only (unmetered) installation where Endeavour Energy has agreed to provide maintenance limited to the replacement of the lamp, fuse and PEC. For assets constructed prior to 8 August 2009, these rates were known as Schedule 3. Existing Tariff Class 6 arrangements will stay in place, but no future installation of this type will be accepted.

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