Ironbark Sustainability

Submission to the Endeavour Energy Electricity Distribution Price Review Process for 2019-2024

WSROC

August 2018

Prepared for
WSROC and member councils

Version	Author	Date	Description of changes
V1a	Paul Brown/ Matt Sullivan-Kilgour	2/08/2018	Release copy for comment
V1b	Paul Brown/Judith Bruinsma	8/08/2018	Final Release including feedback from Councils/WSROC

Prepared by
Ironbark Sustainability
Suite 8, 70-80 Wellington St, Collingwood 3066
ABN: 51 127 566 090
Ph: 1300 288 262 | info@realaction.com.au | www.realaction.com.au

© 2018 Ironbark Group Pty. Ltd.

The information contained in this document produced by Ironbark Group Pty. Ltd is solely for the use of the client identified on this page for the purpose for which it has been prepared and Ironbark Group Pty. Ironbark undertakes no duty to or accepts any responsibility to any third party who may rely upon this document. All rights reserved. No section or element of this document may be removed from this document, reproduced, electronically stored or transmitted in any form without the written permission of Ironbark Group Pty. Ltd.

About Ironbark Sustainability
Ironbark Sustainability is a specialist consultancy that works with government and businesses around Australia by assisting them to reduce energy and water usage through sustainable asset and data management and on-the-ground implementation.

Ironbark has been operating since 2005 and brings together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, public lighting and data management. We pride ourselves on supporting our clients to achieve real action regarding the sustainable management of their operations.

Our Mission
The Ironbark mission is to achieve real action on sustainability for councils and their communities.

Contents

1. Introduction **4**

1.1 About WSROC 4

1.2 This submission 4

2. Meeting the Energy Demands of Western Sydney **5**

3. Renewable Energy **7**

3.1 Solar and storage 7

3.2 Electric vehicles 7

4. Demand Management **9**

4.1 Concerns over complexity of tariffs 9

5. Public Lighting Cost Model **10**

5.1 Transparency of costs 10

5.1.1 Benchmarking of 17W LED maintenance costs 11

5.2 Cost of capital 12

5.3 CPI 12

5.4 Life of LEDs 13

Tables

Table 1: DNSPs included in this benchmarking 11

Table (and Figure) 2: Australian maintenance costs for Gerard StreetLED Mark II 17W LED 11

Figures

Figure 1: Map of the Greater Western Sydney region 5

Figure 2: Table 7.3 Endeavour Energy Demand Forecast – post model adjustments 7

Figure 3: The falling cost of lithium-ion batteries 8

Figure 4: Demand management options for DNSPs (Source: Ausnet Services) 9

Figure 5: Operating and maintenance costs from Endeavour Model 10

Figure 6: Quarterly national inflation rate 2015-2018 13

Figure 7: Gerard Lighting data sheet for StreetLED Mark II LED luminaire used by Endeavour Energy 14

1. Introduction

This document outlines the response of the Western Sydney Regional Organisation of Councils (WSROC) and its members to the proposals within the Endeavour Energy Electricity Distribution Price Review (EDPR) for the 2019-2024 period.

This document provides a summary of key areas for improvement that relate to the EDPR and more broadly to the Strategic Plans of Endeavour over the coming five-year period.

WSROC and councils have a healthy and robust collaborative relationship with Endeavour Energy and are working closely on a range of activities including large scale solar and street lighting LED programs. As part of its Energy Program, WSROC hosts quarterly forums for councils, Endeavour Energy and other stakeholders to discuss improving energy outcomes for councils and communities. Specific projects to date have replaced over 18,000 street lights to LEDs, and plans for the installation of over 500kW of solar PV are nearly ready for implementation.

The recommendations in this document should be considered in light of this collaborative relationship and the EDPR has been taken as an opportunity for councils to document existing views on strategic opportunities for collaboration as well as for comment on specific areas where improvement or clarification on pricing is sought.

WSROC also participates in Endeavour Energy's ongoing Customer Consultation Committee Sessions advocating for change.

1.1 About WSROC

WSROC represents seven councils in Greater Western Sydney. With a reputation for considered policy analysis and bipartisan advocacy, WSROC brings a collective voice to those issues which are crucial for Western Sydney's growing population. These include transport, employment, regional planning, arts, health and sustainability.

WSROC's primary role is to represent the councils and communities of Western Sydney, as well as developing resource sharing and other co-operative projects between member councils. WSROC also manages a number of projects, which are either funded jointly by its members or from external sources.

1.2 This submission

Please note that this submission focuses mainly on issues of greatest concern to our member councils and is not a comprehensive review of all elements of the proposed EDPR. Lack of comment on other elements of the proposed reforms does not imply WSROC support for those elements.

WSROC member councils will also have made their own submissions, which should be considered separately and in addition to this response.

2. Meeting the Energy Demands of Western Sydney

Western Sydney is growing rapidly; an additional 1 million people are expected to settle in the region between 2016 and 2036[1]. Future proofing the electricity network is critical.

The current infrastructure is already under strain, which is especially apparent when demand peaks, for example during extreme heat events.

Western Sydney's existing and greenfield sites require infrastructure services that will adequately service the populations from now into the future. Planning for this new development should take into account future population growth, environmental impacts and quality of life for our residents.

A major development for Western Sydney is the new Western Sydney Airport which is set to be operational by 2026. The airport is expected to have significant impact on Western Sydney, its residents, economy, employment and its services. WSROC stresses the need to ensure all essential services are in place when the airport opens and that those services are scaled to accommodate the projected expansion of the site.

The funding of energy infrastructure requires long term investment and long-term planning beyond the typical approach allowed within Energy Distribution Price Reviews. The projected growth provides the region with a significant opportunity for development to fund the required increase in downstream transmission and distribution infrastructure whilst expanding the footprint of customers.

If this network growth is funded through development contributions then this can lead to a net decrease in the per-unit cost throughout the Endeavour region over this time period.

Recommendation: That Endeavour be requested to develop appropriate strategic investment planning and liaise with Local and State Government to ensure that development approaches are implemented that lead to significant downward pressure on electricity distribution prices over the coming 20 years.

For example, when developing the Western Sydney Airport there will be significant direct costs associated with connecting to the site. However, the majority of the overall impacts on the electricity distribution system, and subsequent costs, will be downstream of the myriad of local connections. WSROC and councils are calling for an approach whereby these downstream costs

[1] 2016 New South Wales State and Local Government Area Population and Household Projections, and Implied Dwelling Requirements

are factored into a long-term infrastructure strategy such that the costs of these major infrastructure projects (which we support) fund the real long-term costs for communities and not just the localised connection costs.

3. Renewable Energy

3.1 Solar and storage

Any conversation about renewable energy from a distribution network perspective will also look at storage. As noted in the Endeavour analysis, there is currently not a good intersection between the typical generation times of renewables (primarily solar) and network peak demand (see Figure 2). Additionally, conventional solar is non-dispatchable, which does not make it suitable for there to be capacity to reduce or delay network investment.

Figure 2: Table 7.3 Endeavour Energy Demand Forecast – post model adjustments

Category	FY24 System Wide Demand Impact (MW and % of System Demand)	Forecast units in 2020-21
Energy Savings Scheme	-25.1 (0.6%)	
Solar PV	-140.1 (3.3%)	184,529
Battery storage	-22.9 (0.6%)	13,707
Electric vehicles	+15.8 (0.4%)	20,000
Total[14]	**-172.3 (4.03%)**	

To this end, it is unclear how the various trial programs that Endeavour has participated in around solar, batteries, and demand response will be scaled in a way that delivers meaningful transitions across the electricity network. Local governments have a widespread interest in understanding how to facilitate broader uptake of these solutions. Better clarity over the planned expansion pathways for these technologies from Endeavour is required. Further, local governments stand ready to support plans that can lead to reduced network investment and a more robust distribution system.

Recommendation: That Endeavour provides strategic clarity around the pathways by which current trials can lead to systemic improvements for customers from solar and storage. That Endeavour collaborate with local governments to support the development and implementation of these strategies.

3.2 Electric vehicles

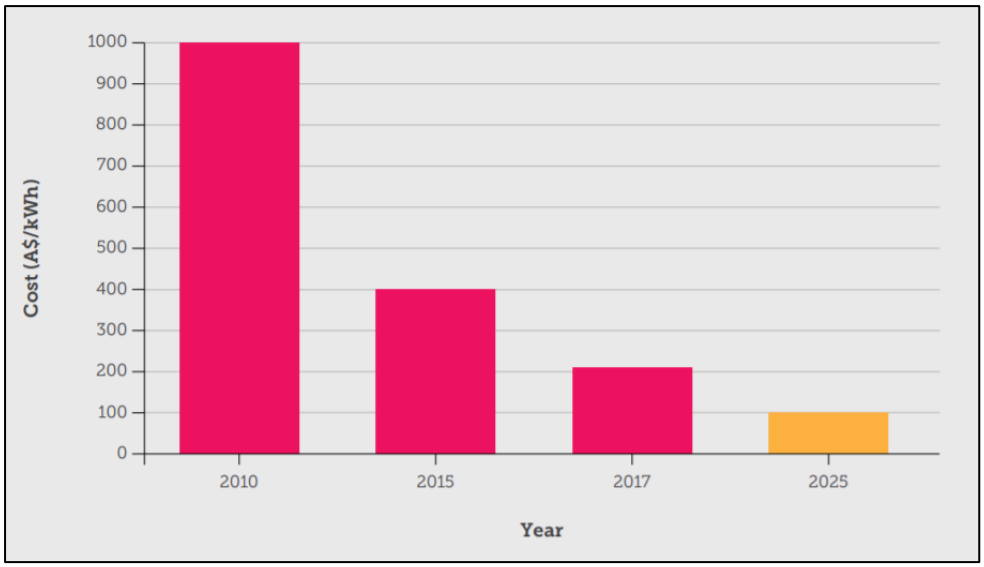
The predictions that Endeavour uses for the impacts of electric vehicles (EVs) is in line with the 'no interventions' scenario modelled by ARENA[2]. We would recommend that modelling should at least accommodate a range of scenarios covering more ambitious inclusion of these vehicles, if only to better understand the types of synergies and opportunities that would be presented under such circumstances.

The price of EVs is rapidly declining (See Figure 3 decline in costs for lithium-ion batteries) and barriers to purchase are expanding (such as range). There are plans to ban diesel and other petroleum-based vehicles post 2040 across a range of global jurisdictions, and this will drive the acceleration of these trends.

[2] https://arena.gov.au/assets/2018/06/australian-ev-market-study-report.pdf

Endeavour Energy's figures suggest an adoption rate of less than 0.4% of total vehicle fleet in NSW. However, it is already possible to see current vehicle adoption rates in some countries of up to 30% (Norway).

Figure 3: The falling cost of Lithium-Ion Batteries[3]



Recommendation: That Endeavour Energy considers a broader range of projections from the ARENA EV Market Study report, and that these plans be used to work strategically with other stakeholders, including local government to improve the strategic planning outcomes for communities.

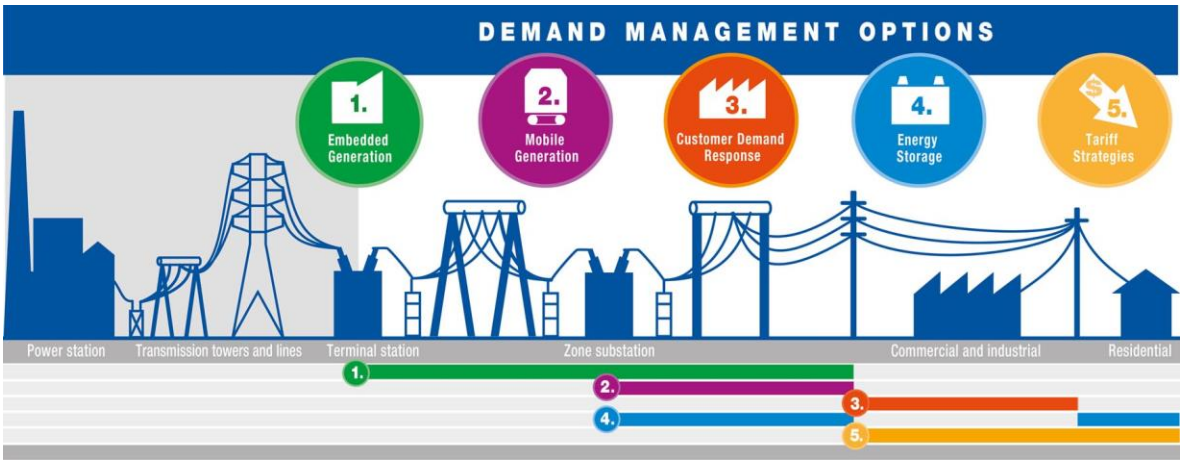
[3] https://www.climatecouncil.org.au/uploads/d4a4f17c09c83d03f13234051e3e77d8.pdf

4. Demand Management

4.1 Concerns over complexity of tariffs

We recognise that introducing seasonal peak demand tariffs is a great outcome for improving the performance of the network and will open up pathways for consumers and other network participants to bypass conventional network augmentation processes; leading to overall lower network prices.

Figure 4: Demand Management Options for DNSPs (Source: Ausnet Services)



However, as is highlighted by Endeavour, this is a significant departure from conventional pricing. Steps need to be taken to ensure that the new tariff can be adopted easily. To do this, as identified by Endeavour, supporting technologies need to be brought to bear, as historically consumers have not had good transparency or literacy on their own electricity consumption.

Recommendation:

1. Endeavour (within this EDPR period) play a leading role in facilitating this information be made available, liaising with energy retailers where necessary so that they are prepared and can be consistent in providing effective communication.
2. Endeavour commit to reviewing and reporting on customer engagement methods at least annually to assess if the required capacity/understanding is being delivered to allow relevant consumers to benefit from the peak demand information and tariffs in practice.
3. Endeavour collaborate with other stakeholders, including retailers and local governments to ensure cohesive communication across stakeholders occurs.

5. Public Lighting Cost Model

5.1 Transparency of costs

Unfortunately, the majority of the Public Lighting maintenance costs are non-transparent and as such, WSROC cannot comment on the real maintenance activities. Figure 5 below provides the summary of forecast operating and maintenance costs on a per light type basis, these numbers in yellow are all hard coded in with no assumptions. For TC1 price of the 1x20W fluorescent the hard-coded amount is 98% of the entire tariff being charged to councils.

Figure 5: Operating and Maintenance Costs from Endeavour Model

RAB Revenue Inputs

Inputs required for calculating the RAB revenue requirement.

Forecast Operating and Maintenance Expenditure - real

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
			$		
Asset Class Name					
1 x 20 W Fluorescent	50.29	50.29	50.29	50.29	50.29
2 x 20 W Fluorescent	53.69	53.69	53.69	53.69	53.69
4 x 20 W Fluorescent	60.49	60.49	60.49	60.49	60.49
2 x 14 W Fluorescent	50.29	50.29	50.29	50.29	50.29
2 x 24 W Fluorescent	50.29	50.29	50.29	50.29	50.29
1 x 40 W Fluorescent	52.14	52.14	52.14	52.14	52.14
2 x 40 W Fluorescent	57.39	57.39	57.39	57.39	57.39
1 x 42 W Fluorescent	52.14	52.14	52.14	52.14	52.14
50W Mercury	53.49	53.49	53.49	53.49	53.49
80W Mercury	50.79	50.79	50.79	50.79	50.79
125W Mercury	50.79	50.79	50.79	50.79	50.79
250W Mercury	50.79	50.79	50.79	50.79	50.79
2 x 250W Mercury	54.69	54.69	54.69	54.69	54.69
400 W Mercury	50.79	50.79	50.79	50.79	50.79
700 W Mercury	50.79	50.79	50.79	50.79	50.79
50W Sodium	55.81	55.81	55.81	55.81	55.81
70W Sodium	55.81	55.81	55.81	55.81	55.81

Cover | Capex | Opex | Annuity | RAB | Tariff Smoothing - real | Roll Forward | Global | CALCS | TC1&2 | TC3 | TC4

A transparent and cost reflective model should be provided so that appropriate comments can be made on the model proposed by Endeavour. At this stage information on maintenance costs are being hidden, which directly limits the ability of councils to analyse the fairness of these costs. If there is confidentiality being claimed, we request the AER consider how this information differs from the many other DNSP areas where much greater transparency has been provided, and, in many cases where these same regions have subsequently significantly lower cost than those where information is not transparent.

Recommendation:

1. That a fully transparent public lighting cost model be provided to customers. However, in the absence of this we recommend councils avail themselves of the formal processes through the AER to have this detail provided[4].
2. That the AER consider and report to customers on how Endeavour can be considered different to the many DNSPs which provide transparent pricing.

[4] https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/endeavour-energy-determination-2019-24/proposal#step-59353

5.1.1 Benchmarking of 17W LED maintenance costs

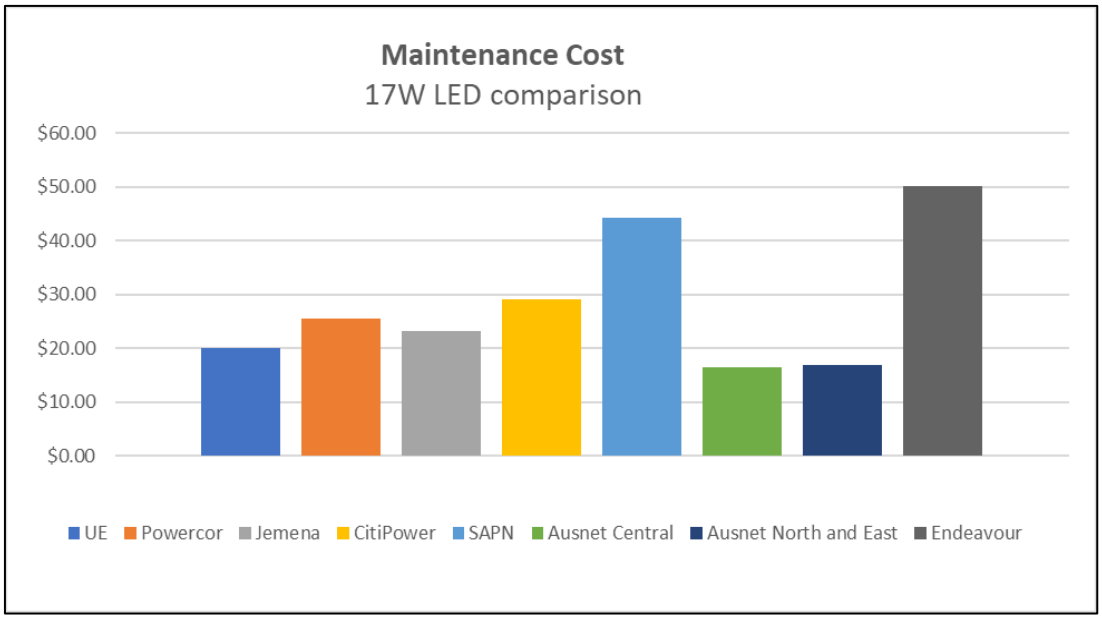
In order to assess the efficiency of the Endeavour Energy maintenance pricing, benchmarking has been provided for an example lighting technology - the 17W LED. Many Australian DNSPs have approved this product, and as such, a direct comparison of maintenance pricing can be made on this specific product.

All jurisdictions listed in Table 1 have approved the Gerard Street LED Mark II (the "17W LED Cat P Luminaire" tariff as approved by Endeavour).

Table 1: DNSPs included in this benchmarking

State	DNSP	State	DNSP
South Australia	South Australian PowerNetworks (SAPN)	Victoria	Powercor
New South Wales	Endeavour Energy (EE)	Victoria	Jemena
Victoria	United Energy (UE)	Victoria	CitiPower
Victoria	Ausnet North and East	Victoria	Ausnet Central

Table (and Figure) 2: Australian maintenance costs for Gerard StreetLED Mark II 17W LED



	Endeavour	SAPN	UE	Powercor	Jemena	CitiPower	Ausnet Central	Ausnet North & East
Tariff name	TC4	PLC	NA	NA	NA	NA	NA	NA
Date	Proposed	2017/18	2018	2018	2018	2018	2018	2018
Annual tariff	$50.26	$44.30	$20.07	$25.47	$23.27	$29.06	$16.59	$17.02
% LED tariff lower than Endeavour's		12%	60%	49%	54%	42%	67%	66%

Table (and Figure) 2 demonstrates that Endeavour Energy's maintenance pricing for the 17W LED is up to 67% above that of comparable jurisdictions on current pricing. Given that the same products are used and have been approved, this demonstrates that the proposed pricing is not fair or reasonable.

This does not demonstrate that all products are priced unfairly, only that the LED is not cost reflective.

Recommendation:

1. The basis of Endeavour Energy's maintenance pricing be released to customers for comment.
2. That benchmarking of overall tariff pricing with other jurisdictions be used to determine if pricing is efficient.

5.2 Cost of capital

Endeavour have included a nominal vanilla WACC of 6.11% (See worksheet "Tax recovery rate"). This rate is an important component of the overall pricing.

Recommendation:

1. That the AER provide detailed economic review of this rate in order to ensure these numbers are reasonable.

5.3 CPI

CPI assumptions used for the RAB assume a 2.5% CPI escalation rate over the price determination period. This is found on the "Roll Forward" worksheet.

For customers, a process whereby the relevant CPI effects pricing only is required. For example, the average quarterly rate in the three years to July 2018 is 1.667% (See

Figure 6). Noting further that the data in the Endeavour worksheet does not match the data from the RBA.

Recommendation:

1. That the AER reviews all CPI inputs and ensures they represent a fair impact on pricing for customers.

Figure 6: Quarterly national inflation rate 2015-2018

5.4 Life of LEDs

In the last price determination the age of the LED lights was assumed by Endeavour to be 12 years. This is eight years earlier than all other technologies that it has assumed. At that time, this decision was justified based on the estimated product lifespan provided by the manufacturers (Gerard Lighting – then known as Sylvania Lighting) and reflected current views on the life of the technology (in particular of the driver, a component in the luminaire). Gerard has been the main supplier of LEDs to Endeavour and as such many of the LED tariffs bear their name (e.g. "18W LED P4 Gerard").

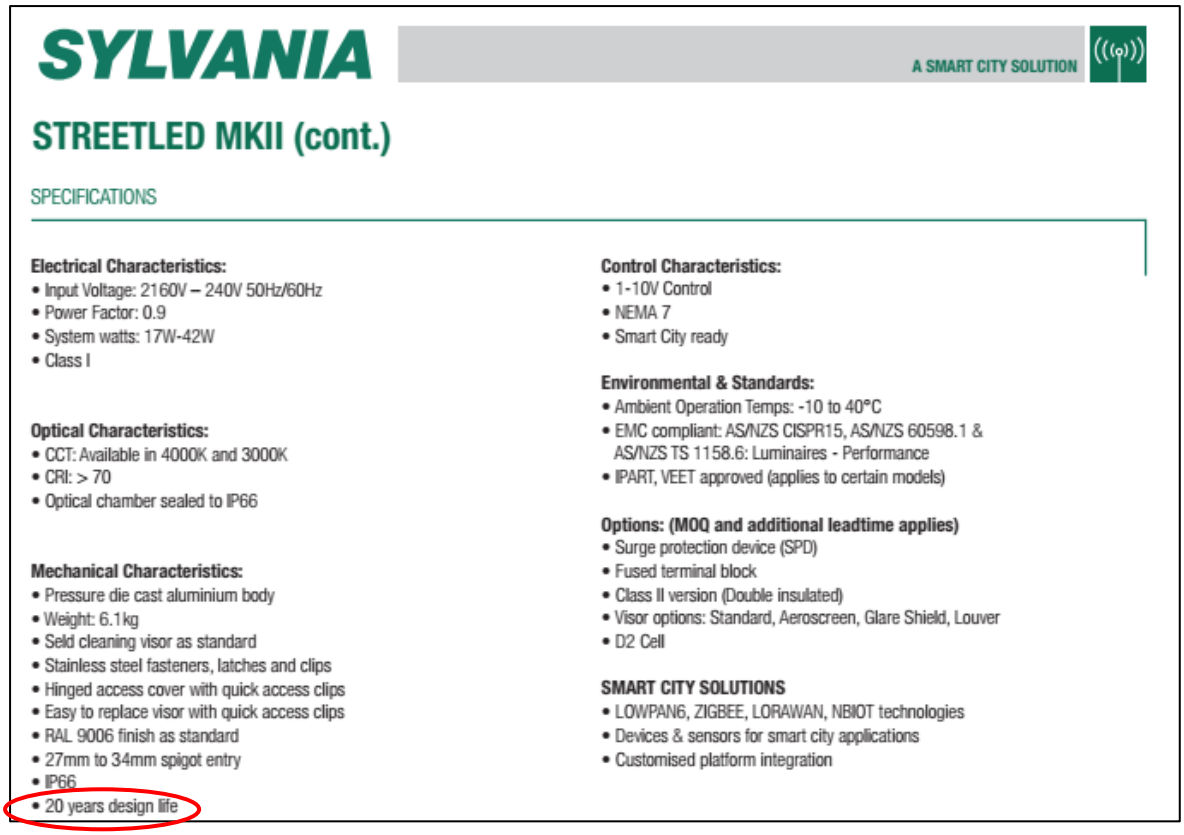
Evidence of the life is now publicly available, and a screen shot of the current public data sheet is provided in Figure 7 below. This product sheet is for the StreetLED Mark II, which is the "17W LED Cat P Luminaire" tariff listed by Endeavour. 6,000 units of this light are currently being installed by Endeavour in the City of Parramatta Council. Please note the "20 Year Design Life" entry on the bottom left of the sheet.

This increased life is reflective of the views of all manufacturers and DNSPs who have experienced much lower in-field maintenance requirements of LED lighting than those assumed five years ago. Further information on failure rates nationally can be provided.

Of the seven DNSPs that we are aware of that have approved LEDs as standard lighting products, only Endeavour does not use the 20 year period for the life of these assets.

Recommendation: Alter the LED life to 20 years to be in line with all other products, the manufacturer of the products used by Endeavour, and seven other DNSPS where this value is known. This will reduce the annuity charges to councils on LED lighting.

Figure 7: Gerard Lighting data sheet for StreetLED Mark II LED luminaire used by Endeavour Energy[5]



SYLVANIA

A SMART CITY SOLUTION

STREETLED MKII (cont.)

SPECIFICATIONS

Electrical Characteristics:
- Input Voltage: 2160V – 240V 50Hz/60Hz
- Power Factor: 0.9
- System watts: 17W-42W
- Class I

Optical Characteristics:
- CCT: Available in 4000K and 3000K
- CRI: > 70
- Optical chamber sealed to IP66

Mechanical Characteristics:
- Pressure die cast aluminium body
- Weight: 6.1kg
- Seld cleaning visor as standard
- Stainless steel fasteners, latches and clips
- Hinged access cover with quick access clips
- Easy to replace visor with quick access clips
- RAL 9006 finish as standard
- 27mm to 34mm spigot entry
- IP66
- 20 years design life

Control Characteristics:
- 1-10V Control
- NEMA 7
- Smart City ready

Environmental & Standards:
- Ambient Operation Temps: -10 to 40°C
- EMC compliant: AS/NZS CISPR15, AS/NZS 60598.1 & AS/NZS TS 1158.6: Luminaires - Performance
- IPART, VEET approved (applies to certain models)

Options: (MOQ and additional leadtime applies)
- Surge protection device (SPD)
- Fused terminal block
- Class II version (Double insulated)
- Visor options: Standard, Aeroscreen, Glare Shield, Louver
- D2 Cell

SMART CITY SOLUTIONS
- LOWPAN6, ZIGBEE, LORAWAN, NBIOT technologies
- Devices & sensors for smart city applications
- Customised platform integration

[5] https://specify.gerardlighting.com.au/products/roadway/led/streetled-mk-ii