SUBMISSION TO THE AUSTRALIAN ENERGY REGULATOR (AER)

LOCAL GOVERNMENT RESPONSE TO THE VICTORIAN ELECTRICITY DISTRIBUTION PRICE REVIEW (EDPR) 2021-25

Prepared by the Victorian Greenhouse Alliances

May 2020

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EXECUTIVE SUMMARY

On behalf of their council members, the Victorian Greenhouse Alliances are pleased to make this submission to the Australian Energy Regulator (AER) to the 2021-2025 Victorian Electricity Distribution Price Review (EDPR).

This submission provides supporting evidence and rationale for a number of key recommendations in the areas of public lighting, demand management, Distributed Energy Resources (DER), vegetation management, climate resilience and stakeholder engagement.

Public lighting

Key issues influencing the efficient operations of the overall street lighting industry are:

- Replacement of failed lights – LEDs are more efficient and require less maintenance than traditional lights, and should be standard assets built into all relevant cost models
- Smart lighting – Smart photo-electric (PE) cells combined with a Smart Lighting Control Management System (CMS) can significantly reduce costs and energy consumption. DNSPs should fund the CMS and install smart PE cells when replacing failed Category V street lights
- Victorian Public Lighting Code (the Code) – The Code is clearly out of date due to technology changes, which impacts operation and management of street lighting. Updating the Code is important, as it remains a key method by which the DNSPs and the AER test the assumptions within the DNSPs' cost models. Section 2.1.3 below includes specific examples of the required changes

Detailed analysis of the Distribution Network Service Providers (DNSPs') cost models indicates many other areas where best practice should be implemented. These are detailed in Section 2.2 below. The changes we recommend have the potential to save customers more than $20m over the period.

Recommendations:

Replacement of failed lights with LEDs (See Section 0)

- All DNSPs should replace current streetlights with LEDs when assets fail. This should be built into all relevant cost models for this coming period
- Customers should determine the approach to bulk replacements to LEDs
- All old lights should be fully recycled

- The proposed funding program by AusNet for 29,000 LEDs should be rejected and that AusNet works closely with customers collectively to deliver a DNSP wide program that is defined and scoped by customers

Smart Lighting (Section 2.1.2)

- DNSPs should be required to include the installation of smart photo-electric (PE) cells in their replacement programs for Category V street lighting
- DNSPs should be required to invest in a smart lighting Control Management System (CMS) to enable customers to effectively manage any smart lighting assets they install

Changes to the Victorian Public Lighting Code (Section 2.1.3)

- The AER should request that a review of the Victorian Public Lighting Code be implemented by the Victorian Essential Services Commission (ESC) in time to influence (where relevant) the next Victorian EDPR

Best practice cost model inputs (Section 2.2)

- The assumptions within the modelling ensure efficient pricing and assumptions are utilised. Including for a wide range of assumptions such as labour rates, Elevated Platform Vehicle and Patrol Vehicles, pole inspection rates, repairs, replacement, hours per day, and LED luminaire failure rates and material pricing

Demand Management

Demand management is a flexible and relatively low-cost network solution compared to traditional asset replacement or augmentation, delivering co-benefits including greenhouse gas emissions reductions. However, just 0.46% of total network expenditure is allocated to reducing demand.

The lack of priority, and lack of transparency around proposed expenditure, on demand management in the DNSPs' proposals are concerning. (It should be noted, however, that two of the five businesses (United Energy and AusNet Services) have provided clear documentation for how they intend to use their Demand Management Incentive Scheme (DMIS) allowance in the next period.)

The current regulatory framework creates significant barriers to demand management and facilitates a clear capex bias by the DNSPs. Government intervention is required to support or stimulate innovation; specifically, authorisation of incentive allowances should be contingent on DNSPs committing to a clear transition to a business-as-usual approach (i.e. funded through OPEX/CAPEX/AUGEX), with transparent evidence-based funding proposals for councils, which include co-benefits such as emissions reductions.

Recommendations:

Broad base demand management expenditure (Section 3.1)

- That demand management activities and associated expenditure be afforded the same level of transparency as other forms of expenditure in all regulatory proposals in future
- Forecasted expenditure (OPEX/CAPEX/AUGEX) on broad based demand management initiatives and a description of each activity are included in the revised proposals for Jenema, CitiPower and PowerCor

Demand management incentive scheme allowance (Section 3.2)

- The AER provides clear and strong incentives for the network business to undertake pilot and trial projects to fully assess the costs and benefits of new innovations (where a clear development pathway to 'business as usual' can be demonstrated)
- United Energy and AusNet Services be granted their full requested allowance under the DMIS scheme
- Jemena, CitiPower and PowerCor provide additional documentation in their revised proposals outlining the types of projects requiring funding through the DMIS

Voltage management:

- The AER require that all Victorian DNSPs commit to replicating the United Energy Dynamic Voltage Management System (DVMS) capability throughout the entire network
- Within the 2021-25 period (and as early as possible) the AER require the operation of the DVMS as a minimum operational requirement of the Victorian DNSPs aimed at reducing overall system real power, within the constraints of relevant Australian Standards
- That the costs to implement these recommendations be incorporated into the 2021-25 pricing period

Distributed Energy Resources

In the absence of the finalised *'Framework for Assessing DER Expenditure'*, we acknowledge that the DNSPs plan to enhance hosting capacity and enable exports of zero marginal cost DER generation. This is urgently needed as DER penetration increases, due in large part to government programs and plans for rapid transition to 100% renewable energy and zero net emissions.

The DNSPs' forecast pricing models take this increase into account, but other measures are also necessary:

- Pricing models should factor in the uncertainty of broader forecasts of DER uptake
- Enhancing smart metering capabilities would improve understanding of network constraints. A separate process like a RIT-D may be required, as investments in IT infrastructure are costly and should be transparent.
- Grid augmentation to support 100% solar export at all times is not economically efficient, requiring unnecessary 'gold-plating'. The DNSPs address this issue by only upgrading the network where export benefits exceed augmentation costs, or when capital investment removes 'most' rather than all constraints (based on percentage of time solar is constrained at the substation). Whilst this is more mature than managing export limits on a 'first come, first served' basis, equity issues for consumers remain.
- The diversity of the DNSPs' assessment approaches reinforces the need for a common set of benchmarks and metrics, developed in consultation with consumers.
- The proposals differ in how they address changes expected from uptake of electric vehicles (EVs). United Energy's (UE) submission is most realistic and thorough in how it assumes EVs will impact the network and also in how it approaches augmentation. Recent studies show that EV uptake will be significant over the 2021-2026 period and planning should be underway now.

Recommendations:

- AER should accept the proposed DER enablement expenditure for all DNSPs
- Expenditure on IT infrastructure should be approved, where DNSPs have provided transparency on the intended initiatives and the visibility and coordination benefits
- Support should be provided for DNSPs to invest in dynamic export and load management technologies that can address emerging equity issues from increased DER uptake
- Establish clear and consistent methodologies for assessing DER expenditure, using metrics and benchmarks that are meaningful to consumers
- Accept United Energy's forecast for future EV uptake and require other DNSPs to revise their EV uptake models in line with United Energy in their revised proposals

Regional Supply and Microgrids

Each DNSP is proposing different levels of innovation with regard to upgrading supply and investigation of microgrids. A range of regulatory changes have been proposed to enable distributors to supply customers with Standalone Power Systems (SAPS) where it is cheaper than maintaining grid connection. However, all DNSPs should be able to identify how they plan to identify and pursue microgrid opportunities over the coming pricing period. This should

include transparency on how particular initiatives have been prioritised over others, and how pilot programs may expand into other regions.

Recommendations:

- Require all DNSPs to provide more detail on how they will identify and pursue microgrid/SAPS opportunities over the period
- Request Powercor to explain the process it undertook to identify the dairy farming region in South West Victoria as a priority for network upgrades

Vegetation Management

There are clear challenges for councils and DNSPs to work more collaboratively on vegetation management, mainly related to:

- Urban street trees are critical infrastructure and most councils are increasing plantings. However, planning and maintenance regimes are not cheap ($300-800 per tree for a two-year plan). DNSPs and councils need to work together to maximise the full benefits of street trees, particularly to maintain mature trees in close proximity to power lines.
- DNSPs' pruning and inspection timeframes, which are relatively infrequent and often result in excessive pruning and related problems. More frequent pruning regimes could protect the broader value of the trees. Delineation could occur between areas of different voltages and bushfire risks, and there could be more frequent annual prunings for significant mature trees.

DNSPs are required to submit Vegetation Management Plans to Energy Safe Victoria, so some of the issues in this section of our submission relate to the ESV processes. However, it is important that the AER is aware of the issues and how vegetation management is assessed in DNSPs' OPEX proposals.

Recommendations:

- DNSPs should be required to implement more frequent pruning cycles, with annual cycles for urban / township areas and two-year pruning regime cycles for most other scenarios (See Section 5)
- Recognition that greater collaboration should be sought between councils and network DNSPs on vegetation management. This is particularly relevant where councils have ambitious urban forest plans and canopy cover targets
- More frequent audits of contracted cutting crews to improve pruning to Australian standards and to raise any issues as they arise
- Work with councils to aerial bundle cable on spans with identified high value trees

Climate Resilience

Victoria is projected to experience hotter and drier conditions and more extreme weather events, such as storms, flooding and bushfire, due to climate change. These trends will undermine the security and reliability of energy supply. DNSP pricing proposals are weak when it comes to consideration of climate change impacts on operations and the need for greater infrastructure resilience. The proposals should be assessed for how well they consider climate change impacts and risks, both mitigation and adaptation, and whether the DNSPs are actively seeking to reduce climate vulnerability through solutions such as microgrids and undergrounding and bundling of cables in high bushfire risk areas.

Recommendations:

- Encourage DNSPs to consider how climate change will impact operations during this period recognising that decisions made in this period extend into multiple decades (See Section 6)
- Seek to build in infrastructure climate risk vulnerability assessments across a range of network investment decisions

Stakeholder Engagement

Approaches to stakeholder engagement have matured significantly since the previous pricing period. Councils have welcomed the more proactive steps taken by distributors to engage with consumers on a range of key issues and initiatives, including, but not limited to:

- AusNet's Customer Forum
- CitiPower, Powercor and United Energy's Future Networks Forum
- United Energy's Summer Savers program
- AusNet public lighting consultation

Recommendations:

- Replicate the Customer Forum process in future EDPRs, with careful consideration of the skills and experience of nominated representatives and the scope of the negotiation
- The AER should support DNPSs to further develop their stakeholder engagement capabilities, and report on and communicate best practice examples where appropriate

1. INTRODUCTION

On behalf of their council members, the Victorian Greenhouse Alliances are pleased to make this submission to the Australian Energy Regulator (AER) to the 2021-2025 Victorian Electricity Distribution Price Review (EDPR).

The Alliances are formal partnerships of councils driving climate change action across 78 of the State's 79 municipalities. The Alliances work across their networks, communities and partners to deliver regional carbon mitigation and climate change adaptation programs. This work includes the implementation of joint initiatives that provide economies of scale and enable projects typically beyond the reach of individual councils. Our project work is complemented by targeted advocacy, capacity building activities and regional partnerships. Read more here.

Critically, the existing governance structures and capabilities within the Alliance networks facilitate a coordinated dialogue between local government and both state and federal governments on key issues relevant to the energy sector. This was demonstrated in the previous two pricing reset periods, where the Alliances coordinated a submission dealing with a range of issues including costs relating to the operation, maintenance and replacement (OMR) of public lighting. The outcomes of the past two submissions and determination processes were successful in generating over $45m in savings for the local government sector over the previous 10 years.

2. PUBLIC LIGHTING

2.1 DNSP Proposals – Key sector wide issues

This section discusses some key issues that are influencing the efficient operations of the overall street lighting industry. These items are:

- Replacement of failed lights with LEDs
- Smart Lighting
- Updates to the Victorian Public Lighting Code

2.1.1 Replacement of Failed Lights with LEDs

LEDs are more energy efficient lighting assets and require less maintenance than traditional lights. The entire industry is now moving towards installing LEDs as the standard asset. In the United Energy (UE) Regulatory Proposal 2021- 2026 (page 196), UE outline their approach to LED replacements:

> *"For 2021- 2026, we propose to replace all failing SHPs with category V LEDs to help our customers reach their efficiency goals sooner. To minimise costs to all customers, we only replace those lights if they fail or if the replacement is necessary. Our customers will make the decision if they wish to replace the remaining inefficient lights in bulk.*

In addition, UE indicate that their approach to bulk replacements is for customers to decide on this replacement approach.

Recommendation

- All DNSPs should replace current streetlights with LEDs when assets fail. This should be built into all relevant cost models for this coming period
- Customers are to determine the approach to bulk replacements to LEDs
- All old lights should be fully recycled

2.1.2 Smart Lighting

Powercor, UE and CitiPower have included smart PE cells within the cost models for any Category V replacement. This cost impact on maintenance prices is not insignificant, compared to standard PE Cells (estimated at 5% of total costs) over the 5-year period.

However, detailed analysis carried out by councils indicates that these smart PE cells, combined with a Smart Lighting Control Management System (CMS), has the potential to reduce overall costs and energy consumption from street lighting by as much as 40%. The

CMS enables the smart control functionality to be enabled within each light remotely and has a critical role in delivering these savings.

A series of sector-wide workshops and surveys were conducted to enable councils to consider the pros and cons of the proposed investment by DNSPs. In total, there were 47 responses representing councils across all DNSP regions.

TABLE 1: Local Government survey results

Question: "Do you agree with the recommendation that the distributors should fund a CMS system and install smart PE cells and when there are failures of Category V street lights?"		
Response	**# responses**	**Percent**
Yes, distributors should fund CMS system and install smart PE cells and when there are failures of Category V street lights	43	91%
No, distributors should not fund CMS system and install smart PE cells and when there are failures of Category V street lights	1	2%
Unsure	3	6%
Total	47	100%

The survey results show that most Victorian councils agreed with the recommendation that DNSP's should fund the CMS systems and install smart PE cells when replacing failed Category V streetlights (91%). Only one council (2%) was opposed to this approach, and three councils were unsure (6%).

Recommendations

- DNSPs should be required to include the installation of smart photo-electric (PE) cells in their replacement programs for Category V street lighting
- DNSPs should be required to invest in a smart lighting CMS to enable customers to effectively manage any smart lighting assets they install
- Ensure smart lighting investments are best value for customers and implemented efficiently across the state, by considering the learnings form the Victorian Advanced Metering Infrastructure System

2.1.3 Changes to the Victorian Public Lighting Code

The (Victorian) Public Lighting Code (the "Code") was released by the Victorian Essential Services Commission in April 2005 and aims to:

> *"… regulate the provision of public lighting or the arrangements for such provision by specifying minimum standards and certain obligations of **distributors** and **public lighting customers** (bolding from original document). The objective of such regulation is to provide a safe visual environment for pedestrian and vehicular movement during times of inadequate natural light."*

Minor updates relating to “ESC’s Review of the Guaranteed Service Level payment” were released in December 2015.

Since 2005 significant technology changes have occurred in the street lighting and electricity network sectors which has large impacts on the operation and management of street lighting. As such, the Code is now out of date with both customers and DNSPs regularly ignoring irrelevant clauses. Despite this, the Code remains a key method by which the DNSPs and the AER test the assumptions within the cost models put forward by DNSPs.

Changes in technology have resulted in the Code not reflecting appropriate minimum standards. Table 2 provides several examples to demonstrate areas where the Code requires updating to provide effective minimum standards for public lighting. They are not designed to be comprehensive but simply to confirm the need for change.

TABLE 2: Examples of current Code clauses that require change

Clause within Code	Requirement for updating
N/A (i.e. not relevant to a specific Clause currently)	Clarify the governance, maintenance and service relationship between DNSPs and customers where smart technology is installed on street lighting assets.
N/A	Formal processes for engagement and negotiation between DNSPs and customers with regard to public lighting issues are now common place. This should be reflected within the Code.
N/A	Increase recycling requirements for public lighting. Old lamps contained 80-90% glass, whilst new LEDs are less than 15%. Ensure the requirements of the Code cover appropriate recycling of LED products.
2.1c) develop and implement plans for the operation, maintenance, refurbishment, replacement, repair and disposal of its public lighting assets: - in a way which minimises costs to public lighting customers	Additional focus on energy efficiency and consideration of life cycle costs is required.
2.3.1a) operate a 24hr call centre to receive public and public lighting customer reports of public lighting faults	The advent of smart technology changes provides alternative interface platforms to the mandatory 24h call centre requirement for registering the reporting of lighting faults by customers.
2.3.1c) replace non-major road lamps at least every 4 years or otherwise as required by public lighting standards 2.3.1d) clean, inspect for damage and repair luminaires during any re-lamping; 2.3.1d) replace photo-electric cells at least every 8 years or otherwise as required by public lighting standards	Public lighting technology has changed with the introduction of longer life technology. These new technologies provide opportunities to vary the maintenance regime due to the availability of longer life components and more robust luminaires, however these changes are not reflected in the current code requirements for minimum service levels.
2.3.1e) routinely patrol major roads at night to inspect, replace or repair luminaires at least 3 times per year	The advent of smart technology provides the ability to remotely understand maintenance and performance requirements for public lighting.

During the workshop series, councils were surveyed on whether the Code should be updated.

TABLE 3: Local Government survey results

Question: *"Do you agree with the recommendation that the Public Lighting Code should be updated?"*		
Response	**# responses**	**Percent**
Yes, I agree with the recommendation that the Public Lighting Code should be updated	46	94%
No, I don't agree with the recommendation that the Public Lighting Code should be updated	1	2%
Unsure	3	4%
Total	49	100%

94% of the 49 councils that participated in the survey believe that the Victorian Public Lighting Code needs to be updated. Only one council (2%) did not agree, based on concerns that the update may generate additional cost for councils. A small number of councils (4%) are not sure if an updated Code is necessary. In the past at least one DNSP has written a letter requesting that the Code be updated.

Recommendation

- The AER should request a review of the Victorian Public Lighting Code be implemented by the Victorian Essential Services Commission in time to influence (where relevant) the next Victorian Energy Distribution Price Review.

2.2 Detailed Public Lighting Cost Model Inputs

Detailed analysis of the public lighting cost models submitted by each DNSP indicates there are many areas where best practice should be implemented across DNSPs. For some inputs the recommended changes are modest, in others there are clear errors or significant over statements which – once rectified – should result in obvious and large savings for customers. Overall, the recommendations within this section are to bring each of the inputs in line with best practice. These changes have the potential to save customers over $20m over the period.

The relevant inputs include:

- Inputs – all lamps
- Pole Inspection Rates
- Hours Per Day
- Repairs and Replacements

- LED luminaire prices
- Jemena urbanization
- LED Fault Rates
- AusNet Funded LED Replacement Program
- Abolishing charges
- Language within the model

2.2.1 Inputs - All Lamps

Some inputs for all lamps are unusually varied. Each of the inputs summarised in Table 2 are discussed further below.

TABLE 4: Comparison of inputs for all lamps (2021/22 data utilised)

Inputs - all lamps	Powercor	UE	CitiPower	Jemena	AusNet
Labour rate (per hour)	$117.03	$105.61	$117.03	$121.52	$111.36
Labour rate for night patrols (per hour)	$140.18	$140.18	$140.18	$171.75	$143.48
Elevated platform vehicle (per hour) - urban MV, urban T5	$50.18	$44.69	$44.69	$45.64	$72.59
Elevated platform vehicle (per hour) - rural MV, rural T5, S-HP	$63.64	$44.69	$63.64	$58.69	$103.72
Patrol vehicle (per hour)	$34.37	$11.06	$28.20	$14.04	$39.54

TABLE 5: Comparison of inputs for all lamps – variance to UE Pricing

Variance to UE Price	Powercor	CitiPower	Jemena	AusNet
Labour rate (per hour)	11%	11%	15%	5%
Labour rate for night patrols (per hour)	0%	0%	23%	2%
Elevated platform vehicle (per hour) - urban MV,urban T5	12%	0%	2%	62%
Elevated platform vehicle (per hour) - rural MV, rural T5, S-HP	42%	42%	31%	132%
Patrol vehicle (per hour)	211%	155%	27%	258%

Labour rate (per hour)

The labour rates for Powercor, CitiPower and Jemena are 11-15% higher than UE. It is unreasonable that these rates are so different. We propose either the lowest costs be applied across all DNSPs or the average of UE and AusNet to be used in the Jemena, CitiPower and Powercor determination.

Labour rate for night patrols (per hour)

Similar to the labour rates above, the labour rates for night patrols vary widely. The prices for Jemena are more than 20% higher than all 4 other DNSPs. It is unreasonable for this range to be so wide. We consider it reasonable that Jemena prices utilise the lowest cost of any Victorian DNSP or the average of the other four DNSPs.

Elevated platform vehicle (per hour) – urban or rural, MV and T5 and Patrol vehicle (per hour)

The range of costs for these items (EPV costs in urban and rural areas and patrol vehicles) is large. Without specific reason for this it appears that some rates are uncompetitive. Given that each of the DNSPs meet both Energy Safe Victoria (ESV) and Victorian Electricity Supply Industry (VESI) guidelines, it is unreasonable for some prices to be as much as double those of other DNSPs. Such variance in the tender prices suggests that the procurement processes to reduce costs has been ineffective.

We propose for urban areas that the average of United Energy, CitiPower and Jemena be utilised and for rural areas that the lowest DNSP price be used.

Patrol Vehicle (per hour)

The Patrol Vehicle rates (per hour) vary widely. Several are more than triple the lowest cost. It is unreasonable for this range to be so wide. We consider it reasonable that the average of Jemena and UE be utilised by the remaining three DNSPs.

Recommendations

- The lowest cost labour rate (per hour) should be applied across all DNSPs (United Energy) or the average of United Energy (UE) and AusNet should be used in the Jemena, CitiPower and Powercor determination
- The lowest cost labour rate for night patrols (per hour); Jemena prices utilise the lowest cost of any Victorian DNSP or the average of the other 4 DNSPs
- The average rate for Elevated Platform Vehicle (EPV, per hour) in United Energy, CitiPower and Jemena should be utilized in urban areas, and the lowest DNSP price should be used for rural areas

2.2.2 Pole Inspection Rate

Jemena have proposed a pole inspection rate of 37, this is half that of the other DNSPs which are typically around 75. Without further information from Jemena we assume this figure is in error. In any case this should be benchmarked and the rate of inspections of other DNSPs utilised.

Recommendation

- Jemena's pole inspection rate should be reset to 75 poles per day

2.2.3 Hours Per Day

The hours per day within each model should reflect previous AER determinations, which clarify that the appropriate hours per day for Alternate Control Services are 7.5 hours per day (see Table 6).

TABLE 6: Available hours[1]

Item	Days or Hours	Comment
Public Holidays	10	Victorian Government Gazette
Personal/ Carers leave	12	Electrical Power Industry Award 2010
Annual Leave	20	Fair Work- National Employment Standards
Working days per annum	219	
Hours per day	7.5	Some DNSPs have 9 day fortnights with 8.33 hours per day, which gives the same net result
Available hours per annum	1642.5	

Recommendation

- Confirm with all DNSPs that the number of hours per day are 7.5, as per previous AER determinations

2.2.4 Repairs and Replacements

The volume of repairs and replacement vary widely across DNSPs. The impact of these variances for customers where DNSPs are not using best practice rates, is more than $10m over the 5 years. This variance between best and worst practice demonstrates a concerning level of over-charging.

[1] AER Review of rates in proposed ACS Charges (25 May 2010)

TABLE outlines a sample of repair and replacement rates for all Victorian DNSPs. Variances of up to 100% were found, with significant inefficiencies demonstrated for all AusNet rates.

TABLE 7: Sample proposed repair and replacement rates for Victorian DNSPs

		Jemena	UE	AusNet	Powercor	CitiPower	% Variance below UE/CitiPower/Powercor	
							Jemena	AusNet
Number of bulk lamp changes in 1 day	Urban	85	86	66	86	86	1%	31%
	Rural	70	72	54	72		3%	33%
	Remote			37	60			62%
Number of repairs in 1 day MV 80	Urban	15	29	18	29	29	93%	60%
	Rural	12	24	14	24		100%	71%
	Remote			10	19			92%
Number of repairs in 1 day SHP 150 and V LEDs	Urban	15	19	15	19	19	27%	28%
	Rural	12	15	11	15		25%	40%
	Remote			9	12			28%
Number of bulk PE Cell changes in 1 day P LED	Urban	77	74	66	74	74	-4%	12%
	Rural	64	61	54	61		-5%	14%
	Remote			37	49			32%
Number of repairs in 1 day P LED	Urban	15	25	18	25	25	66%	39%
	Rural	12	20	14	20		67%	44%
	Remote			10	16			63%

Recommendation

- All submitted replacement and repair rates should be benchmarked and the best practice within each category should be utilised to allocate a standard rate across all DNSPs

2.2.5 LED Luminaire Prices

By comparing the LED material pricing submitted by each DNSP it becomes clear that a reasonable cost has been allocated by three DNSPs. Contrarily, for Category P LEDs, Jemena and AusNet have significantly inflated market pricing at 50% and 85% above their counterparts (see TABLE). Note that councils can directly access pricing in line with or better than the lowest pricing in TABLE .

TABLE 8: Proposed LED luminaire prices

Type	Jemena	UE	AusNet	CitiPower	Powercor
P LED	$ 307.04	$ 205.00	$ 379.79	$ 205.00	$ 205.00
V LED		$ 565.00	$ 886.88	$ 565.00	$ 565.00

In terms of V Category LED, AusNet pricing is again significantly higher than the other DNSPs submitted pricing ($888 compared to $565). Alternatively, if the DNSPs are in fact seeing these costs from manufacturers (noting that overheads are already charged elsewhere in the models) then the tendering processes they employ are clearly not effective in driving competitive pricing for street lighting.

In the 2016-2020 determination the AER, when discussing public lighting luminaire pricing, indicated:

> *"The least cost purchase price is not necessarily the most effective or efficient for distributors, as distributors need to take into account the reliability of the supplier, the quality of the products that they supply and the total costs for distributors over the life of the materials.*
>
> *Distributors may also want to source materials from more than one supplier, in order to ensure competitive tension in the market for public lighting inputs. To source from only one supplier runs the risk of supplier monopoly pricing and service quality issues."*

Councils agree that the above issues need to be managed effectively by DNSPs. However, when assessing the approved products, it is clear that for LEDs there is no justification for radically different material pricing amongst Victorian DNSPs. TABLE provides a summary of the approved products for each Victorian DNSP. There is considerable overlap between the approvals and only a small number of LEDs approved by Jemena and Powercor and CitiPower that are not approved by all DNSPs. Despite these additional approvals (only 5 of 18 total approved standard lights), UE have the same material prices as Powercor and CitiPower for all LEDs within the pricing models.

TABLE 9: Approved Standard LED products Victorian DNSPs April 2020

	Type	Powercor	CitiPower	UE	AusNet	Jemena
Category P	Aldridge, PLED II, 17W					
	Aldridge, PLED II, 20W					
	Sylvania-Schreder, StreetLED MKIII, 17W					
	Sylvania-Schreder, StreetLED MKII, 17W					
	Sylvania-Schreder, StreetLED MKII, 22W					
	Sylvania-Schreder, StreetLED MKII, 33W					
	LSS, GE Evolve P4/P5 Gen 3, 17W					
	LSS, GE Evolve P4/P5 Gen 2, 20W					
Cat	Aldridge Aero V-LED, 198W					
	Aldridge Aero V-LED II, 75W					

	Aldridge Aero V-LED II, 175W					
	Aldridge Aero V-LED II, 265W					
	Sylvania-Schreder, RoadLED, 155W					
	Sylvania-Schreder, RoadLED, 275W					
	Sylvania-Schreder, RoadLED Midi, 70W					
	Sylvania-Schreder, RoadLED Midi, 150W					
	LSS, GE 157W					
	LSS, GE 275W					

Recommendation

- The average pricing of UE, CitiPower and Powercor should be used to determine LED luminaire pricing within the public lighting models

2.2.6 Include Jemena lighting within urban region

Jemena indicates that 5% of their area is rural. As indicated within many images on the Jemena website, Jemena is 100% within the boundaries of Greater Melbourne. It may be that this determination of the Jemena region was made some time ago before Gisborne, Sunbury and Clarkefield became incorporated into Melbourne's growth areas.

Recommendation

- Adjust all inputs so that Jemena is considered 100% within the Urban region of Melbourne

2.2.7 LED Fault Rates

The Public Lighting Models for PLED (Category P LEDs) include a "Proportion of luminaires that fail between bulk change". Within the model, the only failure rate attributed to the LED is

that of the PE cells. Councils experience common LED failure rates of below 1% for most DNSPs. In addition, AusNet have provided detailed failure rate statistics within their modelling. Based on the numbers provided by the DNSPs we are assuming that they are providing 20 year failure rates for the LEDs.

However, we request that the AER confirm these assumptions and identify a common failure rate statistic for the 20 year period for all DNSPs.

In terms of the actual failure rate itself, AusNet indicate that they have"

> *"Reduced (repairs for luminaires) from 15% to 0 because major repairs (luminaire replacements) are capitalised in our accounting methodology."*

In addition, in the Alternative Control Service: Connection and ancillary network services Addendum provide revised failure rates based on 2016-2018 actual data. Based on this AusNet conclude:

> *"Our revised light failure analysis shows the average fault rate (from 2016 to 2018, inserted by author) for LED lights is 1.09%, comprising of 0.49% luminaire replacements, 0.46% PE cell replacements, and 0.14% other repairs."*

Note that the 0.49% for luminaire replacements is capitalised so cannot be double counted within the failure rate in the model.

Within the public lighting model, the failure rate for LEDs utilises old data from the previous model for T5s (8.9%) and needs to be replaced with this updated information. The AusNet LED failure data is detailed in Table 10.

TABLE 10: AusNet Services Record of LED Failures 2016 to 2018 per luminaire

AusNet Service LED failure rates	% failure p.a.	% of overall failures	% of overall failure (exc. luminaire replacements)	Extrapolated 8 year failure rate*
% of repairs - PE cells	0.46%	42%	77%	3.7%
% of repairs – luminaires	0.49%	45%		3.9%
% of repairs – other	0.14%	13%	23%	1.1%
Total	1.09%			8.7%
Total (exc. Luminaires)	0.60%			4.8%

*Note in reality this may be a 20 year failure rate. The calculations in the model need to be assessed by the AER before confirming.

Note that in the AusNet model the stated LED failure rate for all Category P LEDs (18W and 14W) is inputted at 8.9%, which based on their own data is in error. If extrapolated, this data appears to be similar to the majority of other DNSPs at 12% failure rates over 20 years.

Recommendation

- Confirm assumptions around the time period that the LED failure rates apply to and identifying a common failure rate statistic for the 20-year period for all DNSPs
- Ensure that a common approach to capitalisation and failure rate statistics be applied and, if failure rate data is not available from other DNSPs, utilising the AusNet supplied data over 20 years for the coming 5-year period

2.2.8 AusNet Funded LED Replacement Program

AusNet are proposing to replace 29,000 street lights to LEDs within the 5 year period. The cost of this program is approximately $18m (or 28% of total revenue for AusNet) and will add a further $5m to the Regulatory Asset Base (RAB). The overall impact on the maintenance pricing for all councils over 5 years is to add approximately 25% to the energy efficient lighting charges in 2025.

In April 2020, a dedicated workshop was held with 18 councils in the AusNet region to discuss this bulk replacement proposal. All councils were invited to provide views, queries and comments during the workshop and a follow up survey was completed to understand council views on the AusNet proposal. **Error! Reference source not found.** provides a summary of the council responses to the following recommendation:

- *Reject AusNet's proposal to fund the replacement of 29,000 LEDs.*
- *Invite AusNet to work with customers collectively to scope a DNSP wide project where the scope and costs are transparent and defined by customers*.

The majority of councils rejected AusNets replacement program and, in addition supported working closely with AusNet to scope a DNSP wide program that is scoped and defined by the customers.

Table 11: Local Government survey results

Question: "Do you support the above recommendation to respond to AusNet's proposed LED bulk replacement programme?"		
Response	**# responses**	**Percent**
Yes, I support the recommendation	16	89%
No, I do not support the recommendation	1	6%
Not sure	1	6%
Total	18	100%

There are many issues with AusNet's proposed approach. Importantly, the proposed project costs are not scoped appropriately to deliver the replacement program to the majority of lights, of which more than 20,000 are non-standard assets. Furthermore, councils which

have already replaced all inefficient lights will be required to fund the proposed program for the next 20 years. Whilst councils applaud AusNet for initiating a proactive energy efficient replacement program, ultimately such a program needs to be agreed by customers – which is not the case here, given that 89% of councils rejected AusNet's proposal.

Recommendation

- The proposed funding program by AusNet for 29,000 LEDs should be rejected
- AusNet should work closely with customers collectively to deliver a DNSP wide program that is defined and scoped by customers

2.2.9 Abolishing of Charges

UE have indicated they have abolished or will continue to deliver free certain charges, due to how simple they are to deliver now that smart meters are present across the network. The UE charges that have been abolished for the 2021-25 period include:

- Abolishment of under 100 amps (non-complex)
- Desktop and site assessments for No Go Zones
- Service truck visits
- Remote energisations/de-energisations

We call upon the AER to encourage the practice of abolishing charges across all DNSPs that can now be abolished because of system improvements.

Recommendation

- The AER should assess the practice of abolishing charges, because of system improvements, including whether these are being applied evenly across all DNSPs

2.2.10 Language in the Public Lighting Models

Please change in these models "Number of men in crew" to "Number of workers in crew" or similar (i.e. non-gender specific).

3. DEMAND MANAGEMENT

Demand management is a flexible and relatively low-cost network solution compared to traditional asset replacement or augmentation. Its value is enhanced by its ability to deliver additional societal co-benefits, such as the associated reduction in greenhouse gas emissions.

TABLE 12: Summary of proposed demand management expenditure

Real ($m Real 2020)	UNITED	JEMENA	CITIPOWER	POWERCOR	AUSNET
Broad based demand management (business as usual OPEX/CAPEX)	$8.6	No data	$5.5	$4.7	$7.5
Demand management incentive scheme (DMIS) allowance	$2.40	$2.04	$2.00	$3.50	$3.46
Total demand management spend	$11.0	No Data	$7.50	$8.20	$10.96
Total proposed network expenditure	$1,219	$1,285	$852	$2,140	$3,186
Portion of total expenditure on DM	0.90%	No data	0.88%	0.38%	0.34%

3.1 Broad base demand management expenditure

There is a concerning lack of priority given to demand management in the proposals put forward by Victorian DNSPs (See Table 12). This highlights the fact that the current regulatory framework creates significant barriers to the uptake of demand management and provides a clear capex bias towards the way in which network businesses operate.

With the exception of AusNet Services and United Energy, there is disappointing lack of transparency around the total expenditure proposed by the businesses on broad based demand management activities (i.e. business as usual opex, capex or augex). Table 12 demonstrates that there is no expenditure data available for Jemena, with the amounts for CitiPower and PowerCor assumed on secondary references within the each proposal. Where data is available (e.g. United Energy) it is clear that broad based demand management is still not core business for the DNSPs, with just 0.46% of total network expenditure allocated to reducing demand.

Recommendations:

- Demand management activities and associated expenditure should be afforded the same level of transparency as other forms of expenditure in all regulatory proposals in future
- Forecasted expenditure (OPEX/CAPEX/AUGEX) on broad based demand management initiatives and a description of each activity should be included in the revised proposals for Jenema, CitiPower and PowerCor

3.2 Demand management incentive scheme allowance expenditure

Government intervention to support or stimulate innovation is required in areas where the benefits of such innovation cannot be fully captured by the businesses that initially invest in research, development and commercialisation. The authorisation of incentive allowances should be contingent on distribution businesses committing to a clear development pathway that demonstrates the transition to a business as usual approach (i.e. funded through OPEX/CAPEX/AUGEX). There are some excellent examples of this occurring already, including United Energy's Summer Savers program and the Hasting to Rosebud Community Grid.

Table 12 demonstrates that the combined DMIS allowance requests for all five business equates to $13.4m. This represents just 0.15% of the total network investment proposed across the period. This amount is clearly insignificant when compared with other industrialised businesses where expenditure on research and development is often higher by several orders of magnitude.[2]

It should be noted that two of the five businesses (United Energy and AusNet Services) have provided clear documentation for how they intend to use their DMIS allowance in the next period. In contrast, Jemena, CitiPower and PowerCor provide no justification for their continued request for DMIS funding (totaling $7.54m).

We consider it is unreasonable for the AER to approve DMIS expenditure where there is no transparency around the types of activities that it will be 'incentivised'. Should the three DNSPs provide appropriate evidence in their revised proposals later this year, councils will reconsider their support for their requests for funding under the incentive scheme.

In the case of United Energy and AusNet Services, we believe their DMIS allowance proposals are reasonable given the types of activities proposed by the businesses are clearly defined and deliver other co-benefits aligned with the objectives of Local Governments, particularly around emission reductions. Many such initiatives are proposed to be delivered in partnership with councils, including examples such as AusNet Services' Good Grid program.

Recommendations:

- The AER should provide clear and strong incentives for the network business to undertake pilots and trial projects to fully assess the costs and benefits of new innovations (where a clear development pathway to 'business as usual' can be demonstrated).
- United Energy and AusNet Services should be granted their full requested allowance under the DMIS scheme.

[2] 2010 EU Industrial R&D Investment Scoreboard (link)

- Jemena, CitiPower and PowerCor should provide additional documentation in their revised proposals outlining the types of projects requiring funding through the DMIS.

3.3 Voltage management

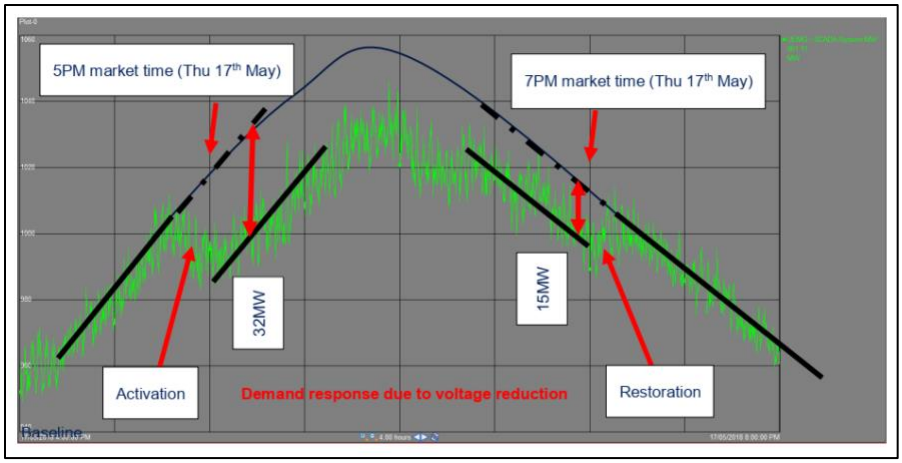
In 2017, ARENA provided $5.76m funding for a $6.61m United Energy project to reduce voltage across the electricity network.[3] The project utilised the comprehensive information being provided by customer smart meters to adjust voltage levels coming out of the zone substations across the UE network (47 substations).

This work was focused on demand management for a small number of days in summer with peak energy consumption in order to access the impact on income for reducing demand at peak times. The customer funded Advanced Metering Infrastructure (AMI) would require some enhancements and was expected to result in reduced real power load across the network.

The project found the following:

- Results of voltage reduction tests demonstrated a 0.8% real power reduction on average for every 1.0% voltage reduction[4]
- Multiple tests over a 14 month period demonstrated real power reductions within the network ranging between 1.29% and 3.26%, with an average of 1.98% (See Figure 1)
- Significant improvements in compliance with Australian Standards (Australian Standard 61000.3.100-2011) for voltage range (See Figure 2)

Figure 1: Demand response curve for May 2018 test (UE Demand Response Project Performance Report - Milestone 3).



[3] https://arena.gov.au/projects/united-energy-distribution-demand-response/
[4] UE Demand Response Project Performance Report - Milestone 1, Page 4.

Figure 2: Ability of DNSP to change voltage levels on the network and maintain compliance to Australian Standards (UE Demand Response Project Performance Report - Milestone 5).

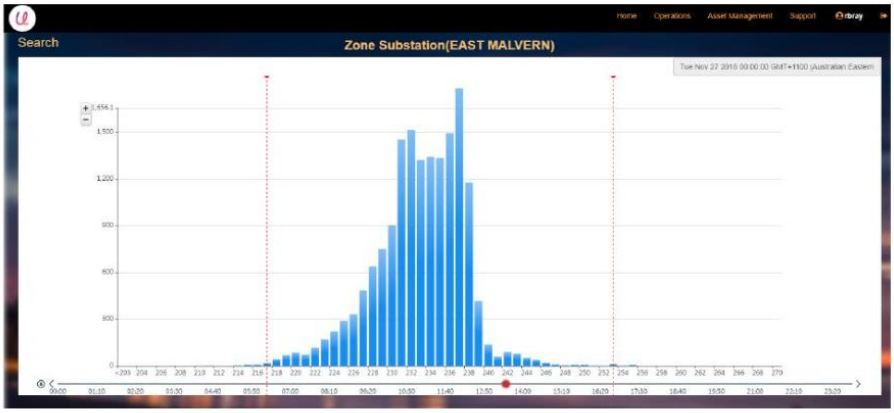


Figure 2 During DR test, showing customer voltages regulated at lower end of regulatory voltage band

Figure 3 After the DR test showing customer voltages regulated at upper end of regulatory voltage band

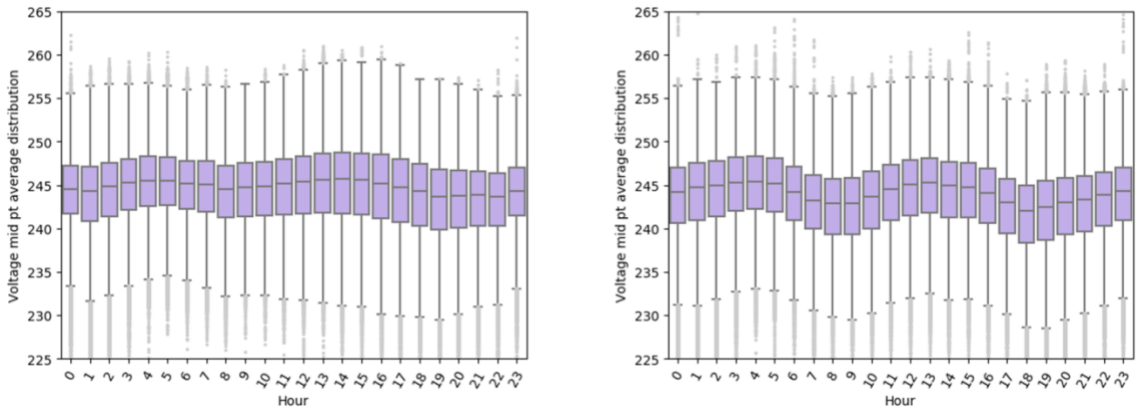
Although this project demonstrated considerable real power savings, its' applicability within the confines of the demand management program run by AEMO were ultimately determined to be limited. This was because determining a relevant reference day for each claim by UE became difficult given such a short history of data and increasingly hot days to find comparative information on. The reason for raising this within this submission is not to discuss how to reduce peak demand, but in fact to advocate for this, now well tested technology, to be deployed across all of Victoria, all of the time.

United Energy identified there was limited potential once the load on the network dropped. This is true if the aim is to reduce peak demand. However, if the aim is to reduce real power across the network and deliver the subsequent reduction in overall cost to the community for the electricity system, then the potential real power savings are as high as in peak times.

Across the network voltage levels are typically higher when load is low and drops when load is high (Figure 3). This indicates that if the purpose of voltage control was to reduce energy and

costs for consumers then there are greater opportunities outside of these very narrow and limited peak electricity demand periods.

Figure 3: Victorian daily voltage profile (January (LHS) and June (RHS))



The program itself largely focused on reducing peak demand[5], in order reduce future electricity distribution system investment and to access funding through demand management programs. However, there are very large potential benefits to the Victorian Community in implementing this program at all possible times.

Modelling completed for this submission, based on the UE data, indicates that the potential for a state-wide roll out of this technology, that is then deployed continuously, has the following potential benefits:

- Reducing real power demand across the state by as much as 2%
- Reducing greenhouse gas emissions by around 1 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e)
- Reducing costs to the Victorian community by an estimated $100-300m p.a.
- Lower voltage levels can allow for greater distributed generation assets (such as solar) on networks.

It is the responsibility of the AER (most likely in conjunction with the AEMC) to ensure the learnings from this project are enshrined within the minimum requirements of all Victorian DNSPs in order to reduce overall costs of the electricity system to the community.

There is much complexity in making this happen, however, there are a number of initial steps the AER can implement within this pricing determination to ensure this is implemented in the

[5] From page 16 of United Energy Demand Response Project Performance Report - Milestone 5: "*The main driver for DVMS is to be able to dynamically move the voltage profile of each zone substation on the UE distribution network toward the lower limit of 216V (V1%) that is defined in Australian Standard 61000.3.100-2011 in order to deliver demand response service to minimise any customers outside of the stipulated regulatory limits*".

short term. There is no doubt that leaving this until 2026 would be a considerable disservice to the Victorian community.

Recommendations:

- The AER require that all Victorian DNSPs commit to replicating the United Energy Dynamic Voltage Management System (DVMS) capability throughout the entire network
- Within the 2021-25 period (and as early as possible) the AER require the operation of the DVMS as a minimum operational requirement of the Victorian DNSPs aimed at reducing overall system real power, within the constraints of relevant Australian Standards
- That the costs to implement these recommendations be incorporated into the 2021-25 pricing period
- That the AER investigate the applicability of rolling DVMS nationally.

4. DISTRIBUTED ENERGY RESOURCE (DER) INTEGRATION

Councils welcome the transition from reactive planning towards proactive planning in all DNSP proposals for the upcoming period. However, evaluating DER integration expenditure is complex and technically challenging for consumers to consider. We understand the AER is yet to finalise its *'Framework for Assessing DER Expenditure'*, and without further guidance it is difficult for consumers to evaluate the proposals in detail. In the absence of the framework, we acknowledge the good work the undertaken by Victorian DNSPs in these pricing proposals to enhance hosting capacity and enabling exports of zero marginal cost DER generation.

TABLE 13: Summary of DER integration expenditure

Real ($m Real 2020)	UNITED	JEMENA	CITIPOWER	POWERCOR	AUSNET
Total proposed network expenditure	$1,219	$1,285	$852	$2,140	$3,186
DER enablement	$42.4	$28.1	$31.4	$60.7	$51.8
Customers (2020)	670,000	352,800	333,000	810,000	737,000
DER costs as % of total expenditure	3.48%	2.19%	3.69%	2.84%	1.63%
Expenditure on DER per customer	$63.28	$79.65	$94.29	$74.94	$70.33

4.1 DER 'enablement' expenditure

Councils recognise and support the principle that there is an urgent need to improve the hosting capacity of DER on the distribution networks across Victoria. Many areas across the state are approaching or passing 30% solar penetration thresholds, and examples of 'reverse flows' on networks are becoming more commonplace.

Government programs are a driver of DER uptake. The Victorian Governments Solar Homes program will support the installation of more than 650,000 solar systems for owner-occupiers, 50,000 systems for rental properties, 10,000 battery storage systems and 60,000 solar hot water systems across the state over the coming decade.

In addition to State and Federal policies and incentives, communities and local governments across Victoria are developing and implementing ambitious plans for rapid transitions to 100% renewable energy or zero net emissions over the next decade. For instance, the Hepburn Shire in Victoria is aiming to reach zero net emissions by 2030, and the towns of Newstead, Yackandandah, Wodonga are all seeking to reach 100% renewable in several years. As such, the roll out of DER will also be geographically diverse depending on local government programs and community energy projects like bulk buys.

All proposals have demonstrated that these programs have been considered within forecast models, however, there are still significant uncertainties within broader DER uptake forecasts, and it is reasonable that this uncertainty is factored into DNSP pricing models.

Recommendation:

- The AER should accept the proposed DER enablement expenditure for all DNSPs

4.2 Support for improving visibility and coordination

Victoria has a unique advantage in that smart meter data can support an increased level of visibility of DER on the low voltage network. However, our understanding is that this capability is not fully developed and additional investment in IT infrastructure is likely to be required. We support the need to enhance smart metering capabilities to improve understanding of where, when and what kinds of network constraints are occurring.

However, this is an area of the pricing proposals that is the least transparent and most difficult for consumers to assess or benchmark. We consider that there is a real need for more transparency on investments in IT infrastructure and question whether it requires its own separate process like a RIT-D. These investments are not trivial, despite the benefits that such investment may unlock.

Recommendation:

- Expenditure on IT infrastructure should be approved, where DNSPs have provided transparency on the intended initiatives and the visibility and coordination benefits

4.3 Pricing DER integration and equity issues

Network businesses and consumer groups are in general agreement that grid augmentation to support 100% of solar exports at all times is not economically efficient. To do so, would require unnecessary ‘gold-plating’.

We note the approach taken by DNSPs to arrive at an economically prudent investment takes two general forms:

- Only upgrading areas of the network where the export benefits exceed the cost of augmentation, applying the value of the DER export with the Essential Service Commissions’ Feed in Tariff (FiT).
- Upgrading network when capital investment is required to remove ‘most’ constraints, versus removal of all constraints, based on percentage of time solar is constrained at the substation

Whilst this is a more mature approach than the typical process adopted over the past few years (whereby increasing export limits have been managed through a 'first come, first served' approach), equity issues for consumers still remain. This could result in scenarios within communities where the ‘last’ household on a street is unable to export, or in which investment is biased towards older parts of the grid, typically with fewer areas of social disadvantage.

Recommendation:

- Support should be provided for DNSPs to invest in dynamic export and load management technologies that can address emerging equity issues from increased DER uptake

4.4 Benchmarking DER ‘value’ and expenditure

The diversity and sophistication of the assessment approaches of DNSPs reinforces the need for a common set of benchmarks and metrics to be developed for this critical and emerging area.

The data presented in Table 13 demonstrates that there is reasonable consistency across the proposed expenditure profiles of the DNPS, when comparing the portion of DER expenditure and the costs per customer. However, these indicators are blunt and don’t provide any insights on service levels or customer benefits.

Ideally, a consistent value or methodology should be developed in consultation with consumers to ensure it is meaningful and allows for energy users to understand the trade-off involved with different investment options. The Value of Customer Reliability (VCR) is an example of how this complexity can be distilled to a meaningful metric related to service levels that customers can comprehend.

Councils acknowledge that the New York State Public Service Commission has also developed a standardised approach for valuing the system impact of PV and urge the AER to extend this approach by valuing other forms of DER in finalising its upcoming ‘*Framework for Assessing DER Expenditure’.*

Recommendation:

- Establish clear and consistent methodologies for assessing DER expenditure, using metrics and benchmarks that are meaningful to consumers

4.5 Electric vehicle uptake in forecasts

Considerations of how electric vehicles (EVs) will drive changes in demand and network impacts differs across the proposals. United Energy’s submission is most realistic and thorough

in how it assumes EV's to impact the network over the pricing period and also how it approaches augmentation. UE expects:

> *"sales of electric vehicle in Victoria to increase eight-fold from 5,863 vehicles to 55,876 vehicles between 2021 and 2026."*

By contrast, AusNet considers that:

> *"it is not possible to obtain reliable EV uptake forecasts or likely usage patterns, which in turn precludes us from being able to forecast the likely demand on our network or identify any new obligations we may become subject under. Thus, it is not possible to provide for these events in our expenditure forecasts."*

We consider United Energy forecasts to reflect reasonable market expectations for EV growth between 2021-2026 and do not consider AusNet's stance to be valid. Energeia conducted an Australian Electric Vehicle Market Study in 2018 and expect that 22-65% of all new car sales to be EVs by 2030. In a poll conducted by the Australia Institute, 52% of Australians would support all new car sales to be EV by 2025. This demonstrates that it is likely that EV uptake will be significant over the 2021-2026 period and planning should be underway now.

Recommendations:

- Accept United Energy's forecast for future EV uptake and require other DNSPs to revise their EV uptake models in line with United Energy in their revised proposals

5. REGIONAL SUPPLY AND MICROGRIDS

Communities in rural areas are increasingly pursuing the development of microgrids and more localised energy supplies to improve reliability, address bushfire risks and reduce emissions. Microgrids vary in nature, but the term generally refers to the ability to separate, or 'island', a consumer or group from the main electricity grid, either permanently or temporarily. In Victoria's regional towns, non-network options can provide cost-effective, efficient and sustainable alternatives to grid expansion.

Each DNSP is proposing different levels of innovation with regard to upgrading supply and investigation of microgrids. The AEMC has proposed a range of regulatory changes to enable distributors to supply customers with Standalone Power Systems (SAPS) where it is cheaper than maintaining grid connection. If the AER approves these changes, it may create opportunities for change across a large part of Victoria within the coming pricing period.

Powercor has proposed to upgrade supply for a dairy farming community in the south west of the State. Whilst we don't contend the need for upgrading supply in this region, there is a concern that the process undertaken in this proposal is not equitable. Many communities across the State experience issues with supply or frequent local outages that hinder economic development and expansion of local industries. We consider that there needs to be a more strategic and equitable process to identify priority areas for upgrades. This is likely to be best undertaken in conjunction with state and local governments as they are able to help prioritise areas of the economy for strategic economic development. The current proposal seems biased towards an economic sector within a particular geographic region.

Ausnet has some strong demonstration of innovation and has clearly identified microgrid projects in Euroa, Latrobe Valley and future proposals. Powercor's proposal does not, however, identify clear microgrid opportunities, apart from a vaguely worded *"microgrid project where we have been in discussions with the AER about supporting microgrid establishment"* in demand response.

However, all DNSPs should be able to identify how they plan to identify and pursue microgrid opportunities over the pricing period. This should include how pilot programs may expand into other regions.

Recommendation:

- Require all DNSPs to provide more detail on how they will identify and pursue microgrid/SAPS opportunities over the period
- Request Powercor to explain the process it undertook to identify the dairy farming region in South West Victoria as a priority for network upgrades

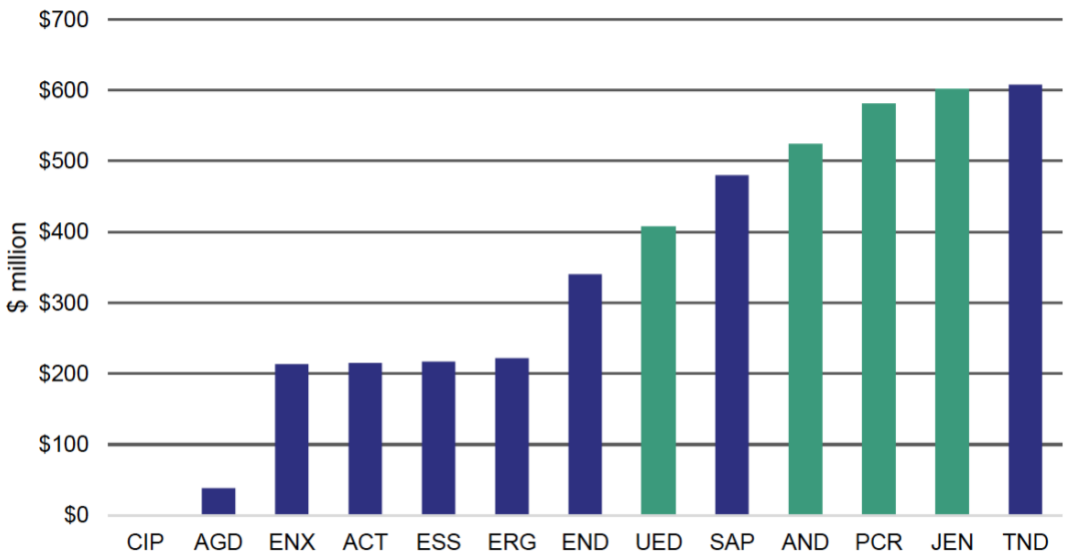
6. VEGETATION MANAGEMENT

Under the Electricity Safety Act 1998, the two main parties responsible for keeping trees clear of power lines ("responsible persons") are DNSPs and councils. For several years Victorian councils have advocated to the State Government for a line clearance regime that better balances safety, amenity and environmental considerations, particularly in low bushfire risk areas.

Currently network businesses are required to submit Vegetation Management Plans annually to Energy Safe Victoria (ESV), and we recognise that most issues in this section of our submission relate to the ESV processes. However, it is important that the AER is aware of the issues relating to vegetation management around powerlines and how it is assessed in DNSP's OPEX proposals.

Benchmarking efficiency of network expenditure on vegetation management is problematic. AusNet's pricing proposal highlights how they compare to other Victorian DNSPs when it comes to OPEX expenditure, using the metric of $m per active span. However, as AusNet rightly points out, the geographic differences across networks make it difficult to assess and benchmark. Vegetation management is broader than safety risks and there should be recognition of the challenges in the AER framework if expenditure is too narrowly assessed under safety OPEX.

Figure 1: Vegetation management expenditure per active span[6]



A sector wide survey (capturing 33 councils across the five network areas) was conducted to assess how local governments perceive network performance on vegetation management. The

[6] AusNet pricing proposal 2022-2026 page 29

survey results clearly demonstrates the challenges for councils and DNSP's to work more collaboratively on vegetation management going forward.

Urban street trees are critical infrastructure that delivers a range of community benefits, including shading and cooling, reduced stormwater runoff, reduced air pollution and carbon drawdown, critical habitat for local wildlife and enhanced biodiversity, improved community health outcomes, reduced energy costs and increased property values. Different councils and universities have attempted to place a value on the economic, social and environmental value of tree assets. For example, City of Melbourne estimates that its 70,000 council-owned trees are worth around $650m.[7]

With the value of street trees increasingly recognised, most councils are increasing plantings in their municipalities. Many have ambitious targets, such as City of Melbourne and City of Ballarat seeking to double canopy cover by 2040. The costs of street trees are not cheap and range from $300-800 per tree for a two-year planting and maintenance regime. As such it is critical that greater collaboration occurs between networks and councils to maximise the full benefits.

There remains a pressing need for the distribution businesses to work collaboratively with councils to investigate solutions that enable mature trees to remain and be managed in close proximity to power lines in low bushfire risk areas.

Councils have expressed how vegetation management being undertaken by network businesses, largely subcontractors, can conflict with other council tree management objectives (Table 14). One respondent described

> *"Many of the tree contractors are paid per span and as quality of work seems to be rarely inspected the health of trees suffer. A number of poorly pruned trees have failed and council is left to manage the clean up/remedial works due to works not being carried out to Australian Standards."*

TABLE 14: Local Government survey results

Question: *"Do you consider that vegetation management conducted by your electricity network (incl. subcontractors) conflicts with other council tree management objectives?"*		
Response	**# responses**	**Percent**
Always	3	9%
Usually	13	39.5%
Sometimes	13	39.5%
Rarely	4	12%
Total	0	100%

[7] https://www.melbourne.vic.gov.au/SiteCollectionDocuments/eco-assessment-of-urban-heat-island-effect.pdf

Councils are also often dealing with community concerns over street tree pruning, either through what is seen as excessive pruning, or due to clean-up timeframes. One respondent described:

> *"Pruned branches not being cleaned up in acceptable timeframes. These are left on residents' nature strips and then create issues for council with large numbers of community requests. Also, council is not clearly notified when distribution company workers are present and where so we have to expend resources following up these enquiries."*

TABLE 15: Local Government survey results

Question: *"Has there been community concern raised about powerline pruning and vegetation management over the past 5 years?"*		
Response	**# responses**	**Percent**
A great deal	4	11%
A lot	7	20%
A moderate amount	16	47%
A little	6	17%
Not at all	1	3%
Total	0	100%

A key issue across the state is the pruning regimes that each DNSP applies and in particular the length of their pruning cycles. Examples of what is considered to be severe pruning are shown in Figure 2.

Figure 2: Examples of severe street pruning on three year cycles in Powercor region.

Many survey respondents described common experiences:

> *"Less frequent pruning cycles resulting in heavier cutting and impact upon streetscape amenity and tree structure/form". "Pruning is often excessive and poorly done", "overly severe pruning and unnecessary removals".*

In the Powercor region for example, the pricing proposal recognises savings in the previous pricing period from reducing pruning cycles. However, this three year pruning cycle has led to significantly more aggressive pruning than more regular pruning cycles. Inspections of assets also vary depending on the network, with AusNet assessing assets at intervals of less than 37 months through both ground and aerial observations

The majority of councils consider more frequent pruning regimes to be more appropriate to ensure that the broader value of the trees are not compromised (see Table 16). Some have suggested that delineation could occur between areas of different voltages (eg.6kv to 22kv and above) and bushfire risks, and more frequent annual pruning for significant mature trees.

TABLE 16: Local Government survey results

Question: *"What do you think should be the necessary pruning cycle for street trees?"*		
Response	**# responses**	**Percent**
1 year	13	39
2 years	13	39
3 years	2	6
Other	5	15
Total	0	100%

Recommendations:

- DNSPs should be required to implement more frequent pruning cycles, with annual cycles for urban / township areas and two-year pruning regime cycles for most other scenarios.
- Recognition that greater collaboration should be sought between councils and network DNSPs on vegetation and habitat management. This is particularly relevant where councils have ambitious urban forest plans and canopy cover targets.
- More frequent audits of contracted cutting crews to improve pruning to Australian standards and to raise any issues as they arise.
- Work with councils to aerial bundle cable on spans with identified high value trees.

7. CLIMATE RESILIENCE

Victoria is already projected to experiencing hotter and drier conditions and more extreme weather events, such as storms, flooding and bushfire, due to climate change. In coming decaes, these trends will undermine the security and reliability of energy supply. The Victorian Climate Projections provide further data and information on expected climate impacts.

Considering how to improve energy resilience across Victoria and across the NEM is a critical priority. As AEMO's recent draft Integrated System Plan recognises, climate change will affect the grid and is already doing so by shaping energy demand and also by directly impacting electricity infrastructure. For example, as both temperatures and the frequency and length of heatwaves rise, increased use of air conditioning leads to higher summer peak demand. This, in turn, could lead to higher energy prices and network outages if action is not taken now to address the impact of climate change.

Extreme weather undermines the operation of the grid. For example, in January 2018, about 48,000 households in Victoria were left without power after a heatwave caused network faults such as blown fuses and failed transformers. Under extreme temperatures, electricity infrastructure can also worsen bushfire risk - transmission lines can sag below height limitations in hot weather as they expand and become heavier, and thereby increase the risk of grass fires.

As Victoria's regions transition to more renewable energy, there are opportunities to improve energy resilience. Generally speaking, a more distributed energy system can reduce vulnerability to severe weather events by reducing reliance on long lines and multiple poles. However, severe localised weather events, such as floods and bushfires, still pose risks. In the most resilient system, any particular household or business would be able to operate independently, while being connected to a local grid, which itself can function independently from a centralised system when necessary.

Assessment of the pricing proposals need to be based on how well each DNSP has considered climate change impacts and risks, both mitigation and adaptation. This should also be reflected in how the DNSPs are actively seeking to reduce vulnerability to climate change, by, for example, developing microgrid solutions, undergrounding and bundling of cables in high bushfire risk areas.

Overall, the pricing proposals are weak in regards to how climate change impacts operations and how greater infrastructure resilience can be built. Keyword searches on all submissions only presented climate change once or twice throughout proposals.

Specifically:

- Powercor/United Energy/Citipower proposals do recognise the impacts of climate change on existing operations.

- Jemena recognise climate change as a driver for shifting the energy market from an emissions perspective but not from a climate impact perspective.

In contrast to Powercor's submission, AusNet consider climate change to

> *'…have a negligible impact over the forecast outlook period and so is not included as an adjustment'.*

Recommendations:

- Require DNSPs to assess how climate change will impact operations during this period recognising that decisions made in this period extend into multiple decades
- Seek to build in infrastructure climate risk vulnerability assessments across a range of network investment decisions

8. STAKEHOLDER ENGAGEMENT

Approaches to stakeholder engagement have matured significantly since the previous pricing period. Councils have welcomed the more proactive steps taken by distributors to engage with consumers on a range of key issues and initiatives, including (but not limited to) the following examples:

- AusNet's Customer Forum: this pioneering program is a welcome first step in having the needs and views of customers more comprehensively integrated into pricing proposals. Councils note this process was beneficial for both the DNSPs and customers and would welcome this process being replicated in other networks in subsequent EDPRs. However, the replicability of this pilot is likely to be highly dependent on the skills and experience of the Forum representatives. It will be challenging for future Forums to include representatives with comparable skills and experience, meaning consistency across networks and periods may not be possible. The Forum's ability to credibly represent the perspectives of customers, understand consumer issues and undertake appropriate analysis is likely to dictate the scope of its remit in future iterations of this program.
- CitiPower, Powercor and United Energy's *Future Networks Forum* (April 2019): over 45 stakeholders attended workshops to consider proposals to enable solar exports, demand response programs and incentives to encourage customers to shift their energy load to off-peak periods. Many of the proposed solutions were uniformly unpopular with attendees, particularly the proposed solar hosting capacity and export options. To their credit, the DNSPs were able to demonstrate they responded to stakeholder concerns and subsequently revised their approach to DER enablement with the prompt release of an updated options paper for consultation. This has resulted in a more equitable DER pricing proposal (See Section 4) that is more closely aligned with the pricing proposed by other DNSPs and broadly supported by customers.
- United Energy's Summer Saver Program: last summer's residential demand response program built on previous engagement between councils and the DNSP, including the establishment of Memorandums of Understanding (MOU) between councils and the DNSP in some municipalities. This collaboration involved the coordination of promotional activities, targeted communications to councils ahead of peak events and customised reporting on outcomes, tailored to specific local government areas (i.e. number of households, total demand reduction, emissions savings etc). We would encourage the AER to use this example as a case study for best practice engagement between local governments and DNSPs.
- AusNet's Public Lighting Consultation in April 2019: early engagement between councils and the DNSPs allowed AusNet to rectify some errors in its pricing proposal, particularly regarding assumptions on failure rates of specific lighting technology types. AusNet invited councils to review their cost build-up model at this time, providing a high level of

transparency not demonstrated by other DNSPs. Unfortunately, council feedback on the preliminary cost build-up model was not incorporated in AusNet's final price proposal, which may be a result of the level of resources allocated to managing this area of operations.

Recommendations:

- Replicate the Customer Forum process in future EDPRs, with careful consideration of the skills and experience of nominated representatives and the scope of the negotiation
- The AER should support DNPSs to further develop their stakeholder engagement capabilities, and report on and communicate best practice examples where appropriate

9. GLOSSARY

Term	Definition
AER	Australian Energy Regulator. Responsible for regulating pricing for electricity in the National Electricity Market (exc. WA and NT), including street lighting
DMIS	Demand Management incentive Scheme
Capex	Capital expenditure
Opex	Operating expenditure
Repex	Replacement expenditure
Augex	Augmentation expenditure
AEMO	Australian Energy Market Operator
CFL	Compact Fluorescent lamp
DNSP	Distribution Network Service Provider, also known as Energy Distribution Business (EDB) also known as distributors.
EPV	Elevated Platform Vehicle
ESC	Essential Services Commission
ESV	Energy Safe Victoria
Lamp	The light bulb in a luminaire
LED	Light emitting diode/luminaire
Luminaire	The lamp, fitting and control gear of the light
MAV	Municipal Association of Victoria
MV	Mercury Vapour lamp/luminaire
SHP/HPS	High Pressure Sodium lamp/luminaire
Street Lighting	Street lighting found in residential streets and main roads
T5	Efficient lineal fluorescent lamp/luminaire
VESI	Victorian Electricity Supply Industry
WDV	Written Down Value