



Energy Efficient Public Lighting Charges – Victoria

Final Decision

February 2009

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Contents

Summary	3
1 Introduction	7
1.1 Process to date and current arrangements	8
1.2 Transitional arrangements.....	9
1.3 Review process	9
1.4 Structure of the final decision	10
2 Regulatory approach	12
2.1.1 Variation between proposed charges and cost build up.....	13
3 Draft decision	15
3.1 Substantive issues raised by stakeholders.....	15
3.2 AER response to substantive issues	16
3.3 ESCV’s finding on fair and reasonable T5 charges.....	18
4 Timing of ballast replacement	23
4.1 Draft decision.....	23
4.2 Submissions received.....	23
4.3 AER analysis.....	24
4.4 AER final decision	25
5 Unit cost of materials	26
5.1 Draft decision.....	26
5.2 Submissions received.....	26
5.3 AER analysis.....	26
5.3.1 Unit costs for spot replacements	27
5.3.2 Cost of materials for mass roll out.....	28
5.4 AER final decision	28
6 Number of bulk changes per day	30
6.1 Draft decision.....	30
6.2 Submissions received.....	30
6.3 AER analysis.....	31
6.4 AER final decision.....	31
7 Failure rates of T5 luminaires	33
7.1 Draft decision.....	33
7.2 Submissions received.....	33
7.3 AER analysis.....	34
7.4 AER final decision	35
8 Wage rates	37
8.1 Draft decision.....	37
8.2 Submissions received.....	37
8.3 AER analysis.....	38
8.4 AER final decision.....	40
9 Written down value and avoided costs of MV80 Assets	41

9.1	Draft decision.....	41
9.2	Submissions received.....	43
9.2.1	MV80 written down value	43
9.2.2	MV80 avoided costs	44
9.3	AER analysis.....	45
9.3.1	MV80 written down value	45
9.3.2	MV80 avoided costs	47
9.3.3	Methodology for adjusting public lighting excluded service charges over time	48
9.4	AER final decision.....	49
10	Final decision on assessment of OMR charges	51
11	Reporting requirements.....	54
11.1	Draft decision.....	54
11.2	Submissions received.....	54
11.3	AER analysis.....	55
11.4	AER final decision.....	55

Summary

The five electricity distribution network service providers (DNSPs or distributors) in Victoria - CitiPower, Jemena, Powercor, SP AusNet and United Energy Distribution are required to provide public lighting services to customers under their licence conditions. These services include the operation, maintenance and replacement of public lighting assets, operating a call centre to receive inquiries about malfunctioning lights and dispatching repair crews and the installation of new public lighting assets.

Public lighting charges in Victoria were regulated by the Essential Services Commission of Victoria (ESCV) as an excluded service¹. The Australian Energy Regulator (AER) has from 1 January 2009 assumed the responsibility for the economic regulation of electricity distribution services in Victoria, including the responsibility for regulating electricity distributors' public lighting charges.

In this regard, the AER is exercising certain powers and functions previously undertaken by the ESCV. The new responsibilities are conferred upon the AER by the operation of the *National Electricity (Victoria) Act 2005* (NEVA) in accordance with the *Trade Practices Act 1974* and the Australian Energy Market Agreement. The NEVA specifically confers economic regulatory functions, powers and duties on the AER.

The AER is making this final decision under ESCV's Electricity Industry Guideline 14: *Provision of Services by Electricity Distributors* (guideline 14). This follows a draft decision by the ESCV released in November 2008.

The Victorian Electricity Supply Industry Tariff Order 2005 Attachment A, defines the excluded services for which a distributor may levy charges additional to those in the distribution price control. Specifically, the order identifies the following distribution services which are taken to be excluded services:

- public lighting operations and maintenance
- the provision of public lighting assets constructed after 1 July 1994.

In developing the 2001-05 price determination, the ESCV decided to remove from the distribution price cap any charges for repair, maintenance and replacement of public lighting services using distributor owned assets. It thus deemed these public lighting services to be excluded services.

Further, the Electricity Distribution Price Review (EDPR) 2006-10 sets out that:

excluded services are those distribution services provided by a distributor that are regulated but are not included under the CPI-X price control mechanism used to regulate distribution network tariffs or prescribed meter tariffs².

¹ Excluded services are those distribution services provided by a DNSP that are regulated but are not included under the CPI-X price control mechanism used to regulate distribution network tariffs or prescribed meter service tariffs. A list of excluded services is provided in the attachment A of the *Victorian Electricity Supply Industry Tariff Order 2005*.

² Essential Services Commission of Victoria, *Electricity Distribution Price Review 2006-10, Final Decision Volume 1*, October 2005, p. 591.

The authority of the AER, previously the ESCV, to decide whether a term or condition for public lighting services is fair and reasonable is provided under a distribution licence, which also stipulates that terms and conditions for public lighting services must be consistent with the Public Lighting Code (the code). The principles for the basis on which the regulator can determine whether proposed terms and conditions for public lighting services are fair and reasonable are provided in clause 5.6 of guideline 14

Importantly, the Public Lighting Code (the code) only extends to the provision by distributors of the ongoing operation, maintenance and replacement of assets that are owned by the distributors (clause 1.3 of the code). The explanatory note in clause 3 of the code states that the distributor and the public lighting customer may agree that after the construction and commissioning of the assets the ownership of the assets will transfer to the distributor and where such an agreement is made the assets become subject to the applicable provisions of the code.³

The ESCV, in August 2004, established a new public lighting framework, whereby public lighting assets as at 31 December 2004 and replacement assets from 1 January 2005 were included in the public lighting Regulatory Asset Base (RAB), which is separate from the distribution use of system (DUOS) regulatory asset base. The distributors receive depreciation and a rate of return on those assets, which feed into the operation, maintenance and replacement charges (OMR) paid by public lighting customers. Prior to 1 January 2001, all public lighting assets were included in the DUOS asset base, and charges were recovered across all customers via network tariffs.

Since 2006, public lighting customers – predominantly municipal councils – have been negotiating with distributors to remove existing public lighting luminaires and replace them with more energy efficient luminaires.⁴ Specifically, councils have requested that the MV80 luminaires be replaced with a T5 or Compact Fluorescent 42 (CF42) luminaire. The T5 and CF42 luminaires contain lamps that have reduced energy consumption compared with existing MV80 lamps, providing councils with lower energy consumption. Councils consider this a significant benefit in deciding to roll out energy efficient luminaires.

Ongoing OMR charges and services for new public lighting assets are in the first instance negotiable between a distributor and public lighting customers. That is, the two parties could agree to vary their rights and obligation under the code, in order to receive a different level of service.

Where the parties cannot agree to the charges, the code provides for a minimum level of service by the distributors and allows both customers and distributors to have recourse to the ESCV to assess the proposed distributor charges under ESCV's guideline 14 for fairness and reasonableness.

³ Essential Services Commission, *Public Lighting Code*, April 2005, p. 4.

⁴ Distributors define a luminaire, sometimes also called a light, as a combination of a number of different components, such as a lamp (or bulb/globe), photoelectric cell, electronic control gear (usually referred to as a 'ballast'), luminaire housing and other items which include connection cables and fuses. In contrast a lamp is defined as a globe. See for example United Energy Distribution, *Submission to the Essential Services ESCV on Energy Efficient Public Lighting Charges*, 24 December 2008, p.4.

The ESCV in 2008 received numerous requests from customers to assess the distributors' proposed T5 and CF42 charges following unsuccessful attempts by the parties to reach agreement. In response, the ESCV, in June 2008, requested distributors to submit, by 25 July 2008, their charges for T5 energy efficient luminaires. The ESCV requested distributors to use the ESCV's public lighting cost model developed for the 2004 public lighting final decision (the 2004 cost build up model), to calculate charges as that model was currently used by the distributors to set charges for existing luminaires. In their original July 2008 submissions, the distributors updated the input assumptions in the 2004 cost model for specific T5 or CF42 input assumptions and costs.

The ESCV intended to assess those proposals, including the input assumptions of the distributors, then issue a draft and final decision on the fairness and reasonableness of the distributors' proposed charges. The ESCV issued a draft decision in November 2008, with submissions closing 31 December 2008.

The AER, having assumed responsibility for economic regulation of Victorian electricity distribution services from 1 January 2009, must now assess those submissions and issue a final decision on the fairness and reasonableness of the distributors' proposed charge under the Victorian regulatory framework previously administered by the ESCV.

The AER has made this final decision under guideline 14, and consistent with its new functions to administer the ESCV's price determination 2006-10, which expires on 31 December 2010.

The AER's final decision is that:

- None of the distributors proposed charges meet the fair and reasonable test under guideline 14. Distributors will be required to resubmit their proposed T5 public lighting OMR charges that meet the principles and methodology applied in the AER's final decision. These charges must be submitted to the AER by 3 April 2009. T5 OMR charges will then be assessed against the final decision cost build up model and the AER will assess distributors' T5 OMR charges to apply from 13 April 2009.
- To ensure that distributors have an equal opportunity to submit appropriately considered proposals to the AER on CF42 luminaires in the future, these luminaires do not form part of this final decision. Distributors can, at any time in the future, propose OMR charges associated with CF42s and seek the AER's assessment of those charges for fairness and reasonableness. At the time of application, distributors will be required to provide supporting information on the costs incurred in providing CF42 public lighting services to the AER.
- As customers fund the initial T5 installation, in either new housing subdivisions or in existing locations, the initial OMR charge for T5 luminaires consists of only operation and maintenance costs for the T5 luminaires and a replacement charge associated with the existing pole and bracket which will host the T5 luminaire.
- The upfront installation cost of a T5 luminaire is negotiable between distributors and public lighting customers. Customers can obtain these services from a party

other than the distributor and therefore the AER does not assess a charge for the initial installation cost of a T5 luminaire.

- It is fair and reasonable that the net difference between the written down value and avoided costs associated with replacement of existing distributor owned MV80 luminaires with T5 luminaires before the end of their 20 year economic life, are payable by public lighting customers to distributors upfront.
- A separate energy efficient public lighting Regulatory Asset Base will be established, to record distributors' capital expenditure on T5 luminaires and T5 ballasts. Distributors will be required to separately report the net expenditure on T5 luminaires and ballast in their regulatory accounts.
- Consistent with the current public lighting regulatory framework in Victoria, distributors can apply to the AER each year for an adjustment to their T5 OMR charges associated with their capital expenditure on replacement T5 luminaires and ballasts.

This final decision will apply to public lighting services and charges in Victoria until 31 December 2010, after which the process for assessing DNSPs' public lighting charges will be under chapter 6 of the National Electricity Rules.

The AER is currently designing the framework and approach for the Victorian DNSPs' 2011-15 regulatory reset, which has proposed that public lighting be regulated as a direct control service and further classified as an alternative control service under chapter 6 of the National Electricity Rules. The AER proposes to classify:

- the operation, repair, replacement and maintenance of the Victorian DNSPs' existing public lighting assets as a direct control service and in turn as an alternative control service because of the DNSPs' monopoly position in the provision of these services, and the current classification of these services as excluded distribution services.
- the alteration and relocation of the Victorian DNSPs' existing public lighting assets as a direct control service and in turn as an alternative control service because of the DNSPs' considerable market power in the provision of these services. The regulatory barriers that exist mean that only the Victorian DNSPs can effectively alter or relocate their own existing public lighting assets.
- new public lighting assets (standard and non-standard provision) as negotiated distribution services, on the basis that these services are currently provided on a competitive basis and are currently classified by the ESCV as contestable excluded distribution services.

A proposals paper on the framework and approach is available on the AER's website, www.aer.gov.au. The AER is required to publish its framework and approach for the Victorian DNSPs' 2011-15 regulatory reset by 30 May 2009.

1 Introduction

Electricity distributors provide public lighting services to customers as a condition of their licence to distribute electricity in Victoria and according to the standards listed in the code.

Local councils, as the main public lighting customers in Victoria, have requested distributors to provide them with an operation, maintenance and replacement charge associated with the provision of energy efficient public lighting, specifically the T5 luminaire.

As the councils were unable to agree with distributors about the ongoing operation, maintenance and replacement charge for a T5 energy efficient luminaire, they sought the assistance of the ESCV to determine the fair and reasonable charges associated with providing these services.

The ESCV issued an open letter in June 2008, requiring the distributors to propose a T5 OMR charge, using the public lighting cost build up model developed by the ESCV in 2004. These submissions were to be received by 25 July 2008. .

The ESCV's review of the proposed charges was undertaken according to the principles in guideline 14, which requires the ESCV to assess the fairness and reasonableness of the distributors' proposed charges on the basis of a set of economic principles.

A draft decision was issued by the ESCV in November 2008, where the ESCV assessed the distributors' proposals as not being fair and reasonable and sought stakeholder submissions to its draft decision.

Responsibility for releasing a final decision was transferred to the AER by the ESCV from 1 January 2009.

The ESCV noted in its November 2008 draft decision that some elements of public lighting are contestable and therefore did not require the regulator to assess those elements for fairness and reasonableness.

Specifically, the ESCV considered that the costs to retrofit a T5 luminaire in place of an MV80 luminaire have an element of contestability, since councils could competitively tender for the retrofit to be undertaken by someone other than a distributor. However, this would require a distributor's permission for those luminaire to be placed on the distributor's public lighting power poles that host the luminaire.

All new public lighting of this kind is funded (paid for) by customers. Upon installation on the pole, ownership of the luminaires is vested to the distributor. From that point, the distributor is responsible for operating, maintaining and replacing the lighting components associated with that luminaire and pole, including dispatching crews to repair faulty luminaires and operating a dedicated public lighting call centre.

The purpose of this final decision is not to assess the initial installation cost of a T5 luminaire on a distributor's pole. The decision only relates to assessing distributors'

charges for the operation, maintenance and replacement of distributor owned public lighting assets.

It is noted that the installation costs of a T5 luminaire are presently the subject of negotiations between individual distributors and public lighting customers. This is discussed in more detail in this paper.

1.1 Process to date and current arrangements

New public lighting assets are customer funded under the Victorian regulatory framework. Ownership of any new assets – luminaires and poles – is gifted to the distributors upon connection to the distribution network.

Once installed on the network, distributors are obliged by the code to operate, maintain and replace those assets. In practice this means they must replace existing distributor owned public lighting assets on a ‘like for like’ basis when those assets become faulty or no longer operate effectively. Distributors are not required to introduce and fund new public lighting assets; such as a new type of luminaire.

As part of its review, the ESCV released a draft decision on energy efficient public lighting charges in November 2008, after a review of the distributors’ submissions.

This included analysing the inputs to the ESCV’s cost build up model and assessing if those inputs and the assumptions underlining them were both necessary for delivering public lighting services and priced at a fair and reasonable level.

In the model, OMR rates are based on a number of assumptions and inputs associated with the stock of public lighting available at the time. Any capital expenditure by the distributors to replace current luminaire components is added to the public lighting RAB. All other expenditure by distributors is expensed. The distributors’ OMR charge to councils recovers the costs associated with maintaining and replacing the public lighting assets on distributor owned poles.

Any increase in the RAB associated with capital expenditure by distributors on public lights feeds into the ‘R’ component of the OMR charge, with a lag of two years. The larger the public lighting RAB, due to capital additions, the higher the OMR charges in order to recover that expenditure.

Currently, all capital expenditure in the public lighting RAB is averaged across all luminaire types – MV80s, S-HP150 and S-Hp 250 – and is allocated to all councils, such that all councils in a given distributor’s area pay the same OMR charge.

The ESCV’s original model was developed for a steady state environment. The inclusion of new luminaire types in this model including T5 and other new luminaires that replace existing MV80 luminaires before the end of their economic life, would lead to distortions in the charges for T5 lights. Consequently, the model was amended by the ESCV, such that where a customer has requested replacement of an existing MV80 asset prior to the end of its economic life (assumed to be 20 years) the new T5 charge would not initially include a replacement (‘R’) cost component for the MV80.

1.2 Transitional arrangements

The AER assumed responsibility for economic regulation of electricity distribution services in Victoria from 1 January 2009. Previously, these functions were performed by the ESCV.

From 1 January 2009 the AER has administered the ESCV's price determination 2006-10 and guideline 14 and other ESCV codes and guidelines that relate to economic regulation of distribution services.

Under the transfer of regulatory obligations, the ESCV's Public Lighting Code continues to apply in Victoria and will be administered by the AER. The code sets the minimum standards to be met by distributors when providing public lighting services to customers. When new luminaires, including energy efficient T5 assets, are installed on the distribution network, distributors assume ownership of the assets and the obligations to operate and maintain those lights is then regulated under the code.

The AER is currently reviewing the framework and approach for the Victorian electricity distributors' 2011-15 price determination, which involves classification of distribution services under the National Electricity Rules. This will have implications for the regulation of public lighting charges from 1 January 2011. The AER proposes to classify:

- the operation, repair, replacement and maintenance of the Victorian DNSPs' existing public lighting assets as a direct control service and in turn as an alternative control service because of the DNSPs' monopoly position in the provision of these services, and the current classification of these services as excluded distribution services.
- the alteration and relocation of the Victorian DNSPs' existing public lighting assets as a direct control service and in turn as an alternative control service because of the DNSPs' considerable market power in the provision of these services. The regulatory barriers that exist mean that only the Victorian DNSPs can effectively alter or relocate their own existing public lighting assets.
- new public lighting assets (standard and non-standard provision) as negotiated distribution services, on the basis that these services are currently provided on a competitive basis and are currently classified by the ESCV as contestable excluded distribution services.

The AER's framework and approach paper dealing with these issues is available on the AER's website at www.aer.gov.au. The AER is required to publish its framework and approach for the Victorian DNSPs' 2011-15 regulatory reset by 30 May 2009.

1.3 Review process

In developing the final decision, the AER has considered stakeholders' submissions to the ESCV's draft decision and the revisions to the ESCV's original 2004 cost build up model.

Stakeholders' responses to the draft decision have been considered in developing the assumptions that underpin the AER's assessment of fair and reasonable OMR charges in this final decision.

There were a number of issues raised by stakeholders regarding the ESCV's draft decision that the AER has addressed in its final decision. These are summarised below and further details are provided in the remaining sections of this paper:

- CitiPower and Powercor contended that the ESCV had incorrectly applied guideline 14 by failing to properly take into account the cost incurred by the distributor when providing the public lighting services.
- The Streetlight Group of Councils (SGC) claimed that distributors were charging for assets that they never installed and the public lighting code should be amended to impose strengthened obligations on distributors to provide public lighting services.
- The Trans Tasman Energy Group contended that for councils to undertake an effective assessment of the economics of low emission street lighting technology, a review of OMR charges applying to existing lighting technologies must be considered as part of its current review.
- SP AusNet objected to the ESCV making an assessment of CF42 charges, on the basis that SP AusNet was yet to approve these luminaires as suitable for their network, nor did they have pricing proposals from manufacturers for these luminaires. As such, SP AusNet did not provide initial charges for CF42 luminaires for the ESCV's review.
- Jemena and United Energy Distribution stated that they hoped to soon include the CF42 luminaire as a standard light fitting. However, a technical evaluation of these luminaires was not yet complete. Upon completion, both distributors would provide a CF42 charges application to the regulator for an assessment of fairness and reasonableness. This would provide an alternative to the T5 where customers choose to replace T5 luminaires in the future.
- Only CitiPower and Powercor provided information about the CF42 luminaire, including costs and performance characteristics within the amended cost build up model.

The remaining sections of this final decision discuss in detail the submissions received and the AER's response and final decision on those issues.

1.4 Structure of the final decision

The remainder of this final decision deals with the key issues raised by stakeholders in response to the draft decision.

Chapter two explains the regulatory approach adopted by the AER when assessing distributors' charges for the final decision.

Chapter three explains the key features of the ESCV's draft decision released in November 2008, submissions received and the AER's consideration of those issues.

Chapter's four to eight explain key inputs to the cost build up model used by the ESCV and the AER in assessing the fairness and reasonableness of the proposed charges for energy efficient luminaires. Stakeholders' responses to the inputs are discussed. AER analysis and the AER's final decision on the benchmark assumptions that will apply when assessing charges against the relevant regulatory guidelines are also discussed.

Chapter nine discusses the AER's approach to avoided costs and written down value payment for MV80 luminaires that are removed from service.

Chapter ten sets out the fair and reasonable charges assessed by the AER according to the public lighting cost build up model developed by the AER, taking into account the input assumptions adopted in the final decision.

Chapter eleven sets out the regulatory reporting requirements to be met by distributors to comply with the final decision.

2 Regulatory approach

The AER, in making an assessment of the input parameters for public lighting charges has applied ESCV's guideline 14 to assess the fairness and reasonableness of the distributors' proposed charges.

The principles in clause 5.6.2 of guideline 14 regarding the basis on which the ESCV, and now the AER, assess the fairness and reasonableness of proposed charges are:

- a. Costs of service provision: a distributors charge and terms and conditions for an excluded service must be based on the costs incurred by the distributor in providing the excluded service
- b. Cost allocation: in respect of the costs incurred by a distributor in providing an excluded service:
 - i. those costs must not include costs in respect of which the distributor is remunerated under the distributor's distribution tariff; and
 - ii. those costs must only include an appropriate allocation of any shared or common costs incurred by the distributor in providing the excluded service and in providing any other goods or services, whether in the conduct of the distributors business as a distributor or any other business
- c. Cost differentials: a distributors charge and terms and conditions for an excluded service must be the same for all customers unless there is material difference in the costs of providing the excluded service to different customers or classes of customers. Different charges and terms and conditions for different customers or classes of customers must only be attributable to differences in:
 - i. the volume or quantity of the excluded service provided
 - ii. the placed to or from which the excluded service is provided
 - iii. the time of day at which the excluded service is provided
 - iv. the performance characteristics at which the excluded serviced is provided or
 - v. any other difference in the costs of providing the excluded service
- d. Simplicity: charges and terms and conditions for excluded services should be simple and easily comprehensible.

As discussed previously in this chapter, the distributors proposed energy efficient public lighting OMR charges under guideline 14 in response to a letter from the ESCV in June 2008 that requested submissions from distributors on these charges. Those submissions were to use the ESCV's 2004 cost build up model as the basis for submitting charges.

That process was as a consequence of the ESCV receiving requests from municipal councils for an assessment of charges for fairness and reasonableness. Clause 9.2(a) of the ESCV's public lighting code provides that the ESCV (now the AER) will decide any question of the fairness and reasonableness of a matter in the code.

It should be noted the AER's own calculation of charges set out in the final decision is indicative only and the AER does not intend to set the amounts the distributors may charge. Under clause 5.6 of guideline 14, the AER's role is to assess the fairness and reasonableness of a distributor's proposal, not to set prices. Furthermore, in assessing the fairness and reasonableness of a distributor's proposal, the AER has, where possible, taken into account the particular circumstances of the distributors.

Where distributors' charges are found not to be fair and reasonable against the AER's final decision and cost model, distributors will be required to resubmit their charges by 3 April 2009. The AER will assess those charges and advise the distributors of the fairness and reasonableness of those charges by 13 April 2009. Submissions should include sufficient information to justify the basis for the revision of charges and how they have taken into account the AER's analysis.

Consistent with the ESCV's draft decision, the AER's final decision assumes that distributors do not pay the initial capital costs to install energy efficient luminaires or components.

Typically, public lighting constructed in new residential subdivisions is paid for by developers, with the construction services sought from market participants. Once these assets are connected to the distribution network, they are gifted to the distributor and become the distributors' asset. These new assets enter the distributors RAB at zero cost.

In established areas, customers also pay for the assets, either as an upfront cost or through inclusion of the asset in the distributors RAB at vesting costs. The distributors then charge OMR services based on the value of the RAB.

2.1.1 Variation between proposed charges and cost build up

The ESCV's 2004 final decision recognised a level of imprecision in the assumptions applying to all distributors, which by necessity involved the ESCV assuming a set of common, average assumptions to apply across all distributors. However, these assumptions do not necessarily reflect the different operating practices adopted by the distributors. The divergence in the assumptions of the distributors regarding the percentage of repairs by component is a case in point.

To overcome these constraints, in the 2004 final decision, the ESCV indicated that, in a comparison of distributors' proposed charges against the cost build up model, a variation of less than 10 percent was considered to be fair and reasonable. Where the variation was greater than 10 per cent, the charges would be examined in greater detail to determine whether they appeared to be fair and reasonable.

CitiPower and Powercor contended in their submission to the ESCV's 2008 draft decision that the ESCV should reintroduce the 10 percent variation, while the SGC suggested that the variation be removed, as it provided an additional opportunity for distributors to provide OMR services at a charge that was not fair and reasonable.

The AER is concerned to ensure that distributors have the opportunity to recover costs associated with providing public lighting services but recognises that the cost model is not able to reflect every operational practice of five separate distributors.

It is acknowledged that some distributors may purchase materials cheaper but have a higher failure rate for components, while others may purchase more expensive energy efficient luminaire components but have a lower failure rate as a result.

In its 2004 public lighting final decision, the ESCV set out, in appendix D, reasons for the imposition of the 10 per cent variance. This was due to the level of imprecision in the cost build up model, whose assumptions are based on averages and do not necessarily represent the way in which any particular distributor operates. For example:

- Some distributors may have economic lives for luminaires that is shorter than 20 years while others may have a life longer than 20 years
- Some distributors may have an economic life for poles and brackets that is shorter than 35 years while others may have a life longer than 35 years
- Some distributors may purchase cheaper materials that have higher failure rates whilst others may purchase more expensive material that have lower failure rates

The 2004 cost build up model therefore allowed actual charges proposed by distributors to differ by up to 10 per cent from the charges assumed in the cost model. This variance is considered to account for the differences between distributors in their individual operating activities and cost structures.

The AER has applied the same methodology for the final decision. That is, where a distributor's charges are within the 10 per cent variation from the charges calculated by the AER in accordance with the cost build up model, they will generally be considered fair and reasonable by the AER (although the details of the distributor's proposal are still examined). Where the proposed charges exceed the 10 per cent variation, the charges proposed by the distributor are examined in greater detail to determine whether they are fair and reasonable.

This variance will enable the AER to take into account the particular circumstances of individual distributor's when assessing charges. This approach is considered consistent with clause 5.6.2(a) of guideline 14, that the costs of service provision must take into account the costs incurred by a distributor.

In making this decision, the AER advises that the 10 per cent variation approach has been applied to distributors' proposed OMR public lighting charges in Victoria, and this follows a similar approach taken by the ESCV previously. While such an approach may be considered again in the future, the AER notes that this decision does not set any particular precedent for other regulatory determinations.

3 Draft decision

3.1 Substantive issues raised by stakeholders

In submissions to the draft decision, some public lighting customers⁵ requested the AER make a determination on a fair and reasonable bulk changeover price for the T5 luminaires. That is, the upfront capital costs of a T5 luminaire to replace an MV80 luminaire, as opposed to the ongoing OMR charge for T5 luminaires.

In their submissions, distributors sought clarification of some aspects of the regulatory approach adopted by the ESCV in the draft decision, which has implications for the AER in making this final decision.

Jemena and United Energy Distribution sought to clarify the definitions of various public lighting components. In their view, the draft decision imposed confusion on stakeholders by using some terms, such as lights and lamps, interchangeably, when in fact they have different meanings.

Throughout the final decision, the AER has clarified the meanings of various components, having regard to the definitions adopted by Jemena and United Energy Distribution.

In their submission dated 31 December 2008, CitiPower and Powercor state that in a number of respects the draft decision does not correctly apply the regulatory framework that governs the review of public lighting charges.

The main issues noted by CitiPower and Powercor in their submission are as follows.

- The ESCV proceeded on the basis that the ESCV's role was to set prices. CitiPower and Powercor state that this approach is not consistent with the guideline 14 which makes it clear that the ESCV's role is to assess the charges proposed by the distributors.
- The ESCV rejected the evidence of CitiPower and Powercor's actual costs, seemingly due to a desire to apply the same benchmark assumptions to all distributors regardless of their actual costs. CitiPower and Powercor state that a desire to apply the same benchmark assumptions to all distributors is directly contrary to the requirement in clause 5.6.2(a) of guideline 14 that each distributor's charge must be based on the costs incurred by that distributor in providing the service.
- The draft decision ignores the principles of simplicity set out in clause 5.6.2(d) of guideline 14. For example, the draft decision requires distributors to provide councils with a choice between paying the written down value of MV80 assets up-

⁵ City of Melbourne, *Draft Decision, Energy Efficient Public Lighting Charges November 2008*, 30 December 2008, p. 1.
Northern Alliance for Greenhouse Action, *Response to ESC Draft Decision Energy Efficient Public Lighting Charges December 2008*, p 11.
North East Greenhouse Alliance, *Response to ESC Draft Decision Energy Efficient Public Lighting Charges December 2008*, p 11.

front or over time. This decision adds considerable complexity to the charging model and requires system and accounting policy changes. In addition, this decision is based on the consideration of not restricting a council's preferred funding arrangements and the limitations of councils' capital budgets which are outside the provisions of guideline 14.

- CitiPower and Powercor also raised issues of whether the ESCV's determinations relating to bulk replacement of ballasts, number of bulk changes in a day, percentage of repairs by component, wage rates, the number of working hours a day, the patrol vehicle charge and avoided cost contribution are appropriate.

3.2 AER response to substantive issues

The 2004 cost build up model was developed by the ESCV in consultation with the distributors and other stakeholders, in order to assess distributors' charges.

The cost build up model provided a set of common assumptions to apply across all distributors but recognised that not all distributors would have the profile of costs associated with the cost model.

Distributors will be required to resubmit their proposed T5 public lighting OMR charges that meet the principles and methodology applied in the AER's final decision. These charges must be submitted to the AER by 3 April 2009.

In assessing a distributor's proposal under clause 5.6.2 of guideline 14, the AER will consider whether the proposed charge and terms and conditions are fair and reasonable in light of the particular circumstances of the distributors. However, it will also adopt the ESCV's 2004 public lighting final decision to use benchmark inputs in the cost build-up model as a starting point for assessing the distributors' proposals. The AER has undertaken, where possible, to take into account in its final decision the particular circumstances of a distributor in determining the fairness and reasonableness of the cost build-up model inputs and the overall charges proposed by the distributors.

As previously noted in this final decision, where the AER rejects a distributor's proposal as being fair and reasonable, the distributor will have the opportunity to provide a revised proposal to the AER for further assessment.

The AER considers that many of the issues raised in submissions by stakeholders are out of scope for the final decision. These include the claim by the Streetlight Group of Councils (SGC)⁶ that MV80 luminaire prices are incorrect in the original 2004 cost build up model developed by the ESCV and should be amended. The ESCV's draft decision deals only with adjustments to the model that impact energy efficient public lighting charges. The AER has adopted the same approach in this final decision. Issues associated with the specific MV80 inputs (or the inputs of other luminaire types) that relate to the failure rate of MV80 luminaires, the cost of luminaires, the number of bulk lamp change in a day or the proportion of failures by MV80 component type are outside the scope of this decision. The charges associated with

⁶ Streetlight Group of Councils, *Energy Efficient Public Lighting Charges, prepared by the Tasman Energy Group*, December 2008, p. 11.

these MV80 inputs were found to be fair and reasonable by the ESCV in its 2004 review of public lighting excluded service charges final decision. It is not the intention of the AER to revisit this decision as part of this review. The AER has therefore not accepted SGC's view in relation to these matters.

This review is focussed on the assumptions common to all luminaires, equally applicable to MV80s, S-HP and T5s, which feed into OMR charges for energy efficient luminaires, and are subject to review under the AER's final decision, together with the inputs associated specifically with T5 luminaires.

The ESCV in the draft decision stated that the installation price of a T5 luminaire is presently the subject of negotiations between distributors and public lighting customers. Public lighting customers contended in submissions that the AER should make a decision on the fairness and reasonableness of the bulk changeover price for T5 luminaires. The AER considers that this element of public lighting is contestable under the ESCV's regulatory framework for public lighting in Victoria, with customers and distributors best placed to arrive at a negotiated price under this framework. The AER has considered the T5 installation costs proposed by Jemena and SP AusNet and found that these proposed costs are not materially different to the supply and installation quotes provided by an independent manufacturer and installer.

The AER does not consider it appropriate to assess the fairness and reasonableness of T5 upfront capital cost, as councils may obtain a quote for the supply and installation of new T5 assets on distributors poles from a party other than their distributor. They may also obtain quotes from distributors. The AER confines its final decision to an assessment of the distributors' fair and reasonable T5 OMR charges.

The SGC also contended that distributors should not have the ability to apply each year to the AER to have their public lighting charges adjusted for increases in the public lighting regulatory asset base.⁷ The AER notes that the ESCV's 2004 final decision allows for this adjustment, which was the subject of consultation during the 2004 review. The AER has therefore not accepted SGC's view in relation to this matter.

The SGC also suggested that distributors have not funded (paid for) assets since 1993 and that they therefore should not receive depreciation and return on assets that they do not own. This matter was concluded by the ESCV at the time of the 2004 final decision, with the ESCV noting that any dispute about the ownership of assets that were transferred in 1993 to distributors from the Victorian Government is not a matter for the regulator.

In regards to an assessment of CF42 luminaires, the AER notes that there is even less information about the performance of CF42 luminaires than for T5s and that this makes an assessment of CF42s performance characteristics within the final decision problematic. This raises difficulties in assessing CF42 OMR charges. To ensure that all distributors have an equal opportunity to submit appropriately considered proposals to the AER on CF42 luminaires, and that an appropriate analysis is undertaken, the AER has decided in response to distributors' submissions that the

⁷ Ibid. p 16.

proposed CF42 OMR charges (proposed only by CitiPower and Powercor) will not be assessed as part of this review.

3.3 ESCV's finding on fair and reasonable T5 charges

In November 2008, the ESCV released a draft decision on the distributors proposed operation, maintenance and replacement charges for energy efficient public lighting.

The ESCV reviewed cost assumptions within the distributors' pricing proposals and their public lighting models. The costs of materials, principally luminaires, lamps, PE cells and the Electronic Control Gear (hereafter referred to as the Ballast) and of labour are the key elements that generate the OMR charge.

The distributors' proposed OMR charges are reproduced from the ESCV draft decision in table 3.1. The ESCV's analysis of the input parameters and its revision of the 2004 cost build up model to reflect energy efficient luminaire inputs, resulted in a series of OMR charges that were lower than the charges proposed by the distributors. Tables 3.2 to 3.6 below show the charges derived from the ESCV's 2008 cost model, which were determined on the basis of assumptions the ESCV considered fair and reasonable.

The draft decision noted that councils would pay the Written Down Value (WDV) of MV80 assets that were replaced before the end of their 20 year economic life with T5 luminaires. This recognises that distributors must recoup the WDV of assets in the public lighting RAB, presently recovered through the 'R' component of the OMR charge.

In the draft decision, councils were given the option of paying the MV80 WDV upfront to the distributor at the time of retrofitting the T5 luminaire, or over time as part of the OMR associated with T5 charges. That is, the T5 OMR charge would include an 'R' component that recovered the cost of the retired MV80 luminaires.

Table 3.1: Distributors' proposed OMR charge for energy efficient luminaires (\$ per luminaire)

Luminaire	CitiPower	Jemena	Powercor	SP AusNet		UED
				Central	North East	
2x14W T5	69.37	53.11 ^a	62.92	45.05	48.46	56.17 ^b
2x24W T5	N/A	N/A	N/A	47.83	51.34	N/A
CF42	49.55	N/A	44.62	N/A	N/A	N/A

a, b: Both Jemena and United Energy Distribution provided a revised OMR charge in response to the ESCV's draft decision. Jemena's revised submission was \$29.15 and United Energy Distribution's was \$29.58.

Source: Essential Services Commission, *Energy Efficient Public Lighting Charges, Draft Decision*, November 2008, p 10.

Table 3.2: ESCV assessment of CitiPower 2x14W T5 OMR charges

New asset inputs	Pay WDV over time	Pay WDV up front
O&M charge new light	25.86	25.86
Replacement poles & brackets	5.83	5.83
WDV RAB – MV80	14.72	N/A
Avoided Cost – MV80 O&M	-2.82	N/A
Total OMR charge	43.60	31.69

Note: Totals may not add due to rounding

N/A: Not applicable. Refer to table 9.1 for the WDV and avoided costs payable upfront, equivalent in NPV terms to the WDV paid over time in the table above.

Source: Essential Services ESCV, *Energy Efficient Public Lighting charges, Draft Decision*, November 2008, and distributor proposals.

Table 3.3: ESCV assessment of Jemena 2x14W T5 OMR charges

New asset inputs	Pay WDV over time	Pay WDV upfront
O&M charge for new light	24.00	24.00
Replacement pole and bracket	3.88	3.88
WDV RAB – MV80	7.98	N/A
Avoided costs – MV80 O&M	-2.60	N/A
Total OMR charge	33.27	27.88

Note: Totals may not add due to rounding

N/A: Not applicable. Refer to table 9.1 for the WDV and avoided costs payable upfront, equivalent in NPV terms to the WDV paid over time in the table above.

Source: Essential Services ESCV, Energy Efficient Public Lighting charges, Draft Decision, November 2008, and distributor proposals.

Table 3.4: ESCV assessment of Powercor 2x14W T5 OMR charges

New asset inputs	Pay WDV over time	Pay WDV upfront
O&M charge new light	24.90	24.90
Replacement poles & brackets	5.12	5.12
WDV RAB – MV80	9.23	N/A
Avoided Cost – MV80 O&M	-2.65	N/A
Total OMR charge	36.59	30.02

Note: Totals may not add due to rounding

N/A: Not applicable. Refer to table 9.1 for the WDV and avoided costs payable upfront, equivalent in NPV terms to the WDV paid over time in the table above.

Source: Essential Services ESCV, Energy Efficient Public Lighting charges, Draft Decision, November 2008, and distributor proposals.

Table 3.5 ESCV assessment of SP AusNet T5 OMR charges

	Pay WDV over time				Pay WDV upfront			
	Central		North East		Central		North East	
	2x14W T5 \$	2x24W T5 \$	2x14W T5 \$	2x24W T5 \$	2x14W T5 \$	2x24W T5 \$	2x14W T5 \$	2x24W T5 \$
New asset inputs								
O&M charge for new light	23.25	33.93	25.45	36.46	23.25	33.93	25.45	36.46
Replacement poles and brackets	6.89	6.89	6.97	6.97	6.89	6.89	6.97	6.97
WDV RAB – MV80	6.21	6.21	6.83	6.83	N/A	N/A	N/A	N/A
Avoided Cost – MV80 O&M	-2.47	-2.47	-2.75	-2.75	N/A	N/A	N/A	N/A
Total OMR charge	33.88	44.56	36.50	47.51	30.14	40.82	32.42	43.43

Note: Totals may not add due to rounding

N/A: Not applicable. Refer to table 9.1 for the WDV and avoided costs payable upfront, equivalent in NPV terms to the WDV paid over time in the table above.

Source: Essential Services ESCV, Energy Efficient Public Lighting charges, Draft Decision, November 2008, and distributor proposals.

Table 3.6: ESCV assessment of United Energy Distribution 2x14W T5 OMR charges

New asset inputs	Pay WDV over time	Pay WDV upfront
O&M charge for new light	23.42	23.42
Replacement pole and bracket	4.83	4.83
WDV RAB – MV80	12.28	N/A
Avoided costs – MV80 O&M	-2.47	N/A
Total OMR charge	38.05	28.25

Note: Totals may not add due to rounding

N/A: Not applicable. Refer to table 9.1 for the WDV and avoided costs payable upfront, equivalent in NPV terms to the WDV paid over time in the table above.

Source: Essential Services ESCV, Energy Efficient Public Lighting charges, Draft Decision, November 2008, and distributor proposals

The charges in the above tables were lower than those proposed by the distributors. On this basis, the ESCV issued a draft decision that the distributors' charges were not fair and reasonable.

The ESCV issued an open letter to stakeholder on 9 December 2008 that submissions to the draft decision would close on 31 December 2008, and that the AER would make the final decision on the fairness and reasonableness of the distributors' proposed charges.

Submissions were received from a host of stakeholders, including distributors, public lighting customers and representatives of customer groups.

The AER, having assumed responsibility for economic regulation of the provision of electricity distribution services in Victoria from the ESCV, is now required to make a final decision on the fairness and reasonableness of the distributors' proposed charges.

The charges that the AER's cost build up model assumes as fair and reasonable are outlined in section ten of this paper.

4 Timing of ballast replacement

4.1 Draft decision

One contentious element of the public lighting charges proposed by distributors that is contentious is the performance of the ballast.

Ballast performance is temperature dependant according to ballast manufacturers.⁸ The hotter the peak temperature the ballast reaches, the shorter is its lifespan.⁹

Testing by the Northern Alliance for Greenhouse Action in February and March 2008 reviewed ballast efficiency and found that the hottest temperature recorded by the ballast was 51.5 degrees for the T5.

At this temperature, the expected T5 ballast failure rates were around 12 per cent over 20 years or 0.6 per cent per annum.

A trial of 1,175 T5 lamp and ballast failures by the NSW DNSP Energy Australia in the 19 months to May 2008 indicated T5 ballast failure of 2 per cent over four years.

Given ballast failure rates were relatively low the ESCV in its draft decision rejected the 8 year replacement program and adopted a 20 year replacement when assessing the distributors' proposed charges.

4.2 Submissions received

Public lighting customers and distributors differ in their approach to the performance characteristics of ballasts.

In their initial proposals and in response to the draft decision, the distributors contend that the T5 ballasts require replacement much earlier in their life cycle.

Distributors recommend ballasts be replaced every 8 years, based on advice from manufacturers.

CitiPower and Powercor noted the recommendations of the Australian Standard AS1158 for a replacement cycle of 8 to 10 years.

Noting that information on ballast performance is largely unavailable, Jemena and United Energy Distribution in their submissions relied on the Victorian Sustainable Public Lighting Action Group¹⁰ (VSPLAG) report, which recommended an 8 year replacement cycle.

However Jemena and United Energy Distribution were prepared to accept a 20 year bulk replacement, provided that any costs associated with replacing ballasts before 20 years is recovered through their RAB as a capital expense.

⁸ Northern Alliance for Greenhouse Action 2008, *Sustainable Public Lighting Testing Program*, June 2008, p. 10.

⁹ Ibid. p.22.

¹⁰ Victorian Sustainable Public Lighting Action Group, *Evaluation of Low Energy Light for Minor Road Lighting, Twin 14 & 24W T5, 32 & 42W CF, 50W HPS*, 12 March 2008.

The basis for their approach is that MV80 luminaires and ballasts have an estimated asset life of 20 years and that the 2004 cost build up model should be amended to remove ballast failure rates as an input to building up OMR charges. Where ballasts fail, the replacement cost is treated as a capital expense and added to a distributor's public lighting RAB. These RAB costs then feed into the updated OMR charges on an annual basis, with a two year time lag.

Both Jemena and United Energy Distribution preferred this approach to recovering the costs associated with replacing failed ballasts. If the AER adopted this approach, the distributors' ballast replacement (including failure rate) estimates would be removed from the 2008 cost build up model.

SP AusNet noted that T5 ballasts are electronic in nature and therefore susceptible to degradation from high temperatures, long term vibration effects, corrosion, dust and moisture ingress. SP AusNet provided a report on ballast testing undertaken in both laboratory conditions and in-field tests of 25 CF42 lamps in 2008¹¹ that supported its claim of reduced ballast performance at high temperature.¹²

Public lighting customers¹³ maintained that ballast performance is superior to that adopted by the distributors and that a bulk replacement every 20 year is appropriate, rather than every 8 years.

However, public lighting customers also consider that spot replacements during the 20 year asset life should be funded as operating expenditure, rather than as capital expenditure.

4.3 AER analysis

To assess charges as being fair and reasonable, the AER has had to rely on limited information about the performance of ballasts.

Public lighting customers and distributors have divergent views about the performance of ballasts and where testing has been undertaken, the results of those trials are not conclusively agreed by all stakeholders.

The AER considers that there is evidence to suggest that ballasts will perform to a degree that permits a replacement cycle over a period longer than 8 years. However, it is also acknowledged that there are risks to the distributors of a 20 year replacement cycle, such that ballasts may fail before 20 years.

The AER notes that the VSPLAG report recommendation of an 8 year replacement cycle was preliminary, until further research could be undertaken to verify the results of the initial VSPLAG analysis. That additional research was the Energy Australia trial of 1,175 luminaires and ballast failure, which was used by the ESCV in its draft decision to assess the ballast bulk replacement cycle.

The AER notes that Victorian distributors' trials are generally smaller than the sample used by Energy Australia and that SP AusNet's trial refers to only a laboratory trial of

¹¹ SP AusNet, *Electrolytic Ballast Reliability*, December 2008.

¹² SP AusNet, *Energy efficient Public Lighting charges -Draft decision, 24 December 2008*, p 4

¹³ Submissions by NEGA, NAGA, MAV, Central Victorian Greenhouse Alliance

25 CF42 luminaires and not T5 ballast performance, which is the subject of this final decision.

The AER considers that a fair and reasonable charge would involve a bulk replacement of ballasts at the end of 20 years, when the T5 luminaire has also reached the end of its depreciable life. This will ensure that councils only pay for spot replacement of ballasts, rather than a full replacement every 8 years.

However, the AER recognises that distributors face financial risk in not replacing ballasts every 8 years, for a proportion of ballasts may fail before 20 years.

As councils are prepared to accept a 20 year replacement cycle for ballasts, it is considered reasonable that distributors treat ballast expenditure as a capital item, and include this expenditure in the public lighting RAB.

This will allow the distributors to recoup those capital costs from customers through adjustments to the 'R' component of the T5 OMR charge.

4.4 AER final decision

In light of limited and disputed evidence to date on ballast performance, the AER is concerned to ensure that customers do not pay for replacement of ballasts that remain in good working order. Equally, it is important to ensure that distributors are not exposed to undue risk of ballast failure, through non-recovery of expenditure on replacements.

Therefore the AER considers that fair and reasonable public lighting charges for T5 luminaires would include the costs of replacing ballasts, both for intermittent failure and at the end of their economic life, as a capital item in the distributors' energy efficient public lighting RAB.

These costs will be recovered by the distributors in their proposed updates to annual public lighting OMR charges.

5 Unit cost of materials

5.1 Draft decision

In the draft decision, the ESCV accepted the unit cost components of existing MV80 assets consistent with the 2004 cost model.

Distributors' put forward material costs for T5 luminaires in their July 2008 energy efficient public lighting submissions, based on the 2004 cost model.

The ESCV assessed the distributors T5 material costs against the costs developed for MV80 luminaires, a distributor's supplier quote provided to the ESCV, a supplier quote provided to the ESCV by a public lighting customer representative and a manufacturer's luminaire quote provided to the Municipal Association of Victoria (MAV).

5.2 Submissions received

Distributors did not provide further comments about the actual costs proposed in the ESCV's draft decision.

Council representatives, particularly NEGA, NAGA and SGC contended that the cost in the November 2008 draft decision was high compared with independent quotes obtained by the councils.

5.3 AER analysis

An important consideration in analysing whether the unit costs of material is fair and reasonable is the quantity of lamps, ballasts, PE cells and luminaries that will be installed by distributors.

The 2004 model developed by the ESCV relied on distributors purchasing and holding materials for spot replacements.

However, councils now wish to replace large volumes of MV80 luminaires with energy efficient luminaires during a bulk replacement beginning in 2009 but for which no defined yearly roll-out targets have been agreed by the parties.

Once installed, these T5 luminaires and their respective components – such as lamps, PE cells and ballasts - will be replaced by the distributor as these items fail. This is in accordance with the distributors' obligations to supply public lighting services under the public lighting code.

Therefore, consideration of input costs relevant to the cost build up model must be weighed according to the volume of luminaires – and volume of components- to be replaced.

5.3.1 Unit costs for spot replacements

The NEGA stated that as approximately 330,000 MV80 luminaires were to be replaced, though it did not state over what time period, the draft decision has input costs well above market prices for a roll-out of this size. They considered that the luminaire cost for the 2x14W T5 in the draft decision was inflated by 13 per cent, the PE cell by 52 per cent, the ballast by 43 per cent and the lamp by 18 per cent based on an independently sourced quote.

The AER sought this quote from NEGA. Information supplied to the AER by NEGA was on the basis of T5 luminaires, PE cells and ballasts based on relatively small volumes of 1,000 to 10,000, and up to large scale volumes of more than 100,000.

The Streetlight Group of Councils¹⁴ (SGC) also suggested that the materials costs were inflated above market benchmarks, particularly for the MV80 luminaires, which the ESCV assessed as fair and reasonable in 2004.

The AER also reviewed a quote provided by two suppliers to MAV. However, these quotes were for luminaires only and the AER is uncertain of the basis for the quote, including the tender specification and the volume of luminaires used for quoting. This quote is not considered applicable for defining the cost of a luminaire based on spot replacement and maintenance.

In assessing distributors proposed input costs, clause 5.6.2(a) of guideline 14 requires that a distributor's charge and terms and conditions for an excluded service must be based on the costs incurred by the distributor in providing the excluded service.

The 2004 cost model, amended by distributors in 2008 to incorporate T5 inputs, reflects the prices for materials associated with a spot replacement by distributors of failed luminaires. It is not intended to reflect the prices for a mass roll-out.

The 2008 cost build up model used by the ESCV also reflects spot replacements. The AER considers that the volumes in the cost build up model are based on relatively small volumes, of around 1,000 units, to accommodate the roll out volumes and associated spot replacements that distributors will be requested to undertake by councils. The costs associated with these volumes are more likely to reflect distributors' incurred costs, as required clause 5.6.2(a) of guideline 14.

Therefore the AER has assessed the proposed input costs on a spot replacement basis. Generally the costs faced by a distributor to replace up to 1,000 units are applied in the cost build up model. This was the basis of a supplier quote to one distributor, provided to the ESCV and a quote obtained from NEGA.

The AER does not consider that the quotes provided by the distributors and NEGA are materially different to warrant a change to the draft decision material costs. The exception is for the T5 luminaire, which the AER considers should be reduced to \$193 for the 2x14W T5 and to \$214 for the 2x24W T5 based on the quote received from NEGA.

¹⁴ SGC, Ibid., pp. 9-10.

It is anticipated that manufacturers and suppliers would be able to supply public lighting components to distributors on an as needed basis, reducing the need for distributors to carry a significant inventory of public lighting components. Therefore, it is not expected that distributors will purchase large volumes of luminaires, eliminating bulk materials discounts in many cases.

The AER considers that material costs in the ESCV's draft decision, with the exception of the luminaire, reflect the costs incurred by distributors in providing public lighting services for spot replacements.

5.3.2 Cost of materials for mass roll out

Jemena provided a draft quotation to councils late in 2008 that expressed a preliminary changeover price based on negotiations to that point. Jemena informed councils that it would provide firmer T5 luminaire prices in late 2008 or early 2009, based on its understanding of how many T5 luminaires would be required in its distribution area.

The ESCV's draft decision did not assess distributors' prices for energy efficient luminaires on the basis that councils and distributors were negotiating these prices and that such negotiations were dependant on how many T5 luminaires councils intended to roll out at a given point in time.

The costs for a mass roll-out are too dependent on individual circumstances for the AER to judge an appropriate cost for a luminaire and associated components. Some councils will be rolling out T5 luminaires while others will not, and the time profile of the roll-out is dependent on distributor– customer negotiations, not a specific government or regulator mandated mass roll-out.

The lack of certainty about roll out volumes makes it problematic for the AER to assess the fairness and reasonableness of an installation price. There is a risk that the AER, in assessing the fairness and reasonableness of charges for mass roll-out, would lock customers into a higher charge than the customers can negotiate themselves directly with their distributor.

Further, the AER has reviewed the proposed T5 installation costs by Jemena and SP AusNet and found that they are not materially different to the supply and installation quotes provided by an independent manufacturer and installer.

In addition, the cost build up model is not used to reflect a mass replacement of existing luminaires with new technology. Rather, it reflects the ongoing costs faced by a distributor to operate, repair, maintain and replace luminaires and other public lighting components on an 'as needed' basis as failures and breakdowns occur.

The AER will therefore not assess the initial installation price for a T5 luminaire, as public lighting customers and the distributors remain in the best position to negotiate these prices.

5.4 AER final decision

The costs of materials in the draft decision reflect the costs incurred by distributors in providing public lighting services for spot replacements.

The AER considers that luminaire costs in the cost build up model should be reduced to \$193 for the 2x14W T5 and to \$214 for the 2x24W T5 based on the quote received from NEGA.

Table 5.1: Draft and final decision costs, T5 luminaire components

Item	2x14W T5		2x24W T5	
	Draft Decision (\$)	Final Decision (\$)	Draft Decision (\$)	Final Decision (\$)
Unit cost – lamp	8.00	8.00	13.80	13.80
Unit cost – PE cell	13.50	13.50	17.50	17.50
Unit cost – Ballast	78.50	N/A	82.20	N/A
Unit cost – Luminaire	215.00	193.00	233.33	214.00
Unit cost – misc. materials (bulk lamp)	1.00	1.00	1.00	1.00
Unit cost – misc. materials (repair)	10.00	10.00	10.00	10.00

Note ; N/A not applicable because these are capital expense.
Source Essential Services ESCV, Energy Efficient Public Lighting charges, Draft Decision, November 2008, and AER analysis

These costs will be used by the AER to assess the fairness and reasonableness of the distributors' proposed OMR charges.

6 Number of bulk changes per day

6.1 Draft decision

In the draft decision the ESCV reduced the number of bulk changes per day¹⁵ from that applied during the 2004 public lighting final decision, on the basis of distributor proposals that the T5 lamps and components were more complex than for MV80 assets.

The ESCV reduced by 10 per cent the number of bulk changes per day performed by the distributors, compared to those undertaken for MV80 luminaires.

6.2 Submissions received

CitiPower and Powercor contended that the draft decision ignored the distributors' own internal performance data on the time taken to replace an MV80 luminaire and components with a T5 luminaire.

They contended that evidence from their internal report revealed the additional difficulties when installing a T5 luminaire. The experience of a New South Wales distributor was used to assess that a T5 luminaire will take longer to replace than an MV80 luminaire. A near 25 per cent reduction in the number of bulk changes per day was proposed by CitiPower and Powercor for setting charges.

Jemena and United Energy Distribution did not provide comment on the number of bulk changes per day assumed in the ESCV's draft decision. Their original submissions assumed the same number of bulk changes for the MV80 luminaires.

Public lighting customers were of the view that the number of bulk changes per day for the T5 luminaires and components should remain the same as the MV80 replacement rates adopted in the ESCV's 2004 final decision.

They cited an April 2008 time trial by Jemena and United Energy Distribution of 70 2x14W T5 luminaires and components, attended by council representatives. The trial involved:

- Removing MV80 luminaires and replacement with 2x14W T5s
- Bulk lamp removal and replacement (of removable gear tray) and
- Bulk lamp and PE cell removal and replacement (of removal gear tray).

NEGA claimed that these results supported Jemena and United Energy Distribution's July 2008 public lighting submission that the number of bulk changes per day for energy efficient luminaires remain as for the MV80 luminaires. As noted above, neither Jemena nor United Energy Distribution provided comment in response to the ESCV's draft decision on this matter, or their time trials.

¹⁵ The number of bulk lamp changes in a day refers to the number of lamps a distributor changes in a day, to ensure all lamps are in working order. All lamps are to be changed at least once in a four year cycle.

The MAV also disputed that fewer T5 luminaires would be replaced in a day compared to MV80 luminaires.

6.3 AER analysis

The time taken by distributors to change T5 luminaires in the field is unclear, with CitiPower, Powercor and SP AusNet assuming fewer bulk changes per day based on their own internal trials or reports, while Jemena and United Energy Distribution have assumed no reduction based on their own time trials. This latter result is in line with customer groups who also contend there is no difference between T5s and MV80s regarding the number of replacements per day.

CitiPower and Powercor have evidence from their internal report revealing the additional difficulties when installing a T5 luminaire. The experience of a New South Wales distributor was used to determine that a T5 luminaire will take longer to replace than an MV80 luminaire.

SP AusNet used a 10 per cent reduction in the number of replacements that can be made in a day, due to the need to replace two lamps rather than one (T5 luminaires have two lamps, MV80 luminaires have only one). This is similar to the reasoning provided by CitiPower and Powercor.

Based on the small amount of evidence to date, the AER is not convinced that distributors will be able to replace T5 components or luminaires in the same amount of time as an MV80.

As the AER has contradictory and limited evidence before it as to the time taken to remove and replace T5s, and given that T5s have more complex components than MV80 luminaires, the AER has adopted a 15 per cent reduction in bulk replacements on the MV80 luminaires, taking account of CitiPower, Powercor and SP AusNet's internal performance reports.

This is considered a reasonable assumption based on the evidence of all stakeholders and the uncertainties faced by distributors when replacing energy efficient luminaires and components rather than MV80 components.

6.4 AER final decision

The AER has reduced the number of bulk changes per day it considers to be fair and reasonable from the ESCV's draft decision.

The assumptions the AER will use on the number of bulk changes per day when assessing distributors proposed OMR charges are outlined in table 6.1.

Table 6.1 Number of T5 bulk replacement per day, final decision

	2x14W T5		2x24W T5	
	Draft Decision	Final Decision	Draft Decision	Final Decision
Number of bulk lamp change per day – urban	81	77	81	77
Number of bulk lamp change per day – rural	68	64	68	64
Number of bulk lamp change per day – remote	57	51	57	51
Number of repairs in a day – urban	27	26	27	26
Number of repairs in a day – rural	23	21	23	21
Number of repairs in a day – remote	19	17	19	17

Source: Essential Services ESCV, Energy Efficient Public Lighting charges, Draft Decision, November 2008, and AER analysis.

7 Failure rates of T5 luminaires

7.1 Draft decision

In the draft decision, the ESCV noted that the distributors relied on the results of VSPLAG analysis and advice from manufacturers in relation to the failure rates of energy efficient luminaires and components between scheduled replacement cycles.

In the ESCV's 2004 final decision, a four year failure rate of 15 per cent for the MV80 was assumed, and used consistently across all distributors for determining OMR charges.

The draft decision set a failure rate of 12 percent for T5 luminaires between bulk replacements. It was assumed that when a failure occurs, lamps are replaced 26 per cent of the time, PE cells on 43 per cent of occasions, 8 percent require the ballast to be replaced, 15 per cent require the luminaire to be replaced and 10 per cent of replacements would relate to other items.

The ESCV noted in the draft decision that as more than one component may fail at once, the percentage of repairs by component calculation can add to more than 100 per cent in the model. This is the case for the MV80 luminaires in the 2004 cost build up model.

7.2 Submissions received

Jemena and United Energy Distribution submitted that T5 luminaires differ considerably from MV80s and therefore T5 failure rates should be built up based on the failure rate of T5 components, such as the PE cell, luminaire housing and other items including short connection cables and fuses.

On this basis, they suggested that only 12 per cent of T5 luminaires would need replacing before a bulk change was too low. Both Jemena and United Energy Distributed contended that an annual weighted average failure rate of 27.48 per cent for the T5 was more appropriate.

NAGA and NEGA suggested that failure rates were 10 per cent based on the results of a trial by Energy Australia.

The component failure rates used by Jemena and United Energy Distribution were also based on their experience with actual failure in 2006 and 2007 across the networks.

These component failures were then used to derive the percentage of repairs attributable to lamps, PE cells, luminaire housing and 'other' component failure. These failures add to 100 per cent.

CitiPower and Powercor however contended that Jemena and United Energy Distribution's approach was incorrect and contrary to how the repairs element of the original 2004 cost model is intended to operate. It was CitiPower and Powercor's view that the percentage of repairs by luminaire component be carried over from the MV80 inputs as this was consistent with the 2004 cost build up model. SP AusNet

also adopted the same percentages used for the MV80 luminaire in the cost build up model.

SP AusNet used a similar methodology to CitiPower and Powercor to arrive at the failure rate for T5 luminaires. However it has a lower overall failure rate of 12 per cent, based on the VSPLAG report which found a failure rate of 11.7 per cent for lamps and ballast¹⁶, compared to CitiPower and Powercor's 15 per cent.

CitiPower, Powercor and SP AusNet all used the percentage of repairs by component carried over from the 2004 cost model, assuming that some components may fail simultaneously, requiring concurrent replacement.

7.3 AER analysis

Due to the lack of performance data on T5 luminaires, in both Victoria and other National Electricity Market jurisdictions, the AER must make its decision about what is a fair and reasonable assumption by the distributors on the basis of limited information.

In their July 2008 OMR proposals, the distributors adopted different failure rates and percentage of repairs by luminaire component.

In the cost model, the failure rates of a luminaire correlate with the percentage of repairs undertaken on a luminaire by component type.

In the draft decision the ESCV assumed that the percentage of repairs would not add to 100 per cent, as some components will fail simultaneously and require concurrent replacement.

There is considerable difference in the way that the respective distributors propose to handle failures rates of the components of an energy efficient luminaire.

The AER recognises that by adopting a common benchmark among all distributors in the cost model, there will be an element of imprecision in the cost model that cannot capture the individual operating characteristics of each distributor.

The AER acknowledges that some distributors may have failure rates that are higher (and possibly lower) than those assumed in the cost build up model, however as noted in the ESCV's 2004 final decision, this may be due to having a different cost and quality of materials mix¹⁷.

In reviewing the evidence on failure rates, the AER has adopted the VSPLAG technical report¹⁸ finding for the failure of lamps, also used by SP AusNet, in setting the benchmark assumption of an 8.6 per cent lamp failure rate.

With regard to the percentage of repairs by component, the AER has removed the effect of ballast within the model, as this will now be a capital expenditure item

¹⁶ VSPLAG, op cit., pp 8-9.

¹⁷ Essential Services ESCV, *Review of Public Lighting Excluded Services Charges Final Decision*, August 2004, p. 66.

¹⁸ Ibid. pp 8-9.

included by the distributors in their energy efficient public lighting regulatory asset base. Therefore, ballasts will no longer be counted as an operating expense when replaced due to failure of breakdown before the end of 20 years.

The AER concurs with CitiPower, Powercor and SP AusNet that their approach to the percentage of repairs by component is consistent with the 2004 cost build up approach.

The AER considers that CitiPower, Powercor and SP AusNet’s approach to the percentage of repairs by component more closely reflects the way failures are presented in the cost model than that proposed by Jemena and United Energy Distribution.

The AER has decided that it will adopt the assumptions in the ESCV’s 2004 public lighting final decision model in relation to repairs.

However, the AER notes that for the purpose of assessing charges, the distributors may have a different method for working out the percentage of failures by component and that this will lead to a different set of charges than would be calculated under the AER cost build up model.

To account for this potential variation among distributors and recognising that all distributors have unique operating characteristics and will be able to source materials and labour at different rates, the AER sets out in section 2.1.1 a method to assess distributors’ charges that accommodate, to a degree, this level of variation.

The assumptions used for the model are set out in table 7.1 below.

Table 7.1: Assumptions about percentage of repairs by component, 2x14W and 2x24W T5

	Draft Decision	Final decision
Per cent of repairs – lamps	26	60
Per cent of repairs – PE cells	43	50
Per cent of repairs – ballast	8	N/A
Per cent of repairs – luminaires	22	15
Per cent of repairs - other	10	10

N/A: Expenditure related to this will be treated as a capital expense.

Source: Essential Services ESCV, Energy Efficient Public Lighting charges, Draft Decision, November 2008 and AER analysis.

7.4 AER final decision

For the purposes of assessing distributors’ proposed OMR charges, the AER will assume an 8.6 per cent failure rate over four years for the T5 lamps. It is also assumed that 60 per cent of faults require the lamp to be replaced, 50 per cent require the PE cell to be replaced, 15 per cent require the luminaire to be replaced and 10 per cent of faults are due to other components.

This is consistent with the proposals put forward by CitiPower, Powercor and SP AusNet on the percentage of repairs by component failure, and is the same methodology adopted by the ESCV for its 2004 public lighting decision.

As noted in section 2.1.1, to overcome the level of imprecision in the model, which uses input averages, the AER will incorporate a 10 per cent variation in distributors' proposed charges against the cost build up model, when assessing proposed charges for fairness and reasonableness.

Where a distributor's charges are up to 10 percent greater than the charges calculated by the AER in accordance with the cost build up model, they will generally be considered fair and reasonable by the AER (although the details of the distributor's proposal are still examined). Where they exceed the 10 per cent variation, the charges proposed by the distributor are examined in greater detail to determine whether they are fair and reasonable.

8 Wage rates

8.1 Draft decision

In the 2004 public lighting final decision, the ESCV set a common benchmark for wage rates in the cost build up model.

In their original proposals for energy efficient public lighting charges, distributors provided different assumptions and input values for wage rates.

CitiPower and Powercor contended that wage rates should be amended to reflect increases in labour costs that have occurred since the 2004 final decision. Other distributors maintained the wage rates from the 2004 decision.

In their original submission, CitiPower and Powercor proposed increasing their wage rates by 33 per cent to \$80.24 and \$92.28 respectively, based on an August 2007 report by Econtech, which set out actual and forecast increases in nominal wage levels in the Victorian gas distribution industry.

Higher wage rates will increase public lighting OMR charges, not only for T5s but also for all other public lights maintained by distributors.

The ESCV's November 2008 draft decision rejected this analysis, and adopted the 2004 public lighting final decision that it would not index the operating and maintenance component of public lighting charges for increases in labour and materials costs. This was in response to the lack of reported robust information to underpin an assessment of the appropriate indexation methodology and the inconsistent views of stakeholders on this matter.

Wage rates in the ESCV's 2008 draft decision therefore remained the same as those used in the 2004 final decision.

8.2 Submissions received

CitiPower and Powercor argued that the ESCV did not take into account their incurred costs when assessing their charges for fairness and reasonableness against the principles contained in guideline 14.

They stated that in rejecting their claim for higher wage rates, the ESCV had ignored clause 5.6.2(a) of the guideline, which states that:

A distributors charge and terms and conditions for an excluded service must be based on the costs incurred by the distributor in providing excluded services

CitiPower and Powercor also reduced their standard daily working hours from 8.33 assumed in the 2004 cost build up model, to 8.00 based on their latest workplace agreement.

All other distributors maintained the 8.33 hours in a day, as used in the 2004 cost build up model, when proposing T5 luminaire charges.

CitiPower and Powercor also provided quotes for patrol vehicle costs, and proposed that these should be amended from the \$10 used in 2004 cost model to \$25. No other distributors submitted increased patrol vehicle costs in their submissions.

The SGC¹⁹ was of the view that existing distributor charges were not fair and reasonable and that therefore any application by the distributors to increase wage rates should be rejected.

8.3 AER analysis

In their submissions to the ESCV's November 2008 draft decision both CitiPower and Powercor argued that wage rates should increase by 34 per cent from those adopted in the August 2004 public lighting final decision. To support their position CitiPower and Powercor provided a report on actual and forecast labour cost growth, prepared in August 2007 by Econtech for the AER, in respect of the SP AusNet and VENCORP transmission determinations.

Notwithstanding the distributors' views, the ESCV in the draft decision used the benchmark wage rates in the August 2004 final decision. These rates were \$60 per hour for day work and \$69 for night work. The day work rate, according to the 2004 final decision:

- was based on information provided by contractors, and
- included 'direct overheads.'

The night rate was based on submissions from the distributors that night labour rates were 15 per cent higher than day rates.

The ESCV's November 2008 draft decision continued to use the 2004 rates, rather than the daily and night rates of \$80.24 and \$92.28 proposed by Powercor and CitiPower, and noted that:

- in the 2004 final decision the ESCV indicated that it would not index costs for increases in labour. The 2004 final decision stated that this approach would provide incentives for the distributors to improve efficiencies in the provision of public lighting
- the 2007 Econtech report was out of date and actual wage growth in 2007-08 was less than that forecast by Econtech, and
- it would be inconsistent to use a different labour rate for energy efficient (T5) lights than for standard (MV80) lights.

The AER recognises that the distributors are likely to have come under wage cost pressure since the August 2004 final decision.

¹⁹ SGC, *Ibid.*, p. 11.

It is also considered unrealistic to keep wages constant at the 2004 levels, when clause 5.6.2(a) guideline 14 requires the regulator to have regard to the ‘...cost incurred by the distributor in providing an excluded service’.

CitiPower and Powercor provided evidence to the ESCV that wages should be increased according to the escalator used in the Econtech report.

In their submission to the draft decision, CitiPower and Powercor agreed that labour rate increases should be revised down and that their proposed increase in 2008-09 of 6 per cent was unlikely to occur given current economic conditions. They proposed that wages growth would be zero for 2008-09.

CitiPower and Powercor revised their aggregate wage increase to 27.6 per cent in their submission to the draft decision, down from 33 per cent in their original proposal.

The AER reviewed the wage cost data from the Australian Bureau of Statistics for private sector employees in the electricity, gas and water supply industries,²⁰ in order to assess the magnitude of wage cost pressure since the 2004 final decision.

Between June 2004 and June 2008, the wage cost index increased by 19.01 per cent. The AER considers this escalation is an appropriate reflection of the actual cost pressures faced by the distributors, rather than relying on forecast cost increases as submitted by CitiPower and Powercor.

On this basis, the model inputs for all distributors’ normal hours wage rates will be increased to \$71.41 and the night patrol rates increased to \$82.12.

These higher wage rates will be used by the AER to assess all distributors proposed charges for energy efficient luminaires.

In line with the common benchmark assumption approach adopted throughout the cost model, these amended wage rates will apply to the distributors’ next request for an increase in OMR charges. These applications will form part of the distributors’ annual network tariff proposals to the AER in November 2009 (as per the EDPR 2006-10), for tariffs and charges to apply from 1 January 2010.

It is noted that all distributors did not change their elevated platform and patrol vehicle cost assumptions, apart from CitiPower and Powercor.

Further, the number of hours in a day was assumed by all distributors to be 8.33 hours, as per the 2004 cost build up model, apart from CitiPower and Powercor, who submitted for an 8.00 hour day.

The AER has maintained the rates applied in the 2004 cost build up model for these inputs.

However, the AER will use the 10 per cent variance assumption as outlined in section 7.3.1 of this final decision, to assess a distributor’s charges for fairness and reasonableness with the AER cost build up model. This will allow for variations

²⁰ Australian Bureau of Statistics, *Labour Price Index Australia*, Cat. No. 6345.0

among the distributors' operations, such as for elevated platform costs and available working hours, to be captured while maintaining a set of common benchmark assumptions in the cost build up model for the purposes of assessing T5 OMR charges.

For the purposes of assessing T5 OMR charges, the AER notes that the revised labour rates in table 8.1 below will apply only to T5 luminaires.

The new labour rates in this final decision which the AER considers to be fair and reasonable, will apply to all luminaire types in the distributors' next request for an increase in OMR charges in November 2009 as part of their annual network tariff proposals.

Table 8.1: Draft and final decision labour inputs

	Draft Decision	Final Decision
Labour rate (per hour)	\$60.00	\$71.41
Labour rate for night patrols(per hour)	\$69.00	\$82.12
Elevated platform Vehicle (per hour) - urban	\$35.00	\$35.00
Elevated platform Vehicle (per hour) - rural	\$45.00	\$45.00
Patrol vehicle (per hour)	\$10.00	\$10.00
Number of hours in a day	8.33	8.33

Source: Essential Services ESCV, Energy Efficient Public Lighting Charges, Draft Decision, November 2008, and AER analysis.

8.4 AER final decision

The AER has revised the wage cost assumptions applying to distributors when assessing proposed energy efficient luminaire charges for fairness and reasonableness.

The AER will apply wage rates of \$71.41 for normal hours and \$82.12 for night patrols when assessing distributors' revised charges for fairness and reasonableness.

When distributors reapply to the AER in November 2009 for a revision of OMR charges associated with a return on and return of assets in the RAB at 31 December 2008, the new labour rates will apply across all luminaire types.

That is, the rates shown in table 8.1 above will be used by the AER to assess distributors' revised OMR charges for all luminaires types that will commence from 1 January 2010.

9 Written down value and avoided costs of MV80 Assets

9.1 Draft decision

Where distributors are requested by councils to remove MV80 assets and replace them with T5 luminaires, distributors will be entitled to recoup the written down value (WDV) of the MV80 assets.

The ESCV's draft decision set out that a different charge would need to apply in respect of energy efficient luminaires that are installed in 'greenfield' sites (for example new subdivisions) compared to energy efficient luminaires that replace MV80 luminaires in established locations.

In the latter case, distributors charges would need to recover the WDV of the replaced MV80 assets which have not yet reached the end of their 20 year economic life.

The draft decision considered that it was not reasonable to have a single energy efficient luminaire OMR charge, as some councils will be replacing existing assets while others councils will only be installing new luminaires for the very first time in new housing subdivisions. A single OMR charge for energy efficient luminaires would lead to cross subsidisation of councils that are replacing MV80 assets in established suburbs by those councils that are not.

In new subdivisions, the council or property developer would fully fund the installation of the T5 luminaire up front. Therefore the council should only pay ongoing T5 luminaire operation and maintenance charges once luminaire ownership is vested to the distributor. An 'R' component to the charge will only begin once the distributor undertakes capital expenditure to replace the luminaire or the public lighting pole and bracket that hosts the luminaire.

The ESCV's draft decision provided the opportunity for councils to pay the WDV of MV80s to distributors upfront when retrofitting a T5 luminaire, or to pay it over a period of time, which would not be more than 10 years.

Paying the WDV over time means that councils would pay an 'R' component in their T5 luminaire OMR charges that recovers the costs of an MV80 luminaire.

The ESCV's draft decision assumed that existing MV80 assets were approximately half way through their 20 year economic life. However this cannot be known with certainty as the distributors do not keep comprehensive records of the life of their assets, which, through spot replacements, have been progressively replaced over a number of years. However, MV80 luminaires have been installed since approximately 1990 and replaced periodically since, so this assumption was considered reasonable.

Once the WDV was fully recovered by distributors, council payments would cease.

Distributors agree that they will have some avoided costs associated with no longer having to replace MV80 components.

When an energy efficient luminaire has been retrofitted in place of an MV80, costs are avoided where the distributor no longer operates, maintains or replaces retired MV80 assets, particularly the lamps and other components.

The avoided costs in the ESCV's draft decision were based on the bulk change and repair and other costs associated with MV80 assets. These calculations were taken from the distributors' proposed energy efficient luminaires charges, provided to the ESCV in July and August 2008.

The ESCV's draft decision set out the upfront and time payment options. The latter option was to ensure that councils had the opportunity to determine how they structured their payments – and how they paid the written down value of retired MV80 assets – to meet any budget constraints that may impact their ability to fund new public lighting technology.

In its draft decision, the ESCV set out the written down value and avoided costs which it considered to be fair and reasonable. The AER has reproduced these in tables 9.1 and 9.2 below..

Table 9.1: ESCV draft decision: upfront payment of Written Down Value and Avoided Costs, by distributor

	CitiPower	Jemena	Powercor	SP AusNet		UED
				Central	North East	
Written down value	90.28	48.96	56.82	38.10	41.87	75.61
Avoided costs	-17.28	-15.91	-16.33	-15.15	-16.87	-15.22
Total	73.00	33.04	40.49	22.95	25.01	60.38

Source: Essential Services ESCV, Energy Efficient Public Lighting Charges, Draft Decision, November 2008.

Table 9.2 below shows in net present value terms the equivalent costs to councils of paying the WDV over time, recovered through the 'R' component of the distributors' OMR charges for the T5 luminaire.

Table 9.2 ESCV draft decision: annual Written Down Value and Avoided Costs, by distributor

	CitiPower	Jemena	Powercor	SP AusNet		UED
				Central	North East	
WDV – R for MV80	14.72	7.98	9.23	6.21	6.83	12.28
Avoided costs	-2.82	-2.60	-2.65	-2.47	-2.75	-2.47
Total	11.90	5.38	6.58	3.74	4.08	9.81

Note: these payments (as part of the OMR charge) made over 10 years are equivalent in NPV terms to the upfront payment amounts shown in tables 3.2 to 3.6 and table 9.1.

Source: Essential Services ESCV, Energy Efficient Public Lighting Charges, Draft Decision, November 2008.

9.2 Submissions received

9.2.1 MV80 written down value

Jemena, CitiPower, Powercor and United Energy Distribution disagreed with the ESCV's draft decision approach of having separate charges for T5 luminaires installed in 'greenfield' sites compared to those in established areas where an MV80 luminaire is replaced.

They noted that it would be administrative difficulty to track charges by council and by whether the luminaire was in a 'greenfield' or established suburb location. Further, Jemena, CitiPower, Powercor and United Energy Distribution considered that the draft decision did not take into account that current public lighting charges are averaged across all customer classes and lighting types (that is significant cross subsidisation already exists). On this basis, they suggested the charges established by the draft decision cost model did not meet the guideline 14 principle that charges be simple and easy to comprehend.

Customer groups, including NAGA and NEGA sought an explanation of how the draft decision arrived at the WDV of MV80 assets, which was not clear to them in the draft decision.²¹

These customers considered that the draft decision overestimated the written down value of retired MV80 assets and that the ESCV should have used the 2004 value of MV80 assets to determine the WDV, which should also decline each year.

Further, both public lighting customers and distributors were more comfortable with upfront payment of MV80 WDV, to eliminate smearing of retired MV80 costs in the ongoing T5 OMR charges.

Stakeholders saw this as a significant issue, with NAGA, NEGA and the MAV, along with Jemena and United Energy Distribution concerned that by offering councils the

²¹ NAGA, p 12 and NEGA, p.12.

opportunity to pay the WDV of retired MV80 assets over time as part of the T5 OMR charges, the draft decision provided an incentive for councils not to roll out energy efficient luminaires. This was because those councils that chose to pay the WDV of MV80s over time and rolled out luminaires immediately would pay the same WDV as a council that commenced a roll-out in later years, exacerbating cross subsidisation of public lighting charges among councils.

NEGA contended that as a customer led roll-out was likely to take progressively 5 to 10 years, any disincentive to delay a roll-out should be avoided.²²

9.2.2 MV80 avoided costs

Distributors contended that the ESCV's calculation of avoided costs in the draft decision included items that would not be avoided when MV80 assets were replaced with T5 luminaires.

CitiPower and Powercor also considered that the draft decision's calculation of avoided costs was incorrect, as the value of avoided costs used a nominal Weighted Average cost of Capital (WACC) (10.95 per cent for CitiPower and 9.95 per cent for Powercor) but that the values in the model that the ESCV adopted were 2004 values which were not escalated. To overcome this, they suggested using a real WACC of 6.4 per cent for CitiPower and 6.3 per cent for Powercor. Alternatively they suggested the August 2004 input costs should be escalated in nominal terms.²³

Further both CitiPower and Powercor stated that only the lamp, PE cell and bulk replacement labour will be avoided upon the early replacement of MV80 luminaires.

United Energy Distribution claimed there were:

...no avoided costs if the T5 lights are installed following bulk replacement of the lamp or PE cell in the same year. However, if the T5 lights were installed before the next scheduled bulk replacement, then the distributor would have avoided the cost of bulk replacements.²⁴

Both Jemena and United Energy Distribution set out those costs they considered to be avoided, shown in table 9.3 below.

²² NEGA, p.13

²³ CitiPower and Powercor, *Energy efficient Public Lighting Charges: Submission on the Essential Services ESCV's Draft Decision of 28 November 2008*, 31 December 2008, p. 8.

²⁴ United Energy Distribution, *Submission to the Essential Services ESCV on Energy Efficient Public Lighting Charges*, 24 December 2008, p. 7.

Table 9.3: Distributor proposed avoided costs, Jemena and United Energy Distribution

Cost component	Avoided cost
Materials: Lamp – bulk change	Yes
Materials: PE Cell – bulk change	Yes
Labour: lamp - bulk change	Yes
Labour: PE Cell – bulk change	Yes
Materials – fault repair	No
Labour – fault repair	No
Overheads	No
Other operating	No

Source: Jemena, Submission to the Essential Services ESCV: Draft Decision on Energy Efficient Public Lighting Chagres, 31 December 2008.

All distributors, apart from SP AusNet who was silent on the issue, disagreed that customers should have the option to receive avoided costs payments upfront or over time. They suggested administrative simplicity dictated upfront payment.

They also claimed that the guideline 14 principle that charges be simple and easy to comprehend was not met if multiple OMR charges were introduced.

Jemena and United Energy Distribution expressed the same issues on avoided costs; both suggested that the regulator did not need to calculate avoided costs but merely set out the methodology to be applied by distributors in arriving at these costs.

Public lighting customers, including NAGA and NEGA contended that the draft decision should not have used distributors' cost information contained in their submissions but rather should have used the 2004 cost model inputs to develop avoided costs. They also suggested that councils need to be provided with two avoided costs options; one for a bulk change of the lamp only, and one for combined costs associated with the bulk lamp and PE cell replacement.

9.3 AER analysis

9.3.1 MV80 written down value

In considering the fairness and reasonableness of the distributors approach to the WDV of MV80 assets currently in service, the AER took into account the calculation of these costs and the need for charges to be simple and easy for distributors and customers to understand and administer, as per clause 5.6.2(d) of guideline 14.

It also had regard to the fact that public lighting charges in Victoria already involve a high degree of cross subsidisation among luminaire types and by councils and that it

was important not to impose unnecessary administrative burdens on distributors and public lighting customers through the pricing structure for energy efficient luminaires.

Each distributor's WDV for MV80 assets was calculated for the ESCV's draft decision by adding the value of MV80 luminaires in the public lighting RAB between 1 January 2005 and 31 December 2007 to the value of MV80 assets as at 31 December 2004. These calculations were provided in the models that accompanied the draft decision, and were placed on the ESCV's website.

Jemena and United Energy Distribution strongly rejected the draft decision proposal to allow councils to pay the WDV of MV80s over time and that cross subsidisation of customers could be reduced by creating separate energy efficient RABs for each council. Both distributors regarded this as inefficient and administratively difficult.

The AER does not consider it appropriate to have a sliding scale for WDV of MV80s over time as proposed by NAGA and NEGA, as this would require distributors to keep detailed records of when MV80s were removed and to keep council specific WDV's and separate RABs by council and by light type.

However the AER notes that it will publish a revised MV80 WDV for each distributor annually, at the time of undertaking its review of distributors' proposals to amend their OMR charges for changes in the RAB.

This will provide some guidance to public lighting customers as to the actual WDV of MV80s in a given year that would be payable to distributors to retrofit a T5 luminaire.

Current public lighting charges are 'smeared' across customers, as there is only a single public lighting RAB, to ensure administrative simplicity. The AER does not consider it effective or efficient for distributors to maintain multiple RABs, by luminaire type, for each council.

The AER also recognises that a fixed WDV could provide councils with an incentive to delay the retrofitting of T5 luminaires as early adopters would cross subsidise later adopters. This effect can be removed if councils pay the WDV to distributors upfront when replacing MV80 luminaires with T5 luminaires.

Therefore, the AER's final decision is made on the basis that the MV80 WDV is paid upfront by the council to the distributor at the time a T5 is retrofitted. This will limit cross subsidisation among councils.

With councils paying all the WDV of MV80s in established areas upfront to distributors, leaving no 'R' to be recouped in the T5 charges, separate T5 luminaire OMR charges for 'greenfield' and existing locations are no longer required.

This does not however prevent a council from having a separate instalment plan with their distributor to pay off the WDV over time. However such instalments will not form part of the energy efficient public lighting charges and will be non-regulated commercial arrangements between the parties.

The AER notes that the upfront MV80 WDV paid by councils to distributors effectively becomes a customer contribution, which is to be netted off against capital expenditure by the distributors in the public lighting RAB.

Distributors will be required to show the value of the customer contribution and the net capital expenditure for public lighting in their regulatory accounts.

9.3.2 MV80 avoided costs

With regard to the draft decision using 2004 nominal values to calculate avoided costs, as noted by CitiPower and Powercor, the 2004 public lighting final decision was calculated using dollars of the day. No escalation was applied to these rates going forward and the AER will not index the 2004 values.

The AER notes that CitiPower and Powercor's submissions incorrectly stated that the ESCV applied a WACC for CitiPower of 10.95 per cent; in fact 10.05 per cent was used. In line with the 2004 final decision, the AER will not amend the nominal WACC of 10.05 per cent to a real WACC figure. This would be inconsistent with the approach adopted for updating public lighting charges annually, which uses a nominal WACC.

Notwithstanding this, CitiPower and Powercor's contention about appropriate values for avoided costs calculations is no longer relevant, as the avoided costs will be paid up front by distributors, rather than over time. Therefore no weighted average cost of capital needs to be applied to the avoided costs.

The draft decision calculated avoided costs for each distributor by taking the bulk change and repairs and other costs associated with MV80 assets from the distributors' proposals.

The ESCV's draft decision also assumed that existing MV80 assets were approximately half way through their 20 year economic life and the AER considers this assumption is reasonable.

The draft decision set out the avoided costs payable by a distributor to a public lighting customer as either a lump sum payment or a payment over a maximum of 10 years.

This was to ensure councils had the opportunity to determine how they structured their payments to meet any budget constraints that may impact on their ability to fund new public lighting technology.

The avoided costs were based on the bulk change and repair and other costs associated with MV80 assets, such as handling complaints and direct overheads. These calculations were taken from the distributors' proposed energy efficient luminaires charges, provided to the ESCV in July and August 2008.

The proposals by NAGA and NEGA to provide two avoided costs calculations²⁵, one for bulk lamp only and one for bulk lamp and PE cell replacement has not been accepted because this approach would be complex, is inconsistent with the AER's analysis for the final decision and contrary to the principles in clause 5.6.2(d) of guideline 14 that charges be simple and easy to comprehend..

²⁵ NAGA, p10 and NEGA, p10

The AER agrees with distributors that avoided cost payment be kept administratively simple to meet clause 5.6.2(d) of guideline 14.

The AER considers that to ensure charges are not unnecessarily complex and for consistency with the approach for the WDV of MV80 luminaires, it is fair and reasonable for avoided costs to be paid to councils by distributors as an upfront payment at the time the parties agree to retrofit a T5 luminaire.

This does not preclude individual councils and their distributor from negotiating a separate payment arrangement if they chose to but such agreements will be non-regulated commercial contracts between the parties.

Therefore, the avoided costs will not form part of the ongoing OMR charge for T5 luminaires.

As per WDV calculations, avoided costs will vary each year, and the AER will calculate these annually to provide certainty to customers on the value of avoided cost payments they will receive from distributors when retrofitting T5 luminaires.

The AER considers that the methodology for calculating avoided costs should be consistent with the ESCV's draft decision and with the methodology for calculating the WDV of MV80s. It was assumed that MV80s are half way through their economic life.

The timing of the bulk replacement of MV80 lamps and the instalment date of the new T5 lamps will affect the calculation of the avoided costs. In calculating the avoided costs of bulk lamp replacement material and labour, the AER has assumed that on average the MV80 lamps are two years into their four year life when replaced with T5 lamps.

It is also assumed that on average, half the MV80 lamps replaced with T5 lamps will incur repair costs and therefore half the repair costs will be avoided by distributors.

The AER accepts distributors' submissions that overheads and other costs will not be avoided when a T5 is retrofitted, as these are largely fixed costs associated with providing public lighting services. These costs have been removed from the model calculations.

When offering to install a new T5 luminaire, distributors are to offer councils avoided costs based on the methodology set out in this final decision, which includes the materials and labour costs for MV80 lamps and PE cells, together with labour and material fault repairs.

9.3.3 Methodology for adjusting public lighting excluded service charges over time

The ESCV's 2004 public lighting final decision set out the methodology for adjusting public lighting charges over time. Specifically, section 4.3.1 allows distributors to apply to the regulator each year to recover the costs associated with depreciation of the public lighting regulatory asset base, based on:

- the change in the asset base each year consistent with the distributors' regulatory accounts and
- the economic life of the assets assumed in the cost build up model (20 years for luminaires and 35 years for poles and brackets)

Section 4.3.2 allows distributors to apply annually to the regulator for an increase in the return on assets based on:

- The change in the asset base each year consistent with the distributors' regulatory accounts
- The time value of money to compensate distributors for money invested in assets two years prior. For example the charges approved to commence from 1 January 2009 include the time value of money for assets funded by the distributors in 2007, and
- The distributors' rate of return equal to the prevailing weighted average cost of capital in the current price determination.

In line with the methodology for updating public lighting charges on an annual basis outlined in sections 4.3.1 and 4.3.2 of the ESCV's 2004 final decision, those capital costs will go into the energy efficient luminaires' RAB and be added to the O&M charge.

These costs will be recovered from public lighting customers that install T5 luminaires.

Distributors will be required to split their public lighting RAB into a separate RAB for energy efficient luminaires (comprising T5 luminaires and ballasts and any future new technology luminaires) from the existing RAB, which comprises existing lighting types.

If the costs are not split between RABs, then councils that never introduce a T5 luminaire would face a share of the distributors T5 capital expenditure costs, incurred to replace T5s in those council areas where these luminaires were rolled out.

9.4 AER final decision

The AER will assess distributor's proposed T5 operating, maintenance and replacement charges on the basis that it is fair and reasonable for the WDV of replaced MV80s to be paid upfront by councils. It also considers that it is fair and reasonable for avoided costs to be paid to councils by distributors at the time the parties agree to retrofit a T5 luminaire.

For the purposes of meeting clause 5.6.2(d) of guideline 14 that charges be simple and easy to understand, it is fair and reasonable for the distributors to provide one charge for T5 luminaires, covering the operation and maintenance costs associated with providing public lighting services under the public lighting code.

This charge will include the operation and maintenance costs associated with a T5 luminaire and the replacement costs of a pole and bracket, which will house the T5 luminaire.

Following the installation of energy efficient luminaires, any future capital expenditure by the distributors on T5 luminaires will form part of the distributors' energy efficient public lighting RAB, and be recovered according to the methodology outlined in section 9.3.1 of this final decision.

These costs will then be recovered by the distributors through additions to the 'R' component in the OMR charge, recovered from all councils who have adopted energy efficient lighting in their distributor's geographic area.

In respect of public lighting customers paying distributors the WDV of MV80s upfront, distributors will be required to show the value of the customer contribution and the net capital expenditure for public lighting in the regulatory accounts.

The value of customer contributions will be deducted from the public lighting RAB, for the purposes of calculating future OMR charges according to the methodology in section 9.3.1 of this final decision.

There will not be council by council charges, as this is deemed administratively complex under the Victorian regulatory framework administered through guideline 14 and the public lighting code.

The distributors' initial T5 luminaire charges will be assessed by the AER for fairness and reasonableness based on a charge that recovers the operating and maintenance (O&M) costs associated with a T5 luminaire from 2009.

Existing poles and brackets will house the new T5 luminaires and distributors currently recover these costs across all luminaire types. Councils will therefore bear the 'R' replacement costs for poles and brackets together with the O&M costs for T5 luminaries.

Therefore, public lighting customers will face an OMR charge from the day the T5 luminaire becomes the distributors' asset.

10 Final decision on assessment of OMR charges

Based on the common benchmark assumptions outlined in this final decision and taking into account the particular circumstances of individual distributors, the AER concludes that the distributors proposed T5 luminaire charges are not fair and reasonable, under guideline 14.

The cost build up model developed by the AER reveals OMR charges that are lower than those proposed by the distributors. The charges the AER considers to be fair and reasonable that are developed from the cost build up model and based on the particular circumstances of individual distributors are shown for each distributor in tables 10.1 to 10.5 below.

The AER cost build up model removed the impact of ballast costs and replacement from the operational component of OMR charges. This has reduced OMR charges by approximately \$5 for the 2x14W T5 and by approximately \$13 for the 2x24W T5, from that proposed by the distributors.

The AER will require distributors to resubmit their T5 OMR charges, in accordance with the final decision, by 3 April 2009.

Those charges will be assessed for fairness and reasonableness, with final charges to apply from 13 April 2009.

The AER has also published, in Table 10.6 below, the MV80 written down value and avoided costs which the AER considers to be fair and reasonable, by distributor. This data does not form part of the OMR charges. It is to be used by distributors and councils when deciding on the upfront installation costs of T5 luminaires.

Table10.1: AER Assessment of fair and reasonable 2x14W T5 OMR charge, CitiPower

T5 inputs	2x14W T5
O&M charge new light	20.67
Replacement poles & brackets	5.83
Total OMR charge	26.50

Table10.2: AER Assessment of fair and reasonable 2x14W T5 OMR charge, Jemena

T5 inputs	2x14W T5
O&M charge new light	19.13
Replacement poles & brackets	3.88
Total OMR charge	23.01

Table10.3: AER Assessment of fair and reasonable T5 OMR charge, Powercor

T5 inputs	2x14W T5
O&M charge new light	20.09
Replacement poles & brackets	5.12
Total OMR charge	25.21

Table10.4: AER Assessment of fair and reasonable T5 OMR charges, SP AusNet

T5 inputs	Central		North East	
	2x14W T5 \$	2x24W T5 \$	2x14W T5 \$	2x24W T5 \$
O&M charge for new light	18.37	21.05	20.74	23.50
Replacement poles and brackets	6.89	6.89	6.97	6.97
Total OMR charge	25.26	27.94	27.71	30.47

Table10.5: AER Assessment of fair and reasonable T5 OMR charge, United Energy Distribution

T5 inputs	2x14W T5
O&M charge new light	18.55
Replacement poles & brackets	4.83
Total OMR charge	23.38

Table 10.6 Upfront written down value and avoided cost payment for MV80s, 2009

	Written down value – MV80s	Avoided costs – MV80s	Net payments
CitiPower	90.28	-16.94	73.33
Jemena	48.96	-17.03	31.92
Powercor	56.82	-18.88	37.94
United Energy Distribution	75.61	-17.42	58.19
SP AusNet			
Central	38.10	-17.06	21.04
North East	41.87	-19.25	22.63

Note: Avoided costs shown as negative, since these are received by the customer from the distributor.

11 Reporting requirements

11.1 Draft decision

The ESCV's draft decision noted distributors would, from 2009, need to split their public lighting regulatory asset base between an energy efficient RAB and the existing public lighting RAB.

Each distributor's current public lighting RAB comprises all capital expenditure on luminaires and poles and brackets since 1 January 2005, for all customers. There are not separate RABs by council area, or by luminaire type.

If capital expenditure on T5s is included in the current public lighting RAB, customers who have not installed a T5 will bear some of the costs of the T5 allocated to the luminaires in their council area. Thus, their MV80 OMR charge would increase due to expenditure on T5 assets. Effectively, these councils would, to a degree, cross subsidise councils that installed T5 luminaires. Equally, councils who no longer have MV80s but installed T5s would bear some of the MV80 costs of other councils.

To minimise cross subsidisation among customers and ensure OMR charges reflect the costs of service provision, the ESCV recommend that a separate RAB be established for energy efficient luminaires.

Capital expenditure by distributors on energy efficient luminaires – T5s or other new technologies – would be recorded in this separate RAB.

The ESCV also recommended separating the energy efficient RAB between expenditure on luminaires and poles and brackets.

11.2 Submissions received

On the whole, distributors agreed that updated reporting requirements should be introduced with the advent of OMR charges for energy efficient luminaires.

While supportive of a new RAB for energy efficient luminaires, Jemena and United Energy Distribution did not support a further split between luminaires and poles and brackets. They said this would add complexity for little gain in terms of customers' understanding of the OMR charges.

CitiPower and Powercor were concerned that splitting the RAB into energy efficient capital expenditure and non-energy efficient capital expenditure would:

...impose significant changes, including changes to accounting policies and IT systems. These changes will take time and involve significant cost²⁶

Although CitiPower and Powercor had not determined what these costs would be, they suggested they needed to be funded in the final decision.

²⁶ CitiPower and Powercor, Ibid. p. 9.

11.3 AER analysis

It is considered important that those customers introducing energy efficient public lighting into their municipalities pay for services provided by distributors to maintain and service these luminaires.

Equally, the AER does not consider it appropriate that customers who have not introduced energy efficient luminaires into their municipality should pay a share of the energy efficient luminaires costs in their public lighting OMR charges. Therefore, and in light of general support for separating the RAB into expenditure on energy efficient luminaires and existing public lighting assets, the AER's final decision on this matter is consistent with the ESCV's draft decision.

However, the AER agrees that splitting the RAB further into separate expenditure on luminaires and pole and brackets would add costs and complexity to the regulatory framework.

To minimise complexity, distributors will only be required to show the capital expenditure on T5 luminaires and ballasts in the energy efficient public lighting RAB.

Capital expenditure associated with existing luminaire types – MV80s and S-HPs – and all poles and brackets will continue to be recorded in the existing public lighting RAB.

The AER also notes that the requirements expressed in the draft decision have also been included in the ESCV's proposed amendments to Guideline 3 *Regulatory Information Requirements*.

11.4 AER final decision

Distributors will be required to show the capital expenditure on T5 luminaires and ballasts in the energy efficient public lighting RAB.

Capital expenditure associated with existing luminaire types – MV80s and S-HPs – and all poles and brackets will continue to be recorded in the existing public lighting RAB.

Distributors will also be required to show the value of the customer contributions associated with WDV payments and the net capital expenditure for public lighting in the regulatory accounts.

The net value of capital expenditure in the energy efficient RAB and existing public lighting RAB will be used to set ongoing OMR charges for T5 luminaires and other luminaires respectively.