Draft decision

EnergyAustralia draft distribution determination 2009–10 to 2013–14

Alternative control (public lighting) services

23 February 2010

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Request for submissions

This document sets out the Australian Energy Regulator's (AER) draft decision for EnergyAustralia's alternative control (public lighting) services for the regulatory control period 1 July 2009 to 30 June 2014. This draft decision is a redetermination of the AER's final decision for EnergyAustralia's distribution determination dated 28 April 2009.

Interested parties are invited to make written submissions on issues regarding this draft decision and the consultant's report to the AER by **4pm 11 March 2010**. The AER will deal with all information it receives in accordance with the ACCC/AER information policy. The policy is available on the AER website, www.aer.gov.au.

Submissions can be sent electronically to NSWACTelectricity@aer.gov.au.

Alternatively, submissions can be mailed to:

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The AER prefers that all submissions be publicly available to facilitate an informed and transparent consultative process. Submissions will be treated as public documents unless otherwise requested. Parties wishing to submit confidential information are requested to:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non–confidential version of the submission.

All non–confidential submissions will be placed on the AER website.

EnergyAustralia's public lighting proposal, a submission from the Southern Sydney Regional Organisation of Councils, the AER's draft decision and a consultancy report by Energy and Management Services Pty Ltd (engaged by the AER) are available on the AER website.

Inquiries about this draft decision or about lodging submissions should be directed to the Network Regulation North Branch on (02) 6243 1233 or alternatively emailing NSWACTelectricity@aer.gov.au.

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Shortened forms

ABS	Australian Bureau of Statistics
AER	Australian Energy Regulator
April 2009 AER decision	AER, *Final decision, New South Wales distribution determination 2009–10 to 2014–15*, 28 April 2009
BLR	bulk lamp replacement
capex	capital expenditure
CPI	consumer price index
draft decision	AER, *Draft decision, EnergyAustralia draft distribution determination 2009–10 to 2014–15, Alternative control (public lighting) services*, 23 February 2010
EMS	Energy and Management Services Pty Ltd
EWP	elevated work platform
IPART	Independent Pricing and Regulatory Tribunal of NSW
January 2010 EnergyAustralia proposal	EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010
NEL	National Electricity Law
NER	National Electricity Rules
NERA	NERA Economic Consulting
November 2009 Tribunal orders	Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009
October 2009 Tribunal directions	Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009
OHS	occupational health and safety
opex	operating expenditure
PE	photo-electric
PB	Parsons Brinckerhoff Australia Pty Limited
RAB	regulatory asset base
RTA	Roads and Traffic Authority
SSROC	Southern Sydney Regional Organisation of Councils
transitional chapter 6 rules	transitional provisions set out in appendix 1 of the NER
Tribunal	Australian Competition Tribunal
TRL	traffic route luminaire
WACC	weighted average cost of capital

1 Introduction

On 19 June 2009 the Australian Competition Tribunal (Tribunal) granted leave for EnergyAustralia to apply for a review of the Australian Energy Regulator's (AER) final decision for EnergyAustralia's 2009–10 to 2013–14 distribution determination dated 28 April 2009. One of the issues the subject of review was the AER's decision in respect of alternative control (public lighting) services.

On 25 November 2009 the Tribunal made orders varying, affirming and remitting back to the AER some aspects of the April 2009 AER decision. In particular, paragraph 5 of the Tribunal's orders provided that the AER's decision in relation to EnergyAustralia's public lighting services be remitted back to the AER to make the decision again in accordance with the directions set out in paragraph 5 of the orders.[1]

On 7 January 2010 EnergyAustralia submitted its public lighting services proposal together with supporting information to the AER.[2]

1.1 Background

Clause 6.2.3A(a) of the transitional chapter 6 of the National Electricity Rules (transitional chapter 6 rules) classify distribution services into the following classes:

- direct control services
- negotiated distribution services
- unregulated distribution services.

The services in each class are subject to different forms of regulation. Clause 6.2.3A(b) of the transitional chapter 6 rules divides direct control services into standard control services and alternative control services. Public lighting services in NSW have been classified as alternative control services.

1.2 Regulatory requirements

According to clause 6.2.3B(b)(1) of the transitional chapter 6 rules, the services classified by the Independent Pricing and Regulatory Tribunal of NSW (IPART) as excluded distribution services are deemed to be classified as an alternative control service for the next regulatory control period. Those services classified by IPART as excluded distribution services are the construction and maintenance of public lighting infrastructure. Under the regulatory arrangements administered by IPART, the construction and maintenance of public lighting infrastructure was treated as an excluded distribution service regulated under the Excluded Distribution Services Rule.

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1 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009.

2 EnergyAustralia, *Submission for the AER's redetermination of public lighting prices 2010 to 2014*, 7 January 2010.

IPART defined public lighting infrastructure as:[3]

> The structures, wiring, globes and other equipment:
>
> (1) used for, or associated with, the provision of public lighting to streets, roads and other public places; and
>
> (2) which are connected or attached to (or which form part of) a DNSPs distribution system (as that term is defined in the determination).

In January 2006, the NSW Department of Energy, Utilities and Sustainability (now the NSW Department of Water and Energy) introduced a voluntary code of practice for a range of public lighting services in NSW (NSW public lighting code). Its purpose was to clarify the relationship between public lighting service providers and customers, and to that end sets out some benchmarks to assist customers. Relevantly, under the public lighting code, 'public lighting' is defined as covering 'lighting schemes for the generality of roads and outdoor public area (for example, parks, reserves, pedestrian zones, footpaths, cycle paths, car parks and other public areas) that are managed by or on behalf of a customer'. The public lighting code defines a 'customer' as 'a council (as defined by the Local Government Act 1993), or local, state or federal government agency that has authority over areas with public lighting'.[4]

As part of the transfer of regulatory functions from IPART to the AER in February 2008, the AER issued a statement regarding the form of regulatory control mechanism to apply to public lighting. The AER concluded that public lighting would be subject to a fixed schedule of prices for the first year of the 2009–14 regulatory control period (based on revenues determined from a limited building block approach) and a price path for the remaining years of the regulatory control period.[5]

1.3 2009 AER decision

In its April 2009 decision the AER established public lighting charges for EnergyAustralia for the 2009–14 regulatory control period. In particular, the AER:

- determined the capital charges for EnergyAustralia's public lighting assets using a building block model for assets constructed before 1 July 2009 and an annuity model for assets constructed after 30 June 2009

- determined an opening regulatory asset base (RAB) as at 1 July 2009 of $111.3 million. The AER did not accept EnergyAustralia's April 2009 submission which revised the opening RAB to $142.8 million on the basis that EnergyAustralia's assertion that IPART had used a longer remaining life to calculate depreciation than that used by the AER was new information and not supported by evidence

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3 IPART, *Regulation of excluded distribution rule 2004, annexure 1*, pp. 103–104.
4 DEUS, *NSW public lighting code*, 1 January 2006, pp. 10–11.
5 AER, *Statement on control mechanisms for alternative control services for the ACT and NSW*, February 2008, pp. 4–5.

- reduced EnergyAustralia's proposed operating expenditure (opex) allowance from $15.8 million to $13.2 million ($2008–09). The AER did not accept EnergyAustralia's proposed assumptions relating to bulk lamp replacement cycles, lamp failure rates and spot lamp replacements. The AER required that maintenance charges should be the same for both new and existing assets.

- applied the same weighted average cost of capital (WACC) parameters for standard control services to calculate public lighting charges

- included a mechanism for establishing a residual value in those circumstances where a customer requested to replace assets before the end of their economic lives

- set out the control mechanism that would apply to assets constructed before 1 July 2009 and assets constructed after 30 June 2009, which was:

    - a schedule of fixed charges in the first year of the 2009–14 regulatory control period for assets constructed before 1 July 2009 and a schedule of fixed prices in the first year of the 2009–14 regulatory control period for assets constructed after 30 June 2009

    - a price path for the remaining years of the 2009–14 regulatory control period.

- set out the compliance mechanism that would apply to assets constructed before 1 July 2009 and assets constructed after 30 June 2009.

The tariff classes the AER determined would apply to the public lighting services provided by EnergyAustralia are set out in table 1.1.

Table 1.1: AER decision on public lighting tariffs and their determination

Tariff class	Description	Basis of tariff determination
Assets constructed prior to 1 July 2009		
1	Capital funded by DNSP	Annual efficient maintenance charge. Capital charge based on IPART approved RAB.
2	Capital not funded by DNSP	Annual efficient maintenance costs. DNSP not entitled to a return on or of capital.
Assets constructed after 30 June 2009		
3	Capital funded by DNSP	Annual efficient maintenance charge (same as those for tariff class 2). Annual capital charge (return on and of) based on efficient material and installation costs.
4	Capital not funded by DNSP	Annual efficient maintenance charge (same as those for tariff class 2). DNSP not entitled to a return on or of capital.
5	Capital funded by DNSP but asset replaced at the request of the customer before the end of its economic life.	Tariff calculated by the DNSP at the time of agreement to replace the asset early using an agreed method for determining the residual capital value of the asset. The charge is to be paid up front. Residual asset charge calculated for replaced asset based on remaining life determined through an assessment of the assets condition and/or the AER default value.

1.4 Tribunal directions

In its November 2009 orders the Tribunal directed that the decision of the AER made pursuant to clause 6.12.1(12) of the transitional rules on the control mechanism for alternative control services be remitted back to the AER to make the decision again in accordance with the Tribunal's directions.[6] The Tribunal directed that:

- the AER make the decision using the following methodologies:[7]
  - a building block approach incorporating an asset base roll forward for pre 1 July 2009 public lighting assets
  - an annuity approach for post 30 June 2009 public lighting assets

[6] Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5.

[7] Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(2)(a)–(b).

- in making the decision the AER apply the rate of return parameters to public lighting services that are consistent with the Tribunal's decision on the rate of return for standard control services[8]

- the submissions made by EnergyAustralia:[9]

  - must address the value of, and methodology for determining, the efficient opex required by EnergyAustralia for each year of the regulatory control period to operate and maintain its public lighting assets. The efficient level of opex must be supported by a detailed model whereby the efficiency of inputs and assumptions for all key maintenance aspects are explained and justified

  - may include information and material that was not before the AER when it made its April 2009 decision

  - may address the value of, and methodology for determining, the RAB for use in the building block approach for pre 1 July 2009 public lighting assets

- the AER, in the process for making the decision, must have regard to submissions made to the AER in accordance with the timetable directed by the Tribunal and any other information or material requested by the AER during the course of making the decision again[10]

- to the extent they remain relevant, in making the decision again, the AER must correct those parts of the April 2009 AER decision that has been conceded are in error—listed in the Tribunal orders[11]

- if the AER is or becomes satisfied of other errors in the course of making the decision, the AER must correct those errors[12]

- the AER must make available to all interested parties all substantive submissions made to the AER to the extent the disclosure of the information is permitted. Any claims for confidentiality must be substantiated by the party at the time it makes a submission[13]

- the decision remade by the AER is to apply to public lighting prices and charges for the period of 1 July 2009 to 30 June 2014. Any necessary adjustments to prices or charges for the provision of alternative control services as a consequence of the

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8 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(3)(a)–(b).

9 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(4)(a)–(c).

10 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(5)(a)–(b).

11 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(6).

12 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(7).

13 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(8).

AER's remade decision are to be undertaken in a manner that maintains net present value neutrality.[14]

1.4.1 Redetermination process

The Tribunal's November 2009 orders also directed that the AER make the decision on the control mechanism for alternative control services in accordance with the following timetable:[15]

- EnergyAustralia provides a confidential and non-confidential version of its submission to the AER by 4pm on 7 January 2010.
- The AER publishes EnergyAustralia's submission by 4pm on 8 January 2010.
- Parties interested in responding to EnergyAustralia's submission provide their submission to the AER by 4pm on 21 January 2010.
- The AER publishes its draft decision by 4pm on 25 February 2010.
- Submissions in response to the AER's draft decision be provided to the AER by 4pm on 11 March 2010.
- The AER publishes its final decision by 4pm on 15 April 2010.

1.5 EnergyAustralia proposal

In its January 2010 proposal EnergyAustralia submitted that certain aspects of the April 2009 AER decision should be re-examined and varied as follows:[16]

- the opening RAB value for assets constructed before 1 July 2009 should be increased from $111.3 million to $142.4 million to be consistent with the return of capital in the prices previously approved by IPART
- the annual opex allowance for the 2009–14 regulatory control period should be increased from $13.2 million ($2008–09) to $16.3 million ($2009–10) based on efficient costs. This amount would be escalated by the wage index and CPI approved in the April 2009 AER decision
- the control mechanism should include a formula to calculate the residual value for assets constructed before 1 July 2009, which is payable by a customer when the customer requests the early replacement of assets
- the control mechanism should be varied by separating the maintenance charge from the fixed capital charge

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14 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(9).

15 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(1)(a)–(f).

16 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 3.

- the prices and revenue specified in the control mechanism for each tariff class should include the same annual price change incorporating actual CPI, forecast wage index (as approved in the April 2009 AER decision) and customer contributed amounts during the year (where relevant).

EnergyAustralia also outlined the errors set out in the Tribunal's November 2009 orders, which EnergyAustralia has considered and corrected in preparing its proposed prices and charges.

1.6 Submissions

The AER received a submission from the Southern Sydney Regional Organisation of Councils (SSROC). SSROC disagreed with EnergyAustralia's January 2010 proposal in all areas except for the proposed change to the control mechanism in relation to the unbundling of the fixed charge for pre 1 July 2009 assets—that is, separating the capital and maintenance charges.[17]

1.7 Structure of draft decision (redetermination)

This draft decision sets out the AER's consideration of EnergyAustralia's January 2010 proposal and proposes those aspects of the AER's April 2009 decision that should be remade based on the directions of the Tribunal. This document is structured as follows:

- Chapter 2 sets out the AER's consideration of EnergyAustralia's proposed opening RAB (as at 1 July 2009) for assets constructed before 1 July 2009.

- Chapter 3 sets out the AER's analysis and consideration of EnergyAustralia's proposed opex allowance for developing the maintenance prices of all assets subject to maintenance programs over the 2009–14 regulatory control period.

- Chapter 4 sets out the AER's consideration of the approach to calculating the residual capital value of an asset replaced before the end of its economic life at a customer's request.

- Chapter 5 sets out the errors (outlined in the November 2009 Tribunal orders) which the AER is required to correct as part of remaking its determination on public lighting services.

- Chapter 6 sets out the AER's consideration of EnergyAustralia's proposed changes to the control mechanism applying to assets constructed before 1 July 2009 and assets constructed after 30 June 2009.

- Appendices A to G set out the formula for calculating the residual capital value by asset component in relation to pre 1 July 2009 assets, and schedule of charges and prices for EnergyAustralia's pre 1 July 2009 and post 30 June 2009 public lighting assets, based on the changes to the inputs and assumptions of EnergyAustralia's public lighting models made in this draft decision.

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[17] SSROC, *Submission on EnergyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, 21 January 2010.

2 Regulatory asset base

In its April 2009 decision, the AER used two approaches for determining the capital charges applicable to public lighting services:[18]

- For assets constructed after 30 June 2009, the AER applied a capital charge (return on and of capital) based on efficient material and installation costs.

- For assets constructed before 1 July 2009, the AER applied a capital charge based on the value of the RAB, which was rolled forward from the value established by the previous regulator—IPART.

This chapter sets out the AER's consideration of EnergyAustralia's proposed opening RAB (as at 1 July 2009) for assets constructed before 1 July 2009.

2.1 2009 AER decision

The AER determined that charges for assets already installed would be calculated using a limited building block approach rather than an annuity approach incorporating forecast of future capital expenditures. The AER established an opening RAB of $111.3 million (as at 1 July 2009) for EnergyAustralia's assets constructed before 1 July 2009. The AER approved this value as it did not accept EnergyAustralia's claims that its previous charges were based on deferred depreciation as these claims were made late in the review process and not supported by evidence.[19]

2.2 Tribunal directions

In its October 2009 directions the Tribunal provided its reasons in respect of the opening RAB for EnergyAustralia's assets constructed before 1 July 2009. The Tribunal stated that the AER was entitled to reject EnergyAustralia's claims about deferred depreciation as EnergyAustralia did not substantiate its claim. On the material before it, the Tribunal found no reviewable error. However, the Tribunal noted that the AER may not have had time to properly consider the matter and more material could have assisted the AER in determining whether EnergyAustralia had a claim.[20]

In its November 2009 orders the Tribunal directed that submissions made by EnergyAustralia:[21]

- may address the value of, and methodology for determining, the RAB for use in the building block approach for public lighting assets constructed before 1 July 2009

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18 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 334.
19 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 372.
20 Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009, paragraph 57.
21 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(4)(b)–(c).

- may include information and material that was not before the AER when it made its 2009 decision, such as the 'IPART letter' identified by the Tribunal in its October 2009 reasons for directions.

The Tribunal also directed that the AER must have regard to submissions made to the AER in accordance with the timetable set out and any other information or material requested during the course of remaking the decision.[22]

2.3 EnergyAustralia proposal

In its January 2010 proposal EnergyAustralia proposed that the opening RAB value in the 2009 AER decision be varied from $111.3 million to $142.4 million.[23] EnergyAustralia stated that the opening value for its RAB should be rolled forward to 1 July 2009 consistent with prices approved by IPART for the 2005–09 period and the return of capital (depreciation) reflected in those prices. EnergyAustralia engaged NERA Economic Consulting (NERA) to estimate the roll forward of the proposed opening RAB based on information used by IPART in approving public lighting prices in 2005 and the principles of financial capital maintenance, which essentially ensure that a business does not make windfall gains or losses from the value of its initial investment.

The NERA report provides the following conclusions:[24]

- regulators have typically adopted one of two approaches to setting the RAB—a periodic revaluation of the RAB based on replacement costs, or to 'lock-in' an initial asset value and then roll forward that value

- the roll forward approach has generally become preferred for long-lived energy sector assets

- under the roll forward approach, applying an amount of depreciation which reflects the same approach and methodologies as those used in a previous regulatory determination is commonly adopted by regulators. This reflects the principle of financial capital maintenance because the amount of depreciation that has been returned to the business during the previous period is the amount removed from the RAB in undertaking the asset roll forward

- the opening RAB value determined in the 2009 AER decision imposes a windfall loss on EnergyAustralia as it has been based on the application of a much higher rate of depreciation in the roll forward of the RAB than that assumed by IPART in determining the prices for EnergyAustralia in the 2005–09 period.

EnergyAustralia also provided an alternative opening RAB value on the basis of the roll forward method approved in the 2009 AER decision, updated to ensure

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22 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(5).

23 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 19–20.

24 NERA Economic Consulting, *The roll-forward of the value of EnergyAustralia's public lighting assets to 1 July 2009*, 23 December 2009, p. 18.

consistency with the longer remaining asset life adopted by IPART in 2005 and to remove the lagged indexation of the RAB.[25] Under this approach, the proposed RAB value as at 1 July 2009 is $139.1 million.[26]

2.4 Submissions

SSROC stated that EnergyAustralia's proposed RAB revision should be rejected and noted that the 2005 IPART decision makes no reference to deferred depreciation being applied in approving the prices set for the 2005–09 period.[27]

SSROC claimed that the majority of lights on EnergyAustralia's network were first lit by Council electricity departments or by County councils in the decades prior to the creation of corporatised electricity companies such as Sydney Electricity (1990) and Shortland Electricity (1993).[28] It stated that in most cases the original capital was provided by councils or the County councils, and at corporatisation no compensation was paid for those assets (including the public lighting assets) transferred to the new state-owned entities.

SSROC also claimed that there has been a pattern of misinvestment by EnergyAustralia, including inefficient labour costs being incurred and that these matters should be given consideration in the context of EnergyAustralia's proposed RAB revision.[29]

2.5 Issues and AER considerations

In reconsidering the opening RAB for EnergyAustralia's assets constructed before 1 July 2009, it is useful to reflect on the basis for which the April 2009 AER decision was made. EnergyAustralia's June 2008 proposal stated that there was no clear link between the opening RAB of $97.8 million (as at 1 July 2004) referenced by IPART and the 2005–09 approved prices for public lighting services because it was unclear what parameters—such as depreciation rates—underpinned IPART's August 2005 decision.[30]

Notwithstanding this, EnergyAustralia stated that if the AER was to require rolling forward the 1 July 2004 reference RAB value then EnergyAustralia's proposed opening RAB value at 1 July 2009 would be $139.2 million.[31] EnergyAustralia noted that this asset value was higher than the optimised depreciated replacement cost of the asset base of $128.8 million that it developed as at March 2008.[32]

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25 Based on the Tribunal directions, see: Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(6).

26 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 20.

27 SSROC, *Submission on EnegyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, 21 January 2010, p. 2.

28 SSROC, *Submission on EnegyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, 21 January 2010, p. 3.

29 SSROC, *Submission on EnegyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, 21 January 2010, pp. 4–6.

30 EnergyAustralia, *Regulatory proposal*, June 2008, p. 198.

31 EnergyAustralia, *Regulatory proposal*, June 2008, pp. 198–199.

32 Assuming straight-line depreciation and that the assets are half way through their useful lives.

In its January 2009 revised proposal, which responded to the AER's concerns with EnergyAustralia's annuity methodology, EnergyAustralia estimated an opening RAB of $111.3 million as at 1 July 2009 under the roll forward approach as a result of a more detailed analysis of the remaining lives of its assets.[33] The AER considered that this rolled forward RAB value was appropriate as it was comparable to a benchmark estimate developed by the AER and the approach to calculating the remaining lives of the assets[34] was reasonable.[35]

The AER assessed the RAB value of $111.3 million contained in EnergyAustralia's January 2009 revised proposal by taking account of observed capital expenditures on public lighting assets over the previous ten years and the assumed reduction in economic value of its assets. This assessment process established a RAB value consistent with that proposed by EnergyAustralia. The AER also used this assessment technique to test the RAB values proposed by Integral Energy and Country Energy for their public lighting RAB and found that their proposed RABs were reasonably consistent with the benchmark.

In its April 2009 submission EnergyAustralia stated that IPART, in making its August 2005 decision, set prices based on a significant downward revision to the depreciation profile, which therefore resulted in a deferral of the depreciation allowance.[36] EnergyAustralia argued that the opening RAB at 1 July 2009 should be revised upwards and established using a depreciation profile that is consistent with that adopted for the 2005–09 period.

Given earlier statements made by EnergyAustralia in its June 2008 proposal regarding the August 2005 IPART decision and an essentially opposite view put forward in EnegyAustralia's April 2009 submission, which was not supported by evidence, the AER did not accept EnergyAustralia's claim that its 2005–09 charges were based on deferred depreciation and maintained the opening RAB at $111.3 million in the April 2009 AER decision.[37]

EnergyAustralia has provided additional material in its January 2010 proposal to support its claim about the deferral of the depreciation allowance underpinning the charges set in the August 2005 IPART decision.[38] The AER notes that the issue of deferred depreciation relates to what value was adopted for the remaining life of the RAB at 1 July 2004 for modelling the return of capital.[39]

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33 EnergyAustralia, *Revised regulatory proposal and interim submission*, January 2009, p. 174.

34 A remaining life of 9 years for assets at 1 July 2004 was adopted.

35 AER, *Supplementary draft decision, New South Wales draft distribution determination 2009–10 to 2013–14, Alternative control (public lighting) services*, 6 March 2009, p. 16.

36 EnergyAustralia, *Submission on the AER's public lighting supplementary draft decision*, April 2009, pp. 10–11.

37 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, pp. 371–372, 374.

38 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 15–18.

39 The standard asset life of 20 years for capital expenditure (capex) incurred from 1 July 2004 that was applied in the roll forward for modelling the return of capital in the April 2009 AER decision is not proposed to be varied by EnergyAustralia.

The AER has reviewed the material put forward, including various IPART documents and models setting out the context of the prices approved for the 2005–09 period, and the 'IPART letter' (dated 2 March 2005) identified by the Tribunal in its October 2009 reasons for directions, and notes the following:

- In November 2004 EnergyAustralia submitted its public lighting proposal to IPART requesting a price increase of 26 per cent in the first year declining to an increase of 7 per cent in the fourth year in real terms.[40] In March 2005 IPART wrote to EnergyAustralia rejecting its 2004 proposal.[41] IPART considered the customer impacts arising from EnergyAustralia's November 2004 proposal were unreasonable. Based on its calculations, IPART stated that a significantly lower depreciation allowance to the one included in EnergyAustralia's November 2004 proposal would be more appropriate and suggested that EnergyAustralia should further consider depreciation projections in light of the rejected proposal.[42]

- In June 2005 EnergyAustralia submitted its revised public lighting proposal to IPART reducing the size of the proposed price increases to 10 per cent in the first year and an average of 5 per cent for the remaining three years in reals terms. Responding to IPART's suggestion, EnergyAustralia proposed to extend the remaining asset life for its existing assets as at 1 July 2004 from around 10 years (half life assumption) to 16.2 years in order to model the return of capital.[43] Consequently, this results in a deferral of the depreciation allowance—prices are therefore lower than the cost of providing the service and would lead to higher prices in future years to recover the capital cost of assets. For capex incurred from 1 July 2004 a standard asset life of 20 years was adopted for the purposes of modelling the return of capital.

- In August 2005 IPART approved EnergyAustralia's June 2005 revised proposal.[44] As part of its assessment, IPART had regard to a range of input assumptions which were set out in its spreadsheet models.[45] IPART modelled nine scenarios to test different input assumptions against EnergyAustralia's June 2005 revised proposal. This included changes to opex, the weighted average cost of capital and the standard life for depreciating capex. IPART did not model any changes to the remaining life for existing assets of 16.2 years that was adopted in EnergyAustralia's June 2005 revised proposal.

In general the depreciation allowance in the regulatory framework is typically set such that the asset life is closely aligned to the anticipated life of the physical asset. The

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40 EnergyAustralia, *EnergyAustralia's submission to Independent Pricing and Regulatory Tribunal, EnergyAustralia's public lighting pricing proposals*, November 2004, p. 27.

41 IPART, *Letter, Review of EnergyAustralia's public lighting proposals*, 2 March 2005.

42 IPART was not required to determine the building block inputs but rather to satisfy itself that the proposed price increases complied with clause 2.3 of the *Regulation of Excluded Distribution Services Rule 2004/1*.

43 EnergyAustralia, *EnergyAustralia's submission to Independent Pricing and Regulatory Tribunal, EnergyAustralia's revised public lighting pricing proposals*, June 2005, pp. 9–10.

44 IPART, *Statement of reasons for decision, EnergyAustralia application for proposed price increase of public lighting charges for the construction, maintenance and asset management components of its public lighting business*, August 2005, p. 3.

45 IPART, *Letter, IPART's 2005 decision on public lighting*, 10 December 2009.

AER notes that there may be economic reasons for departing from adopting the physical asset life for regulatory depreciation purposes and implement deferred depreciation in order to provide a particular pricing profile over time—for example, based on expected increase in network utilisation or higher customer numbers in the future. All things being equal and having regard for the principle of financial capital maintenance, such an approach will result in a relatively higher RAB value in future periods than would have otherwise been the case. In this instance the longer remaining asset life has been adopted by IPART to lessen the price impact on customers in the 2005–09 period—that is, the recovery of depreciation has been deferred in the prices established in 2005. The consequence of this approach taken is that prices will need to be higher in future periods.

The AER notes that EnergyAustralia in its June 2008 proposal put forward a rebate mechanism in order to address concerns it had about price shocks by limiting the increase to a customer's total bill.[46] At that time EnergyAustralia indicated that it was willing to absorb approximately $9 million over the 2009–14 regulatory control period. It appears that EnergyAustralia was willing to forgo the principle of financial capital maintenance at that time but now seeks to rely on this principle to vary the roll forward of the opening RAB.

Taking account of the issues set out above, while being mindful of the fact that customers in 2005 were not aware that proposed price increases had only been deferred, the AER considers that it is appropriate to vary the opening RAB at 1 July 2009 determined in the April 2009 AER decision. In that decision, on the basis of EnergyAustralia's January 2009 revised proposal and a lack of evidence to the contrary, a remaining life of 9 years—based on EnergyAustralia's detailed analysis of its assets—was adopted by the AER to model the return of capital in the asset roll forward.

In view of the process that was followed to establish EnergyAustralia's public lighting charges in 2005 as set out in correspondence between IPART and EnergyAustralia it is reasonable to conclude that public lighting charges established in 2005 were established on the basis of a RAB value of $97.8 million and that IPART did intend that EnergyAustralia would be able to recover this value.

The AER considers that it is necessary to apply the same depreciation rate (or method) employed to determine the prices for the 2005–09 period, which was approved in the August 2005 IPART decision. This approach is consistent with the principle of financial capital maintenance in that the cost of the investment is recovered over the life of the asset[47], having regard to clause 6.5.2(d)(3) of the transitional chapter 6 rules[48] and the revenue and pricing principles in the National

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46 EnergyAustralia, *Regulatory proposal*, June 2008, pp. 195–196.

47 This ignores the effect of any incentive regime applying to capital expenditure incurred during a regulatory control period.

48 Clause 6.2.5(d)(3) of the transitional chapter 6 rules requires the AER, in deciding on a control mechanism for alternative control services, to have regard to the regulatory arrangements applicable to the relevant service immediately before the commencement of the distribution determination.

Electricity Law (NEL).[49] As EnergyAustralia has now provided evidence that the August 2005 IPART decision approved a remaining life of 16.2 years for existing assets at 1 July 2004, the AER considers that this should be the remaining life adopted for modelling the return of capital in the asset roll forward.

The AER has previously indicated that it was aware that many of the assets in EnergyAustralia's RAB were constructed some time ago[50] and therefore applying a longer remaining life for these assets may not align with the actual circumstances of the assets in place. The effect of this is that customers will still be paying for some assets after they are no longer in service.

The AER notes that EnergyAustralia has put forward two alternative values for its opening RAB based on the proposed remaining life for assets at 1 July 2004 of 16.2 years using two roll forward approaches—the NERA method and the method based on that approved in the April 2009 AER decision.[51] Whilst EnergyAustralia stated that each of the alternatives would be reasonably consistent with financial capital maintenance assumptions, EnergyAustralia recommended the adoption of the NERA method.[52]

In its January 2010 proposal, EnergyAustralia proposed that the AER remake its determination by taking as a starting point the April 2009 AER decision and determining those aspects that should be re–examined based on the directions of the Tribunal.[53] The AER agrees with EnergyAustralia and, as outlined above, it is appropriate to redetermine the opening RAB by changing the April 2009 AER decision to the extent necessary—that is, the remaining asset life assumption in the asset roll forward. Therefore, rather than adopt the NERA roll forward method, the AER will use the roll forward method approved in the April 2009 AER decision[54] and modify the remaining asset life assumption (16.2 years) to be consistent with that underpinning the prices for the 2005–09 period, as approved by IPART.[55]

In its November 2009 orders the Tribunal also directed the AER to apply the same indexation approach that it used to roll forward the RAB for standard control services to the RAB indexation in rolling forward the public lighting assets constructed before 1 July 2009 to establish the opening RAB at 1 July 2009 for alternative control

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49 Section 7A(4) in part 1of the schedule to the National Electricity Law states that regard should be had with respect to a distribution system adopted in any previous distribution determination or decision.

50 AER, *Draft decision, NSW distribution determination, 2009–10 to 2013–14*, 21 November 2008, p. 330.

51 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 20.

52 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 20.

53 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 3.

54 The AER agrees with EnergyAustralia that this method is consistent with financial capital maintenance assumptions.

55 The AER notes that the capital expenditures for some years in the 2004–09 regulatory control period rolled into the RAB under the NERA method do not reconcile with those in the EnergyAustralia regulatory information notice (RIN).

services—that is, remove the lagged inflation indexation to the opening RAB when rolling forward during 2004–09.[56]

EnergyAustralia stated that it has made the relevant adjustments in the asset roll forward of its capital charge model—based on the method approved in the April 2009 AER decision—submitted with its 2010 proposal.[57] The AER has reviewed the asset roll forward in the capital charge model and is satisfied with the adjustments, subject to one further adjustment.[58] Correcting for this adjustment in the asset roll forward of EnergyAustralia's capital charge model, the AER determines an opening RAB of $140.9 million as at 1 July 2009 for EnergyAustralia in this draft decision.

In relation to SSROC's submission, the AER notes that it has previously considered the issues surrounding funded assets. In the April 2009 AER decision the AER considered that in circumstances where there is a dispute regarding the original funding of an asset and the period of when funding occurred, evidence must be presented to support the claim.[59] The AER also acknowledges that SSROC's claims of misinvestment and inefficient costs being incurred raise some concerns over the practices by EnergyAustralia. However, the AER notes that the transitional chapter 6 rules do not provide any scope for an ex–post prudence review of past capex for standard control services. Actual capex incurred by the network service provider during the 2004–09 regulatory control period in relation to standard control services must be rolled into the RAB in accordance with the transitional chapter 6 rules.[60] The AER considers a similar approach has to be adopted under the limited building block framework applied to alternative control services.

2.6 Conclusion

In accordance with the Tribunal directions the AER has reviewed the additional material submitted by EnergyAustralia. The AER considers that it is appropriate to vary the opening RAB at 1 July 2009 determined in the April 2009 AER decision. The AER considers that it is necessary to apply the same depreciation rate (or method) employed to determine the prices for the 2005–09 period, which were approved in the August 2005 IPART decision. As the August 2005 IPART decision approved a remaining life of 16.2 years for existing assets at 1 July 2004, the AER considers that this should be the remaining life adopted for modelling the return of capital in the asset roll forward.

Having made the further correction referred to above to the RAB indexation in the asset roll forward of EnergyAustralia's capital charge model, the AER determines an opening RAB of $140.9 million as at 1 July 2009 for EnergyAustralia in this draft decision.

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56 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(6).

57 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 20.

58 The AER has adjusted the formula in row 8 of the 'Calc – RAB 2004–09' tab in EnergyAustralia's capital charge model to remove the lagged inflation indexation.

59 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 369.

60 See S6.2.1(e)(1)–(2) of the transitional chapter 6 rules.

3 Operating expenditure

This chapter sets out the AER's analysis and consideration of EnergyAustralia's proposed opex allowance over the 2009–14 regulatory control period.

3.1 2009 AER decision

In its April 2009 decision the AER reduced EnergyAustralia's proposed opex allowance for 2009–10 from $15.8 million to $13.2 million ($2008–09). The opex allowances for subsequent years of the 2009–14 regulatory control period were to be calculated by adjusting for inflation and real increases in labour costs. The AER's final decision required that the same opex prices be applied to assets constructed before 1 July 2009 and those constructed after 30 June 2009.

The key changes made by the AER to EnergyAustralia's opex proposal related to:

- the substitution of EnergyAustralia's 2.5 year bulk lamp replacement cycle with a 3 year bulk replacement cycle for most lamps, with certain fluorescent and high pressure sodium lamps to be based on a 4 year bulk replacement cycle[61]

- an adjustment to the spot failure rates for a number of EnergyAustralia's lamps based on technical (mortality curve) information, with the remainder of its lamps' spot failure rates being reduced by 20 per cent

- increasing the number of spot lamp replacements made per day by EnergyAustralia from 8.33 for traffic route lights and 12.5 for streetlights to 25.33 per day.

3.2 Tribunal directions

In its October 2009 directions the Tribunal provided its reasons in respect of the opex allowance for EnergyAustralia. The Tribunal stated that the AER did not set out an adequate explanation in its determination of its calculation of the 'other' opex amount of $18.26 per asset and that the determination should be varied. The Tribunal did not criticise the AER for the way it approached this aspect as the error arose or substantially arose out of the manner and timing in which EnergyAustralia put its proposals and model for consideration by the AER. [62]

The Tribunal noted that the AER did not accept EnergyAustralia's opex proposal on the basis that it would cover more than EnergyAustralia's efficient costs. The Tribunal's view was that the AER was entitled to question whether the year-to-date spend represented efficient costs. The Tribunal was not satisfied on the material before it that the EnergyAustralia proposal should necessarily be adopted and indicated that this would be a matter for redetermination by the AER.[63]

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61 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, pp. 345–46.

62 Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009, paragraphs 40–41.

63 Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009, paragraph 42.

In its November 2009 orders the Tribunal directed that submissions made by EnergyAustralia must address the value of and methodology for determining, the efficient operating expenditure required by EnergyAustralia for each year of the regulatory control period in order to operate and maintain its public lighting assets. The Tribunal also directed that the efficient level of operating expenditure must be supported by a detailed model whereby the efficiency of inputs and assumptions for all key maintenance aspects are explained and justified.[64]

3.3 EnergyAustralia proposal

EnergyAustralia's January 2010 proposal seeks to vary the AER's April 2009 decision and substitute a new value of $16.3 million ($2009–10) based on a component build up of input assumptions.[65]

EnergyAustralia noted the concerns that the AER and the Tribunal have had with its methodology used to calculate the opex charges in its previous proposals with regard to the demonstration of efficiency of those costs. EnergyAustralia stated that it has sought to address this in its January 2010 proposal, where EnergyAustralia sets out a number of assumptions that it has used in developing its proposed opex allowance—for example, labour rates, a bulk lamp replacement cycle, lamp costs, travel times, failure rates, etc. These assumptions cover the following five areas:[66]

- bulk lamp replacement contract and material costs
- spot replacement labour and material costs
- elevated work platform costs
- connection repair costs
- overhead costs.

EnergyAustralia stated that, where available, it has endeavoured to provide evidence as to the basis of each cost component assumption. EnergyAustralia has also attempted to compare the cost component assumptions with assumptions made by the AER and other network service providers.[67]

As part of its January 2010 proposal, EnergyAustralia has submitted a detailed cost build-up model that applies these assumptions in calculating its proposed opex allowance.[68]

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64 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(4)(a).

65 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 23.

66 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 28.

67 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 27.

68 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 27.

EnergyAustralia has updated its analysis of optimum bulk lamp replacement cycles to reflect current inventories and circumstances. EnergyAustralia found that the failure rate for a number of its lamps has reduced significantly, some well below the rates determined in the AER's April 2009 decision. However, despite some anomalous results in relation to spot failures, EnergyAustralia has now proposed a bulk lamp maintenance cycle of 3 years for all lamps.[69]

In support of its January 2010 proposal, EnergyAustralia engaged Parsons Brinckerhoff Australia Pty Limited (PB) to review the opex assumptions. PB formed the view that EnergyAustralia's proposed opex allowance represents the efficient costs in providing public lighting services in EnergyAustralia's network.[70]

3.4 Submissions

SSROC stated that EnergyAustralia is seeking a $3 million upward adjustment in opex from that determined in the AER's April 2009 decision.[71] SSROC noted EnergyAustralia's acceptance of revisions to its bulk lamp replacement schedule and assumed component failure rates, however, it considered that revisions to labour assumptions were also warranted.

SSROC referred to the spot maintenance assumptions submitted as part of the regulatory proposals by the Victorian distribution network service providers to the AER in November 2009. SSROC stated that on average these utilities (and Integral Energy) are assuming labour productivity levels of approximately twice that of EnergyAustralia.

In relation to labour productivity assumptions, SSROC considered that EnergyAustralia's assumption of 40 minutes per spot repair was excessive given EnergyAustralia's average lighting density and an efficiently scheduled spot repair program.

SSROC also compared EnergyAustralia's proposed opex charges for 2009–10 with the average price proposed by the Victoria distribution network service providers for 2011 for 4 main luminaire types. SSROC stated that the greatest differences were in minor road lighting which it considered accounted for approximately 70 per cent of all lights in EnergyAustralia's lighting portfolio.

3.5 Consultant review

The AER engaged Energy and Management Services Pty Ltd (EMS) to review the key inputs and assumptions used by EnergyAustralia in its opex model and also to review the benchmarking report by PB submitted with EnergyAustralia's

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69 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 29–31.

70 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 41–42.

71 SSROC, *Submission on EnegyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, 21 January 2010, pp. 7–9.

January 2010 proposal. EMS's recommendations in relation to the key assumptions and inputs to the opex model are set out in its report and are summarised as follows:[72]

- General assumptions—
  - Accept the proposed elevated work platform rate and non-lamp material costs.
  - Amend the labour rates for normal time and overtime, the overtime proportion, overhead rate, and the annual cost for quarterly night patrols.
- Spot maintenance assumptions—
  - Accept the spot maintenance staffing, lamp failure rates (subject to adjustments for inconsistencies of failure rates in multi-lamp configurations), average photo-electric cell and 'other component' failure rates, and the connection repair unit rate.
  - Amend the time requirement for spot maintenance task.
- Bulk maintenance assumptions—
  - Accept the modelling of cycles and unit rates for other bulk replacement tasks.
  - Amend the bulk replacement cycle for all HPS lamps in traffic route luminaire installations and the photo-electric cell replacement cycle for all HPS lamps in traffic route luminaire installations.

EMS agreed with many of PB's findings and conclusions. However, EMS's points of difference are summarised as follows:[73]

- EMS agreed with PB that opex model yields a high level of allocative efficiency, but it differed with PB's tacit assumption that the total public lighting opex forecast by the opex model is efficient. EMS considered that the relative proportions of costs allocated to EnergyAustralia's public lighting customers are efficient, but the absolute values of the costs are overstated.
- EMS disagreed with PB's view that the 52 per cent increase in forecast public lighting opex is efficient.
- EMS considered that PB's view, that EnergyAustralia is more efficient than other NSW distribution network service providers but worse than Victorian and Queensland distribution network service providers, is somewhat misleading in that EnergyAustralia's performance in terms of opex per street light for city/urban distribution network service providers is of the same order as some of the worst performing distribution network service providers.

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[72] EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, pp. 2–3.

[73] EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 3.

EMS therefore found PB's overall conclusion, that EnergyAustralia is on average operating efficiently in its provision of public lighting services, to be somewhat generous.[74]

3.6 Issues and AER considerations

EnergyAustralia's opex forecast and modelling is based on three main groups of assumptions—general, spot maintenance and bulk maintenance. The following sections discuss each of the assumptions under the three groupings, the AER considerations of PB's opex review for EnergyAustralia and SSROC's submission on benchmarking.

3.6.1 General assumptions

Labour unit rates

EnergyAustralia has assumed labour unit rates of $100.80 per hour ($2009–10) for normal time and $106.96 for overtime. It stated that it has calculated these unit rates consistent with the approach used to estimate the cost of customer specific services in accordance with IPART's Excluded services rule 2004/01. It stated that this formula is intended to cover related labour on-costs and direct labour overheads for customer specific services associated with public lighting. EnergyAustralia also stated that it uses this unit rate for services which are effectively contestable (capable of being undertaken by another service provider).[75]

In undertaking its review of EnergyAustralia's opex, EMS clarified its definitions of on-cost and overhead. EMS stated its view that on-costs only represented the extra costs that are added on to the wage actually paid to the employee. That is, the costs faced by an employee per hour in order to pay an employee a given per hour rate. Conversely, it considered overheads to be all indirect costs associated with ensuring employees are able to undertake their work (for example, management and administration, IT support, corporate affairs, training etc…).[76]

Based on its review of EnergyAustralia's proposal, EnergyAustralia's response to subsequent AER questions, and its definitions of on-cost and overhead, EMS considered that the labour unit rates assumed by EnergyAustralia in its opex model overstated the on-costed rates that apply to workers normally engaged in public lighting maintenance activities. EMS has reviewed EnergyAustralia's Consent Award, which governs the pay and conditions of EnergyAustralia's staff, and developed what it considered to be an appropriate on-costed rate for normal time labour rates and overtime labour rates. Based on this analysis EMS recommended that the labour unit rates be adjusted to $57 per hour for standard hours and $79 per hour for overtime

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74 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 3.

75 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 32.

76 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 10.

hours. In order to preserve the confidentiality of EnergyAustralia's data, the details that support EMS's opinion are contained in appendix B of its report.[77]

The AER shares the concerns raised by EMS regarding EnergyAustralia's labour unit rates. The AER considers that the on-cost rate and privilege rate applied by EnergyAustralia to be high and it is not clear how the specific rates have been calculated and what specific allowances or costs have been included in the derivation of each rate. The AER also notes that the labour unit rates proposed by EnergyAustralia are higher than those proposed by the Victorian distribution network service providers in their regulatory proposals to the AER. Based on its review of EnergyAustralia's proposal and EnergyAustralia's further responses to questions, the AER accepts the advice of EMS that the labour unit rates proposed by EnergyAustralia should be adjusted to $57 for normal hours and $79 for overtime hours.

Elevated work platform rate for spot maintenance

EnergyAustralia noted that when it undertakes spot maintenance on any public light, an elevated work platform (EWP) is required for the work crew to access the light. EnergyAustralia stated that the normal hourly rate for an EWP is assumed to be $45 per hour. It noted that it did not have any documentation supporting this rate but had based its assumption on the rate that the AER approved for Integral Energy.[78]

EMS found the rate of $45 per hour to be reasonable. It based this conclusion on a review of a typical EWP purchase cost and re-sale values (assuming a ten-year life) and typical daily operating costs.[79]

The AER considers that the assumption used by EnergyAustralia is reasonable given that this rate was approved for Integral Energy in its April 2009 decision and that EMS has also independently verified the rate.

Proportion of work in overtime hours

EnergyAustralia has assumed that 20 per cent of work is undertaken in overtime hours, reflecting the fact that the more complicated work or work on traffic routes requires greater access and is usually undertaken outside core business hours. In particular, it stated that Sydney's traffic routes require permits from the Roads and Traffic Authority (RTA) and that maintenance must be completed in time periods offered by RTA, which it considered were inevitably periods in overtime hours.[80]

EMS noted that EnergyAustralia included a footnote in its January 2010 proposal indicating that, excluding on-costs, overtime represented 24 per cent of total direct labour costs in 2008–09. EMS stated that a cost proportion of 24 per cent equated to

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77 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 10.

78 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 37.

79 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 10.

80 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 32.

17.4 per cent of total labour hours occurring as overtime, assuming time and a half rates. EMS also noted that EnergyAustralia indicated that approximately 15 per cent of lamps are category V lamps.[81] EMS accepted that the RTA will often require public lighting maintenance on traffic routes to be undertaken outside normal business hours. However from the evidence presented by EnergyAustralia, EMS considered that the proportion appears to be in the order of 15 to 17 per cent. EMS recommended that the overtime proportion assumption be reduced to 17.4 per cent.[82]

The AER has reviewed the information contained in EnergyAustralia's January 2010 proposal and EMS's analysis of that information. It agrees with EMS that, based on the information provided by EnergyAustralia, an overtime proportion assumption of 17.4 per cent more accurately reflects EnergyAustralia's historical proportion of overtime to total labour hours and that this rate should be applied in EnergyAustralia's opex model.

Overhead costs—including additional overhead allocation for quarterly patrols

EnergyAustralia stated that it incurs many overhead costs which are allocated to public lighting costs in accordance with its approved cost allocation methodology. It noted that its historical contribution of allocated overheads is 25 per cent and that this rate was accepted in the April 2009 AER decision. EnergyAustralia stated that examples of costs that are normally expensed include non-operational staff—for example, business analysts and administration staff managing such things as asset registers, billing systems, fault notification systems, etc. [83]

EnergyAustralia stated that since 2008 it has been undertaking quarterly night patrols on major traffic routes in its network area and that these have dramatically improved public lighting statistics. Currently, night patrols are limited to Category V lamps. Although improving performance, EnergyAustralia stated that these patrols come at a cost. It estimated the cost of quarterly patrols to be $225 000 assuming a cost of $1.50 per lamp inspected and approximately 15 per cent of lamps being Category V lamps.[84] EnergyAustralia indicated that it applied this cost by adding 1.75 per cent to the existing overhead allocation of 25 per cent to arrive at a total overhead rate of 26.75 per cent.

EMS considered that the overhead rate of 25 per cent is a historically accepted figure that is approximate at best. It stated that it is unlikely to match precisely the actual overheads incurred by EnergyAustralia's public lighting function but should be accepted as sufficiently accurate for the purposes of allocative efficiency. Nevertheless, EMS considered that making a precise adjustment to an approximate figure results in another approximate figure. EMS recommends that the proposed

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81 Category V lighting is lighting which is specifically designed for vehicular traffic. The category is set out in AS1158.1.3:1997 *Road Lighting – Vehicular traffic (Category V) lighting – Guide to design, installation, operation and maintenance*.

82 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, pp. 11–12.

83 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 37–38.

84 EnergyAustralia noted that this is based on the cost per lamp of bulk contractor quarterly inspections (footnote 69 of the January 2010 EnergyAustralia proposal).

overhead rate assumption of 26.75 per cent be replaced with the previously accepted figure of 25 per cent because:

- the additional 1.75 per cent likely overstates the costs faced by EnergyAustralia in undertaking its patrol regime (section 4.1.1.8 of EMS's report sets out an analysis of the cost of quarterly patrols and suggests the efficient cost should be around $144 000 or $1 per lamp).

- the rate of 25 per cent was proposed by EnergyAustralia in its June 2008 proposal and accepted by the AER

- a claimed precise adjustment to an approximate figure only results in another approximate figure, such that the broadly approximate figure of 25 per cent should prevail.

The AER approved an overhead rate of 25 per cent in its April 2009 decision. The AER still considers that this overhead rate is reasonable to apply in calculating EnergyAustralia's forecast opex allowance.

EnergyAustralia seeks to include an additional 1.75 per cent to the general overhead rate of 25 per cent to account for quarterly nightly patrols—that is, a total rate of 26.75 per cent. From its review of EnergyAustralia's January 2010 proposal, it is not clear to the AER the extent that quarterly night patrols undertaken by EnergyAustralia staff may have already been included in EnergyAustralia's historical overheads. The AER considers that given the critical nature of traffic routes in Sydney it is unlikely that EnergyAustralia was not undertaking some monitoring of its traffic route installations before 2008.

The AER also notes EMS's analysis that the efficient annual cost of quarterly patrols of Category V lighting would be in the order of $144 000 and that these costs should be specifically identified rather than merged with overheads. The AER considers that EMS's methodology is logical and produces an efficient cost for this task. The AER also agrees with EMS that it is not appropriate for these costs to be added to the overhead rate. For transparency, the efficient costs of quarterly patrols should be separately estimated and factored into EnergyAustralia's opex model.

Given its concerns with EnergyAustralia's quarterly night patrol costs, the AER does not agree to the proposed addition of 1.75 per cent to the overhead rate of 25 per cent. The AER considers that an overhead rate of 25 per cent is reasonable to apply in calculating EnergyAustralia's forecast opex allowance.

Lamp and non-lamp materials costs

EnergyAustralia's noted that its lamp prices were previously accepted by the AER after reviewing invoices for this type of equipment but that the costs of photo-electric (PE) cells and visors had not been verified by the AER.[85]

[85] EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 37.

EMS noted that the AER accepted the unit costs for lamps in its April 2009 decision and therefore it did not review lamp prices. However, EMS also stated that it had concerns about inconsistencies in individual lamp prices used in EnergyAustralia's opex model.[86] EMS noted that EnergyAustralia's public lighting inventory comprises 41 different lamp types in 102 different configurations. EMS considered that the cost per lamp would be the same regardless of whether the lamp is in a one, two, three or four lamp luminaire. EMS found that this was not the case in EnergyAustralia's cost-build up opex model.[87]

The AER has reviewed the issue identified by EMS concerning inconsistencies in individual lamp prices used in EnergyAustralia's opex model. The AER agrees that the opex model needs to be corrected for errors in the formulae that overstate lamp prices in luminaires with multiple lamps.[88] EnergyAustralia has confirmed that the model overstated the materials costs for multi-lamp luminaires.[89] The AER has made these corrections and also reviewed the lamp prices in the opex model. The lamp prices are consistent in real terms to the prices contained in the AER's April 2009 decision.

In relation to non-lamp materials costs EMS noted that, in response to a request by the AER, EnergyAustralia provided copies of recent invoices to substantiate the assumed costs for PE cells and visors applied in its cost build-up opex model. EMS noted that the costs for PE cells were consistent with invoice costs. However, it also noted that the invoice costs for visors varied widely and the cost adopted by EnergyAustralia in the opex model was a simple average of invoice costs. EMS reviewed alternative averaging assumptions but found that the impact on total opex was not material.[90] EMS also made enquiries of lighting manufacturers and suppliers. EMS stated that suppliers had confirmed EnergyAustralia's proposed unit rates for non-lamp materials. Based on its analysis, EMS recommended that the assumptions regarding non-lamp materials costs be accepted.[91]

As noted by EMS, the AER requested information from EnergyAustralia to confirm the efficiency of its PE cell and visor costs. The AER agrees with EMS that the costs reflected the invoiced amounts and notes that EMS had independently confirmed EnergyAustralia's proposed unit rates for non-lamp materials. On this basis, the AER accepts that the costs for non-lamp materials are efficient.

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86 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 11.

87 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, pp. 22–23.

88 EnergyAustralia subsequently confirmed that the calculation in the model overstated material costs (22 February response questions).

89 EnergyAustralia, *Response to AER's questions received on 17 February 2010*, 22 February 2010.

90 EMS also noted that while the provision exists in the model for miscellaneous materials, no such items are included.

91 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 11.

Connections maintenance assumptions

In its 16 October 2009 directions the Tribunal noted that the AER had accepted that an allowance should be made for opex on pre 1 July 2009 connection assets.[92] The Tribunal stated that as EnergyAustralia's public lighting opex was to be remitted to the AER this matter could be considered by the AER.

In its January 2010 proposal, EnergyAustralia stated that when an underground connection of a public light fails, due to water ingress, corrosion or other reasons, EnergyAustralia must dig up the connection to repair it.[93] EnergyAustralia observed that this task was time consuming and labour intensive as faults are notoriously difficult to find and complicated to repair. It considered that while only a small number of underground connections fail per year, the cost of repair is relatively high.

EnergyAustralia has applied flat rates for connections maintenance into its opex model, which it stated has been calculated by reference to the actual costs of repairing underground connections. EnergyAustralia noted, in its June 2008 proposal, that it included connections operating costs based on the rates calculated as part of its June 2005 regulatory proposal to IPART (maintained in real terms). EnergyAustralia therefore stated that as no escalation had been applied since 2004–05, its forecast of these costs was conservative.

EMS observed that from time to time, repairs are required on the connections to public lights. It agreed with EnergyAustralia that, in the case of lights supplied by underground cables, connection repairs may be expensive, especially if excavations are involved. It also noted that connection maintenance events are rare with the result that expenditure in any one year may be very high or very low in comparison with the long-term average.[94] EMS recommended that the connection repair unit rates be accepted on the basis that the connection cost rates are the same as proposed in EnergyAustralia's June 2008 proposal.

The AER has reviewed the rates proposed by EnergyAustralia for maintaining connection assets. It is satisfied that the rates proposed by EnergyAustralia are consistent, in real terms, with those that it proposed in its June 2005 proposal.[95] The AER also notes that EMS has recommended that the rates be accepted. On this basis, the AER accepts the rates proposed by EnergyAustralia for maintaining connections.

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92 Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009, paragraphs 79–80.

93 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 37.

94 EMS pp. 19–20.

95 See appendix G of the 2003 *Streetlighting cost to serve* report prepared for EnergyAustralia by PB.

3.6.2 Spot maintenance assumptions

Staffing requirements for spot lamp replacement

EnergyAustralia assumed that a spot maintenance task on a non-traffic route requires two staff. It also assumed that on average one additional staff member is required for traffic routes, reflecting:[96]

- whenever traffic control is required it takes two staff to undertake traffic control
- however, where the spot maintenance task is routine and access to the light is safe and available without disrupting traffic, the maintenance task would be undertaken with a two person crew.

EnergyAustralia considered that its staffing assumptions were conservative as access to major roads (with clearways etc) means that, in most circumstances, traffic control will be required.[97]

EMS recognised that occupational health and safety (OHS) developments in the last decade or so have all but abolished 'aloft alone' work. EMS accepted that work on defined traffic routes will frequently require a flag operator, others may require two. Overall, EMS recommended that EnergyAustralia's staffing assumptions be accepted.[98]

Based on its review of the issue and the advice provided by EMS concerning OHS issues and the regular need for traffic management on traffic routes, the AER considers that EnergyAustralia's staffing assumptions for spot maintenance are reasonable. Therefore, the AER accepts 2 staff being required for non-traffic routes and 3 staff being required for traffic routes. These assumptions are consistent with those in the model used to develop annuity capital charges (see section 5.3.1).

Time requirements for spot lamp replacement

EnergyAustralia's assumptions on the total time to undertake spot maintenance tasks are based on three major categories:[99]

- **Travel time—**EnergyAustralia stated that travel time is dependent on the time of day travelling, the distance between jobs and the traffic conditions at the time of travel. It also stated that it routinely groups replacement tasks within a common locality but that its ability to do this is limited with a target of 8 days repair time. EnergyAustralia also stated that clustered work is more likely for 'held' notifications (notifications that are complex or have traffic access issues) but the nature of the repair requires a greater amount of preparation and that it is rare for a

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96 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 32.

97 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 32.

98 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 14.

99 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 33–35.

string of held notifications to be clustered and within a similar time period. Overall, EnergyAustralia has assumed an average time of 20 minutes between spot maintenance tasks. It considered that this is conservative given:

- the large proportion of travel that is inherent in spot maintenance work
- the distance from the depot to the first repair task and from the last
- limitations on notifications being clustered in any one region.

- **Job preparation time—**EnergyAustralia considered this to be a critical aspect of the maintenance task. It stated that prior to any maintenance of the asset being undertaken its crews are obliged to follow EnergyAustralia's work methodology and OHS requirements. EnergyAustralia stated that job preparation time to 'ready for work' takes a minimum of 10 minutes to complete but that it would take longer where additional situational hazards need to be identified, assessed and managed.

- **Repair time—**EnergyAustralia stated that there are a wide variety of tasks that may be required for each spot repair and that these tasks range from routine to complex. EnergyAustralia assumed 10 minutes actual repair time in its opex model but considered that this is a conservative estimate and more likely to represent a minimum repair time per repair task, rather then the average. EnergyAustralia also stated that its case study observations demonstrate that repair tasks can be far more complicated than a simple lamp replacement and, in extreme cases, can take over an hour to complete.

In summary EnergyAustralia has assumed a 40 minute total spot maintenance repair time, comprising:

- travel time between maintenance tasks of 20 minutes
- job preparation time of 10 minutes
- actual repair time of 10 minutes.

EMS accepted that OHS requirements require site and hazard assessment, EWP manoeuvring and stabilisation, and traffic control measures. It therefore recommended the AER accept EnergyAustralia's proposed allowance of 10 minutes for job preparation time.

In relation to average repair time, EMS recognised that cleaning visors, and minor mechanical and electrical repairs are frequently done in addition to the simple replacement of a lamp or PE cell. Although EMS considered 10 minutes for the average lighting repair was generous it recommended acceptance of the proposed time.

As a result of its analysis of the information provided by EnergyAustralia regarding the travel times from its Gore Hill depot, EMS concluded that the average travel time across that northern area was about 30 minutes. Further, as the density of public lighting in the outer areas of the northern area is very much less than the inner

suburbs, EMS considered that the incidence of spot maintenance jobs will be concentrated nearer the depot, leading to an average travel time from the depot to the first job which is considerably less than 30 minutes. Consequently, EMS considered that the average time required for travel to the first job was in the order of 20 minutes and similarly for return from the last job site.

In relation to travel between jobs, EMS noted comments by EnergyAustralia that it routinely grouped replacement tasks within a common locality but its ability to do so was limited by the target of 8 days[100] repair time. EMS noted that EnergyAustralia's 2008–09 average repair time was 3.4 days. EMS accepted that average repair time improvement would flow from the fact that quarterly patrols provide a natural bundling of repair tasks in one area. However, low average times can also result from a management policy that prioritises repair rate over cost efficiency. EMS considered that an average repair time of 3.4 days when 8 days are available may indicate a lack of focus on the need to bundle jobs in order to reduce costs. EMS stated that a more judicious approach to the bundling of spot maintenance tasks would result in travel times between jobs averaging no more than 5 minutes.

Overall, EMS considered that an average day for a spot maintenance crew can be derived as follows:

- start of shift admin, stores replenishment etc — 30 minutes
- travel to first job site — 20 minutes
- site preparation — 10 minutes
- repair work — 10 minutes
- travel to next job — 5 minutes
- repeat site preparation, repair work, and travel to next job — 'n' times
- return of last job site — 20 minutes
- end of shift clean up and admin — 15 minutes

EMS calculated that based on a 7.2 hour day, the average number of spot maintenance tasks achieved will be 14.1 per day. It considered that this represented a very generous allowance for the travel challenges caused by Sydney's traffic, noting that in their respective 2008 regulatory proposals Country Energy and Integral Energy each modelled daily spot repair rates of around 19 per day. EMS considered that the EnergyAustralia's opex model would produce more reliable results if an assumption of 30.6 minutes per spot maintenance task was adopted.

Overall, EMS recommended that EnergyAustralia's time requirement assumption of 40 minutes per spot maintenance task be replaced with an assumption of 30.6 minutes. EMS also stated that:

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[100] An 8 day repair time is a requirement of the NSW Public lighting code.

- In the northern area, and possibly in other areas, a management arrangement that requires such broad areas of Sydney to be serviced by crews emanating from a single depot is almost certain to result in inefficient outcomes. EMS considered that other depots and facilities must exist that could be used as a base for these crews through efficiency savings.

- It appeared that EnergyAustralia's work orders, reporting and recording were all paper based and that consideration should be given to the introduction of modern technology such as electronic personal digital assistants for reporting field data. EMS considered that the cost of such devices would be quickly recovered by EnergyAustralia.

- The reduction of the average time requirement to 30.6 minutes will provide an incentive for EnergyAustralia to explore alternative management options.

EMS has undertaken a detailed analysis of the timing of relevant daily tasks involved with spot maintenance repairs. The AER notes that the timings developed by EMS include time for stores replenishment, travel to first job, travel from last job and end of shift clean up and administrative activities. The key change recommended by EMS to EnergyAustralia's proposed timings is the reduction of travel between maintenance tasks to 5 minutes. The AER is satisfied that the timings developed by EMS will produce efficient outcomes given the nature of EnergyAustralia's network and its operating environment, and will encourage EnergyAustralia to improve the bundling of spot maintenance tasks. The AER also notes that although accepting some of EnergyAustralia's proposed timings, EMS considered the 10 minutes assumed for average repair time to be generous.

The findings of EMS's analysis accord with the views of SSROC, who considered EnergyAustralia's assumption of 40 minutes per spot maintenance repair to be greatly excessive. The AER also agrees with EMS that the application of an assumption of 30.6 minutes per spot maintenance task will provide EnergyAustralia with an incentive to explore alternative public lighting management options such as the better bundling of spot repair jobs, the use of personal digital assistants and basing crews at other depots in order to reduce travel times. The AER also notes that the effective daily spot repair rate of 14.1 is significantly lower than those approved for both Integral Energy and Country Energy in the AER's April 2009 decision.

Overall, the AER accepts EMS's recommendation that an assumption of 30.6 minutes, rather than 40 minutes, per spot maintenance task be applied—that is, 14.1 spot maintenance tasks per day.

Assumed spot failure rates

In order to calculate spot labour and material costs EnergyAustralia's opex model applies spot failure rates for lamps, PE cells and other components.

Lamps

As part of its review of the optimum bulk lamp replacement cycle, EnergyAustralia analysed the lamp failure profiles at both the regional and EnergyAustralia wide levels. Lamp failure and replacement data records were analysed to establish if there was any clear wear out characteristic associated with the lamps.

EnergyAustralia stated that the lamp failure rates applied in its opex model are observed from failures recorded on its network since 2006. It indicated that the distribution of observed failure characteristics are then converted to an expected annual failure rate and analysed. The recorded lamp failure rates are inputs into the opex model.

EnergyAustralia advised that its revised analysis showed a surprising change in spot failure rates. Spot failure rates for EnergyAustralia's most common lamp types (based on a three year cycle) are shown in table 3.1.

Table 3.1: Comparison of lamp failure rates (per cent) for EnergyAustralia's most populous lamps

Lamp type	June 2008 EA proposal	April 2009 AER decision	January 2010 EA analysis	February 2010 draft decision
MBF1×80	6.00	2.00	2.43	2.43
TF2×20	40.46	11.00	11.00	11.00
MBF1×250	10.00	6.00	1.68	1.68
MBF1×50	10.00	6.00	1.01	1.01
SON1×250	15.00	5.00	3.66	3.66

Source: EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 36.

EnergyAustralia noted that the significant change in results raised concerns for it. It indicated that it is still investigating the analysis but is particularly concerned that the spot failure rates are understated. EnergyAustralia stated that it is not confident that the rates stemming from the analysis are a true representation of the spot failure rates likely under a three year cycle. It therefore considered the rates to be conservative and could not justify their efficiency.[101]

EMS noted that EnergyAustralia has undertaken a detailed analysis of failure rates for 24 of its 41 lamps and found the failure rates for these lamps to be well below the assumed failure rates presented in EnergyAustralia's June 2008 proposal. EMS reviewed the information on EnergyAustralia's most populous lamp types and found that all but one showed a declining failure rate as the BLR cycle increased. Although noting EnergyAustralia's concerns with the underlying data, EMS stated that this implied that longer BLR cycles would reduce costs.[102]

EMS observed that EnergyAustralia had adopted the failure rates resulting from its own analysis or, in the absence of such results, the failure rates determined by the AER in its April 2009 decision. EMS also observed that with the exception of the MBF1×80 lamp, EnergyAustralia's failure rates adopted from its analysis are lower

[101] EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 35–36.

[102] EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 18.

than those determined in its AER's April 2009 decision. EMS also noted that there were some inconsistencies in the spot lamp failure data. It considered that EnergyAustralia's proposed failure rates appeared to have been adopted in the single lamp configurations but the failure rate based on the AER's April 2009 decision had been adopted in the multi-lamp configurations of the same lamp type. EMS recommended that, subject to adjusting for inconsistencies of failure rates in multi-lamp configurations, the failure rates adopted in EnergyAustralia's opex model be accepted by the AER.[103]

EnergyAustralia has stated that it has undertaken further analysis of its failure rates for some lamp types and this analysis showed that its failure rates are well below that contained in its June 2008 proposal. EnergyAustralia has used these spot failure rates in its opex modelling and, for those lamps that it has not analysed, it has applied the spot failure rates determined in the AER's April 2009 decision. The AER notes EMS's recommendation that the failure rates be accepted. The AER considers that both the approach adopted by EnergyAustralia to determine spot failure rates and the failure rates applied in the opex model are reasonable. However, the AER considers that EnergyAustralia needs to improve its data collection practices so that it can reliably analyse the lamp failure rates of all its luminaires.

The AER has also corrected the formulae errors identified by EMS so that there is no inconsistency between the application of the failure rate of a lamp and the failure rate of multi-lamp configurations of the same luminaire type.

PE cells and other components

In response to a request from the AER, EnergyAustralia advised that that the assumed failure rate of 1.42 per cent represented the annual percentage of PE cells that failed and were recorded as repaired. EnergyAustralia noted that the failure numbers only related to tasks where it had recorded a job to repair a PE cell and the figures did not include PE cells where a crew attends a site for another reason. EMS noted that the PB review[104] for EnergyAustralia stated that the PE cell failure figure was 'based on the historical average of failures per year since 2006.' In the same response, EnergyAustralia indicated that the failure rate applied in the opex model for 'other components' of 1 per cent was based on data recorded on a similar basis.

EMS recommended that the average PE cell failure rate of 1.42 per cent and the 'other component' failure rate of 1 per cent be accepted.

The AER accepts these failure rates as they appear to be based on historical data and do not include those times that PE cells or other components are repaired as a consequence of another failure (for example, spot lamp failures).

3.6.3 Bulk maintenance assumptions

EnergyAustralia maintains nearly all its public lighting assets under a bulk maintenance regime. Only the Upper Hunter region is currently not covered by a bulk

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[103] EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 18.

[104] Parsons Brinkerhoff, *Independent review of public lighting costs – EnergyAustralia*, January 2010, p. 23.

maintenance regime—that is, about 1.8 per cent of the total lighting population. Most of the maintenance covered by EnergyAustralia's bulk maintenance regime is undertaken by contractors and sourced by competitive tender. Outsourcing of bulk maintenance began in 2006 and its coverage has recently been increased to include the Newcastle region. The bulk maintenance contracts include the provision of the maintenance service, with EnergyAustralia being responsible for procurement and provision of materials to the contractor.

Modelling of bulk maintenance

EnergyAustralia's bulk maintenance cost forecasts are based on tasks and unit rates contained in the current competitively tendered contracts. The tasks undertaken by bulk maintenance contractors are as follows:[105]

- servicing of the luminaire (major and minor)
- replacement of luminaire visors (major and minor)
- replacement of PE cell
- minor non-electrical repair
- general electrical work
- minor electrical work
- major electrical work
- electrical work previously completed by EnergyAustralia
- quarterly night time traffic route luminaire (TRL) patrols
- annual night patrol of all serviced luminaires
- ad hoc works.

The assumed quantities of tasks are directly sourced from the number of tasks that have been carried out under the bulk maintenance regime for the year ending November 2009 for the Central Coast, North, South and East regions (which had approximately 200 000 lights as at June 2009).

EMS noted that the unit rates for each bulk maintenance task had been derived from the bulk maintenance contracts and then applied to the replacement cycles assumed in the contracts and the number of lights being maintained. It noted that the total cost of bulk maintenance produced by the opex model therefore equalled the total contract value (adjusted for inflation). EMS considered that the advantage of the approach was that it identified the cost per luminaire type and therefore yielded a higher degree of accuracy in the per lamp bulk maintenance prices. It also considered that this resulted

[105] EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 29.

in an improved level of allocative efficiency and cost reflectivity in EnergyAustralia's public lighting charges.[106]

Bulk lamp replacement cycle

In its April 2009 decision, the AER applied a 4 year bulk lamp replacement (BLR) cycle for 150W, 250W and 400W HPS lamps, compact fluorescent and fluorescent lamps, and a 3 year BLR cycle for all other lamps. The AER's decision was based on failure data provided by lamp manufacturers. EnergyAustralia challenged the decision on the grounds that in many areas, its lamp population was not homogenous and the cost of working two different BLR cycles in the same area would exceed the cost of one 3 year cycle covering all lamps.

In its 16 October 2009 directions the Tribunal reviewed the AER's April 2009 decision that EnergyAustralia's bulk lamp replacement cycle should be greater than two and a half years. The Tribunal agreed with SSROC's submission that no reviewable error had been demonstrated by EnergyAustralia but that as the matter was to be remitted, further consideration could be given to the issue by the AER.[107]

In response to the AER's decision EnergyAustralia has updated its analysis of optimum bulk replacement cycles to reflect current inventories and circumstances. EnergyAustralia stated that it examined data for 41 lamp types for the period 1 January 2006 to 30 June 2009 and found sufficient failure records existed for 24 lamp types. The lamp failure and replacement data records were then used by EnergyAustralia to determine optimum periods for bulk re–lamping based upon balancing the equivalent annual cost of bulk re–lamping against the spot replacement costs.

EnergyAustralia stated that the failure rates for some lamps were well below what was previously assumed at the time of its June 2008 proposal. It noted that the analysis showed that for some lamp types there was evidence of early wear out followed by random failure of between 2 and 4 years (for example, the most common light type MBF1×80W) before hazard rates increase again. However, for other lamps the data inferred that BLR should extend beyond 3 years or that bulk replacement could be abandoned with no impact on service levels.[108]

EnergyAustralia stated that its analysis was surprising and that failure rates for many lamps have reduced significantly, some well below rates determined in the AER's April 2009 decision. EnergyAustralia noted that it has not had sufficient time to interrogate the analysis and would prefer to interrogate the data further. As such, EnergyAustralia stated that it could not safely justify the spot failure rates were

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106 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 20.

107 Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009, paragraphs 43–45.

108 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 30.

efficient. EnergyAustralia set out a number of possible explanations for the results of the analysis.[109]

Faced with what it considered to be some anomalous results in relation to spot failures, EnergyAustralia proposed a BLR cycle of 3 years for all lamps, for the following reasons:

- in reality, it is impossible to replace lamps at exactly 30 month intervals (EnergyAustralia's contractors must replace lamps at least every 36 months)
- a 3 year cycle was comparable to industry peers
- concerns with its data and the risk of extending the cycle for assets which cannot sustain a longer cycle without unsustainable failure rates.

EnergyAustralia also stated that, on the basis of the studies it conducted, it cannot justify the efficiency of a twin BLR cycle. It observed that its 2004 public lighting report[110] noted that the intermingling of different types of lights made it difficult to determine a final strategy on the management of street lighting. It also noted that this situation had not materially changed and that although the lamps identified by the AER would accept a longer BLR cycle, in reality these lamps represented fewer than 20 per cent of total lamps and were interspersed with other lamp types. EnergyAustralia submitted that the co-location of lamp types is sufficiently strong to remove any benefit from scale economies under a BLR.[111]

EMS stated that an appropriate bulk lamp replacement cycle is fundamental to the development of an efficient public lighting maintenance regime. It noted that cycles of 3, 4 and 5 years are adopted by Australian network service providers based on in-service experience and that statistical analysis alone does not support robust conclusions to optimum BLR cycles. EMS considered that real world experience indicates a range of cost–benefits outcomes flowing from different BLR cycles.

EMS noted that EnergyAustralia's public lighting inventory involves 41 different lamp types which are used in 102 different configurations. Of these, 43 have populations of fewer than 10. EMS suggested that the large range of lamps and configurations would lead to:

- excessive inventory costs
- a high probability of wasted field trips due to crews not being equipped with the appropriate equipment and stores
- the need for a broad scope of staff competencies (possibly leading to the need for higher grade staff than would otherwise be required)

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109 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 30.

110 EnergyAustralia, *Street lighting analysis report*, 9 January 2004.

111 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 39.

- an unnecessarily slow pace (and therefore higher cost) in the bulk maintenance programs.

EMS acknowledged that under the NSW public lighting code, EnergyAustralia is required to continue to support all existing public lighting assets. However, it suggested that the perpetuation of a huge range of uncommon lamps is neither fair nor reasonable and that it seemed likely that such a broad inventory of lamps may indicate that some minor populations have reached the end of their useful economic lives.[112]

EMS noted that EnergyAustralia had previously acknowledged in 2004 that 'the difficulty in reaching a final strategy for the management of street lighting is due to the variety of street lights currently in service, and the fact that these do not exist in large areas of homogenous populations except at intersections and along portions of the traffic route lighting'. Further, EMS noted that in EnergyAustralia's January 2010 proposal EnergyAustralia had indicated that the situation had not materially changed. EMS considered that it appeared that while EnergyAustralia recognised the inefficiencies of its disparate public lighting infrastructure, action had not been taken to address the situation.

EMS also noted that the NEL pricing principles state that a network service provider should be provided with effective incentives in order to promote economic efficiency. EMS considered that the retention of some aspects of the AER's 3 year and 4 year bulk maintenance decision would provide an incentive for EnergyAustralia to work with its customers to replace significant portions of non-standard lamps with standard lamps that support a 4 year bulk maintenance cycle.

EMS stated that many traffic route luminaire (TRL) installations will comprise mostly SON (high pressure sodium (HPS) lamps) for which a 4 year cycle is appropriate. On the basis of the evidence put forward, EMS considered that it was reasonable for EnergyAustralia to adopt a 4 year cycle for SON lamps in TRL installations as they generally are stand–alone (not intermingled with residential areas) and are extensive enough to provide for efficient work plans without the need to mix 3 and 4 year cycle areas. EMS considered that this will provide the incentive to replace any lamps in the TRL installation for which a 4 year cycle is inappropriate (resulting in least cost bulk replacement) and the opportunity to establish a service history that will provide an improved basis for future bulk replacement decisions.

EMS noted that the April 2009 AER decision required 4 year BLR cycles for 3 HPS lamp sizes (150W, 250W and 400W). EMS considered the variance of failure rates for all HPS lamp sizes was not great and that EnergyAustralia should be encouraged to adopt a 4 year BLR cycle for all HPS lamps in TRL installations. Further, EMS noted that it accepted that compact fluorescent and fluorescent lamps were mostly found in residential areas and a high level of intermingling with other lamp types existed. EMS therefore considered that it was reasonable to adopt a consistent three year bulk lamp replacement cycle for these lamps.

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[112] EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 8.

Overall, EMS recommended that a 4 year bulk replacement cycle be adopted for all HPS lamps in TRL installations and that a 3 year bulk replacement cycle is adopted for all other lamp types.

EnergyAustralia has undertaken a more up to date analysis of its public lighting data and has sought to determine its optimum BLR cycle for its lighting inventory. The AER notes that the resulting spot failure rates for some lamps are below the rates determined in the AER's April 2009 decision and that, despite concerns with the outcomes, EnergyAustralia has proposed a three year BLR cycle (rather than the 2.5 year cycle previously proposed). Nevertheless, the AER notes EMS's observations that a large number of different types of lamps are installed in EnergyAustralia's network and the inefficiencies that potentially result from such a situation. The AER is also concerned that the situation, namely the large number of lamp types and their intermingling, has not materially changed since 2004.

EMS's BLR cycle recommendation is similar to the AER's April 2009 decision whereby it required EnergyAustralia to apply a 4 year BLR cycle to a small group of lamps with the remainder being under a 3 year cycle. The key difference between EMS's recommendation and the April 2009 AER decision is that EMS has not recommended that compact fluorescent and fluorescent lamps have a 4 year cycle applied to them (only HPS lights on traffic routes). The AER accepts EMS's conclusion that these lights are mostly found in residential areas and a high level of intermingling with other lamp types exists, and therefore it is more reasonable to apply a 3 year BLR cycle to these luminaire types.

Although noting EnergyAustralia's concerns about a twin BLR cycle, primarily the extra costs due to the intermingling of lamp types, the AER considers that EMS's recommended approach largely addresses these issues by limiting the 4 year cycle to HPS lamps and only TRL installations. The AER accepts EMS's advice that this approach is reasonable as TRL installations generally are stand–alone and are extensive enough to provide for efficient work plans. The AER also agrees that the approach recommended by EMS provides incentives for EnergyAustralia to replace any lamps in the TRL installations for which a 4 year cycle is inappropriate. The AER considers that this is consistent with the NEL requirement that service providers be provided with effective incentives in order to promote economic efficiency.

In conclusion, the AER considers that a 4 year BLR cycle should be adopted for all HPS lamps in TRL installations and that a 3 year BLR cycle be adopted for all other lamp types. The AER has used these assumptions in the opex model to determine the efficient opex allowance for EnergyAustralia.

Bulk PE cell replacement cycle

EMS noted that EnergyAustralia had assumed that PE cells will be replaced on a 6 year cycle—that is, every second BLR visit. EMS also noted that the failure rate of PE cells, at 1.42 per cent, was much less than half the failure rate of most lamps.

EMS accepted that the cost of PE cells is not great and that the incremental time required to replace a PE cell during a bulk replacement visit is minor. Alternatively, it noted that the cost of a spot maintenance job just to replace a PE cell is high, particularly in the case of traffic route installations. In view of its recommendation of a 4 year cycle for HPS lamps in traffic route installations, EMS accepted that

extending the life of PE cells to 8 years in such installations would introduce an unacceptable probability of high cost PE cell spot replacement tasks. Accordingly, EMS stated that if its bulk lamp replacement cycle recommendation was accepted by the AER then it also recommended an 'every visit' policy for PE cell replacement on HPS lamps in traffic installations.

From its review of EnergyAustralia's opex model, EMS noted that reducing the replacement cycle to 4 years would not materially increase costs. EMS considered that this was a reasonable cost for mitigating the risk of high cost PE cell replacement tasks in years 5 to 8 of an 8 year cycle. EMS also noted that PE cell failure results in lamps operating continuously, thereby consuming energy during peak costs supply periods and also shortening lamp life.

EMS recommended that PE cell replacement cycle of 4 years for all HPS lamps in traffic installations and six years for all other lamps.[113]

Given the AER's acceptance of EMS's recommendation regarding a 4 year bulk lamp cycle for HPS lamps on traffic routes, the AER considers it reasonable that a PE cell replacement cycle of 4 years be implemented for these particular lights. The AER notes that EMS considered that an 8 year replacement cycle would create an unacceptable probability of high cost PE cell spot replacement tasks. However, consistent with its April 2009 decision, the AER maintains that is reasonable to apply a PE cell replacement cycle of 6 years for all other lights.

Bulk maintenance cycles for other tasks

EMS noted that EnergyAustralia's opex model lists assumptions regarding the replacement cycle of other bulk maintenance tasks—for example, visor replacement, minor electrical work, etc. EMS found that the cycles had been developed by dividing the total number of lights serviced by the bulk maintenance contractors by the quantity of each task undertaken during the year ending November 2009. EMS considered the assumptions to be simple modelling constructs that seek to allocate the costs of other tasks to each lamp type and that this enhanced the model's ability to provide improved cost-reflectivity in the determination of prices of individual lamps. EMS accepted that the modelling of the other bulk replacement tasks was efficient.[114]

The AER found that it was not possible to compare EnergyAustralia's bulk maintenance cycles to that of other businesses as the cycles that have been developed by EnergyAustralia are for tasks (other than lamps and PE cells) that relate to its own bulk maintenance contracts. Nevertheless, the AER considers that the approach to developing cycles is logical and notes that EMS considered EnergyAustralia's modelling approach in relation to bulk maintenance tasks to be valid.

Unit rates

EnergyAustralia has developed the unit rates that it applies in its opex model by dividing the total cost associated with each task (for all its bulk maintenance

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[113] EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 21.

[114] EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, p. 21.

contracts) by the number of tasks carried out in the year ending November 2009. EnergyAustralia stated that it has not assumed any increase in per unit rates for bulk maintenance as a result of moving from 2.5 to 3 years. It considered that annual fixed costs would invariably increase the per unit rate if moving to a 3 year cycle. On this basis EnergyAustralia considered that its unit rates for a 3 year bulk maintenance cycle were conservative.[115]

EMS noted that the opex model included unit rates for each of the tasks undertaken by its bulk maintenance contractors. It also noted that the bulk maintenance contracts are competitively sourced and that 2 different contractors are currently engaged to provide services in 4 areas of EnergyAustralia's distribution network. EMS reviewed a copy of a current contract and was able to confirm the accuracy of the unit price rates used in the opex model. EMS considered that the fact that the contracts are sourced competitively suggested that the total contract values are efficient.[116]

The AER reviewed the unit rates contained in the model and requested a copy of a current bulk maintenance contract from EnergyAustralia. The AER agrees with EMS that the competitive tendering of these contracts provides some assurance that the total contract costs are efficient. On this basis, the AER accepts that the unit rates that have been developed are also efficient.

3.6.4 PB assessment and benchmarking

EnergyAustralia engaged PB to undertake an analysis of its opex assumptions and to form a view on whether EnergyAustralia's proposed forecast opex represented efficient costs in providing public lighting services in EnergyAustralia's network area. EnergyAustralia noted that the task involved a high level review of its opex model and the assumptions underlying the proposed costs.[117]

The PB report addresses seven specific elements of efficiency reviewed by PB. A summary of PB conclusions on these elements and EMS's assessment of each of PB's conclusions are set out below.

Link between services and forecast expenditure

PB found that services based on the type of lamp provided high certainty that only costs relevant to the service being provided would be charged to the customer and on that basis concluded that the link between services and forecast expenditure was efficient.

EMS agreed with PB that the allocative efficiency of the opex model was sound. However, EMS considered that several assumptions applied in the opex model required adjustment and therefore the total opex is overstated.

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115 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 31.

116 EMS, *EnergyAustralia public lighting submission to AER for re–determination 2010–14, Review of operating expenditure*, 23 February 2010, pp. 21–21.

117 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 41.

Historical cost review

EnergyAustralia's average public lighting opex during the 2004–09 regulatory control period was $10.9 million per annum and is proposed to rise to $16.9 million per annum in the 2009–14 regulatory control period.

PB found that an average cost increase of 52 per cent over the 2004–09 regulatory control period was due to increasing volumes, increase in material and labour costs over and above CPI, and improving performance in accordance with EnergyAustralia's public lighting management plan. PB concluded that the cost increase was efficient.

PB indentified the key elements of this 52 per cent increase to be growth in the street lighting population of 3.8 per cent and increase in materials and labour costs above CPI of 2.3 per cent. EMS noted that simple mathematics would show that these two factors would only account for 6.5 per cent of the 52 per cent increase in costs claimed by EnergyAustralia.

EMS also noted that PB attributed some of the 52 per cent increase to the fact that EnergyAustralia's obligations under the NSW public lighting code had increased costs since 2006. The increasing costs were attributed to better reporting, customer interaction and the introduction of night patrols to assess repairs. EMS noted that PB considered this to be a major contributing factor to the change in opex levels. EMS did not consider this to be the case and that the additional costs with the additional responsibilities were in the order of $0.5 million.

EMS noted that PB also claimed that the increase of 52 per cent in EnergyAustralia's public lighting opex is validated by comparison to similar trends in other NSW and Queensland distribution network service providers. It noted that PB's addendum compared EnergyAustralia's opex increase of 52 per cent with two wholly rural distribution network service providers (increases of 72 per cent and 57 per cent) and five city/urban distribution network service providers (increases of 56 per cent, 29 per cent and three at 15 per cent each).

In EMS's view, rather than validating EnergyAustralia's opex increase, the figures demonstrated that EnergyAustralia's proposed public lighting opex was inefficient. EMS stated that no valid comparison can be made with wholly rural distribution network service providers and that only one city/urban distribution network service provider exceeds EnergyAustralia, and four proposed substantially lower public lighting opex increases. Overall, EMS did not consider that PB's conclusion that EnergyAustralia's proposed cost increase was efficient reflected the facts.

Benchmarking

PB found on all indicators that EnergyAustralia's service provision was more efficient than other NSW distribution network service providers but worse than Victorian and Queensland distribution network service providers. Taking account of the differences between the states, PB considered that the benchmarking supported that EnergyAustralia was operating at a reasonable level of efficiency.

EMS noted that PB made no firm conclusions as to the relative advantages and disadvantages of customer density, traffic factors, etc.

PB benchmarked EnergyAustralia against other distribution network service providers in terms of 'street light opex per network customer' and 'street light opex per street light'. On the first comparator EnergyAustralia came third out of the eight city/urban distribution network service providers, however, EMS considered this benchmark to be of little value since the causal link between customer numbers and street light opex was weak.

In terms of opex per street light, which EMS considered to have a strong causal link, PB found that out of eight Australian distribution network service providers with mostly city and urban distribution areas, EnergyAustralia ranked sixth. EMS noted that the seventh and eighth ranked distribution network service providers were from Victoria and that their expenditures were based on proposed, not AER approved expenditures.

EMS stated that focusing only on comparable city/urban distribution network service providers, the figures indicate that PB's conclusion is somewhat misleading. It considered that EnergyAustralia's performance is marginally worse than the other NSW city/urban distribution network service provider and considerably worse than the Queensland and three Victorian city/urban distribution network service providers.

Robustness of the forecasting methodology

PB found that the opex model used by EnergyAustralia was well constructed and robust. It concluded that the forecasting methodology was efficient.

EMS considered agreed with PB that the opex model was well constructed and efficient but had concerns about some of the input assumptions and data.

Identification and assessment of key assumptions

PB found that, except for spot failure rates, the key assumptions made by EnergyAustralia in forecasting its expenditures were reasonable and that a move from the current 2.5 year lamp replacement period to a longer period was necessary to demonstrate efficiency.

EMS agreed with the conclusion that the current bulk maintenance period should be lengthened but noted that it was concerned about assumptions on labour rates, proportion of overtime, overhead costs, cost of quarterly patrols, time requirement per spot maintenance task, bulk lamp replacement cycles and inconsistencies in the prices and failure rates of lamps.

Identification of alternatives

PB found that an assessment of the trade-off between bulk replacement of lamps and spot repairs had been undertaken and the bulk lamp replacement cycle extended. PB concluded that the identification of alternatives was efficient but further work is required to fine tune the replacement program.

EMS agreed that further work is required to fine tune the replacement program and stated that its recommendation for a 4 year cycle on HPS lamps in traffic route luminaire installations would be a key input in fulfilling this requirement.

Efficiency over the long-term

PB noted that EnergyAustralia outsources most installation and bulk lamp replacement work which provides for least-cost over the longer term. PB concluded that this was efficient but cautioned that continuing work is required to ensure that the outsourcing approach is delivering efficiencies.

EMS considered that PB's review of this component lacked depth. It agreed that increasing competitive outsourcing will contribute to improving efficiencies but noted that it had identified other factors to improve efficiencies such as the rationalisation of lamp types, increasing the number of depots to reduce travel costs and introducing modern technology for work orders and reporting.

Conclusion

Overall, PB concluded that EnergyAustralia was on average operating efficiently in its provision of public lighting services and that EnergyAustralia's forecast of expenditure for public lighting services was efficient, as envisaged by the NEL and the NER.

Based on its assessment of the efficiency of the inputs and assumptions in EnergyAustralia's opex model, EMS considered that PB's conclusion on the overall efficiency of EnergyAustralia's proposed public lighting opex was somewhat generous.

Having reviewed the PB report and EMS's comments on it, the AER does not agree with PB's view that EnergyAustralia's proposed opex has been demonstrated to be efficient. EMS considered that PB's review of historical costs suggested to EMS that the proposed opex was actually inefficient and that the benchmarking was to some extent misleading. Further, EMS considered that PB's overall conclusion that EnergyAustralia's forecast of expenditure for public lighting services was efficient to be somewhat generous. Overall, the AER considers that the adjustments it has made to EnergyAustralia's forecast opex (based on the advice of EMS) are appropriate and will ensure that EnergyAustralia's operating and maintenance activities are efficient.

3.6.5 SSROC submission on comparative opex charges

SSROC stated that overall opex charges for 2009–10 appeared high compared to the 2011 regulatory proposals made by the Victorian distribution network service providers in the current AER review. SSROC included a figure that compared the opex pricing proposals by EnergyAustralia in its January 2010 proposal for four key lighting types as compared to the average price proposed by the Victorian distribution network service providers.[118]

[118] SSROC, *Submission on EnegyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, 21 January 2010, p. 11.

The AER has reviewed the opex prices proposed by the Victorian distribution network service providers and compared them to the prices proposed by EnergyAustralia and approved by the AER for EnergyAustralia. The AER does not consider that it is valid to compare EnergyAustralia's opex prices to those of non city/urban distribution network service providers and therefore does not consider an averaging approach, which includes city/urban distribution network service providers, to be reasonable.

The AER's analysis of the opex charges for the lights selected by SSROC shows that EnergyAustralia's proposed opex prices were to the higher end of the range of prices. However, the AER found that the prices that it has approved in this draft decision are materially lower than those proposed by EnergyAustralia and closer to the middle of the price range of comparable Victorian distribution network service providers.

3.7 Conclusion

Based on its review of EnergyAustralia's January 2010 proposal and opex model, the SSROC submission and the consultancy report from EMS, the AER has made the following adjustments to EnergyAustralia's opex model:

- the proposed labour rate has been reduced from $101 to $57 for normal time hours and $107 to 79 for overtime hours
- the proposed overtime percentage has been reduced from 20 per cent to 17.4 per cent
- the BLR cycle applying to high pressure sodium lights on traffic routes has changed to 4 years (with a PE cell replacement cycle of 4 years for these specific lamps) with all other lamp types having a 3 year BLR cycle (and a PE cell replacement of 6 years)
- EnergyAustralia's proposed overhead rate assumption of 26.75 per cent has been reduced by 1.75 per cent to 25 per cent
- EnergyAustralia's proposed timing of 40 minutes per spot lamp repair has been reduced to 30.6 minutes per spot lamp repair
- formulae errors have been corrected relating to lamp prices for luminaires with multiple lamps
- formulae errors have been corrected relating to failure rates on luminaires with multiple lamps.

The above adjustments result in an opex allowance for EnergyAustralia's public lighting assets of $13.9 million ($2009–10). This is a reduction of around $2.4 million (or 14.7 per cent) from EnergyAustralia's proposed opex allowance of $16.3 million ($2009–10). For each subsequent year of the 2009–14 regulatory control period this opex allowance is to be adjusted by inflation, and includes the real labour cost escalators determined in the April 2009 AER decision.

4 Residual capital value

This chapter sets out the AER's consideration of the approach to calculating the residual capital value of an asset when a customer requests the early replacement of public lighting assets constructed before 1 July 2009.

4.1 2009 AER decision

In its April 2009 decision the AER included a residual value mechanism in response to submissions from councils indicating that they may like to request that particular assets be replaced early before the end of the economic lives. Primarily this was to take advantage of new energy efficient luminaires that were becoming available in order to reduce their energy bills and earn greenhouse gas credits.

The AER concluded that the residual capital value for assets being replaced early at a customer's request should be calculated based on the depreciated original capital cost of the asset to be replaced and that the remaining life may need to be determined from a review of the type of asset being replaced and its condition. However, the AER also considered that unless a review of the type of asset and its condition could demonstrate that the remaining life of an asset was more than 10 years, the residual capital value of the asset should be based on a default age of at least three quarters of its economic life.[119]

4.2 Tribunal directions

In its October 2009 directions the Tribunal provided its reasons in respect of the residual value of any assets replaced early in their economic life. It found that the AER had not specified a sufficiently clear control mechanism for determining the residual capital value for assets being replaced early. The Tribunal found this to be a reviewable error and that double charging of customers may occur unless sufficient specificity is provided.[120]

In its November 2009 orders the Tribunal directed that the AER is to specify a control mechanism for determining the residual capital value of an asset replaced before the end of its life at a customer's request. As part of this specification the AER is required to set out how consequential pricing adjustments were to be made.[121]

4.3 EnergyAustralia proposal

In its January 2010 proposal EnergyAustralia proposed that the April 2009 AER decision be varied so that the AER specifies a clear and specific control mechanism for the determination of the residual charge for the capital asset being replaced early.

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119 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 389.

120 Australian Competition Tribunal, *Application by EnergyAustralia [2009] AComp T 7*, 16 October 2009, paragraph 81.

121 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(6).

It believed that all parties would benefit from greater prescription of the method for determining the residual value because:[122]

- greater specificity in how the residual value is calculated minimises uncertainty
- a transparent approach in calculating the residual value also improves the transparency of the roll forward of the RAB between periods and would ensure consistency with the principle of financial capital maintenance
- there will be disagreement over the depreciated original costs or the age of the asset under the approach contained in the AER's April 2009 decision
- customers are entitled to clear and transparent prices.

EnergyAustralia submitted that the control mechanism associated with the early replacement of assets should be a formula for each component to determine the sunk value. On this basis EnergyAustralia proposed the following function:

Sunk Value = *f*(Average remaining life, Quantity of assets to be replaced, CPI)

Where:[123]

- depreciation is based on straight-line depreciation using the RAB allocation approved in the April 2009 AER decision
- the average remaining life is that stated in the AER's final determination model
- quantity of assets to be replaced is determined by the customer
- CPI is the annual number used by the AER to approve price increases for that year.

EnergyAustralia stated that the public lighting control mechanism could easily accommodate a formula or schedule for determining the residual value. Based on the above approach, EnergyAustralia developed a function for each of its asset components. The functions are contained in schedule 4 to its 2010 proposal—for example, for a 70W SON luminaire the residual value function ($2008–09) is:

$13.8971 × quantity of assets × remaining life

EnergyAustralia stated that differences are expected between the average remaining life of a customer's population of assets and the specific ages with any difference being allocated to or from the value of other assets within that class. Nevertheless, EnergyAustralia believed that its approach is consistent with the calculation of fixed

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[122] EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 44.

[123] EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 45.

charges, is simple and compared to other alternatives it does not create windfall gains and losses.[124]

EnergyAustralia also stated that there is an obvious and important link between the pricing of assets replaced early and the financial value of the RAB being rolled forward between periods. It argued that irrespective of the method adopted, the AER should ensure that EnergyAustralia has the opportunity to recover the cost of its initial investment in any asset.[125]

4.4 Submissions

SSROC disagreed with EnergyAustralia's proposed approach. It stated that EnergyAustralia is seeking to have the AER accept a fundamental change to the residual valuation mechanism for assets replaced early. SSROC noted that the Tribunal did not find that the mechanism adopted in the April 2009 decision was incorrect, only that it was not sufficiently clear or specific.

SSROC stated that it would be inappropriate for a customer to be required to reimburse the residual value of the component being replaced based on an arbitrary assumed remaining life of the population of similar assets. It argued that, consistent with the AER's April 2009 decision, the real age (or best available estimate) of the asset should be used to calculate the residual value. SSROC stated that this is particularly important as most assets to be replaced early are likely to be in the second half of their useful life.

SSROC also stated that it is inappropriate for a customer to be required to reimburse the residual value of the component being replaced based on the established RAB value. It noted that, consistent with normal accounting practice for a specific asset, the appropriate reimbursement should be the depreciated value of the original installation cost.

Overall, SSROC believed that EnergyAustralia's proposed approach would result in residual values that may well exceed the initial installation cost for an aged asset, let alone a fairly depreciated value. SSROC considered that the use of a RAB value presents an unreasonable barrier to exit.[126]

4.5 Issues and AER considerations

The AER notes SSROC's submission that it would be inappropriate for a customer to be required to reimburse the residual value of the component being replaced based on an arbitrary assumed remaining life of the population of similar assets, and the established RAB value.

The AER notes that the previous regulatory framework makes it difficult to establish customer specific public lighting asset values and lives as:

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[124] EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 46.

[125] EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 46.

[126] SSROC, *Submission on EnergyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, January 2010, pp.10–11.

- EnergyAustralia did not have information on the original costs of its assets or their installation dates

- the framework relied on a half life assumption for all public lighting customers rather than determining actual remaining lives for each customer's assets

- the calculation of revenues was done at an aggregate level, not at a customer level—that is, the established RAB value was not allocated to individual customers

- IPART's August 2005 decision, which approved a deferral of depreciation, has altered the remaining lives associated with EnergyAustralia's public lighting assets—resulting in average remaining lives of 16.2 years.

Given EnergyAustralia's lack of customer specific information, in its April 2009 decision the AER required EnergyAustralia to allocate the 1 July 2009 RAB value to its customers and to estimate the remaining lives of the public lighting asset components held by each of its customers.[127] EnergyAustralia determined these values based on methods approved by the AER. The AER considered the resulting values to be reasonable and has used them in determining the capital charges customers were required to pay for pre 1 July 2009 assets for the 2009–14 regulatory control period.

The AER notes that the NEL requires it to provide network service providers with a reasonable opportunity to recover their efficient costs—that is, the principle of financial capital maintenance applies in the context of a roll forward of the asset base being adopted in the regulatory framework. The use of another set of asset values and/or lives, other than those approved by the AER would not result in EnergyAustralia being able to recover the value of its approved regulatory asset base. Therefore, given the nature of the previous regulatory framework and the requirement to ensure that EnergyAustralia recovers its efficient costs, the AER considers it is appropriate to base the residual value calculation on the AER approved RAB value and remaining life of public lighting assets (which have been reasonably estimated by EnergyAustralia under the approach approved in the April 2009 decision).

In its submission, SSROC also stated that the use of an established RAB value to derive a residual value will present an unreasonable barrier to exit. The AER acknowledges that using the approved RAB value and remaining lives of assets may result in residual charges that make it uneconomic for some councils to seek to replace assets early. This would be a disappointing outcome, particularly in the context of submissions provided by SSROC that some investments made by EnergyAustralia in the past may not have been prudent. Nevertheless, as noted in section 2.5, the transitional chapter 6 rules do not provide any scope for the AER to undertake an ex–post prudence review of past capex.[128]

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[127] AER, *Draft Decision, NSW distribution determination, 2009–10 to 2013–14*, 21 November 2008, p. 339.

[128] NEL, *Part 1, Section 7A–Revenue and pricing principles*, p. 30.

One possible approach to address this issue is to alter the allocation of the values of those assets that EnergyAustralia's customers would like to replace early. This would have the effect of reducing the residual value of those particular public lighting assets. While this may encourage customers to replace those assets early, the AER does not favour this approach as it would disproportionately increase the values of other components and result in public lighting charges that may produce other distortions. Nevertheless, the AER seeks comments from interested parties on this approach so that this issue can be considered in its final decision.

For clarity, the average remaining life element of the residual value calculation proposed by EnergyAustralia is the average remaining life of the component population for that particular customer—not EnergyAustralia's entire asset component population. The AER considers that averaging at this level, rather than at the entire asset component population, is appropriate as it does not result in any cross-subsidisation between customers'asset components.

Overall, the AER considers that the approach proposed by EnergyAustralia for calculating the residual value to be reasonable and should be accepted for the following reasons:

- **Consistency with the principle of financial capital maintenance—**The NEL requires the AER to provide EnergyAustralia with a reasonable opportunity to recover the efficient cost of its investments—that is, the principle of financial capital maintenance applies.[129] In order to achieve this, the AER must link its residual value calculation to the RAB and the remaining lives contained in the asset roll forward within EnergyAustralia's capital charge model for pre 1 July 2009 public lighting assets. To do otherwise would result in EnergyAustralia not recovering its depreciated RAB value or alternatively that EnergyAustralia's other customers would be cross subsidising the customer who replaced their assets early. Because it links the calculation of the residual capital value to the RAB value and the remaining lives of assets in the pre 1 July 2009 capital charge model, the approach proposed by EnergyAustralia is consistent with the principle of financial capital maintenance.

- **Improves transparency of the RAB roll forward—**Under the AER's approach to calculating the residual value in its April 2009 decision there is not a clear linkage between the residual value and the approved RAB allocation and remaining lives of assets. By relying on approved regulatory asset values and lives, EnergyAustralia's approach improves the transparency of the asset roll forward at the next regulatory review as all adjustments made to the RAB can be reconciled.

- **Avoids uncertainty about cost and age—**Given the lack of information held by EnergyAustralia about the historical cost and installation dates of its public lighting assets there was considerable uncertainty about the depreciated cost and remaining lives of these assets. The AER considers that EnergyAustralia's approach to calculating the residual value by linking it to a customer's RAB allocation and approved remaining lives of assets reduces uncertainty about the

[129] NEL, *Part 1, Section 7A–Revenue and pricing principles*, p. 30.

depreciated cost of assets and their age. It is acknowledged that this approach may produce values for assets which do not reflect their actual age or condition.

- **Mechanism is sufficiently clear and unambiguous—**The AER considers that the approach proposed by EnergyAustralia meets the Tribunal's requirement that the control mechanism for calculating the residual value should be made clearer. As EnergyAustralia's approach draws on the approved RAB value and asset age information, it can be expressed as a formula and allows the approach to be applied in a transparent, consistent and unambiguous way.

4.6 Conclusion

The AER has reviewed the approach to calculating the residual capital value proposed by EnergyAustralia. It considers that the proposed approach is reasonable and should be accepted. The control mechanism for the early replacement of an asset will be represented by a formula for each public lighting asset component. The formula for each asset component is set out in appendix A of this decision and is shown in its generic form below:

$$\text{Residual capital value (\$2008–09)} = \text{Real annual depreciation (\$2008–09)} \times \text{Remaining life}_t \times \text{No. of assets replaced}_t$$

Where:

- the real annual depreciation is based on a straight-line approach as calculated in the AER's final determination model
- the remaining life of the asset is based on that stated in the AER's final determination model
- quantity of assets to be replaced is determined by the customer
- t is the period in years when a replacement is requested by the customer during the 2009–14 regulatory control period.

In addition to specifying a control mechanism for the determination of the residual capital value of an asset replaced before the end of its life at a customer's request, the Tribunal required the AER to set out how consequential pricing adjustments were to be made. The AER's view on how consequential pricing adjustments are to be made is set out in section 6.5.4.

5 Correction of errors

This chapter sets out the errors outlined in the November 2009 Tribunal orders, which the AER is required to correct as part of remaking its determination on public lighting services.

5.1 Tribunal directions

In its November 2009 orders the Tribunal directed that, to the extent they remain relevant, in making the decision again, the AER must correct those parts of its April 2009 decision that it has conceded are in error. These are:[130]

- Compensation for corporate income tax on pre 1 July 2009 public lighting assets—the AER is to calculate the rate of return for pre 1 July 2009 public lighting assets by reference to the pre-tax nominal WACC of 10.81 per cent.

- Indexation of the RAB (pre 1 July 2009 public lighting assets)—the AER is to apply the RAB indexation that it used in the PTRM and RAB roll forward model for standard control services to the RAB indexation in the public lighting modelling for pre 1 July 2009 public lighting assets.

- Calculation of depreciation (pre 1 July 2009 public lighting assets)—the AER is to apply the depreciation calculation that is used in the PTRM for standard control services to the regulatory depreciation allowance in the public lighting model for pre 1 July 2009 public lighting assets.

- Indexation of operating expenditure by forecast inflation (pre 1 July 2009 assets)—the AER is to apply forecast inflation, in addition to the real wage inflator, in respect of the annual efficient opex for pre 1 July 2009 public lighting assets when calculating the future nominal charges for those assets.

- Calculation of residual value of public lighting assets that are replaced early—the AER in its draft and final determinations is to specify a control mechanism for the determination of the residual capital value of an asset replaced before the end of its economic life at a customer's request. As part of this specification the AER is to set out how consequential pricing adjustments are to be made.

- Additional labour costs for traffic routes—an allowance be made for efficient labour costs for traffic routes.

- Connections operating costs—an allowance be made for efficient opex on pre July 2009 connections operating assets.

- Vlookup—the AER is to correct the VLOOKUP error in the public lighting opex model.

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[130] Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(6).

In its October 2009 directions the Tribunal stated that if there are consequential effects on the determination for public lighting services following from the Tribunal's determination on WACC in respect of standard control services then the AER would need to take these into account.[131] In this regard, the Tribunal's November 2009 orders direct the AER to:[132]

- apply the rate of return parameters as shown below to vary the schedule of fixed charges and fixed prices with respect to public lighting contained in appendices P and R of the 2009 AER decision, so as to achieve revenues which are neutral in net present value terms over the 2009–14 regulatory control period

- vary the WACC parameters contained in table 17.15 of the 2009 AER decision in relation to public lighting by:[133]

    - deleting the figure of 8.78 per cent and inserting the figure of 10.02 per cent with respect to EnergyAustralia's nominal vanilla WACC

    - deleting the figure of 6.83 per cent and inserting the figure of 8.13 per cent with respect to EnergyAustralia's pre-tax real WACC, which is to be applied in the annuity approach for post 30 June 2009 public lighting assets

    - inserting the figure of 10.81 per cent with respect to EnergyAustralia's pre-tax nominal WACC, which is to be applied in the building block approach incorporating an asset base roll forward for pre 1 July 2009 public lighting assets.

The Tribunal also directed that, if the AER is or becomes satisfied of other errors in the course of making its decision, the AER must correct those errors.[134]

5.2 EnergyAustralia proposal

In its January 2010 proposal EnergyAustralia stated that its proposed price schedules have been developed correcting for all errors identified by the Tribunal. It also stated that it has prepared documentation outlining its approach to how the AER should rectify the errors outlined in the Tribunal's November 2009 orders.[135]

5.3 Issues and AER considerations

The AER has reviewed the errors outlined in the November 2009 Tribunal orders as part of this draft decision and notes the following:

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131 Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009, paragraph 39.

132 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(3)(a)–(b).

133 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraphs 5(3)(b)(i)–(iii).

134 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(7).

135 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 50.

- Compensation for corporate income tax on pre 1 July 2009 public lighting assets—a pre-tax nominal WACC has been applied to calculate the rate of return for pre 1 July 2009 public lighting assets in EnergyAustralia's capital charge model for assets constructed before 1 July 2009 (see table 5.1)

- Indexation of the RAB (pre 1 July 2009 public lighting assets)—the same approach to indexation that is used to roll forward the RAB for standard control services has been applied to the RAB indexation in rolling forward the public lighting assets constructed before 1 July 2009 (see section 2.5)

- Calculation of depreciation (pre 1 July 2009 public lighting assets)—the AER has made some adjustments to EnergyAustralia's capital charge model for assets constructed before 1 July 2009 by correcting the indexation formula.[136] This is to ensure that the same depreciation approach that is used in the PTRM for standard control services is applied to calculate the regulatory depreciation allowance in the capital charge model for alternative control services

- Indexation of operating expenditure by forecast inflation (pre 1 July 2009 assets)—forecast inflation, in addition to the real wage inflator, has been applied to the annual efficient opex allowance for pre 1 July 2009 public lighting assets in EnergyAustralia's opex model when calculating the future nominal charges for those assets.

- Calculation of residual value of public lighting assets that are replaced early—the AER has specified, in section 6.5.4, a control mechanism for the determination of the residual capital value of an asset replaced before the end of its economic life at a customer's request.

- Additional labour costs for traffic routes—an allowance has been provided for efficient labour costs associated with traffic routes. This is discussed further in section 3.6.2 in respect of the opex model and below in respect of the annuity capital charge model.

- Connections operating costs—an allowance is provided for in the opex for pre 1 July 2009 connection operating assets.

- Vlookup—this formula error has been addressed in EnergyAustralia's capital charge model for assets constructed before 1 July 2009, which was submitted as part of its January 2010 proposal.

5.3.1 Additional labour costs for traffic routes

In its October 2009 directions the Tribunal noted that the AER conceded that the April 2009 decision should be varied to make allowance for the labour costs associated with the construction of public lights located on traffic routes. It stated that EnergyAustralia seeks an order to vary the AER's April 2009 decision public lighting models to allow two man hours to construct a public light and an additional hour in

[136] The AER has adjusted the formulae in rows 10 and 11 of the 'Inputs – General' tab in EnergyAustralia's capital charge model to calculate the correct inflation index.

the case of a traffic route light. The Tribunal indicated that whether such an order should be made is for the AER to consider and can be considered by the AER on remittal.[137]

In its November 2009 orders the Tribunal stated that an allowance should be made for efficient labour costs of traffic routes.[138] The Tribunal did not specify whether this was restricted to maintenance charges or to maintenance and capital charges.

From a review of EnergyAustralia's opex cost build-up model, the AER notes that the model includes 3 persons for maintenance tasks on traffic routes and 2 persons on non-traffic routes. Advice received by the AER from EMS on this issue indicates that, for occupational health and safety reasons, 3 persons are generally required for traffic routes but only 2 persons for non-traffic routes. The AER considers it is therefore reasonable to allow EnergyAustralia's maintenance costs to be calculated based on 3 persons being required for maintenance activities on traffic routes and 2 persons for non-traffic routes.

In relation to its annuity capital charges EnergyAustralia has modelled these charges based on 3 persons being required to install luminaires on traffic routes and 2 persons being required on non-traffic routes. Consistent with its approach to maintenance, the AER approves the calculation of these charges using 3 persons for traffic routes and 2 persons for non-traffic routes.

The AER also notes that its April 2009 decision included an effective installation rate of 1.39 man hours—which was based on 2 persons being required for replacements—that is, 12 luminaire replacements per day. EnergyAustralia's modelling of annuity capital charges is based on an effective installation rate of 3 man hours for traffic routes and 2 man hours for non traffic routes.

EnergyAustralia did not provide any information in its proposal justifying its effective installation rates. The AER maintains the position in its April 2009 decision that 12 replacements are able to be undertaken per day. Given the approved changes in persons required for traffic routes, this results in an effective replacement rate of 2.08 hours for traffic routes and 1.39 hours for non-traffic routes. The AER has made these changes to the model submitted by EnergyAustralia for calculating the annuity capital charges.

5.3.2 Weighting of labour costs in the annuity capital charge model

The weighting of labour costs applied in the annuity capital charge model submitted by EnergyAustralia is consistent with the April 2009 final decision model—that is, 60 per cent. However, from an analysis of the proportion of labour costs to capital expenditure, the AER found that this percentage is considerably lower than the 60 per cent adopted in the April 2009 final decision model. The specific proportion of labour costs in relation to total capital expenditure was found to be approximately 23 per cent.

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137 Australian Competition Tribunal, *Application by EnergyAustralia [2009] ACompT 7*, 16 October 2009, paragraph 82.

138 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(6).

As indicated by the Tribunal the AER is entitled to correct any errors it identifies during the process of redetermination. The AER therefore has adjusted this assumption in the annuity capital charge model to reflect EnergyAustralia's actual proportion of labour to capex—that is, 23 per cent.

5.3.3 Rate of return parameters

In accordance with the November 2009 Tribunal orders, the AER has also applied the relevant rate of return parameters as shown in table 5.1 to vary the schedule of fixed capital charges with respect to public lighting, which achieve revenue neutrality in net present value terms over the 2009–14 regulatory control period. These rate of return parameters are based on the Tribunal's decision in respect of the averaging period to calculate the WACC for standard control services.

Table 5.1: Rate of return for EnergyAustralia based on different WACC formulations

Nominal vanilla WACC	Pre-tax real WACC	Pre-tax nominal WACC
10.02	8.13	10.81

The AER notes that using the opening RAB as determined in chapter 2, the WACC of 8.78 per cent approved in the April 2009 AER decision and taking account of the error corrections discussed in this chapter, the total smoothed capital charges for pre 1 July 2009 assets is estimated to be $103.6 million. When a pre-tax nominal WACC of 10.81 per cent is applied instead, the total smoothed capital charges for pre 1 July 2009 assets is estimated to be $116.0 million—that is, an increase of 12.0 per cent.

For post 30 June 2009 assets, when applying the pre-tax real WACC of 6.83 per cent approved in the April 2009 AER decision and taking account of the error corrections discussed in this chapter, the average capital price across asset types and over the 2009–14 regulatory control period is estimated to be $39.38. When a pre-tax real WACC of 8.13 per cent is applied, the average capital price across asset types and over the 2009–14 regulatory control period is estimated to be $44.15—that is, an increase of 12.1 per cent.

5.4 Conclusion

The AER has reviewed EnergyAustralia's opex and capital charge models to verify the required corrections outlined by the Tribunal and has made the further adjustments referred to above to EnergyAustralia's models. The AER considers that as a result of these steps it has corrected all the errors outlined in the November 2009 Tribunal orders.

The AER has also applied the relevant rate of return parameters to vary the schedule of fixed capital charges with respect to public lighting, which achieve revenue neutrality in net present value terms over the 2009–14 regulatory control period. These rate of return parameters are based on the Tribunal's decision in respect of the averaging period to calculate the WACC for standard control services.

6 Control mechanism

This chapter sets out the AER's consideration of EnergyAustralia's proposed changes to the control mechanism applying to assets constructed before 1 July 2009 and assets constructed after 30 June 2009.

6.1 2009 AER decision

In its April 2009 decision the AER stated the control mechanism for EnergyAustralia's alternative control (public lighting) services was as follows:[139]

> In accordance with clause 6.12.1(12) of the transitional chapter 6 rules, the control mechanism for EnergyAustralia's alternative control services is:
>
> - a schedule of fixed charges in the first year of the next regulatory control period for assets constructed before 1 July 2009 and a schedule of fixed prices in the first year of the next regulatory control period for assets constructed after 30 June 2009
>
> - a price path for the remaining years of the next regulatory control period.
>
> The schedule of fixed charges applicable to EnergyAustralia for assets constructed before 1 July 2009 is contained in appendix P. The price path that has been applied to develop theses charges is a straight-line smoothing which provides a fixed indexation rate for each year of the next regulatory control period.
>
> The schedule of fixed prices for 2009–10 applicable to EnergyAustralia for assets constructed after 30 June 2009 is contained in appendix R. The prices will be adjusted annually by the December quarter CPI data as published by the ABS.

The AER provided further guidance on the control mechanism for pre 1 July assets as part of its considerations on the compliance mechanism that would apply to these assets. It stated that:[140]

> In relation to assets constructed before 1 July 2009, compliance with the alternative control service mechanism is to be demonstrated by the DNSPs providing the AER, as part of its pricing proposal, with the total annual charge it proposes to levy on each of its public lighting customers over the next regulatory year, including an explanation of any adjustments.
>
> The proposed charges for each customer should be consistent with the charges contained in this [2009] decision for the relevant regulatory year. However, if adjustments to charges have been made to account for changes in asset inventories in the previous regulatory year, these must be set out and explained in the pricing proposal. The pricing proposal should also include revenues collected from each public lighting customer in the previous regulatory year.

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139 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 402.
140 AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 399.

6.2 Tribunal directions

EnergyAustralia sought an order that the control mechanism provides for the separation of the fixed capital charge and the opex charge in relation to pre 1 July 2009 assets. In its October 2009 directions the Tribunal provided its reasons in respect of this matter. The Tribunal did not find a reviewable error with this aspect of the April 2009 AER decision but considered that, as the public lighting matter was to be remitted back to the AER, the order sought by EnergyAustralia could be considered by the AER.[141]

EnergyAustralia also sought to have the charges for pre 1 July 2009 assets adjusted by actual inflation outcomes during the 2009–14 regulatory control period so that it was not exposed to windfall losses in the event that actual inflation is higher than forecast inflation in any year of the regulatory control period.[142] On this matter, the Tribunal provided its reasons in the October 2009 directions and noted that there was some risk of windfall gains and losses due to the fact that actual inflation may differ from forecast inflation. However, it considered that the range of any gains and losses to be narrow, particularly in the context of other significant forecasts included in the model.[143] The Tribunal agreed with submissions of the AER that the use of forecast inflation to calculate the fixed price path is accepted regulatory practice and is also consistent with:[144]

- the control mechanism that the AER has adopted for public lighting services (that is, a fixed schedule of charges in the first year of the regulatory period and a price path for the remaining years)
- the AER's use of forecast labour rates (without annual adjustment) in its modelling of a price path for pre 1 July 2009 public lighting assets.

Therefore, on this issue the Tribunal found no reviewable error.[145]

In its November 2009 orders the Tribunal noted that the AER's re–determination is to apply to public lighting prices and charges for the period of 1 July 2009 to 30 June 2014. The Tribunal directed that any necessary adjustments to prices or charges as a consequence of the AER's remade decision are to be undertaken in a manner that maintains net present value neutrality.[146]

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141 Australian Competition Tribunal, *Application by EnergyAustralia [2009] AComp T 7*, 16 October 2009, paragraph 81.
142 Australian Competition Tribunal, *Application by EnergyAustralia [2009] AComp T 7*, 16 October 2009, paragraph 58.
143 Australian Competition Tribunal, *Application by EnergyAustralia [2009] AComp T 7*, 16 October 2009, paragraph 59.
144 Australian Competition Tribunal, *Application by EnergyAustralia [2009] AComp T 7*, 16 October 2009, paragraph 60.
145 Australian Competition Tribunal, *Application by EnergyAustralia [2009] AComp T 7*, 16 October 2009, paragraph 61.
146 Australian Competition Tribunal, *Application by EnergyAustralia and others (No 2) [2009] ACompT 9*, 25 November 2009, paragraph 5(9).

6.3 EnergyAustralia proposal

In its January 2010 proposal EnergyAustralia stated that it views the control mechanism as a list of annual prices, revenue and/or charges that control how much it can charge customers for the public lighting services it provides in each year of the 2009–14 regulatory control period. EnergyAustralia considered that in most regulatory frameworks the control mechanism includes a specific mechanism to annually adjust for CPI, X–factors and other specified changes, such as service incentive schemes.[147]

EnergyAustralia stated that the control mechanism under the April 2009 AER decision does not easily allow customers (or EnergyAustralia) to verify the bill calculation. EnergyAustralia considered that there was no efficient basis to set a bundled charge which fixes capital and operating charges for the period. Its concerns with a bundled charge largely surround what it considers is the need for a complex and detailed 'true up' process.

EnergyAustralia is seeking to vary the AER's April 2009 decision in relation to the pricing of pre 1 July 2009 assets so that the fixed charge for these assets is separated into capital and maintenance components.[148] It argued that this approach results in pricing transparency and is simpler while remaining consistent with the AER's preferred control mechanism.

EnergyAustralia proposed that the April 2009 AER decision be varied in the following ways:[149]

- for pre 1 July 2009 assets, the fixed charge for these assets be separated into capital charge and maintenance components
- all prices and charges under the control mechanism be subject to an annual CPI adjustment to account for outturn inflation
- the RAB adjustment, to account for recovery of residual value, be clearly articulated in a mechanistic manner in order to adjust for the change in inventory during the year over the 2009–14 regulatory control period.

EnergyAustralia's proposed control mechanism is:[150]

- **A fixed capital charge per customer for assets constructed before 1 July 2009—**This charge is the return on the RAB plus the return of the RAB (depreciation) for each customer.

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147 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 51.

148 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, p. 47.

149 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 47, 51.

150 EnergyAustralia, *Submission for the AER's re–determination of public lighting prices 2010 to 2014*, January 2010, pp. 48–49.

- **A fixed schedule of capital prices for assets constructed after 30 June 2009—**This charge is the annual capital return based on an annuity calculation. This schedule is for assets that EnergyAustralia has funded upfront. Assets that are funded by the customer are only subject to the schedule for maintenance.

- **A fixed schedule of maintenance charges for all assets that EnergyAustralia maintains—**This includes assets owned by EnergyAustralia and those funded by customers.

- **The fixed charges for pre 1 July 2009 assets representing the sum of the capital and maintenance prices per customer—**This will be based on estimated inventories at the beginning of the year.

- **A fixed schedule of rates for the sunk value assets that are replaced early at a customer's request—**This shall be presented as a formula for each capital asset to calculate the sunk value. This rate would be charged for the asset retirement before the end of the remaining life established in the final RAB roll forward of the capital charge model used to calculate the opening year price and revenue controls.

EnergyAustralia also noted that the capital and maintenance charges/prices in its January 2010 proposal do not account for any under-recovery of charges in 2009–10. EnergyAustralia stated that it would like to work with the AER to develop a net present value neutral mechanism to recover any under-recovery.

6.4 Submissions

SSROC understood EnergyAustralia's proposed approach to regular billing for pre 1 July 2009 assets involves splitting the charges into a fixed capital amount and separate maintenance charges and that this approach would be cost-neutral for councils. On this basis, SSROC stated that it did not have any objections to EnergyAustralia revising its billing approach in relation to capital and maintenance charges for pre 1 July 2009 assets.[151]

6.5 Issues and AER considerations

6.5.1 Separation of capital and maintenance charges

In its April 2009 decision the AER decided to set a total fixed charge by customer for pre 1 July 2009 assets. This was in response to concerns from councils that their revenues (rates) were pegged and that they needed certainty in their charges for public lighting services. The approach also allowed councils to compare their current charges to the proposed charges. In developing a total fixed charge, which comprises the capital and maintenance prices, the AER was also able to smooth the bundled charges in order to provide a more stable profile over the 2009–14 regulatory control period.

[151] SSROC, *Submission on EnergyAustralia's submission for the AER's redetermination of public lighting prices 2010 to 2014*, 21 January 2010, p. 11.

As discussed in section 4.5 the AER accepts the approach proposed by EnergyAustralia for calculating the residual value of a replaced asset. This approach provides a clear linkage between the residual value and the approved RAB allocation and remaining lives of pre 1 July 2009 assets. The AER notes that the inclusion of a residual value mechanism increases the complexity of the adjustments that need to be made but that this can be addressed to some extent by unbundling the fixed charges into their capital and maintenance components. Consequently, it is appropriate to have the capital charge and maintenance charge separate.

The AER notes that SSROC does not object to separating the capital and maintenance charges on the basis that it would be cost-neutral for councils. The AER agrees that unbundling the capital and maintenance charges should have no additional cost impact and that this approach improves transparency without adding complexity to the pricing process for pre 1 July 2009 assets. It is also consistent with the pricing for post 30 June 2009 assets, which is made up of capital and maintenance charges (unbundled).

6.5.2 Annual adjustment for outturn inflation

In its April 2009 decision the AER used forecast inflation to determine nominal charges for pre 1 July 2009 assets. The control mechanism did not include an annual adjustment for outturn inflation.

As the AER has agreed to adopting EnergyAustralia's proposed approach for calculating the residual value of a replaced asset in relation to pre 1 July 2009 assets, the AER considers that an outturn inflation adjustment to the charges for pre 1 July 2009 assets during the 2009–14 regulatory control is practical as an inflation adjustment is already required to convert the real depreciation amount into a nominal depreciation amount. The AER notes that allowing for an adjustment for outturn inflation to the charges for pre 1 July 2009 assets is consistent with the approach for charges in respect of post 30 June 2009 assets.

6.5.3 Under-recovery of 2009–10 charges

EnergyAustralia's capital and maintenance charges in its January 2010 proposal did not include any calculations for under-recovery of charges in 2009–10. It proposed to work with the AER to develop a net present value neutral mechanism to recover any under-recovery of charges. The AER considers that it is likely that there will be an under-recovery of 2009–10 charges arising from a number of factors. These include the effect of the higher WACC determined by the Tribunal for standard control services, which also has to be applied to public lighting services, and a higher RAB for pre 1 July 2009 assets as determined in chapter 2 of this draft decision.

Following a request from the AER, on 12 February 2010 EnergyAustralia submitted to the AER a draft spreadsheet setting out its proposed approach and calculations to adjust for under-recovery of charges in 2009–10. The AER is reviewing the calculations but has not been able to reach a conclusion for this draft decision as it is seeking further clarifications from EnergyAustralia. As part of finalising its redetermination the AER will work further with EnergyAustralia in order to decide on the amount of under-recovery for 2009–10 charges to be recovered over the remaining 2009–14 regulatory control period.

6.5.4 Control mechanism

The AER has considered the control mechanism set out in its April 2009 decision and maintains that it should be:

- a schedule of fixed charges in the first year of the 2009–14 regulatory control period for assets constructed before 1 July 2009 and a schedule of fixed prices in the first year of the 2009–14 regulatory control period for assets constructed after 30 June 2009

- a price path for the remaining years of the 2009–14 regulatory control period.

However, it notes that further clarification of the control mechanism is required as a consequence of accepting:

- the approach for calculating the residual value of a replaced asset in relation to pre 1 July 2009 assets

- the separation of capital and maintenance charges for pre 1 July 2009 assets

- an annual adjustment for outturn inflation to the charges for pre 1 July 2009 assets.

The AER has made amendments that clarify how the control mechanism is to apply in order to adjust and determine the charges/prices over the 2009–14 regulatory control period. Table 6.1 sets out the control mechanism for EnergyAustralia's public lighting assets.

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Table 6.1: Control mechanism for EnergyAustralia

Schedule	Description of charge/price in year 1 of the 2009–14 regulatory control period	Calculation of charge/price in years 2 to 5 of the 2009–14 regulatory control period
1. Capital charges for pre 1 July 2009 assets	A fixed charge per customer in the first year and indicative charges for following years based on forecast inflation and an X–factor for each customer to calculate the charges (expressed in nominal dollar terms). An X–factor is used to smooth the charges over the 2009–14 regulatory control period.	$Charge_t = Charge_{t-1} \times (1 + \Delta CPI^{actual}) \times (1 - X)$ Where: t = time period in financial year 2, 3, 4, 5 ΔCPI^{actual} = annual percentage change[a] X = smoothing X–factor The charge for each year is to be reduced by the return on and of the residual capital value already paid by the customer. This requires manually adjusting the RAB roll forward to account for the recovered RAB value and the approach is set out in schedule 5.
2. Capital prices for post 30 June 2009 assets	A fixed capital price per asset in each year of the 2009–14 regulatory control period (expressed in real 2009–10 dollar terms).	$Price_t = Price_t^{\$2009-10} \times CPI_{t-1}^{actual}$ Where: t = time period in financial year 2, 3, 4, 5 CPI^{actual} = cumulative index[b]
3. Maintenance prices for all assets	A fixed maintenance price per asset in each year of the 2009–14 regulatory control period (expressed in real 2009–10 dollar terms).	$Price_t$ = Re-run the AER's final determination opex model and replace $\Delta CPI_{t-1}^{forecast}$ with $\Delta CPI_{t-1}^{actual}$ Where: t = time period in financial year 2, 3, 4, 5 ΔCPI^{actual} = annual percentage change[b] $\Delta CPI^{forecast}$ = annual percentage change[c] This approach is required because of the way that EnergyAustralia has modelled the opex allowance. The cost build-up opex model uses inflation rates which are applied to specific cost categories and therefore if a formula approach using inflation rates at an aggregate level is applied it would result in an overestimate of the allowance.
4. Maintenance charges for pre 1 July 2009 assets	A fixed charge per customer in the first year and indicative charges for following years based on forecast inflation and inventories (expressed in nominal dollar terms).	The fixed charge per customer is to be based on $Price_t$ (calculated in accordance with schedule 3) multiplied by the number of assets to be maintained at the beginning of the year.

5. Residual value for early replacement of pre 1 July 2009 assets	A formula (as shown in appendix A) that allows EnergyAustralia and the customer to calculate the residual value of the replaced assets based on their remaining life, the number of assets being replaced and forecast inflation. The annual depreciation is calculated in the AER's final determination model. The remaining life of the assets is based on that stated in the AER's final determination model. Residual value = $\text{Annual depreciation}^{\$2008\text{–}09} \times \text{Remaining life}_t \times \text{No. of assets replaced}_t \times (1 + \Delta\text{CPI}^{\text{forecast}})$ Where: t = time period in financial year 1 $\Delta\text{CPI}^{\text{forecast}}$ = annual percentage change[c]	A formula (as shown in appendix A) that allows EnergyAustralia and the customer to calculate the residual value of the replaced assets based on their remaining life, the number of assets being replaced and forecast/outturn inflation. The annual depreciation is calculated in the AER's final determination model. The remaining life of the assets is based on that stated in the AER's final determination model. Residual value = $\text{Annual depreciation}^{\$2008\text{–}09} \times \text{Remaining life}_t \times \text{No. of assets replaced}_t \times \text{CPI}_{t-1}^{\text{actual}} \times (1 + \Delta\text{CPI}^{\text{forecast}})$ Where: t = time period in financial year 2, 3, 4, 5 $\text{CPI}^{\text{actual}}$ = cumulative index[b] $\Delta\text{CPI}^{\text{forecast}}$ = annual percentage change[c] When a request to replace an asset is made the customer would continue to pay for the existing charge until the end of year t. The customer would then pay the new (indexed) asset charge from that point onwards, instead of the charge associated with the replaced asset. Where the replaced asset has a residual value, this would also be paid by the customer at the end of year t. A record of when the replacement asset is commissioned during year t would still be required in order to keep track of the asset life. The maintenance price would remain the same but would be reclassified from the replaced asset to the new asset.

(a) Annual percentage change in the ABS consumer price index all groups, weighted average of eight capital cities, consistent with using the method applied to standard control services. That is, the sum of four quarters from December in year t–2 to December in year t–1.

(b) A cumulative index from year zero to year t–1 based on the ABS consumer price index all groups, weighted average of eight capital cities, consistent with using the method applied to standard control services.

(c) Annual forecast inflation rate used during the 2009–14 regulatory control period is to be consistent with that used for standard control services. That is, 2.475 per cent.

6.5.5 Price schedules

The AER has used the public lighting models submitted by EnergyAustralia and made relevant changes to inputs and assumptions as determined in this draft decision, including those related to the RAB and opex, in order to calculate the charges/prices for the 2009–14 regulatory control period.[152]

Confidential appendices B, C and D set out the draft decision total charges for pre 1 July 2009 assets by customer over the 2009–14 regulatory control period, separated into capital and maintenance charges respectively. Table 6.2 shows these draft decision indicative charges for pre 1 July 2009 assets over the 2009–14 regulatory control period at an aggregate level and compares them with those proposed in EnergyAustralia's January 2010 proposal and in the April 2009 AER decision. This draft decision results in a reduction of $19.5 million (or 9.4 per cent) to EnergyAustralia's January 2010 proposal for the total charges associated with pre 1 July 2009 assets but is an increase of $57.1 million (or 43.4 per cent) to the April 2009 AER decision.

Table 6.2: Indicative charges for pre 1 July 2009 assets ($m, nominal)

	2009–10	2010–11	2011–12	2012–13	2013–14	Total
April 2009 AER decision						
Total	26.44	26.36	26.27	26.18	26.10	131.35
January 2010 EnergyAustralia proposal						
Total	41.11	41.30	41.48	41.83	42.16	207.87
Capital	24.83	24.68	24.55	24.42	24.30	122.78
Maintenance	16.28	16.62	16.93	17.41	17.86	85.09
AER draft decision						
Total	38.28	37.91	37.56	37.40	37.25	188.40
Capital	24.33	23.74	23.18	22.64	22.11	116.00
Maintenance	13.95	14.17	14.38	14.76	15.14	72.40

The capital prices for post 30 June 2009 assets are set out in appendix E.

The maintenance prices for all assets subject to maintenance programs are set out in appendix F.

[152] The AER notes that EnergyAustralia has used updated inventory data as at 30 June 2009 in its January 2010 proposal. The April 2009 AER decision was based on November 2008 data in the fixed charges model and March 2009 data in the annuity model.

Appendix G shows the draft decision capital prices for post 30 June 2009 assets and maintenance prices by asset component and compares them with those proposed in EnergyAustralia's January 2010 proposal and in the April 2009 AER decision. For the annuity capital prices, when compared to EnergyAustralia's January 2010 proposal, the draft decision results in:

- reductions ranging from 7 per cent to 31 per cent for brackets (on average 15 per cent reduction)
- reductions ranging from 1 per cent to 31 per cent for luminaires (on average 3 per cent reduction)
- no changes to supports.

For the maintenance prices of assets subject to maintenance programs, when compared to EnergyAustralia's January 2010 proposal, the draft decision results in reductions ranging from 8 per cent to 44 per cent for lamps (on average 26 per cent reduction) and around 1 per cent for connections.

6.5.6 Compliance mechanism

Clause 6.12.1(13) of the transitional chapter 6 rules requires the AER's distribution determination to include a decision on how compliance with the control mechanism for alternative control (public lighting) services is to be demonstrated.

As discussed in section 6.5.4 the AER has decided to add further clarification surrounding the control mechanism for EnergyAustralia's public lighting assets. Consequently, it is appropriate for the AER to make some adjustments to the compliance mechanism for EnergyAustralia.

In its April 2009 decision the AER stated that for assets constructed before 1 July 2009 compliance with the control mechanism is to be demonstrated by EnergyAustralia:

> …providing the AER, as part of its pricing proposal, with the total annual charge it proposes to levy on each of its public lighting customers over the next regulatory year, including an explanation of any adjustments.
>
> The proposed charges for each customer should be consistent with the charges contained in this decision for the relevant regulatory year. However, if adjustments to charges have been made to account for changes in asset inventories in the previous regulatory year, these must be set out and explained in the pricing proposal. The pricing proposal should also include revenues collected from each public lighting customer in the previous regulatory year.[153]

As a result of the AER's decision to separate the capital and maintenance charges for pre 1 July 2009 assets, the AER considers that an amended compliance mechanism is required. Compliance with the control mechanism is to be demonstrated by EnergyAustralia providing the AER, as part of its pricing proposal, with the total

[153] AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 399.

annual charge it proposes to levy on each of its public lighting customers over the next regulatory year, including an explanation of adjustments made.

The total annual charge should show the separate capital charges and maintenance prices, with relevant explanation of adjustments to the charge/prices set out in spreadsheet models. This should include information such as the residual value calculations arising from replacing assets at a customer's request, the remaining asset lives and asset inventories.

The pricing proposal should also include revenues collected from each public lighting customer in the previous regulatory year.

For assets constructed after 30 June 2009, the AER stated in its April 2009 decision that compliance with the control mechanism was to be demonstrated by EnergyAustralia:

> …through the publishing of the indexed tariff for the relevant regulatory year (with 2009–10 as the base year tariff as contained in this decision) at the same time as its general network tariffs are published.[154]

Compliance with the control mechanism for assets constructed after 30 June 2009 is to be demonstrated by EnergyAustralia publishing indexed capital and maintenance prices for the relevant regulatory year (based on those set out in the AER's final determination) at the same time as its general network tariffs are published. EnergyAustralia, as part of its pricing proposal, is to provide the AER with relevant explanation of adjustments to the prices set out in spreadsheet models.

The AER also requires EnergyAustralia to provide its public lighting customers with an inventory list on at least a six monthly basis. This list should contain assets that have been added and removed from both the pre 1 July 2009 and post 30 June 2009 asset bases. The AER considers that this information could form part of the customer's bill, thereby allowing customers to verify the calculation of their charges.

6.6 Conclusion

The AER has considered the control mechanism set out in its April 2009 decision and maintains that it should be:

- a schedule of fixed charges in the first year of the 2009–14 regulatory control period for assets constructed before 1 July 2009 and a schedule of fixed prices in the first year of the 2009–14 regulatory control period for assets constructed after 30 June 2009
- a price path for the remaining years of the 2009–14 regulatory control period.

However, further clarification has been made to the control mechanism as a consequence of accepting:

- the approach for calculating the residual value of a replaced asset in relation to pre 1 July 2009 assets

[154] AER, *Final decision, NSW distribution determination, 2009–10 to 2013–14*, 28 April 2009, p. 399.

- the separation of capital and maintenance charges for pre 1 July 2009 assets
- an annual adjustment for outturn inflation to the charges for pre 1 July 2009 assets.

As part of finalising its redetermination the AER will work further with EnergyAustralia in order to decide on the amount of under-recovery for 2009–10 charges to be recovered over the remaining 2009–14 regulatory control period.

The AER has set out some adjustments to the compliance mechanism for EnergyAustralia as a result of making further clarification surrounding the control mechanism for EnergyAustralia's public lighting assets.

6.7 AER draft decision

In accordance with clause 6.12.1(12) of the transitional chapter 6 rules, the control mechanism for EnergyAustralia's alternative control (public lighting) services is:

- a schedule of fixed charges in the first year of the 2009–14 regulatory control period for assets constructed before 1 July 2009 and a schedule of fixed prices in the first year of the 2009–14 regulatory control period for assets constructed after 30 June 2009
- a price path for the remaining years of the 2009–14 regulatory control period.

Details on the control mechanism for the schedules in respect of EnergyAustralia's public lighting assets are set out in table 6.1.

In accordance with clause 6.12.1(12) of the transitional chapter 6 rules, prior to EnergyAustralia introducing a new public lighting asset to its customers, the efficient capital and maintenance charges for the asset must be approved by the AER, in accordance with the process specified in section 17.8.2 of the April 2009 AER decision.

In accordance with clause 6.12.1(13) of the transitional chapter 6 rules, EnergyAustralia's compliance with the control mechanism for alternative control (public lighting) services is to be demonstrated through annual approval of changes in the schedules of prices. The process for demonstrating compliance with the annual schedule of charges and prices is specified in section 6.5.5 of this draft decision.

Appendix A: Residual value for pre 1 July 2009 assets ($2008–09)

Asset type	"N/A" denotes no residual value
Bracket - 0.5	= 10.1034 x qty of assets x remaining life
Bracket - 0.6	= 10.1034 x qty of assets x remaining life
Bracket - 1.0	= 8.944 x qty of assets x remaining life
Bracket - 1.2	= 8.944 x qty of assets x remaining life
Bracket - 1.5	= 81.8207 x qty of assets x remaining life
Bracket - 2.0	= 16.2316 x qty of assets x remaining life
Bracket - 2.5	= 16.2316 x qty of assets x remaining life
Bracket - 3.0	= 38.0947 x qty of assets x remaining life
Bracket - 3.5	= 41.4073 x qty of assets x remaining life
Bracket - 4.0	= 41.4073 x qty of assets x remaining life
Bracket - 4.5	= 50.6825 x qty of assets x remaining life
Bracket - 5.0	= 47.7012 x qty of assets x remaining life
Bracket - 6.0	= 74.2018 x qty of assets x remaining life
Bracket - 6.5	= 74.2018 x qty of assets x remaining life
Bracket - 7.0	= 74.2018 x qty of assets x remaining life
Bracket - 8.0	= 74.2018 x qty of assets x remaining life
Luminaire - 1x40W TF	= 14.0102 x qty of assets x remaining life
Luminaire - 1x80W TF	= 10.8764 x qty of assets x remaining life
Luminaire - 1000W MBF	= 40.0292 x qty of assets x remaining life
Luminaire - 1000W SON	= 224.6816 x qty of assets x remaining life
Luminaire - 1000W SON FLOODLIGHT	= 116.2252 x qty of assets x remaining life
Luminaire - 1000W/1500W MBI FLOODLIGHT	= 169.9486 x qty of assets x remaining life
Luminaire - 100W MBI	= 34.2355 x qty of assets x remaining life
Luminaire - 100W MBI FLOODLIGHT	= 40.0292 x qty of assets x remaining life
Luminaire - 100W SON	= 29.1507 x qty of assets x remaining life
Luminaire - 100W SON - PARKVILLE	= 166.4373 x qty of assets x remaining life
Luminaire - 100W SON FLOODLIGHT	= 73.5625 x qty of assets x remaining life
Luminaire - 100W SON -PLAIN	= 29.1507 x qty of assets x remaining life
Luminaire - 125W MBF	= 14.0785 x qty of assets x remaining life
Luminaire - 125W MBF - BOURKE HILL	= 113.065 x qty of assets x remaining life
Luminaire - 125W MBF - HYDE PARK	= 79.005 x qty of assets x remaining life
Luminaire - 125W MBF - NOSTALGIA	= 115.9403 x qty of assets x remaining life
Luminaire - 125W MBF - PARKVILLE	= 149.0661 x qty of assets x remaining life
Luminaire - 125W MBF BOLLARD	= 66.2516 x qty of assets x remaining life
Luminaire - 125W MBF -PLAIN	= 14.0785 x qty of assets x remaining life
Luminaire - 125W/250W MBF FLOODLIGHT	= 36.158 x qty of assets x remaining life
Luminaire - 135W SOX	= 43.8917 x qty of assets x remaining life
Luminaire - 150W SON	= 28.1404 x qty of assets x remaining life
Luminaire - 150W SON - HYDE PARK	= 79.005 x qty of assets x remaining life
Luminaire - 150W SON - PARKVILLE	= 166.4373 x qty of assets x remaining life
Luminaire - 150W SON - PARKWAY 1	= 53.8294 x qty of assets x remaining life

Luminaire - 150W SON FLOODLIGHT	= 73.5625 x qty of assets x remaining life
Luminaire - 150W SON GEC 'BOSTON 3'	= 149.0661 x qty of assets x remaining life
Luminaire - 150W/250W MBI FLOODLIGHT	N/A
Luminaire - 180W SOX	= 52.67 x qty of assets x remaining life
Luminaire - 2x14W TF - T5 PIERLITE M	= 34.6993 x qty of assets x remaining life
Luminaire - 2x175W MBF - PARKWAY 2	= 188.9098 x qty of assets x remaining life
Luminaire - 2x20W TF	= 13.8814 x qty of assets x remaining life
Luminaire - 2x20W TF - WAVERLEY	= 13.8814 x qty of assets x remaining life
Luminaire - 2x250W SON FLOODLIGHT	= 87.7834 x qty of assets x remaining life
Luminaire - 2x26W TF MACQUARIE DEC.	= 151.6897 x qty of assets x remaining life
Luminaire - 2x400W MBF - PARKWAY 2	= 188.9098 x qty of assets x remaining life
Luminaire - 2x400W MBI FLOODLIGHT	= 192.2456 x qty of assets x remaining life
Luminaire - 2x400W SON FLOODLIGHT	= 210.1534 x qty of assets x remaining life
Luminaire - 2x40W TF	= 35.1134 x qty of assets x remaining life
Luminaire - 2x70W SON - BOURKE HILL	N/A
Luminaire - 2x80W MBF - BOURKE HILL	= 95.2367 x qty of assets x remaining life
Luminaire - 250W MBF	= 26.8319 x qty of assets x remaining life
Luminaire - 250W MBF - PARKVILLE	= 153.7965 x qty of assets x remaining life
Luminaire - 250W MBF - PARKWAY 1	= 53.8294 x qty of assets x remaining life
Luminaire - 250W MBI - SMARTPOLE	N/A
Luminaire - 250W SON	= 26.2091 x qty of assets x remaining life
Luminaire - 250W SON - PARKVILLE	= 182.5894 x qty of assets x remaining life
Luminaire - 250W SON - PARKWAY 1	= 53.8294 x qty of assets x remaining life
Luminaire - 250W SON FLOODLIGHT	= 65.1833 x qty of assets x remaining life
Luminaire - 250W SON GEC 'BOSTON 3'	= 152.5675 x qty of assets x remaining life
Support - 2ND LIGHT NON-TRL	N/A
Support - 2ND LIGHT TRL	N/A
Luminaire - 2X14W TF - T5 PIERLIGHT	= 22.5113 x qty of assets x remaining life
Luminaire - 3x400W MBF - PARKWAY 3	= 188.9098 x qty of assets x remaining life
Luminaire - 4x1000W MBF	N/A
Luminaire - 4x20W TF	= 70.0863 x qty of assets x remaining life
Luminaire - 4x20W TF - WAVERLEY	= 70.0863 x qty of assets x remaining life
Luminaire - 4x250W SON	= 103.2333 x qty of assets x remaining life
Luminaire - 4x40W TF	= 87.7834 x qty of assets x remaining life
Luminaire - 4x40W TF - WAVERLEY	= 79.7705 x qty of assets x remaining life
Luminaire - 4x600W SON	= 175.5668 x qty of assets x remaining life
Luminaire - 400W MBF	= 37.8032 x qty of assets x remaining life
Luminaire - 400W MBF - PARKWAY 1	= 87.7834 x qty of assets x remaining life
Luminaire - 400W MBF FLOODLIGHT	= 100.0731 x qty of assets x remaining life
Luminaire - 400W MBI - SMARTPOLE	N/A
Luminaire - 400W MBI FLOODLIGHT	= 66.7154 x qty of assets x remaining life
Luminaire - 400W SON	= 37.881 x qty of assets x remaining life
Luminaire - 400W SON - PARKWAY 1	= 53.8294 x qty of assets x remaining life
Luminaire - 400W SON FLOODLIGHT	= 79.9574 x qty of assets x remaining life
Luminaire - 40W SOX	= 14.0102 x qty of assets x remaining life

Luminaire - 42W MBF SYLVANIA SUB ECO	= 28.571 x qty of assets x remaining life
Luminaire - 500W MBI FLOODLIGHT	= 94.1038 x qty of assets x remaining life
Luminaire - 50W MBF	= 14.0785 x qty of assets x remaining life
Luminaire - 50W MBF - BOURKE HILL	= 14.0785 x qty of assets x remaining life
Luminaire - 50W MBF - NOSTALGIA	= 95.2367 x qty of assets x remaining life
Luminaire - 50W MBF - PLAIN	= 93.226 x qty of assets x remaining life
Luminaire - 50W MBF BOLLARD	= 50.9144 x qty of assets x remaining life
Luminaire - 50W SON	= 13.5816 x qty of assets x remaining life
Luminaire - 50W SON - BOURKE HILL	N/A
Luminaire - 50W SON - NOSTALGIA	= 35.6102 x qty of assets x remaining life
Luminaire - 60W SOX	N/A
Luminaire - 700W MBF	= 43.5604 x qty of assets x remaining life
Luminaire - 70W MBI	= 25.106 x qty of assets x remaining life
Luminaire - 70W MBI - MACQUARIE DEC.	= 170.8265 x qty of assets x remaining life
Luminaire - 70W SON	= 13.7472 x qty of assets x remaining life
Luminaire - 70W SON - BOURKE HILL	= 109.5537 x qty of assets x remaining life
Luminaire - 70W SON - GEC BOSTON 2	= 132.5032 x qty of assets x remaining life
Luminaire - 70W SON - NOSTALGIA	= 100.4242 x qty of assets x remaining life
Luminaire - 70W SON - PARKVILLE	= 132.5032 x qty of assets x remaining life
Luminaire - 70W SON - REGAL/FLINDERS	= 197.5126 x qty of assets x remaining life
Luminaire - 70W SON BOLLARD	= 70.5778 x qty of assets x remaining life
Luminaire - 70W SON FLOODLIGHT	= 28.0643 x qty of assets x remaining life
Luminaire - 70W SON -PLAIN	= 13.7472 x qty of assets x remaining life
Luminaire - 750W MBI FLOODLIGHT	= 94.1038 x qty of assets x remaining life
Luminaire - 80W MBF	= 13.0184 x qty of assets x remaining life
Luminaire - 80W MBF - PLAIN	= 13.0184 x qty of assets x remaining life
Luminaire - 80W MBF - BEGA+CURVE BRA	= 171.8799 x qty of assets x remaining life
Luminaire - 80W MBF - BOURKE HILL	= 66.8909 x qty of assets x remaining life
Luminaire - 80W MBF - GEC BOSTON 2	= 132.5032 x qty of assets x remaining life
Luminaire - 80W MBF - NOSTALGIA	= 93.226 x qty of assets x remaining life
Luminaire - 80W MBF - REGAL/FLINDERS	= 189.6121 x qty of assets x remaining life
Luminaire - 80W MBF - SYLVANIA SUBUR	= 13.2553 x qty of assets x remaining life
Luminaire - 80W MBF BOLLARD	= 50.9144 x qty of assets x remaining life
Luminaire - 80W MBF TOORAK	= 82.8145 x qty of assets x remaining life
Luminaire - 90W SOX	= 70.2267 x qty of assets x remaining life
Support - BOLLARD	= 41.1328 x qty of assets x remaining life
Bracket - C4	= 105.3401 x qty of assets x remaining life
Support - COLUMN 10.5M-13.5M	= 88.0673 x qty of assets x remaining life
Support - COLUMN 14M-15M	= 70.2267 x qty of assets x remaining life
Support - COLUMN 2.5M-3.5M	N/A
Support - COLUMN 4-6.5M ORION WATE	= 60.1943 x qty of assets x remaining life
Support - COLUMN 4M-6.5M	= 84.6128 x qty of assets x remaining life
Support - COLUMN 7M-10M	= 78.6028 x qty of assets x remaining life
Support - DECORATIVE COLUMN	= 100.3239 x qty of assets x remaining life
Support - DEDICATED SUPPORT & COND	= 55.8406 x qty of assets x remaining life

Support - HYDE PARK STANDARD	= 157.3003 x qty of assets x remaining life
Lamp - INC1x100	N/A
Lamp - INC1x1000	N/A
Lamp - INC1x1440	N/A
Lamp - INC1x150	N/A
Lamp - INC1x200	N/A
Lamp - INC1x300	N/A
Lamp - INC1x40	N/A
Lamp - INC1x500	N/A
Lamp - INC1x60	N/A
Lamp - INC1x75	N/A
Lamp - INC3x100	N/A
Luminaire - INCANDESCENT	= 5.267 x qty of assets x remaining life
Support - MACQUARIE STANDARD	= 49.0262 x qty of assets x remaining life
Support - MAST 15.5M-30M	= 80.2591 x qty of assets x remaining life
Support - MAST 23M	= 80.2591 x qty of assets x remaining life
Support - MAST 25M	= 80.2591 x qty of assets x remaining life
Lamp - MBF1x1000	N/A
Lamp - MBF1x125	N/A
Lamp - MBF1x250	N/A
Lamp - MBF1x400	N/A
Lamp - MBF1x42	N/A
Lamp - MBF1x50	N/A
Lamp - MBF1x500	N/A
Lamp - MBF1x700	N/A
Lamp - MBF1x80	N/A
Lamp - MBF1x800	N/A
Lamp - MBF2x125	N/A
Lamp - MBF2x160	N/A
Lamp - MBF2x175	N/A
Lamp - MBF2x400	N/A
Lamp - MBF2x80	N/A
Lamp - MBF3x160	N/A
Lamp - MBF3x250	N/A
Lamp - MBF3x400	N/A
Lamp - MBF3x80	N/A
Lamp - MBF4x1000	N/A
Lamp - MBF4x80	N/A
Lamp - MBF6x125	N/A
Lamp - MBF6x160	N/A
Lamp - MBF9x160	N/A
Lamp - MBI1x100	N/A
Lamp - MBI1x1000	N/A
Lamp - MBI1x150	N/A
Lamp - MBI1x1500	N/A

Lamp - MBI1x250	N/A
Lamp - MBI1x3745	N/A
Lamp - MBI1x400	N/A
Lamp - MBI1x500	N/A
Lamp - MBI1x70	N/A
Lamp - MBI1x750	N/A
Lamp - MBI2x400	N/A
Lamp - MBI4x150	N/A
Bracket - NIL	N/A
Connection - O/U	= 15.7745 x qty of assets x remaining life
Connection - OH	N/A
Connection - OH2	N/A
Connection - OHS	N/A
Support - ORION DOUBLE ARM	= 33.2933 x qty of assets x remaining life
Support - POLO 10.5M DECORATIVE 2M	= 66.2516 x qty of assets x remaining life
Support - POLO 4.5M DECORATIVE 1.2	= 66.2516 x qty of assets x remaining life
Support - PRIVATE	N/A
Support - ROCKS STANDARD	= 68.7285 x qty of assets x remaining life
Support - SMARTPOLE A	N/A
Support - SMARTPOLE AB	N/A
Support - SMARTPOLE B	N/A
Support - SMARTPOLE C	N/A
Bracket - SMARTPOLE DOUBLE	N/A
Bracket - SMARTPOLE SINGLE LONG	N/A
Bracket - SMARTPOLE SINGLE SHORT	N/A
Lamp - SON1x100	N/A
Lamp - SON1x1000	N/A
Lamp - SON1x120	N/A
Lamp - SON1x150	N/A
Lamp - SON1x220	N/A
Lamp - SON1x250	N/A
Lamp - SON1x310	N/A
Lamp - SON1x360	N/A
Lamp - SON1x400	N/A
Lamp - SON1x50	N/A
Lamp - SON1x70	N/A
Lamp - SON2x250	N/A
Lamp - SON2x400	N/A
Lamp - SON2x70	N/A
Lamp - SON3x70	N/A
Lamp - SON4x250	N/A
Lamp - SON4x600	N/A
Lamp - SON4x70	N/A
Lamp - SON8x70	N/A
Lamp - SOX1x135	N/A

Lamp - SOX1x150	N/A
Lamp - SOX1x180	N/A
Lamp - SOX1x90	N/A
Bracket - SUSPENDED	= 19.8755 x qty of assets x remaining life
Bracket - T1	= 26.9147 x qty of assets x remaining life
Bracket - T2	= 46.7074 x qty of assets x remaining life
Bracket - T2A	= 46.7074 x qty of assets x remaining life
Bracket - T3	= 47.7012 x qty of assets x remaining life
Bracket - T3A	= 47.7012 x qty of assets x remaining life
Bracket - T4	= 44.7198 x qty of assets x remaining life
Bracket - T5	= 44.7198 x qty of assets x remaining life
Bracket - T6	= 74.2018 x qty of assets x remaining life
Bracket - T7	= 65.7547 x qty of assets x remaining life
Lamp - TF1x16	N/A
Lamp - TF1x176	N/A
Lamp - TF1x20	N/A
Lamp - TF1x236	N/A
Lamp - TF1x26	N/A
Lamp - TF1x40	N/A
Lamp - TF1x60	N/A
Lamp - TF1x80	N/A
Lamp - TF2x14 T5	N/A
Lamp - TF2x20	N/A
Lamp - TF2x26	N/A
Lamp - TF2x40	N/A
Lamp - TF2x58	N/A
Lamp - TF2x80	N/A
Lamp - TF3x20	N/A
Lamp - TF3x40	N/A
Lamp - TF3x80	N/A
Lamp - TF4x20	N/A
Lamp - TF4x40	N/A
Lamp - TF4x80	N/A
Lamp - TF5x58	N/A
Lamp - TF5x65	N/A
Lamp - TF5x80	N/A
Lamp - TF6x20	N/A
Lamp - TF6x36	N/A
Lamp - TF6x80	N/A
Luminaire - TH FLOODLIGHT	= 185.7496 x qty of assets x remaining life
Lamp - TH1x1000	N/A
Lamp - TH1x1500	N/A
Lamp - TH1x400	N/A
Lamp - TH1x500	N/A
Lamp - TH1x750	N/A

Connection - UG2	N/A
Connection - UGORDA	N/A
Connection - UGR1	= 21.8912 x qty of assets x remaining life
Connection - UGR2	= 15.7745 x qty of assets x remaining life
Connection - UGS	= 15.7745 x qty of assets x remaining life
Connection - UG-SP	N/A
Support - UNKNOWN	N/A
Support - WALL	N/A
Support - WOOD POLE NON-TRL	N/A
Support - WOOD POLE TRL	N/A
Connection - EMPTY	N/A
Lamp - EMPTY	N/A
Luminaire - EMPTY	N/A
Support - EMPTY	N/A
Lamp - MBF1x160	N/A
Bracket - PRIVATE	N/A
Luminaire - PRIVATE	N/A
Support - SUSPENDED	N/A

Appendix B: Total customer charges for pre 1 July 2009 assets ($'000 nominal)

Confidential

Appendix C: Capital charges for pre 1 July 2009 assets ($'000 nominal)

Confidential

Appendix D: Maintenance charges for pre 1 July 2009 assets ($'000 nominal)

Confidential

Appendix E: Capital prices for post 30 June 2009 assets ($2009–10)

Asset type	FY10	FY11	FY12	FY13	FY14
Bracket - 0.5	$17.20	$17.51	$17.93	$18.42	$18.96
Bracket - 0.6	$17.20	$17.51	$17.93	$18.42	$18.96
Bracket - 1.0	$16.42	$16.72	$17.11	$17.59	$18.10
Bracket - 1.2	$16.42	$16.72	$17.11	$17.59	$18.10
Bracket - 1.5	$65.51	$66.69	$68.27	$70.16	$72.20
Bracket - 2.0	$21.33	$21.71	$22.23	$22.84	$23.51
Bracket - 2.5	$26.49	$26.97	$27.61	$28.37	$29.20
Bracket - 3.0	$41.21	$41.96	$42.95	$44.14	$45.43
Bracket - 3.5	$43.45	$44.23	$45.28	$46.53	$47.89
Bracket - 4.0	$43.45	$44.23	$45.28	$46.53	$47.89
Bracket - 4.5	$49.69	$50.59	$51.79	$53.23	$54.78
Bracket - 5.0	$47.68	$48.55	$49.70	$51.07	$52.56
Bracket - 6.0	$65.53	$66.72	$68.30	$70.19	$72.24
Bracket - 6.5	$65.53	$66.72	$68.30	$70.19	$72.24
Bracket - 7.0	$65.53	$66.72	$68.30	$70.19	$72.24
Bracket - 8.0	$65.53	$66.72	$68.30	$70.19	$72.24
Luminaire - 1x40W TF	$12.53	$12.76	$13.06	$13.42	$13.81
Luminaire - 1x80W TF	$10.03	$10.21	$10.46	$10.75	$11.06
Luminaire - 1000W MBF	$33.94	$34.55	$35.37	$36.35	$37.41
Luminaire - 1000W SON	$181.06	$184.33	$188.70	$193.93	$199.58
Luminaire - 1000W SON FLOODLIGHT	$94.65	$96.36	$98.64	$101.37	$104.33
Luminaire - 1000W/1500W MBI FLOODLIGHT	$137.45	$139.93	$143.25	$147.22	$151.51
Luminaire - 100W MBI	$29.32	$29.85	$30.56	$31.41	$32.32
Luminaire - 100W MBI FLOODLIGHT	$33.94	$34.55	$35.37	$36.35	$37.41
Luminaire - 100W SON	$25.27	$25.73	$26.34	$27.07	$27.85
Luminaire - 100W SON - PARKVILLE	$134.65	$137.09	$140.34	$144.22	$148.42
Luminaire - 100W SON FLOODLIGHT	$60.65	$61.75	$63.21	$64.97	$66.86
Luminaire - 100W SON -PLAIN	$25.27	$25.73	$26.34	$27.07	$27.85
Luminaire - 125W MBF	$13.26	$13.50	$13.82	$14.20	$14.62
Luminaire - 125W MBF - BOURKE HILL	$92.13	$93.79	$96.02	$98.68	$101.55
Luminaire - 125W MBF - HYDE PARK	$64.99	$66.17	$67.73	$69.61	$71.64
Luminaire - 125W MBF - NOSTALGIA	$94.42	$96.13	$98.40	$101.13	$104.08
Luminaire - 125W MBF - PARKVILLE	$120.81	$123.00	$125.91	$129.40	$133.17
Luminaire - 125W MBF BOLLARD	$54.83	$55.82	$57.14	$58.73	$60.44
Luminaire - 125W MBF -PLAIN	$13.26	$13.50	$13.82	$14.20	$14.62
Luminaire - 125W/250W MBF FLOODLIGHT	$30.85	$31.41	$32.16	$33.05	$34.01
Luminaire - 135W SOX	$37.01	$37.68	$38.58	$39.65	$40.80
Luminaire - 150W SON	$24.47	$24.91	$25.50	$26.20	$26.97
Luminaire - 150W SON - HYDE PARK	$64.99	$66.17	$67.73	$69.61	$71.64
Luminaire - 150W SON - PARKVILLE	$134.65	$137.09	$140.34	$144.22	$148.42
Luminaire - 150W SON - PARKWAY 1	$44.93	$45.75	$46.83	$48.13	$49.53
Luminaire - 150W SON FLOODLIGHT	$2.04	$2.08	$2.13	$2.19	$2.25
Luminaire - 150W SON GEC 'BOSTON 3'	$120.81	$123.00	$125.91	$129.40	$133.17
Luminaire - 150W/250W MBI FLOODLIGHT	$80.94	$82.40	$84.35	$86.69	$89.22
Luminaire - 180W SOX	$44.01	$44.80	$45.87	$47.14	$48.51
Luminaire - 2x14W TF - T5 PIERLITE M	$29.01	$29.54	$30.24	$31.07	$31.98
Luminaire - 2x175W MBF - PARKWAY 2	$152.56	$155.31	$159.00	$163.40	$168.16
Luminaire - 2x20W TF	$12.43	$12.65	$12.95	$13.31	$13.70

Luminaire - 2x20W TF - WAVERLEY	$12.43	$12.65	$12.95	$13.31	$13.70
Luminaire - 2x250W SON FLOODLIGHT	$71.98	$73.29	$75.02	$77.10	$79.35
Luminaire - 2x26W TF MACQUARIE DEC.	$122.22	$124.43	$127.38	$130.91	$134.72
Luminaire - 2x400W MBF - PARKWAY 2	$152.56	$155.31	$159.00	$163.40	$168.16
Luminaire - 2x400W MBI FLOODLIGHT	$155.21	$158.02	$161.77	$166.25	$171.09
Luminaire - 2x400W SON FLOODLIGHT	$169.48	$172.55	$176.64	$181.53	$186.82
Luminaire - 2x40W TF	$29.34	$29.87	$30.58	$31.43	$32.34
Luminaire - 2x70W SON - BOURKE HILL	$172.92	$176.04	$180.22	$185.21	$190.60
Luminaire - 2x80W MBF - BOURKE HILL	$77.24	$78.64	$80.51	$82.74	$85.15
Luminaire - 250W MBF	$23.42	$23.85	$24.41	$25.09	$25.82
Luminaire - 250W MBF - PARKVILLE	$124.58	$126.83	$129.84	$133.44	$137.32
Luminaire - 250W MBF - PARKWAY 1	$44.93	$45.75	$46.83	$48.13	$49.53
Luminaire - 250W MBI - SMARTPOLE	$2.04	$2.08	$2.13	$2.19	$2.25
Luminaire - 250W SON	$22.93	$23.34	$23.89	$24.56	$25.27
Luminaire - 250W SON - PARKVILLE	$147.52	$150.19	$153.75	$158.01	$162.61
Luminaire - 250W SON - PARKWAY 1	$44.93	$45.75	$46.83	$48.13	$49.53
Luminaire - 250W SON FLOODLIGHT	$53.98	$54.95	$56.26	$57.82	$59.50
Luminaire - 250W SON GEC 'BOSTON 3'	$123.60	$125.84	$128.82	$132.39	$136.24
Support - 2ND LIGHT NON-TRL	$0.00	$0.00	$0.00	$0.00	$0.00
Support - 2ND LIGHT TRL	$0.00	$0.00	$0.00	$0.00	$0.00
Luminaire - 2X14W TF - T5 PIERLIGHT	$19.30	$19.65	$20.12	$20.67	$21.28
Luminaire - 3x400W MBF - PARKWAY 3	$152.56	$155.31	$159.00	$163.40	$168.16
Luminaire - 4x1000W MBF	$129.62	$131.96	$135.09	$138.83	$142.87
Luminaire - 4x20W TF	$57.21	$58.24	$59.62	$61.27	$63.06
Luminaire - 4x20W TF - WAVERLEY	$57.21	$58.24	$59.62	$61.27	$63.06
Luminaire - 4x250W SON	$84.29	$85.82	$87.85	$90.29	$92.92
Luminaire - 4x40W TF	$71.31	$72.60	$74.32	$76.38	$78.60
Luminaire - 4x40W TF - WAVERLEY	$64.92	$66.10	$67.66	$69.54	$71.56
Luminaire - 4x600W SON	$141.93	$144.49	$147.92	$152.01	$156.44
Luminaire - 400W MBF	$32.16	$32.75	$33.52	$34.45	$35.45
Luminaire - 400W MBF - PARKWAY 1	$71.98	$73.29	$75.02	$77.10	$79.35
Luminaire - 400W MBF FLOODLIGHT	$81.78	$83.26	$85.23	$87.59	$90.14
Luminaire - 400W MBI - SMARTPOLE	$2.04	$2.08	$2.13	$2.19	$2.25
Luminaire - 400W MBI FLOODLIGHT	$55.20	$56.20	$57.53	$59.12	$60.84
Luminaire - 400W SON	$32.23	$32.81	$33.59	$34.52	$35.52
Luminaire - 400W SON - PARKWAY 1	$44.93	$45.75	$46.83	$48.13	$49.53
Luminaire - 400W SON FLOODLIGHT	$65.75	$66.94	$68.53	$70.42	$72.47
Luminaire - 40W SOX	$12.53	$12.76	$13.06	$13.42	$13.81
Luminaire - 42W MBF SYLVANIA SUB ECO	$24.13	$24.57	$25.15	$25.85	$26.60
Luminaire - 500W MBI FLOODLIGHT	$77.02	$78.41	$80.27	$82.50	$84.90
Luminaire - 50W MBF	$12.58	$12.81	$13.11	$13.48	$13.87
Luminaire - 50W MBF - BOURKE HILL	$12.58	$12.81	$13.11	$13.48	$13.87
Luminaire - 50W MBF - NOSTALGIA	$77.24	$78.64	$80.51	$82.74	$85.15
Luminaire - 50W MBF - PLAIN	$75.64	$77.01	$78.84	$81.02	$83.38
Luminaire - 50W MBF BOLLARD	$41.93	$42.69	$43.70	$44.91	$46.22
Luminaire - 50W SON	$12.19	$12.41	$12.70	$13.05	$13.43
Luminaire - 50W SON - BOURKE HILL	$88.65	$90.25	$92.39	$94.95	$97.72
Luminaire - 50W SON - NOSTALGIA	$29.74	$30.28	$30.99	$31.85	$32.78
Luminaire - 60W SOX	$12.53	$12.76	$13.06	$13.42	$13.81
Luminaire - 700W MBF	$36.75	$37.42	$38.30	$39.36	$40.51
Luminaire - 70W MBI	$21.37	$21.76	$22.27	$22.89	$23.55
Luminaire - 70W MBI - MACQUARIE DEC.	$138.15	$140.65	$143.98	$147.97	$152.28
Luminaire - 70W SON	$12.32	$12.54	$12.84	$13.20	$13.58

Luminaire - 70W SON - BOURKE HILL	$88.65	$90.25	$92.39	$94.95	$97.72
Luminaire - 70W SON - GEC BOSTON 2	$106.94	$108.87	$111.45	$114.54	$117.87
Luminaire - 70W SON - NOSTALGIA	$81.38	$82.85	$84.81	$87.16	$89.70
Luminaire - 70W SON - PARKVILLE	$106.94	$108.87	$111.45	$114.54	$117.87
Luminaire - 70W SON - REGAL/FLINDERS	$158.73	$161.60	$165.43	$170.02	$174.97
Luminaire - 70W SON BOLLARD	$57.60	$58.64	$60.03	$61.69	$63.49
Luminaire - 70W SON FLOODLIGHT	$23.73	$24.16	$24.73	$25.41	$26.15
Luminaire - 70W SON -PLAIN	$12.32	$12.54	$12.84	$13.20	$13.58
Luminaire - 750W MBI FLOODLIGHT	$77.02	$78.41	$80.27	$82.50	$84.90
Luminaire - 80W MBF	$11.74	$11.95	$12.23	$12.57	$12.94
Luminaire - 80W MBF - PLAIN	$11.74	$11.95	$12.23	$12.57	$12.94
Luminaire - 80W MBF - BEGA+CURVE BRA	$138.31	$140.81	$144.15	$148.14	$152.46
Luminaire - 80W MBF - BOURKE HILL	$54.66	$55.65	$56.97	$58.55	$60.25
Luminaire - 80W MBF - GEC BOSTON 2	$106.94	$108.87	$111.45	$114.54	$117.87
Luminaire - 80W MBF - NOSTALGIA	$75.64	$77.01	$78.84	$81.02	$83.38
Luminaire - 80W MBF - REGAL/FLINDERS	$152.44	$155.19	$158.87	$163.27	$168.03
Luminaire - 80W MBF - SYLVANIA SUBUR	$11.93	$12.14	$12.43	$12.78	$13.15
Luminaire - 80W MBF BOLLARD	$41.93	$42.69	$43.70	$44.91	$46.22
Luminaire - 80W MBF TOORAK	$67.35	$68.57	$70.19	$72.14	$74.24
Luminaire - 90W SOX	$58.00	$59.05	$60.45	$62.12	$63.93
Support - BOLLARD	$133.37	$135.78	$139.00	$142.85	$147.01
Bracket - C4	$86.51	$88.07	$90.16	$92.66	$95.35
Support - COLUMN 10.5M-13.5M	$260.16	$264.86	$271.14	$278.65	$286.77
Support - COLUMN 14M-15M	$239.13	$243.45	$249.22	$256.13	$263.59
Support - COLUMN 2.5M-3.5M	$209.46	$213.24	$218.30	$224.35	$230.88
Support - COLUMN 4-6.5M ORION WATE	$227.31	$231.42	$236.90	$243.46	$250.55
Support - COLUMN 4M-6.5M	$256.09	$260.72	$266.90	$274.29	$282.28
Support - COLUMN 7M-10M	$249.00	$253.51	$259.51	$266.70	$274.47
Support - DECORATIVE COLUMN	$274.61	$279.57	$286.20	$294.13	$302.69
Support - DEDICATED SUPPORT & COND	$222.17	$226.19	$231.55	$237.97	$244.90
Support - HYDE PARK STANDARD	$341.76	$347.94	$356.19	$366.06	$376.72
Lamp - INC1x100	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x1000	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x1440	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x150	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x200	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x300	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x40	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x500	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x60	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC1x75	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - INC3x100	$0.00	$0.00	$0.00	$0.00	$0.00
Luminaire - INCANDESCENT	$5.56	$5.66	$5.80	$5.96	$6.13
Support - MACQUARIE STANDARD	$57.79	$58.83	$60.23	$61.89	$63.70
Support - MAST 15.5M-30M	$250.96	$255.49	$261.55	$268.79	$276.62
Support - MAST 23M	$250.96	$255.49	$261.55	$268.79	$276.62
Support - MAST 25M	$250.96	$255.49	$261.55	$268.79	$276.62
Lamp - MBF1x1000	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x125	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x250	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x42	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x50	$0.00	$0.00	$0.00	$0.00	$0.00

Lamp - MBF1x500	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x700	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x800	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF2x125	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF2x160	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF2x175	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF2x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF2x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF3x160	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF3x250	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF3x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF3x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF4x1000	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF4x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF6x125	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF6x160	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF9x160	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x100	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x1000	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x150	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x1500	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x250	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x3745	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x500	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1x70	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI1*750	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI2x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBI4x150	$0.00	$0.00	$0.00	$0.00	$0.00
Bracket - NIL	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - OU	$10.47	$10.66	$10.92	$11.22	$11.54
Connection - OH	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - OH2	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - OHS	$0.00	$0.00	$0.00	$0.00	$0.00
Support - ORION DOUBLE ARM	$39.24	$39.95	$40.90	$42.03	$43.26
Support - POLO 10.5M DECORATIVE 2M	$78.09	$79.50	$81.39	$83.64	$86.08
Support - POLO 4.5M DECORATIVE 1.2	$78.09	$79.50	$81.39	$83.64	$86.08
Support - PRIVATE	$0.00	$0.00	$0.00	$0.00	$0.00
Support - ROCKS STANDARD	$199.47	$203.07	$207.89	$213.65	$219.87
Support - SMARTPOLE A	$0.00	$0.00	$0.00	$0.00	$0.00
Support - SMARTPOLE AB	$0.00	$0.00	$0.00	$0.00	$0.00
Support - SMARTPOLE B	$0.00	$0.00	$0.00	$0.00	$0.00
Support - SMARTPOLE C	$0.00	$0.00	$0.00	$0.00	$0.00
Bracket - SMARTPOLE DOUBLE	$10.40	$10.58	$10.83	$11.13	$11.46
Bracket - SMARTPOLE SINGLE LONG	$10.40	$10.58	$10.83	$11.13	$11.46
Bracket - SMARTPOLE SINGLE SHORT	$10.40	$10.58	$10.83	$11.13	$11.46
Lamp - SON1x100	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x1000	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x120	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x150	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x220	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x250	$0.00	$0.00	$0.00	$0.00	$0.00

Lamp - SON1x310	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x360	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x50	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON1x70	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON2x250	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON2x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON2x70	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON3x70	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON4x250	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON4x600	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON4x70	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SON8x70	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SOX1x135	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SOX1x150	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SOX1x180	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - SOX1x90	$0.00	$0.00	$0.00	$0.00	$0.00
Bracket - SUSPENDED	$57.64	$58.68	$60.07	$61.74	$63.53
Bracket - T1	$28.52	$29.04	$29.73	$30.55	$31.44
Bracket - T2	$47.02	$47.87	$49.00	$50.36	$51.82
Bracket - T2A	$47.02	$47.87	$49.00	$50.36	$51.82
Bracket - T3	$47.68	$48.55	$49.70	$51.07	$52.56
Bracket - T3A	$47.68	$48.55	$49.70	$51.07	$52.56
Bracket - T4	$45.68	$46.50	$47.60	$48.92	$50.35
Bracket - T5	$45.68	$46.50	$47.60	$48.92	$50.35
Bracket - T6	$65.53	$66.72	$68.30	$70.19	$72.24
Bracket - T7	$59.84	$60.93	$62.37	$64.10	$65.97
Lamp - TF1x16	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF1x176	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF1x20	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF1x236	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF1x26	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF1x40	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF1x60	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF1x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF2x14 T5	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF2x20	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF2x26	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF2x40	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF2x58	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF2x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF3x20	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF3x40	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF3x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF4x20	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF4x40	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF4x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF5x58	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF5x65	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF5x80	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF6x20	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF6x36	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TF6x80	$0.00	$0.00	$0.00	$0.00	$0.00

Luminaire - TH FLOODLIGHT	$150.04	$152.75	$156.37	$160.70	$165.38
Lamp - TH1x1000	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TH1x1500	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TH1x400	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TH1x500	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - TH1x750	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - UG2	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - UGORDA	$10.47	$10.66	$10.92	$11.22	$11.54
Connection - UGR1	$14.53	$14.80	$15.15	$15.57	$16.02
Connection - UGR2	$10.47	$10.66	$10.92	$11.22	$11.54
Connection - UGS	$10.47	$10.66	$10.92	$11.22	$11.54
Connection - UG-SP	$0.00	$0.00	$0.00	$0.00	$0.00
Support - UNKNOWN	$0.00	$0.00	$0.00	$0.00	$0.00
Support - WALL	$0.00	$0.00	$0.00	$0.00	$0.00
Support - WOOD POLE NON-TRL	$0.00	$0.00	$0.00	$0.00	$0.00
Support - WOOD POLE TRL	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - EMPTY	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - EMPTY	$0.00	$0.00	$0.00	$0.00	$0.00
Luminaire - EMPTY	$1.37	$1.39	$1.42	$1.46	$1.51
Support - EMPTY	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - MBF1x160	$0.00	$0.00	$0.00	$0.00	$0.00
Bracket - PRIVATE	$10.40	$10.58	$10.83	$11.13	$11.46
Luminaire - PRIVATE	$1.37	$1.39	$1.42	$1.46	$1.51
Support - SUSPENDED	$0.00	$0.00	$0.00	$0.00	$0.00

Appendix F: Maintenance prices for all assets ($2009–10)

Asset type	FY10	FY11	FY12	FY13	FY14
Connection - EMPTY	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - OU	$80.20	$82.18	$84.22	$86.30	$88.44
Connection - OH	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - OH2	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - OHS	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - UG2	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - UGORDA	$40.10	$41.09	$42.11	$43.15	$44.22
Connection - UGR1	$73.52	$75.34	$77.20	$79.11	$81.07
Connection - UGR2	$26.73	$27.39	$28.07	$28.77	$29.48
Connection - UGS	$0.00	$0.00	$0.00	$0.00	$0.00
Connection - UGSP	$0.00	$0.00	$0.00	$0.00	$0.00
Lamp - EMPTY	$36.13	$36.38	$36.62	$37.56	$38.51
Lamp - INC1x100	$183.90	$190.79	$196.95	$203.43	$209.05
Lamp - INC1x1000	$353.79	$366.35	$377.89	$389.65	$400.17
Lamp - INC1x1440	$182.58	$189.39	$195.47	$201.91	$207.50
Lamp - INC1x150	$188.03	$194.97	$201.19	$207.77	$213.50
Lamp - INC1x200	$189.78	$196.76	$203.03	$209.66	$215.43
Lamp - INC1x300	$209.83	$217.30	$224.08	$231.22	$237.54
Lamp - INC1x40	$183.99	$190.88	$197.05	$203.53	$209.15
Lamp - INC1x500	$240.96	$249.21	$256.77	$264.73	$271.87
Lamp - INC1x60	$183.90	$190.79	$196.95	$203.43	$209.05
Lamp - INC1x75	$183.90	$190.79	$196.95	$203.43	$209.05
Lamp - INC3x100	$195.34	$202.50	$208.96	$215.73	$221.66
Lamp - MBF1x1000	$96.58	$98.66	$100.65	$103.38	$106.03
Lamp - MBF1x125	$46.48	$47.15	$47.77	$49.07	$50.33
Lamp - MBF1x160	$40.41	$40.72	$41.01	$42.07	$43.12
Lamp - MBF1x250	$46.81	$47.38	$47.92	$49.20	$50.45
Lamp - MBF1x400	$46.73	$47.29	$47.82	$49.09	$50.34
Lamp - MBF1x42	$44.45	$45.02	$45.55	$46.78	$47.97
Lamp - MBF1x50	$38.75	$39.10	$39.42	$40.45	$41.47
Lamp - MBF1x500	$113.83	$116.61	$119.24	$122.57	$125.75
Lamp - MBF1x700	$70.06	$71.34	$72.57	$74.53	$76.43
Lamp - MBF1x80	$40.67	$41.11	$41.51	$42.61	$43.69
Lamp - MBF1x800	$113.83	$116.61	$119.24	$122.57	$125.75
Lamp - MBF2x125	$47.05	$47.73	$48.36	$49.68	$50.96
Lamp - MBF2x160	$52.30	$53.20	$54.01	$55.54	$56.98
Lamp - MBF2x175	$154.23	$157.65	$161.05	$165.22	$169.38
Lamp - MBF2x400	$50.48	$51.14	$51.76	$53.13	$54.48
Lamp - MBF2x80	$44.60	$45.13	$45.63	$46.84	$48.02
Lamp - MBF3x160	$52.30	$53.20	$54.01	$55.54	$56.98
Lamp - MBF3x250	$73.81	$75.05	$76.27	$78.25	$80.22
Lamp - MBF3x400	$77.07	$78.38	$79.68	$81.74	$83.79
Lamp - MBF3x80	$49.56	$50.22	$50.85	$52.18	$53.50
Lamp - MBF4x1000	$1,025.68	$1,050.75	$1,076.31	$1,103.18	$1,130.57
Lamp - MBF4x80	$57.28	$58.13	$58.95	$60.49	$62.01
Lamp - MBF6x125	$99.53	$101.46	$103.37	$106.05	$108.72
Lamp - MBF6x160	$52.30	$53.20	$54.01	$55.54	$56.98
Lamp - MBF9x160	$52.30	$53.20	$54.01	$55.54	$56.98

Lamp - MBI1x100	$68.20	$69.57	$70.86	$72.82	$74.70
Lamp - MBI1x1000	$156.07	$159.97	$163.72	$168.19	$172.51
Lamp - MBI1x150	$97.79	$99.78	$101.72	$104.41	$107.06
Lamp - MBI1x1500	$129.06	$132.28	$135.35	$139.12	$142.72
Lamp - MBI1x250	$61.44	$62.47	$63.45	$65.16	$66.82
Lamp - MBI1x3745	$73.14	$74.98	$76.63	$78.95	$81.05
Lamp - MBI1x400	$59.96	$60.91	$61.82	$63.47	$65.09
Lamp - MBI1x500	$113.82	$116.66	$119.35	$122.72	$125.91
Lamp - MBI1x70	$71.00	$72.45	$73.83	$75.87	$77.83
Lamp - MBI2x400	$100.34	$102.29	$104.23	$106.92	$109.61
Lamp - MBI4x150	$50.80	$51.62	$52.37	$53.84	$55.24
Lamp - SON1x100	$53.78	$54.59	$55.35	$56.84	$58.29
Lamp - SON1x1000	$87.21	$89.07	$90.84	$93.32	$95.71
Lamp - SON1x120	$70.06	$71.72	$73.23	$75.37	$77.35
Lamp - SON1x150	$52.41	$53.21	$53.96	$55.42	$56.84
Lamp - SON1x220	$81.72	$83.62	$85.39	$87.82	$90.12
Lamp - SON1x250	$52.63	$53.45	$54.22	$55.70	$57.12
Lamp - SON1x310	$80.75	$82.63	$84.37	$86.79	$89.05
Lamp - SON1x360	$65.02	$66.51	$67.86	$69.86	$71.71
Lamp - SON1x400	$54.47	$55.37	$56.20	$57.75	$59.23
Lamp - SON1x50	$45.51	$46.06	$46.58	$47.80	$49.01
Lamp - SON1x70	$46.76	$47.34	$47.90	$49.16	$50.40
Lamp - SON2x250	$66.38	$67.54	$68.66	$70.49	$72.29
Lamp - SON2x400	$71.07	$72.41	$73.68	$75.67	$77.61
Lamp - SON2x70	$67.69	$68.79	$69.88	$71.68	$73.48
Lamp - SON3x70	$102.24	$104.19	$106.16	$108.86	$111.58
Lamp - SON4x250	$120.10	$122.59	$125.07	$128.31	$131.53
Lamp - SON4x600	$314.08	$321.83	$329.57	$338.10	$346.61
Lamp - SON4x70	$150.41	$153.56	$156.75	$160.70	$164.71
Lamp - SON8x70	$479.37	$490.66	$502.19	$514.70	$527.46
Lamp - SOX1x135	$52.53	$53.22	$53.88	$55.29	$56.69
Lamp - SOX1x150	$84.68	$86.74	$88.64	$91.21	$93.61
Lamp - SOX1x180	$167.19	$171.29	$175.28	$180.00	$184.60
Lamp - SOX1x90	$73.56	$75.20	$76.72	$78.90	$80.95
Lamp - TF1x16	$86.14	$88.66	$90.92	$93.75	$96.28
Lamp - TF1x176	$114.81	$118.54	$121.88	$125.76	$129.20
Lamp - TF1x20	$86.93	$89.47	$91.76	$94.60	$97.16
Lamp - TF1x236	$114.81	$118.54	$121.88	$125.76	$129.20
Lamp - TF1x26	$87.01	$89.55	$91.84	$94.69	$97.24
Lamp - TF1x40	$87.08	$89.63	$91.91	$94.76	$97.32
Lamp - TF1x60	$87.84	$90.40	$92.71	$95.58	$98.16
Lamp - TF1x80	$87.84	$90.40	$92.71	$95.58	$98.16
Lamp - TF2x14 T5	$46.25	$46.81	$47.35	$48.59	$49.81
Lamp - TF2x20	$53.20	$54.19	$55.09	$56.65	$58.13
Lamp - TF2x26	$88.72	$91.30	$93.63	$96.52	$99.13
Lamp - TF2x40	$88.94	$91.53	$93.86	$96.76	$99.37
Lamp - TF2x58	$86.14	$88.66	$90.92	$93.75	$96.28
Lamp - TF2x80	$91.19	$93.83	$96.22	$99.18	$101.85
Lamp - TF3x20	$90.83	$93.46	$95.84	$98.79	$101.45
Lamp - TF3x40	$91.70	$94.36	$96.76	$99.73	$102.41
Lamp - TF3x80	$96.17	$98.94	$101.46	$104.55	$107.35
Lamp - TF4x20	$93.92	$96.64	$99.09	$102.13	$104.87
Lamp - TF4x40	$95.37	$98.12	$100.62	$103.68	$106.46

Lamp - TF4x80	$102.80	$105.73	$108.41	$111.67	$114.65
Lamp - TF5x58	$86.14	$88.66	$90.92	$93.75	$96.28
Lamp - TF5x65	$86.14	$88.66	$90.92	$93.75	$96.28
Lamp - TF5x80	$111.06	$114.20	$117.09	$120.57	$123.76
Lamp - TF6x20	$102.41	$105.34	$108.01	$111.26	$114.23
Lamp - TF6x36	$105.44	$108.44	$111.19	$114.52	$117.57
Lamp - TF6x80	$120.96	$124.35	$127.49	$131.22	$134.68
Lamp - TH1x1000	$74.18	$75.84	$77.37	$79.59	$81.67
Lamp - TH1x1500	$71.94	$73.54	$75.02	$77.18	$79.20
Lamp - TH1x400	$80.17	$81.98	$83.66	$86.04	$88.28
Lamp - TH1x500	$67.87	$69.37	$70.74	$72.80	$74.72
Lamp - TH1x750	$74.97	$76.65	$78.20	$80.44	$82.54

Appendix G: Comparison of 2009–10 prices for post 30 June 2009 assets ($nominal)

Tariff charges FY10		Annuity capital prices						Maintenance prices				
		AER decision April 2009	EA proposal January 2010	% change	AER draft Feb 2010	% change		AER decision April 2009	EA proposal January 2010	% change	AER draft Feb 2010	% change
Bracket - 0.5		$15.00	$21.76	45.10%	$17.20	-20.96%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 0.6		$15.00	$21.76	45.10%	$17.20	-20.96%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 1.0		$14.32	$20.98	46.55%	$16.42	-21.74%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 1.2		$14.32	$20.98	46.55%	$16.42	-21.74%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 1.5		$57.12	$70.07	22.67%	$65.51	-6.51%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 2.0		$18.60	$25.89	39.21%	$21.33	-17.62%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 2.5		$18.60	$33.37	79.43%	$26.49	-20.62%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 3.0		$31.44	$48.10	52.98%	$41.21	-14.31%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 3.5		$33.38	$50.33	50.75%	$43.45	-13.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 4.0		$33.38	$50.33	50.75%	$43.45	-13.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 4.5		$38.83	$56.57	45.69%	$49.69	-12.16%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 5.0		$37.08	$54.57	47.16%	$47.68	-12.61%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 6.0		$52.64	$72.41	37.56%	$65.53	-9.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 6.5		$52.64	$72.41	37.56%	$65.53	-9.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 7.0		$52.64	$72.41	37.56%	$65.53	-9.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - 8.0		$52.64	$72.41	37.56%	$65.53	-9.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 1x40W TF		$11.35	$13.13	15.69%	$12.53	-4.57%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 1x80W TF		$9.09	$10.63	17.00%	$10.03	-5.64%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 1000W MBF		$30.13	$34.84	15.66%	$33.94	-2.60%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 1000W SON		$163.38	$181.96	11.37%	$181.06	-0.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 1000W SON FLOODLIGHT		$85.11	$95.55	12.26%	$94.65	-0.95%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 1000W/1500W MBI FLOODLIGHT		$123.88	$138.35	11.68%	$137.45	-0.65%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 100W MBI		$25.94	$30.23	16.50%	$29.32	-2.99%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 100W MBI FLOODLIGHT		$30.13	$34.84	15.66%	$33.94	-2.60%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 100W SON		$22.27	$26.17	17.51%	$25.27	-3.46%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 100W SON - PARKVILLE		$121.35	$135.56	11.71%	$134.65	-0.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 100W SON FLOODLIGHT		$54.33	$61.56	13.32%	$60.65	-1.47%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 100W SON -PLAIN		$22.27	$26.17	17.51%	$25.27	-3.46%		$0.00	$0.00	0.00%	$0.00	0.00%

Luminaire - 125W MBF		$11.40	$14.17	24.29%	$13.26	-6.38%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 125W MBF - BOURKE HILL		$82.83	$93.03	12.31%	$92.13	-0.97%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 125W MBF - HYDE PARK		$58.25	$65.90	13.12%	$64.99	-1.37%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 125W MBF - NOSTALGIA		$84.91	$95.32	12.27%	$94.42	-0.95%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 125W MBF - PARKVILLE		$108.81	$121.72	11.86%	$120.81	-0.74%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 125W MBF BOLLARD		$49.05	$55.73	13.63%	$54.83	-1.62%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 125W MBF -PLAIN		$11.40	$14.17	24.29%	$13.26	-6.38%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 125W/250W MBF FLOODLIGHT		$27.33	$31.76	16.19%	$30.85	-2.85%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 135W SOX		$32.91	$37.92	15.21%	$37.01	-2.38%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 150W SON		$21.55	$25.37	17.75%	$24.47	-3.56%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 150W SON - HYDE PARK		$58.25	$65.90	13.12%	$64.99	-1.37%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 150W SON - PARKVILLE		$121.35	$135.56	11.71%	$134.65	-0.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 150W SON - PARKWAY 1		$40.08	$45.84	14.35%	$44.93	-1.97%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 150W SON FLOODLIGHT		$54.33	$2.95	-94.57%	$2.04	-30.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 150W SON GEC 'BOSTON 3'		$108.81	$121.72	11.86%	$120.81	-0.74%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 150W/250W MBI FLOODLIGHT		$72.70	$81.84	12.58%	$80.94	-1.11%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 180W SOX		$39.25	$44.91	14.44%	$44.01	-2.01%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x14W TF - T5 PIERLITE M		$26.28	$29.61	12.68%	$29.01	-2.02%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x175W MBF - PARKWAY 2		$137.57	$153.46	11.55%	$152.56	-0.59%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x20W TF		$11.26	$13.03	15.73%	$12.43	-4.60%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x20W TF - WAVERLEY		$11.26	$13.03	15.73%	$12.43	-4.60%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x250W SON FLOODLIGHT		$64.59	$72.89	12.85%	$71.98	-1.24%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x26W TF MACQUARIE DEC.		$110.71	$122.82	10.94%	$122.22	-0.49%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x400W MBF - PARKWAY 2		$137.57	$153.46	11.55%	$152.56	-0.59%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x400W MBI FLOODLIGHT		$139.97	$156.12	11.53%	$155.21	-0.58%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x400W SON FLOODLIGHT		$152.90	$170.39	11.44%	$169.48	-0.53%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x40W TF		$26.58	$29.94	12.66%	$29.34	-2.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x70W SON - BOURKE HILL		$156.62	$173.52	10.79%	$172.92	-0.35%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2x80W MBF - BOURKE HILL		$69.97	$77.84	11.26%	$77.24	-0.77%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W MBF		$20.60	$24.33	18.08%	$23.42	-3.72%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W MBF - PARKVILLE		$112.23	$125.48	11.81%	$124.58	-0.72%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W MBF - PARKWAY 1		$40.08	$45.84	14.35%	$44.93	-1.97%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W MBI - SMARTPOLE		$1.24	$2.95	138.28%	$2.04	-30.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W SON		$20.15	$23.83	18.26%	$22.93	-3.79%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W SON - PARKVILLE		$133.01	$148.42	11.59%	$147.52	-0.61%		$0.00	$0.00	0.00%	$0.00	0.00%

Luminaire - 250W SON - PARKWAY 1		$40.08	$45.84	14.35%	$44.93	-1.97%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W SON FLOODLIGHT		$48.28	$54.88	13.68%	$53.98	-1.65%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 250W SON GEC 'BOSTON 3'		$111.34	$124.51	11.82%	$123.60	-0.73%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - 2ND LIGHT NON-TRL		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - 2ND LIGHT TRL		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 2X14W TF - T5 PIERLIGHT		$17.48	$19.90	13.83%	$19.30	-3.01%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 3x400W MBF - PARKWAY 3		$137.57	$153.46	11.55%	$152.56	-0.59%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 4x1000W MBF		$116.79	$130.52	11.76%	$129.62	-0.69%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 4x20W TF		$51.82	$57.81	11.56%	$57.21	-1.04%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 4x20W TF - WAVERLEY		$51.82	$57.81	11.56%	$57.21	-1.04%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 4x250W SON		$75.74	$85.20	12.49%	$84.29	-1.06%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 4x40W TF		$64.59	$71.91	11.33%	$71.31	-0.83%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 4x40W TF - WAVERLEY		$58.81	$65.52	11.42%	$64.92	-0.92%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 4x600W SON		$127.94	$142.83	11.64%	$141.93	-0.63%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W MBF		$28.52	$33.07	15.95%	$32.16	-2.73%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W MBF - PARKWAY 1		$64.59	$72.89	12.85%	$71.98	-1.24%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W MBF FLOODLIGHT		$73.46	$82.68	12.56%	$81.78	-1.09%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W MBI - SMARTPOLE		$1.24	$2.95	138.28%	$2.04	-30.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W MBI FLOODLIGHT		$49.38	$56.10	13.61%	$55.20	-1.61%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W SON		$28.57	$33.13	15.94%	$32.23	-2.73%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W SON - PARKWAY 1		$40.08	$45.84	14.35%	$44.93	-1.97%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 400W SON FLOODLIGHT		$58.94	$66.65	13.09%	$65.75	-1.36%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 40W SOX		$11.35	$13.13	15.69%	$12.53	-4.57%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 42W MBF SYLVANIA SUB ECO		$21.86	$24.73	13.15%	$24.13	-2.42%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 500W MBI FLOODLIGHT		$69.15	$77.92	12.69%	$77.02	-1.16%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W MBF		$11.40	$13.18	15.66%	$12.58	-4.55%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W MBF - BOURKE HILL		$69.97	$13.18	-81.16%	$12.58	-4.55%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W MBF - NOSTALGIA		$68.52	$77.84	13.62%	$77.24	-0.77%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W MBF - PLAIN		$11.40	$76.24	568.94%	$75.64	-0.79%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W MBF BOLLARD		$37.98	$42.53	11.98%	$41.93	-1.41%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W SON		$11.04	$12.79	15.83%	$12.19	-4.69%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W SON - BOURKE HILL		$80.30	$89.25	11.15%	$88.65	-0.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 50W SON - NOSTALGIA		$26.94	$30.34	12.63%	$29.74	-1.98%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 60W SOX		$11.35	$13.13	15.69%	$12.53	-4.57%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 700W MBF		$32.67	$37.66	15.25%	$36.75	-2.40%		$0.00	$0.00	0.00%	$0.00	0.00%

Luminaire - 70W MBI		$19.36	$21.97	13.50%	$21.37	-2.73%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W MBI - MACQUARIE DEC.		$124.52	$139.05	11.67%	$138.15	-0.65%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON		$11.16	$12.92	15.78%	$12.32	-4.64%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON - BOURKE HILL		$80.30	$89.25	11.15%	$88.65	-0.67%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON - GEC BOSTON 2		$96.86	$107.54	11.02%	$106.94	-0.56%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON - NOSTALGIA		$73.71	$81.98	11.22%	$81.38	-0.73%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON - PARKVILLE		$96.86	$107.54	11.02%	$106.94	-0.56%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON - REGAL/FLINDERS		$143.78	$159.33	10.82%	$158.73	-0.38%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON BOLLARD		$52.17	$58.20	11.55%	$57.60	-1.03%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON FLOODLIGHT		$21.49	$24.33	13.19%	$23.73	-2.46%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 70W SON -PLAIN		$11.16	$12.92	15.78%	$12.32	-4.64%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 750W MBI FLOODLIGHT		$69.15	$77.92	12.69%	$77.02	-1.16%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF		$10.63	$12.34	16.04%	$11.74	-4.86%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF - PLAIN		$10.63	$12.34	16.04%	$11.74	-4.86%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF - BEGA+CURVE BRA		$125.28	$138.91	10.88%	$138.31	-0.43%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF - BOURKE HILL		$49.51	$55.26	11.61%	$54.66	-1.09%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF - GEC BOSTON 2		$96.86	$107.54	11.02%	$106.94	-0.56%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF - NOSTALGIA		$68.52	$76.24	11.28%	$75.64	-0.79%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF - REGAL/FLINDERS		$138.07	$153.04	10.84%	$152.44	-0.39%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF - SYLVANIA SUBUR		$10.80	$12.53	15.95%	$11.93	-4.79%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF BOLLARD		$37.98	$42.53	11.98%	$41.93	-1.41%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 80W MBF TOORAK		$61.00	$67.95	11.39%	$67.35	-0.88%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - 90W SOX		$51.92	$58.90	13.45%	$58.00	-1.54%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - BOLLARD		$116.29	$133.37	14.68%	$133.37	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - C4		$70.93	$93.39	31.66%	$86.51	-7.37%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - COLUMN 10.5M-13.5M		$226.85	$260.16	14.68%	$260.16	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - COLUMN 14M-15M		$208.51	$239.13	14.68%	$239.13	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - COLUMN 2.5M-3.5M		$182.64	$209.46	14.68%	$209.46	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - COLUMN 4-6.5M ORION WATE		$198.20	$227.31	14.68%	$227.31	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - COLUMN 4M-6.5M		$223.30	$256.09	14.68%	$256.09	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - COLUMN 7M-10M		$217.12	$249.00	14.68%	$249.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - DECORATIVE COLUMN		$239.45	$274.61	14.68%	$274.61	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - DEDICATED SUPPORT & COND		$193.73	$222.17	14.68%	$222.17	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - HYDE PARK STANDARD		$298.01	$341.76	14.68%	$341.76	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Lamp - INC1x100		$0.00	$0.00	0.00%	$0.00	0.00%		$121.98	$306.64	151.38%	$183.90	-40.03%

Lamp - INC1x1000		$0.00	$0.00	0.00%	$0.00	0.00%		$215.96	$538.98	149.57%	$353.79	-34.36%
Lamp - INC1x1440		$0.00	$0.00	0.00%	$0.00	0.00%		$118.67	$305.30	157.26%	$182.58	-40.20%
Lamp - INC1x150		$0.00	$0.00	0.00%	$0.00	0.00%		$124.12	$310.83	150.42%	$188.03	-39.51%
Lamp - INC1x200		$0.00	$0.00	0.00%	$0.00	0.00%		$125.87	$312.60	148.35%	$189.78	-39.29%
Lamp - INC1x300		$0.00	$0.00	0.00%	$0.00	0.00%		$145.91	$332.92	128.16%	$209.83	-36.98%
Lamp - INC1x40		$0.00	$0.00	0.00%	$0.00	0.00%		$122.07	$306.73	151.27%	$183.99	-40.01%
Lamp - INC1x500		$0.00	$0.00	0.00%	$0.00	0.00%		$177.05	$364.49	105.87%	$240.96	-33.89%
Lamp - INC1x60		$0.00	$0.00	0.00%	$0.00	0.00%		$121.98	$306.64	151.38%	$183.90	-40.03%
Lamp - INC1x75		$0.00	$0.00	0.00%	$0.00	0.00%		$121.98	$306.64	151.38%	$183.90	-40.03%
Lamp - INC3x100		$0.00	$0.00	0.00%	$0.00	0.00%		$128.60	$333.47	159.32%	$195.34	-41.42%
Luminaire - INCANDESCENT		$5.04	$6.16	22.30%	$5.56	-9.73%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - MACQUARIE STANDARD		$50.39	$57.79	14.68%	$57.79	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - MAST 15.5M-30M		$218.82	$250.96	14.68%	$250.96	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - MAST 23M		$218.82	$250.96	14.68%	$250.96	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - MAST 25M		$218.82	$250.96	14.68%	$250.96	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Lamp - MBF1x1000		$0.00	$0.00	0.00%	$0.00	0.00%		$83.08	$115.58	39.12%	$96.58	-16.44%
Lamp - MBF1x125		$0.00	$0.00	0.00%	$0.00	0.00%		$44.09	$56.25	27.56%	$46.48	-17.37%
Lamp - MBF1x250		$0.00	$0.00	0.00%	$0.00	0.00%		$45.32	$54.42	20.06%	$46.81	-13.98%
Lamp - MBF1x400		$0.00	$0.00	0.00%	$0.00	0.00%		$45.82	$53.94	17.72%	$46.73	-13.36%
Lamp - MBF1x42		$0.00	$0.00	0.00%	$0.00	0.00%		$39.31	$52.33	33.14%	$44.45	-15.07%
Lamp - MBF1x50		$0.00	$0.00	0.00%	$0.00	0.00%		$42.78	$43.17	0.92%	$38.75	-10.24%
Lamp - MBF1x500		$0.00	$0.00	0.00%	$0.00	0.00%		$92.04	$143.91	56.36%	$113.83	-20.90%
Lamp - MBF1x700		$0.00	$0.00	0.00%	$0.00	0.00%		$73.28	$83.32	13.69%	$70.06	-15.91%
Lamp - MBF1x80		$0.00	$0.00	0.00%	$0.00	0.00%		$39.40	$46.71	18.58%	$40.67	-12.93%
Lamp - MBF1x800		$0.00	$0.00	0.00%	$0.00	0.00%		$92.04	$143.91	56.36%	$113.83	-20.90%
Lamp - MBF2x125		$0.00	$0.00	0.00%	$0.00	0.00%		$43.12	$68.79	59.52%	$47.05	-31.61%
Lamp - MBF2x160		$0.00	$0.00	0.00%	$0.00	0.00%		$41.39	$67.30	62.58%	$52.30	-22.28%
Lamp - MBF2x175		$0.00	$0.00	0.00%	$0.00	0.00%		$96.56	$179.19	85.56%	$154.23	-13.93%
Lamp - MBF2x400		$0.00	$0.00	0.00%	$0.00	0.00%		$45.82	$76.27	66.47%	$50.48	-33.81%
Lamp - MBF2x80		$0.00	$0.00	0.00%	$0.00	0.00%		$44.29	$60.48	36.54%	$44.60	-26.26%
Lamp - MBF3x160		$0.00	$0.00	0.00%	$0.00	0.00%		$41.39	$67.30	62.58%	$52.30	-22.28%
Lamp - MBF3x250		$0.00	$0.00	0.00%	$0.00	0.00%		$53.19	$103.19	93.99%	$73.81	-28.47%
Lamp - MBF3x400		$0.00	$0.00	0.00%	$0.00	0.00%		$54.67	$107.70	96.98%	$77.07	-28.44%
Lamp - MBF3x80		$0.00	$0.00	0.00%	$0.00	0.00%		$45.26	$66.35	46.61%	$49.56	-25.30%
Lamp - MBF4x1000		$0.00	$0.00	0.00%	$0.00	0.00%		$326.42	$1,224.61	275.17%	$1,025.68	-16.24%

Lamp - MBF4x80		$0.00	$0.00	0.00%	$0.00	0.00%		$46.54	$75.49	62.20%	$57.28	-24.12%
Lamp - MBF6x125		$0.00	$0.00	0.00%	$0.00	0.00%		$51.77	$130.44	151.96%	$99.53	-23.70%
Lamp - MBF6x160		$0.00	$0.00	0.00%	$0.00	0.00%		$41.39	$67.30	62.58%	$52.30	-22.28%
Lamp - MBF9x160		$0.00	$0.00	0.00%	$0.00	0.00%		$41.39	$67.30	62.58%	$52.30	-22.28%
Lamp - MBI1x100		$0.00	$0.00	0.00%	$0.00	0.00%		$69.33	$84.71	22.18%	$68.20	-19.49%
Lamp - MBI1x1000		$0.00	$0.00	0.00%	$0.00	0.00%		$132.21	$189.46	43.30%	$156.07	-17.62%
Lamp - MBI1x150		$0.00	$0.00	0.00%	$0.00	0.00%		$109.32	$112.20	2.63%	$97.79	-12.84%
Lamp - MBI1x1500		$0.00	$0.00	0.00%	$0.00	0.00%		$105.20	$162.06	54.06%	$129.06	-20.37%
Lamp - MBI1x250		$0.00	$0.00	0.00%	$0.00	0.00%		$67.41	$72.89	8.13%	$61.44	-15.71%
Lamp - MBI1x3745		$0.00	$0.00	0.00%	$0.00	0.00%		$49.28	$105.36	113.81%	$73.14	-30.58%
Lamp - MBI1x400		$0.00	$0.00	0.00%	$0.00	0.00%		$63.92	$69.75	9.11%	$59.96	-14.02%
Lamp - MBI1x500		$0.00	$0.00	0.00%	$0.00	0.00%		$89.96	$146.61	62.98%	$113.82	-22.37%
Lamp - MBI1x70		$0.00	$0.00	0.00%	$0.00	0.00%		$64.32	$88.27	37.24%	$71.00	-19.57%
Lamp - MBI1x750		$0.00	$0.00	0.00%	$0.00	0.00%		$122.33	$0.00	0.00%	$0.00	0.00%
Lamp - MBI2x400		$0.00	$0.00	0.00%	$0.00	0.00%		$81.72	$162.32	98.64%	$100.34	-38.18%
Lamp - MBI4x150		$0.00	$0.00	0.00%	$0.00	0.00%		$46.12	$90.13	95.42%	$50.80	-43.64%
Bracket - NIL		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Connection - OU		$9.49	$10.47	10.40%	$10.47	0.00%		$80.20	$81.32	1.40%	$80.20	-1.38%
Connection - OH		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Connection - OH2		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Connection - OHS		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - ORION DOUBLE ARM		$0.00	$39.24	NEW	$39.24	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - POLO 10.5M DECORATIVE 2M		$0.00	$78.09	NEW	$78.09	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - POLO 4.5M DECORATIVE 1.2		$0.00	$78.09	NEW	$78.09	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - PRIVATE		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - ROCKS STANDARD		$173.93	$199.47	14.68%	$199.47	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - SMARTPOLE A		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - SMARTPOLE AB		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - SMARTPOLE B		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - SMARTPOLE C		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - SMARTPOLE DOUBLE		$0.00	$14.96	NEW	$10.40	-30.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - SMARTPOLE SINGLE LONG		$0.00	$14.96	NEW	$10.40	-30.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - SMARTPOLE SINGLE SHORT		$0.00	$14.96	NEW	$10.40	-30.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Lamp - SON1x100		$0.00	$0.00	0.00%	$0.00	0.00%		$56.33	$66.76	18.51%	$53.78	-19.44%
Lamp - SON1x1000		$0.00	$0.00	0.00%	$0.00	0.00%		$82.33	$112.71	36.90%	$87.21	-22.62%

Lamp - SON1x120		$0.00	$0.00	0.00%	$0.00	0.00%		$54.18	$96.28	77.72%	$70.06	-27.23%
Lamp - SON1x150		$0.00	$0.00	0.00%	$0.00	0.00%		$48.44	$63.12	30.32%	$52.41	-16.97%
Lamp - SON1x220		$0.00	$0.00	0.00%	$0.00	0.00%		$66.57	$110.87	66.54%	$81.72	-26.30%
Lamp - SON1x250		$0.00	$0.00	0.00%	$0.00	0.00%		$42.34	$64.97	53.42%	$52.63	-18.99%
Lamp - SON1x310		$0.00	$0.00	0.00%	$0.00	0.00%		$65.39	$109.67	67.72%	$80.75	-26.37%
Lamp - SON1x360		$0.00	$0.00	0.00%	$0.00	0.00%		$46.12	$90.13	95.42%	$65.02	-27.86%
Lamp - SON1x400		$0.00	$0.00	0.00%	$0.00	0.00%		$42.73	$67.59	58.20%	$54.47	-19.41%
Lamp - SON1x50		$0.00	$0.00	0.00%	$0.00	0.00%		$54.18	$51.37	-5.18%	$45.51	-11.41%
Lamp - SON1x70		$0.00	$0.00	0.00%	$0.00	0.00%		$52.41	$52.85	0.84%	$46.76	-11.53%
Lamp - SON2x250		$0.00	$0.00	0.00%	$0.00	0.00%		$47.59	$90.67	90.53%	$66.38	-26.80%
Lamp - SON2x400		$0.00	$0.00	0.00%	$0.00	0.00%		$48.35	$92.65	91.61%	$71.07	-23.29%
Lamp - SON2x70		$0.00	$0.00	0.00%	$0.00	0.00%		$61.06	$97.30	59.35%	$67.69	-30.44%
Lamp - SON3x70		$0.00	$0.00	0.00%	$0.00	0.00%		$69.71	$141.17	102.50%	$102.24	-27.58%
Lamp - SON4x250		$0.00	$0.00	0.00%	$0.00	0.00%		$58.08	$172.23	196.53%	$120.10	-30.27%
Lamp - SON4x600		$0.00	$0.00	0.00%	$0.00	0.00%		$149.85	$512.30	241.89%	$314.08	-38.69%
Lamp - SON4x70		$0.00	$0.00	0.00%	$0.00	0.00%		$78.37	$202.58	158.51%	$150.41	-25.75%
Lamp - SON8x70		$0.00	$0.00	0.00%	$0.00	0.00%		$112.97	$623.70	452.08%	$479.37	-23.14%
Lamp - SOX1x135		$0.00	$0.00	0.00%	$0.00	0.00%		$62.90	$59.02	-6.15%	$52.53	-11.00%
Lamp - SOX1x150		$0.00	$0.00	0.00%	$0.00	0.00%		$62.90	$114.36	81.82%	$84.68	-25.95%
Lamp - SOX1x180		$0.00	$0.00	0.00%	$0.00	0.00%		$145.41	$198.03	36.19%	$167.19	-15.57%
Lamp - SOX1x90		$0.00	$0.00	0.00%	$0.00	0.00%		$64.48	$95.39	47.93%	$73.56	-22.88%
Bracket - SUSPENDED		$50.26	$57.64	14.68%	$57.64	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T1		$24.87	$33.09	33.03%	$28.52	-13.79%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T2		$36.50	$53.90	47.68%	$47.02	-12.77%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T2A		$36.50	$53.90	47.68%	$47.02	-12.77%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T3		$37.08	$54.57	47.16%	$47.68	-12.61%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T3A		$37.08	$54.57	47.16%	$47.68	-12.61%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T4		$35.33	$52.56	48.77%	$45.68	-13.09%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T5		$35.33	$52.56	48.77%	$45.68	-13.09%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T6		$52.64	$72.41	37.56%	$65.53	-9.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Bracket - T7		$47.68	$66.73	39.94%	$59.84	-10.31%		$0.00	$0.00	0.00%	$0.00	0.00%
Lamp - TF1x16		$0.00	$0.00	0.00%	$0.00	0.00%		$65.05	$130.72	100.96%	$86.14	-34.11%
Lamp - TF1x176		$0.00	$0.00	0.00%	$0.00	0.00%		$65.05	$181.49	179.00%	$114.81	-36.74%
Lamp - TF1x20		$0.00	$0.00	0.00%	$0.00	0.00%		$65.85	$131.53	99.76%	$86.93	-33.91%
Lamp - TF1x236		$0.00	$0.00	0.00%	$0.00	0.00%		$65.05	$181.49	179.00%	$114.81	-36.74%

Lamp - TF1x26		$0.00	$0.00	0.00%	$0.00	0.00%		$65.92	$131.61	99.64%	$87.01	-33.89%
Lamp - TF1x40		$0.00	$0.00	0.00%	$0.00	0.00%		$65.99	$131.68	99.54%	$87.08	-33.87%
Lamp - TF1x60		$0.00	$0.00	0.00%	$0.00	0.00%		$66.75	$132.45	98.42%	$87.84	-33.68%
Lamp - TF1x80		$0.00	$0.00	0.00%	$0.00	0.00%		$66.75	$132.45	98.42%	$87.84	-33.68%
Lamp - TF2x14 T5		$0.00	$0.00	0.00%	$0.00	0.00%		$37.62	$52.11	38.51%	$46.25	-11.24%
Lamp - TF2x20		$0.00	$0.00	0.00%	$0.00	0.00%		$42.66	$69.35	62.57%	$53.20	-23.29%
Lamp - TF2x26		$0.00	$0.00	0.00%	$0.00	0.00%		$66.79	$134.26	101.01%	$88.72	-33.92%
Lamp - TF2x40		$0.00	$0.00	0.00%	$0.00	0.00%		$66.94	$134.56	101.01%	$88.94	-33.90%
Lamp - TF2x58		$0.00	$0.00	0.00%	$0.00	0.00%		$65.05	$130.72	100.96%	$86.14	-34.11%
Lamp - TF2x80		$0.00	$0.00	0.00%	$0.00	0.00%		$68.46	$137.64	101.05%	$91.19	-33.75%
Lamp - TF3x20		$0.00	$0.00	0.00%	$0.00	0.00%		$67.44	$138.00	104.62%	$90.83	-34.18%
Lamp - TF3x40		$0.00	$0.00	0.00%	$0.00	0.00%		$67.89	$139.35	105.27%	$91.70	-34.20%
Lamp - TF3x80		$0.00	$0.00	0.00%	$0.00	0.00%		$70.17	$146.29	108.49%	$96.17	-34.26%
Lamp - TF4x20		$0.00	$0.00	0.00%	$0.00	0.00%		$68.24	$143.66	110.52%	$93.92	-34.62%
Lamp - TF4x40		$0.00	$0.00	0.00%	$0.00	0.00%		$68.83	$146.06	112.20%	$95.37	-34.70%
Lamp - TF4x80		$0.00	$0.00	0.00%	$0.00	0.00%		$71.87	$158.39	120.38%	$102.80	-35.10%
Lamp - TF5x58		$0.00	$0.00	0.00%	$0.00	0.00%		$65.05	$130.72	100.96%	$86.14	-34.11%
Lamp - TF5x65		$0.00	$0.00	0.00%	$0.00	0.00%		$65.05	$130.72	100.96%	$86.14	-34.11%
Lamp - TF5x80		$0.00	$0.00	0.00%	$0.00	0.00%		$73.58	$173.95	136.43%	$111.06	-36.16%
Lamp - TF6x20		$0.00	$0.00	0.00%	$0.00	0.00%		$69.83	$159.82	128.86%	$102.41	-35.92%
Lamp - TF6x36		$0.00	$0.00	0.00%	$0.00	0.00%		$70.72	$165.23	133.64%	$105.44	-36.19%
Lamp - TF6x80		$0.00	$0.00	0.00%	$0.00	0.00%		$75.28	$192.97	156.34%	$120.96	-37.32%
Luminaire - TH FLOODLIGHT		$135.29	$150.94	11.57%	$150.04	-0.60%		$0.00	$0.00	0.00%	$0.00	0.00%
Lamp - TH1x1000		$0.00	$0.00	0.00%	$0.00	0.00%		$56.54	$98.29	73.85%	$74.18	-24.53%
Lamp - TH1x1500		$0.00	$0.00	0.00%	$0.00	0.00%		$54.30	$96.01	76.84%	$71.94	-25.08%
Lamp - TH1x400		$0.00	$0.00	0.00%	$0.00	0.00%		$62.53	$104.36	66.91%	$80.17	-23.18%
Lamp - TH1x500		$0.00	$0.00	0.00%	$0.00	0.00%		$50.23	$91.89	82.95%	$67.87	-26.14%
Lamp - TH1x750		$0.00	$0.00	0.00%	$0.00	0.00%		$57.32	$99.09	72.85%	$74.97	-24.34%
Connection - UG2		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Connection - UGORDA		$9.49	$10.47	10.40%	$10.47	0.00%		$40.10	$40.66	1.40%	$40.10	-1.38%
Connection - UGR1		$13.17	$14.53	10.40%	$14.53	0.00%		$73.52	$74.55	1.40%	$73.52	-1.38%
Connection - UGR2		$9.49	$10.47	10.40%	$10.47	0.00%		$26.73	$27.11	1.40%	$26.73	-1.38%
Connection - UGS		$9.49	$10.47	10.40%	$10.47	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Connection - UG-SP		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - UNKNOWN		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%

Support - WALL		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - WOOD POLE NON-TRL		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - WOOD POLE TRL		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Connection - EMPTY		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Lamp - EMPTY		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$39.37	NEW	$36.13	-8.23%
Luminaire - EMPTY		$0.00	$1.97	NEW	$1.37	-30.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - EMPTY		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%
Lamp - MBF1x160		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$43.71	NEW	$40.41	-7.55%
Bracket - PRIVATE		$0.00	$14.96	NEW	$10.40	-30.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Luminaire - PRIVATE		$0.00	$1.97	NEW	$1.37	-30.50%		$0.00	$0.00	0.00%	$0.00	0.00%
Support - SUSPENDED		$0.00	$0.00	0.00%	$0.00	0.00%		$0.00	$0.00	0.00%	$0.00	0.00%