Draft Decision

Ausgrid distribution determination

2015–16 to 2018–19

Attachment 16: Alternative control services

November 2014

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on Ausgrid's 2015–19 distribution determination. It should be read with other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – Annual revenue requirement

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Value of imputation credits

Attachment 5 – Regulatory depreciation

Attachment 6 – Capital expenditure

Attachment 7 – Operating expenditure

Attachment 8 – Corporate income tax

Attachment 9 – Efficiency benefit sharing scheme

Attachment 10 – Capital expenditure sharing scheme

Attachment 11 – Service target performance incentive scheme

Attachment 12 – Demand management incentive scheme

Attachment 13 – Classification of services

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Attachment 17 – Negotiated services framework and criteria

Attachment 18 – Connection methodology

Attachment 19 – Pricing methodology

Contents

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	aggregate service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
CPI-X	consumer price index minus X
DRP	debt risk premium
DMIA	demand management innovation allowance
DMIS	demand management incentive scheme
distributor	distribution network service provider
DUoS	distribution use of system
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
expenditure assessment guideline	expenditure forecast assessment guideline for electricity distribution
F&A	framework and approach
MRP	market risk premium

Shortened form	Extended form
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue pricing principles
SAIDI	system average interruption duration index
SAIFI	system average interruption frequency index
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
WACC	weighted average cost of capital

16 Alternative control services

This attachment sets out the Australian Energy Regulator's draft decision on Ausgrid's alternative control services: ancillary network services, metering and public lighting.

As discussed in our Stage 1 Framework and Approach (F&A) for the 2014–15 and 2015–19 regulatory control periods, alternative control services are customer specific or customer requested services and so the full cost of the service is attributed to that particular customer.[1] This is in contrast to standard control services where costs are spread across the general network customer base.

Alternative control services represent about six per cent of Ausgrid's total regulated revenue.

16.1 Draft decision

Our draft decision is to classify ancillary network services, metering and public lighting as alternative control services, as proposed in our Stage 1 F&A, with one exception. In our metering decision, we reclassify the residual capital costs as a standard control service. This means that when customers exit regulated metering, the residual capital costs (the capital costs the customer would have paid through annual metering charges had they remained a regulated metering customer) will be recovered from the general customer base through network tariffs.

Our draft decision also maintains our Stage 1 F&A position to apply caps on the prices of individual services in the 2015–19 regulatory control period to all alternative control services. We consider the benefit of capping individual services prices is that it promotes cost reflective pricing which outweighs any detriment from increased administration costs.

Our draft decision is to not approve some elements of Ausgrid's proposed fees for ancillary network services, metering and public lighting where the proposed fees exceed the efficient cost of providing the services. Our substitute price caps are set in appendix A.1.

The detail of our draft decision is set out in the following:

- Section 16.5 – Ancillary Network Services
- Section 16.6 – Metering
- Section 16.7 – Public lighting.

16.2 Ausgrid's proposal

We received separate proposals from Ausgrid for ancillary network services, metering and public lighting. Ausgrid accepted that ancillary network services, metering and public lighting should be classified as alternative control services, and subject to a price cap control mechanism, in accordance with our Stage 1 F&A. They nominated specific prices for each service.[2]

Figure 16-1 shows Ausgrid's historical (2008–09 to 2012–13), estimated (2013–14) and proposed annual expenditure (2014–15 to 2018–19). This is for each category of alternative control services. Figure 16-2 compares that expenditure as a percentage of Ausgrid's total expenditure for all direct control services.

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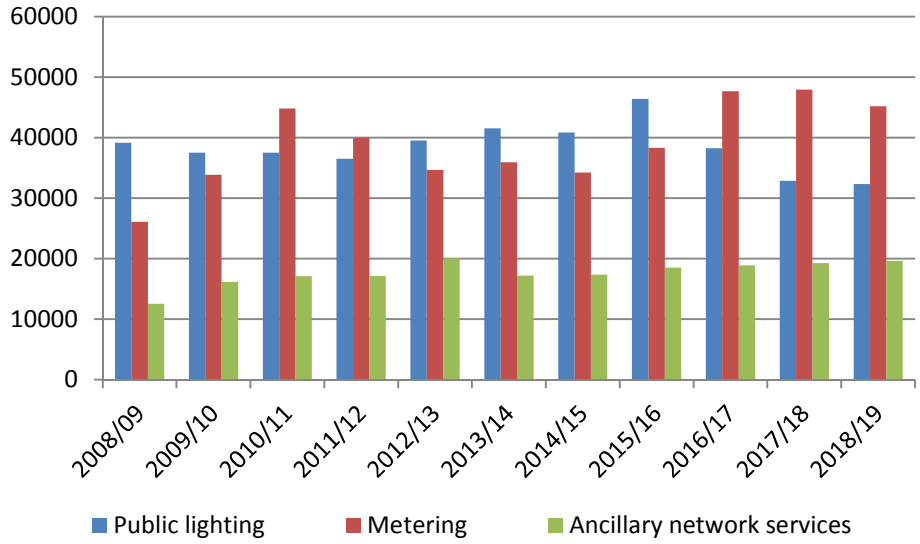
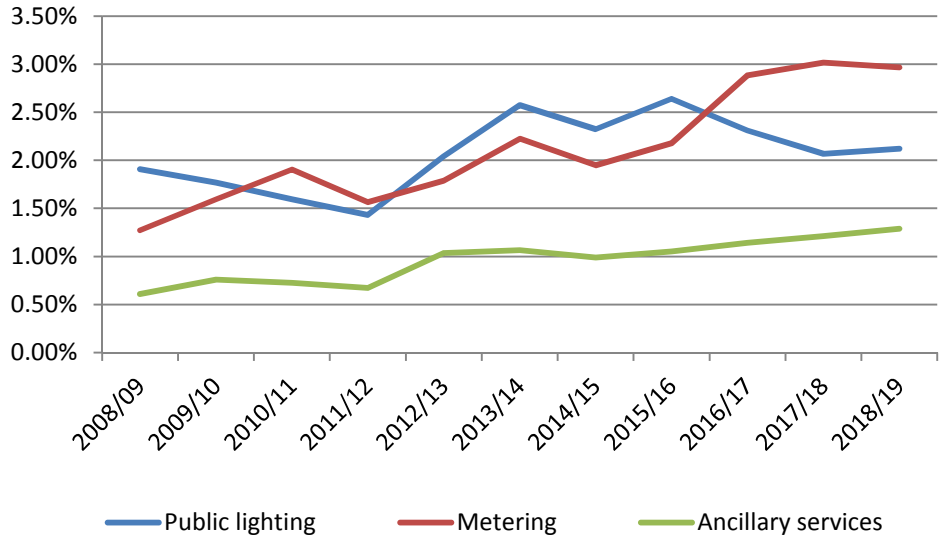
1 AER, *Stage 1 Framework and Approach paper Ausgrid, Endeavour Energy and Essential Energy*, March 2013, p. 8.
2 Ausgrid, *Regulatory proposal, 1 July 2014 to 30 June 2019*, 30 May 2014, pp. 88–97.

Figure 16-1 Ausgrid's alternative control services expenditure ($000, 2013–14)



Source: AER analysis; Ausgrid, *Response to reset regulatory information notice (consolidated)*, May 2014.

Figure 16-2 Ausgrid's alternative control expenditure as a percentage of total direct control expenditure (standard and alternative control)



Source: AER analysis; *Ausgrid, Response to reset regulatory information notice (consolidated)*, May 2014.

Details of Ausgrid's proposal are set out in the relevant sections:

- Section 16.5.2 – Ancillary network services
- Section 16.6.2 – Metering
- Section 16.7.2 – Public lighting.

16.3 AER's assessment approach

The National Electricity Rules (NER) are less prescriptive and afford more discretion for determining the control mechanism for alternative control services than those set out for standard control services. For example, there is no requirement to establish a full building block model to set the revenue to be earned from the services as there is for standard control services. The control mechanism may be either a control on the price of the service, or the revenue to be earned from the service, or both. As a general principle we attempt to regulate alternative control services in a lighter handed manner than standard control services.

Our distribution determination must state the basis of the control mechanism to apply to alternative control services.[3] Our decision on the form of control mechanism for alternative control services must be in accordance with our framework and approach paper.[4] The formulae that give effect to the form of control must be as set out in the F&A unless we consider that unforeseen circumstances justify a departure.[5]

In deciding on a control mechanism for alternative control services, we must have regard to potential competition in the relevant market, administrative costs, applicable regulatory arrangements, consistency between regulatory arrangements, and any other relevant factor.[6] The control mechanism for alternative control services may use elements of the building block model for standard control services but there is no requirement to apply the building block model exactly as it is set out in Part C of the NER.

The different regulatory requirements for alternative control services compared to standard control services recognise their different characteristics. Standard control services are central to electricity supply and are relied on by all customers. In contrast, alternative control services are customer specific. Accordingly our approach to assessing alternative control services is different to that of standard control services.

For ancillary network services we undertook a bottom up cost assessment. For metering and public lighting we used a limited building block analysis for our cost assessment.

Details of our assessment approach are set out in the relevant sections:

Section 16.5.3 – Ancillary network services

Section 16.6.3 – Metering

Section 16.7.3 – Public lighting

16.4 Inter relationships

In the transitional regulatory control period (2014–15) alternative control service charges were increased by CPI of 2.5 per cent from the previous year, regardless of the costs incurred to provide those services.

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3 NER, cl. 6.2.6(b).
4 NER, cl. 6.12.1(12).
5 NER, cl. 6.12.3 (c1)).
6 NER, cl. 6.2.6(b) & (d).

We will apply a true up for ancillary network services and metering but not for public lighting. We are not applying a true up for public lighting because on average we are reducing the public lighting charges. The mechanism required would be complex, and unlike ancillary network services and metering which have been reclassified from standard control to alternative control services, public lighting is currently and is continuing to be classified as an alternative control service.

Although ancillary network services and metering have changed classification since the 2009–14 regulatory control period, for the purposes of the 2014–15 transitional regulatory control period, the existing classification applied i.e. standard control service. Therefore we had to determine whether the true up for ancillary network services and metering should be returned to or recovered from the general customer base or alternative control service users.

Ausgrid, Endeavour Energy and Essential Energy all proposed a similar true up mechanism to account for differences between the prices charged for ancillary network services and metering with the actual costs incurred in the transitional regulatory control period. In summary they propose:

- That it would be technically correct to true up under and over recovery via an adjustment of ancillary network service and metering charges in one or more years of the 2015–19 period. However, from a fairness perspective the businesses proposed that the amount should be returned or recovered from the customer group that incurred the charges in the transitional year (in this case the general customer base i.e. distribution use of system (DUoS) charges).
- This would also ensure that charges are cost reflective for ancillary network services and metering and avoid the situation where a customer in the 2015–19 period has to pay a substantial uplift in charges for unrecovered amounts. The impact of the adjustment would be far more diluted when applied to a large customer base (i.e. DUoS charges).

We agree in general terms with the proposals put forward by the NSW service providers for a true-up of ancillary network services and metering through DUoS charges. We had regard to the following NER in making our decision.

Clause 11.56.3(i) provides:

> For the purposes of the application of clause 6.15.2(7) of transitional chapter 6, the transitional regulatory control period must be treated as if it were the last regulatory year of the current [i.e. 2009-2014] regulatory control period of the affected DNSP, and not a separate regulatory control period.

Clause 6.15.2(7) provides:

> (7) costs which have been allocated to a particular service cannot be reallocated to another service during the course of a regulatory control period.

We consider the combination of these provisions means that if costs for a service were attributable to standard control services in the 2009–2014 regulatory control period, then they must be allocated to standard control services in the transitional year. This is regardless of how the service might be classified in the transitional year and how prices might be established. Accordingly any under or over recovered costs associated with metering and ancillary network services in the transitional regulatory control period as a result of prices being adjusted by CPI would need to be recovered or removed from the standard control revenue in the 2014–15 regulatory control period. Our consideration of the mechanics of the true-up is discussed in more detail in the annual revenue requirement attachment 1.

16.5 Ancillary Network Services

Ancillary network services are non–routine services provided to individual customers on an 'as needs' basis. Ancillary network services comprise about 1.1 per cent of Ausgrid's total regulated revenue.

In the 2009–14 regulatory control period ancillary network services were classified as standard control services and were referred to as 'miscellaneous' services and 'monopoly' services. These services are now referred to as ancillary network services and have been re–classified as alternative control services.

We consider that ancillary network services should be alternative control services because the costs of providing these services can be attributable to individual customers who request the services, rather than being recovered across all customers through standard control distribution use of system charges.

The fees and labour rates for these services were originally set by the Independent Pricing and Regulatory Tribunal (IPART) in 1999. Since that time, the fees have been indexed by inflation (in 2009 labour escalation was also taken into account).[7]

In our final 2009–14 final decision we accepted that there may be some prices for miscellaneous and monopoly services that are currently not fully cost reflective or may become less cost reflective over the course of the 2015–19 regulatory control period. We noted that there were time constraints preventing a detailed assessment of the pricing of miscellaneous and monopoly services across all the NSW distribution businesses and ActewAGL at the time. We decided to look more closely at the pricing of miscellaneous and monopoly services for the 2015–19 regulatory control period.

The miscellaneous fees which have now been re–classified as ancillary network services include:

- special meter read
- special meter read for transfer
- meter test
- supply of conveyancing information – desk inquiry
- supply of conveyancing information – field test
- off–peak conversion
- disconnection visit
- disconnection at meter box
- disconnection at pole top / pillar box
- ratification of illegal connection
- re–connection outsider normal business hours.

The monopoly services which have now been re–classified as ancillary networks services include:

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[7] AER, *Final Decision New South Wales distribution determination 2009–10 to 2014–14*, pp. 57–58.

- administration fee
- design information fee
- design certification fee
- design re–certification fee
- notification of arrangement
- compliance certificate
- inspection fee
- inspection fee (outside normal business hours)
- re–inspection fee (level 1 and level 2 work)
- inspection of service work (level 2 work)
- provision of access fee
- access permits
- substation commission fee
- authorisations renewal
- site establishment fee.

The current fees for monopoly services were calculated by multiplying the time taken to provide the service by the hourly labour rate.

For the avoidance of doubt, this draft decision considers ancillary network services (current miscellaneous and monopoly services), for which a fee is calculated, to be fee based services. That is, a fee has been determined based on the cost of providing the service (labour rates) and the average time taken to perform the service. For these services the fee is fixed and applies irrespective of whether the actual time taken on site to perform it varies from the benchmark set in this decision.

By contrast, quoted services are those which are once off and specific to a particular customer's request. The cost of this service will depend on the actual (rather than benchmark draft decision) time taken to perform the service.

16.5.1 Draft Decision

Fee based services

Our draft decision is to not approve Ausgrid's proposed fees for ancillary network services. We consider the proposed fees are higher than fees based on maximum benchmark labour rates and overheads which we consider efficient for providing ancillary network services.

Table 166-1 below sets out our draft decision for maximum prices for the most frequently requested fee based ancillary network services. Appendix A.1 sets a full list of our decision on maximum prices for ancillary network services.

Table 166-1 Ausgrid's proposed fees and draft decision, ($2014–15)

Current miscellaneous service	Current fees	Ausgrid proposed	(proposed cf current, per cent)	AER draft decision	(draft cf proposed, per cent)
Special meter read	44	9.74	-77.9	9.69	-0.5
Special meter read for transfer	44	9.74	-77.9	9.69	-0.5
Meter test	73	551.15	655.0	401.39	-27.2
Supply of conveyancing information – desk inquiry	40.7	39.21	-3.7	29.64	-24.4
Supply of conveyancing information – field test	80.3	289.82	260.9	230.33	-20.5
Off–peak conversion	59	199.42	238.0	133.8	-32.9
Disconnection visit	44	42.1	-4.3	41.89	-0.5
Disconnection at meter box	88	139.1	58.1	66.9	-51.9
Disconnection at pole top / pillar box	148	744.71	403.2	267.59	-64.1
Rectification of illegal connection	226.53	806.93	256.2	749.78	-7.1
Reconnection outside normal business hours	95	96.79	1.9	96.29	-0.5

Note: This is not a full set of all the ancillary network services.

Quoted services

Prices for certain ancillary network services will be determined on a quoted basis. Typically, prices for quoted services are based on quantities of labour and materials with the quantities dependent on the particular task. Our draft decision for Ausgrid's hourly labour rates is set out in Table 166-2 below. These hourly labour rates are maximum rates that should apply for the calculation of charges for ancillary network service offered on a quotation basis.

Table 166-2 AER maximum hourly 2014–15 labour rates (including on–costs and overhead) for quoted services, ($2014–15)

Classification	Ausgrid proposed labour rates – includes on–cost and overhead	AER Draft Decision maximum labour rate – includes on–cost and overhead specific to Ausgrid
Admin	132.73	88.28
Technical specialist	175.65	131.46
EO 7/Engineer	169.07	167.64
Field worker R4	134.49	104.45
Senior Engineer	234.91	206.47

Source: Marsden Jacob analysis of distributor labour rates and on-costs.

Form of control – Fee based services

Our draft decision is to apply a price cap for the form of control to fee based services. Under this form of control a schedule of prices is set for the first year. For the following year's the previous year's prices are adjusted by CPI and an X factor. The form of control for fee based ancillary network services is set out below.

$$\overline{p}_i^t \geq p_i^t \qquad \text{i=1,...,n and t=1,2,3,4}$$

$$\overline{p}_i^t = \overline{p}_i^{t-1}(1+CPI_t)(1-X_i^t)+A_i^t$$

Where:

$\overline{p}_i^t$ is the cap on the price of service i in year t. However, for 2015–16 this is the price as determined in Appendix A.1.

p_i^t is the price of service i in year *t*.

CPI_t is the percentage increase in the consumer price index. It is calculated as follows:

The Consumer Price Index, All Groups Index Number (weighted average of eight capital cities) published by the Australia Bureau of Statistics for the December Quarter immediately preceding the start of regulatory year t;

divided by

The Consumer Price Index, All Groups Index Number (weighted average of eight capital cities) published by the Australia Bureau of Statistics for the December Quarter immediately preceding the start of regulatory year t–1;

minus one.

X_i^t is the value of X for the year t in the regulatory control period, as set out in Table 166-3 below.

Table 166-3 AER draft decision on X factors for each year of the regulatory control period

	2015–16	2016–17	2017–18	2018–19
X factor	–0.54	–0.87	–1.00	–0.89

Note: These x factors are consistent with the AER draft decision on labour escalation factors as set out in the Opex Attachment. By adopting the labour escalation rate as the X factor we are allowing for increases in labour costs in addition to CPI over the 2015–19 regulatory period.

A_i^t is an adjustment factor. This is likely to include, but not limited to adjustments for residual charges when customers choose to replace assets before the end of their economic life. For ancillary network services we consider the value for A is zero.

Form of control – quoted services

Price = labour + contractor services + materials

Contractor services (including overheads)—reflects all costs associated with the use of external labour in the provision of the service, including overheads and any direct costs incurred as part of performing the service. The contracted services charge applies the rates under existing contractual arrangements. Direct costs incurred as part of performing the service, for example permits for road closures or footpath access, are passed on to the customer.

Materials (including overheads)—reflects the cost of materials directly incurred in the provision of the service, material storage and logistics on-costs and overheads.

Labour is the maximum hourly charge out rate as set out in Table 166-4. The maximum labour charge out rates includes on–costs and overhead.

Table 166-4 AER draft decision on maximum labour charge rates for quoted services, ($2014–15)

Classification	AER Draft Decision maximum labour rate – includes on–cost and overhead specific to Ausgrid
Admin	88.28
Technical specialist	131.46
EO 7/Engineer	167.64
Field worker R4	104.45
Senior Engineer	206.47

Source: Marsden Jacob analysis of distributor labour rates and on-costs.

The following Table 166-5 sets out the escalation rates for each year that can apply to the labour rates set out in Table 166-4 above (for discussion on the escalation factor see opex rate of change, Attachment 7).

Table 166-5 AER draft decision on labour escalation factor to apply to maximum labour charge out rates for quoted services (percentage)

	2015–16	2016–17	2017–18	2018–19
Labour escalation factor	0.54	0.87	1.00	0.89

Source: AER analysis.

16.5.2 Proposal

In general Ausgrid proposes increases in its fees for ancillary network services. Ausgrid's proposed fees are set out in appendix A.1 to this attachment.

Ausgrid submitted,

> Whilst in general, the fees associated with ancillary network services will increase from 1 July 2015 to more accurately reflect costs, the increases in prices are generally a result of removing costs that historically have been allocated to the provision of other services by Ausgrid.[8]

In determining fees Ausgrid has used one of the following three approaches:

1. Historical data—this method uses actual historical operating costs over the last four years divided by labour hours to derive an average hourly rate. This hourly rate is then combined with the standard hours for each activity to achieve the individual unit rates within each category.
2. Operating costs and capital costs—this method uses available data to establish an average cost to provide the service.
3. Bottom–up approach—under this method an average hourly rate is determined for the appropriate employee and an estimate provided for the average time to carry out that service.

Ausgrid currently has 22 service groups. From 1 July 2015, there will be 30 service groups, however within some groups there are multiple services and prices. The full list of Ausgrid's proposed prices are set out in appendix A.1.

Ausgrid has calculated its labour rates that are an average of the cost centres involved in providing the related ancillary network services rather than an average across the whole of Ausgrid's business.[9]

Ausgrid also proposed two new labour rates associated with new fees:

- Field worker (R4)
- Senior Engineer (R5).[10]

Table 166-6 below summarises Ausgrid's proposed labour rates ($2014–15).

8 Ausgrid, Attachment 8 - Ausgrid regulatory proposal, p. 96.
9 Ausgrid, *Regulatory Proposal – Attachment 8.22*, May 2014. p. 5.
10 Ausgrid, *Regulatory Proposal – Attachment 8.22*, May 2014, p. 6.

Table 166-6 Ausgrid proposed labour rates, ($2014–15)

Category	Description	Total
Admin	Admin Support	132.73
Technical	Technical Specialist R2	175.65
Engineer	EO 7/Engineer	169.07
Field Worker	Field Worker R4	134.49
Senior Engineer	Senior Engineer	234.91

Source: Ausgrid 24_ASP_Investigations model and Ausgrid correspondence to the AER dated 10 September 2014 (Ausgrid 037) and Marsden Jacob analysis.

16.5.3 Assessment approach

For ancillary network services we consider it is important to review each of the services with specific focus on the key inputs in determining the price for the service.

In assessing ancillary network services we focused on labour rates and overheads. We consider these are two key inputs in determining an efficient level of fees for ancillary network services. In doing so regard was had to efficient benchmarks for such services developed by our consultant, Marsden Jacob and Associates (Marsden Jacob).

Given the large number of services proposed by Ausgrid we focused our review on the services most frequently requested by consumers. In considering the fees for these services we also took into account the times taken to perform the service, as this is another key input into the final fee. The most frequently requested services we focused on for Ausgrid include:

- special meter read
- meter test
- supply of conveyancing information (desk inquiry)
- supply of conveyancing information (field visit)
- off–peak conversion
- disconnection site visit
- disconnection at meter box
- disconnection at pole top / pillar box
- reconnections
- access permits.

For the remaining services we compared the labour rates and overhead against the maximum benchmark rates established by Marsden Jacob.

As an additional test, we also benchmarked the proposed fees against similar services in Victoria where applicable.

16.5.4 Submissions

We received submissions from AGL and Origin Energy that the fees proposed for ancillary network services are too high when compared with fees for equivalent services provided interstate. In particular AGL commented that the fees for de–energisation and re–energisation, move in and move out meter reads and meter tests were too high.[11]

Further AGL submitted that in South Australia, Queensland, and Victoria:

- there are separate de–energisation and re–energisation fees. This provides greater transparency for customers and retailers
- separating fees makes additional services available
- to ensure that customers moving into a property that was disconnected are not disadvantaged, a general move–in fee is charged. This covers the cost of a move–in read, plus any re–energisation work.[12]

In particular for disconnection at the pole/pillar box AGL submitted that Ausgrid's proposed fee is much higher than Endeavour's. However, Ausgrid's network is mainly metropolitan. Therefore, travel times and distances would be greater for Endeavour than Ausgrid.[13]

Regarding meter tests AGL submitted that:

- this significant fee increase is unjustified
- meter testing is often required in resolving Ombudsman disputes; retailers often absorb this cost
- other states have different meter test fees to account for variability in the type of meter testing required
- residential sites tend to have single phase meters – these should be less expensive to test compared to multiphase meters. Having a range of meter test fees may be more appropriate. It would also reduce costs for residential customers.[14]

Origin supports AGL submission that:

- it is unclear why testing a meter should cost over $500 (in addition to the cost of sending personnel to the site)[15]
- no transition period for customers. This would lead to increased customer complaints for retailers to handle[16]

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11 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 32.

12 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 30.

13 AGL, NSW *Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 30.

14 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 31.

15 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.

- the cost could deter customers from getting their meter tested until the disputed amount exceeds $600[17]

- a significant proportion of customers will see the fee as punitive and refuse to pay. This would drive bad debts for retailers.[18]

AGL also questions the introduction of network tariff change request fees. AGL submitted that it is inappropriate for a fee to be charged for a network tariff change request – invalid request. Retailers have no visibility as to whether a request will be valid; a customer should not be penalised because this function sits with their distribution business rather than the retailer (to assess such a request).[19]

AGL submitted that the network tariff change request sits with the distribution business. Customers should not be charged because their distribution business has not placed them on the correct network tariff.[20]

For network tariff change request – site establishment, AGL submitted that this fee should not be imposed unless it is a new connection fee that should be passed to the customer by the Accredited Service Provider (ASP). If it is for an existing site where a new NMI needs to be allocated, there is no activity performed to warrant such a fee and it should not be approved.[21]

AGL supports Ausgrid's proposed special meter reads.[22]

16.5.5 Reasons for draft decision

We do not approve Ausgrid's proposed fees for ancillary network services. We consider the proposed fees are higher than fees based on maximum benchmark labour rates and overheads which we consider efficient for providing the service

We reviewed Ausgrid's proposed fees for ancillary network services and the methodologies used by Ausgrid to calculate these fees. Based on our analysis of Ausgrid's proposed methodologies, the main concerns are the cost inputs to the methodologies. Where there are inefficiencies in actual historical costs these will be carried through in the derivation of proposed fees.

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16 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.
17 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.
18 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.
19 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 32.
20 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 32.
21 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 32.
22 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 32.

Table **166-7** shows Ausgrid's proposed labour rates. It also shows the maximum benchmark rates developed by Marsden Jacob, which we have used to review Ausgrid's proposed charges for fee based services.

Table 166-7 Ausgrid proposed labour rates and overheads and our draft decision ($2014–15)

Category	Description	Ausgrid proposed Total charge	AER maximum benchmark rates
Admin	Admin Support	132.73	89.06
Technical	Technical Specialist R2	175.65	142.81
Engineer	EO 7/Engineer	169.07	177.52
Field Worker	Field Worker R4	134.49	133.80
Senior Engineer	Senior Engineer	234.91	210.96

Source: Marsden Jacob Associates report, Ausgrid 24 ASP Investigations model and Ausgrid correspondence to the AER dated 10 September 2014 (Ausgrid 037).

Marsden Jacob found that although each of the NSW businesses used different category names and descriptions, the types of labour used to deliver ancillary network services broadly fell into one of five categories:

- Administration
- Technical services
- Engineers
- Field workers and
- Senior engineers.

Using these categories Marsden Jacob developed benchmark labour rates based on Hays 2014 energy sector salary data against which the efficiency of the proposed labour rates could be assessed.

In assessing the reasonableness of labour rates, Marsden Jacob 'normalised' the rates provided by each business. Our position is to accept the Marsden Jacob's recommended efficient benchmark labour rates, overheads and times taken to perform frequently requested services which we consider to be well reasoned.[23] In assessing ancillary network services we referred to the total labour rates (Table 166-9) as proposed by Marsden Jacob as a benchmark rates. We used these rates to determine whether the proposed fees for fee based ancillary network services reflect the underlying cost of an efficient labour rate (being the benchmarks established by Marsden Jacob). While it may be appropriate for Ausgrid to charge lower than the maximum labour rates for fee based ancillary network services, by adopting the maximum amount we consider that we are providing the distribution

[23] Marsden Jacob developed benchmark rates from Hays 2014 Salary data applicable to the energy sector. The Hays salary reports draws on information from 2500 companies across Australia and New Zealand. Relevant distribution network businesses which were listed as being included in the survey were ActewAGL, Jemena and CitiPower. The Hays rates provided both low and a high indicative labour rate (excluding superannuation) for a range of job titles. Marsden Jacob reviewed approximately 66 different job titles, 37 of which were found to be directly relevant to the benchmark labour categories used in the Marsden Jacob report. Minimum and maximum ranges were developed from the data by Marsden Jacob for each category and combined with additional standard assumptions on on-costs to form benchmark rates used in their assessment (Marsden Jacob Associates report).

business with a reasonable opportunity to recover at least its efficient costs. This allows for some potential differences between the services provided and costs faced by Ausgrid.

For quoted services we consider it more appropriate to adopt the rate determined by Marsden Jacob for the individual businesses. By doing so we are using the businesses proposed rates where appropriate (i.e. where they fall within Marsden Jacob's maximum efficient rates) or Marsden Jacob's recommended rates (as applicable) for each of raw labour rates, on–costs and overheads. We conclude this is a more efficient pricing structure for quoted services.

Table 166-8 set out Marsden Jacob's recommended labour rates; Ausgrid's proposed raw labour rates fell within these ranges, expect for administration support and senior engineer.

Table 166-8 Benchmarked raw labour rates (excluding basic leave entitlements, on–costs and overheads ($2014–15)

Category	Description	Hays benchmark	Marsden Jacob
Admin	Office Support service delivery	18.27 to 38.46	Max. 39.00
	Administration Support		
	Administration Support		
	Administration		
Technical	Electrical worker	31.25 to 57.69	Max. 59.00
	Technical Specialist		
	Technical Specialist		
	Indoor technical officer		
	Outdoor technical officer		
Engineer	Project Officer Design Section	36.06 to 72.12	Max. 69.00
	EO 7/Engineer		
	Engineer		
	Engineering Officer		
Field Worker	Electrical worker – labourer	31.25 to 48.08	Max. 47.00
	Electrical Apprentice		
	Field Worker		
	Field Worker		
	Line Worker 9		
	Field Worker		

Category	Description	Hays benchmark	Marsden Jacob
Senior Engineer	Senior Engineer Senior Technical officer / Engineer Design section Senior Engineer	48.08 to 81.73	Max. 82.00

Source: Marsden Jacob Associates' analysis of distributor labour rates and on-costs.

Ausgrid's overhead rate for administration, technical specialist and field worker were above the maximum average overhead recommended by Marsden Jacob for ancillary network services.

Table 166-9 summarises the total labour rates (including all on–costs and overheads) Marsden Jacob recommended to us.

Marsden Jacob built up a recommended rate on an individual distribution business basis making use of either the businesses' proposed rates or Marsden Jacob recommended maximum rates (as applicable) for each of raw labour rates, on–costs and overheads.

Table 166-9 Benchmarked total labour rates – including on-costs and overheads ($2014–15)

Category	Description	Marsden Jacob
Admin	Office Support service delivery Administration Support Administration Support Administration	Max. 89.06
Technical	Electrical worker Technical Specialist Technical Specialist Indoor technical officer Outdoor technical officer	Max. 142.81
Engineer	Project Officer Design Section EO 7/Engineer Engineer Engineering Officer	Max. 177.52
Field Worker	Electrical worker – labourer Electrical Apprentice	Max. 133.80

Category	Description	Marsden Jacob
	Field Worker	
	Field Worker	
	Field Worker	
	Line Worker 9	
	Senior Technical officer / Engineer Design section	
Senior Engineer	Senior Engineer	Max. 210.96
	Senior Engineer	

Source: Marsden Jacob analysis of DNSP labour rates and on-costs.

Times taken to perform the service

The times taken to perform the service is another key input into deriving fees for ancillary network services. Marsden Jacob determined an implied time taken to perform each Ausgrid's services. The implied times to perform nine of the most frequently requested ancillary network services, as listed below, were also reviewed by Marsden Jacob. Ausgrid's times taken to perform the services were found to fall within benchmark times for these services, except for meter test, disconnection at the meter box, disconnection technical and disconnection at pole top / pillar box.[24] For the detailed review refer to the Marsden Jacob Advice – report.

- Special meter read
- Meter test
- Supply of conveyancing information (desk inquiry)
- Off–peak conversion
- Disconnection site visit
- Disconnection at meter box
- Disconnection visit – technical
- Disconnection at pole top / pillar box
- Reconnections.

Meter test

Ausgrid proposed to increase meter tests fees from the current $74.83 to $551.15. This is higher than meter test fees charged by other distribution businesses. We note that in Victoria there is a separate meter test fee for single phase and multiphase. United Energy and AusNet Services fees are $55.25 and $155.55 for single phase meter testing. For multi–phase the fees are $85.94 and $209.19

[24] The implied time in Ausgrid's proposal for meter tests was 4.10 hours. Marsden Jacob recommends a maximum 3 hours. The implied time in Ausgrid's proposal for disconnection at meter box is 1.03 hours. Marsden Jacob recommends a time of 0.50 hours. Ausgrid's implied time for disconnection visit technical is 1.74 hours the recommended time is 1.21 hours. Ausgrid's implied time for disconnection pole top / pillar box is 5.54 hours the recommended time is 2 hours.

respectively. CitiPower's and Powercor's fees are between $360 and $370 for single phase and around $473 for multiphase.

AGL submitted that this significant fee increase is unjustified and that meter testing is often required in resolving Ombudsman disputes and that retailers often absorb this cost. AGL also comments that other states have different meter test fees to account for variability in the type of meter testing required. Residential sites tend to have single phase meters – these should be less expensive to test compared to multiphase meters. Having a range of meter test fees may be more appropriate. It would also reduce costs for residential customers.[25]

Origin supports AGL and submitted that it is unclear why testing a meter should cost over $500 (in addition to the cost of sending personnel to the site).[26] Origin also submitted that there is no transition period for customers. This would lead to increased customer complaints for retailers to handle.[27] The cost could deter customers from getting their meter tested until the disputed amount exceeds $600[28] and a significant proportion of customers will see the fee as punitive and refuse to pay. This would drive bad debts for retailers.[29]

For Ausgrid if the meter test is undertaken on premises serviced by more than one meter associated with the NMI the following applies:

- if the meter test reveals that all of the meters associated with the NMI are operating satisfactorily, the distribution business will only levy one charge for the provision of the service, or
- if the meter test reveals that one or more of the meters associated with the NMI are not operating satisfactorily, the distribution business will not levy any charge for the provision of the service.

Ausgrid submitted that the current charge of $74.83 is not reflective of the costs of providing the service. Ausgrid submitted the charge of $576.17 is cost reflective and represents the efficient cost to provide the service:[30]

> This is not an increase in the cost of providing the service, rather it is a change in the approach to set prices to reflect the total cost of the service, not just the incremental costs to provide the service. This change is the result of a change in the framework.[31]

The Marsden Jacob recommended rate for meter testing for Ausgrid is $401.39. This is based on the benchmark efficient time taken by ActewAGL (2 hours) and Essential Energy (3.4 hours less an allowance of 0.4 hours for the difference in travel time). Marsden Jacob recommended that the time taken to conduct meter tests during business hours be reduced to 3 hours for Ausgrid.[32]

Our benchmark analysis shows that the rate recommended by Marsden Jacob of $401.39 benchmarks more closely against interstate distribution businesses.[33] Our draft decision is to accept

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25 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 31.
26 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.
27 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.
28 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.
29 Origin, *Submission to NSW Electricity Distributors' Regulatory Proposals*, 8 August 2014, p. 38.
30 Ausgrid, Response to AER Information Request 041, 30 September 2014.
31 Ausgrid, Response to AER Information Request 041, 30 September 2014.
32 Marsden Jacob, report.
33 Citipower meter test services and fees include:
Meter accuracy test - single phase - $361.18
Meter accuracy test - single phase additional meter - $161.25
Meter accuracy test - multiphase - $472.59
Meter accuracy test - multiphase additional meter - $277.70
Meter accuracy test - CT - $461.68

the benchmark rate recommended by Marsden Jacob. This rate is based on efficient labour rates and times as reviewed as Marsden Jacob and also reflects the rates of Victorian distribution businesses which we consider to be based on efficient costs. Unlike other distribution businesses which distinguish between single phase and multiphase meter tests this rate would apply to both and in this case we assume there is some cross subsidisation between single phase and multiphase meter testing.

Disconnect/reconnect

AGL submitted that in South Australia, Queensland, and Victoria there are separate de–energisation and re–energisation fees. This provides greater transparency for customers and retailers. AGL also comments that separating fees makes additional services available. To ensure that customers moving into a property that was disconnected are not disadvantaged, a general move–in fee is charged. This covers the cost of a move–in read, plus any re–energisation work.[34]

With respect to Network tariff change request – vacant property reconnect/disconnect AGL submitted that this proposed fee is too high. A high fee makes it difficult to disconnect vacant sites and may result in illegal usage if a new occupant moves into a previously vacant site that has not been disconnected due to the price of disconnection. AGL submitted that the fee should be split. A customer should not be prepaying to reconnect if they do not know when or if they will reconnect. Additionally, it is not appropriate to charge one customer a reconnection fee when it is likely to be an entirely different customer that reconnects.[35]

The vacant property reconnect/disconnect fee covers both disconnection and reconnection. The fee is only applied to the disconnection, not the reconnection. The fee only applies when a vacant disconnection is performed.

Ausgrid submitted the service is provided for one individual in an overwhelming percentage of cases and in instances where Ausgrid disconnect for one customer and a new customer takes over the site

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Powercor meter test services and fees include:
Meter accuracy test - single phase - $369.90
Meter accuracy test - single phase additional meter - $151
Meter accuracy test - multiphase - $473.69
Meter accuracy test - multiphase additional meter - $255.22
Meter accuracy test - CT - $464.33

SPAusNet meter test services include:
Single phase - $155.55
Single phase each additional meter - $53.62
Multiphase - $209.19
Multiphase each additional meter - $69.72

United Energy meter test services include:
Single phase - $55.25
Single phase each additional meter - $49.10
Multiphase - $85.94
Multiphase each additional meter - $79.80

Aurora meter test service fees include:
Single phase - $294.89
Multiphase - $589.78
Meter test CT - $655.31
Meter test after hours - $786.37
Meter test wasted visit - $98.30

[34] AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 30.

[35] AGL, N*SW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 32.

the numbers would be immaterial i.e. less than one per cent. Ausgrid also notes that the retailer generally applies the full fee to the customer who was disconnected and typically the new customer is not charged any component of the fee as the retailer has already applied the charge to the previous customer.[36]

Ausgrid's proposed prices are higher than disconnection fees charged by other Victorian distribution businesses. One reason the fees for disconnections in Victoria are lower is because most residential customers have smart meters and the disconnection can be done remotely. This is not the case in NSW where smart meters are not common for all households. If we compare Ausgrid's proposed disconnection fee to fees charged in Tasmania and Queensland where smart meters have not been rolled out to the same extent as in Victoria we find that Ausgrid's proposed fees are consistent with these interstate charges.[37]

Our draft decision is to accept the fees recommended by Marsden Jacob for the following disconnection services. In recommending these rates Marsden Jacob applied its benchmark labour rates and reviewed the time taken to perform the service.

Our draft decision for disconnection services is:

- Disconnection site visit – $41.89
- Disconnection / reconnection – disconnection completed – $66.90
- Disconnection / reconnection – technical disconnect – $232.82
- Disconnection / reconnection – pillar /pole – disconnection completed – $267.59
- Reconnection (outside business hours) – $96.29.

Site establishment

For network tariff change request – site establishment, AGL submitted that this fee should not be imposed unless it is a new connection fee that should be passed to the customer by the Accredited Service Provider (ASP). If it is for an existing site where a new NMI needs to be allocated, there is no activity performed to warrant such a fee and it should not be approved.[38]

Ausgrid submitted that the fee will not be imposed unless it is a new connection fee that would be passed on to the customer by the ASP. The fee will not be charged for an existing site unless required by the relevant AEMO NMI procedure.

Network tariff change request

Our draft decision is to not accept Ausgrid's proposed 'network tariff change – invalid request' charge. We agree with AGL's submission that it is inappropriate for a fee to be charged if a network tariff change request is invalid.[39] We agree with AGL that "The retailer has no visibility as to whether the

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36 Ausgrid, Response to AER information request 041, 30 September 2014.

37 The disconnection fee charged by Aurora is $53.77, Energex is $54.93 and $70.30 (for site visit), Ergon disconnection fee for short rural is $102.24 and $592.66 for long rural.

38 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 32.

39 AGL, NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator, 8 August 2014, p. 32.

request will be valid, a customer should not be penalised because this function sits with the distribution business rather than the retailer to assess such a request".[40]

De-energisation/re-energisation – pillar/pole (failed)

AGL queried why a Pillar/Pole Top Site Visit would incur anything more than a regular site visit charge. It also queried the circumstances in which a pillar/pole de-energisation or re-energisation would not be completed. We requested further information from Ausgrid, and Essential Energy on this issue. The distribution businesses submitted that Disconnection/Reconnection – Pillar/Pole may not occur due to reasons including:

- safety of the installation or the distribution business' employee
- late cancellation by the retailer
- access being prevented so that the work cannot be carried out.[41]

AGL queried why Ausgrid's proposed fee for a pillar/pole top site visit ($323.16) varies from the fee it proposed for a Disconnection Site Visit ($42.10). We understand this is because a minimum of two employees must be on site to complete the work (compared to only one employee for a standard connection).[42] Based on Marsden Jacob's analysis and the distribution business' submissions, we approve a proposed fee of $323.16 for Disconnection/Reconnection – Pillar/Pole – Site Visit as efficient.

Attendance to perform a statutory right where access is prevented

AGL submitted that there is currently no fee for this service.[43] It also submitted that this fee is not clearly defined, and how and why it would be charged has not been justified.[44] We requested a further description of this service from Ausgrid who subsequently submitted that:

- this is a fee for circumstances where it is prevented from accessing a site, where it has a statutory right to access.[45]
- It mainly arises due to hostile customers who do not want the distribution business to replace a meter, disconnect their electricity (or similar task). In these circumstances, Ausgrid charges a site fee for the first visit, and the 'attendance to perform a statutory right where access is prevented' service fee for having to repeat the visit.[46]
- This fee will not be levied due to difficult access during routine meter readings.[47] It is intended for situations where long term access issues arise (generally due to a hostile customer).[48]

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40 AGL, NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator, 8 August 2014, p. 32.
41 Essential Energy, *Essential Energy's response – Ancillary Service Fee Questions 20 October 2014*, 20 October 2014, p.1; and Ausgrid, *Ausgrid's response to the AER's information request of 17 October 2014*, 17 October 2014, p.1
42 Essential Energy, *Essential Energy's response – Ancillary Service Fee Questions 20 October 2014*, 20 October 2014, p.1.
43 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 31.
44 AGL, *NSW Electricity Distribution Networks Regulatory Proposals: 2014–19 – AGL submission to the Australian Energy Regulator*, 8 August 2014, p. 31.
45 Ausgrid, *Ausgrid's response to the AER's information request of 17 October 2014*, 17 October 2014, p. 1.
46 Ausgrid, *Ausgrid's response to the AER's information request of 17 October 2014*, 17 October 2014, p. 1.
47 Ausgrid, *Ausgrid's response to the AER's information request of 17 October 2014*, 17 October 2014, p. 1.
48 Ausgrid, *Ausgrid's response to the AER's information request of 17 October 2014*, 17 October 2014, p. 1.

We consider that this service fee is clearly defined and is justifiable.

16.6 Metering

Our draft decision on Ausgrid's metering proposal is made in the context of ongoing policy reform. We based our assessment on the NER in place at the time of this draft decision, but have had regard to the likelihood of policy reform in the future.

Currently, competition in metering is limited to large customers in the national electricity market while regulated distribution network service providers have the sole responsibility to provide small customers with metering services.[49]

The Australian Energy Market Commission (AEMC) is presently in the process of making a rule change that would expand competition in metering and related services to help facilitate a market led roll out of advanced metering technology. This in turn would enable the uptake of demand side participation products and services.[50]

Our draft decision establishes a regulatory framework for the 2015-19 regulatory period which will be robust enough to handle the transition to competition once the rule change takes effect. This involves having transparent standalone prices for all new/upgraded meter connections and annual charges. To avoid creating a regulatory barrier to competitive entry, we do not accept Ausgrid's proposal to charge an exit fee to leaving customers to recover residual capital costs. Instead residual capital costs will be classified as a standard control service and recovered from the general network customer base.

16.6.1 Draft Decision

Our draft decision maintains our Stage 1 F&A alternative control service classification for type 5 and 6 metering provision, maintenance, reading, and data services.[51] We further maintain that the control mechanism for alternative control metering services will be caps on the prices of individual services.[52]

Our draft decision is to accept Ausgrid's proposed structure of metering charges, that is, to charge capital costs upfront for new or upgraded connections and an annual charge that varies by meter type and tariff class. However, we consider that it would be more appropriate to have a separate schedule of annual charges for new and existing customers. The annual charge for existing customers should include capital cost recovery, but new customers (who have made an upfront capital contribution) should not have to make such a payment as part of their annual charge.

We reject Ausgrid's proposed exit fee. Specifically, we do not accept that Ausgrid should recover residual capital costs through an exit fee. Our alternative is to classify residual capital costs (the capital costs the customer would have paid through annual charges had they remained a regulated metering customer) as a standard control service and recover these through network tariffs. While we accept in principle that Ausgrid should recover incremental administration costs through an exit fee, we do not consider that Ausgrid demonstrated they will face incremental administration costs. As such, we do not accept that an exit fee should apply.

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49 NER clause 7.2.3(a). Small customers refers to any customer with less than 160MWh annual consumption (effectively all residential and small business customers fall into this category).

50 AEMC, *Expanding competition in metering and related services in the National Electricity Market, Consultation Paper,* 17 April 2014.

51 AER, *Stage 1 Framework and Approach – NSW electricity distribution network providers*, March 2013, p. 32. A type 6 meter is an accumulation meter. A type 5 meter is a manually read interval meter.

52 AER, *Stage 1 Framework and Approach – NSW electricity distribution network providers*, March 2013, p. 43.

We generally accept Ausgrid's building block approach as the basis for establishing annual metering charges but not the proposed values of particular building blocks:

- We do not accept Ausgrid's proposed capital expenditure building block. Our draft decision allows $114.9 million in capital expenditure for annual metering charges instead of Ausgrid's proposed $118.0 million ($2014-15).
- In assessing the metering operating expenditure building block, our base year analysis used historical averages of multiple years rather than Ausgrid's proposed single historic year. In addition to looking at revealed costs, we also use made a benchmarking adjustment because Ausgrid should be at least as efficient as comparable network businesses in the NEM. Our cost assessment led us to accept $119.1 million in operating expenditure[53] for annual metering charges and substitute that amount for the proposed $143.4 million ($2014-15).
- We also considered the opening metering RAB value. Our decision is to accept $267.2 million as the opening RAB value at 1 July 2014 rather than the proposed $260.8 million ($nominal).

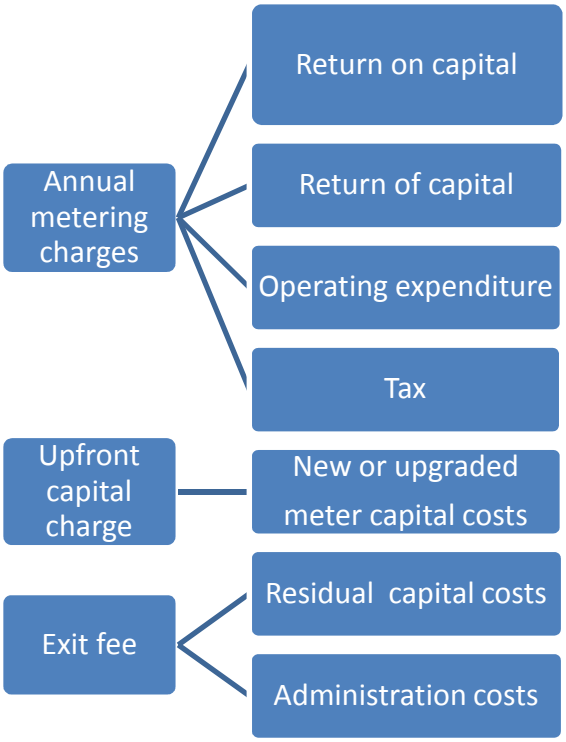
Based on our cost assessment of the individual building blocks and requirement that Ausgrid establish separate annual charges for new customers, we rejected Ausgrid's proposed price caps for annual charges. Our substitute price caps are set out in Appendix A.1.

16.6.2 Proposal

In May 2014, Ausgrid submitted its metering proposal for the 2014–15 and 2015–19 regulatory control periods. It accepted the proposed service classification and control mechanism outlined in our Stage 1 F&A.[54] That is, Ausgrid classified types 5 and 6 metering provision, maintenance, reading, and data services as alternative control services and proposed price caps on individual services. [55] Figure 166.3 sets out Ausgrid's proposed structure of metering tariffs.

[53] Exclusive of debt raising costs
[54] AER, *Stage 1 Framework and Approach – NSW electricity distribution network providers*, March 2013, p. 32.
[55] Ausgrid, *Regulatory proposal,* May 2014, p. 90–95.

Figure 166.3 Ausgrid's proposed structure of metering tariffs



Annual metering services

For each tariff class, Ausgrid proposed a price cap for annual metering services. It built up the costs that constitute the annual metering service charges by applying a 'building block' approach. This involved forecasting the revenue requirement for each of Ausgrid's metering cost categories and then translating this into price caps. Table 166-10 sets out Ausgrid's proposed metering building block requirement. Table 166-11 shows proposed annual charges for metering services that recover the total proposed revenue.

Table 166-10 Ausgrid's proposed metering building block revenue requirement ($ million, 2014–15)

	2014–15	2015–16	2016–17	2017–18	2018–19
Return on capital	23.0	22.6	21.9	21.7	21.7
Return of capital	20.6	22.6	24.4	19.3	19.2
Operating expenditure	27.9	28.3	28.8	29.3	29.8
Benchmark tax liability	2.5	4.2	6.2	5.1	3.6
Total	**74.0**	**77.8**	**81.3**	**75.5**	**74.3**

Source: Ausgrid, *Regulatory proposal, Attachment 8.20, Type 5 and 6 metering pricing model,* May 2014, converted to $2014–15.

Table 166-11 Ausgrid's proposed prices for annual metering services ($ annual, 2014–15)

Tariff class	Average prices (2014–15 to 2018–19)
Residential inclining block	34.18
Residential time of use	55.76
Controlled load	13.83
Small business inclining block	46.77
Small business time of use	54.31
LV 40–160MWh time of use	85.77
Generator tariff	16.42

Source: Ausgrid, *Regulatory proposal, Attachment 8.20, Type 5 and 6 metering pricing model,* May 2014. Converted to $2014-15.

New or upgraded connections

Where Ausgrid installs a meter for a new or upgraded connection at a customer's premises, Ausgrid proposed caps (or ceilings) on the prices it can charge. From 1 July 2015, new or upgraded connections will require a customer to make a full upfront capital contribution.[56]

The change in Ausgrid's capital contribution policy for new and upgraded connections is intended to promote competition. If implemented, Ausgrid noted that it may level the competitive playing field for new and upgraded meters.[57] This is by shifting how the capital costs for new and upgraded meters are recovered, from the annual metering services charge where costs are smeared across all customers, to an upfront payment which new entrants to the market can compete with on price.

Table 166-12 sets out Ausgrid's proposed charges for new and upgraded meters. For ease of reference, average prices for the 2015–19 regulatory control period are shown.

Table 166-12 Ausgrid's averaged proposed new or upgraded meter prices in the 2015–19 regulatory control period ($ 2014–15)

Meter code	Meter description	Average price (2015–19)
B1	Single phase single element two wire direct connected accumulation watt–hour meter	51.14
B3	Three phase single element four wire direct connected accumulation watt–hour meter	131.23
E1	Single phase single element two wire direct connected interval watt–hour meter	123.08
E2	Single phase dual element two wire direct connected interval watt–hour meter	187.35

[56] Ausgrid, *Regulatory proposal, Attachment 8.15, Type 5 & 6 metering services proposal*, May 2014, p. 23.
[57] Ausgrid, *Regulatory proposal, Attachment 8.21, Energeia's review of Ausgrid's metering tariffs*, May 2014, p. 23.

Meter code	Meter description	Average price (2015–19)
E3	Three phase single element four wire direct connected interval watt–hour meter	252.92
E4	Three phase single element CT connected interval watt–hour meter	609.27

Source: Ausgrid, *Regulatory proposal, Attachment 8.20, Type 5 and 6 metering pricing model,* May 2014. Converted to $2014-15.

Exit fee

In anticipation of the AEMC's metering rule change that would permit customer switching to competitive metering providers, Ausgrid proposed an exit fee that would apply to Type 5 and 6 customers with a meter installed prior to 1 July 2015 as they leave regulated metering. The proposed exit fee consists of two components:

- Residual capital costs ('stranded asset costs') – the capital costs the customer would have paid through annual charges had they remained a regulated metering customer. This is calculated as the metering RAB value in the year the customer leaves divided by the number of NMIs with a Type 5 or 6 Meter

Administration costs – costs incurred to 'change records to reflect the changed status [of customers], customers], the return of the meter and the processing costs of relaying this information'.[58] Ausgrid Ausgrid proposed a bottom-up calculation as the basis of this cost, which estimated time taken to complete the task multiplied by the labour rate of an administration staff member.

Table 166-13 sets out the proposed exit fee.

Table 166-13 Ausgrid's proposed metering service exit fee for Type 5 and 6 services ($ 2014-15)

	2014–15	2015–16	2016–17	2017–18	2018–19
Residual capital costs ('stranded asset costs')	160.64	153.91	151.04	149.02	146.56
Administration costs	36.00	36.56	37.31	38.08	38.86
Total exit fee	**196.64**	**190.47**	**188.35**	**187.10**	**185.42**

Source: Ausgrid, *Regulatory proposal, Attachment 8.20, Type 5 and 6 metering pricing model,* May 2014. Converted to $2014–15.

16.6.3 Assessment approach

Our assessment approach was tailored to each of Ausgrid's proposed metering services.

[58] Ausgrid, *Regulatory proposal, Attachment 8.15, Type 5 & 6 metering services proposal*, May 2014, p. 25.

Annual metering services

We assessed Ausgrid's proposed forecast capital and operating expenditure requirements and opening metering regulatory asset base.

In assessing the proposed forecast capital expenditure, we reviewed Ausgrid's 'unit costs' and 'volume forecasts'. More specifically, we assessed Ausgrid's proposed 'material' and 'non–material' unit costs and the forecast volume of 'reactive' and 'proactive' replacements. Material costs relate to the hardware used to provide metering services. Non–material costs relate to the activities (labour) which Ausgrid must perform to install a new or replaced meter.

From 1 July 2015, Ausgrid's customers will incur an upfront payment recovering the capital cost of meters installed at 'new or upgraded connections'. The commencement date for the upfront payment (1 July 2015) is the earliest available under the NER. They provide that the existing cost allocation approach leading up to placeholder year must be retained into 2014–15.[59] In the case of new or upgraded connections, the capital cost of the meters must be recovered under the general network charge for standard control services. However from 1 July 2015, Ausgrid proposed to change its capital contribution policy so that such costs are recovered directly from customers.

New or upgraded connections in 2014-15 formed part of our assessment of Ausgrid's proposed capital expenditure building block for annual metering services. However the 'true–up' of any differences between the capital costs Ausgrid recovered in the 2014–15 placeholder year with our assessment of what we consider to be prudent and efficient will actually be recovered under the general network service charge.

We took a different approach to assessing Ausgrid's proposed operating expenditure. Such expenditure refers to the operating, maintenance and other non–capital costs, including labour, incurred in the provision of metering services. As the expenditure associated with these types of activities is largely recurrent in nature, we considered Ausgrid's historical costs as a useful starting point to establish a base to forecast future costs. We also used benchmarking to assess the relative efficiency of the base year compared with comparable network businesses in the national electricity market.

While not required under the NER, we chose to use benchmarking to keep a consistent approach with how we assessed standard control services operating expenditure. The benchmarking approach we used to assess base operating expenditure for metering is a simpler version than what we used to assess standard control operating expenditure. This reflects the generally lighter handed regulatory approach to alternative control services compared with standard control services and the fact that we had less tools available. For example, our econometric modelling results we used to assess standard control operating expenditure were based on data for network services and therefore do not strictly apply to metering services. We used a partial performance indicator for our benchmarking method, comparing annual metering operating expenditure per customer across non-Victorian network businesses[60] in the national electricity market. We adjusted the benchmarking results for customer density which is a network characteristic that is an exogenous influence on operating expenditure requirements.

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[59] NER, cl. 6.15.2(7).

[60] Victorian distributors rolled out advanced metering technology in the last regulatory period. These costs are not comparable to other distributors which have type 5 and 6 meters.

After determining what Ausgrid's efficient base annual operating expenditure is and accounting for any (positive or negative) step changes, we trended forward that amount over the 2014–15 and 2015–19 regulatory control periods. This is known as the 'base, step and trend' approach.

Ausgrid also developed its operating expenditure proposal using the base, step and trend approach.[61] However, we consider the method it applied to be less comprehensive than ours. We applied benchmarking to determine the efficient base operating expenditure, while Ausgrid did not.

For our draft decision, we did not assess metering customer number forecasts. Instead we used the proposed customer number forecasts for our analysis. This is because we expect the AEMC's draft rule change on competition in metering (to be released March 2015) will influence forecasts of metering customers. As such, we will assess whether metering customer forecasts are reasonable in our final decision which may in turn affect the capital and operating expenditure building blocks.

For both capital and operating expenditure, we had regard to factors in chapter 6 of the NER. Namely the capital and operating expenditure objectives and criteria.[62] Though these considerations relate to standard, as opposed to alternative, control services, they are helpful and relevant in providing a general framework for assessing a building block expenditure forecast. Among other things, when considering a distribution business' forecast, the capital and operating expenditure objectives and criteria state we should consider:

- the efficient costs required
- the costs a prudent operator would incur
- whether the proposed cost inputs are reasonable.[63]

In assessing Ausgrid's proposed opening metering asset base, we reviewed how Ausgrid had separated its proposed opening metering regulatory asset base (RAB) as at 1 July 2014, from the RAB for standard control services. We also considered the remaining asset lives Ausgrid proposed and had regard to the opening of competition to metering services.

New or upgraded connections

To assess the reasonableness of the proposed charges from 1 July 2015, we analysed Ausgrid's unit costs. We did not consider the forecast volumes of new or upgraded connections for the 2015–19 regulatory control period; they have no bearing on the quantum of the upfront charge.

Exit fee

Residual capital costs

We had to make a decision regarding the classification and control mechanism for residual metering capital costs as it was not explicitly considered in our Stage 1 F&A.[64] Our classification decision is made with regard to the factors set out in clauses 6.2.2(c) and 6.2.5 (c) of the NER. We had particular regard to:

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61 Energeia, *Review of Ausgrid's proposed metering tariff arrangements for 2014–19*, April 2014, p. 39.
62 NER, cl. 6.5.7.
63 NER, cl. 6.5.7(c).
64 NER, cll. 6.12.3 (b) (cl). We may depart from the classification and control mechanism decisions made in our framework and approach paper if we consider there have been unforeseen circumstances. The unforeseen circumstance in this case was that there previously was no stranding risk because customers had no choice to exit regulated metering. As such, we did not consider residual metering costs in our framework and approach paper (March 2013) which was released prior to SCER metering rule change request (October 2013).

- How the classification/control mechanism may influence the potential for competition in unregulated metering
- Concern raised by stakeholders that exit fees, particularly as high as Ausgrid propose, will inhibit competitive entry into an unregulated metering market[65]
- A method that provides administrative simplicity for customers, Ausgrid and the AER where possible
- The extent to which costs can be directly attributable to individual customers in order to minimise cross subsidies.

In addition to the classification and control mechanism factors, we had regard to the revenue and pricing principles in the NEL which include providing a distribution business with a reasonable opportunity to recover at least its efficient costs.[66]

We did not separately assess the cost basis of residual capital costs as we cannot conduct an ex-post assessment of actual capital expenditure. We made a decision regarding the metering RAB amount and then considered how to recover any residual metering costs that risk becoming stranded if a customer leaves, which we dealt with through our classification and control mechanism decision.

Administration costs

We maintained the classification and control mechanism for the administration cost component as an alternative control service with a price cap for the individual service. Therefore our assessment was focused on whether the proposed bottom-up basis for calculating an administration fee resulted in an expenditure forecast that reflects the efficient costs a prudent operator would incur and whether the proposed inputs are reasonable.

16.6.4 Reasons for draft decision

Our reasons for not accepting Ausgrid's proposed charges for annual metering services, new or upgraded connections, and the exit fee are discussed in this section.

Annual metering services

Our draft decision is to not accept Ausgrid's total proposed building block requirement for annual metering services. More specifically, we accept a building block approach to setting charges but do not accept the following components of Ausgrid's proposal:

- capital expenditure
- operating expenditure
- opening metering RAB.

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[65] Consumer Challenge Panel, *Updated submission on NSW DNSPs regulatory proposals 2014-19*, 15 August 2014, pp. 36-7.
Vector Limited, *Submission on AER Issues paper on NSW electricity distribution regulatory proposals*, 8 August 2014, p. 4.
ERAA, *Submission on Issues paper NSW electricity distribution regulatory proposals*, 8 August 2014, p. 2.
Origin Energy, *Submission on NSW electricity distributors regulatory proposal (attachment 1)* - 8 August 2014, p. 33.
AGL, *Submission on NSW electricity distribution networks regulatory proposals*, 8 August 2014, p. 21.
PIAC, *Submission on NSW electricity distribution network price determination*, 8 August 2014, p. 105.

[66] NEL, Revenue and Pricing Principles, 7A (2).

This has led us to reject Ausgrid's proposed annual metering service charges. Our alternative price caps are set out in appendix A.1.

Capital expenditure building block

Our draft decision accepts $114.9 million in capital expenditure for annual metering services and substitutes that amount for Ausgrid's proposed $118.0 million ($2014–15). Table 166-14 sets out Ausgrid's proposed capital expenditure and our substitute, for each cost category.

Table 166-14 Proposed and substitute capital expenditure for metering annual services ($ million 2014–15)

	Proposed	Adjustment (unit costs)	Adjustment (volume forecast)	Draft decision
New or upgraded connections (2014-15 only)	5.0	0.7	0.0	4.3
Reactive replacements	26.1	1.3	0.0	24.8
Proactive replacements	54.2	1.2	0.0	53.1
Direct IT and other capital costs	32.6	0.0	0.0	32.6
Total	118.0	3.2	0.0	114.9

Source: AER analysis; Ausgrid, *Attachment 8.15, Type 5 & 6 metering services proposal*, May 2014.

Unit costs

Ausgrid is in the process of transferring its metering hardware procurement processes to Networks NSW. It consequently does not have any existing metering hardware contracts in place, but based its forecast material unit costs on offers it has received from metering equipment vendors.[67]

We engaged Marsden Jacob to assist us in our assessment of Ausgrid's forecast material unit costs. This involved the consultant considering the 'maximum rate that should be applied for each meter hardware category based on consideration of the rates applied across the business and a comparison against current market rates'.[68] These rates were sourced from online advertised prices and through direct engagement with major suppliers.[69] Marsden Jacob took into consideration volume discounts which would reasonably be expected to apply to metering hardware purchases made by Ausgrid.[70]

Table 166-15 set out Ausgrid's forecast material unit costs and Marsden Jacob's observations on current market rates. It also shows our substitute material unit forecast, which for each meter is the floor price of our consultant's observations.

Table 166-15 Ausgrid's forecast material unit costs, Marsden Jacob Associates' observed market rates, and our substitute forecast ($2014–15)

Description	Forecast	Markets rates	AER substitute
Type 6 meters			
Single phase, direct connected, accumulation meter	23.06	18.69 – 23.00	18.69

67 Ausgrid, Response to information request, AER Ausgrid 034, 17 September 2014, p. 3.
68 Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.
69 Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.
70 Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.

Three phase, direct connected, accumulation meter	96.09	86.50 – 100.00	86.50
Type 5 meters			
Single phase, dual connected interval meter	88.06	63.72 – 100.00	63.72
Single phase, dual element, direct connected interval meter	147.26	126.00 – 150.00	126.00
Three phase, direct connected interval meter	202.00	189.27 – 220.00	189.27
Three phase, current transformer connected interval meter	519.00	200.00–400.00	200.00

Source: Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.

Marsden Jacob found that the majority of Ausgrid's material unit costs were within the range of current market rates for metering hardware.[71] Notwithstanding this, we do not consider Ausgrid's forecast material unit costs to reasonably reflect the efficient costs of a prudent operator.[72] We have reached this conclusion on the basis that:

- Networks NSW is running Ausgrid's metering procurement from 2015–16 onwards
- the procurement process that Networks NSW is running for Ausgrid has not been finalised.

The transfer of meter procurement responsibilities to Networks NSW should deliver cost savings per unit of installation. This is because Networks NSW is running Endeavour Energy's and Essential Energy's metering procurement activities from 2015–16 onwards too.[73] The combining of all the NSW distribution businesses' purchasing power in such a way should lead to substantial volume discounts from manufacturers and installation vendors. This was the experience with the Victorian smart meter rollout. It is for that reason we consider the unit prices negotiated on behalf of Ausgrid are likely to be closer to the bottom end of the market rates Marsden Jacob observed, not, as Ausgrid forecast, merely within the range of the current market rates.

Additionally, we consider it significant that Networks NSW is yet to finalise its procurement processes. The consultant Ausgrid engaged to review its metering proposal, Energeia, considered this to be significant too. Energeia stated that 'the reasonableness of a meter price forecast is typically demonstrated by the existence of a metering contract'.[74] We agree and conclude that until Networks NSW finalises its procurement activities we cannot observe the substance of the proposed unit costs. Nor can we be satisfied that contracts ultimately have passed all probity tests and were entered into on a competitive, arm's length basis. Again, the Victorian smart meter process is instructive, since we only approved metering capital and operating costs for the five Victorian distribution businesses if they had been in accordance with a competitive tender process, among other things.

For those reasons, our draft decision is to substitute Ausgrid's forecast material unit costs for each type of meter. Table 166-15 above sets out our substitute unit costs.

In addition to assessing Ausgrid's material unit costs, Marsden Jacob reviewed NSW distribution business' forecast non–material costs (i.e. labour costs). These refer to the expenditure required to install, handle and manage the logistics associated with putting a new, upgraded or replaced meter into service.

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71 Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.
72 NER, cll. 6.5.7(c)(1)–(2).
73 Energeia, *Review of Ausgrid's metering tariffs, Attachment 8.21 to Ausgrid's regulatory proposal*, May 2014, p. 57.
74 Energeia, *Review of Ausgrid's metering tariffs, Attachment 8.21 to Ausgrid's regulatory proposal*, May 2014, p. 27.

Marsden Jacob was satisfied with how Ausgrid developed its forecast for non–material costs.[75] Specifically, Ausgrid applied a 'top–down' methodology. It estimated the unit rate for activities associated with non–material costs by dividing the total expected cost of those activities by the estimated volume of new or upgraded meters. As part of its benchmarking exercise, Marsden Jacob made use of an assumed labour rate.[76] This was to estimate the likely time taken to perform non–material costs related tasks given the proposed cost per meter.[77]

Marsden Jacob concluded that Ausgrid's proposed non–material costs were reasonable. We agree with this position and have not made any reductions to Ausgrid's proposed capital expenditure in relation to non–material costs.

Forecast volumes

We accept Ausgrid's 2014–15 forecasts of new or upgraded connections and replacement volumes. Table 166-16 sets out the approved volume forecasts per meter.

Table 166-16 Approved volumes of meters for new and upgraded connections, reactive replacements, and proactive replacements (per meter)

	Volume
New and upgraded connections (2014–15 only)	49 181
Reactive replacements	65 547
Proactive replacements	255 487

Source: Ausgrid, *Regulatory proposal, Attachment 8.18, Forecast capex for type 5 and 6 meters*, May 2014.

We accept the forecast 49,181 volumes of new and upgraded meter connections. For the new connection component, Ausgrid applied the estimated growth in new customer (15,622) in the 2014–15 year. To estimate upgraded connections, it used historical trends.[78] Ausgrid also took different possible metering configurations into account.[79] We consider these factors to be reasonable and, therefore, approve the proposed new and upgraded meter connection forecast.

Our draft decision accepts Ausgrid's forecast reactive replacements volumes. Reactive replacements are made in response to full functionality failures caused by, for example, physical damage to the unit. Ausgrid stated that such failures are usually detected at the time of meter reading or other site visits.[80] It further stated that 'the underlying driver for equipment damage is statistically random in nature with the historical prevalence of such events being a good indicator of future performance'.[81] We agree and, hence, accept Ausgrid's volume forecast for reactive replacements. It has been derived by taking the average annual volume of reactive replacements from the last four years from which Ausgrid has actual data and trending that number over the 2014–15 and 2015–19 regulatory control periods. We concur this is a reasonable approach.

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75 Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.
76 Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.
77 Marsden Jacob Associates, *Consultant report to the AER on Alternative Control Services*, October 2014, section 2.1.1.
78 Ausgrid, *Regulatory proposal, Attachment 8.18, Forecast capex for type 5 and 6 meters*, May 2014.
79 Ausgrid, *Regulatory proposal, Attachment 8.18, Forecast capex for type 5 and 6 meters*, May 2014, p. 6.
80 Ausgrid, *AER response to AER information request 019*, 13 August. p. 6.
81 Ausgrid, *AER response to AER information request 019*, 13 August. p. 7.

We took a different approach to proactive replacements. Historical data is not relevant; instead these replacements are driven by sample testing for the functionality and accuracy of meters against various regulatory requirements.

In particular, Ausgrid must ensure that each of its metering installations is maintained in accordance with the metrology procedure submitted to, and approved by the AEMO.[82] This metrology procedure requires Ausgrid to comply with certain Australian Standards for testing the in–service performance of meters.[83] If sample meters fail these tests, Ausgrid is required by the NER to 'arrange for the accuracy of affected meters to be restored in a time frame agreed with AEMO'.[84] Where certain thresholds are not met, this requires replacement of the entire population of affected meters.

Table 166-17 provides a high level summary of Ausgrid's sample testing, to identify proactive meter replacements. The data was derived from meter population analysis completed between November 2013 and March 2014. It shows that Email BAZ, Email AZ and Email SD meter populations, numbering in total 255 487 (across 192,631 national meter identifiers), have failed.

Table 166-17 Summary of Ausgrid proactive replacement meter sampling

Meter make and model	Population size	Sample tests completed	Acceptance threshold	Actual performance to date	Result
Email SD	29 421	272/500	<21	35	Fail
Email AZ	2 746	111/125	<14	20	Fail
Email BAZ 10–40	93 624	376/500	<21	26	Fail
Email BAZ 10–60	134 218	494/500	<21	22	Fail

Source: Ausgrid, *Regulatory proposal, Attachment 8.15, Type 5 and 6 metering services proposal*, May 2014, p. 8.

We conclude that Ausgrid's forecast volume of proactive replacements is substantiated by sample testing conducted in accordance with regulatory obligations. Notably, the reason for the meter failure is an accuracy drift of an entire population of older meters.[85]

We agree that age appears to be a factor too. The average age of the meters which have been identified for proactive replacement ranges between 83.1 years (Email AZ) to 45.8 years (Email SD).[86] The other meter populations, Email BAZ 10–40 and Email BAZ 10–60, have average ages of 45.8 and 64.1 years respectively.[87] This further supports the need to replace the 255 487 meters identified for proactive replacement.

Operating expenditure building block

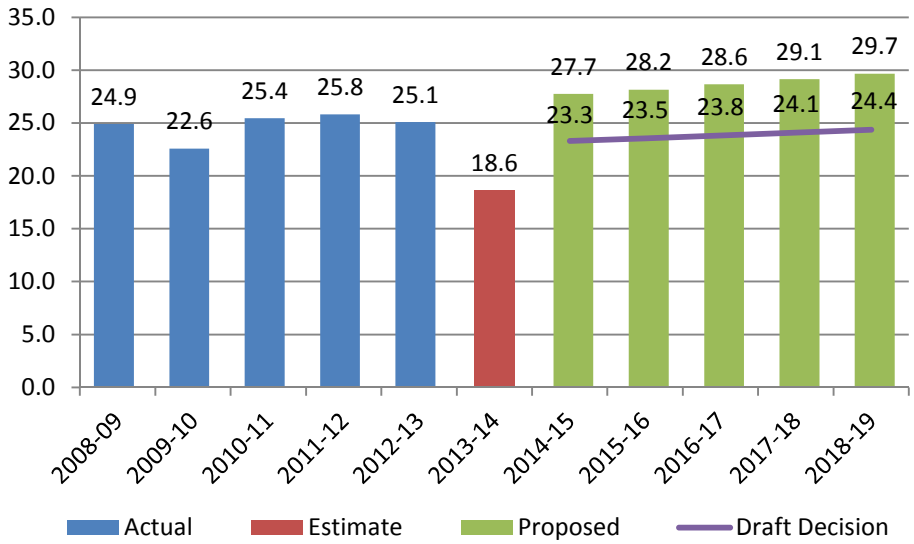
We accept $119.1 million in operating expenditure for annual metering services and substitute that amount for Ausgrid's proposed $143.4 million ($2014–15). This is a 17 per cent reduction from the

82 NER, cll. 7.2.5 and S7.3.1.
83 Australian Standard, 1284.13.
84 NER, cl. 7.6.2.
85 Ausgrid, *Information request response, AER Ausgrid 019*, 13 August 2014, p. 4.
86 Ausgrid, *Information request response, AER Ausgrid 019*, 13 August 2014, p. 4.
87 Ausgrid, *Information request response, AER Ausgrid 019*, 13 August 2014, p. 4.

proposed amount. Though significant, it reflects the same downwards trend as our adjustment to Ausgrid's proposed operating expenditure for standard control services. And while we would not necessarily expect a uniform reduction across metering and network services, there are strong commonalities as it is the same organisation (Ausgrid) with the same labour force. We are therefore satisfied that despite not using the full suite of benchmarking tools that we applied to standard control operating expenditure assessment, our draft decision on Ausgrid's operating expenditure for annual metering services does better reflect the distribution business' efficient metering operating expenditure requirements than proposed.

Figure 166-4 shows Ausgrid's actual, estimate and proposed operating expenditure compared to our substitute. We consider our substitute forecast to reasonably reflect the operating expenditure Ausgrid requires in the 2014–15 and 2015–19 regulatory control periods.

Figure 166-4 Ausgrid's proposed operating expenditure for Type 5 and 6 metering services, and our draft decision ($ million, 2014–15)



Source: Actual (Ausgrid economic benchmarking RIN response), Estimate/Proposed (Ausgrid, *Regulatory proposal, Attachment 8.20*, Type 5 and 6 metering pricing model, May 2014) Draft Decision (AER analysis).

Base operating expenditure

We found that Ausgrid's base operating expenditure should be lower than the amount it used to develop its forecast. We arrived at this conclusion by looking at the base from two different perspectives. These were Ausgrid's historical operating expenditure *and* its performance against benchmarking results. By contrast, Ausgrid developed its base using historical expenditure only.[88]

With regard to our assessment of historical expenditure, we consider Ausgrid's base should be at least as efficient as its costs in previous years. To assess this, we observed Ausgrid's operating expenditure in the last five years for which we have actual data (2008–09 to 2012–13). This is different to what Ausgrid did, in that it selected a single year (2012–13) as its base. We decided against this approach. Given that we do not apply an EBSS to alternative control services, we consider an average of multiple years to be a better measure of a business' efficient base; it avoids any incentive to 'load' a single base year with expenditure going forward.

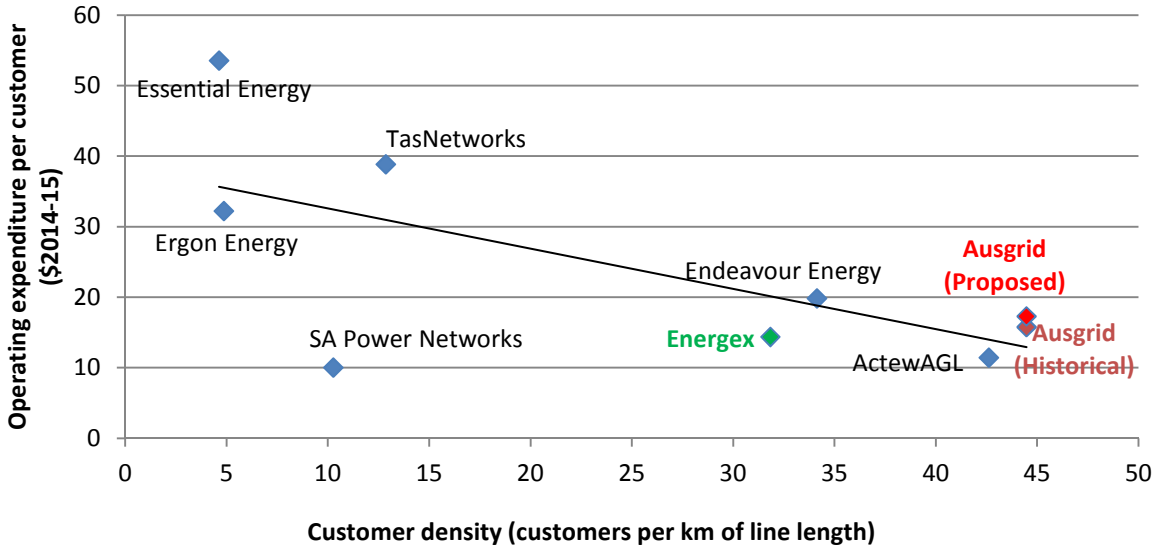
[88] Energeia, *Review of Ausgrid's proposed metering tariff arrangements for 2014–19*, April 2014, p. 39.

Using an historical average from 2008–09 to 2012–13, we observed a base expenditure of $24.8 million ($2014–15). This is less than Ausgrid's proposed average annual operating expenditure allowance base of $28.7 million ($2014–15). Ausgrid did not propose a step change, but stated the increase in operating expenditure is driven by customer growth.[89] However, we observed that in the 2014–15 and 2015–19 regulatory control periods, Ausgrid proposes to spend on average, $17 per customer ($2014–15) in operating expenditure. This is slightly higher than its historical expenditure from 2008–09 to 2012–13, which averaged $16 per customer ($2014–15). This indicates the increase is not just driven by customer growth, but also implies a forecast loss of efficiency.

However, consistent with our approach for standard control services, we further examined the proposed base from another perspective by applying benchmarking. To do this we used a partial performance indicator which compared Ausgrid's proposed operating expenditure per customer against other non-Victorian distribution businesses in the national electricity market.

When comparing Ausgrid's proposed operating expenditure to its peers, we normalised our results by accounting for customer density. We calculated this as the number of customers a distribution business has per kilometre of line length. We took customer density into account because, all things equal, businesses with a low customer density are likely to require higher operating expenditures. For example, this could be because of longer travel times to service customers. Figure 166-5 shows the results of our benchmarking.

Figure 166-5 Benchmarking of annual metering operating expenditure per customer ($ 2014–15)



Source: AER analysis based on data from Economic Benchmarking regulatory information notices.

Our benchmarking shows that Ausgrid's proposed operating expenditure does not reasonably reflect an efficient firm's likely future requirements. We would expect Ausgrid to require no more operating expenditure per customer than a distribution business with a similar, or less, dense network. This, nonetheless, is not the case with Ausgrid's proposed metering operating expenditure requirement.

We consider Energex to be a relevant comparator for Ausgrid because the Queensland distribution business has a similar (in fact, lower) customer density. Yet, on a per customer basis we observed that Ausgrid's proposed operating expenditure is more than Energex's reported operating

[89] Ausgrid, Response to information request, AER Ausgrid 034, 4 September 2014, p. 5.

expenditure. In the 2014–15 and 2015–19 regulatory control periods, Ausgrid proposes to spend $17 per customer. Energex, however, spent $14 per customer.

Our benchmarking results, therefore, shows that Ausgrid's proposed operating expenditure to be overstated. To more reasonably reflect a relatively more efficient business running a network with Ausgrid's characteristics, we substitute the proposed base operating expenditure with an amount equal to Energex's per customer spend. This is just based on Energex's revealed costs, without actually assessing the efficiency of its base operating expenditure which we will undertake when making the Queensland 2015–2020 electricity distribution determination.

Further we would expect, if anything, for Energex to have a higher per customer metering operating expenditure than Ausgrid. This is because Energex has a less dense network. With that in mind, we are satisfied that although our substitute is less than what Ausgrid proposed, it will provide the distribution business with a reasonable opportunity to recover its efficient costs.

We acknowledge that there may be exogenous factors other than customer density which explain why Ausgrid's operating expenditure per customer is higher than Energex's. However, these were not apparent to us and so we have not taken any into account for the purpose of identifying an efficient base.

Our draft decision is therefore to substitute $14 per customer for Ausgrid's proposed amount of $17 per customer. Over the 2014–15 and 2015–19 regulatory control periods, our substitute base leads to a reduction in Ausgrid's proposed operating expenditure by $24.3 million ($2014–15).

Step changes

We considered whether we should apply any step changes to the base operating expenditure we have determined as efficient for Ausgrid.

Step changes may be positive or negative. Positive step changes are applied when costs are likely to be incurred in the forecast period, but are not captured in the base. Negative step changes are the opposite. They are applied because costs in the base will not, or are unlikely to, be incurred in the forecast period.

Ausgrid did not propose any step changes. Notwithstanding this, we consider that Ausgrid should apply a negative step change to account for ancillary metering services, which from 1 July 2015 will be reclassified to ancillary network services and so should, therefore, be excluded from metering operating expenditure allowance. We have not quantified the amount of this negative step change in our draft decision, but will apply it in our final decision.

We should note that Ausgrid will still recover its costs for ancillary metering services. But as with all ancillary network services, this will occur as an upfront payment from a customer to Ausgrid, rather than via the annual metering services charge.

Trend (2014–15 and 2015–19)

We trended forward our base using proposed forecast metering customer numbers, minus the negative step change for special meter reads, to derive our substitute operating expenditure forecast. In the 2014–15 and 2015–19 regulatory control periods, this arrives at a substitute forecast of $119.1 million ($2014–15).

Our substitute is less than the $143.4 million ($2014–15) Ausgrid proposed. However, we consider it to better reflect an efficient distribution business' likely future requirements. This is because, compared to Ausgrid, we applied a more comprehensive forecasting methodology which included the use of benchmarking.

Opening regulatory asset base

We do not accept the opening metering RAB as at 1 July 2014 of $260.8 million as separated by Ausgrid from the RAB for standard control services (SCS). We have determined an opening metering RAB of $267.2 million ($nominal).[90] The separate amount had to be recalculated due to changes in the roll forward model for standard control services as discussed in regulatory asset base, attachment 2.

We do not accept the remaining asset lives proposed by Ausgrid. The method used to derive the remaining asset lives was largely consistent with our preferred weighted average approach, although the buildings and equity raising costs asset classes had proposed remaining asset lives of 15 years which was unexplained. Due to adjustments made to the opening RAB as at 1 July 2014 (discussed in Attachment 2) the remaining asset lives needed to be updated.[91] We updated all the metering asset classes (including buildings and equity raising costs) to reflect the impact of the opening RAB changes and using our preferred weighted average approach.

We accept the standard asset lives proposed by Ausgrid. The standard asset lives proposed for replacement metering assets are consistent with the standard asset lives approved at the 2009 determination. There is no reason to expect these technical lives, which distinguish between two meter types, have changed.

With the opening of competition in metering services, we have determined that where a customer switches service providers during the 2015–19 regulatory control period, we will allow the distribution business to continue to recover residual capital costs through an annual addition to DUOS charges. This will occur through the b-factor in the standard control revenue cap formula (see control mechanisms attachment 14). At the end of the 2015-19 regulatory control period, the amount of residual metering costs (due to customers switching) will be known. We may then consider accelerating the depreciation of these residual assets. Reporting requirements will be developed for the final decision so such assets can be identified and the residual value of the metering RAB determined.

A number of stakeholders had concerns about Ausgrid's policy of installing type 5 meters. In particular, Energy Australia questioned whether Ausgrid should be allowed to recover any residual capital costs associated with type 5 meters which were installed at Ausgrid's discretion rather than following a clear legal or regulatory requirement to do so.[92] We do not currently have the power to conduct an ex post review of past capital expenditure. This means the decision to install type 5 meters cannot be reviewed when assessing Ausgrid's opening metering RAB.

New or upgraded connections

We accept that all new meters for growth or replacement initiated by a customer be recovered upfront from customers.

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90 These adjustments also extend to the tax inputs but the impact is insignificant and therefore not elaborated on here. Refer to the metering PTRM of the draft decision.

91 These adjustments also extend to the tax inputs but the impact is insignificant and therefore not elaborated on here. Refer to the metering PTRM of the draft decision.

92 Energy Australia, *Submission on NSW electricity distribution revenue proposals*, 8 August 2014, p. 4.

We do not accept any of Ausgrid's proposed price caps for new and upgraded connections, which from 1 July 2015 will be recovered as an upfront charge to customers. We also consider there to be scope for Ausgrid's proposed tariff structure to be improved.

Ausgrid did not include a forecast volume of new and upgraded connections for the 2015–19 regulatory control period. Because the charge will be recovered as a 'capital contribution' from 1 July 2015, we consider this to be appropriate. We have therefore based our assessment of Ausgrid's proposed price caps on 'unit costs' only.

Our reasons for not accepting Ausgrid's proposed material unit costs are the same as those set out in our assessment of Ausgrid's capital expenditure building block for the annual metering service charge. We consider the procurement process Networks NSW is running should arrive at efficiencies which we are not satisfied have been reflected in the proposed material unit costs. However on the advice of Marsden Jacob, we consider the non–material unit costs to be reasonable and have accepted them.

Appendix A.1 contains our substitute prices for new and upgraded connections.

Exit fee

Ausgrid's proposed exit fee had two components: residual capital costs ('stranded asset costs') and administration costs. We reject both components as proposed by Ausgrid, however we accept in principle that an exit fee that recovers the efficient incremental (administrative) cost of a customer transfer is appropriate. In Ausgrid's case, the administrative cost component has not been substantiated. Our reasons are discussed in the following sections.

Residual costs

We accept Ausgrid's proposal to include metering RAB recovery in the annual charge for existing customers as this supports the transition to competition. It gives customers and potential entrants a transparent signal of the avoidable cost if they were to switch to an unregulated meter. However, having metering RAB recovery in the annual charge means there is a risk of residual capital costs becoming stranded as customers leave (because they will stop paying the annual charge).

We accept Ausgrid is entitled to recover these residual capital costs but we do not accept their proposed method of recovery through an exit fee.

We consider the economically efficient investment signal to switch to unregulated metering would be to set individual exit fees based on the remaining economic value of the meter. The remaining economic value would vary with the capability of the meter (the meter type) and remaining life (the age) of the meter. This would ensure that an existing meter would only be replaced if the new meter delivers sufficient additional economic value to cover its own cost and cover any remaining economic value of the existing regulated meter.

While at a theoretical level this option has merit, at a practical level it is infeasible for a range of reasons. Firstly there are information constraints: most distribution businesses do not record information about asset type or age at the customer level. Secondly, we are not satisfied that the amount distribution businesses are entitled to recover (based on actual costs) corresponds to the remaining economic value of a meter. This is because regulated historic metering costs may not be

efficient, as distribution businesses have not faced competitive pressures.[93] Finally, we are concerned that it may be inappropriate to charge customers different exit fees that would vary with meter type and age because such investment decisions were made by distribution businesses independently of customer choice.

We therefore looked for an alternative approach and tested various options with stakeholders at our metering workshop on 11 September 2014. We explored the possibility of having more granular exit fees based on meter type, the impact of accelerated depreciation and classifying some metering costs as standard control. There was general consensus that:

- lump sum charges by way of exit fees to recover residual capital costs would deter competitive entry
- an alternative to lump sum charges would be to re-bundle some portion of metering costs as standard control, but at the same time, any such decision should not distort annual metering charges. There was a general concern with maintaining annual charge as cost reflective of actual metering costs as possible by not opting for re-bundling options that would distort these charges by for example, re-bundling certain types of meters such as those already installed in the earlier regulatory control period.

Our draft decision is to allow Ausgrid to recover residual capital costs through general network tariffs i.e. smeared across the general customer base. In practice, existing regulated metering customers will pay for metering capital costs as part of their annual charges. This will ensure that the annual charges are transparent and cost reflective. If a customer chooses to switch to an unregulated metering provider, the remaining portion of residual capital costs attributable to that customer that risk becoming stranded is moved back into the standard control regulatory asset base. Due to information constraints, this portion will be an average amount each customer owes, rather than varying by the particular meter assets at the customer's premise which will vary with meter type and age.

The adjustment of moving residual metering capital costs back into standard control RAB would happen on an annual basis through a b-factor adjustment (see control mechanisms, Attachment 14 for how it would operate).

There is a risk that if many customers churn in the same year, the impact on network tariffs may be large. To mitigate this possible price volatility, we propose to introduce a tolerance limit which would cap how much extra revenue may be added to network tariffs on an annual basis (any amount above the annual tolerance level would be recovered in subsequent years). See the control mechanisms Attachment 14, for the mechanics of how this tolerance level would work.

We consider our alternative approach better meets the criteria outlined in 1.6.3 of this attachment:

- Impact on competition – our approach does not involve directly charging leaving customers for residual metering costs through a lump sum exit fee which stakeholders identified as a significant barrier to competitive entry.
- Administrative simplicity:
    - Simple for switching customers because they do not incur exit fees based on decisions regarding cost and meter type that they did not have any choice in originally

[93] Further, we are unable to assess the ex-post prudency/efficiency of actual capital expenditure.

- Makes use of existing information that Ausgrid has, rather than requesting further calculations on the remaining economic or technical life of individual metering assets which would be burdensome to determine
- Requires limited additional work for Ausgrid and the AER in making b-factor adjustments and managing the tolerance levels on an annual basis.

- Minimise cross subsidies – our approach does involve some cross subsidies because when a customer leaves, the proportion of the metering RAB they would have paid through their annual charges is put back into standard control RAB and recovered through the general network customer base.

  We are satisfied that this is appropriate overall, as future metering costs are signalled directly to specific customers through having a reasonably cost reflective annual charge and charging new meter assets upfront. We consider that limited cross subsidies to recover just the residual capital costs is reasonable as these relate to existing meters which are sunk costs that customers did not originally have choice in incurring.

  This is analogous to the approach taken by the AEMC on the distribution pricing rule change where future costs are to be signalled to customers, but residual network costs are to be recovered in a way that minimises distortions[94] which may also lead to some cross subsidies.

  Any concern with residual cross subsidies is mitigated by the fact that there are likely to be collective benefits from switching to advanced metering technologies such as better demand side participation which may help lower overall network costs for all customers.

In regard to our obligation to ensure reasonable opportunity to recover at least efficient costs, our alternative approach is revenue neutral compared with the proposed exit fee approach.

We acknowledge that our decision to classify residual capital costs as a standard control service leads to lower exit fees and risks relatively increased levels of meter switching. We do not know what the actual efficient exit fee should be for each customer due to information constraints on the age and type of meter, but given that these are all functioning meters, it is likely that there is some remaining economic life and therefore the efficient fee would be a positive amount. Our alternative approach therefore risks faster entry than otherwise i.e. some meters being replaced even though they have significant remaining economic value, because our alternative exit fee (based on incremental administrative costs) will be below the efficient exit fee.

However, on balance, we prefer to err on the side of faster entry rather than too low entry (the risk if we accept Ausgrid's proposal to charge a high exit fee). We make this decision on the basis that it is the clear intent of policy makers to see a competitive metering market develop in the NEM. We also consider that it will help further the NEO because advanced metering solutions facilitate the move towards cost reflective tariffs which are fundamental to achieve efficient use of and investment in distribution networks.

Administration cost

Stakeholder submissions raised concern that the proposed administration charges seemed excessively high and questioned whether Ausgrid should be allowed to recover administration costs at all.[95]

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[94] AEMC, *Draft National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014*, clauses 6.18.5 (f) and 6.18.5 (g)(3).

We accept in principle that Ausgrid should be allowed to charge an exit fee based on incremental administrative costs incurred to process a customer transfer. However, as Ausgrid did not adequately demonstrate they will incur incremental administrative costs, we are led to reject an exit fee based on administrative costs.

Ausgrid proposed administrative costs were calculated as estimated time taken multiplied by a labour rate—but this approach does not demonstrate that such costs are incremental. To demonstrate that Ausgrid will face incremental costs, we consider that it would have to show a reasonable forecast of additional staff they expect to hire over the regulatory period to process customer transfers.

For example, the proposed administration charge would recover $59.8 million[96] if all customers were to exit. If all customers left in a five year period, this would imply that Ausgrid would have to hire an additional 65 dedicated full time staff per year to handle customer transfers to substantiate its proposed costs.[97] This seems implausible given the relatively simple administrative task involved to process a customer exiting.

Indeed, Ausgrid forecast metering customer numbers to grow overall over the period so it is not evident that they expect many customers to churn in the upcoming period. As such, it may be possible that current levels of administrative staff have enough capacity to perform this additional administrative task without the business incurring further costs.

As it is not clear that Ausgrid expect to hire additional staff to perform this task, we do not accept Ausgrid's administration costs. This means that an exit fee will not apply in Ausgrid's circumstances.

16.6.5 Control mechanism for metering

Our draft decision is to apply a price cap for the form of control to fee based services. Under this form of control a schedule of prices is set for the first year. For the following year's the previous year's prices are adjusted by CPI and an X factor. The form of control for fee based metering services is set out below.

$$\overline{p}_i^t \geq p_i^t \qquad \text{i=1,...,n and t=1,2,3,4}$$

$$\overline{p}_i^t = \overline{p}_i^{t-1}(1+CPI_t)(1-X_i^t)$$

Where:

$\overline{p}_i^t$ is the cap on the price of service i in year t. However, for 2015–16 this is the price as determined in Appendix A.1.

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95 Energy Australia, *Submission on NSW electricity distribution revenue proposals*, 8 August 2014, p. 5.
Vector Limited, *Submission on AER Issues paper on NSW electricity distribution regulatory proposals*, 8 August 2014, p. 9.
Energy Retailers Association of Australia, *Submission on Issues paper NSW electricity distribution regulatory proposals*, 8 August 2014, p. 3.

96 This calculation is based on Ausgrid's average proposed administration cost component over 2014-19 ($37.36) of its proposed exit fee multiplied by the approximate number of existing NMIs (1.6 million) as Ausgrid propose to charge an exit fee per NMI. All dollars are in $2014-15.

97 This calculation is based on Ausgrid's proposed administrative labour hourly rate (inclusive of labour on-costs only) of $88.84 and assumes staff are paid to work 8 hours days, 5 days a week. Even if the churn rate was slower, say, over a 10 year period, Ausgrid would still have to hire an additional 32 dedicated staff members per year to build up the proposed $59.8 million in administration costs. All dollars are in $2014–15.

p_i^t is the price of service i in year *t*.

CPI_t is the percentage increase in the consumer price index. It is calculated as follows:

The Consumer Price Index, All Groups Index Number (weighted average of eight capital cities) published by the Australia Bureau of Statistics for the December Quarter immediately preceding the start of regulatory year t;

divided by

The Consumer Price Index, All Groups Index Number (weighted average of eight capital cities) published by the Australia Bureau of Statistics for the December Quarter immediately preceding the start of regulatory year t–1;

minus one.

X_i^t x is zero

16.7 Public Lighting

Public lighting services include the design, financing, procurement and construction of public lighting installations, as well as their on-going maintenance and operation. Ausgrid operates one of the leading electricity networks in Australia, distributing electricity to the Sydney, Central Coast and Hunter regions of NSW across a 22,275 square kilometre area. Ausgrid services about 250,000 street lights on behalf of 41 local councils, community associations and other small customers across their network.[98]

We have maintained public lighting as alternative control because a defined group of customers—local councils and road authorities—purchase these services.

Under clause 2 of the *Code of practice –contestable works*, installation works are contestable. These works involve new or increased capacity connection and are customer funded.

Maintenance of public lighting is not a contestable activity under the *Code of practice–contestable works*. For public lighting assets owned by a distribution business, like-for-like replacements—either initiated by the distribution business or on request from a customer—and maintenance are not contestable. Government policy change would be required to make this contestable.

Assets installed on a contestable basis are gifted to the distribution network service provider and entered into their asset base at zero value. Once the asset is gifted to the distribution network service provider, the distribution business becomes the owner of the asset and is responsible for the on-going maintenance and replacement of the asset. Maintenance charges for assets gifted to the service provider therefore do not include costs to recover capital.

Charges are set according to when the asset was either installed by the distribution network service provider or gifted to them and the type of asset (pole, luminaire model).

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98 Ausgrid, Proposal – Attachment 8.02.

16.7.1 Draft Decision

The draft decision for Ausgrid is a placeholder decision, due to Ausgrid's confidentiality claims hindering the ability of stakeholders to make informed submissions.

Ausgrid has refused to publically release crucial information to councils. This means stakeholders have not had access to the public lighting models or the underlying assumptions used by Ausgrid to calculate their proposed charges. This reduces the ability of stakeholders to review and comment on Ausgrid's proposal.

The placeholder means this draft decision is based on only the public information submitted.

Our draft decision is to not approve Ausgrid's proposed public lighting charges. This is because we do not accept some of the proposed maintenance assumptions that derive the charges and consider that Victorian public lighting benchmarks are a better reflection of efficient public lighting maintenance.

We consider some of the inputs into determining the level of charges do not reflect those of an efficient service provider. In particular we had regard to the following key inputs:

- The bulk light replacement rate
- Lamp spot failure rates
- Labour rates
- Overheads.

In reviewing these inputs we consider the following benchmarks to be appropriate:

- a 4 year bulk replacement program for lamps instead of the proposed 3 years
- failure rates for the major lamp types of between 4 and 6 per cent per annum instead of a proposed average of 8.26 to 18.91 per cent
- time taken for repairs of 31.7 mins instead of the proposed 45.4 mins
- a pre–tax real WACC of 5.06 per cent instead of the proposed 7.06 per cent.

In reviewing the failure rates for lamps we had particular regard to those luminaire types which are most common. Table 166-18 shows these.

Table 166-18 AER Draft Decision Failure Rates

Luminaire Type	2009 AER Determination Failure rates (per cent per annum	Proposed failure rates (per cent per annum)	AER Draft Decision failure rates (per cent per annum)
Mercury Vapour 80	2.43	8.26	4.0
Fluorescent 42	4.01	15.41	6.0
High Pressure Sodium 250	3.65	13.12	5.0
Twin 20W Tubular Fluorescent	11.0	10.29	6.0
High Pressure Sodium 150	3.18	12.57	5.0

50W Mercury Vapour	1.01	18.91	4.0

Source: Ausgrid, Regulatory Proposal, Attachment 8.12 Public Lighting Opex Forecast p. 23.

By applying our benchmarks instead of those proposed Ausgrid's public lighting charges decrease by one per cent in 2015–16 from the previous year. Prices for the remaining years will be adjusted according to our price cap form of control.

The schedule of public lighting charges we approve is set out in Appendix A.1.

Form of price control

The form of price control for public lighting charges is as per our Stage 1 F&A.[99]

$$\overline{p}_i^t \geq p_i^t \qquad \text{i=1,...,n and t=1,..,4,}$$

$$\overline{p}_i^t = \overline{p}_i^{t-1}(1 + CPI_t)(1 - X_i^t) + A_i^t$$

Where:

$\overline{p}_i^t$ is the cap on the price of service i in year t. However, for 2015–16 this is the price as determined in Appendix A.1.

p_i^t is the price of service i in year t.

CPI_t is the percentage increase in the consumer price index. It is calculated as follows:

The Consumer Price Index, All Groups Index Number (weighted average of eight capital cities) published by the Australia Bureau of Statistics for the December Quarter immediately preceding the start of regulatory year t;

divided by

The Consumer Price Index, All Groups Index Number (weighted average of eight capital cities) published by the Australia Bureau of Statistics for the December Quarter immediately preceding the start of regulatory year t-1;

minus one.

X_i^t is the value of X for the year t in the regulatory control period. There are no X-factors for public lighting.

A_i^t is an adjustment factor. Likely to include, but not limited to adjustments for residual charges when customers choose to replace assets before the end of their economic life.

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[99] AER, *Stage 1 Framework and Approach Paper - Ausgrid, Endeavour Energy and Essential Energy Transitional regulatory control period 1 July 2014 to 30 June 2015 - Subsequent regulatory control period 1 July 2015 to 30 June 2019*, March 2013.

16.7.2 Proposal

Ausgrid submitted that its proposed approach to pricing public lighting services is consistent with the our 2009–14 determination. Public lighting customers will continue to pay a fixed charge for assets installed before July 2009 and an annual capital charge for assets installed from that date. Customers will also continue to pay annual maintenance charges per asset.[100] The result is a proposed 16 per cent increase in public lighting charges for 2015–16

Ausgrid submitted that they have undertaken considerable analysis of pricing options, in an attempt to reduce the price list from over 300 prices to a standard list of 24 services.[101]

For assets installed prior to 1 July 2009 the value of the public lighting asset base has been reduced from $140 million as at 1 July 2010 to $101 million at 1 July 2014.

Prices for assets installed after 30 June 2009 include capital costs based on the annuity model. Ausgrid proposes to amend this model to account for updates to inputs. They sought two key model changes:

1. The allocation of labour to the installation of a luminaire and bracket has been split to better reflect the observed volumes of this work. The 2009–14 determination split was 90 per cent to the bracket and 10 per cent to the luminaire. This did not allow for accurate cost reflectivity because brackets are not often replaced with luminaires and therefore only a tenth of the labour is recovered in the annuity price when a luminaire is installed without a new bracket. The proposed split is now 70:30.[102]

2. Overheads and on-costs associated with capex, as well as a proportion of overtime labour has been included to better reflect the costs associated with the installation of these assets.[103]

Additional amendments to this model were proposed to recover new forecasts capex and opex associated with investment programs to replace existing out-dated luminaires with new technology, ostensibly lighting that is environmentally friendly.

During the 2014–15 to 2018–19 regulatory control period Ausgrid proposed to undertake three significant replacement programs:

- LED—replacement of the underperforming 42W compact fluorescent with LEDs
- Active Reactor—replace all high wattage mercury luminaires with high pressure sodium Active Reactor technology
- Twin 20 replacement—remove all Twin 20 fluorescent luminaires and replace with LEDs.[104]

Ausgrid proposed to remove and replace mercury vapour luminaires with Active Reactor technology in July 2014 and to complete by June 2016. Ausgrid submitted that at the completion of the project the following operational outcomes are expected to be achieved:

- Reduced spot replacements

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100 Ausgrid, *Regulatory proposal*, May 2014, p. 88.
101 Ausgrid, *Regulatory Proposal*, May 2014, p. 89.
102 Ausgrid, *Regulatory proposal – Attachment 8.08*, May 2014.
103 Ausgrid, *Regulatory proposal*, May 2014, p. 90.
104 Ausgrid, *Regulatory proposal*, Attachment 8.08, May 2014.

- A step closer to a 4 year bulk light replacement program.

Ausgrid also proposed other changes to its opex cost model which calculates maintenance charges. The key changes include:

- Not assuming a flat rate of 25 per cent overheads for each price. Instead Ausgrid has adopted a percentage calculated using the cost allocation model. In doing this Ausgrid submits they have also removed on-costs from the labour rate to ensure overhead costs are not double counted
- to use actual failure rates, instead of the manufacturers estimated lamp failure rates.[105]

Ausgrid submitted that in the current regulatory control period its operational expenditure was in the order of 40 per cent over the regulatory allowance for maintenance charges in the AER's 2009–10 to 2013–14 Determination. An Ausgrid study found the reason to be primarily due to a higher than expected number of unscheduled maintenance tasks.[106]

Table 166-19 Ausgrid's proposed unscheduled maintenance rates for major light types

Light type	Number	Unscheduled maintenance rate per annum (per cent per annum)
80W Mercury Vapour	79,874	8.26
42W Compact Fluorescent	48,366	15.41
250W High Pressure Sodium	25,112	13.12
Twin 20W Tubular Fluorescent	21,870	10.29
150W High Pressure Sodium	19,742	12.57
250W Mercury Vapour	18,716	11.83
50W Mercury Vapour	12,682	18.91
400W Mercury Vapour	7,300	12.53

Source: Ausgrid, *Regulatory proposal*, Attachment 8.12: Public Lighting Opex forecast, p. 20 and 23.

Ausgrid's proposed forecast opex is based on the following assumptions:

- a three year bulk replacement program for lamps (instead of the 4 year bulk light replacement program for 150W, 250W and 400W HPS, compact fluorescent and fluorescent lamps, 5 year program for twin arc lights and 3 year for all other as determined in the AER's 2009–10 to 2013–14 Determination)
- assumed average major light failure rates for 2015–19 of 8.26 to 18.91 per cent, based on actual 2012–13 failure rates (instead of the average rate of 3.6 per cent as approved in 2009–10)
- a labour rate of $42.99 per hour and an overtime labour rate of $81.26 per hour
- Elevated work platform rate of $30.46
- Average visor cost of $40.51

[105] Ausgrid, *Regulatory proposal*, May 2014, p. 90.
[106] Ausgrid, *Regulatory proposal – Attachment 8.01*, May 2014.

- Average PE cell cost of $10.99.

Ausgrid's proposed tariff structure is set out in Table 166-20.

Table 166-20 Ausgrid public lighting tariff structure

Tariff	Installation date	Capital provision	Maintenance responsibility	Replacement responsibility
Rate 1	prior to 1 July 2009	Ausgrid	Ausgrid	Negotiable
Rate 2	prior to 1 July 2009	Customer	Ausgrid	Ausgrid
Rate 3	July 2009 to June 2015	Ausgrid	Ausgrid	Negotiable
Rate 4	after 30 June 2009	Customer	Ausgrid	Negotiable
Rate 5	June 2015 to June 2019	Ausgrid	Ausgrid	Negotiable
Rate 99	Was Tariff 6	Customer	Customer	Negotiable

16.7.3 Assessment approach

In our 2009–10 to 2013–14 determination we decided it was important to develop two schedules of prices, one for assets constructed prior to 1 July 2009 and another for those assets constructed after 30 June 2009. This was due to the limited information on the age of assets constructed before 1 July 2009. Accordingly public lighting charges are set to recover capital charges for pre 2009 assets, capital charges for post 2009 assets and maintenance charges for both pre 2009 assets and post 2009 assets.

The capital charges for the pre 2009 assets were developed using a building block approach. Those are depreciated in accordance with the building block model. This model rolls forward the regulatory asset base (RAB) with allowance for depreciation, indexation and assets that are written off. It calculates the return of capital for each public lighting customer as well as the residual values of components that are replaced before the end of their economic life. There is no additional capital expenditure component. We have reviewed the capital charges model to ensure that depreciation, asset lives and weighted average cost of capital (WACC) have been correctly applied as per our 2009–10 to 2013–14 determination. We have made no further changes to the inputs or assumptions underlying these models which were comprehensively addressed in our 2009–14 determination.

Capital charges for post 30 June 2009 assets are determined using an annuity capital charge approach, which this draft decision continues with. This model derives an annuity charge for each asset, taking into account the capital cost, expected service life and the WACC. In reviewing post 30 June 2009 capital charges we have focussed on the major light types used by New South Wales distribution businesses; the Mercury Vapour 80, Compact Fluorescent 42 and High Pressure Sodium's (70, 150 and 250 watt).

We have identified the maintenance charges as being the major driver for the proposed increases in public lighting charges. In this review we focused our attention on the following key maintenance inputs and to benchmarked these against the Victorian distribution businesses:

- The bulk light replacement rate

- Spot replacements per day
- Spot lamp failure rates
- Labour rates and
- Overhead.

16.7.4 Submissions

We received a number of submissions from councils that endorsed a report from the Southern Sydney Regional Organisation of Councils. Councils submissions in response to Ausgrid's proposal raised the following issues:[107]

- proposed price increase of 13 per cent for 2015–16 and CPI for remaining years
- disquiet about poor service levels
- concern about the efficiency of maintenance and bulk replacement programs
- questioned the completion of the bulk light replacement program
- distrusted the high failure rate of lights
- the need for the AER to review the value of the asset base proposed
- the replacement program for TF2*20W lights should be accompanied by an asset base adjustment
- requests that if Ausgrid is to exit lighting of parks and reserves that handover takes place over a number of years to allow councils to accommodate it in their capital budgets
- suggest 2014–15 $68 million maintenance charge for 42W CFL represents double counting
- cites possible savings from Networks NSW tender of luminaries that won't be known until late 2014 and are not accounted for in Ausgrid's proposal. The scale of the tender should result in significant cost savings that do not appear to be reflected in prices
- suggest that the AER should mandate Ausgrid to use rate 2 arrangements (i.e. council funded) for all new replacement lighting being installed
- concerned that there is no requirement for underground supply fault reporting which should be mandatory and the AER should consider tools to enforce this.

16.7.5 Reasons for draft decision

We do not approve Ausgrid's proposed public lighting charges averaging a 16 per cent increase in 2015-16. Our draft decision is for an average decrease of 20 per cent in 2015–16.

We approve Ausgrid's consolidation of pricing options that sees over 300 prices reduced to a standard list of 24 services.[108] This will simplify street lighting charges for both Ausgrid and the councils, and improve transparency.

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[107] Southern Sydney Regional Organisation of Councils Submission, 8 August 2014.

In making our decision we focused on maintenance charges as we found these to be the major source of uplift in public lighting charges.

Capital charges

Ausgrid applied the standard asset lives and implied depreciation rates as per our 2009–10 to 2013 14 determination. These are set out in Table 166-21.

Table 166-21 Standard asset lives

	Standard asset life (years)	Depreciation (per cent)
Luminaire	20	5
Bracket109	35	2.9
Support	35	2.9
Connection	20	5

Pre 1 July 2009 capital charges

We found an error in Ausgrid's pre 2009 capital charge model. This error relates to the incorrect use of a weighted averaging method to deduce the remaining life for the 2015–19 period and has been fixed by us. The WACC was also updated to reflect our draft decision.

Post 30 June 2009 capital charges

We have updated the post 30 June 2009 model to reflect our decision on the WACC.

Ausgrid proposed two key changes to its model for calculating post 30 June 2009 capital charges. These are:

1. A new 70:30 split for labour associated with brackets and luminaires.[110]
2. Overheads and on-costs associated with capex, as well as a proportion of overtime labour has been included to better reflect the costs associated with the installation of these assets.[111]

We have accepted Ausgrid's proposed allocation of labour.

Other changes Ausgrid sought are mentioned in the proposal section above.[112]

Ausgrid used its opex cost build up model and capex annuity model to calculate the net benefits of the Active Reactor over the standard High Pressure Sodium luminaires. Ausgrid's cost benefit analysis shows there is very little difference in the cost of ownership to Ausgrid for either technology choice. While the yearly annuity capital cost for the new Active Reactor of $71.69 is higher than the cost of standard 150 W HPS and the 250 W HPS of $49.09 the yearly maintenance costs are lower. For the Active Reactor the maintenance costs are $62.85 compared to $84.19 for 150 W HPS and $63.86

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108 Ausgrid, *Regulatory proposal*, May 2014, p. 89.
109 In the AER 2009–10 to 2013–14 decision the assumed asset life for pre July 2009 brackets is 20 years.
110 Ausgrid, *Regulatory proposal – Attachment 8.08*.
111 Ausgrid, *Regulatory proposal*, May 2014, p. 90.
112 Ausgrid, *Regulatory proposal – Attachment 8.08*.

versus $86.20 for 250 W HPS.[113] Overall as there is very little difference in the cost for either technology choice we consider it appropriate to approve Ausgrid's proposal to adopt Active Reactor technology. Ausgrid gave these options to customers and the majority response was to accept the Active Reactor due to the reduction in energy consumption.

Ausgrid's proposal to replace 42 watt compact fluorescent with LEDs and to replace all Twin 20 Fluorescent luminaires with LEDs will also lead to a reduction in cost as set out in Table 166-22. Ausgrid note that the investment trigger is an improvement in spot outage rates when compared to Twin 20 luminaires and the potential to increase the bulk lamp replacement period from 2.5 years to 4 years. The proposed commencement date is June 2015 and completion date is June 2017.[114]

Table 166-22 Ausgrid's proposal to replace 42 watt compact fluorescent with LEDs ($2014–15)

	LED	42 CFL	Twin 20
Yearly maintenance costs	28.55	66.72	53.74
Yearly annuity capital cost	45.13	33.91	24.72
Total	73.68	100.63	78.46

Source: Ausgrid, *Regulatory proposal – attachment 8.1,* p. 6.

Ausgrid submitted the majority of residents prefer the LED's to the current technology. This is supported by submissions we received noting that the businesses should move to new technology lights.

We approve Ausgrid's proposal to replace 42 watt compact fluorescent with LEDs and to replace all Twin 20 Fluorescent luminaires with LEDs as this will lead to a reduction in cost, with added benefit of a reduction in spot failure rates and the potential to increase the bulk lamp replacement period to 4 years.

In conclusion we approve Ausgrid's proposed replacement capex and opex in its post 1 July 2009 capital model and opex model.

Maintenance charges

During this period, Ausgrid submitted that its operational expenditure was in the order of 40% over the regulatory allowance for maintenance charges in the 2009–10 to 2013–14 determination. Ausgrid submitted that as bulk contract and bulk materials categories are reasonably predictable, the increased spend was assumed to come from the spot labour, spot materials and associated equipment cost categories. In order to confirm this assumption a maintenance requirements analysis study was undertaken to determine the actual frequency that the various lamp technologies and luminaires required unscheduled maintenance.

Ausgrid submitted that it is apparent that the assumed failure rates for the 2009–10 to 2013–14 determination are in most cases very low and in some cases lower than the manufacturer's claimed failure rates. For example for 250W and 400W Mercury Vapour lamps a failure rate of approximately 19 per cent over a 3 year period could be expected, which when annualised is approximately 6.33 per cent, whereas the our determination allowed for a 1.68 per cent and 1.45 per cent failure rate for

[113] Ausgrid, *Regulatory proposal – Attachment 8.09*.
[114] Ausgrid, *Regulatory Proposal – Attachment 8.10*.

250W and 400W mercury respectively. Manufacturer's failure rates do not consider the environmental conditions the lamps will experience and should be considered as an absolute.

Ausgrid has proposed the failure rates outlined in Table 166-23. The actual failure rates represent the failures they report experiencing for 2012–13. Our draft decision failure rates are also set out in the table. These failure rates are based on assessment of manufactures claimed failure rates and actual failure rates for different light types being achieved across the NEM. We have taken into account that observed failure rates can often be higher in the field than what is claimed by manufactures. Consequently, we agree to the failure rates being increased from the 2009–10 to 2013–14 determination.

Table 166-23 AER draft decision failure rates

Luminaire Type	Proposed unscheduled maintenance rates (per cent per annum)	AER Draft Decision failure rates (per cent per annum)
Mercury Vapour 80	8.26	4.0
Fluorescent 42	15.41	6.0
High Pressure Sodium 250	13.12	5.0
Twin 20W Tubular Fluorescent	10.29	6.0
High Pressure Sodium 150	12.57	5.0
Mercury Vapour 250	11.83	5.0
Mercury Vapour 50	18.91	4.0
Mercury Vapour 400	12.53	4.0

We consider that Ausgrid's proposed high lamp failure rate assumptions and earlier bulk lamp replacement program of 3 years are not considered efficient, given the expected life of lamps and technological advancements that are improving lamp life. We agree that having different bulk light replacement cycles for different lamp types is inefficient. We consider different bulk lamp replacement cycles could increase the costs due to a reduction in economy of scale having to work different cycle times within the same geographic area. However we consider the bulk lamp replacement program should be 4 years.

Ausgrid's proposed failure rates and bulk lamp replacement programs do not reflect equivalents that are being achieved by efficient distribution businesses elsewhere in the national market. Nor do they match Ausgrid's proposed investment in new LED and Active Reactor technology that Ausgrid itself submitted will lead to lower spot failure rates and improve the potential for a four year bulk lamp replacement cycle.

Endeavour Energy has achieved and is again proposing for the 2015–19 regulatory control period lower failure rates across its lamps of 4.46 per cent compared to Essential Energy (proposing 7.9 per cent). Victorian distribution businesses are also achieving the lower failure rates in line with those proposed by Endeavour Energy.[115] The MV80 in Victoria has an assumed failure rate of 15 per cent

[115] Endeavour Energy, Response to AER Information Request 27, 17 September 2014.

over four years (3.75 per cent per annum) and the T5 lamps an 8.6 per cent failure rate over four years (2.15 per cent per annum).[116]

Ausgrid's proposed 45.4 minutes spot repair time is also not considered efficient. The 31.7 minutes repair time set at the last regulatory determination remains an appropriate benchmark, which was based on our assessment of the efficient time taken to complete repairs.

Ausgrid proposed the following labour escalators. We do not accept the proposed labour escalators and has instead applied the following labour escalators (refer to opex attachment 7).

Table 166-24 NSW Labour Escalators (percentage)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Ausgrid Proposal	2.70	1.25	1.56	2.07	2.06	2.04
Draft Decision	0.58	0.89	0.87	1.40	1.62	1.44

Source: Ausgrid Regulatory Proposal and AER analysis.

We accepted Ausgrid's proposed rates for the following:

- a labour rate of $42.99 per hour and an overtime labour rate of $81.26 per hour
- Elevated work platform rate of $30.46
- Average visor cost of $40.51
- Average PE cell cost of $10.99.

We consider these to be consistent with Victorian benchmarks and to reflect efficient costs. Moreover, the labour rates are comparable to those set out by Marsden Jacob Associates.

Our decision in relation to Ausgrid's proposals will lessen public lighting price increases to be borne by councils from the proposed average increase of 16 per cent to a decrease in prices of 20 per cent in 2015–16.

Service Standards

The NSW Public Lighting Code sets out minimum levels of service from distribution businesses and protections for Councils for Public Lighting in NSW.

In relation to service standards we consider that there is a trade-off between the prices paid by councils and the service provided by distribution businesses.

Whilst the NSW Public Lighting Code sets standards for distribution businesses to adhere to, it is only voluntary. We see our role as setting a minimum level of protection. Negotiation between councils and Ausgrid can secure lower prices than those set by our determination but councils must recognise that the trade-off will be a lower level of service offered by their distribution business or a higher price for a customised service.

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[116] AER, *Energy Efficient Public Lighting Charges - Victoria, Final Decision*, February 2009, pp. 33-36.

A Appendix

A.1 Approved charges for alternative control services

A.1.1 Ancillary Network Services

Table 166-25 Ancillary network services – Ausgrid – draft determination ($2014–15)

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
meter test	73	551.15		401.39	-27.2
off peak conversion	59	199.42		133.8	-32.9
disconnection at pole top/pillar box	148	744.71		267.59	-64.1
metering site establishment	139	52.59		52.59	0.0
Special meter reading & MIMO	44	9.74		9.69	-0.5
Disconnection visit (site visit only)	44	42.1		41.89	-0.5
Vacant property site visit	n/a	34.78		34.78	0.0
Attendance at customers' premises to perform a statutory right where access is prevented	n/a	74.66	Fee-based	74.66	0.0

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Emergency maintenance of failed metering equipment not owned by the network	n/a	156.78	Fee-based	156.78	0.0
Disconnection visit (site visit only)	44	42.1	Fee-based	41.89	-0.5
Disconnection completed	88	139.1	Fee-based	66.9	-51.9
Disconnection visit (disconnection completed - technical/advanced)	88	234.63	fee-based	232.82	-0.7
Disconnection pillar/pole top disconnection completed	148	744.71	fee-based	267.59	-64.1
Reconnection/Disconnection outside normal business hours	95	96.79	fee-based	96.29	-0.5
Reinspection of installation work - customer assets	88.00	175.65		142.81	-18.7
Clearance to work	n/a	999.02		1141.72	14.3
Access (standby person)	70.4	134.49	Hourly Rate	133.8	-0.5
Notification of arrangement	212.3	499.82		464.42	-7.1
Customer interface coordination for contestable works	n/a	218.45	hourly rate	202.6	-7.3
Preliminary enquiry service		221.71	hourly rate	204.27	-7.9

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Connection/relocation process facilitation	n/a	221.74	hourly rate	204.27	-7.9
Planning studies and analysis relating to distribution (incl. sub-transmission & dual function assets) connection applications	n/a	234.82	Hourly Rate	210.96	-10.2
Services involved in obtaining deeds of agreement in relation to property rights		234.82	Hourly Rate	210.96	-10.2
Investigation, review and implementation of remedial actions associated with ASP's connection work		234.82	Hourly Rate	210.96	-10.2
Type 5-7 non-standard Meter Data Services	n/a	14.39	fee-based	14.39	0.0
Emergency maintenance of failed metering equipment not owned by the Network	n/a	156.78	fee-based	156.78	0.0
Disconnection completed	88	139.10	fee-based	66.9	-51.9
Disconnection Visit (Disconnection Completed – Technical/Advanced)	88	234.03	fee-based	232.82	-0.5
Pillar/Pole Top Disconnection Completed	148	744.71	fee-based	267.59	-64.1
Pillar/Pole Top Site Visit	n/a	323.16	fee-based	323.16	0.0

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Reconnection/Disconnection Outside Normal Business Hours	95	96.79	fee-based	96.29	-0.5
Franchise current transformer (CT) meter install	New Service	Quoted service		Quoted service	
Recovery of Debt Collection Costs - Dishonoured Transactions	n/a	25.13	fee-based	25.13	0.0
Attendance at customers' premises to perform a statutory right where access is prevented	n/a	77.72	fee-based	77.72	0.0
Vacant Property Disconnection	88	141.99	fee-based	141.99	0.0
Design related services					
Design Info 1 to 5 Lots/Poles		526.95		428.43	-18.7
Design Info 6 to 10 Lots/Poles		702.60		571.24	-18.7
Design Info 11 to 40 Lots/Poles		1,229.55		999.67	-18.7

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Design Info Over 40 Lots/Poles		1,580.84		1285.29	-18.7
Design Info Kiosk/HVC/PT		658.69		535.54	-18.7
Design Info Chambers		175.65	hourly rate	142.81	-18.7
Design certification		1,468.88		1285.29	-12.5
Underground urban residential subdivision (vacant lots)		2,611.34		2,284.96	-12.5
Rural overhead sub-divisions and rural extensions		1,632.09		1,428.10	-12.5
Underground commercial and industrial or rural subdivisions (Vacant lots no development		2121.72		1856.53	-12.5
Certification Kiosk/HVC/PT		1,053.90		856.86	-18.7
Certification Suburban/CBD Chambers		175.65	hourly rate	142.81	-18.7
Design Rechecking (Quoted Rate)		175.65	hourly rate	142.81	-18.7
ASP inspection services - L1 inspections & L2 reinspections					

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Re-inspections		175.65	Hourly rate	142.81	-18.7
		169.07	Hourly rate	169.07	0.0
		234.91	Hourly rate	210.96	-10.2
HV/LV UG Joint, ABS/Enclosed switch, UGOH		526.95		428.43	-18.7
Decommission substation		1,405.20		1,142.48	-18.7
Substations (Kiosk/PT) or HV Sw cubicle		1,229.55		999.67	-18.7
Travel time		87.82	Flat fee	71.41	-18.7
Inspection fees level 2 ASP					
A-grade	22.00	41.97		29.41	-29.9
B-grade	36.30	68.31		50.83	-25.6
C-grade	105.60	208.83		165.08	-21.0
Contestable substation commissioning					

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Underground Urban Residential Subdivision		2,057.07		1806.975	-12.2
Rural Overhead Subdivisions & Extensions		1,276.21		1062.065	-16.8
Underground Commercial & Industrial or Rural Subdivisions		2,797.54		2404.58	-14.1
Commercial and Industrial Developments		175.65	Hourly Rate	142.81	-18.7
Asset Relocation or Street Lighting		175.65	Hourly Rate	142.81	-18.7
Complex & Chamber Substations (New		175.65	Hourly Rate	142.81	-18.7
Access permits					
general		2,118.75	Hourly Rate	1820.47	-14.1
complex		175.65	Hourly Rate	142.81	-18.7
Authorisation of ASPs			fixed - 2 hrs @ R1		
Level 1		652.57		541.11	-17.1
Level 2		484.03		374.68	-22.6

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Administration					
Underground urban residential subdivision (vacant lots) Up to 5 Lots		530.93		356.24	-32.9
Underground urban residential subdivision (vacant lots) 6 - 10 Lots		663.66		445.3	-32.9
Underground urban residential subdivision (vacant lots) 11 - 40 Lots		929.12		623.42	-32.9
Underground urban residential subdivision (vacant lots) Over 40 Lots		1,061.85		712.48	-32.9
Rural overhead subdivisions and rural extensions Up to 5 Poles		530.93		356.24	-32.9
Rural overhead subdivisions and rural extensions 6 - 10 Poles		663.66		445.3	-32.9
Rural overhead subdivisions and rural extensions 11 or more Poles		1,194.59		801.54	-32.9
Underground commercial and industrial or rural subdivisions (vacant lots - no development Quoted Rate		132.73	Quoted Hourly Rate	89.06	-32.9

Service	Current price	Proposed price			AER draft decision	(draft cf proposed, per cent))
Commercial and industrial developments Quoted Rate		132.73	Quoted Rate	Hourly	89.06	-32.9
Asset relocation or street lighting Quoted Rate		132.73	Quoted Rate	Hourly	89.06	-32.9
Subdivision involving substation/s (NEW)		159.28			106.872	-32.9
Additional services required by ASP/Applicant e.g. Guarantee of revenue, clarification meetings, variations to contract, reinspections etc. (NEW) Quoted Rate		132.73	Quoted Rate	Hourly	89.06	-32.9
Supply of conveyancing information						
desk enquiry	40.7	36.21			29.64	-18.1
field enquiry	80.3	289.82			230.33	-20.5
Connection offer service (basic or standard)						
Basic (excluding 100A Connections requiring load slip or Basic Micro EG Connections >5kW or Over 100A Connection Offer (new or existing site))		11.06			7.42	-32.9

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Basic 100A Connections requiring a load slip or Basic Micro EG Connections >5kW or Over 100A Connection Offer (new or existing site)		202.18		199.79	-1.2
Standard Off-Site or On-Site Augmentation Work		202.18		199.79	-1.2
Standard Offer ASP1 Connections		245.06		257.40	5.0
Standard Embedded Generation >5MVA capacity		234.82	Hourly rate	210.96	-10.2
Rectification works	243.1				
Proposed Fee (FY2015) Illegal Connection		806.93		749.78	-7.1
Proposed Fee (FY2015) Additional Crew		268.98	Hourly rate	267.60	-0.5
Proposed Fee (FY2015) Tiger tails		134.49	Hourly rate + hire charge for tiger tails	133.80	-0.5
Proposed Fee (FY2015) High load escorts		144.78	Hourly rate	136.05	-6.0
Services to supply and connect temporary supply to one or more customers	n/a				

Service	Current price	Proposed price		AER draft decision	(draft cf proposed, per cent))
Proposed Fee (FY2015) Break & remake HV LL Links		5,967.27		5094.12	-14.6
Proposed Fee (FY2015) Break & remake HV bonds		3,137.78		2572.15	-18.0
Proposed Fee (FY2015) Break & remake LV bonds		1,889.72		1873.89	-0.8
Proposed Fee (FY2015) Connect & disconnect MG to OH mains		2,622.62		2600.4	-0.9
Proposed Fee (FY2015) Conn. & discon. MG to LV board in Kiosk		2,052.49		2040.43	-0.6

Table 166-26 AER draft decision on maximum labour charge rates for quoted services, ($2014–15)

Classification	AER Draft Decision maximum labour rate – includes on–cost and overhead specific to Ausgrid (2014–15)
Admin	$88.28
Technical specialist	$131.46
EO 7/Engineer	$167.64
Field worker R4	$104.45

Senior Engineer	$206.47

Table 166-27 AER draft decision on X factors for each year of the regulatory control period for ancillary network service charges

	2015–16	2016–17	2017–18	2018–19
X factor	–0.54	–0.87	–1.00	–0.89

Note: These x factors are consistent with the AER draft decision on labour escalation factors as set out in the Opex Attachment. By adopting the labour escalation rate as the X factor we are allowing for increases in labour costs in addition to CPI over the 2015–19 regulatory period.

A.1.2 Metering

Table 166-28 Ausgrid's approved annual metering charges ($ 2014-15)

	2014–15	2015–16	2016–17	2017–18	2018–19
Residential Inclining Block	29.38	29.60	29.81	30.01	30.23
Residential ToU	47.62	47.86	48.09	48.32	48.56
Controlled Load	11.96	12.08	12.19	12.31	12.43
Small Business Inclining Block	40.28	40.62	40.93	41.24	41.58
Small Business ToU	46.36	46.60	46.81	47.03	47.26

LV 40-160MWh ToU (System)	73.12	73.43	73.71	73.99	74.30
Generator Tariff	14.15	14.28	14.40	14.51	14.64

Table 166-29 Ausgrid's approved new or upgraded prices ($2014–15)

	2014–15	2015–16	2016–17	2017–18	2018–19
Single phase, direct connected, accumulation meter	43.16	44.62	46.26	47.96	49.72
Three phase, direct connected, accumulation meter	113.91	117.13	120.58	124.14	127.81
Single phase, direct connected interval meter	90.14	92.77	95.61	98.55	101.57
Single phase, dual element, direct connected interval meter	155.11	159.37	163.88	168.52	173.29
Three phase, direct connected interval meter	221.12	227.02	233.22	239.60	246.15

Three phase, Current Transformer connected interval meter	232.31	238.50	244.98	251.65	258.50

A.1.3 Public Lighting

Table 166-30 Public Lighting – Ausgrid – draft determination

Opex			Post 2009 Annuity Charge		
Type	Proposed	draft decision	Type	Proposed	draft decision
Connection - O/U (P09)	92.45	88.33	0.5 Bracket	10.76	8.52
Connection - O/U	92.45	88.33	0.6 Bracket	10.49	8.31
Connection - UGR1	84.74	80.97	1 Bracket	9.87	7.81
Connection - UGR1 (P09)	84.75	80.97	1.2 Bracket	10.76	8.52
Connection - UGR2	30.81	29.44	1.5 Bracket	27.99	22.16
Connection - UGR2 (P09)	30.81	29.44	2 Bracket	15.23	12.05
Lamp - EMPTY	31.83	27.52	2.5 Bracket	16.33	12.93
Lamp - INC1x100	257.98	36.48	3 Bracket	23.83	18.86

Opex			Post 2009 Annuity Charge		
Lamp - INC1x1000	466.93	61.31	3.5 Bracket	23.65	18.72
Lamp - INC1x1440	255.43	36.12	4 Bracket	29.10	23.03
Lamp - INC1x150	261.04	37.30	4.5 Bracket	25.35	20.07
Lamp - INC1x150 (P09)	261.04	37.30	5 Bracket	33.30	26.36
Lamp - INC1x200	262.84	37.68	6 Bracket	33.48	26.50
Lamp - INC1x300	283.47	42.02	6.5 Bracket	47.58	37.67
Lamp - INC1x40	258.08	36.50	7 Bracket	47.58	37.67
Lamp - INC1x500	315.51	48.76	8 Bracket	47.58	37.67
Lamp - INC1x60	257.98	36.48	1x40W TF	25.33	21.54
Lamp - INC1x75	257.98	36.48	1x80W TF	23.27	19.79
Lamp - INC3x100	269.75	41.38	1000W MBF	122.80	104.43
Lamp - LED1x237	34.82	29.26	1000W SON	122.80	104.43
Lamp - LED1x29	29.19	26.67	1000W SON FLOODLIGHT	100.66	85.60

Opex			Post 2009 Annuity Charge		
Lamp - MBF1x1000	87.38	55.09	1000W/1500W MBI FLOODLIG	135.99	115.65
Lamp - MBF1x1000 (P09)	87.38	55.09	100W MBI	46.73	39.75
Lamp - MBF1x125	64.19	34.91	100W MBI FLOODLIGHT	50.54	42.99
Lamp - MBF1x125 (P09)	64.19	34.91	100W SON	49.71	42.27
Lamp - MBF1x160	35.20	35.42	100W SON - PARKVILLE	133.68	113.69
Lamp - MBF1x250	74.09	38.17	100W SON FLOODLIGHT	72.60	61.74
Lamp - MBF1x250 (P09)	74.09	38.17	100W SON -PLAIN	49.71	42.27
Lamp - MBF1x400	76.42	38.17	125W MBF	36.75	31.25
Lamp - MBF1x400 (P09)	76.42	38.17	125W MBF - BOURKE HILL	98.58	83.83
Lamp - MBF1x42	68.52	35.06	125W MBF - HYDE PARK	76.18	64.79
Lamp - MBF1x42 (P09)	68.52	35.06	125W MBF - NOSTALGIA	100.47	85.44

Opex			Post 2009 Annuity Charge		
Lamp - MBF1x50	76.25	35.04	125W MBF - PARKVILLE	122.25	103.97
Lamp - MBF1x50 (P09)	76.25	35.04	125W MBF BOLLARD	67.79	57.65
Lamp - MBF1x500	124.25	61.78	125W MBF -PLAIN	36.75	31.25
Lamp - MBF1x700	74.59	54.82	125W/250W MBF FLOODLIGHT	48.00	40.82
Lamp - MBF1x80	52.59	35.01	135W SOX	53.08	45.15
Lamp - MBF1x80 (P09)	52.59	35.01	150W SON	50.14	42.64
Lamp - MBF1x800	124.25	61.78	150W SON - HYDE PARK	76.18	64.79
Lamp - MBF2x125	120.41	39.65	150W SON - PARKVILLE	133.68	113.69
Lamp - MBF2x125 (P09)	120.41	39.65	150W SON - PARKWAY 1	59.62	50.70
Lamp - MBF2x160	37.36	39.65	150W SON FLOODLIGHT	58.53	49.78
Lamp - MBF2x175	37.36	39.65	150W SON GEC 'BOSTON 3'	122.25	103.97

Opex			Post 2009 Annuity Charge		
Lamp - MBF2x400	110.91	39.93	150W/250W MBI FLOODLIGHT	89.34	75.98
Lamp - MBF2x80	71.84	36.72	180W SOX	58.86	50.06
Lamp - MBF3x160	40.25	41.69	2x14W TF - T5 PIERLITE M	37.77	32.12
Lamp - MBF3x250	143.66	41.69	2x175W MBF - PARKWAY 2	148.46	126.26
Lamp - MBF3x400	149.04	41.69	2x20W TF	25.25	21.47
Lamp - MBF3x80	89.70	38.44	2x20W TF - WAVERLEY	25.25	21.47
Lamp - MBF4x1000	237.24	104.13	2x250W SON FLOODLIGHT	81.95	69.69
Lamp - MBF4x80	106.28	40.15	2x26W TF MACQUARIE DEC.	115.88	98.55
Lamp - MBF6x125	238.15	46.19	2x400W MBF - PARKWAY 2	148.46	126.26
Lamp - MBF6x160	46.71	46.19	2x400W MBI FLOODLIGHT	150.65	128.12
Lamp - MBF9x160	53.73	51.10	2x400W SON	162.43	138.14

Opex			Post 2009 Annuity Charge		
			FLOODLIGHT		
Lamp - MBI1x100	103.87	47.07	2x40W TF	39.21	33.35
Lamp - MBI1x100 (P09)	103.87	47.07	2x70W SON - BOURKE HILL	157.72	134.14
Lamp - MBI1x1000	169.44	82.89	2x80W MBF - BOURKE HILL	78.75	66.98
Lamp - MBI1x1000 (P09)	169.44	82.89	250W MBF	49.27	41.90
Lamp - MBI1x150	145.88	69.98	250W MBF - PARKVILLE	125.36	106.62
Lamp - MBI1x150 (P09)	145.88	69.98	250W MBF - PARKWAY 1	59.62	50.70
Lamp - MBI1x1500	141.63	67.66	250W MBI - SMARTPOLE	24.22	20.60
Lamp - MBI1x250	102.75	46.35	250W SON	50.14	42.64
Lamp - MBI1x250 (P09)	102.75	46.35	250W SON - PARKVILLE	144.30	122.72
Lamp - MBI1x3745	84.08	36.12	250W SON - PARKWAY 1	59.62	50.70

Opex			Post 2009 Annuity Charge		
Lamp - MBI1x400	89.55	47.04	250W SON FLOODLIGHT	58.53	49.78
Lamp - MBI1x400 (P09)	89.55	47.04	250W SON GEC 'BOSTON 3'	124.56	105.93
Lamp - MBI1x500	125.95	59.06	2X14W TF - T5 PIERLIGHT	37.77	32.12
Lamp - MBI1x70	76.26	44.18	3x400W MBF - PARKWAY 3	148.46	126.26
Lamp - MBI1x70 (P09)	76.26	44.18	4x1000W MBF	129.52	110.15
Lamp - MBI1x70 II	64.51	52.05	4x20W TF	62.21	52.91
Lamp - MBI2x400	103.02	56.46	4x20W TF - WAVERLEY	62.21	52.91
Lamp - MBI4x150	253.27	157.54	4x250W SON	92.11	78.34
Lamp - SON1x100	83.52	42.91	4x40W TF	73.85	62.81
Lamp - SON1x100 (P09)	83.52	42.91	4x40W TF - WAVERLEY	68.58	58.32
Lamp - SON1x1000	98.89	65.59	4x600W SON	139.68	118.79

Opex			Post 2009 Annuity Charge		
Lamp - SON1x1000 (P09)	98.89	65.59	400W MBF	39.65	33.72
Lamp - SON1x120	78.67	42.93	400W MBF - PARKWAY 1	81.95	69.69
Lamp - SON1x150	86.50	43.27	400W MBF FLOODLIGHT	90.03	76.57
Lamp - SON1x150 (P09)	86.50	43.27	400W MBI - SMARTPOLE	24.22	20.60
Lamp - SON1x150 AR	64.42	45.07	400W MBI FLOODLIGHT	68.09	57.91
Lamp - SON1x220	92.28	51.17	400W SON	54.39	46.26
Lamp - SON1x250	88.58	43.27	400W SON - PARKWAY 1	59.62	50.70
Lamp - SON1x250 (P09)	88.58	43.27	400W SON FLOODLIGHT	58.53	49.78
Lamp - SON1x250 AR	65.46	45.07	40W SOX	25.33	21.54
Lamp - SON1x310	91.06	50.42	42W MBF SYLVANIA SUB ECO	34.64	29.46
Lamp - SON1x360	91.06	50.42	500W MBI FLOODLIGHT	86.11	73.23

Opex			Post 2009 Annuity Charge		
Lamp - SON1x400	95.80	44.16	50W MBF	25.92	22.05
Lamp - SON1x400 (P09)	95.80	44.16	50W MBF - BOURKE HILL	78.75	66.98
Lamp - SON1x400 AR	92.03	68.39	50W MBF - NOSTALGIA	78.75	66.98
Lamp - SON1x50	63.81	38.26	50W MBF - PLAIN	25.92	22.05
Lamp - SON1x50 (P09)	63.81	38.26	50W MBF BOLLARD	49.60	42.19
Lamp - SON1x70	64.05	39.48	50W SON	25.05	21.30
Lamp - SON1x70 (P09)	64.05	39.48	50W SON - BOURKE HILL	88.17	74.98
Lamp - SON2x250	137.17	47.51	50W SON - NOSTALGIA	39.54	33.63
Lamp - SON2x250 (P09)	137.17	47.51	60W SOX	25.33	21.54
Lamp - SON2x400	149.77	49.14	700W MBF	52.87	44.96
Lamp - SON2x70	93.32	43.72	70W MBI	32.63	27.75
Lamp - SON3x70	167.34	75.10	70W MBI - MACQUARIE DEC.	136.56	116.14

Opex			Post 2009 Annuity Charge		
Lamp - SON4x250	216.53	56.00	70W SON	28.54	24.27
Lamp - SON4x600	230.15	56.00	70W SON - BOURKE HILL	88.17	74.98
Lamp - SON4x70	144.33	52.20	70W SON - GEC BOSTON 2	103.26	87.82
Lamp - SON8x70	223.33	69.17	70W SON - NOSTALGIA	82.16	69.88
Lamp - SOX1x135	94.26	47.15	70W SON - PARKVILLE	103.26	87.82
Lamp - SOX1x150	94.26	47.15	70W SON - REGAL/FLINDERS	146.01	124.18
Lamp - SOX1x180	179.17	96.90	70W SON BOLLARD	62.54	53.18
Lamp - SOX1x90	81.75	43.26	70W SON FLOODLIGHT	34.58	29.41
Lamp - TF1x16	110.08	36.24	70W SON -PLAIN	28.54	24.27
Lamp - TF1x176	149.48	40.72	750W MBI FLOODLIGHT	86.11	73.23
Lamp - TF1x20	110.08	36.24	80W MBF	24.68	20.99

Opex			Post 2009 Annuity Charge		
Lamp - TF1x236	149.48	40.72	80W MBF - PLAIN	24.68	20.99
Lamp - TF1x26	110.08	36.24	80W MBF - BEGA+CURVE BRA	129.16	109.84
Lamp - TF1x40	66.48	36.24	80W MBF - BOURKE HILL	60.11	51.12
Lamp - TF1x40 (P09)	66.48	36.24	80W MBF - GEC BOSTON 2	103.26	87.82
Lamp - TF1x60	110.08	36.24	80W MBF - NOSTALGIA	77.43	65.85
Lamp - TF1x80	110.69	36.49	80W MBF - REGAL/FLINDERS	140.82	119.76
Lamp - TF2x14 T5	43.67	41.51	80W MBF - SYLVANIA SUBUR	24.68	20.99
Lamp - TF2x14 T5 (P09)	43.67	41.51	80W MBF BOLLARD	49.60	42.19
Lamp - TF2x20	55.14	36.62	80W MBF TOORAK	70.58	60.03
Lamp - TF2x20 (P09)	55.14	36.62	90W SOX	70.40	59.88
Lamp - TF2x26	110.63	36.62	BOLLARD	38.81	30.72

Opex			Post 2009 Annuity Charge		
Lamp - TF2x26 (P09)	110.63	36.62	C4	64.37	50.95
Lamp - TF2x40	188.33	36.62	COLUMN 10.5M-13.5M	726.31	574.91
Lamp - TF2x58	110.63	36.62	COLUMN 14M-15M	726.31	574.91
Lamp - TF2x80	188.33	36.62	COLUMN 2.5M-3.5M	653.45	517.23
Lamp - TF3x20	111.18	37.01	COLUMN 4-6.5M ORION WATE	667.73	528.54
Lamp - TF3x40	266.58	37.01	COLUMN 4M-6.5M	690.77	546.78
Lamp - TF3x80	268.44	37.68	COLUMN 7M-10M	679.16	537.59
Lamp - TF4x20	111.73	37.39	DECORATIVE COLUMN	705.59	558.51
Lamp - TF4x40	344.83	37.39	DEDICATED SUPPORT & COND	663.63	525.29
Lamp - TF4x40 (P09)	344.83	37.39	HYDE PARK STANDARD	759.35	601.06
Lamp - TF4x80	347.31	38.28	INCANDESCENT	19.58	16.65
Lamp - TF5x58	112.28	37.78	MACQUARIE	46.25	36.61

Opex			Post 2009 Annuity Charge		
			STANDARD		
Lamp - TF5x65	112.28	37.78	MAST 15.5M-30M	686.66	543.53
Lamp - TF5x80	133.60	38.87	MAST 23M	686.66	543.53
Lamp - TF6x20	112.83	38.16	MAST 25M	686.66	543.53
Lamp - TF6x36	112.83	38.16	NIL	5.05	3.99
Lamp - TF6x80	134.45	39.46	O/U	10.37	8.82
Lamp - TH1x1000	80.03	47.62	ORION DOUBLE ARM	31.41	24.86
Lamp - TH1x1500	77.72	46.12	POLO 10.5M DECORATIVE 2M	62.51	49.48
Lamp - TH1x400	86.20	51.62	POLO 4.5M DECORATIVE 1.2	62.51	49.48
Lamp - TH1x500	73.53	43.40	ROCKS STANDARD	675.78	534.92
Lamp - TH1x500 (P09)	73.53	43.40	SMARTPOLE DOUBLE	5.05	3.99
Lamp - TH1x750	80.84	48.14	SMARTPOLE SINGLE LONG	5.05	3.99

Opex	Post 2009 Annuity Charge		
	SMARTPOLE SINGLE SHORT	5.05	3.99
	SUSPENDED	15.76	12.48
	T1	21.21	16.79
	T2	28.48	22.54
	T2A	28.48	22.54
	T3	28.48	22.54
	T3A	28.48	22.54
	T4	28.74	22.75
	T5	28.74	22.75
	T6	33.48	26.50
	T7	33.48	26.50
	TH FLOODLIGHT	146.38	124.49
	UGORDA	10.37	8.82

Opex	Post 2009 Annuity Charge		
	UGR1	14.40	12.24
	UGR2	10.37	8.82
	UGS	10.37	8.82
	EMPTY	16.12	13.71
	PRIVATE	5.05	3.99
	PRIVATE	16.12	13.71
	0.5 (P09)	10.76	8.52
	1.2 (P09)	10.76	8.52
	1000W SON (P09)	122.80	104.43
	100W SON (P09)	49.71	42.27
	100W SON Floodlight (P09)	72.60	61.74
	100W SON -PLAIN (P09)	49.71	42.27
	125W MBF (P09)	36.75	31.25

Opex	Post 2009 Annuity Charge		
	125W MBF -PLAIN (P09)	36.75	31.25
	150W SON - Parkway 1 (P09)	59.62	50.70
	150W SON (P09)	50.14	42.64
	150W SON Active Reactor	73.24	62.28
	150W SON Floodlight (P09)	58.53	49.78
	1x29W LED	46.11	39.21
	2.0 (P09)	15.23	12.05
	250W SON - Parkway 1(P09)	59.62	50.70
	250W SON (P09)	50.14	42.64
	250W SON Active Reactor	73.24	62.28
	250W SON Floodlight (P09)	58.53	49.78

Opex	Post 2009 Annuity Charge		
	2x14W TF - T5 Pierlight (P09)	37.77	32.12
	3.0 (P09)	23.83	18.86
	3.5 (P09)	23.65	18.72
	4.0 (P09)	29.10	23.03
	400W SON - Parkway 1(P09)	59.62	50.70
	400W SON (P09)	54.39	46.26
	400W SON Active Reactor	81.95	69.69
	400W SON Floodlight (P09)	58.53	49.78
	42W MBF - Sylvania Suburban Ec (P09)	34.64	29.46
	70W MBI II	28.65	24.36
	70W MBI II AERO	29.74	25.29
	70W SON - Nostalgia	82.16	69.88

Opex	Post 2009 Annuity Charge		
	(P09)		
	70W SON (P09)	28.54	24.27
	70W SON Floodlight (P09)	34.58	29.41
	70W SON -PLAIN (P09)	28.54	24.27
	80W MBF - Bourke Hill (P09)	60.11	51.12
	80W MBF - PLAIN (P09)	24.68	20.99
	80W MBF - Sylvania Suburban (P09)	24.68	20.99
	Column 10.5m-13.5m (P09)	726.31	574.91
	Column 2.5m-3.5m (P09)	653.45	517.23
	Column 4m-6.5m (P09)	690.77	546.78
	Column 7m-10m	679.16	537.59

Opex	Post 2009 Annuity Charge		
	(P09)		
	Dedicated Support & Conductor (P09)	52.68	41.70
	Macquarie Standard (P09)	46.25	36.61
	O/U (P09)	10.37	8.82
	Orion Double Arm (P09)	31.41	24.86
	Suspended (P09)	10.72	8.48
	T1 (P09)	23.74	18.79
	T2A (P09)	28.48	22.54
	T3 (P09)	28.48	22.54
	T4 (P09)	28.74	22.75
	T5 (P09)	28.74	22.75
	T6 (P09)	33.48	26.50

Opex				
	Post 2009 Annuity Charge			
	T7 (P09)	33.48	26.50	
	UGR1 (P09)	14.40	12.24	
	UGR2 (P09)	10.37	8.82	

Table 166-31: Pre-2009 capital charge

Customer	FY16		FY17		FY18		FY19	
	proposed	draft decision	proposed	draft decision	proposed	draft decision	proposed	draft decision
Customer 1	211,425	164,838	160,291	124,972	121,561	94,776	92,189	71,876
Customer 2	0	0	0	0	0	0	0	0
Customer 3	477,181	407,461	467,115	398,866	457,398	390,569	447,884	382,444
Customer 4	0	0	0	0	0	0	0	0
Customer 5	1,074,360	913,094	1,002,930	852,386	936,530	795,953	874,527	743,257
Customer 6	266	106	186	74	129	51	90	36
Customer 7	313,855	287,585	279,255	255,881	248,544	227,740	221,210	202,695

Customer	FY16		FY17		FY18		FY19	
Customer 8	206,719	185,208	206,442	184,959	206,227	184,767	206,012	184,575
Customer 9	711,600	603,664	695,520	590,023	680,008	576,864	664,842	563,998
Customer 10	9,851	6,352	8,098	5,222	6,659	4,294	5,476	3,531
Customer 11	222,559	219,702	216,692	213,909	211,042	208,332	205,540	202,901
Customer 12	446,106	387,691	437,475	380,190	429,139	372,946	420,963	365,840
Customer 12 2	0	0	0	0	0	0	0	0
Customer 14	640,468	542,827	585,448	496,195	535,315	453,705	489,475	414,853
Customer 15	1,446,758	1,142,701	1,351,237	1,067,255	1,262,402	997,090	1,179,408	931,538
Customer 16	2,704	2,019	2,311	1,726	1,976	1,476	1,690	1,262
Customer 17	2,907	2,837	2,859	2,790	2,812	2,744	2,766	2,699
Customer 18	0	0	0	0	0	0	0	0
Customer 19	0	0	0	0	0	0	0	0
Customer 20	4,954	5,041	5,383	5,478	5,850	5,953	6,358	6,471
Customer 21	0	0	0	0	0	0	0	0

Customer	FY16		FY17		FY18		FY19	
Customer 22	0	0	0	0	0	0	0	0
Customer 23	0	0	0	0	0	0	0	0
Customer 24	0	0	0	0	0	0	0	0
Customer 25	0	0	0	0	0	0	0	0
Customer 26	0	0	0	0	0	0	0	0
Customer 27	0	0	0	0	0	0	0	0
Customer 28	0	0	0	0	0	0	0	0
Customer 29	675	467	607	420	546	378	491	340
Customer 30	0	0	0	0	0	0	0	0
Customer 31	0	0	0	0	0	0	0	0
Customer 32	19,895	12,823	17,171	11,068	14,825	9,556	12,799	8,250
Customer 33	1,097,047	1,040,942	1,097,737	1,041,596	1,098,757	1,042,564	1,099,778	1,043,533
Customer 34	0	0	0	0	0	0	0	0
Customer 35	1,148,829	1,029,545	1,131,588	1,014,095	1,114,942	999,177	1,098,540	984,478

Customer	FY16		FY17		FY18		FY19	
Customer 36	88,045	78,032	84,835	75,187	81,766	72,468	78,809	69,847
Customer 37	464,484	414,691	455,263	406,458	446,359	398,509	437,629	390,715
Customer 38	0	0	0	0	0	0	0	0
Customer 39	350,953	307,570	347,808	304,814	344,795	302,173	341,809	299,556
Customer 40	776,521	652,490	679,294	570,792	594,419	499,474	520,149	437,067
Customer 41	684,818	647,607	694,496	656,759	704,522	666,240	714,693	675,859
Customer 42	175,939	149,447	145,164	123,306	119,809	101,768	98,882	83,992
Customer 43	318,471	258,483	296,323	240,507	275,799	223,849	256,696	208,344
Customer 44	528,989	686,873	621,530	807,034	730,479	948,501	858,526	1,114,766
Customer 45	194,625	143,521	157,906	116,444	128,154	94,503	104,007	76,697
Customer 46	0	0	0	0	0	0	0	0
Customer 47	0	0	0	0	0	0	0	0
Customer 48	131,690	115,413	124,273	108,913	117,309	102,810	110,736	97,049
Customer 49	421,425	346,380	366,034	300,853	318,020	261,388	276,303	227,101

Customer	FY16		FY17		FY18		FY19	
Customer 50	104,485	106,915	110,137	112,698	116,129	118,830	122,448	125,295
Customer 51	506	385	487	370	468	356	451	343
Customer 52	503	486	429	415	366	354	312	302
Customer 53	503	486	429	415	366	354	312	302
Customer 54	1,695	1,475	1,703	1,482	1,712	1,490	1,721	1,497
Customer 55	0	0	0	0	0	0	0	0
Customer 56	1,721	1,412	1,739	1,426	1,757	1,442	1,776	1,457
Customer 57	0	0	0	0	0	0	0	0
Customer 58	1,091,975	1,113,604	1,124,280	1,146,549	1,157,890	1,180,824	1,192,504	1,216,124
Customer 59	0	0	0	0	0	0	0	0
Customer 60	0	0	0	0	0	0	0	0
Customer 61	0	0	0	0	0	0	0	0
Customer 62	0	0	0	0	0	0	0	0
Customer 63	0	0	0	0	0	0	0	0

Customer	FY16		FY17		FY18		FY19	
Customer 64	0	0	0	0	0	0	0	0
Customer 65	906	888	899	882	894	877	888	871
Customer 66	865	572	780	516	704	465	635	420
Customer 67	266,887	208,950	205,249	160,692	157,893	123,617	121,464	95,096
Customer 68	0	0	0	0	0	0	0	0
Customer 68 2	0	0	0	0	0	0	0	0
Customer 70	0	0	0	0	0	0	0	0
Customer 71	160	110	143	99	128	88	115	79
Customer 72	5,246	4,459	5,192	4,414	5,140	4,370	5,089	4,326
Customer 73	168,808	89,437	133,162	70,551	105,074	55,670	82,911	43,928
Customer 74	0	0	0	0	0	0	0	0
Customer 75	282,276	354,650	314,319	394,909	350,105	439,870	389,965	489,950
Customer 76	43	37	24	21	14	12	8	7
Customer 77	1,015	405	532	212	279	111	146	58

Customer	FY16		FY17		FY18		FY19	
Customer 77 2	0	0	0	0	0	0	0	0
Customer 77 3	0	0	0	0	0	0	0	0
Customer 80	827,935	733,675	806,026	714,260	784,933	695,568	764,391	677,365
Customer 81	25,932	29,928	29,189	33,688	32,866	37,931	37,005	42,709
Customer 82	633,377	593,560	620,124	581,140	607,330	569,150	594,801	557,408
Customer 83	129	15	42	5	14	2	5	1
Customer 84	0	0	0	0	0	0	0	0
Customer 85	0	0	0	0	0	0	0	0
Customer 86	0	0	0	0	0	0	0	0
Customer 87	261	79	157	47	94	28	57	17
Customer 88	132,849	150,937	147,934	168,076	164,782	187,217	183,548	208,538
Customer 89	7,846	6,344	7,418	5,998	7,016	5,673	6,636	5,365
Customer 90	196,808	180,757	181,532	166,727	167,492	153,832	154,538	141,934
Customer 91	1,636,265	1,482,325	1,616,204	1,464,152	1,596,870	1,446,636	1,577,766	1,429,330

Customer	FY16		FY17		FY18		FY19	
Customer 92	0	0	0	0	0	0	0	0
Customer 93	53,597	55,058	56,214	57,745	58,976	60,583	61,874	63,559
Customer 93 2	0	0	0	0	0	0	0	0
Customer 93 3	0	0	0	0	0	0	0	0
Customer 96	0	0	0	0	0	0	0	0
Customer 97	25,671	21,502	23,561	19,735	21,631	18,118	19,859	16,633
Customer 98	70,819	74,112	69,922	73,174	69,058	72,269	68,204	71,376
Customer 99	753,569	689,221	679,195	621,198	612,345	560,057	552,076	504,934
Customer 100	347,118	288,847	327,340	272,390	308,782	256,947	291,276	242,379
Customer 101	398,374	337,069	387,129	327,555	376,314	318,405	365,802	309,510
Customer 102	407,932	341,197	369,718	309,234	335,184	280,350	303,876	254,164
Customer 103	1,016,354	965,791	1,026,140	975,090	1,036,331	984,775	1,046,624	994,556
Customer 104	0	0	0	0	0	0	0	0
Total	20,636,551	18,590,102	19,888,617	18,044,033	19,275,030	17,616,888	18,777,356	17,295,401