FINAL DECISION
AusNet Services distribution determination
2016 to 2020

Attachment 16 – Alternative control services

May 2016

AUSTRALIAN ENERGY REGULATOR

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Note

This overview forms part of the AER's final decision on AusNet Services' distribution determination for 2016–20. It should be read with all other parts of the final decision.

The final 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

Attachment 14 – Control mechanisms

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Shortened forms

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AMI	Advanced metering infrastructure
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
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
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

Shortened form	Extended form
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and 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

Alternative control services are services provided by distributors to specific customers. They do not form part of the distribution use of system revenue allowance approved by us for each distributor. Rather, distributors recover the costs of providing alternative control services through a selection of prices with most charged on a 'user pays' basis.

In this attachment, we set out our final decision on the prices AusNet Services is allowed to charge customers for the provision of alternative control services (ancillary network services, public lighting and metering).

16.1 Ancillary network services

For the purposes of this final decision, we refer to the service groups previously identified as 'fee based services' and 'quoted services' collectively as a single group called 'ancillary network services'.[1]

Ancillary network services share the common characteristic of being non-routine services provided to individual customers on an as requested basis.[2] The existing fee based services and quoted services groupings describe the basis on which service prices are determined.[3]

Prices for fee based services are predetermined, based on the cost of providing the service and the average time taken to perform it. These services tend to be homogenous in nature and scope, and can be costed in advance of supply with reasonable certainty.

By comparison, prices for quoted services are based on quantities of labour and materials, with the quantities dependent on a particular task. Prices for quoted services are determined at the time of a customer's enquiry and reflect the individual requirements of the customer and service requested. It is not possible to list prices for quoted services in this decision (any such list would only be for illustrative purposes).

16.1.1 Final decision

We accept AusNet Services' revised proposal for ancillary network services. For these services, AusNet Services' proposed prices for 2016 do not exceed prices based on maximum labour rates (for the distributor's labour types) and times taken to perform the service which we consider efficient in the provision of these services. These prices

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1 AER, *Final framework and approach paper for the Victorian electricity distributors—Regulatory control period commencing 1 January 2016*, 24 October 2014, p. 60.

2 AER, *Final framework and approach paper for the Victorian electricity distributors—Regulatory control period commencing 1 January 2016*, 24 October 2014, p. 60.

3 AER, *Final framework and approach paper for the Victorian electricity distributors—Regulatory control period commencing 1 January 2016*, 24 October 2014, p. 60.

are the same as those we approved in AusNet Services' 2016 pricing proposal.[4] AusNet's 2016 pricing proposal charges applied a CPI adjustment to our preliminary decision charges (and, we approved this CPI adjustment in AusNet's 2016 pricing proposal).

For 2017 and for each subsequent year of the 2016–20 regulatory control period, the prices for ancillary network services will be determined by applying our final decision forms of control which are set out below.

Our final decision has also updated the labour price growth to reflect the most up-to-date forecast. Our final decision labour price growth is set out in Table 16.1 and is discussed in attachment 7—operating expenditure.

Forms of control

Our final decision is to apply price caps as the forms of control to ancillary network services. Figure 16.1 and Figure 16.2 set out the control mechanism formulas for fee based and quoted services, respectively. They are consistent with our final framework and approach,[5] and our preliminary decision.[6] AusNet Services accepted these formulas in its revised regulatory proposal.[7]

Form of control — fee based services

Our final decision applies a price cap form of control for fee based services. Under this form of control, we set a schedule of prices for 2016 which are set out in Table 16.19 of appendix B.1. For 2017 and for each subsequent year of the 2016–20 regulatory control period, the prices for ancillary network services are determined by adjusting the previous year's prices by the formula in Figure 16.1. The X factors in this formula adjust for annual labour price growth.

Figure 16.1 Fee based ancillary network services formula

$$\bar{p}_t^i \geq p_t^i \qquad \text{i=1,...,n and t=2,3,4,5}$$

$$\bar{p}_t^i = \bar{p}_{t-1}^i (1 + CPI_t)(1 - X_t^i)$$

Where:

$\bar{p}_t^i$ is the cap on the price of service i in year t

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4 AusNet Services, *Electricity distribution: Annual tariff proposal 2016*, 1 January 2016, pp. 154, 156–157.

5 AER, *Final framework and approach for the Victorian electricity distributors: Regulatory control period commencing 1 July 2016*, 24 October 2014, pp. 92–93.

6 AER, *Preliminary decision: AusNet Services distribution determination 2016 to 2020: Attachment 16 – Alternative control services*, October 2015, p. 9.

7 AusNet Electricity Services Pty Ltd, *Electricity distribution price review 2016–20: Revised regulatory proposal*, 6 January 2016, p. 13-2. (AusNet Services, *Revised regulatory proposal*, 6 January 2016)

p_t^i is the price of service i in year t

$\overline{p}_{t-1}^i$ is the cap on the price of service i in year t–1

t is the regulatory year

CPI_t is the annual percentage change in the ABS consumer price index (CPI) All Groups, Weighted Average of Eight Capital Cities[8] from the June quarter in year t–2 to the June quarter in year t–1, calculated using the following method:

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–1

divided by

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–2

minus one.

For example, for the 2017 year, t–2 is the June quarter 2015 and t–1 is the June quarter 2016 and in the 2018 year, t–2 is the June quarter 2016 and t–1 is the June quarter 2017 and so on.

X_t^i is the X factor for service i in year t, as set out in Table 16.1.[9]

Table 16.1 AER final decision on X factors for each year of the 2016–20 regulatory control period (per cent)

	2017	2018	2019	2020
X factor	-0.37	-0.79	-0.96	-1.02

Source: AER analysis.

Note: To be clear, the labour price growth is positive for each year of the regulatory control period. However, in operating as de facto X factors in the price caps, positive labour price growth is presented as a negative value.

Form of control — quoted services

Our final decision applies a price cap formula to determine the cost build-up of services that are priced on a 'quoted' basis.[10] Figure 16.2 sets out the price cap formula and

[8] If the ABS does not, or ceases to, publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

[9] Our final F&A erroneously stated the X factor in this formula would incorporate annual adjustments for updates to the trailing cost of debt. However, we note these services do not incorporate a cost of capital and therefore the X factors will not be applied in this manner. Rather, consistent with the price caps applied to these services in other jurisdictions, the X factors will adjust for annual labour price growth as set out in Table 16.1.

Table 16.20 in appendix B.1 sets out the approved 2016 labour rates for quoted services.

Figure 16.2 Quoted services formula

$$Price = Labour + Contractor\ Services + Materials$$

Where:

$Labour$ consists of all labour costs directly incurred in the provision of the service which may include labour on-costs, fleet on-costs and overheads. Labour is escalated annually by $(1+\Delta CPI_t)(1-X_t)$, where:

CPI_t is the annual percentage change in the ABS CPI All Groups, Weighted Average of Eight Capital Cities[11] from the June quarter in year t–2 to the June quarter in year t–1, calculated using the following method:

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–1

divided by

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–2

minus one.

For example, for the 2017 year, t–2 is the June quarter 2015 and t–1 is the June quarter 2016 and in the 2018 year, t–2 is the June quarter 2016 and t–1 is the June quarter 2017 and so on.

X_t^i is the X factor for service i in year t, as set out in Table 16.1.[12]

$Contractor\ Services$ reflect all costs associated with the use of external labour including overheads and any direct costs incurred. The contracted services charge applies the rates under existing contractual arrangements. Direct costs incurred are passed on to the customer.

$Materials$ reflect the cost of materials directly incurred in the provision of the service, material storage and logistics on-costs and overheads.

16.1.2 AusNet Services' revised proposal

AusNet Services accepted our preliminary decision on ancillary network services.[13] In its revised proposal, AusNet Services accepted the changes we made to its:

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10 AER, *Final framework and approach for the Victorian electricity distributors: Regulatory control period commencing 1 July 2016*, 24 October 2014, p. 89.

11 If the ABS does not, or ceases to, publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

12 The X factors applied in this formula adjust for annual labour price growth.

- labour price growth,
- opening prices for fee based services, and
- labour rates for quoted services.[14]

It did not propose any changes to these prices or services.

16.1.3 Assessment approach

Our final decision assessment approach is to ensure that AusNet Services' revised proposal is compliant with our preliminary decision. This is because AusNet Services' revised proposal accepted our preliminary decision.[15]

Our preliminary decision undertook a detailed assessment of AusNet Services' initial proposal by focussing on the key inputs in determining prices for ancillary network services. In summary, our preliminary decision considered:

- maximum total labour rates we developed for Victoria. Our findings were informed by our consultant's, Marsden Jacob Associates', analysis[16]
- since labour is the key input in determining an efficient level of prices for ancillary network services, we focused on comparing AusNet Services' proposed total labour rates against our developed maximum total labour rates
- the other key inputs, being:
    - proposed times taken to perform the service, and
    - contractor rates.

As per section 16.1.4.3 of our preliminary decision, we obtained maximum rates for the following labour components:

- a maximum raw labour rate
- a maximum on-cost rate
- a maximum overhead rate.

We applied these maximum (component) rates to derive maximum total labour rates (for particular labour types) which are presented in Table 16.2. We consider that using our maximum total labour rates to determine prices for services will provide AusNet Services with a reasonable opportunity to recover at least the efficient costs it incurs in providing these services. It will promote the efficient provision of electricity services

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13 AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 12-2.

14 AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 12-2.

15 AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 12-2.

16 Marsden Jacob Associates, *Final provision of advice in relation to alternative control services—public version*, 20 October 2014.

and allow a return commensurate with the regulatory and commercial risks involved for the provision of those services.[17]

Table 16.2 Maximum allowed total labour rates

AER labour category	AER maximum total labour rates ($2014)
Administration	91.88
Technical	160.79
Engineer	172.28
Field worker	160.79
Senior engineer	229.70

Source: AER analysis.

Where a distributor's proposed total labour rates exceeded our maximum total labour rates—which we consider are efficient—we applied our maximum total labour rates to determine ancillary network service charges.

As a further check of our analysis, we benchmarked components of the Victorian distributors' proposed labour costs against one another.

Our final decision assessment on labour price growth is discussed in attachment 7—operating expenditure.

16.1.4 Reasons for final decision

We accept AusNet Services' revised proposal as it accepted our preliminary decision on ancillary network services.[18] Our preliminary decision accepted some aspects of AusNet Services' initial proposal but made the following adjustments:

- removed the net present value adjustments in the cost build up method to establish its proposed first year prices[19]
- substituted in our labour price growth forecast[20]
- substituted our maximum total labour rates for the AusNet Services proposed internal labour rates in the cost build up for three of its services.[21]

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17 NEL, ss. 7A and 16.

18 AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 12-2.

19 AER, *Preliminary decision: AusNet Services distribution determination 2016 to 2020: Attachment 16 – Alternative control services*, October 2015, p. 13-19.

20 AER, *Preliminary decision: AusNet Services distribution determination 2016 to 2020: Attachment 16 – Alternative control services*, October 2015, p. 14.

21 AER, *Preliminary decision: AusNet Services distribution determination 2016 to 2020: Attachment 16: Alternative control services*, October 2015, pp. 7–19.

Our preliminary decision considered these changes were necessary to determine an efficient level of prices for AusNet Services' ancillary network services.

AusNet Services reflected our preliminary decision changes in its 2016 pricing proposal,[22] which we approved in December 2015. AusNet Services also reflected these approved 2016 prices in its cost build up model provided as part of its revised proposal.[23] These approved 2016 prices are set out in Table 16.19 and Table 16.20 in appendix B.1.

16.2 Public Lighting

16.2.1 Final decision

We do not approve the proposed public lighting charges because we have determined a real pre-tax WACC of 4.53 per cent instead of the proposed 6.84 per cent in 2017.

In all other respects we have approved the proposal.

Form of control

We are applying caps on the prices of individual services consistent with the current regulatory arrangements in Victoria.

Although the public lighting service is subject to an alternative control classification the control mechanism is implemented through a public lighting model under a building block approach.

Compliance with the control mechanism is to be demonstrated by the Victorian distributors through the annual pricing proposal, by updating the forecast CPI for the actual CPI each year.

16.2.2 AusNet Services' revised proposal

AusNet Services did not accept the AER's preliminary decision WACC and proposed the addition of frangible poles to public lighting charges but has accepted all other aspects of the AER's preliminary decision.[24]

16.2.3 Assessment approach

Our final decision assessment approach is the same as our preliminary decision. We have also considered AusNet Services' revised regulatory proposal.[25]

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22 AusNet Services, *Electricity distribution annual tariff proposal 2016*, 19 November 2015, pp. 1–158.

23 AusNet Services, *AST ACS_Build up of prices_06 January Confidential*, 6 January 2016.

24 AusNet Services, *Revised regulatory proposal*, 6 January 2016, pp. 12-2 o 12-4.

25 AusNet Services, *Revised regulatory proposal*, 6 January 2016.

Our preliminary decision undertook a detailed assessment of AusNet Services' initial proposal by focussing on the key inputs in determining charges for public lighting. It benchmarked inputs and costs of Victorian distributors against their peers. We did this based on the inputs decided in the 2011-15 determination and included in the modelling. In this way we achieved consistency with the approach we adopted for the 2011 determination and by the State regulator before that.[26]

This approach achieves consistency in assumptions and costs across distributors; nonetheless public lighting charges will always vary somewhat amongst the five Victorian distributors because of each distributor's particular circumstances (size of asset base, geographic patch to cover, mix of luminaire types, among others). We have previously explained this in prior public lighting determinations.[27]

16.2.4 Reasons for final decision

We have adopted the same estimate of WACC as for standard control services. The reasons for the real pre-tax WACC are discussed in attachment 3 — Rate of return.

We accept the addition of frangible poles into public lighting charges in response to VicRoads request to distributors. This will allow distributors to more efficiently replace these poles and meet VicRoads needs.

We accept the materials prices proposed. The Greenhouse Alliance submission argued that the proposed materials prices are in some instances excessive.[28] We however consider that the proposed prices are within the efficient range of prices that are available from suppliers in the market place and that the least cost product will not necessarily be the most efficient option for distributors.

The prices provided in Greenhouse Alliance submission were not at all dissimilar to those that have been provided by distributors, and we understand the Greenhouse Alliance recommends distributors select the cheapest face value material prices available. The least cost purchase price is not necessarily the most effective or efficient for distributors, as distributors need to take into account the reliability of the supplier, the quality of the products that they supply and the total costs for distributors over the life of the materials.

Distributors may also want to source materials from more than one supplier, in order to ensure competitive tension in the market for public lighting inputs. To source from only one supplier runs the risk of supplier monopoly pricing and service quality issues.

For these reasons, we have decided not to simply go with the cheapest costs for public lighting inputs. We think the range of input costs set out by the distributors in their

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[26] Essential Services Commission of Victoria, *Review of Public Lighting Excluded Services*, August 2004 Final Decision, pp. 70-73.

[27] AER, *2011-15 Victorian Electricity Distribution, Final Decision*, p. 836.

[28] Greenhouse Alliance, *Submission to AER Preliminary Decision*, 6 January 2016, p. 2.

models—consistent with past practice—still provides the best estimate of materials costs over the 2016–20 regulatory control period. We accept that AusNet Services must and rightly has taken into account a range of factors such as the life time cost, reliability and quality of the material supplied in selecting efficient materials supplier's products. This is consistent with how AusNet Services has sought to procure public lighting cost inputs, and recovered them through the public lighting charges model.

Final decision charges for each light type are set out in Table 16.3.

Victorian Public Lighting Framework

The framework for public lighting in Victoria is set out in the *Victorian Public Lighting Code 2005* (the Code).

Distributors' licences' stipulate that the terms and conditions for providing public lighting services must be consistent with the Code. Importantly, the Code only extends to the provision by distributors of the ongoing operation, maintenance and replacement of public lighting assets that they own (clause 1.3).

The explanatory note in clause 3 of the Code states that the distributor and the public lighting customer may agree that after the construction and commissioning of the assets, ownership of the assets will transfer to the distributor. Where such an agreement is made, the assets become subject to the applicable provisions of the Code. If no agreement is reached, asset ownership remains with the public lighting customer and are not subject to regulation under the Code.

Our decision on public lighting charges is made in accordance with the Code and as such, we are only determining the charges to be levied by distributors for assets that they own.

Service Standards

The Code sets out minimum levels of service from distribution businesses and protections for Councils for public lighting in Victoria.

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

We see our role as setting a minimum level of protection. Councils can seek to negotiate with distributors to secure lower charges than those set by our determination but the Code mandates minimum service standards. Regulated charges are set for these minimums. Councils can negotiate for superior service but the trade-off is likely to be higher charges for a customised service.

Table 16.3 Public Lighting Charges ($ nominal)

	2016	2017	2018	2019	2020
Central					
Mercury Vapour 80W	37.79	39.91	42.03	44.12	46.17
HP Sodium 150W	93.95	97.56	101.18	104.80	108.41
HP Sodium 250W	94.87	98.52	102.18	105.84	109.49
Mercury Vapour 50W	57.81	61.07	64.30	67.50	70.65
Mercury Vapour 125W	55.55	58.67	61.78	64.86	67.88
Mercury Vapour 250W	99.61	103.44	107.29	111.13	114.97
Mercury Vapour 400W	103.41	107.38	111.37	115.37	119.34
HP Sodium 100W	100.53	104.38	108.26	112.13	116.00
HP Sodium 400W	134.72	139.89	145.09	150.30	155.48
Metal Halide 70W	164.94	174.22	183.46	192.59	201.56
Metal Halide 100W	224.33	232.93	241.58	250.23	258.84
Metal Halide 150W	254.85	264.63	274.45	284.28	294.06
HP Sodium 50W	41.65	43.25	44.86	46.46	48.06
T5 2X14W	35.26	35.36	35.85	36.54	37.35
T5 2X24W	41.65	41.78	42.35	43.14	44.06
LED 18W	18.33	17.47	17.19	17.20	17.37
CF 32W	31.29	31.38	31.82	32.44	33.15
CF 42W	31.29	31.38	31.82	32.44	33.15
North & East					
Mercury Vapour 80W	43.11	45.46	47.80	50.11	52.39
HP Sodium 150W	107.17	111.18	115.20	119.24	123.26
HP Sodium 250W	105.94	109.92	113.93	117.94	121.93
Mercury Vapour 50W	63.80	67.28	70.74	74.17	77.54
Mercury Vapour 125W	63.80	67.28	70.74	74.17	77.54
Mercury Vapour 250W	110.18	114.32	118.49	122.65	126.81
Mercury Vapour 400W	113.36	117.62	121.90	126.19	130.47
HP Sodium 100W	114.67	118.96	123.27	127.58	131.89
HP Sodium 400W	150.43	156.09	161.78	167.47	173.15
Metal Halide 70W	164.00	172.94	181.85	190.66	199.32
Metal Halide 100W	227.00	235.48	244.01	252.55	261.06

	2016	2017	2018	2019	2020
Metal Halide 150W	257.89	267.53	277.21	286.92	296.59
HP Sodium 50W	48.73	50.56	52.39	54.22	56.05
T5 2X14W	39.93	40.16	40.78	41.60	42.54
T5 2X24W	47.11	47.38	48.10	49.03	50.10
LED 18W	18.72	17.88	17.63	17.66	17.85
CF 32W	35.53	35.74	36.29	37.02	37.85
CF 42W	35.53	35.74	36.29	37.02	37.85

Source: AER analysis.

16.3 Metering

We are responsible for the economic regulation of the regulated metering services provided by the Victorian distribution businesses.

Type 1–4 (advanced) meters for large customers are competitively provided in Victoria and are therefore unregulated. We regulate all other metering in Victoria.

Since 2009, there has been a derogation in Victoria which has meant that the scope of our regulation has been set under the Advanced Metering Infrastructure (AMI) Cost Recovery Order-in-Council (the Order) made by the Victorian Government. The Order mandated distributors install advanced remotely read interval meters together with appropriate communications and information technology systems for all small electricity customers in Victoria.

Our Framework and Approach Paper (F&A) introduced the term 'smart meters' to refer to the advanced remotely read interval meters installed under the derogation.[29] From 2009 to 2015, the Order directed the AER to set budgets and charges for the AMI rollout under a prescribed regime instead of the NER.

The rollout of smart meters in Victoria is now effectively complete with almost 2.8 million meters installed across the state.[30] As a result, metering in Victoria is entering a "business-as-usual" phase in the 2016-20 regulatory control period. To facilitate this transition, metering services will now be regulated under the NEL and NER, subject to certain modifications set out in the Order.

[29] AER, *Final Framework and Approach for the Victorian Electricity Distributors*, October 2014, p. 48.

[30] Victorian Government, Department of Economic Development, Jobs, Transport and Resources http://www.smartmeters.vic.gov.au/about-smart-meters/end-of-rollout, accessed 11 October 2015.

The AEMC published its final rule change on expanding competition in metering on 26 November 2015.[31] For jurisdictions that are part of the national metering framework, the new rules will take effect from 1 December 2017.[32] It is not clear at this stage the extent to which the Victorian Government will adopt the national framework.

We make this final decision taking into account the current jurisdictional context. This final decision focuses on facilitating smooth transition from the Order to the NER, noting the national context for introducing competition to metering. We have maintained many of the same elements currently in the Order: a revenue cap and recovering the capital for new and upgraded meters as part of the annual charge. However, the Order requires us to set restoration and exit fees in accordance with the Order and also provides additional factors we may have regard to when determining 2016-20 metering service charges.

In this section of the alternative control services attachment, we explain our decision on 'default' metering services that are common to regulated metering customers:

- Type 5–6 and smart metering services (regulated service only), referred to as annual metering charges (revenue cap)
- Type 5–6 and smart metering exit fees (individual price caps)
- Type 7 metering charges (individual price caps).

Our determination on ancillary metering services (specifically requested services) is set out in the ancillary network services section of this chapter (section 16.1).

16.3.1 Final decision

16.3.1.1 Cost Allocation

Our final decision does not accept the advanced meter infrastructure (AMI) cost allocation proposed by AusNet Services. Our final decision on the allocation between alternative control services and standard control services is set out in Table 16.4 below.

[31] AEMC, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, 26 November 2015.

[32] AEMC, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, 26 November 2015.

Table 16.4 Final decision - AusNet Services' allocation of AMI IT and Comms (% allocated to ACS and SCS)

	Percentage allocated to ACS	Percentage allocated to SCS
Initial proposal	19	81
AER preliminary decision	100	0
Revised proposal	16	84
AER final decision	64	36

Source: AER analysis.

16.3.1.2 Annual metering charges

Our final decision accepts a total revenue requirement of $390.7 million ($nominal) over the 2016–20 regulatory control period for metering services. It includes the following building blocks:

- forecast capex of $36.5 million ($2015), amounting to 44 per cent of AusNet Services' proposal
- forecast opex of $93.5 million ($2015), which due to a change in cost allocation is higher than AusNet Services' revised proposal of $54.9 million ($2015)[33]
- an opening metering regulatory asset base as at 1 January 2016 of $378.9 million, rather than the proposed $424.1 million ($ nominal)[34]
- with respect to depreciation, standard asset lives of 15 years for metering assets and 7 years for communications, IT and other metering assets[35]
- the same WACC and gamma values for standard control network services, subject to annual adjustments for the return on debt.

The above building blocks result in the following approved revenue requirement for metering shown in Table 16.5.

[33] AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11-13.
[34] AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11-14.
[35] AusNet Services, *Revised regulatory proposal: Metering post tax revenue model and exit fees*, 6 January 2016, 'PTRM input' tab.

Table 16.5 Final decision – metering annual revenue requirement for the 2016–20 regulatory control period ($nominal)

	2015	2016	2017	2018	2019	2020
Depreciation		41.1	44.1	46.7	35.9	25.3
Return on capital		23.9	22.0	19.7	17.2	15.4
Opex[a]		22.4	21.7	21.2	18.1	17.3
Tax		0.0	0.0	0.0	0.0	0.0
Unsmoothed revenue requirement		87.4	87.9	87.5	71.2	57.9
X factor (%)[b]		43.36	2.14	16.50	16.50	16.50
Smoothed revenue requirement	160.1	92.8	92.9	79.4	67.8	57.9

Source: AER analysis.

(a) Operating expenditure includes debt raising costs.

(b) The X factor from 2017 to 2020 will be revised to reflect the annual return on debt update. Under the CPI–X framework, the X factor measures the real rate of change in annual expected revenue from one year to the next. A negative X factor represents a real increase in revenue. Conversely, a positive X factor represents a real decrease in revenue.

Our final decision on AusNet Services' approved revenue requirement will lead to lower metering prices over the 2016–20 regulatory control period. As metering services are subject to a revenue cap, we have not set prices in this final decision. Actual metering prices will be approved during the annual pricing process.

Broadly we expect the price path to follow the X factors included in Table 16.5 above. That is, a substantial decrease in prices in 2016 as a consequence of the large positive X factor we set in our preliminary decision. Under the CPI–X framework a positive X factor represents a real decrease in revenue. We then forecast prices to decrease by a relatively modest amount in 2017. Under our approach to revenue smoothing, this will be followed by larger price decreases in the outer years of the 2016–20 regulatory control period.

There are two key drivers effecting our final decision on AusNet Services' revenue requirement, and hence its price path for metering services. The first is AusNet Services has now entered into a business as usual (BAU) phase in the 2016–20 regulatory control period. This BAU phase has more modest cost requirements than in the previous period when AusNet Services was rolling out its advanced metering infrastructure. The other key driver is a reallocation of a proportion of AusNet Services operating costs. In our preliminary decision, we allocated all of AusNet Services' metering related opex to alternative control services. This final decision looks at the allocation of these costs more carefully following submissions to the preliminary decision (see 16.3.1.1). As a consequence, a proportion of opex allocated to

alternative control services in our preliminary decision has been reallocated to standard control services in this final decision. This has a downward effect on AusNet Services' revenue for alternative control metering services from 2017 onwards, but a corresponding upward effect on standard control services.

16.3.1.3 Form of control for annual metering charges

As per our preliminary decision, our final decision applies a revenue cap form of control to annual metering charges.[36] Under this form of control, annual metering charges revenues are capped for each year of the 2016–20 regulatory control period. Figure 16.3 contains the annual metering charges revenue cap formula.

Under a revenue cap, AusNet Services' annual metering charges revenue will be adjusted annually to clear (or true-up) any under or over recovery of actual revenue collected. These true-ups will be calculated through the annual metering charges unders and overs account in accordance with appendix C.

Our final decision has changed the approach to true-up under and over recovered revenues from our preliminary decision. Our final decision includes an additional true-up for estimated under and over recovery of revenues for regulatory year t–1.[37] We have made this change to be consistent with the approach applied for the distribution use of system charges unders and overs account.[38]

Our final F&A stated the revenue cap for any given regulatory year is the maximum allowable revenue for annual metering charges. However, our preliminary decision considered the use of maximum allowable revenue might be confused with maximum allowed revenue which is a defined term in the NER relating to transmission services. To avoid confusion, we used 'total annual revenue for metering' (or TARM) for clarity. This has been retained for our final decision.

For each year after the first year of a regulatory control period, side constraints will apply. Consistent with the application of side constraints for standard control services, the permissible percentage increase will be the greater of CPI–X plus 2 per cent or CPI plus 2 per cent. The side constraint formula is set out in Figure 16.4.

Figure 16.3 Annual metering charges revenue cap formula

$$TARM_t \geq \sum_{i=1}^{n} \sum_{j=1}^{m} p_t^{ij} q_t^{ij} \qquad \text{(1)} \qquad \text{i=1,..,n and j=1,..,m and t=1,..,5}$$

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[36] AER, *Final framework and approach for the Victorian electricity distributors: Regulatory control period commencing 1 July 2016*, 24 October 2014, pp. 89–93.

[37] Year t represents the forthcoming regulatory year. Therefore, year t–2 and year t–1 are the two regulatory years prior to year t. By way of example, if year t is the year 2018 then year t–2 is 2016 and year t–1 is 2017.

[38] Our final distribution use of system unders and overs account is discussed in attachment 14 – Control mechanisms.

(2) $TARM_t = AR_t + T_t + B_t$ t = 1,2,…,5

(3) $AR_t = AR_{t-1}(1 + \Delta CPI_t)(1 - X_t)$ t = 1,2,…,5

where;

$TARM_t$ is the total annual revenue for annual metering charges in year t.

p_t^{ij} is the price of component 'j' of metering service 'i' in year t.

q_t^{ij} is the forecast quantity of component 'j' of metering service 'i' in year t.

AR_t is the annual revenue requirement for year t. When year t is the first year of the 2016–20 regulatory control period, AR_t is the annual revenue requirement in the annual metering charges Post Tax Revenue Model (PTRM) for year t.

T_t is equal to zero for all years except 2017 and is a once off adjustment to 2017 charges for the unders and overs recoveries relating to Advanced Metering Infrastructure actual revenues and actual costs incurred in 2014 and 2015.

B_t is the sum of annual adjustment factors in year t as calculated in the unders and overs account in appendix C.

AR_{t-1} is the annual revenue requirement for year t–1.

ΔCPI_t is the annual percentage change in the ABS CPI All Groups, Weighted Average of Eight Capital Cities[39] from the June quarter in year t–2 to the June quarter in year t–1, calculated using the following method:

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–1

divided by

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–2

minus one.

[39] If the ABS does not or ceases to publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

For example, for the 2017 regulatory year, t–2 is June quarter 2015 and t–1 is June quarter 2016 and for the 2018 regulatory year, t–2 is June quarter 2016 and t–1 is June quarter 2017 and so on.

X_t is the X factor for each year of the 2016–20 regulatory control period as determined in the annual metering charges PTRM.

Figure 16.4 Side constraints

$$p_t^i \le p_{t-1}^i(1+\Delta CPI_t)(1-X_t^i)(1+2\%)+T_t^{'}+B_t^{'}$$

where:

p_t^i is the price of annual metering charges service 'i' in year t.

p_{t-1}^i is the price of annual metering charges service 'i' in year t–1.

ΔCPI_t is the annual percentage change in the ABS CPI All Groups, Weighted Average of Eight Capital Cities[40] from the June quarter in year t–2 to the June quarter in year t–1, calculated using the following method:

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–1

divided by

The ABS CPI All Groups, Weighted Average of Eight Capital Cities for the June quarter in regulatory year t–2

minus one.

For example, for the 2017 regulatory year, t–2 is June quarter 2015 and t–1 is June quarter 2016 and for the 2018 regulatory year, t–2 is June quarter 2016 and t–1 is June quarter 2017 and so on.

X_t is the X factor for each year of the 2016–20 regulatory control period as determined in the annual metering charges PTRM.

$T_t^{'}$ is the annual percentage change for the unders and overs recoveries relating to Advanced Metering Infrastructure actual revenues and actual costs incurred in 2014 and 2015. It is equal to zero for all years except 2017 and is a once off adjustment to 2017 charges.

[40] If the ABS does not or ceases to publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

B_t' is the annual percentage change from the sum of annual adjustment factors in year t as calculated in the unders and overs account in appendix C

With the exception of the CPI and the X factor, the percentage for each of the other factors above can be calculated by dividing the incremental revenues (as used in the total annual revenue formula) for each factor by the expected revenues for regulatory year t–1 (based on the prices in year t–1 multiplied by the forecast quantities for year t).

16.3.1.4 Metering exit fees

We are required to specify an exit fee for AusNet Services.[41]

The exit fees we have accepted in this final decision are set out in Table 16.6.

Table 16.6 AusNet Services final determination meter exit fees ($ nominal)

Meter type	2017	2018	2019	2020
Single phase single element	499.27	446.61	402.24	373.08
Single phase two element with contactor	533.29	467.20	409.86	368.23
Multiphase	579.83	505.07	433.42	372.13
Multiphase with contactor	597.04	544.92	500.25	470.06
Multiphase CT connected	673.83	627.41	586.59	558.57

Source: AER analysis.

16.3.1.5 Type 7 metering services

Our preliminary determination accepted AusNet Services' proposed type 7 metering charges.[42] AusNet Services accepted our preliminary decision.[43] Our approved type 7 metering charges are set out in Table 16.7.

Table 16.7 AusNet Services final determination Type 7 metering charges ($nominal)

Category	2016	2017	2018	2019	2020
Per NMI	308.00	316.00	324.00	332.00	340.00
Per Light	1.61	1.65	1.69	1.73	1.78

41 NER, cl. 11.17.6.

42 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020: Attachment 16 – Alternative control services* October 2015, p. 16-48.

43 AusNet Services, *Revised regulatory proposal, January 2016,* p. 11-2.

Source: AER analysis.

16.3.2 AusNet Services' revised proposal

16.3.2.1 Cost Allocation

The Victorian businesses have all proposed different ways to allocate the costs that were previously regulated under the Order across standard and alternative control services. Our preliminary decision was that the metering costs should be recovered through alternative control services and we reallocated AusNet Services' metering costs from standard control services to alternative control.[44]

AusNet Services has maintained its proposal that a portion of the metering costs should be allocated to standard control services.[45]

16.3.2.2 Annual metering charges

With regard to the annual metering charge, AusNet Services' revised proposal:

- applied the general pricing structure set out in our preliminary decision
- submitted a revised capex of $83.2 million for annual metering charges,[46] compared to the AER's preliminary decision accepting $52.5 million ($2015)[47]
- submitted a revised opex of $54.9 million for annual metering charges,[48] compared to the AER's preliminary decision accepting $139.7 million ($2015)[49]
- did not accept our preliminary decision with respect to the opening metering asset base (MAB) value.[50] AusNet Services proposed to calculate the opening metering RAB using its actual 2014 capex and its 2015 forecast capex rather than our preliminary decision approach which used the forecast capex for 2014 and 2015 from the AMI Charges Model, updated for CPI[51]
- with respect to depreciation, standard asset lives of 15 years for metering assets and 7 years for communications, IT and other metering assets.[52]

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44 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020, Attachment 16 - Alternative control services*, October 2015, p. 16-28.

45 AusNet Services, *Revised regulatory proposal*, January 2016, pp. 11-3 to 11-9.

46 AusNet Services, *Revised regulatory proposal*, January 2016, p. 11-10.

47 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020, Attachment 16 - Alternative control services*, October 2015, p. 16-28.

48 AusNet Services, *Revised regulatory proposal*, January 2016, p. 11-13.

49 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020, Attachment 16 - Alternative control services*, October 2015, p. 16-29. This is lower than our preliminary decision on account that AusNet Services have maintained an allocation of metering cost to standard control services, rather than our preliminary decision to allocate all the costs to alternative control services.

50 AusNet Services, *Revised regulatory proposal*, January 2016, p. 11-13.

51 AusNet Services, *Revised regulatory proposal*, January 2016, pp. 11-13, 11-14.

52 AusNet Services, *Revised regulatory proposal: Metering post tax revenue model and exit fees*, 6 January 2016, 'PTRM input' tab.

AusNet Services' revised proposal annual revenue requirement for the 2016–20 regulatory control period is set out in Table 16.8 below.

Table 16.8 Proposed metering annual revenue requirement ($ nominal)

	2016	2017	2018	2019	2020
Depreciation	56.4	60.3	63.9	44.1	26.5
Return on capital	36.7	33.1	28.7	23.8	21.0
Opex	12.2	11.7	11.2	11.7	12.2
Tax	-	-	-	7.2	5.4
Unsmoothed revenue requirement	105.4	105.1	103.7	86.9	65.1
X-factor (%)	35.57	7.81	7.81	7.81	7.81
Smoothed revenue requirement	105.4	99.3	93.5	88.1	83.0

Source: AusNet Services, *Revised regulatory proposal*, January 2016, chapter 11, pp. 11-14, 11-15 (AusNet Services, *Revised regulatory proposal: Metering post tax revenue model and exit fees*, 6 January 2016, 'Revenue summary' tab).

16.3.2.3 Metering exit fee

AusNet Services did not accept the preliminary decision on the metering exit fee because it did not agree with a number of inputs used to calculate the fee.[53]

AusNet Services has also revised the meter removal (administrative) cost component, including an increase in the standard labour rate and the inclusion of additional costs to locate meters.[54]

The revised proposal meter exit fees are set out in Table 16.9 below.

[53] AusNet Services, *Revised regulatory proposal*, January 2016, p. 11-16.

[54] AusNet Services, *Revised regulatory proposal*, January 2016, p. 11-16.

Table 16.9 AusNet Services' proposed metering exit fees ($nominal)

Meter type	2016	2017	2018	2019	2020
Single phase single element	602.68	541.12	477.58	429.92	409.19
Single phase two element with contactor	648.66	575.03	498.72	437.93	403.33
Multiphase	696.65	621.61	537.88	463.23	407.40
Multiphase with contactor	695.97	639.14	579.64	536.24	520.11
Multiphase CT connected	763.58	716.19	665.35	629.96	621.42

Source: AusNet Services, *Revised Regulatory Proposal*, 6 January 2016, p. 11-16, Table 11.6.

16.3.3 Assessment Approach

16.3.3.1 Cost Allocation

For the preliminary decision we had regard to the wider regulatory context in determining the allocation of metering service costs, including key framework issues for Victorian metering in the 2016–20 regulatory control period, such as:

- the need to facilitate a smooth transition of governance under the Order to regulation under the modified NER
- the possibility of Victoria adopting the competitive metering framework sometime in the future.[55]

We considered that any cost allocation issues relating to metering costs would be best dealt with in the development of the ring-fencing guideline in accordance with a nationally consistent approach. On this basis, our preliminary decision allocated all costs formerly regulated under the Order to alternative control services.[56]

For the final decision we have reconsidered our preliminary decision approach to the allocation of metering costs between alternative control services and standard control services. We engaged Energy Market Consulting Associates to help develop a cost allocation approach that could be applied across the Victorian service providers.

Our revised approach to the allocation of AMI costs is set out in the discussion on AusNet's base opex– Appendix A of Attachment 7 to this final decision.

16.3.3.2 Annual metering charges

[55] AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020, Attachment 16 - Alternative control services*, October 2015, p. 16-40.

[56] AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020, Attachment 16 - Alternative control services*, October 2015, p. 16-40.

As an alternative control service, the AER has a greater discretion under the NER in making our assessment compared to standard control services. We have chosen to apply a streamlined version of a building block approach.

Our consideration of AusNet Services forecast capex and opex is set out in Appendix A to this attachment.

When assessing AusNet Services' revised proposal, we had regard to 'the nature and scope of the AER's decision' and the applicable 'regulatory framework'. These are the same factors we considered when making our preliminary decision. This is explained further below. Our full assessment approach of AusNet Services' revised forecast capex and opex is outlined in section A.3 of Appendix A.

16.3.3.3 Exit fee

When calculating the exit fee required under the Order, the inputs we used were:

- our final decision on AusNet Services' opening metering RAB value as of 1 January 2016
- the forecast metering capex and opex which we have accepted in this final decision for AusNet Services' 2016–20 regulatory control period
- in relation to an administration component of the exit fee, our final decision on the real labour cost escalators applicable in Victoria
- we also had regard to the revenue and pricing principles that the distributors should be afforded full cost recovery (see also clause 7.2 of the Order).

16.3.4 Reasons for final decision

16.3.4.1 Cost allocation

Our final decision does not accept the AMI cost allocation proposed by AusNet Services. Our final decision on the allocation between alternative control services and standard control services is set out in Table 16.4 above.

Our revised approach and reasons for the final decision on the allocation of AMI costs is set out in the discussion on the base opex – Appendix A of Attachment 7.

16.3.4.2 Annual metering charges

Forecast capex

Our final decision is to approve $36.5 million ($2015) in capex for AusNet Services' 2016-20 regulatory control period. This is equal to 44 per cent of AusNet Services' total proposal for $83.3 million ($2015).[57]

In forming our final decision, we took analysis we have performed against the revenue and pricing principles in the NEL into account. We have also conducted a cost assessment of AusNet Services' forecast business as usual (BAU) and non–BAU capex. Our full reasons are set out in Appendix A.

Forecast opex

For the 2016–20 regulatory control period, we approve forecast opex of $93.5 million ($2015) in opex for alternative control metering services. To reach our final decision, we:

1. considered AusNet Services' revised forecast metering opex for standard and alternative control services
2. applied our approach to cost allocation between standard and alternative control services (see section 16.3.1.1)

In taking this approach, we assessed AusNet Services' total metering opex requirement to be $139.2 million ($2015). We reached this conclusion by applying a 'base, step, trend' method which is outlined in Appendix A.[58]

Using advice from our consultant Energy Market Consulting Associates, we then allocated our final decision on AusNet Services' opex between alternative and standard control services. This led to us approving $93.5 million ($2015) in opex for AusNet Services' alternative control metering services. More information on our approach to cost allocation can be found in Appendix A of Attachment 7 to this final decision.

Opening metering asset base

We do not accept AusNet Services' proposed opening metering RAB value. Our final decision accepts a metering RAB as at 1 January 2016 of $378.9 million, rather than AusNet Services' proposed $424.1 million ($ nominal).[59]

In our preliminary decision we used forecast capex for 2014 and 2015 from the AMI Charges Model (i.e. AusNet Services' 2015 Charges Application), updated for CPI, to calculate our substitute opening RAB value.[60]

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57 AER, *Preliminary decision on AusNet Services distribution determination 2016–20*, October 2015*: Attachment 16 – Alternative control services*, p. 16-28.

58 To facilitate our cost allocation approach between standard and alternative control services, our modelling of the final decision accepted AusNet Services' 'year on year' opex in its initial proposal.

59 AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11-14.

60 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020*, Attachment 16 - Alternative control services, October 2015, p. 16-47.

AusNet Services' does not accept our preliminary decision opening metering RAB because using forecast capex for 2014 and 2015 from the AMI Charges Model does not provide a true reflection of the opening metering RAB. AusNet Services' states that the amounts in the AMI Charges Model are lower than the actual costs incurred and forecast to be incurred.[61] AusNet Services proposed to calculate the opening metering RAB using its actual 2014 capex and its 2015 forecast capex as these figures constitute the latest available information.

We will be assessing the actual 2014 capex and forecast 2015 capex against the approved 2012-15 AMI budget expenditure for those years as part of the AMI budget and charges expenditure excess review. We are yet to conduct this review.

We have used the previous capex forecasts to roll forward the metering RAB, to avoid the need to make further adjustments to the metering RAB after conducting our assessment of the actual AMI capex that will be permitted to be rolled into the metering RAB. Any difference between the forecast AMI capex and the actual AMI capex that we approve will be rolled into the metering RAB at the 2021-25 regulatory control period.

For this reason we do not accept AusNet Services' proposal to use its actual 2014 capex and 2015 forecast capex to calculate the opening metering RAB value.

16.3.4.3 Metering exit fee

Our final decision does not accept AusNet Services' proposed exit fee.

AusNet Services' proposed exit fee includes an administrative and capital cost component. The administrative component recovers clerical costs associated with a customer leaving AusNet Services' metering service. This will be possible when metering contestability is introduced in 2017. The capital component recovers the remaining written down value of metering assets corresponding to the customer leaving AusNet Services' service. This is derived from the opening metering asset base which we approve for AusNet Services in this final decision.

Our final decision accepts the administrative cost component of AusNet Services' proposed exit fees. We have, however, accepted a lower than proposed opening metering RAB (see section 16.3.4.2). In terms of the capital component, this leads to lower than proposed exit fee charges.

Our administrative cost component of the exit fee is potentially in contrast with the decisions we made during the New South Wales, Queensland, South Australia and the Australian Capital Territory determinations in April 2015. Specifically, we rejected the administrative costs those distributors proposed in the case of removing a meter.[62] While we found that the costs were not sufficiently material in those jurisdictions, the

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[61] AusNet Services, *Revised regulatory proposal*, January 2016, p. 11-13.

[62] The reasons for this decision are set out in, for example; Preliminary Decision, *Energex distribution determination 2015–16 to 2019–20, Attachment 16 – Alternative control services*, November 2014, p. 16-52.

Order applicable to the Victorian distribution businesses requires that we set an exit fee; and thus we have accepted the inclusion of an administrative cost component. We have nonetheless adjusted it for our final decision on the labour cost escalators applicable in Victoria in the 2016–20 regulatory control period.

Our substitute exit fees are set out in 16.3.1.4.

A Metering appendix

In this appendix, we set out our final decision on the capex and opex inputs into AusNet Services' approved revenue cap for alternative metering control services.

A.1 Final decision

Our final alternative control metering decision for AusNet Services approves $36.5 million ($2015) in capex and $139.2 million ($2015) in opex.

In this final decision, we accept about 44 per cent of AusNet Services' total metering capex proposal of $83.3 million ($2015) for the 2016–20 period. With regard to opex, our final decision accepts approximately 89 per cent of AusNet Services' total proposed $156.9 million ($2015).

Table 16.10 Final decision on AusNet Services' metering ($m, 2015)

	Initial proposal	Preliminary decision	Revised proposal	Final decision
Metering capex	153.0	52.5	83.3	36.5
Metering opex	139.7	139.7	156.9	139.2

Source: AER analysis.

As shown in Table 16.10, our final decision on AusNet Services' metering capex is less than the amount we accepted in our preliminary decision. This is due to a reallocation of costs. In our preliminary decision, we included $18.1 million ($2015) in metering capex for the labour cost component associated with installing meters at new connections. AusNet Services' revised proposal reallocates those costs from alternative control metering services to ancillary network services. The result of this reallocation is a reduction in AusNet Services' revised capex proposal for metering services. This in turn leads to our final decision being lower than in our preliminary decision.[63]

Our final decision has been made in accordance with the National Electricity Objective (NEO) and the revenue and pricing principles in the National Electricity Law (NEL). We are also guided by the Victorian jurisdictional regulatory framework regulating recovery of metering costs which allows us to also consider AusNet Services' expenditure during the previous regulatory period.[64] Having regard to the NEO and the revenue and pricing principles, we have determined that customers should not bear certain additional costs relating to an investment in a smart meter communications system, the efficient cost of which AusNet Services has already been given a reasonable

[63] When the cost reallocation of $18.1 million ($2015) in metering capex is taken into account, our final decision is more consistent with the preliminary decision (but resulting in slightly more capex than in our preliminary decision).

[64] *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, cl. 5K(b)(iv).

opportunity to recover.[65] The additional costs proposed by AusNet Services are inherently related to its past investment decisions on the selection of a smart meter communications system which we previously found,[66] and which the Australian Competition Tribunal[67] and Federal Court[68] confirmed, did not satisfy the prudency test in the *Victorian Advanced Metering Infrastructure Cost Recovery Order-in-Council* (the Order).[69] We consider those additional costs should be borne by AusNet Services and not by consumers. We also consider that approval of the proposed additional costs would diminish incentives for prudent and efficient investment in regulated electricity services.[70]

In 2007, the Victorian Government made the Order[71] requiring Victorian electricity distributors to install remotely read 'smart meters' throughout the State. The roll–out of advanced metering infrastructure (AMI) occurred over the previous regulatory control period. The Order set out the cost recovery and approval mechanism for the businesses and us. With this roll–out to have been completed by 2014,[72] this decision relates to the ongoing operation of AusNet Services' smart meters. That is, our previous AMI determinations provided for the recovery of expenditure for the initial deployment or installation of smart meters. Following on from that, the purpose of this final decision is to set the revenues for AusNet Services' ongoing costs associated with operating its smart meter infrastructure.

During its smart meter roll–out, AusNet Services was unique in its use of a WiMAX communications technology to implement its smart meter roll out. The other four Victorian businesses opted for a mesh radio communications technology; a less expensive and arguably more market proven technology.[73]

In our *Amended 2012–15 AMI Budget and Charges Determination*, we found that an electricity distributor acting prudently and in accordance with commercial standards would switch from WiMAX communications technology to mesh radio by 28 February 2011 at the latest.[74] These findings were upheld by the Australian Competition Tribunal[75] and later the Federal Court of Australia.[76] Despite these findings, AusNet

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65 NEL, s. 7A(2).

66 AER, *2009-11 AMI Budget and Charges Final Determination*, October 2009; AER, *2012-15 AMI Budget and Charges Final Determination*, October 2011; AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013.

67 *Appeal by SPI Electricity Pty Limited* [2012] ACompT 11; and *Appeal by SPI Electricity Pty Limited* [2013] ACompT 7.

68 *SPI Electricity Pty Ltd v Australian Energy Regulator* [2014] FCA 1012.

69 See clause 5C.2 of the Order, *Appeal by SPI Electricity Pty Limited* [2012] ACompT 11 at [19] – [20] and [131], and *Appeal by SPI Electricity Pty Limited* [2013] ACompT 7 at [150].

70 NEL, s. 7A(3).

71 *Victorian Advanced Metering Infrastructure Cost Recovery Order-in-Council* .

72 *Victorian Advanced Metering Infrastructure Cost Recovery Order-in-Council*, cl. 14.1.

73 Impaq Consulting, Letter to the AER, 31 March 2011; cited in AER, *Final determination: SP AusNet revised budget application 2009–11*, 20 July 2011, p. 23.

74 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. 21.

75 Appeal by SPI Electricity Pty Limited [2013] ACompT 7.

Services did not make the conversion to mesh radio and instead completed its smart meter roll–out using WiMAX. All of the other Victorian electricity distributors used mesh radio; a cheaper technology[77] which did not face the same obsolescence risks as WiMAX.[78]

AusNet Services' existing WiMAX technology is now failing.[79] As predicted by our consultant at the time of the 2011 AMI assessment,[80] the market for WiMAX technology is diminishing. This is reflected in the reduced number of providers and higher contract costs charged for operating WiMAX.[81] Noting this, AusNet Services' initial proposal sought $100.7 million ($2015) in capex to conduct a systematic replacement of its existing WiMAX communications technology with mesh radio. Our preliminary decision did not accept that proposal. We considered that AusNet Services, rather than its customers, should bear the cost of 'switching' from WiMAX to mesh radio.[82]

In its revised proposal, AusNet Services maintains its proposal to recover expenditure to replace its WiMAX systems with mesh radio. But this time instead of a 'systematic' replacement strategy, AusNet Services' revised proposal put forward a 'reactive' approach whereby WiMAX communications systems would be replaced in response to hardware failures, as and when they occur.

Consistent with the NEO and the revenue and pricing principles, we do not approve any of the proposed capex or opex which could have been avoided if AusNet Services acted prudently in the selection of its communications solution during its smart meter rollout. Although we note that AusNet Services' has reduced the amount it seeks to recover in its revised proposal, we hold the view that AusNet Services has already been given a reasonable opportunity to recover the efficient cost for a smart meter communications system and consumers should pay no more than is necessary for this outcome. Our final decision still allows AusNet Services to recover a level of capex and opex that is reflective of what AusNet Services' costs would be, if, like all the other Victorian electricity distributors, it was in a business as usual (BAU) phase of its smart meter program.

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76 *SPI Electricity Pty Ltd v Australian Energy Regulator* [2014] FCA 1012.

77 Impaq Consulting, Letter to the AER, 31 March 2011; cited in AER, Final determination: SP AusNet revised budget application 2009–11, 20 July 2011, p. 23.

78 Impaq Consulting, *Review of WiMAX for smart metering and other applications*, 12 April 2011, p. 12.

79 AusNet Services, *Metering asset management strategy (EDM AMS) 2016–20 (Part 2) (Public)*, April 2015, p. 13.

80 Impaq Consulting, *Review of WiMAX for smart metering and other applications*, 12 April 2011, p. 12.

81 AusNet Services, *Metering asset management strategy (EDM AMS) 2016–20 (Part 2) (Public)*, April 2015, p. 13.

82 AER, *Preliminary decision on AusNet Services distribution determination 2016–20*, October 2015, *: Attachment 16 – Alternative control services,* p. 16-49.

A.2 AusNet Services' revised proposal

In this section, we set out AusNet Services' revised proposed capex and opex for the 2016–20 regulatory control period. When doing this, we observed that AusNet Services' proposed expenditure can be grouped into BAU and non–BAU categories.

A.2.1 Forecast capex

AusNet Services' revised proposal forecasts $83.3 million ($2015) in capex.

Table 16.11 sets out AusNet Services' revised capex forecast according to each proposed cost category. We have observed that AusNet Services' disaggregation of its costs can be characterised as BAU and non–BAU. Out of the total proposed capex of $83.3 million (2015), we consider $36.5 million ($2015) to fit into a BAU category. We consider the remaining $46.9 million ($2015) in total proposed capex to be of a non–BAU category.

Table 16.11 AusNet Services' revised capex ($m 2015)

	2016	2017	2018	2019	2020	Total
BAU						
Meters	4.4	4.3	4.3	4.2	4.2	21.5
Mesh card and antennas	1.7	1.7	1.7	1.7	1.7	8.5
Communications	4.6	0.2	0.2	0.2	0.2	5.5
IT	0.0	0.0	0.3	0.3	0.3	0.9
Subtotal: BAU	10.8	6.3	6.6	6.4	6.4	36.5
Non-BAU						
Mesh card and antenna - additional for fault	6.9	7.7	9.4	10.8	12.1	46.9
Subtotal: non–BAU	6.9	7.7	9.4	10.8	12.1	46.9
Total	17.7	14.0	16.0	17.2	18.4	83.3

Source: AER analysis; AusNet Services, Metering cost model - Revised proposal (public), 'Summary' tab.

As shown in Table 16.11, we consider 'meters', 'mesh card and antennas' and 'communications' to fall into a BAU category. We have reached this conclusion because the forecast capex in those cost categories comprises a level of new connections and replacements that is reflective of AusNet Services' historical volumes

for such activities. Conversely, we consider 'mesh card and antenna – additional for fault' to be of a non–BAU category. This is because the associated volumes of replacements do not reflect historical volumes. As the terminology AusNet Services uses suggests, the 'mesh card and antenna – additional for fault' category relates to replacement volumes that are over and above the electricity distributor's normal BAU requirements. The driver of the non–BAU capex is exclusively hardware faults.

To reach our BAU and non–BAU disaggregation, we compared AusNet Services' forecast volume of new connections and replacements for the 2016–20 regulatory control period against its actual volumes of such activities in 2015. We selected 2015 for two reasons. First, AusNet Services was required to have used its best endeavours to have completed its smart meter roll–out by 2014.[83] Consequently, the following year (2015) should offer a good indication of AusNet Services' post roll–out, BAU activities. Second, 2015 is the first year in which AusNet Services began using mesh radio hardware for new connections and replacements. Prior to this, it used WiMAX communications technology.[84]

Table 16.12 sets out the results of our comparative analysis. It shows that AusNet Services' forecast volume of new connections and replacements for 'meters', 'mesh card and antennas' and 'communications' are reflective of its historical 2015 volumes. By contrast, AusNet Services' forecast volume of replacements associated with 'mesh card and antennas – additional for faults' does not reflect 2015 volumes for 'mesh card and antennas'. Specifically, the forecast volumes are much higher than in 2015.

Table 16.12 Historical and forecast new connections and replacements

	2015 BAU volume	2016	2017	2018	2019	2020
BAU						
Meters						
New connections	16 701	17 088	16 826	17 240	16 367	16 269
Replacements	5 006	4 905	4 806	4 708	4 613	4 613
Mesh card and antennas						
New connections (mesh cards)	16 701	17 088	16 826	17 240	16 367	16 269
Replacements	5 006	4 905	4 806	4 708	4 613	4 613

[83] *Victorian Advanced Metering Infrastructure Cost Recovery Order-in-Council*, clause 14.1.

[84] We have used AusNet Services' actual opex in 2014 year for deriving the electricity distributor's base level of opex (see section A.2.2). For consistency, we considered using 2014 as the historical point of comparison for BAU new connections and replacements. However, we have used 2015 for the capex analysis since it is the first year AusNet Services began using mesh communications technology. This allows us to compare historical and forecast volumes of mesh enabled metering equipment.

	2015 BAU volume	2016	2017	2018	2019	2020
(mesh cards)						
New connections (antennas)	1 670	1 709	1 683	1 724	1 637	1 627
Replacements (antennas)	501	491	481	471	461	461
Communications						
New connections	0	0	255	255	255	255
Replacements	29 167	14 583	470	470	470	470
Non–BAU						
Mesh card and antennas - additional for faults						
New connections (mesh cards)	N/A	N/A	N/A	N/A	N/A	N/A
Replacements (mesh cards)	5 006	21 495	23 894	29 315	33 802	37 564
New connections (antennas)	N/A	N/A	N/A	N/A	N/A	N/A
Replacements (antennas)	501	2 150	2 389	2 931	3 380	3 756

Source: AER analysis; AusNet Services, *Metering cost model - Revised proposal (public)*, 'Calc' tab, January 2016.

We conclude that AusNet Services' forecast capex for 'meters', 'mesh card and antennas' and 'communications' fit into a BAU category. This is because they reflect the 2015 new connection and replacement volumes. Conversely, we determine 'mesh card and antennas – additional for faults' to fit into a non–BAU category. Our reasoning is that the replacement activities for which these costs relate are not reflective of AusNet Services' 2015 'mesh card and antenna' replacements.[85]

A.2.2 Forecast opex

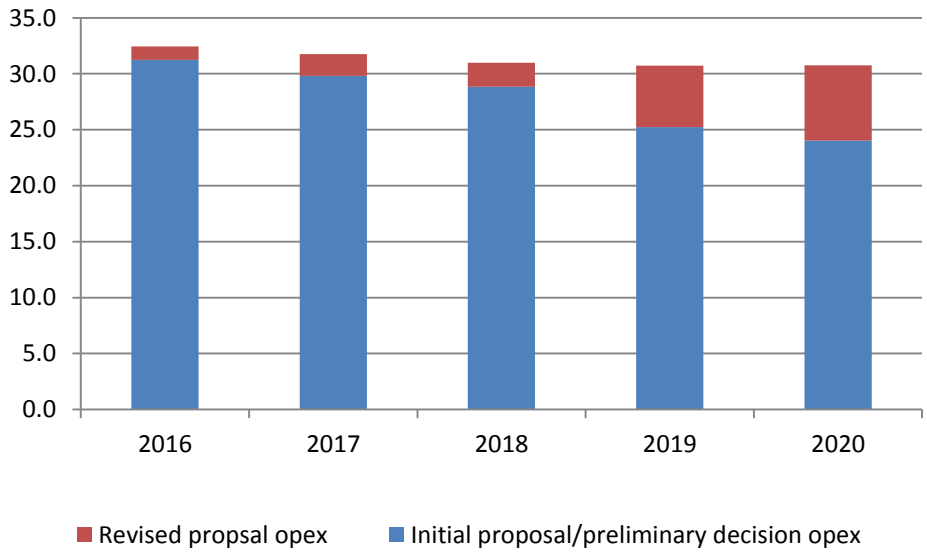
AusNet Services' revised proposal forecasts $156.9 million ($2015) in opex.

Figure 16.5 sets out AusNet Services' revised opex proposal. It shows that we accepted AusNet Services' initial opex forecast of $139.7 million ($2015) in our preliminary decision. AusNet Services' revised proposal nonetheless states that it

[85] When calculating AusNet Services 2015 'mesh card and antenna' replacements we used its reported 2015 'comms card – meter replacement' volumes, totalling 5 006.

requires additional opex to maintain its existing WiMAX communications technology over a longer period during the 2016–20 regulatory control period.[86] This is as a consequence of our preliminary decision to not accept $100.7 million ($2015) in capex 'switching costs'.

Figure 16.5 AusNet Services metering opex ($2015)



Source: AER analysis; AusNet Services, Metering cost model - Revised proposal (public), 'Summary' tab.

We consider AusNet Services' revised proposed opex can be disaggregated into BAU and non–BAU categories.

Our view is that the $139.7 million ($2015) in opex we accepted in our preliminary decision fits into a BAU category.[87] This is because it was forecast using a base level of opex that most closely resembles AusNet Services BAU smart meter operations.[88] By contrast, we consider the additional $17.2 million ($2015) AusNet Services included in its revised proposal is of a non–BAU category. This is because it is expenditure that is incremental to our assessment of AusNet Services' BAU opex.[89]

A.2.3 Common driver of non–BAU expenditure

We have identified that AusNet Services' revised proposal includes $46.9 million ($2015) in non–BAU capex and $17.2 million ($2015) in non–BAU opex.

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87 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020: Attachment 16 – Alternative control services* ,, October 2015, p. 16-29.

88 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020,: Attachment 16 – Alternative control services,* October 2015, p. 16-45.

89 AER, *Preliminary Decision, AusNet Services distribution determination 2016 to 2020: Attachment 16 – Alternative control services,* , October 2015, p. 16-45.

Under the applicable regulatory regime under the Order, we may consider AusNet Services' past capex and opex when assessing its alternative control metering revenue requirement for the 2016–20 regulatory control period.[90] In doing so, we have observed that the driver behind both AusNet Services' non–BAU capex and non–BAU opex is the same. This is AusNet Services' decision to use WiMAX as its communications technology during its smart meter roll–out.

In its revised proposal, AusNet Services states that the $46.9 million ($2015) in non–BAU capex for 'mesh card and antennas – additional for faults' is required to replace its failing WiMAX communications modules. AusNet Services has submitted that this is to address an anticipated increase in WiMAX communication system failure rates over the 2016-20 regulatory control period.[91] This driver (fault rates) was not emphasised at the initial proposal stage. We observe that in its initial proposal AusNet Services stated that the proposed capex was 'to meet customer growth and maintain the metering services as current technologies become obsolete or technically unsupported'.[92] That is, the impending obsolescence and lack of technical support for WiMAX was emphasised as the key capex drivers at the initial proposal stage.[93]

We consider the high failure rate AusNet Services is experiencing is driven by its decision to use WiMAX as its communications technology for its smart meter roll–out. We reach this conclusion in section A.6.2 below. This is by comparing AusNet Services' forecast communications equipment replacements with Powercor's forecast for the 2016–20 regulatory control period. We selected Powercor as our 'comparator' because it employed a mesh radio solution during its smart meter roll–out and is an electricity distributor that has similar network size and characteristics to AusNet Services.

We find that since Powercor is forecasting minimal communications related replacements with its mesh radio hardware in 2016–20,[94] the high failure rate AusNet Services is experiencing is driven by its decision to use WiMAX technology. We conclude that the $46.9 million ($2015) in non–BAU capex for 'mesh card and antennas – additional for faults' is driven by AusNet Services' decision to employ WiMAX as its communications solution for its smart meter roll–out.

Similarly, the revised proposed non–BAU opex of $17.2 million ($2015) is driven by AusNet Services' employment of WiMAX during its smart meter roll–out phase. The proposed expenditure is for operating the existing WiMAX communication technology for a longer period of time than AusNet Services expected at the initial proposal stage. AusNet Services stated that its plan in its initial proposal was to 'systematically' replace its WiMAX communications technology with mesh radio equivalents. In its revised

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90 *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, cl 5K(b)(iv)(B).

91 AusNet Services, *Revised regulatory proposal: Addendum to metering asset management strategy 2016-20 (Public)*, 6 January 2016, p. 3.

92 AusNet Services, *Initial regulatory proposal: 2016–20 regulatory period*, January 2016, p. 400.

93 AusNet Services, *Metering asset management strategy (EDM AMS) 2016–20 (Part 2) (Public)*, April 2015, p. 13.

94 Powercor, PAL Public RRP MOD 1.2 PAL metering capex and opex, January 2016.

proposal AusNet Services is no longer pursuing that systematic replacement strategy. AusNet Services submits that it will require additional opex, above that accepted in our preliminary decision, to maintain the existing WiMAX communications systems while they remain operational.[95] In that regard, the non–BAU opex is driven by AusNet Services' decision to use WiMAX for its smart meter roll–out. If it employed a mesh radio solution at the outset, or 'switched' to mesh radio in 2011 when it was efficient to do so,[96] then we consider that the proposed non–BAU opex would not be required. This is because it would not have to run two communication systems (WiMAX and mesh radio) in the 2016–20 regulatory control period.

A.3 Assessment approach

When assessing AusNet Services' revised proposal, we had regard to 'the nature and scope of the AER's decision' and the applicable 'regulatory framework'. These are the same factors we considered when making our preliminary decision. This is explained further below.

A.3.1 The nature and scope of the AER's decision

As an economic regulator, our role is to assess the prudent and efficient costs of providing safe and reliable regulated services. We consider relative technology options insofar as they affect the prudent and efficient costs of providing regulated services.

We recognise that AusNet Services will likely have to replace its existing WiMAX communications technology with mesh radio and will incur incremental costs in the 2016–20 regulatory control period to do so.

Our assessment is whether the forecast costs in the 2016–20 regulatory control period are prudent and efficient. Our approach is that it would be contrary to the NEO and the revenue and pricing principles for customers to fund costs that exceed the prudent and efficient level required to provide a regulated service. When making this assessment we had regard to the relevant regulatory framework for the assessment of alternative control metering services in Victoria. It allows us to consider AusNet Services' past investment decisions in its smart metering program (see section A.3.2),[97] and the assessment of those past investment decisions in our AMI Budget and Charges determinations,[98] and previous Tribunal[99] and Federal Court decisions [100] related to the AMI Budget appeals.[101]

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95 AusNet Services, *Revised regulatory proposal: Addendum to metering asset management strategy 2016-20 (Public)*, 6 January 2016, p. 2.

96 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. 21.

97 *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, cl 5K(b)(iv)(B).

98 By this we refer to AER, *2009-11 AMI Budget and Charges Final Determination*, October 2009; AER, *2012-15 AMI Budget and Charges Final Determination*, October 2011; AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013.

99 *Appeal by SPI Electricity Pty Limited* [2012] ACompT 11 and *Appeal by SPI Electricity Pty Limited* [2013] ACompT 7.

A.3.2 Regulatory framework

In our Final Framework and Approach, we classified the 'type 5, 6 and smart meter - regulated service' as an alternative control service.[102] Accordingly, we made our assessment with regard to the specific regulatory framework in Victoria and the framework for regulating alternative control services in the NEL and NER.[103]

Metering services in the 2016–20 regulatory control period are regulated under the NEL and NER, subject to certain modifications set out in the Order. In particular, clause 5K(b)(iv) states that after 31 December 2015, smart meter services are regulated pursuant to the NEL and the NER, provided that:

> for the purposes of a distribution determination with respect to the "type 5, 6 and smart metering – regulated service", the AER may have regard to:
>
> (a) the actual and expected operating expenditure during the initial regulatory period of a distributor of, or in relation to, the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems;
>
> (b) the actual and expected capital expenditure during the initial regulatory period of a distributor of, or in relation to, the provision, installation, maintenance and operation of advanced metering infrastructure and associated services and systems; and
>
> (c) this Order and any determination made pursuant to this Order.

In assessing AusNet Services' revised proposal we have had regard to these factors. That is, we have considered AusNet Services' actual and expected opex and capex related to AMI in the initial regulatory control period. We have also had regard to the our AMI Budget and Charges determinations,[104] and previous Tribunal[105] and Federal Court decisions [106] related to the AMI Budget appeals.[107]

The NER does not set out a prescriptive regime for the assessment of alternative control services.[108] Rather, clause 6.2.5(d) only lists factors that we must have regard to in deciding on a control mechanism for alternative control services. We have

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100 *SPI Electricity Pty Ltd v Australian Energy Regulator* [2014] FCA 1012.

101 See also NER, cl. 6.2.5(d)(5).

102 AER, *Final Framework and approach for the Victorian Electricity Distributors*. October 2014, p. 60.

103 NER, cl. 11.17.6(a).

104 By this we refer to AER, *2009-11 AMI Budget and Charges Final Determination*, October 2009; AER, *2012-15 AMI Budget and Charges Final Determination*, October 2011; AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013.

105 Appeal by SPI Electricity Pty Limited [2012] ACompT 11 and Appeal by SPI Electricity Pty Limited [2013] ACompT 7.

106 *SPI Electricity Pty Ltd v Australian Energy Regulator* [2014] FCA 1012.

107 See also NER, cl. 6.2.5(d)(5).

108 NER, cl. 6.2.6(c). We observe that clause 6.2.6(c) specifically contrasts the prescriptive rules for assessment of standard control services set out in Part C as against the approach required for alternative control services.

considered these factors in making our assessment, and assessed the proposed expenditure against the NEO and the revenue and pricing principles in the NEL and focussed on determining the efficient costs that a prudent DNSP would require to provide alternative control metering services.[109] We considered the following revenue and pricing principles to be the most relevant to a revenue determination for the provision of these services:

Revenue and pricing principle 7A(2)

A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs.

Revenue and pricing principle 7A(3)

A regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to direct control network services the operator provides.

Revenue and pricing principle 7A(5)

A price or charge for the provision of a direct control network service should allow for a return commensurate with the regulatory and commercial risks involved in providing the direct control network service to which that price or charge relates.

A.4 Background

We have disaggregated AusNet Services' revised proposed smart metering expenditure into BAU and non–BAU categories. Out of these categories, the non–BAU expenditure is inextricably linked to AusNet Services' past decisions during its smart meter roll–out. More specifically, both the non–BAU capex and non–BAU opex relates to AusNet Services' decision to roll–out its smart meters using a WiMAX communications solution. As noted in section A.2 above, it consists of:

- $46.9 million ($2015) in non–BAU capex to remedy hardware faults relating to WiMAX communication modules[110]
- $17.2 million ($2015) in non–BAU opex for continuing to operate a WiMAX communications system whilst AusNet Services progressively moves over to a mesh radio solution via a 'reactive' replacement strategy.[111]

Given this link, we consider AusNet Services' expenditure decisions during its smart meter roll–out are a relevant consideration in making our determination for the 2016–20 regulatory control period. Moreover, the Order allows us to consider this when making our final decision. Clause 5K(b)(iv) of the Order states that for the purposes of a distribution determination with respect to the 'type 5, 6 and smart metering – regulated service', the AER may have regard to the actual and expected expenditure

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109 NEL, ss. 7A(2)–(7); 16(2)(a)(i).

110 AusNet Services, *Metering cost model - Revised proposal (public), 'Calc' tab*, January 2016.

111 AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11–11.

during AusNet Services' smart meter roll–out. To perform this assessment, AusNet Services' selection of 'communications technology' during the roll–out phase and 'previous AMI decisions and appeals' should be considered. We have also considered AusNet Services' initial proposal, our preliminary decision, and AusNet Services' change in replacement strategy in its revised proposal and the reasons it submitted to underpin its change in strategy.

Communications technology

Smart meters are remotely read. Communications equipment is needed to transmit the electricity usage data from the meter to the distributor, removing the need to physically visit the customer's house or business.

There are different types of communications technology that can be used to remotely read a meter. In Victoria, the two main types of communications technology deployed are mesh radio and WiMAX communications. Compared to mesh radio, WiMAX is the more advanced (and also more expensive) communications technology.

Mesh radio is the communications technology used by United Energy, Powercor, CitiPower and Jemena for the AMI rollout. They will continue using mesh radio in the 2016–20 regulatory control period. By contrast, AusNet Services selected WiMAX as its communications technology during its AMI rollout.

Previous AMI decisions and appeals

In our AMI 2009–2011 Budget and Charges Final Determination, we approved forecast expenditure based on WiMAX metering communications technology for AusNet Services on the basis that:[112]

> SPA [now AusNet Services] demonstrated that it had made a reasonable commercial decision to employ WiMAX based on the overall costs, risks and suitability of available technologies. The AER was satisfied that SPA's selection of a WiMAX communications solution would provide a net benefit to consumers, retailers and to SPA, and accordingly decided to approve costs for the solution

However, our AMI 2012-15 Budget and Charges Final Determination (2012-15 Determination) made in October 2011 did not accept forecast costs based on continuing with WiMAX as AusNet Services proposed. This is because we considered that further information that became available after our 2009-11 Budget and Charges Determination (October 2009) showed these higher costs would be a departure from the commercial standard. Instead, it set a budget of $304.1 million ($2011)[113] based on a mesh–benchmark equivalent.

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[112] AER, *2009-11 AMI Budget and Charges Final Determination*, October 2009, p. 24–25.

[113] AER, *2012-15 AMI Budget and Charges Final Determination*, October 2011, p. 36.

AusNet Services appealed the 2012–15 Determination to the Australian Competition Tribunal (Tribunal). The Tribunal did not find error with our benchmarking approach to determine prudent and efficient expenditure.[114] It accepted the benchmarks we determined were reflective of the costs of an AMI roll out using mesh radio, if that technology were chosen from the outset.[115] Nor did it find error with our conclusion that the commercial standard a reasonable business would exercise in the circumstances of AusNet Services should have reconsidered its use of WiMAX and the possibility of using an alternative.[116]

However, the Tribunal found that after determining the benchmark expenditure, we failed to consider whether a reasonable business in AusNet Services' circumstances 'would have incurred no more than the benchmark expenditure'.[117] The Tribunal considered AusNet Services' circumstances were that of a business that had already embarked on its roll-out of WiMAX technology which was undertaken in light of the our earlier determination in which we accepted the (then proposed) costs associated with WiMAX as being prudent.[118] The Tribunal determined that we should have also considered the costs of switching to the new selected technology as well as the delays involved in retreating from the WiMAX communications technology we had first accepted.[119]

Our *Amended AMI 2012–15 Budget and Charges Final Determination* (the Amended 2012-15 Determination) was made pursuant to the Tribunal's orders. After completing a detailed quantitative analysis of forecast costs for WiMAX and mesh radio, we again found that a reasonable business in AusNet Services' circumstances would have decided to switch to mesh radio by 28 February 2011.[120] [121] We rejected the costs proposed by AusNet Services, which were based on continuing with WiMAX. Such costs were not considered prudent because incurring them would be a substantial departure from the commercial standard that a reasonable business would exercise in AusNet Services' circumstances.

Further, in the Amended 2012–15 Determination, we recognised that a reasonable business in AusNet Services' circumstances as at 28 February 2011 would incur costs to switch to mesh radio. We found it was appropriate to allow cost recovery from customers for switching costs to mesh for a business in AusNet Services

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114 See *Appeal by SPI Electricity Pty Ltd* [2012] ACompT 11, [129] and *Victorian Advanced Metering Infrastructure Cost Recovery Order-in-Council*, clause 5C.3.

115 *Appeal by SPI Electricity Pty Ltd [2012] ACompT 11,* [129].

116 *Appeal by SPI Electricity Pty Ltd [2012] ACompT 11*, [131].

117 *Appeal by SPI Electricity Pty Ltd [2012] ACompT 11*, [126]-[139].

118 *Appeal by SPI Electricity Pty Ltd [2012] ACompT 11*, [129]-[130].

119 *Appeal by SPI Electricity Pty Ltd [2012] ACompT 11*, [138].

120 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. v.

121 28 February 2011 is the date that AusNet Services submitted its 2012–15 Budget and Charges application to the AER. It is also the date that the Tribunal directed the AER to use as the point in time that AusNet Services should have reconsidered its commitment to WiMAX technology.

circumstances as at 28 February 2011. These costs included network interface cards (NIC), antennas, NIC retrofits, WiMAX remediation and WiMAX inventory.[122]

However, this did not result in us amending the 2012–15 Determination. This was because we found that there were funds in the Approved 2011 Budget sufficient for a reasonable business in AusNet Services' circumstances to switch to mesh radio without requiring additional revenue in the 2012–15 period. We found that 'the lower mesh radio deployment costs would more than offset any switching costs the AER considers a reasonable business would incur in 2011'.[123] Instead, we provided AusNet Services with an Amended AMI 2012–15 Budget based on mesh–equivalent forecasts only.

Our Amended 2012-15 Determination was appealed by AusNet Services but subsequently upheld by the Tribunal[124] and later the Federal Court.[125] The result was that AusNet Services received revenue allowances in the Amended AMI 2012–15 Budget based on mesh–equivalent forecasts only.

Preliminary decision (2016–20)

Our preliminary decision on AusNet Services' 2016–20 regulatory control period determined a total revenue requirement of $442.5 million ($nominal) over the 2016–20 regulatory control period for metering services. The key inputs into our preliminary decision were AusNet Services' forecast capex and opex.

Forecast capex

Our preliminary decision accepted $52.5 million ($2015) in capex for metering services.[126] This was equal to about 34 per cent of AusNet Services' proposed $153.0 million ($2015).

In reaching the substitute capex forecast, our preliminary decision did not accept AusNet Services' proposed metering capex of $100.7 million ($2015) relating to switching from a WiMAX communications technology to mesh radio. We acknowledged that AusNet Services would have to replace its WiMAX technology with mesh radio and in doing so it would incur 'switching costs' in the 2016–20 regulatory control period.[127] However, we concluded that 'AusNet Services, not their customers, should

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122 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. 93, table 3.8.

123 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. 53.

124 *Appeal by SPI Electricity Pty Limited* [2013] ACompT 7.

125 *SPI Electricity Pty Ltd v Australian Energy Regulator* [2014] FCA 1012.

126 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-28.

127 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-49.

bear the cost of switching'.[128] We determined that $52.5 million ($2015) in capex for metering services for maintaining IT/communications infrastructure and installing mesh communications modules for BAU new connections and replacements reflected the prudent and efficient level of capex required to provide this regulated service.

Our reasoning for not accepting the proposed switching costs related to our assessment of AusNet Services' opportunity to switch earlier at significantly lower cost. In particular, AusNet Services had the opportunity to switch from WiMAX to mesh radio in February 2011. This is evident from our Amended 2012–15 AMI Budget and Charges Determination. It found that an operator acting prudently and in accordance with commercial standards would have switched from WiMAX to mesh radio by 28 February 2011 at the latest.[129] These findings were upheld by the Tribunal[130] and later the Federal Court of Australia.[131]

We found that 'the delay in shifting from WiMAX after 28 February 2011 was imprudent'.[132] This is evident from the increasing cost of retrofitting network interface cards (NICs). In particular, AusNet Services' initial proposal (March/April 2015) included a NIC retrofit forecast for 2016–20 of $71.5 million ($2015).[133] We noted that this was a significantly higher forecast than both our estimate ($1.3 million) and AusNet Services' estimate ($19.8 million) for NIC retrofits in 2011.[134] The reason for this is that AusNet Services smart meter rollout was only in its initial phases in 2011, but by 2015 it had 670,154 smart meters which would need to be retrofitted.

We concluded that 'had AusNet switched to mesh radio earlier, it would be progressing onto a business–as–usual phase in the 2016–20 regulatory control period, as the other Victorian distribution businesses are'.[135] From this, we considered that the rejection of AusNet Services' proposed switching costs was consistent with the NEO and revenue and pricing principles in the NEL.

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128 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-49.

129 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. 21.

130 *Appeal by SPI Electricity Pty Limited* [2013] ACompT 7.

131 *SPI Electricity Pty Ltd v Australian Energy Regulator* [2014] FCA 1012.

132 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-56.

133 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-56.

134 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-50.

135 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-43.

Forecast opex

Our preliminary decision accepted AusNet Services' proposed metering opex of $139.7 million ($2015).[136]

In reaching this preliminary decision, we applied a 'base–step–trend' approach to develop our own alternative forecast. Using this approach, we found that AusNet Services' forecast opex, which applied a 'bottom–up' build, was reasonable.

Past investment decisions

Higher costs

During its smart meter roll–out, AusNet Services adopted a more costly approach.

In 2011, we received advice from Impaq Consulting regarding WiMAX unit costs. This advice was published with our 2011 Revised Budget Determination and was known to AusNet Services. The advice compared the unit costs for WiMAX meters and communication modules to that approved by us in October 2009. Impaq Consulting observed:[137]

> Taking into account all the meter types that [AusNet Services] will use, the volume weighted average meter unit cost (including communications modules) in the original submission was US$165.00 which compares with the revised submission of US$281.69. The price increase is 71% which in our view is quite a substantial increase.
>
> By the end of the AMI rollout [AusNet Services] will have installed 709,188 meters. This equates to an approximate cost increase of US$83 m over the period 2009 to 2015.

In our 2011 Revised Budget Determination it was also found that AusNet Services' proposed unit costs, employing a WiMAX communications solution, exceeded the average costs of the other Victorian electricity distributors, which employed mesh radio. We observed:[138]

> [AusNet Services] proposed expenditure variances to its Approved Budget per meter exceeds the average of that expended by the other Victorian [distribution network service providers], by greater than 50 per cent for single phase single element meters, by greater than 30 per cent for single phase two element with contactor meters, and by greater than 100 per cent for communications module.

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136 AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16-43.

137 Impaq Consulting, Letter to the AER, 31 March 2011; cited in AER, Final determination: SP AusNet revised budget application 2009–11, 20 July 2011, p. 20.

138 AER, *Final determination: SP AusNet revised budget application 2009–11,* 20 July 2011, p. 29.

In section A.6.1 below, we take AusNet Services' more costly approach to the roll–out of its smart meters into account. This is when considering AusNet Services' forecast capex and opex for the 2016–20 regulatory period against the NEO and the revenue and pricing principles.

WiMAX market

We consider the market for WiMAX at the time of AusNet Services' smart meter roll–out to be a relevant consideration for this final decision.

In 2011, we received advice from Impaq Consulting on the market and potential obsolescence of WiMAX. This advice was published and was applied when making our decision on AusNet Services' 2011 Revised Budget Application. The advice states:[139]

> From the foregoing it would appear that WiMAX is not likely to be a major [broadband wireless access] technology. All of the major carriers in Australia have adopted [long term evolution],[140] leaving WiMAX to the second tier carriers and other communication users.

For Impaq Consulting, the low utilisation of WiMAX among telecommunication carriers and other users presented a significant risk to AusNet Services:[141]

> It is our view that this situation increases the risk profile for WiMAX for smart metering. Without major carrier uptake the volume of WiMAX chipsets is likely to be relatively small. This in turn increases the likelihood an increasing price path for these chipsets in outbound years. The lower volume also increases the risk of inadequate support (or at least expensive support) for the hardware and software required for WiMAX smart metering.

Despite having access to this advice, AusNet Services proceeded to use WiMAX for its AMI rollout. By 2015 it appears that AusNet Services began to realise the consequences of that decision. AusNet Services' 2015 Metering Asset Management strategy states:[142]

> Compounding this situation is the declining number of world–wide users of WiMAX communications technology and metering modules, to the point that production runs of WiMAX modules have ceased. The manufacturer has advised that chipsets and other components used in the WiMAX communications modules are no longer available to purchase. Stocks of WiMAX modules are now critically low, and AusNet Services has little choice but to begin large scale replacement of the communication modules (and communication network) to an alternative technology.

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139 Impaq Consulting, *Review of WiMAX for smart metering and other applications*, 12 April 2011, p. 12.

140 Long term evolution, or LTE, is commonly marketed as "4G".

141 Impaq Consulting, Review of WiMAX for smart metering and other applications, 12 April 2011, p. 12.

142 AusNet Services, *Metering asset management strategy (EDM AMS) 2016–20 (Part 2) (Public)*, April 2015, p. 13.

In section A.6.1 below, we take the market for and potential obsolescence of WiMAX technology into account. This is when considering AusNet Services' forecast capex and opex for the 2016–20 regulatory period against the NEO and the revenue and pricing principles.

Governance practices

We consider AusNet Services' governance practices at the time of its smart meter roll–out to be a relevant consideration for this final decision.

In 2011, we assessed AusNet Services' governance practices when making its Final 2012–15 AMI Budget Determination. It was found that '[d]espite requests by the AER for such information, [AusNet Services] did not present the AER with evidence that [AusNet Services] has undertaken a comprehensive reassessment of its communications solution since July 2008—when [AusNet Services] management provided to its board a revised forecast of the AMI program costs'.[143] We determined that this failure to exercise appropriate levels of governance or risk management established that there has been a substantial departure from the commercial standard.[144] That is, AusNet Services had failed to meet the requisite commercial standard by not reconsidering its use of WiMAX.

In section A.6.1 below, we take AusNet Services governance practices during its smart meter roll–out into account. This is when considering AusNet Services' forecast capex and opex for the 2016–20 regulatory period against the NEO and the revenue and pricing principles.

A.5 AusNet Services' response to our preliminary decision

As outlined in section A.4 above, our preliminary decision did not accept AusNet Services' initial proposal for 'switching costs'. AusNet Services' response to this aspect in our preliminary decision is outlined below.

Forecast capex

Our preliminary decision accepted $52.5 million ($2015) in metering capex.

In response, AusNet Services' revised proposal forecasts $83.3 million ($2015) in capex for alternative control metering services. This is comprised of $36.5 million ($2015) in BAU capex and $46.9 million ($2015) in non–BAU capex.

Our disaggregation of AusNet Services' revised capex proposal into BAU and non–BAU categories is outlined in section A.2 above. We identified that AusNet Services'

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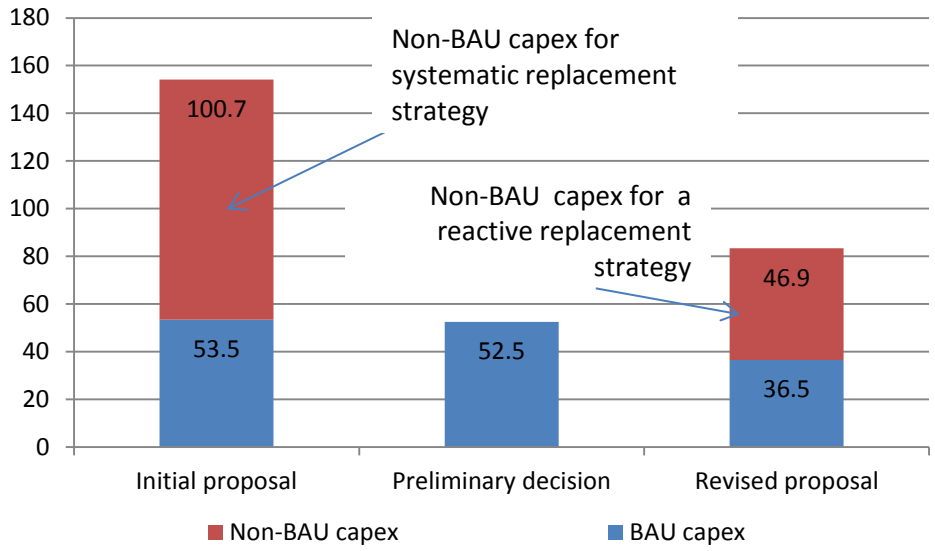
143 AER, *Final determination: Victorian advanced metering infrastructure review: 2012–15 budget and charges applications (Public version),* 31 October 2011, p. 88.

144 AER, *Final determination: Victorian advanced metering infrastructure review: 2012–15 budget and charges applications (Public version),* 31 October 2011, p. 88.

BAU capex is made up of a level of new connections and replacements that reflect historical volumes. Conversely, the non–BAU capex comprises of replacements that are substantially larger in number than AusNet Services' BAU historical volumes.

With respect to both BAU and non–BAU capex, AusNet Services' revised proposal seeks less expenditure than sought in its initial proposal. Figure 16.6 demonstrates this. It sets out AusNet Services' initial and revised proposed metering capex, along with our preliminary decision. We note that the lower BAU capex is due to a change in cost allocation, which we outlined in section A.1.

Figure 16.6 AusNet Services metering capex ($ m, 2015)



Source: AER analysis; AusNet Services, *Metering cost model - Revised proposal (public), 'Summary' tab*, January 2016.

In Figure 16.6 above, we labelled the strategies behind AusNet Services' non–BAU capex in both its initial and revised proposals. These strategies are different. In the initial proposal, AusNet Services' non–BAU capex was driven by a 'systematic replacement'. In the revised proposal, however, AusNet Services has changed to a 'reactive' replacement strategy.

More specifically, the reactive replacement strategy in AusNet Services revised proposal involves the replacement of existing WiMAX communications hardware in response to predicted equipment failures. This is different to the replacement strategy in AusNet Services' initial proposal which sought to systematically 'switch' from its existing WiMAX technology to mesh radio technology. This is by replacing the existing WiMAX communications hardware, regardless of operating condition.

In summary, AusNet Services' revised metering proposal can be disaggregated between BAU and non–BAU capex. The non–BAU category applies a different replacement strategy than in the initial proposal. The initial proposal involved non–BAU capex for a systematic switch to mesh radio through the replacement of WiMAX hardware regardless of operating condition. The revised proposal, by contrast, applies

a reactive approach in which WiMAX hardware is replaced with mesh radio equivalents when a failure is observed.

Forecast opex

Our preliminary decision accepted AusNet Services' initial opex forecast of $139.7 million ($2015). AusNet Services' revised opex proposal seeks an additional $17.2 million in opex ($2015), totalling $156.9 million ($2015).

Table 16.13 sets out the additional opex AusNet Services included in its revised proposal. The 'description' of each category shows that in each instance the cost driver of the additional opex is the continued operation of AusNet Services' existing WiMAX communications technology.

Table 16.13 AusNet Services' additional opex proposal ($2015)

Category	Description	Opex
Higher fault rates	AusNet Services expects an increased fault rate in the communication modules. Its revised proposal states that this necessitates additional resources to maintain and repair these communication modules.	$1.1 million
Contract prices	AusNet Services states that new information has become available after it submitted its initial proposal means additional opex is required to maintain and support its communication technology throughout 2016–20. The additional costs are due to contracts subsequently entered into with vendors that were not included in the forecast submitted as part of the initial proposal.	$6.3 million
WiMAX continuation costs	AusNet Services forecasts additional opex due to the continued use of its existing WiMAX communications solution.	$10.0 million

Source: AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11-10.

AusNet Services' revised proposal for additional opex is a response to our preliminary decision on its forecast capex. Our preliminary decision did not accept AusNet Services' initial proposal for $100.7 million ($2015) in capex for systematically replacing its existing WiMAX communications technology,[145] in a manner that involved a 'switch' to mesh radio. In its revised proposal, AusNet Services states that this outcome means it will incur additional opex.[146] This is because without the funding to 'switch' it will continue to operate its existing WiMAX based communications technology for a longer period.

Our assessment of AusNet Services' revised proposal is that forecast opex can be disaggregated into BAU and non–BAU categories. This disaggregation is set out in section A.2. We consider the $139.7 million ($2015) in opex we accepted in our

[145] AER, *Preliminary decision on AusNet Services distribution determination 2016–20: Attachment 16 – Alternative control services*, October 2015, p. 16–28.

[146] AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11-11.

preliminary decision to reflect AusNet Services' BAU operations. We consider the remaining $17.2 million ($2015), relating to the continued operation of AusNet Services' existing WiMAX communications technology, to fall into a non–BAU opex category.

A.6 Reasons for final decision

A.6.1 Additional expenditure

In this section, we assess AusNet Services' revised proposal for 'additional expenditure' against the NEO and the revenue and pricing principles in the NEL. By 'additional expenditure' we mean AusNet Services' revised proposed non–BAU capex and non–BAU opex. Our explanation of these cost categories is outlined in section A.2 above. For ease of reference, the additional expenditure relates to:

- $46.9 million ($2015) in non–BAU capex to remedy hardware faults relating to WiMAX communication modules[147]
- $17.2 million ($2015) in non–BAU opex for continuing to operate a WiMAX communications system whilst AusNet Services progressively moves over to a mesh radio solution via a 'reactive' replacement strategy.[148]

This section interrelates with sections A.6.2 and A.6.3. In those later sections, we consider the specific components of AusNet Services' BAU and non–BAU capex and opex forecasts.

National Electricity Objective

We do not approve the proposed additional expenditure because we consider its approval would be contrary to the NEO. Our view is that the additional expenditure is inherently related to AusNet Services' past decision to complete its smart meter roll–out using a WiMAX communications technology, which we previously found did not satisfy the prudency test in the Order.[149] We consider that when an electricity distributor implements an inefficient or imprudent investment decision or practice, then the additional costs that arise with respect to that inefficient or imprudent decision or practice should be borne by the distributor. In reaching this conclusion we assessed the proposed additional expenditure against the NEO, having regard to the following revenue and pricing principles, to demonstrate that it would be contrary to the long term interests of consumers for AusNet Services to be allowed to recover these costs.

A reasonable opportunity to recover at least efficient costs

147 AusNet Services, Metering cost model - Revised proposal (public), 'Calc' tab.

148 AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11–11.

149 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013; *Appeal by SPI Electricity Pty Limited* [2013] ACompT 7; *SPI Electricity Pty Ltd v Australian Energy Regulator* [2014] FCA 1012.

We do not approve the proposed additional expenditure because it is inconsistent with revenue and pricing principle 7A(2) in the NEL.

Revenue and pricing principle 7A(2) provides:

> A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in—
>
> (a) providing direct control network services; and
>
> (b) complying with a regulatory obligation or requirement or making a regulatory payment.

Under the applicable regulatory regime, we may consider AusNet Services' past capex and opex when assessing its alternative control metering revenue requirement for the 2016–20 regulatory control period.[150] Therefore when considering pricing principle 7A(2) in the NEL, we have had regard to AusNet Services' previous smart metering investment decisions.

We consider that the forecast for the 2016–20 period should be based on expenditure for BAU metering services only and not provide for additional expenditure associated with the inefficient decision to use a WiMAX communications solution. We consider the proposed additional expenditure is inherently related to AusNet Services' decision to not convert to a mesh radio communications technology during its AMI rollout where there was information showing that it was a less costly, market proven solution. We have formed this view in light of the higher costs of WiMAX, the market for and potential obsolescence of WiMAX and AusNet Services' governance practices during its smart meter roll-out (see section A.4. above).

At the preliminary decision stage, the Consumer Challenge Panel made a similar point in its submission that customers have 'already paid sufficiently for a full roll-out as would be implemented by a reasonable business'.[151] The Consumer Challenge Panel continues to support this view in its submission on our preliminary decision and AusNet Services revised proposal: [152]

> …customers should not pay more for cost overruns because of AusNet's choice of communications technology.
>
> …the costs in question would not have been incurred had AusNet previously operated prudently and in accordance with commercial standards, and therefore they should not be recovered from customers however they are characterised.

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150 *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, cl 5K(b)(iv).

151 Consumer Challenge Panel Sub Panel 3, *CCP3 Supplementary advice regarding the AusNet Services proposal*, [email], received 23 October 2015.

152 Consumer Challenge Panel CCP 3, *Victorian DNSP's revenue reset, Comments on AER Preliminary Decisions*, 25 February 2016, p. 125.

We consider the revenue and pricing principle in section 7A(2) supports our decision that revenue should not be included in our Final Determination to fund the additional expenditure.

Our approved AMI Budgets for the 2009–11 and 2012–15 periods provided AusNet Services a reasonable opportunity to recover at least the efficient costs that a prudent distributor would require to provide metering services. In particular, the 2009–11 Budget was sufficient for AusNet Services to have adopted a more cost effective and market proven mesh radio solution within budget, because the costs would have been offset by savings from using a mesh solution.[153] The 2012–15 Budget provided for prudent and efficient cost recovery to complete the AMI rollout and provide metering services using mesh radio.

We provided AusNet Services an opportunity to recover its prudent and efficient costs in our Amended 2012–15 Determination. Customers should not be required to fund additional costs inherently related to AusNet Services' decision to not use a mesh radio communications solution during its AMI rollout where this approach was determined to be imprudent and inefficient.

Effective incentives to promote economic efficiency

We do not approve the proposed additional expenditure because it is inconsistent with revenue and pricing principle 7A(3) in the NEL.

Revenue and pricing principle 7A(3) provides:

> A regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to direct control network services the operator provides. The economic efficiency that should be promoted includes—
>
> (a) efficient investment in a distribution system or transmission system with which the operator provides direct control network services; and
>
> (b) the efficient provision of electricity network services; and
>
> (c) the efficient use of the distribution system or transmission system with which the operator provides direct control network services.

Under the applicable regulatory regime, we may consider AusNet Services' past capex and opex when assessing its alternative control metering revenue requirement for the 2016–20 regulatory control period.[154] Therefore when considering pricing principle 7A(3) in the NEL, we have had regard to AusNet Services' previous smart metering investment decisions.

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[153] AER, 2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders, February 2013, p. vii; Appeal by SPI Electricity Pty Limited [2013] ACompT 7, [157] and [174].

[154] *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, cl 5K(b)(iv)(B).

AusNet Services' proposal is that customers should bear the additional costs of it employing a WiMAX communications solution. Such a proposal is inconsistent with effective incentives to promote economic efficiency. When we determine a prudent and efficient allowance, the distribution business has the flexibility to spend this allowance as it sees fit. This includes deciding on the choice of communications technology for an AMI rollout. This flexibility means that if the distribution business can deliver its services for less than the allowance, it can keep the difference. This encourages distribution businesses to continuously strive to improve their efficiency.

However, if a distribution business implements an imprudent or inefficient decision, it is the distribution business, not customers, which should fund any additional costs that are inherently related to that decision. Otherwise, we would be providing distribution businesses with all costs associated with delivering their services, regardless of the prudency or efficiency of their investment decisions. To do so, provides no incentive for distribution businesses to act prudently and efficiently, including reconsidering their elected strategies in the face of contrary information, in a timely fashion. This would be at odds with incentive regulation and would mean customers paying more than necessary which is not in the long–term interest of consumers.

We consider AusNet Services took an imprudent and inefficient approach to the roll–out of the communications technology component of its smart meter program. We have reached this conclusion in light of the higher costs of WiMAX, the market for and potential obsolescence of WiMAX, and AusNet Services governance practices during its smart meter roll–out (see section A.4 above). We consider that it would be inconsistent with revenue and pricing principle 7A(3) in the NEL if AusNet Services is able to implement imprudent or inefficient investment decisions or practices and, irrespective of that, recover further costs from customers flowing from the imprudent and inefficient investment. In these circumstances the recovery of the additional expenditure would undermine the effective incentives on AusNet Services to promote economic efficiency in the provision of direct control services.

A return commensurate with regulatory and commercial risks

We do not approve the proposed additional expenditure because its approval would be inconsistent with revenue and pricing principle 7A(5) in the NEL and the NEO.

Revenue and pricing principle 7A(5) provides:

> A price or charge for the provision of a direct control network service should allow for a return commensurate with the regulatory and commercial risks involved in providing the direct control network service to which that price or charge relates.

In applying this principle, we determine that AusNet Services should not be compensated for the risk it took in employing a WiMAX communications solution during its smart meter rollout. We consider the selection of WiMAX to be a risk with respect to

its higher costs[155] and in relation to the market for and potential obsolescence of the communications technology.[156] We also consider AusNet Services to have taken a risk by failing to implement governance practices that reconsidered the use of WiMAX for its smart meter rollout.[157] Consistent with previous determinations,[158] we consider that AusNet Services should have discontinued using WiMAX as its communications solution by 28 February 2011 at the latest.

We accordingly find that the approval of the additional expenditure would be inconsistent with revenue and pricing principle 7A(5) in the NEL. It would provide AusNet Services with an additional allowance for a risk, namely the continued use of WiMAX as its communications solution after 28 February 2011, which an efficient and prudent electricity distributor would not have faced. We also consider that it would be an inappropriate allocation of risk to make AusNet Services customers bear additional costs that are inherently related to AusNet Services decision to employ WiMAX as its communications technology.

A.6.2 Forecast capex

Our final decision is to approve $36.5 million ($2015) in capex for AusNet Services' 2016-20 regulatory control period. This is equal to 44 per cent of AusNet Services' total proposal for $83.3 million ($2015).[159]

In forming our final decision, we have taken our analysis against the revenue and pricing principles in the NEL into account (section A.6.1). We have also conducted a costs assessment of AusNet Services' forecast BAU and non–BAU capex, which is outlined below.

Forecast BAU capex

We approve 100 per cent of AusNet Services' revised BAU capex. This amounts to $36.5 million ($2015) in the 2016–20 regulatory control period.

Table 16.14 sets out our final decision on AusNet Services' revised BAU capex. It also shows our preliminary decision and AusNet Services' initial and revised proposals.

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155 Impaq Consulting, Letter to the AER, 31 March 2011; cited in AER, Final determination: SP AusNet revised budget application 2009–11, 20 July 2011, p. 23; AER, *Final determination: SP AusNet revised budget application 2009–11,* 20 July 2011, p. 29.

156 Impaq Consulting, *Review of WiMAX for smart metering and other applications*, 12 April 2011, p. 12.

157 AER, *Final determination: Victorian advanced metering infrastructure review: 2012–15 budget and charges applications (Public version),* 31 October 2011, p. 88.

158 AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. 21.

159 AER, Preliminary decision on AusNet Services distribution determination 2016–20*: Attachment 16 – Alternative control services*, October 2015, p. 16-28.

Table 16.14 Final decision on BAU capex ($m, 2015)

	Initial proposal	Preliminary decision	Revised proposal	Recommended final decision
New connections				
Mesh cards	5.6	5.6	6.4	6.4
Metering hardware	9.5	8.9	10.2	10.2
Metering installation (labour)	18.1	18.1	0.0	0.0
Replacements				
Mesh cards	1.9	1.9	1.9	1.9
Metering hardware	3.7	3.7	3.7	3.7
Metering installation (labour)	7.6	7.6	7.6	7.6
Information technology				
IT related capex	0.9	0.9	0.9	0.9
Communications				
New connections	0.3	0.3	0.3	0.3
Replacements	4.2	4.2	4.2	4.2
Labour	1.1	1.1	1.1	1.1
Total BAU capex	53.2	52.5	36.5	36.5

Source: AER analysis; AusNet Services, *Revised regulatory proposal: Addendum to metering asset management strategy 2016–20 (Public)*, 6 January 2016; AusNet Services, *Revised metering costs model*, 6 January 2016.

Compared to its initial proposal, AusNet Services revised BAU capex:

- seeks additional funding for new connection metering hardware
- no longer seeks any funding for metering installation (labour) through alternative control metering services.

We approve AusNet Services' revised proposed metering hardware for new connections, totalling $10.2 million ($2015). AusNet Services' unit costs for each type of smart meter are consistent with the benchmark unit rates we applied in our preliminary decision. We also accept the volumes of new connections that underpin AusNet Services' forecast. Those volumes are higher than we accepted in our preliminary decision. Nonetheless, our final decision is to approve them because they

are consistent with updated data on Victorian residential (household) growth forecast, published by the Victorian Government.[160]

We accept AusNet Services' revised proposal to no longer seek any funding for metering installation (labour) through alternative control metering services. In AusNet Services' initial proposal, it sought to amortise the labour costs associated with the installation of meters at new connections. That is, AusNet Services would fund the cost of a technician to install a meter at a new connection upfront. Those upfront costs would then be rolled into AusNet Services' regulatory asset base for metering and recovered through its annual metering charge over the economic life of the asset. As shown in Table 16.14 above, our preliminary decision accepted $18.1 million ($2015) in capex for AusNet Services to fund the labour costs of installing meters at new connection sites.

In its revised proposal AusNet Services has not sought any capex for the labour costs of installing new meters. As with the other Victorian electricity distributors, AusNet Services revised proposal seeks to recover the labour costs of new connections via ancillary network charges. This is such that customers will pay for the labour cost of a new meter in full at the time of installation. Such a change in cost allocation results in an $18.1 million ($2015) reduction in AusNet Services' revised proposed BAU capex for alternative control metering services. AusNet Services will nonetheless still recover its costs; it is just that this will occur via ancillary network services.

Our final decision approves AusNet Services' revised proposed BAU capex of $36.5 million ($2015) for metering services. The proposed reallocation of costs relating to new connections (labour) is consistent with other Victorian electricity distributors. We have also found that a forecast increase in new connections hardware[161] is reflective of the updated data on housing growth.

Non–BAU capex

Our final decision is to not approve any of the forecast $46.9 million ($2015) in alternative control metering capex we have categorised as non–BAU.

Table 16.15 sets out our final decision on AusNet Services non–BAU capex. It also shows our preliminary decision along with AusNet Services' initial and revised proposals.

[160] AusNet Services, *Revised regulatory proposal* , 6 January 2016, p. 4-10.

[161] AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11-10.

Table 16.15 AusNet Services initial and revised capex proposal ($2015)

	Initial proposal	Preliminary decision	Revised proposal	Final decision
Mesh cards	39.7	0.0	11.2	0.0
Mesh antennas	2.0	0.0	0.4	0.0
Installation (labour)	31.8	0.0	35.3	0.0
Meter management systems	16.3	0.0	0.0	0.0
Comms infrastructure	10.0	0.0	0.0	0.0
Subtotal: Non–BAU	99.8	0.0	46.9	0.0

Source: AusNet Services, Metering cost model — Initial proposal (Public), "Calc" tab, October 2015; AER, Metering costs model — Revised proposal (Public), "Calc" tab, 6 January 2016.

Non-BAU: mesh cards

We do not approve AusNet Services' revised proposed $11.2 million ($2015) in non–BAU capex for mesh cards. We consider AusNet Services' approved BAU capex for mesh cards to meet the prudent and efficient level of expenditure required to provide the regulated service.

As shown in Table 16.14 above, our final decision on AusNet Services BAU capex already approves an allowance for mesh cards. This is comprised of $6.4 million ($2015) for BAU 'new connections' and $1.9 million ($2015) for BAU 'replacements' ($2015). We consider that BAU capex, totalling $8.2 million ($2015), is sufficient for a prudent and efficient electricity distributor in AusNet Services' circumstances to recover its mesh card costs for ongoing operation of smart metering services in the 2016–20 regulatory control period.

Accordingly, our final decision does not accept AusNet Services' revised forecast of $11.2 million ($2015) for non–BAU mesh cards. AusNet Services will still, however, recover $8.2 million (2015) in capex for BAU new connections and BAU replacement mesh cards.

AusNet Services' revised capex proposal for non–BAU mesh cards is lower than its initial proposal.[162] The lower volume forecast for non–BAU mesh cards is a product of AusNet Services' change in reasoning for replacement of WiMAX technology. In its initial proposal, AusNet Services submitted that its WiMAX technology was becoming obsolete.[163] It planned to undertake a systematic replacement of its existing communications hardware such that AusNet Services would 'switch' its entire network

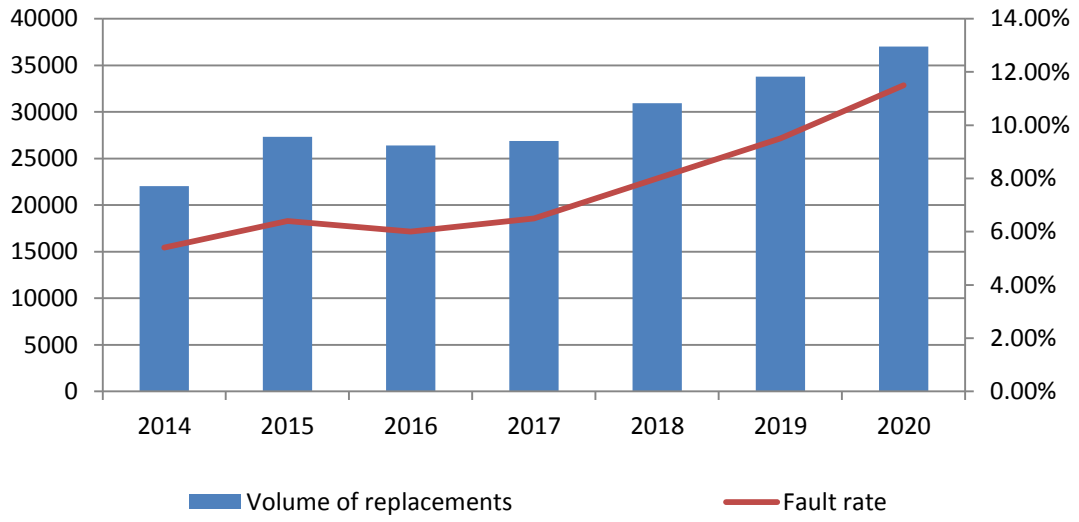
[162] AusNet Services, *Revised proposal: Metering costs model (Public)*, January 2016, "Calc" tab, cells E28:I28 ; AusNet Services, *Metering cost model – Initial proposal (Confidential), April 2015*, "Calc" tab, cells E5, E9, E13: I13.

[163] AusNet Services, *Initial regulatory proposal: 2016–20 regulatory period*, January 2016, p. 400.

from WiMAX technology to mesh radio. By contrast, in its revised proposal AusNet Services submitted that it anticipates high failure rates because its 'communication modules have a design life of seven years and it is expected that the communication fault rate will progressively increase during the regulatory control period as these communication modules reach or approach end of life'.[164] It proposed a 'reactive' strategy, whereby replacements would be conducted in response to faults rather than a systematic switch.

AusNet Services provided data on its communication module failure rates. This is to support its proposed non–BAU capex for mesh cards. Figure 16.7 shows the historical fault rates (2014 and 2015). It also shows AusNet Services' forecast fault rates for the 2016–20 regulatory period, along with the forecast volume of mesh card replacements.

Figure 16.7 Mesh card replacement volumes and fault rates



Source: AusNet Services, *Revised regulatory proposal: Addendum to metering asset management strategy 2016–20 (Public)*, 6 January 2016, p. 3.

We took a broad range of other factors into account when considering AusNet Services' revised proposal for non–BAU capex for mesh cards. This includes the framework in the NER for regulating alternative control services.[165] We also took into account AusNet Services' actual and expected capital expenditure during the 'initial regulatory period' between 2009 and 2015,[166] the NEO and the revenue and pricing principles (in particular those discussed in section A.6.1 above).

[165] As explained in detail in section A.3.2 above.

[166] *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, cl 5K(b)(iv)(B).

To assist in our considerations of whether AusNet Services' revised proposal for non–BAU capex for mesh cards is prudent and efficient, we conducted a comparative analysis of AusNet Services' proposed non–BAU capex for mesh cards. That is, we compared AusNet Services' proposal with its peers. We consider that this analysis would show whether AusNet Services' proposed non–BAU capex for mesh cards meets an efficient benchmark.

When considering which business to select for conducting our comparative analysis, we took into account the size and network characteristics of the other Victorian distributors. In doing so, we selected Powercor. We consider a comparison with Powercor to be reasonable given it and AusNet Services have a similar number of customers and both have large rural and some metropolitan network areas. Impaq Consulting (a past consultant for us) has also previously recommended Powercor as comparator for benchmarking AusNet Services' metering capex.[167]

Figure 16.8 sets out the results of our comparison.[168] It shows that the volume of replacement activities for Powercor is low. They average about 1098 communications equipment replacements per year. This is compared to a significant volume of replacements forecast by AusNet Services. The annual average for AusNet Services' non–BAU replacement volumes is 29,214. We also note that the BAU volumes we propose to accept in our final decision are substantially higher than Powercor's total volume of communication related equipment replacements.[169]

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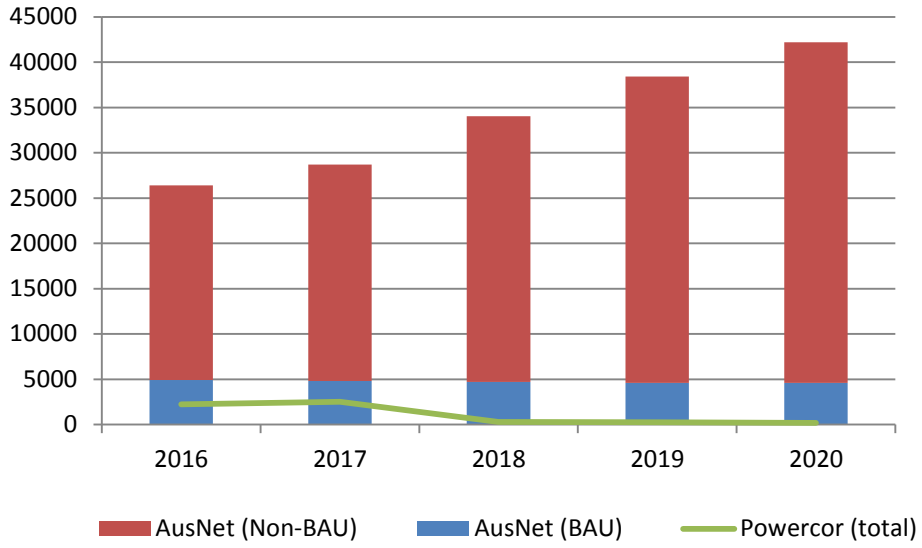
167 Impaq Consulting, Letter re: Powercor as a comparator for SP AusNet in relation to AMI, 27 October 2011.

168 We also compared AusNet Services' BAU and non-BAU mesh card replacement volumes with Powercor's meter replacement forecast. We observed that AusNet Services' BAU meter forecast approximates Powercor's total meter replacement volumes. However, when AusNet Services non-BAU forecast is taken into account its total mesh card replacements is substantially higher than Powercor's forecast meter replacement program. We have taken this into account when considering the efficiency of AusNet Services' capex proposal.

169 Powercor, *PAL Public RRP MOD 1.5 PAL metering volumes*, January 2016.

Figure 16.8 Forecast volume of communications replacements



Source: AusNet Services, *Metering cost model – Revised proposal (Public)*, January 2016; Powercor, *PAL Public RRP MOD 1.5 PAL metering volumes*, January 2016.

Taking Figure 16.8 into account, we consider AusNet Services' forecast number of non–BAU mesh card replacements is above what we expect from an efficient electricity distributor. We have reached this conclusion on the basis that a business (Powercor) with similar characteristics to AusNet Services is forecasting a significantly smaller number of communications equipment replacements in the 2016–20 regulatory control period. We conclude that AusNet Services' forecast number of non–BAU mesh card replacements is inefficient.

Our view is that AusNet Services' substantially higher non–BAU replacement volume forecast is likely due to its selection of a WiMAX communications solution. This conclusion is based on the fact that Powercor employed a mesh radio solution during its AMI rollout and it is forecasting comparatively minimal faults in 2016–20.

In section A.6.1 above, we considered AusNet Services' selection of WiMAX during its smart meter roll–out against the NEO and the revenue and pricing principles. We observed that during its smart meter roll–out AusNet Services made imprudent and inefficient investment decisions. This is with respect to the cost of its communications solution,[170] the market for and potential obsolesce of WiMAX,[171] and in terms of the

[170] AER, *Final determination: SP AusNet revised budget application 2009–11,* 20 July 2011, p. 29; AER, *2012–15 AMI SPI Electricity Pty Ltd Budget and Charges Determination - amendments pursuant to the Australian Competition Tribunal's Orders*, February 2013, p. vii; *Appeal by SPI Electricity Pty Limited* [2013] ACompT 7, [157] and [174].

[171] Impaq Consulting, *Review of WiMAX for smart metering and other applications*, 12 April 2011, p. 12; AusNet Services, *Metering asset management strategy (EDM AMS) 2016–20 (Part 2) (Public)*, April 2015, p. 13.

governance practices it applied.[172] Our conclusion was that it would be inconsistent with the NEO and the revenue and pricing principles in the NEL if we accepted additional expenditure relating to the imprudent and inefficient investment in WiMAX as its communications solution. This is because the approval of additional expenditure would undermine the effective incentives on AusNet Services to promote economic efficiency.[173] Additionally, AusNet Services had already been given an opportunity to recover its efficient costs[174] and it would be an inappropriate allocation of risk if AusNet Services was allowed to recover the additional expenditure.[175]

Our final decision does not approve AusNet Services' proposed non–BAU capex for mesh cards. The forecast volume of replacements making up this proposal is substantially higher than a comparative electricity distributor, in this case Powercor, and from this we conclude that the non–BAU capex is inefficient. Our final decision is also based on our analysis against the NEO and the revenue and pricing principle in the NEL. Though we do not accept AusNet Services non–BAU capex for mesh cards, our final decision approves $8.2 million (2015) in capex for BAU new connections and BAU replacement mesh cards. We consider this to be sufficient expenditure allowance for an electricity distributor which was set a target to have completed its smart meter rollout by 2014.[176]

Non–BAU: mesh antennas

We do not approve any of the revised proposed $0.4 million ($2015) in capex for non–BAU mesh antenna, which was proposed by AusNet Services.

Our final decision already approves a capex allowance for BAU mesh antennas of $0.3 million ($2015) for 'new connections' and $0.1 million ($2015) for 'replacements' ($2015). These costs are included as a subset of the costs in the 'mesh antenna and comms modules' line item in Table 16.14 above. We consider that BAU capex for mesh antennas is sufficient for a prudent and efficient electricity distributor to recover its new connection and replacement costs in the 2016–20 regulatory control period.

Accordingly, our final decision is to not accept AusNet Services' revised non–BAU capex forecast of $0.4 million ($2015) for mesh antennas. AusNet Services will still, however, recover $0.4 million in BAU mesh antenna capex.

Figure 16.9 sets out AusNet Services forecast number of BAU and non–BAU replacements of mesh antennas. For comparative purposes, the forecast volume of replacements included in Powercor's revised proposal is shown too.

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172 AER, *Final determination: Victorian advanced metering infrastructure review: 2012–15 budget and charges applications (Public version),* 31 October 2011, p. 88.

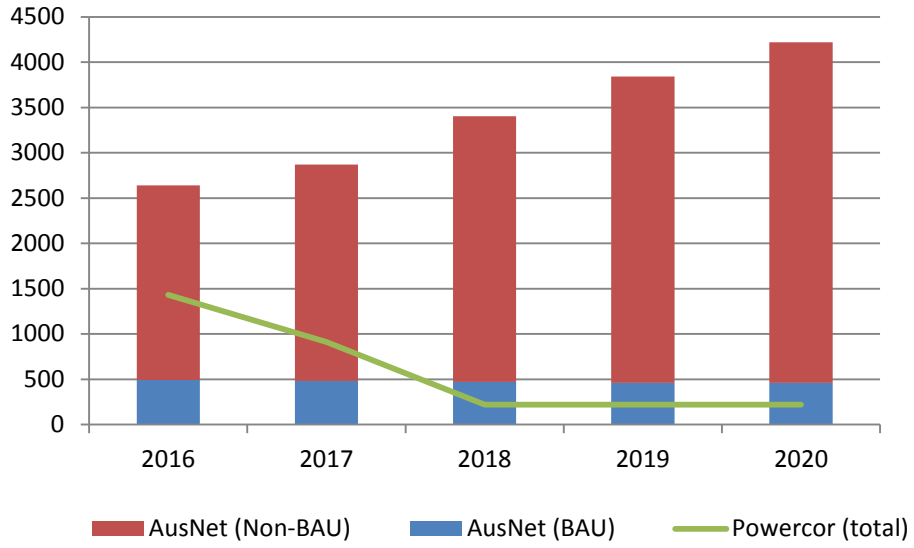
173 NEL, s. 7A(3).

174 NEL, s. 7A(2).

175 NEL, s. 7A(5).

176 *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, clause 14.1.

Figure 16.9 Forecast volume of mesh antenna replacements



Source: AusNet Services, *Metering cost model – Revised proposal (Public)*, January 2016; Powercor, *PAL Public RRP MOD 1.5 PAL metering volumes*, January 2016.

We consider that AusNet Services' forecast number of non–BAU mesh antenna replacement is not prudent and efficient. We have reached this conclusion on the basis that a business (Powercor) with similar characteristics to AusNet Services is forecasting a significantly smaller number of replacements in the 2016–20 regulatory control period.

We find that AusNet Services' substantially higher replacement volume forecast is likely due to its selection of a WiMAX communications technology. We based our findings on the fact that Powercor employed a mesh radio solution during its AMI rollout and it is forecasting comparatively minimal mesh antenna replacements in 2016–20. For the reasons in section A.6.1 above, we consider that it would be inconsistent with the revenue and pricing principles in the NEL for the non-BAU capex to be approved to rectify AusNet Services' selection of WiMAX during its AMI rollout.

Non–BAU: installation (labour)

We do not approve the revised proposed $35.3 million ($2015) in capex for non–BAU meter installations (labour), which was proposed by AusNet Services.

Our final decision approves a capex allowance for BAU installation (labour) capex of $7.6 million ($2015) (see Table 16.14 above). We consider that BAU capex is sufficient for a prudent and efficient electricity distributor to recover its replacement costs in the 2016–20 regulatory control period.

Accordingly, our final decision does not accept AusNet Services' revised forecast of $36.3 million ($2015) for non–BAU installation (labour) costs. We still, however, accept $7.6 million ($2015) in BAU capex for meter installation (labour) costs, as set out in Table 16.14 above.

AusNet Services' revised capex proposal of $35.3 million ($2015) for non–BAU installation (labour) capex is higher than in its initial proposal of $31.8 million ($2015). Even so, AusNet Services is proposing to conduct substantially less number of replacements than it forecast in its initial proposal.[177] This is in line with AusNet Services' revised proposal to reactively replace meters in response to faults; in comparison to the systematic replacement strategy put forward in its initial regulatory proposal.

In effect, AusNet Services is proposing more capex for fewer installations. The driver of this is a change in replacement strategy. AusNet Services' initial proposal was based on a systematic replacement of its communications technology. Its revised proposal, by contrast, is based on a reactive approach whereby mesh cards and antennas would be replaced as and when they experience a fault.

The consequence of this change in strategy is an increase in costs per installation. AusNet Services' revised proposal states that 'there will… be a corresponding increase in the installation costs of these communication modules as field officers are required to go to customers' premises on a reactive basis to replace faulty communications modules'.[178] It further explained that 'due to geographic disparity of these faults across AusNet Services' network, the installation costs will be higher due to the longer travel times between premises'.[179]

The Consumer Challenge Panel made a submission on this change in replacement strategy. It noted in its submission:[180]

> CCP3 is concerned that AusNet's revised proposal indicates that it now intends further not to act prudently, by not replacing WiMAX and waiting instead for fully anticipated faults, failures, and stability. Not only might this incur even more costs (which should not be borne by customers), but it might also impact negatively on AusNet's levels of service to customers, and thwart the capturing of benefits from AMI by customers.

We consider AusNet Services' revised proposal for non–BAU installation (labour) capex to be imprudent. Its initial proposal forecast a labour cost per installation of $61.20 ($2015). The change in replacement strategy, however, has increased that unit cost to $241.50 ($2015).[181] This is a substantial increase in unit costs, showing that AusNet Services' revised non—BAU installation (labour) capex is not prudent and efficient. On a per installation basis, it is substantially more expensive than the capex

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177 AusNet Services, *Metering cost model – Revised proposal (Public)*, January 2016, "Calc" tab, cells E32:I32; AusNet Services, *Metering cost model – Initial proposal (Confidential)*, April 2015, "Calc" tab, cells E55:I55.

178 AusNet Services, *Revised regulatory proposal: Addendum to metering asset management strategy 2016–20 (Public)*, 6 January 2016, p. 4–10.

179 AusNet Services, *Revised regulatory proposal: Addendum to metering asset management strategy 2016–20 (Public), 6 January 2016, p. 4–10.*

180 *Consumer Challenge Panel CCP3, Victorian* DNSP revenue reset, Comments on AER Preliminary Decision, February 2016, p. 126.

181 AER analysis; AusNet Services, *Metering cost model - Revised proposal (public)*, January 2016, 'Summary' tab.

proposed in the initial proposal, effectively asking customers to bear an even greater cost than a systematic replacement program.

We note that we rejected AusNet Services' revised proposal for non–BAU capex for mesh cards and antennas. Given this, it follows that the revised proposal for $36.5 million ($2015) in non–BAU labour costs associated with installing those mesh cards and antennas should not be approved.

A.6.3 Forecast opex

Our final decision is to accept $139.2 million ($2015) in opex. This is equal to 89 per cent of AusNet Services revised proposed opex of $156.9 million ($2015).

Base

Our determination on AusNet Services' base level of metering opex applied the revealed costs approach. We also adjusted for any non–recurrent costs or material inefficiencies.

Table 16.16 breaks down each component of our final decision regarding AusNet Services' base metering opex.

Table 16.16 AER assessment of the base ($m, 2015)

Component	
Raw base	48.5
Adjustment for non–recurrent costs	(20.7)
Total	27.8

Source: AER analysis; AusNet Services, *Revised regulatory proposal 2016–20, Metering cost model*, January 2016.

Using the revealed costs approach, we selected AusNet Services' actual metering opex in 2014 as our starting point. AusNet Services' actual metering opex in 2014 was $48.5 million ($2015).

We selected AusNet Services' actual metering opex in 2014 for two reasons. First, it is the last completed year from which we have audited accounts on AusNet Services' metering opex. Second, the costs incurred in 2014 should best resemble or approximate BAU opex for metering in the 2016–20 regulatory control period. This is because AusNet Services had been set a target to have completed its rollout of AMI before the commencement of the 2014 year.[182]

The next step in our assessment of the base involved considering whether we should make any adjustments for non–recurrent expenditure. With regard to this aspect of our

[182] *Victorian Advanced Metering Infrastructure Cost Recovery Order In Council*, clause 14.1.

assessment, we consider that in the 2016–20 regulatory control period AusNet Services should be in a BAU phase of delivering smart metering services to customers. This means that any opex incurred in the base year which is related to the roll–out smart metering infrastructure should be regarded as non–recurrent, or 'one–off', expenditure that should be removed from the base.

Table 16.17 sets out the cost categories which we have identified as non–recurrent. These costs may be further categorised into two groups. The first consists of costs AusNet Services identified as non–recurrent in its initial proposal. The second is made up of an additional set of costs which, following our analysis, we consider to be non–recurrent.

Table 16.17 Calculation of non–recurrent expenditure

Group 1	
IT opex	4.3
Project management office	8.8
Group 2	
Manual meter reading	4.0
Data management	0.2
Communications infrastructure	3.0
Overheads	0.4
Total	20.7

Source: AusNet Services, Response to AER information request IR# 019, 3 September 2015, p. 1; AusNet Services, *Regulatory proposal 2016–20, Metering costs model*, April 2015.

We consider a base of $27.9 million ($2015) is efficient. This amount includes a significant reduction for non–recurrent expenditure.

Step

AusNet Services did not propose any step changes in its revised proposal.

Nonetheless, we have determined that certain costs should be treated as proposed step changes. These costs correspond with the additional $17.2 million ($2015) in non–BAU opex which AusNet Services included in its revised proposal. AusNet Services states that this non–BAU opex is required for continuing to operate a WiMAX communications system whilst it progressively moves over to a mesh radio solution via a 'reactive' replacement strategy.[183]

[183] AusNet Services, *Revised regulatory proposal*, 6 January 2016, p. 11–11.

Our rationale for treating the $17.2 million ($2015) in non–BAU opex as a step change rests with our findings in the preliminary decision. Specifically, our preliminary decision accepted AusNet Services' forecast opex of $139.7 million ($2015). We therefore consider that opex allowance to be the base level of expenditure which AusNet Services requires to operate its smart meter program over the 2016–20 regulatory control period. It follows that any expenditure incremental to our assessment of AusNet Services' efficient base should be treated as a 'step change'.

Table 16.18 shows the costs we have treated as 'step changes'. When added together they equal the $17.2 million ($2015) in opex we have given a non–BAU categorisation in this final decision.

Table 16.18 Forecast increase in opex from preliminary decision ($2015)

Category	Description	Opex ($2015)
Higher fault rates	AusNet Services expects an increased fault rate in the communication modules. Its revised proposal states that this necessitates additional resources to maintain and repair these communication modules.	$1.1 million
Contract prices	AusNet Services states that new information has become available after it submitted its initial proposal means additional opex is required to maintain and support its communication technology throughout 2016–20. The additional costs are due to contracts subsequently entered into with vendors that were not included in the forecast submitted as part of the initial proposal.	$6.3 million
WiMAX continuation costs	AusNet Services forecasts additional opex due to the continued use of its existing WiMAX communications solution.	$10.0 million

Source: AusNet Services, *Revised regulatory proposal: Addendum to metering asset management strategy 2016–20 (Public)*, 6 January 2016, p. 11–11.

When assessing a distributor's proposed step changes, we consider whether they are needed for the total opex forecast to reasonably reflect the prudent and efficient opex required to provide the regulated service.[184] This assessment approach is consistent with our Expenditure forecast assessment guideline.[185]

We generally consider an efficient base level of opex is sufficient for a prudent and efficient distributor to meet all existing regulatory obligations. This is the same regardless of whether we forecast an efficient base level of opex based on the service provider's own costs or the efficient costs of comparable benchmark providers. We only include a step change in our opex forecast if we are satisfied a prudent and efficient service provider would need an increase in its opex.

[184] NER, clause 6.6.5(c).

[185] AER, Expenditure assessment forecast guideline, November 2013, pp.11, 24.

Step changes should generally relate to a new obligation or some change in the service provider's operating environment beyond its control. It is not enough to simply demonstrate a cost will be incurred for an activity that was not previously undertaken.

Our final decision is that that the proposed non–BAU opex for 'higher fault rates' increased 'contract prices' and 'WiMAX communications costs' should not be accepted. This is because the costs involved do not relate to a new obligation or some change in AusNet Services' operating environment beyond its control. That is, AusNet Services proposed non–BAU opex arise only because AusNet Services initially installed WiMAX communication technology, and this technology has, as described above, become inefficient to maintain. Clause 5K(b)(iv) of the Order provides us with authority to consider opex for smart meter services during the previous period to make our distribution determination

We further find that it would be inconsistent with the revenue and pricing principles if AusNet Services was allowed to recover additional opex to continue with the inefficient and imprudent WiMAX technology solution. Our reasons for this are outlined in section A.6.1.

Trend

We trended forward AusNet Services' base level of opex.

Once trended forwarded, we calculated an alternative metering opex equal to AusNet Services' initially proposed $139.2 million ($2015). We have substituted that amount with AusNet Services' revised opex proposal for $156.9 million in the 2016–20 regulatory period.

B Ancillary network services prices

B.1 Ancillary network services

Table 16.19 Fee based ancillary network services prices for 2016, final decision ($2016)

Fee based service	Hours	Final decision price
Field officer visits		
Field officer visits	Business hours	18.21
	After hours	327.65
Remote re-energisation	Any time	6.24
Remote de-energisation	Any time	6.24
Remote meter re-configuration		27.75
Remote special read		1.35
Routine new connections — AusNet Services responsible for metering, customers<100amps		
Single phase overhead	Business hours	392.94
	After hours	473.85
Install 95mm overhead service from LVABC	Business hours	647.57
	After hours	811.22
Single phase underground	Business hours	204.08
	After hours	261.05
Multi phase overhead—Direct connected meter	Business hours	419.96
	After hours	506.42
Multi phase overhead—CT connected meter	Business hours	563.82
	After hours	679.91
Multi phase underground—Direct connected meter	Business hours	305.40
	After hours	378.23
Multi phase underground—CT connected meter	Business hours	440.61
	After hours	545.68
Temporary overhead supply—Coincident disconnection (truck visit)	Business hours	330.62
	After hours	419.91

Fee based service	Hours	Final decision price
Routine new connections — AusNet Services not responsible for metering, customers<100amps		
Single phase overhead	Business hours	392.94
	After hours	473.85
Install 95mm overhead service from LVABC	Business hours	647.57
	After hours	811.22
Single phase underground	Business hours	204.08
	After hours	261.05
Multi phase overhead—Direct connected connected meter	Business hours	419.96
	After hours	506.42
Multi phase overhead—CT connected meter	Business hours	563.82
	After hours	679.91
Multi phase underground—Direct connected meter	Business hours	305.40
	After hours	378.23
Multi phase underground—CT connected meter	Business hours	440.61
	After hours	545.68
Temporary overhead supply—Coincident disconnection (truck visit)	Business hours	330.62
	After hours	419.91
Service truck visits		
Service truck visit	Business hours	330.62
	After hours	419.91
Wasted truck visit	Business hours	188.14
	After hours	272.00
Truck appointment	After hours	Quoted service
Meter equipment tests		
Single phase		155.69
Single phase (each additional meter)		58.00
Multi phase		184.70
Multi phase (each additional meter)		87.00
Small generator installations (including PV)		

Fee based service	Hours	Final decision price
Pre-approval of PV and small generator installation < 4.6kW	Business hours	-
Pre-approval of PV and small generator installation 4.6kW to 15kW	Business hours	145.01
Pre-approval of PV and small generator installation 15kW to 30 kW	Business hours	192.94
Meter exchange for PV and small generator installation		Exit fee + service truck visit
Meter reconfiguration for PV and small generator installation		27.47

Source: AusNet Services, *Annual tariff proposal 2016*, 19 November 2016, p. 156.

Table 16.20 Quoted service ancillary network services hourly labour rates for 2016, final decision ($2016)

Service description	Hours	Final decision hourly labour rates
Construction overhead install	Business hours	101.49
	After hours	123.27
Construction underground install	Business hours	99.13
	After hours	120.39
Construction substation install	Business hours	99.13
	After hours	120.39
Electrical tester including vehicle and equipment	Business hours	177.23
	After hours	199.81
Planner including vehicle	Business hours	136.25
Supervisor including vehicle	Business hours	136.25
Design	Business hours	116.33
	After hours	141.28
Drafting	Business hours	89.39
	After hours	108.57
Survey	Business hours	105.30
	After hours	127.89
Technical officer	Business hours	105.30
	After hours	127.89
Line inspector	Business hours	101.49
	After hours	123.27

Service description	Hours	Final decision hourly labour rates
Contract supervision	Business hours	105.30
	After hours	127.89
Protection engineer	Business hours	116.33
	After hours	141.28
Maintenance planner	Business hours	105.30
	After hours	127.89

Source: AusNet Services, *Annual tariff proposal 2016*, 19 November 2016, p. 157.

Table 16.21 AusNet Services' quoted services

Quoted service	Description
Reserve feeder maintenance	Maintaining network assets that provide an alternative supply to a customer's premise by reserving capacity for use by the customer in emergency situations.
Routine connections – customers above 100 amps	Connection services to customers making connection of a new premise to the network – where that customer is above 100 amps. This service includes the provision of a service cable in areas with overhead supply and making a connection in a pit for customers in underground supply areas or where a customer requests an underground connection in an overhead supply area.
Rearrangement of network assets at customer request, excluding alteration and relocation of public lighting assets	Works associated with any rearrangement of the network at the request of a third party. Examples may include a single pole relocation, a re-alignment of line of poles for road construction works, or relocation of a substation to enable a redevelopment of a site.
Auditing design and construction	Carrying out inspection and testing of works being constructed by third parties to be vested to the distributor to ensure compliance with standards and specifications.
Specification and design enquiry fees	Provision of design standards and specifications for works to be constructed by third parties and vested to the distributor.

Quoted service	Description
Elective undergrounding where above ground service currently exists	Provision of underground services to customers in Overhead Supply areas where requested to do so by the customer. This service involves installing cable down an appropriate pole, trenching to a suitable location for an underground pit, and installing an underground pit.
Damage to overhead service cables caused by high load vehicles	The re-instatement of overhead lines that are pulled down by high loads. Where the party responsible for the damage is identified, AusNet Services will recover the costs to re-instate the line from the party concerned.
High load escorts – lifting overhead lines	Escorting high load transportation through areas where lines may need to be temporarily lifted or removed to allow passage of the high load.
Covering of low voltage lines for safety reasons	The provision of temporary covers for mains and services to ensure a safe working environment for those required to work in close proximity to overhead power lines.
After hours truck by appointment	Distributor attendance by service crews as required outside normal working hours to carry out electrical trades work on customer's electrical interface to the network.

Source: AER analysis; AusNet, *Regulatory proposal 2016–20*, April 2015, p. 422.

C Annual metering charges unders and overs account

To demonstrate compliance with the distribution determination applicable to it during the 2016–20 regulatory control period, AusNet Services must maintain an annual metering charges unders and overs account in its annual pricing proposal.

AusNet Services must provide the amounts for the following entries in their annual metering charges unders and overs account for the most recently completed regulatory year (t–2), the current regulatory year (t–1) and the next regulatory year (t):

1. An opening balance for year t–2, year t–1 and year t;
2. An interest charge for one year on the opening balance for each regulatory year (t–2, t–1 and t). These adjustments are to be calculated using the respective nominal weighted average cost of capital (WACC) for each intervening year between regulatory year t–2 and year t.[186] The WACC applied for each year will be that approved by the AER for the relevant year;
3. The amount of revenue recovered from metering charges in respect of that year, less the total annual revenue for the year in question;
4. An adjustment to the net amount in item 3 by six months of interest. These adjustments are to be calculated using the approved nominal WACC;
5. The total sum of items 1–4 to derive the closing balance for each year.

AusNet Services must provide details of calculations in the format set out in Table 16.22. Amounts provided for the most recently completed regulatory year (t–2) must be audited. Amounts provided for the current regulatory year (t–1) will be regarded as an estimate. Amounts for the next regulatory year (t) will be regarded as a forecast.

In proposing variations to the amount and structure of annual metering charges, AusNet Services is expected to achieve a closing balance as close to zero as practicable in its annual metering charges unders and overs account in each forecast year in its annual pricing proposals during the 2016–20 regulatory control period.

[186] The WACC for each year will be that approved by the AER for the respective year and as calculated as set out in figure 14.1 of Attachment 14 to this final decision.

Table 16.22 Example calculation of annual metering charges unders and overs account ($'000, nominal)

	Year t–2 (actual)	Year t–1 (estimate)	Year t (forecast)
(A) Revenue from annual metering charges	**8 449**	**7 389**	**6 460**
(B) Less TARM for regulatory year =	**7 366**	**7 422**	**7 573**
+ Annual revenue requirement (AR_t)	7 349	7 412	7 559
+ T factor (T_t) – true-ups relating to the AMI–Order in Council	17	10	14
(A minus B) Under/over recovery of revenue for regulatory year	**1 083**	**–33**	**–1 113**[a]
Annual metering charges unders and overs account			
Nominal WACC (per cent)	5.00%	5.50%	6.00%
Opening balance	–50	1 057[b]	1 081
Interest on opening balance	–3	58	65
Under/over recovery of revenue for regulatory year	1 083	–33	–1 113[b]
Interest on under/over recovery for regulatory year	27	–1	–33
Closing balance	**1 057**	**1 081**	**0**[c]

Notes: (a) Approved annual metering charges revenue under/over recovery for regulatory year t. This is the B_t parameter in the annual metering charges revenue cap formula.

(b) Opening balance is the previous year's closing balance.

(c) AusNet Services is expected to achieve a closing balance as close to zero as practicable in its annual metering charges unders and overs account in each forecast year in its annual pricing proposals in the 2016–20 regulatory control period.