PRELIMINARY DECISION
United Energy distribution determination
2016 to 2020

Attachment 1 – Annual revenue requirement

October 2015

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Note

This attachment forms part of the AER's preliminary decision on United Energy's revenue proposal 2016–20. It should be read with all other parts of the preliminary decision.

The preliminary 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

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Attachment 17 - Negotiated services framework and criteria

Attachment 18 - f-factor scheme

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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
repex	replacement expenditure

Shortened form	Extended form
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

1 Annual revenue requirement

The annual revenue requirement (ARR) is the sum of the various building block costs for each year of the regulatory control period before smoothing. The ARRs are smoothed across the period to reduce fluctuations between years and to determine expected revenues for each year. The expected revenues are the amounts that United Energy will target for annual pricing purposes and recover from customers for the provision of standard control services for each year of the regulatory control period. This attachment sets out our preliminary decision on United Energy's ARRs and expected revenues for the 2016–20 regulatory control period.

1.1 Preliminary decision

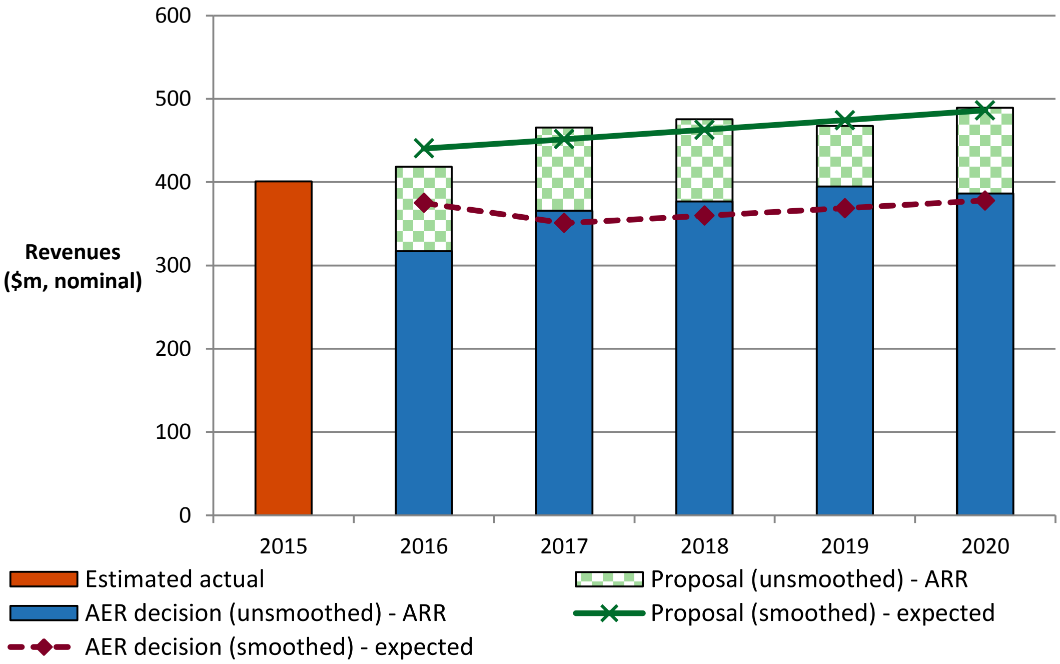
We do not accept United Energy's proposed total revenue requirement of $2317.2 million ($ nominal) over the 2016–20 regulatory control period. This is because we have not accepted the building block costs in United Energy's proposal. We determine a total revenue requirement of $1841.2 million ($ nominal) for United Energy for the 2016–20 regulatory control period, reflecting our preliminary decision on the various building block costs. This is a reduction of $476.1 million ($ nominal) or 20.5 per cent to United Energy's proposal.

As a result of our smoothing of the ARRs, our preliminary decision on the annual expected revenue and X factor for each regulatory year of the 2016–20 regulatory control period is set out in Table 1.1. Our preliminary decision is to approve total expected revenues (smoothed) of $1832.3 million ($ nominal) for the 2016–20 regulatory control period.

Figure 1.1 shows the difference between United Energy's proposal and our preliminary decision.

Table 1.1 shows our preliminary decision on the building block costs, the ARR, annual expected revenue and X factor for each year of the 2016–20 regulatory control period.

Figure 1.1 AER's preliminary decision on United Energy's revenue for the 2016–20 regulatory control period ($million, nominal)



Source: United Energy, *Regulatory proposal*, April 2015, Document ID: REG3.2 (PTRM); AER analysis.

Table 1.1 AER's preliminary decision on United Energy's revenues for the 2016–20 regulatory control period ($million, nominal)

	2016	2017	2018	2019	2020	Total
Return on capital	125.5	133.1	140.6	147.6	154.1	701.0
Regulatory depreciation	54.4	60.6	68.9	68.7	62.8	315.4
Operating expenditure[a]	131.5	136.4	142.0	147.8	153.4	711.2
Revenue adjustments[b]	–9.8	19.4	7.9	11.6	–0.2	28.9
Net tax allowance	15.6	16.2	17.3	19.1	16.3	84.6
Annual revenue requirement (unsmoothed)	317.3	365.7	376.8	394.9	386.5	1841.2
Annual expected revenue (smoothed)	**375.1**	**350.9**	**359.7**	**368.7**	**377.9**	**1832.3**
X factor[c]	8.72%	8.72%	0.00%	0.00%	0.00%	n/a

Source: AER analysis.

(a) Operating expenditure includes debt raising costs.

(b) Revenue adjustments include efficiency benefit sharing scheme carry-overs, shared asset amounts, 2010 S-factor scheme close out and demand management innovation allowance (DMIA).

(c) 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.

1.2 United Energy's proposal

United Energy proposed a total revenue requirement of $2317.2 million ($ nominal) for the 2016–20 regulatory control period. Table 1.2 shows United Energy's proposed building block costs, the ARR, expected revenue and X factor for each year of the 2016–20 regulatory control period.

Table 1.2 United Energy's proposed revenues for the 2016–20 regulatory control period ($million, nominal)

	2016	2017	2018	2019	2020	Total
Return on capital	152.7	165.5	178.5	191.1	203.1	890.9
Regulatory depreciation	69.6	80.8	88.3	72.5	77.0	388.2
Operating expenditure[a]	161.7	167.1	172.2	179.5	182.3	862.8
Revenue adjustments	2.7	19.7	4.9	–0.4	–0.6	26.2
Net tax allowance	31.9	32.8	31.9	24.9	27.6	149.1
Annual revenue requirement (unsmoothed)	418.7	465.8	475.7	467.6	489.4	2317.2
Annual expected revenue (smoothed)	**440.4**	**451.4**	**462.7**	**474.3**	**486.1**	**2315.0**
X factor	–7.19%	0.00%	0.00%	0.00%	0.00%	n/a

Source: United Energy, *Regulatory proposal*, April 2015, Document ID: REG3.2 (PTRM).

(a) Operating expenditure includes debt raising costs.

(b) Revenue adjustments include efficiency benefit sharing scheme carry-overs and shared asset amounts.

1.3 AER’s assessment approach

We are required to determine the ARR for United Energy for each year of the 2016–20 regulatory control period.[1]

In this determination we first calculate ARRs for each year of the 2016–20 regulatory control period. To do this we consider the various costs facing the service provider and the trade-offs and interactions between these costs, service quality and across years. This reflects the AER's holistic assessment of the service provider's proposal.

The ARR for each year is the sum of the building block costs. These building block costs are set out in section 1.3.1. The AER's post-tax revenue model (PTRM) brings together these building block costs and calculates the resulting ARRs.

We understand the trade-offs that occur between building block costs and test the sensitivity of these costs to their various driver elements. These trade-offs are discussed in the interrelationships section of the various attachments to this

1 NER, cl. 6.3.2(a)(1).

preliminary decision and are reflected in the calculations made in the PTRM developed by the AER.[2] Such understanding allows the AER to exercise judgement in determining the final inputs into the PTRM and the ARRs that result from this modelling.

Having determined the total revenue requirement for the 2016–20 regulatory control period, the ARRs for each regulatory year are smoothed across the 2016–20 regulatory control period. This is to reduce revenue variations between years and to come up with the expected revenue for each year. This is done through the determination of the X factors.[3] The X factor must equalise (in net present value terms) the total expected revenues to be earned by the service provider with the total revenue requirement for the 2016–20 regulatory control period.[4] The X factor must usually minimise, as far as reasonably possible, the variance between the expected revenue and ARR for the last regulatory year of the period.[5]

For this preliminary decision, the expected revenue in the last year of the regulatory control period are not required to be as close as reasonably possible to the ARR for that year, due to the transitional provisions.[6] Typically, we would target a divergence of less than 3 per cent between the expected revenue and ARR for the last year of the regulatory control period, if this can promote smoother price changes over the regulatory control period. However, due to the expected true-up for 2016 over the remaining years of the 2016–20 regulatory control period for the substitute decision,[7] we have provided a gradual decrease in smoothed revenues over the first two regulatory years in this preliminary decision. This helps minimise the prospect of a significant price decrease followed by significant price increases over the 2016–20 regulatory control period. We will review the smoothing for the substitute decision if necessary.

The building block costs (and the elements that drive those costs) used to determine the unsmoothed ARR are set out below.

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2 There are trade-offs that are not modelled in the PTRM but are reflected in the inputs to the PTRM. For example, service quality is not explicitly modelled in the PTRM, but the trade-offs between service quality and price are reflected in the forecast capex and opex inputs to the model. Other trade-offs are obvious from the calculations in the PTRM. For example, while someone may expect a lower regulatory asset base to also lower revenues, the PTRM shows that this will not occur if the reduction in the regulatory asset base is due solely to an increase in the depreciation rate. In such circumstances, revenues increase as the increased depreciation allowance more than offsets the reduction in the return on capital caused by the lower regulatory asset base.

3 NER, cl. 6.5.9(a).

4 NER, cl. 6.5.9(3)(i). The X factors represent the real revenue path over the 2016–20 regulatory control period under the CPI–X framework.

5 NER, cl. 6.5.9(b)(2).

6 NER, cl. 11.60.3(b).

7 NER, cl. 11.60.4(d)(1).

1.3.1 The building block costs

The efficient costs to be recovered by a service provider can be thought of as being made up of various building block costs. Our preliminary decision assesses each of the building block costs and the elements that drive these costs. The building block costs are approved reflecting trade-offs and interactions between the cost elements, service quality and across years. Table 1.3 shows the building block costs that form the ARR for each year and where discussion on the elements that drive these costs can be found within this preliminary decision.

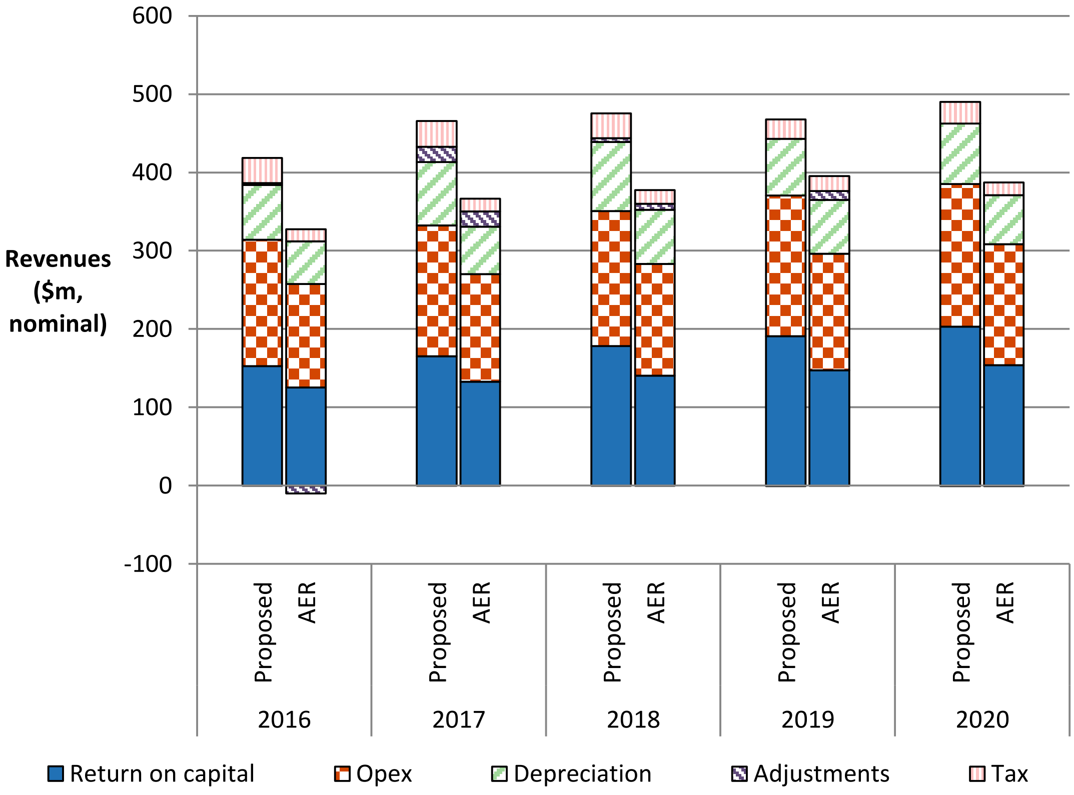
Table 1.3 Building block costs

Building block costs	Attachments where elements are discussed
Return on capital	Regulatory asset base (attachment 2) Capex (attachment 6) Rate of return (attachment 3)
Regulatory depreciation (return of capital)	Regulatory asset base (attachment 2) Capex (attachment 6) Rate of return (attachment 3)
Operating expenditure (opex)	Opex (attachment 7)
Efficiency benefits/penalties	Efficiency benefit sharing scheme (attachment 9)
Estimated cost of corporate tax	Corporate income tax (attachment 8) Value of imputation credits (attachment 4)
Adjustment for shared assets	Annual revenue requirement (attachment 1)
Demand management innovation allowance	Demand management incentive scheme (attachment 12)

1.4 Reasons for preliminary decision

For this preliminary decision, we determine a total revenue requirement of $1832.3 million ($ nominal) for United Energy over the 2016–20 regulatory control period. This is $482.7 million ($ nominal) or 20.9 per cent below United Energy's proposal. This reflects the impact of our preliminary decision on the various building block costs. Figure 1.2 shows the difference between United Energy's proposed ARRs and our preliminary decision.

Figure 1.2 AER's preliminary decision and United Energy's proposed annual revenue requirement ($million, nominal)



Source: United Energy, *Regulatory proposal*, April 2015, Document ID: REG3.2 (PTRM); AER analysis.

Note: Revenue adjustments include efficiency benefit sharing scheme carry-overs, shared asset amounts, 2010 S-factor scheme close out and DMIA.

The most significant changes to United Energy's proposal include:

- a reduction in the return on capital allowance of 21.3 per cent (attachments 2 and 3)
- a reduction in the regulatory depreciation allowance of 18.7 per cent (attachment 5)
- a reduction in the capex allowance of 26.6 per cent (attachment 6)
- a reduction in the opex allowance of 17.6 per cent (attachment 7)
- a reduction in the cost of corporate income tax allowance of 43.3 per cent (attachment 8).

1.4.1 Revenue smoothing

We have taken into account the building block costs determined in this decision, including the adjustment for shared assets, when smoothing the expected revenues for

United Energy over the 2016–20 regulatory control period. We consider that our profile of X factors is reasonable given the requirements of the transitional rules.[8] Due to the expected true-up for 2016 in the substitute decision,[9] we have provided a gradual decrease in expected revenues over the first two regulatory years. This approach smooths the revenues by allowing for a more gradual path for lower revenues over the 2016–20 regulatory control period.

In the present circumstances, based on the X factors we have determined for United Energy, the difference between the expected revenue and ARR for 2020 is around 2.1 per cent. We will review this smoothing for the substitute decision if necessary.

1.4.2 Shared assets

Service providers, such as United Energy, may use assets to provide both the standard control services we regulate and other unregulated services. These assets are called 'shared assets'.[10] Of the unregulated revenues a service provider earns from shared assets, 10 per cent will be used to reduce the service provider's prices for standard control services.[11]

Shared asset revenue reductions are subject to a materiality threshold. Unregulated use of shared assets is material when a service provider's unregulated revenues from shared assets in a specific regulatory year are expected to be greater than 1 per cent of its total expected revenue for that regulatory year.[12]

United Energy's proposed shared asset unregulated revenues are forecast to be around 1.3 per cent of its total revenues in each year of the 2016–20 regulatory period.[13] United Energy therefore proposed reductions in its total revenues for each year of that period.[14]

We consider United Energy's forecasts are reasonable, based on its reporting of historical shared assets revenue and our assessment of this revenue source for other service providers.[15] However, United Energy's forecast unregulated revenues must now be compared to the regulated revenues we determine, rather than those proposed by United Energy. Our preliminary decision sets lower expected revenue than United Energy's proposal, so we estimate that the unregulated revenues will be between 1.4 and 1.6 per cent of its expected revenues in each year of the 2016–20 regulatory control period. We are satisfied that United Energy's shared asset unregulated

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8 NER, cl. 11.60.3(b).

9 NER, cl. 11.60.4(d)(1).

10 NER, cl. 6.4.4.

11 AER, *Shared asset guideline*, November 2013.

12 AER, *Shared asset guideline*, November 2013, p. 8.

13 United Energy, *Reset RIN*, April 2015, Table 7.4.1.

14 United Energy, *Regulatory proposal 2016–20*, April 2015, p. 148.

15 This includes consideration of this issue for the other Victorian electricity distribution networks, as well as work undertaken during the development of our shared asset guideline in 2013.

revenues meet the materiality threshold in each year of the 2016–20 regulatory control period.[16]

Our preliminary decision is therefore to apply a shared asset revenue adjustment as shown in Table 1.4, consistent with the proposal from United Energy. The shared asset revenue adjustment is a total reduction of $2.9 million ($ nominal) across the 2016–20 regulatory control period.

Table 1.4 AER's preliminary decision on United Energy's shared asset revenue adjustment ($million, nominal)

	2016	2017	2018	2019	2020	Total
United Energy proposed shared asset revenue adjustment	–0.6	–0.6	–0.6	–0.6	–0.6	–2.9
AER preliminary decision shared asset revenue adjustment	**–0.6**	**–0.6**	**–0.6**	**–0.6**	**–0.6**	**–2.9**

Source: United Energy, *Regulatory proposal 2016–20*, April 2015, p. 148; AER analysis.

1.4.3 Indicative average distribution price impact

Our preliminary decision on United Energy's expected revenues ultimately affects the prices consumers pay for electricity. There are several steps required in translating our revenue decision to a price impact.

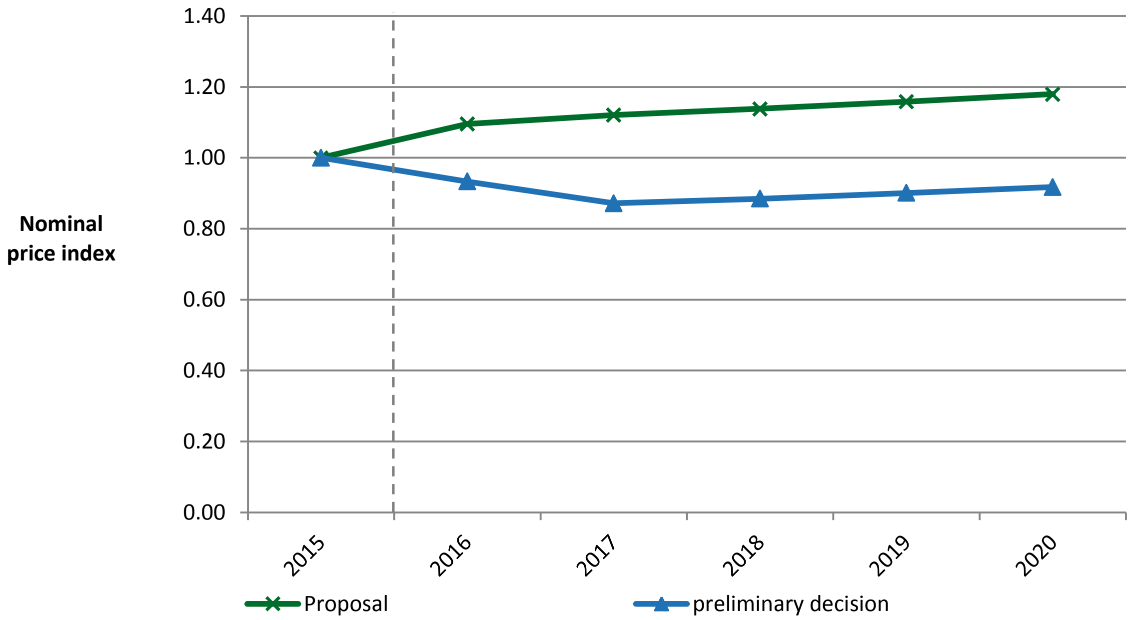
We regulate United Energy's standard control services under a revenue cap form of control. This means our preliminary decision on United Energy's expected revenues do not directly translate to price impacts. This is because United Energy's revenue is fixed under the revenue cap form of control, so changes in the consumption of electricity will affect the prices ultimately charged to consumers. We are not required to establish the distribution prices for United Energy as part of this determination. However, we will assess United Energy's annual pricing proposals before the commencement of each regulatory year within the 2016–20 regulatory control period. In each assessment we will administer the pricing requirements set in this distribution determination.

For this preliminary decision, we have estimated some indicative average distribution price impacts flowing from our determination on the expected revenues for United Energy over the 2016–20 regulatory control period. In this section, our estimates only relate to standard control services (that is, the core electricity distribution charges), not alternative control services (such as metering, including advanced metering infrastructure (AMI) charges). These indicative price impacts assume that actual energy consumption across the 2016–20 regulatory control period matches United Energy's forecast energy consumption, which we have adopted for this preliminary decision.

[16] We will reassess the materiality of the forecast shared asset unregulated revenues for our final decision.

Figure 1.3 shows United Energy's indicative price path based on the expected revenues established in our preliminary decision compared to its proposed revenue requirement. The indicative price path is estimated using the approved expected revenue and dividing by forecast energy consumption for each year of the 2016–20 regulatory control period. For presentational purposes, the prices are scaled so that the price index begins at 1.00 in 2015. The index provides a simple overall measure of the relative movement in expected distribution prices over the 2016–20 regulatory control period.

Figure 1.3 AER's preliminary decision and United Energy's proposed indicative price path (nominal price index)



Source: AER analysis.

Notes: The nominal price index is constructed by dividing expected revenue for standard control services by forecast energy consumption for each year of the regulatory control period, then scaling relative to the base year (2015).

We estimate that our preliminary decision on United Energy's annual expected revenue will result in a decrease to average distribution charges by about 1.7 per cent per annum over the 2016–20 regulatory control period in nominal terms.[17] This compares to the nominal average increase of approximately 3.4 per cent per annum proposed by United Energy over the 2016–20 regulatory control period. These high-

17 This amount includes a forecast inflation rate of 2.50 per cent per annum. In real terms we estimate average distribution charges to decline by 4.1 per cent per annum, compared to an increase of 0.8 per cent proposed by United Energy.

level estimates reflect the aggregate change across the entire network and do not reflect the particular tariff components for specific end users.

Table 1.5 displays the comparison of the revenue and price impacts of United Energy's proposal and our preliminary decision revenue allowance.

Table 1.5 Comparison of revenue and price impacts of United Energy's proposal and the AER's preliminary decision

	2015	2016	2017	2018	2019	2020
AER preliminary decision						
Revenue ($m, nominal)	400.9	375.1	350.9	359.7	368.7	377.9
Price path (nominal index)[a]	1.00	0.93	0.87	0.88	0.90	0.92
Revenue (change %)		–6.4%	–6.4%	2.5%	2.5%	2.5%
Price path (change %)		–6.7%	–6.6%	1.5%	1.8%	1.8%
United Energy proposal						
Revenue ($m, nominal)	400.9	440.4	451.4	462.7	474.3	486.1
Price path (nominal index)[a]	1.00	1.10	1.12	1.14	1.16	1.18
Revenue (change %)		9.9%	2.5%	2.5%	2.5%	2.5%
Price path (change %)		9.6%	2.3%	1.5%	1.8%	1.8%

Source: AER analysis.

(a) The nominal index is constructed by dividing expected revenue for standard control services by forecast energy consumption for each year of the regulatory control period, then scaling relative to the base year (2015).

Distribution charges represent approximately 33 per cent on average of United Energy's typical customer's annual electricity bill.[18] We expect that our preliminary decision, holding all other components of the bill (including metering components) constant, will reduce the average annual electricity bills for residential customers in United Energy's network. This is because we estimate that our preliminary decision will result in lower distribution charges on average over the 2016–20 regulatory control period compared to United Energy's proposal as discussed above. We estimate that based on the distribution charges from our preliminary decision passing through to customers, we would expect the average annual electricity bill for residential customers to reduce by $37 (2.2 per cent) and $34 (2.1 per cent) in 2016 and 2017, respectively ($ nominal). This would be followed by decreases of about $8 or 0.5 per cent per annum from 2018 to 2020. By comparison, had we accepted United Energy's proposal, the average annual electricity bill for residential customers would increase by

[18] United Energy, *Reset RIN*, April 2015, Table 7.6.1.

approximately $20 or 1.2 per cent ($ nominal) per annum over the 2016–20 regulatory control period.

Our estimate of the potential impact our preliminary decision will have for United Energy's residential customers is based on the typical annual electricity usage of around 4700 kWh per annum for a residential customer in Victoria.[19] Therefore customers with different usage will experience different changes in their bills. We also note that there are other factors, such as metering costs, transmission network costs, wholesale and retail costs, which affect electricity bills.

Similarly, for an average small business customer in Victoria that uses approximately 12000 kWh of electricity per annum,[20] our preliminary decision for United Energy is expected to lead to lower average annual electricity bills. We estimate that based on the distribution charges from our preliminary decision passing through to customers, we would expect the average annual electricity bill for small business customers to reduce by $79 (2.2 per cent) and $73 (2.1 per cent) in 2016 and 2017, respectively ($ nominal). This would be followed by decreases of about $18 or 0.5 per cent per annum from 2018 to 2020. By comparison, had we accepted United Energy's proposal, the average annual electricity bill for small business customers would increase by approximately $43 or 1.2 per cent (nominal) per annum over the 2016–20 regulatory control period.

Table 1.6 shows the estimated annual average impact of our preliminary decision for the 2016–20 regulatory control period and United Energy's proposal on the average residential and small business customers' annual electricity bills.

19 Based on ESC, *Energy Retailers Comparative Performance Report - Pricing 2013-14 -Supplementary Report on Electricity Flexible Prices*, December 2014, p. 3.

20 Based on ESC, *Energy Retailers Comparative Performance Report - Pricing 2013-14*, October 2014, p. 15.

Table 1.6 Estimated impact of United Energy's proposal and the AER's preliminary decision on annual electricity bills for the 2016–20 regulatory control period ($ nominal)

	2015	2016	2017	2018	2019	2020
AER preliminary decision						
Residential annual bill	1676[a]	1640	1605	1613	1622	1631
Annual change[c]		–37 (–2.2%)	–34 (–2.1%)	7 (0.5%)	9 (0.5%)	9 (0.6%)
Small business annual bill	3605[b]	3526	3452	3468	3487	3506
Annual change[c]		–79 (–2.2%)	–73 (–2.1%)	16 (0.5%)	19 (0.5%)	20 (0.6%)
United Energy proposal						
Residential annual bill	1676[a]	1730	1743	1753	1764	1776
Annual change[c]		53 (3.2%)	14 (0.8%)	10 (0.5%)	11 (0.6%)	12 (0.7%)
Small business annual bill	3605[b]	3719	3749	3769	3794	3819
Annual change[c]		114 (3.2%)	30 (0.8%)	20 (0.5%)	24 (0.6%)	25 (0.7%)

Source: AER analysis; ESC, *Victorian Energy Retailers Comparative Performance Report - Pricing 2013-14,* October 2014.

(a) Based on average of standing offers at June 2015 on Switch On comparison tool (postcode 3199) using annual bill for typical consumption of 4690 kWh per year.

(b) Based on average of standing offers at June 2015 on Switch On comparison tool (postcode 3199) using annual bill for typical small business consumption of 12020 kWh per year.

(c) Annual change amounts and percentages are indicative. They are derived by varying the distribution component of 2015 bill amounts in proportion to yearly expected revenue divided by forecast demand. Actual bill impacts will vary depending on electricity consumption and tariff class.