PRELIMINARY DECISION
SA Power Networks determination 2015−16 to 2019−20

Attachment 1 − Annual revenue requirement

April 2015

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's preliminary decision on SA Power Networks' 2015–20 distribution determination. 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

Attachment 13 – Classification of services

Attachment 14 – Control mechanism

Attachment 15 – Pass through events

Attachment 16 – Alternative control services

Attachment 17 – Negotiated services framework and criteria

Attachment 18 – Connection policy

Contents

Shortened forms

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
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

Shortened form	Extended form
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue 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 SA Power Networks 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 SA Power Networks' ARRs and expected revenues for the 2015–20 regulatory control period.

1.1 Preliminary decision

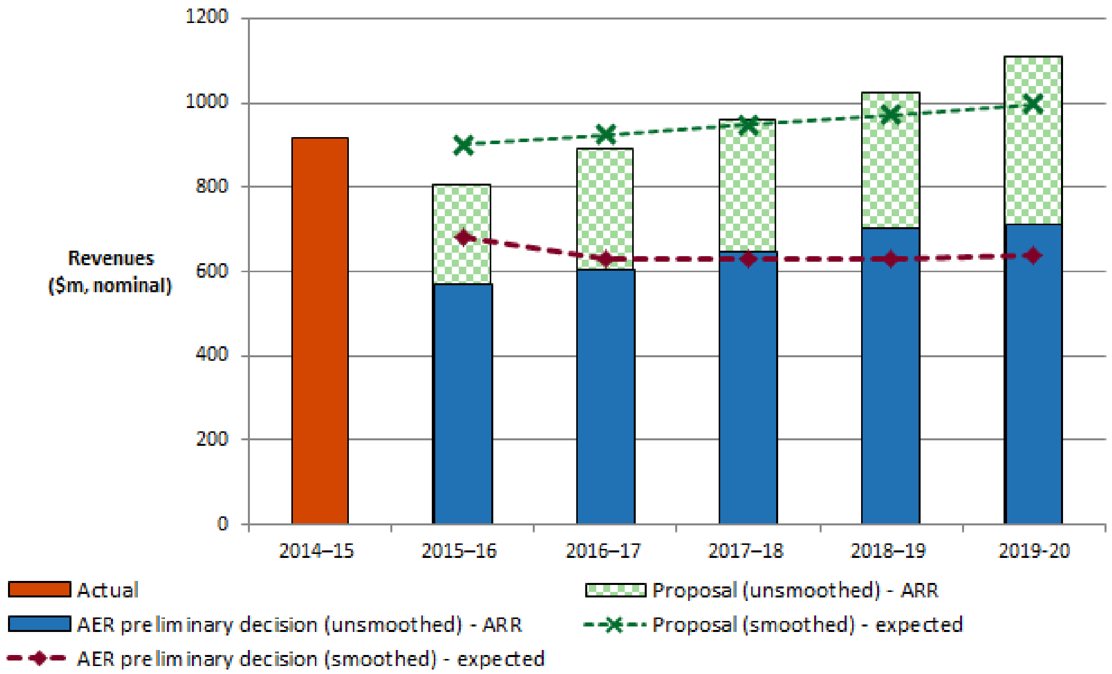
We do not accept SA Power Networks' proposed total revenue requirement of $4781.9 million ($ nominal) over the 2015–20 regulatory control period. This is because we have not accepted the building block costs in SA Power Networks' proposal. We determine a total revenue requirement of $3236.3million ($ nominal) for SA Power Networks for the 2015–20 regulatory control period, reflecting our preliminary decision on the various building block costs. This is a reduction of $1545.6 million ($ nominal) or 32.3 per cent to SA Power Networks' 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 2015–20 regulatory control period is set out in Table 1.1. Our preliminary decision is to approve total expected revenues (smoothed) of $3211.3 million ($ nominal) for the 2015–20 regulatory control period.

Figure 1.1 shows the difference between SA Power Networks' 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 2015–20 regulatory control period.

Figure 1.1 AER's preliminary decision on SA Power Networks' revenue for the 2015–20 regulatory control period ($million, nominal)



Source: SA Power Networks, *Regulatory proposal*, October 2014, p. 352, table 29.1. AER analysis

Table 1.1 AER's preliminary decision on SA Power Networks' revenues for the 2015–20 regulatory control period ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Return on capital	208.7	222.4	236.9	251.3	265.3	1184.6
Regulatory depreciation	78.8	95.6	112.8	128.5	117.9	533.7
Operating expenditure	248.6	257.6	266.5	275.9	285.7	1334.3
Revenue adjustments[a]	–1.0	–5.4	–3.1	4.0	–0.1	–5.6
Net tax allowance	33.9	34.4	35.7	44.1	41.3	189.3
Annual revenue requirement (unsmoothed)	569.0	604.6	648.8	703.9	710.0	3236.3
Annual expected revenue (smoothed)	**682.0**	**630.2**	**630.1**	**630.0**	**639.0**	**3211.3**
X factor[b]	27.61%	9.90%	2.50%	2.50%	1.10%	n/a

Source: AER analysis.

(a) Revenue adjustments include efficiency benefit sharing scheme carry-overs, shared asset amounts and forecast DMIA.

(b) The X factor from 2016–17 to 2019–20 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 SA Power Networks' proposal

SA Power Networks proposed a total revenue requirement of $4781.9 million ($ nominal) for the 2015–20 regulatory control period. Table 1.2 shows SA Power Networks' proposed building block costs, the ARR, expected revenue and X factor for each year of the 2015–20 regulatory control period.

Table 1.2 SA Power Networks' proposed revenues for the 2015–20 regulatory control period ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Return on capital	292.0	318.6	347.8	376.2	404.3	1738.7
Regulatory depreciation	132.3	161.3	188.6	215.5	238.3	936.0
Operating expenditure[a]	292.9	314.3	340.7	358.9	373.2	1680.1
Efficiency benefit sharing scheme (carryover amounts)	10.4	17.1	0.1	–13.9	0.0	13.7
Shared assets revenue adjustment	–0.8	–0.8	–0.8	0	0	–2.5
Net tax allowance	76.3	78.8	82.3	87.1	91.3	415.8
Annual revenue requirement (unsmoothed)	803.0	889.2	958.7	1023.9	1107.2	4781.9
Annual expected revenue (smoothed)	**901.8**	**924.8**	**948.4**	**972.6**	**997.4**	**4744.9**
X factor (%)	4.28%	0.00%	0.00%	0.00%	0.00%	n/a

Source: SA Power Networks, *Regulatory proposal*, October 2014, p. 352, table 29.1

(a) Operating expenditure includes proposed forecast DMIA.

1.3 AER’s assessment approach

We are required to determine the ARR for SA Power Networks for each year of the 2015–20 regulatory control period.[1]

In this determination we first calculate ARRs for each year of the 2015–20 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 section1.3.1. 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

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

discussed in the interrelationships section of the various attachments to this 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 2015–20 regulatory control period, the ARRs for each regulatory year are smoothed across the 2015–20 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 2015–20 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 required true-up for 2015–16 over the remaining years of the 2015–20 regulatory control period for the substitute decision[7], we have provided a gradual decrease in smooth revenues and therefore allowed the divergence in the final year revenues to exceed 3 per cent in this preliminary decision. This helps minimise the prospect of a significant price decrease followed by significant price increases over the 2015–20 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 2014–19 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.

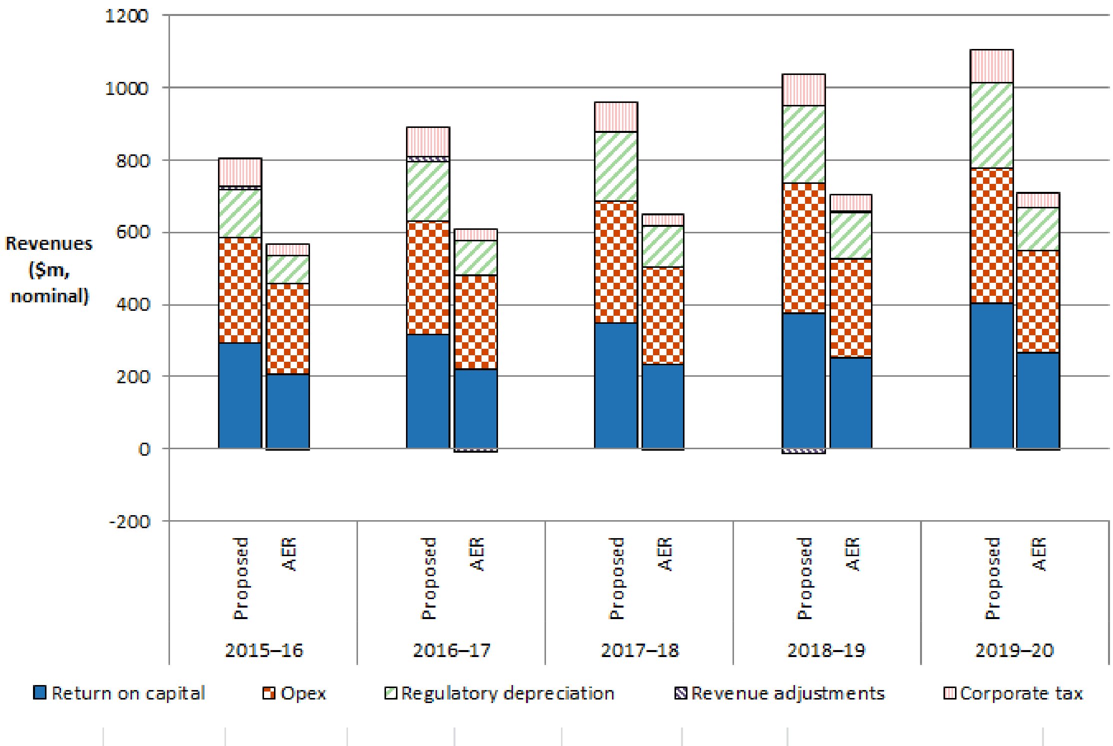
Table 1.3 Building block costs

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) Rate of return (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 $3236.3 million ($ nominal) for SA Power Networks over the 2015–20 regulatory control period. This is $1545.6 million ($ nominal) or 32.3 per cent below SA Power Networks' proposal. This reflects the impact of our preliminary decision on the various building block costs. Figure 1.2 shows the difference between SA Power Networks' proposed ARRs and our preliminary decision.

Figure 1.2 AER's preliminary decision and SA Power Networks' proposed annual revenue requirement ($million, nominal)



Source: SA Power Networks, *Regulatory proposal*, October 2014, Attachment 4.02.
AER analysis.

Note: Revenue adjustments include efficiency benefit sharing scheme carry-overs, shared asset amounts and forecast DMIA.

The most significant changes to SA Power Networks' proposal include: a reduction to the rate of return of 2.2 per cent (attachment 3), a reduction in the regulatory depreciation of 43.0 per cent (attachment 5), a reduction in the capex allowance of 32.7 per cent (attachment 6), and a reduction in the opex allowance of 19.7 per cent (attachment 7).

1.4.1 Revenue smoothing

We have taken the building block costs determined in this decision, including the adjustment for shared assets, when smoothing the expected revenues for SA Power Networks over the 2015–20 regulatory control period. We first set the expected revenue for the first regulatory year (2015–20) at $682.0 million ($ nominal). This is higher than the 2014–15 ARR (unsmoothed) we have now determined, which is $569.0 million ($ nominal). We then applied a profile of X factors to determine the expected revenue in subsequent years.

We consider that our profile of X factors is reasonable given the requirements of the transitional rules. We have allowed the difference between smoothed and unsmoothed revenues in the last year of the 2015–20 regulatory control period to diverge more than would be usual. This approach smooths the revenues by allowing for a more gradual path for lower revenues over the 2015–20 regulatory control period.

In the present circumstances, based on the X factors we have determined for SA Power Networks, the difference between the expected revenue and ARR for 2018–19 is around 10 per cent. While we consider this divergence is significant, it avoids the situation where 2015–16 cost changes for the substitute decision and the consequent true-up could result in a large price decrease in 2015–16 followed by significant price increases for the remaining four years of the regulatory control period. We will review this smoothing for the final decision if necessary.

1.4.2 Shared assets

Service providers, such as SA Power Networks, may use assets to provide both standard control services we regulate and unregulated services. These assets are called 'shared assets'.[8] 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.[9]

Shared asset price 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.[10]

SA Power Networks submitted that its shared asset unregulated revenues will meet the shared asset threshold in the first three years of the forthcoming regulatory period, but will be below the threshold for the final two years.[11] However, SA Power Networks' forecast unregulated revenues must be compared to the total regulated revenues we determine, rather than the total revenue proposed by SA Power Networks. On that basis, we consider SA Power Networks' unregulated revenues are between 1.2 and 1.3 per cent of its total expected revenue in each regulatory year of the 2015–20 regulatory period.

We are satisfied SA Power Networks' shared asset unregulated revenues meet the threshold for revenue adjustments in each year of the 2015–20 regulatory control period. SA Power Networks submitted that it expects to earn a consistent amount of unregulated revenue from its shared assets in each year of the period. Our preliminary decision is therefore to reduce SA Power Networks' annual revenue requirement by a consistent amount for shared assets in each year of that period as shown in Table 1.4.

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8 NER, cl. 6.4.4.

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

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

11 SA Power Networks, *Regulatory proposal*, October 2014, p. 296.

Table 1.4 AER's preliminary decision on SA Power Networks' shared asset revenue adjustments ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Shared assets revenue adjustment	–0.8	–0.8	–0.8	–0.8	–0.8	–4.1

Source: AER analysis

1.4.3 Indicative average distribution price impact

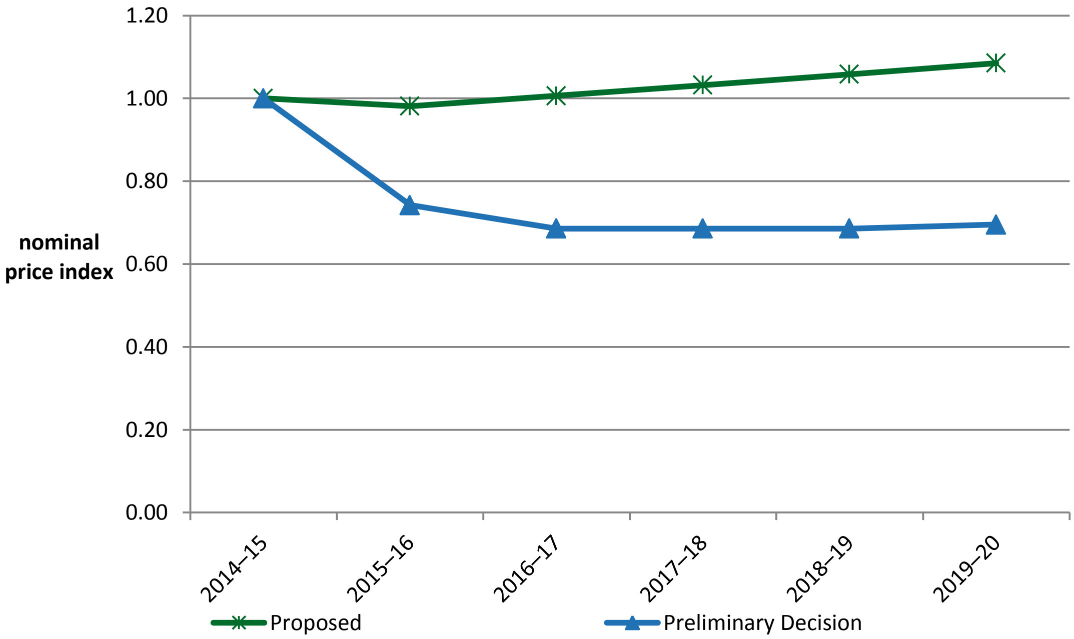
Our preliminary decision on SA Power Networks' expected revenues ultimately affects the prices consumers pay for electricity. There are several steps required in translating our revenue decision to a price impact.

We regulate SA Power Networks' standard control services under a revenue cap form of control. This means our preliminary decision on SA Power Networks' expected revenues do not directly translate to price impacts. This is because SA Power Networks' 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 SA Power Networks as part of this determination. However, we will assess SA Power Networks' annual pricing proposals before the commencement of each regulatory year for the 2015–20 regulatory control period to administer the pricing requirements 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 SA Power Networks over the 2015–20 regulatory control period.

Figure 1.3 shows SA Power Networks' indicative price path based on the expected revenues established in our preliminary decision compared to its proposed revenue requirement. We used the data on price changes SA Power Networks provided in its proposal. We have adopted the data to determine the movement in overall prices. For presentational purposes, the prices are scaled so that the price index begins at 1.0 in 2014–15. The index provides a simple overall measure of the relative movement in expected distribution prices over the 2015–20 regulatory control period.

Figure 1.3 AER's preliminary decision and SA Power Networks' proposed indicative price path (nominal price index)



Source: AER analysis.

Notes: The nominal proposed price index is calculated by the AER based on the weighted average price changes submitted by SA Power Networks in its proposal, and adjusting for the change in overall revenue substituted by the AER.

We estimate that our preliminary decision on SA Power Networks' annual expected revenue will result in a decrease to average distribution charges by about 7.0 per cent per annum over the 2015–20 regulatory control period in nominal terms.[12] This compares to the nominal average increase of approximately 1.7 per cent per annum proposed by SA Power Networks over the 2015–20 regulatory control period.

Table 1.5 displays the comparison of the price impacts of SA Power Networks' proposal and our preliminary decision revenue allowance.

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12 This amount includes a forecast inflation rate of 2.55 per cent per annum. In real terms we estimate average distribution charges to decline by 7.0 per cent per annum, compared to an increase of1.7 per cent proposed by SA Power Networks.

Table 1.5 Comparison of revenue and price impacts of SA Power Networks' proposal and the AER's preliminary decision

	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20
SA Power Networks proposal						
Revenue ($m, nominal)	918.7	901.8	924.8	948.4	972.6	997.4
Price path (nominal index)	1.00	0.98	1.01	1.03	1.06	1.09
Revenue (change %)		–1.8%	2.5%	2.5%	2.6%	2.6%
Price path (change %)		–1.9%	2.6%	2.6%	2.6%	2.6%
AER preliminary decision						
Revenue ($m, nominal)	918.7	682.0	630.2	630.1	630.0	639.0
Price path (nominal index)	1.00	0.74	0.69	0.69	0.69	0.70
Revenue (change %)		–25.8%	–7.6%	0.0%	0.0%	1.4%
Price path (change %)		–25.8%	–7.6%	0.0%	0.0%	1.4%

Source: AER analysis.

Distribution charges represent approximately 38 per cent on average of SA Power Networks' typical customer's annual electricity bill.[13] We expect that our preliminary decision, holding all other components of the bill constant, will reduce the average annual electricity bills for residential customers in SA Power Networks' network. This is because we estimate that our preliminary decision will result in lower distribution charges on average over the 2015–20 regulatory control period compared to SA Power Networks' 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 $197 or 9.8 per cent in 2015–16. This would be followed by decreases of about $9 or 0.5 per cent ($ nominal) per annum from 2016–17 to 2019–20. By comparison, had we accepted SA Power Networks' proposal, the average annual electricity bill for residential customers would increase by approximately $13.3 or 0.6 per cent ($ nominal) per annum over the 2015–20 regulatory control period.

Our estimate of the potential impact our preliminary decision will have for SA Power Networks' residential customers is based on the typical annual electricity usage of 5000 kWh per annum for a residential customer in South Australia.[14] Therefore customers with different usage will experience different changes in their bills. We also

[13] SA Power Networks, *Regulatory proposal*, October 2014.

[14] Based on ESCoSA, *South Australian Energy Retail Prices Ministerial Pricing Report 2014*, August 2014, p. 9.

note that there are other factors, such as transmission network costs, wholesale and retail costs, which affect electricity bills.

Similarly, for an average small business customer in South Australia that uses approximately 10 MWh[15] of electricity per annum, our preliminary decision for SA Power Networks 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 $381 or 9.8 per cent 2015–16. This would be followed by decreases of about $17 or 0.5 per cent ($ nominal) per annum from 2016–17 to 2019–20. By comparison, had we accepted SA Power Networks' proposal, the average annual electricity bill for small business customers would increase by approximately $25 or 0.6 per cent ($ nominal) per annum over the 2015–20 regulatory control period.

Table 1.6 shows the estimated annual average impact of our preliminary decision for the 2015–20 regulatory control period and SA Power Networks' proposal on the average residential and small business customers' annual electricity bills.

Table 1.6 Estimated impact of SA Power Networks' adjusted proposal and the AER's preliminary decision on annual electricity bills for the 2015–20 regulatory control period ($ nominal)

	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20
SA Power Networks proposal						
Residential annual bill[a]	2007	1992	2012	2031	2052	2072
Annual change		–14 (–0.7%)	19 (1.0%)	20 (1.0%)	20 (1.0%)	21 (1.0%)
Small business annual bill[b]	3867	3840	3877	3915	3954	3994
Annual change		–28 (–0.7%)	37 (1.0%)	38 (1.0%)	39 (1.0%)	40 (1.0%)
AER preliminary decision						
Residential annual bill[a]	2007	1809	1765	1765	1765	1773
Annual change		–197 (–9.8%)	–44 (–2.4%)	0 (0.0%)	0 (0.0%)	8 (0.5%)
Small business annual bill[b]	3867	3487	3402	3402	3401	3417
Annual change		–381 (–9.8%)	–85 (–2.4%)	0 (0.0%)	0 (0.0%)	16 (0.5%)

Source: AER analysis; AER, Energy Made Easy; ESCoSA, *South Australian Energy Retail Prices Ministerial Pricing Report 2014*, August 2014.

(a) Based on annual bill for typical consumption of 5000 kWh per year during the period 1 July 2014 to 30 June 2015. Sample postcode: 5015.

15 Based on ESCoSA, *South Australian Energy Retail Prices Ministerial Pricing Report 2014*, August 2014, p. 9.

(b) Based on the annual bill sourced from Energy Made Easy for a typical consumption of 10000 kWh per year during the period 1 July 2014 to 30 June 2015. Sample postcode: 5015.