FINAL DECISION
Powerlink transmission determination
2017-22

Attachment 1 – Maximum allowed revenue

April 2017

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585 165
Email: AERInquiry@aer.gov.au

Note

This attachment forms part of the AER's final decision on Powerlink's transmission determination for 2017–22. It should be read with all other parts of the final decision.

This final decision consists of an Overview and 11 attachments. As many issues were settled at the draft decision stage or required only minor updates we have not prepared final decision attachments for:

- Regulatory depreciation
- Operating expenditure; and
- Corporate income tax.

The AER's final decision on these matters is set out in the Overview. For ease of reference the remaining attachments have been numbered consistently with the attachment numbering in our draft decision.

The final decision includes the following documents:

Overview

Attachment 1 – Maximum allowed revenue

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Value of imputation credits

Attachment 6 – Capital expenditure

Attachment 9 – Efficiency benefit sharing scheme

Attachment 10 – Capital expenditure sharing scheme

Attachment 11 – Service target performance incentive scheme

Attachment 12 – Pricing methodology

Attachment 13 – Pass through events

Attachment 14 – Negotiated services

Contents

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	annual service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DMIA	demand management innovation allowance
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
MAR	maximum allowed revenue
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
NTSC	negotiated transmission service criteria
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice

Shortened form	Extended form
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
TUoS	transmission use of system
WACC	weighted average cost of capital

1 Maximum allowed revenue

This attachment sets out the AER's final decision on the maximum allowed revenue (MAR) for the provision of prescribed transmission services for each year of Powerlink's 2017–22 regulatory control period. Specifically, the attachment addresses:[1]

- the estimated total revenue cap, which is the sum of the annual expected MAR
- the annual building block revenue requirement
- the annual expected MAR
- the X factor.

We determine the TNSP's annual building block revenue requirement using a building block approach. We determine the X factors by smoothing the annual building block revenue requirement over the regulatory control period. The X factor is used in the CPI–X methodology to determine the annual expected MAR (smoothed).

1.1 Final decision

We do not accept Powerlink's revised proposed annual building block revenue requirement, annual expected MAR and total revenue cap. This is because we have not accepted all the building block costs that Powerlink proposed in its revised proposal. We have calculated the X factor and the annual expected MAR (smoothed) to reflect our final decision on Powerlink' annual building block revenue requirement.

We determine a total annual building block revenue requirement for Powerlink of $3945.2 million ($ nominal) for the 2017–22 regulatory control period. This is an increase of $197.9 million ($ nominal) or 5.3 per cent to Powerlink's revised proposal and reflects the impact of our final decisions on the various building block costs.

As a result of our smoothing of the annual building block revenue requirement, our final decision on the annual expected MAR and X factor for each regulatory year of the 2017–22 regulatory control period is set out in table 1.1. Our final decision is to approve an estimated total revenue cap of $3940.2 million ($ nominal) for Powerlink for the 2017–22 regulatory control period. Our approved X factor for 2018–19 to 2021–22 is 0.15 per cent per annum.[2]

Table 1.1 sets out our final decision on Powerlink's annual building block revenue requirement, the X factor, the annual expected MAR and the estimated total revenue cap for the 2017–22 regulatory control period.

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1 NER, cll. 6A.4.2(a)(1)–(3), 6A.5.3(c) and 6A.6.8.

2 Powerlink is not required to apply an X factor for 2017–18 because we set the 2017–18 MAR in this decision.

Table 1.1 AER's final decision on Powerlink's annual building block revenue requirement, annual expected MAR, estimated total revenue cap and X factor ($ million, nominal)

	2017–18	2018–19	2019–20	2020–21	2021–22	Total
Return on capital	425.5	430.4	434.2	437.3	440.5	2168.0
Regulatory depreciation[a]	88.9	113.3	131.0	143.1	150.2	626.6
Operating expenditure[b]	201.7	205.8	209.8	214.2	219.3	1050.7
Revenue adjustments[c]	–0.8	–7.1	–3.2	3.0	0.0	–8.1
Net tax allowance	17.1	19.4	22.7	24.3	24.5	108.0
Annual building block revenue requirement (unsmoothed)	732.4	761.8	794.6	821.9	834.5	3945.2
Annual expected MAR (smoothed)	**752.7**	**770.0**	**787.6**	**805.7**	**824.2**	**3940.2**[d]
X factor (%)[e]	n/a[f]	0.15%	0.15%	0.15%	0.15%	n/a

Source: AER analysis.

(a) Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.

(b) Operating expenditure includes debt raising costs.

(c) Includes efficiency benefit sharing scheme amounts.

(d) The estimated total revenue cap is equal to the total annual expected MAR.

(e) The X factors 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.

(f) Powerlink is not required to apply an X factor for 2017–18 because we set the 2017–18 MAR in this decision. The MAR for 2017–18 is around 27.9 per cent lower than the approved MAR for 2016–17 in real terms, or 26.1 per cent lower in nominal terms.

1.2 Powerlink's revised proposal

Powerlink's revised proposal included a total (smoothed) revenue cap of $3742.2 million ($ nominal) for the 2017–22 regulatory control period.

Table 1.2 sets out Powerlink's revised proposed annual building block revenue requirement, the X factor, the annual expected MAR and the estimated total revenue cap.

Table 1.2 Powerlink's revised proposed annual building block revenue requirement, annual expected MAR, estimated total revenue cap and X factor ($ million, nominal)

	2017–18	2018–19	2019–20	2020–21	2021–22	Total
Return on capital	387.8	392.5	396.2	399.5	402.9	1978.9
Regulatory depreciation[a]	92.5	116.8	134.3	146.2	154.0	643.7
Operating expenditure[b]	201.6	205.6	209.5	213.7	218.7	1049.2
Revenue adjustments[c]	–0.8	–7.1	–3.2	3.0	0.0	–8.1
Net tax allowance	12.4	14.6	17.9	19.3	19.5	83.6
Annual building block revenue requirement (unsmoothed)	693.4	722.3	754.7	781.8	795.1	3747.4
Annual expected MAR (smoothed)	**715.6**	**731.6**	**748.1**	**764.9**	**782.0**	**3742.2**[d]
X factor (%)	31.41%	0.15%	0.15%	0.15%	0.15%	n/a

Source: Powerlink, *Revised revenue proposal*, December 2016, p. 55

(a) Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.

(b) Operating expenditure includes debt raising costs.

(c) Includes efficiency benefit sharing scheme amounts.

(d) The estimated total revenue cap is equal to the total annual expected MAR.

1.3 Assessment approach

We did not change our assessment approach for the MAR from our draft decision. Section 1.3 of our draft decision details that approach.[3]

1.4 Reasons for final decision

For this final decision, we determine a total annual building block revenue requirement of $3951.1 million ($ nominal) for Powerlink for the 2017–22 regulatory control period. This compares to Powerlink's revised proposed total annual building block revenue requirement of $3747.4 million ($ nominal) for this period.

Figure 1.1 shows the building block components from our final determination that make up the annual building block revenue requirement for Powerlink, and the corresponding components from its revised proposal and our draft decision.

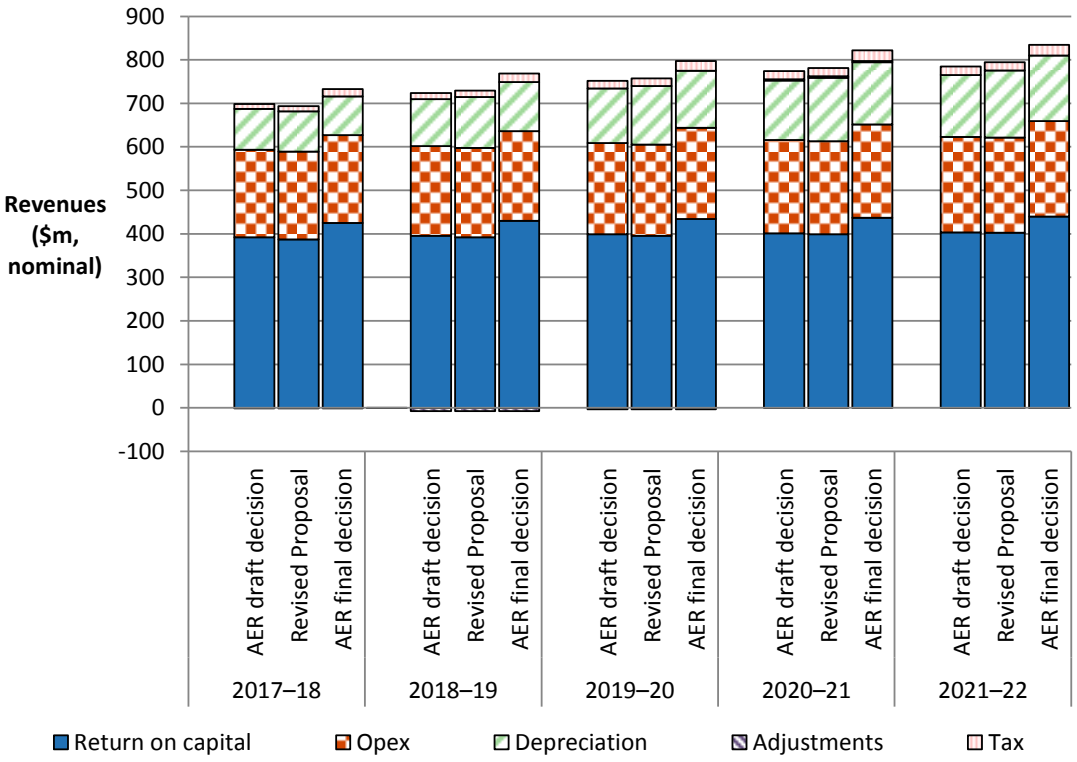
The most significant changes to Powerlink's revised proposal include:

- an increase in the return on capital allowance of 9.6 per cent (attachments 2 and 3)
- a reduction in the regulatory depreciation allowance of 2.7 per cent (attachment 5)

[3] AER, *Draft decision, Attachment 1 - Maximum allowed revenue*, pp. 1-9–1-12, September 2016.

- a reduction in the capex allowance of 7.3 per cent (attachment 6)
- an increase in the cost of corporate income tax allowance of 29.2 per cent (section 3.7 of the Overview).

Figure 1.1 AER's final decision and Powerlink's revised proposed annual building block revenue requirement ($ million, nominal)



Source: AER analysis.

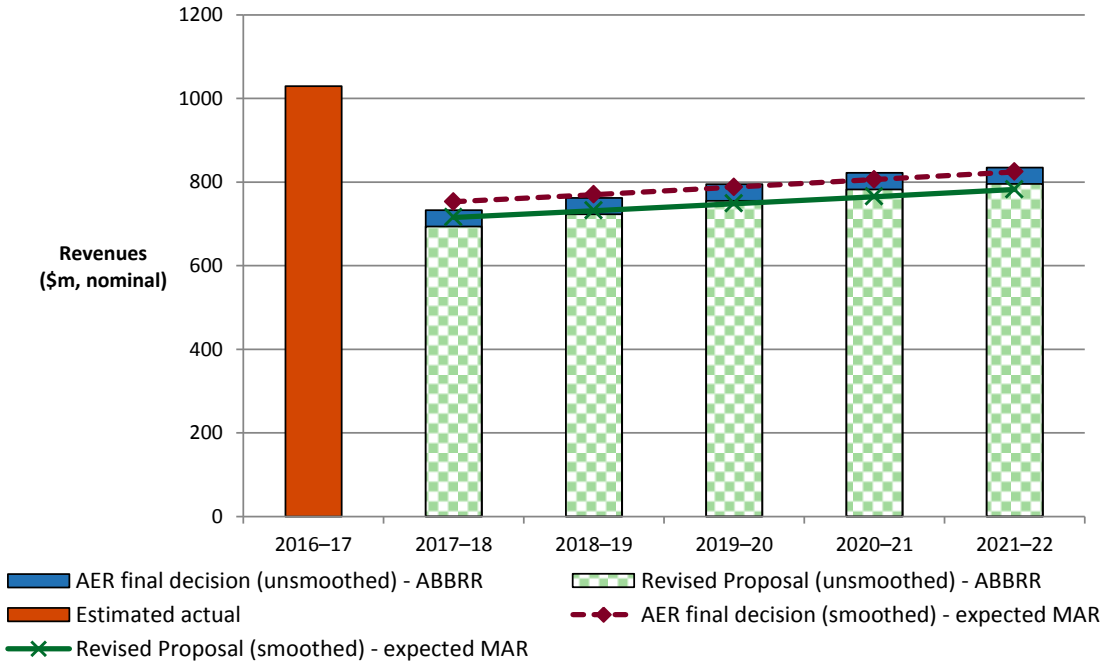
1.4.1 X factor, annual expected MAR and estimated total revenue cap

For this final decision, we determine an X factor for Powerlink of 0.15 per cent per annum for the four years of the regulatory control period from 2018–19 to 2021–22.[4] The net present value (NPV) of the annual building block revenue requirement is $3309.0 million ($ nominal) as at 1 July 2017. Based on this NPV and applying the CPI–X method, we determine that the annual expected MAR (smoothed) for Powerlink increases from $752.7 million in 2017–18 to $824.2 million in 2021–22 ($ nominal). The resulting estimated total revenue cap for Powerlink is $3940.2 million for the 2017–22 regulatory control period.

[4] Powerlink is not required to apply an X factor for 2017–18 because we set the 2017–18 MAR in this decision.

Figure 1.2 shows our final decision on Powerlink's annual expected MAR (smoothed revenue) and the annual building block revenue requirement (unsmoothed revenue) for the 2017–22 regulatory control period.

Figure 1.2 AER's final decision on Powerlink's annual expected MAR (smoothed) and annual building block revenue requirement (unsmoothed) ($ million, nominal)



Source: AER analysis.

To determine the expected MAR for Powerlink, we have set the MAR for the first regulatory year at $752.7 million ($ nominal) which is $20.3 million higher than the annual building block revenue requirement. We then applied expected inflation of 2.45 per cent per annum and an X factor of 0.15 per cent per annum to determine the expected MAR in subsequent years.[5] We consider that our profile of X factors results in an expected MAR in the last year of the regulatory control period that is as close as reasonably possible to the annual building block revenue requirement for that year.[6]

The average annual decrease in our approved expected MAR is 4.2 per cent per annum ($ nominal) over the 2017–22 regulatory control period.[7] This consists of an initial decrease of 26.1 per cent from 2016–17 to 2017–18, followed by average annual

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5 NER, cl. 6A.5.3(c)(3).

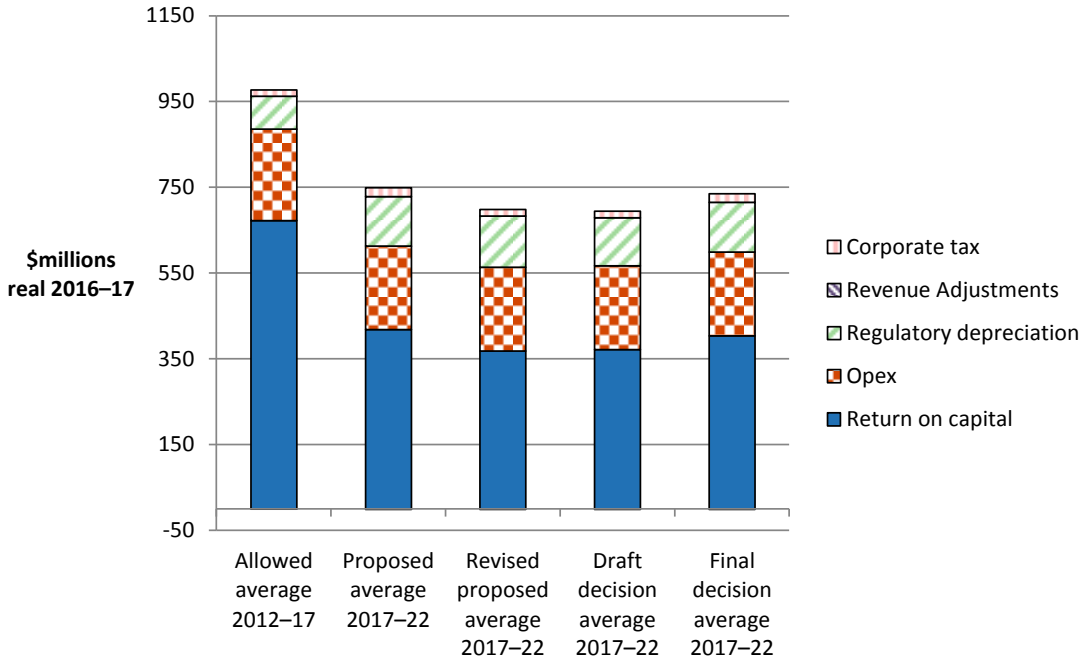
6 NER, cl. 6A.6.8(c)(2). We consider a divergence of up to 3 per cent between the expected MAR and annual building block revenue requirement for the last year of the regulatory control period is appropriate, if this can achieve smoother price changes for users over the regulatory control period. In the present circumstances, based on the X factors we have determined for Powerlink, this divergence is around 1.2 per cent.

7 In real 2016–17 dollar terms, the average decrease in our approved expected MAR for Powerlink is 6.9 per cent per annum over the 2017–22 regulatory control period.

increases of 2.3 per cent during the remainder of the 2017–22 regulatory control period.[8] Our final decision results in a decrease of 24.7 per cent in real terms ($2016–17) to Powerlink's average annual allowed revenue relative to that in the 2012–17 regulatory control period. This decrease is primarily because of a lower rate of return and capex in this final decision for the 2017–22 regulatory control period than were approved in the 2012–17 determination. Our final decision on the opening RAB at 1 July 2017 also contributes to the decrease in revenues over the 2017–22 regulatory control period.

Figure 1.3 compares our final decision building blocks for Powerlink's 2017–22 regulatory control period with Powerlink's revised proposed revenue requirement for the same period, and the approved revenue for the 2012–17 regulatory control period.

Figure 1.3 Annual average of AER's final decision building blocks compared to Powerlink's revised proposed revenue requirement and approved revenue for 2012–17 ($ million, 2016–17)



Source: AER analysis.

1.4.2 Shared assets

Our final decision is to not apply a shared asset revenue adjustment to Powerlink's total revenue cap because the materiality threshold is not met in any year of the 2017–22 regulatory control period.

[8] In real 2016–17 dollar terms, this consists an initial decrease of 27.9 per cent from 2016–17 to 2017–18, followed by subsequent average annual decreases of 0.15 per cent during the remainder of the 2017–22 regulatory control period.

Transmission network service providers (TNSPs), such as Powerlink, may use assets to provide both the prescribed services we regulate and other unregulated services. These assets are called 'shared assets'.[9] Of the unregulated revenues a TNSP earns from shared assets, 10 per cent will be used to reduce the service provider's revenues for prescribed services.[10]

Shared asset revenue reductions are subject to a materiality threshold. Unregulated use of shared assets is material when a TNSP's unregulated revenues from shared assets in a specific regulatory year are expected to be greater than one per cent of its total expected MAR for that regulatory year.[11]

In our draft decision, we considered Powerlink's forecast unregulated revenues from shared assets for the 2017–22 regulatory control period to be reasonable because they were comparable with its historical unregulated revenues from shared assets. Based on the expected MARs determined in this final decision, we estimate that the unregulated revenues will be 0.3 to 0.4 per cent of the expected MARs in each year of the 2017–22 regulatory control period. Hence, the materiality threshold of one per cent is not met in any year of the 2017–22 regulatory control period and we do not apply a shared asset revenue adjustment.

We note unregulated revenues from shared assets may in future become material. We will monitor Powerlink's shared asset unregulated revenues for future regulatory control periods.

1.4.3 Indicative transmission charges and impact on electricity bills

Our final decision on Powerlink's expected MAR ultimately affects the annual electricity bills paid by customers in Queensland. There are several steps required to translate our revenue decision into indicative transmission charges, and then to estimate bill impact.

Since we regulate Powerlink's prescribed transmission services under a revenue cap, changes in the consumption of electricity will affect the transmission charges ultimately paid by consumers. We estimate the indicative effect of our final decision on forecast average transmission charges in Queensland by:

- taking Powerlink's annual expected MAR determined in this final decision, and
- dividing it by the forecast annual energy delivered in Queensland.[12]

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9 NER, cl. 6A.5.5.

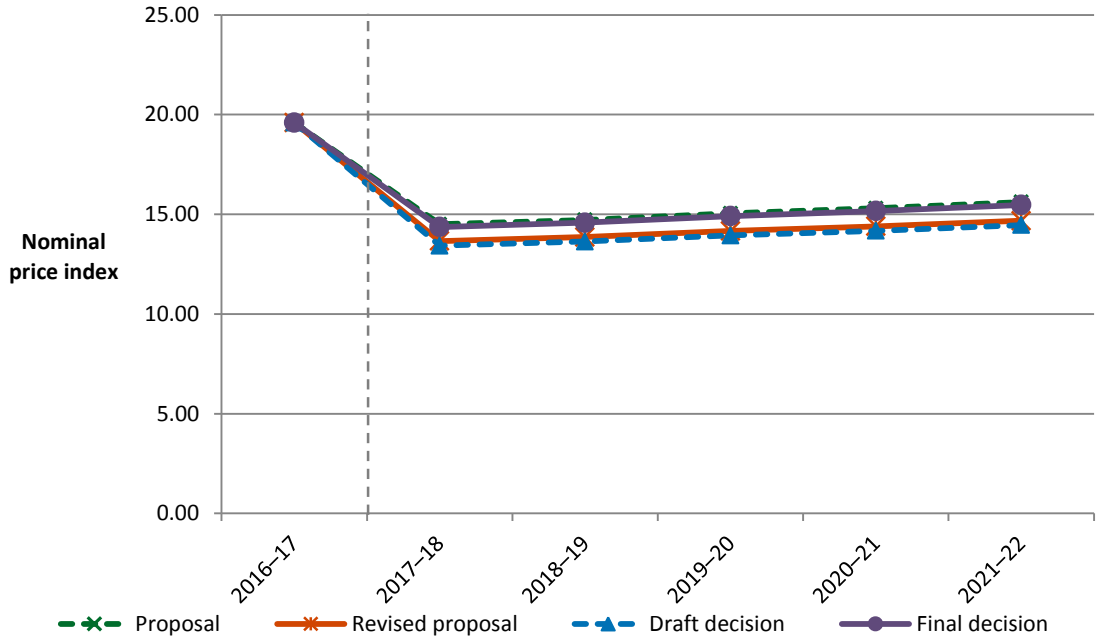
10 AER, *Shared asset guideline*, November 2013.

11 AER, *Shared asset guideline*, November 2013, p. 15.

12 Based on AEMO, *National Electricity Forecasting Report 2016 update*, accessed at http://forecasting.aemo.com.au/Electricity/AnnualConsumption/Operational.

Based on this approach, we estimate that this final decision will result in a decrease in annual average transmission charges from 2016–17 to 2021–22.[13] Figure 1.4 shows the indicative transmission charges resulting from this final decision compared with the 2016–17 transmission charges in nominal dollar terms. The transmission charges are forecast to decrease from around $19.6 per MWh in 2016–17 to $15.5 per MWh in 2021–22.

Figure 1.4 Indicative transmission price path from 2012–13 to 2021–22 for Queensland ($/MWh, nominal)



Source: AER analysis.

We estimate the expected bill impact by varying the transmission charges in accordance with our final decision, while holding all other components constant. This approach isolates the effect of our final decision on the core transmission charges that represent approximately 9.3 per cent on average of a typical residential customer's annual electricity bill in Queensland.[14] This small percentage largely explains the relatively modest impact this final decision is likely to have on average annual electricity bills. However, our approach does not imply that other components will

[13] On average, the final decision transmission revenues will decrease by 4.2 per cent ($ nominal) per annum from 2016–17 to 2021–22. The forecast energy delivered in Queensland will increase by an average of 0.5 per cent per annum across that period. As a result, the indicative transmission charge will decrease by 4.6 per cent ($ nominal) per annum from 2016–17 to 2021–22.

[14] Powerlink, *Reset RIN – Table 7.6.1*, October 2015.

remain unchanged across the regulatory control period.[15] We note that in its recent electricity price trends report for Queensland, the AEMC has indicated that wholesale costs are expected to rise on average, largely driven by the closure of Hazelwood power station and variations in inter-regional electricity flows.[16] However, as discussed below we expect the decreasing transmission network charges flowing from this final decision will offset some of the increases from other components of the overall bill.

Based on this approach in our final decision, we expect that the transmission component of the average annual residential electricity bills in Queensland to decrease moderately in 2017–18 and stay constant over the remainder of the 2017–22 regulatory control period. The transmission component of the average residential customer's annual electricity bill in 2021–22 is expected to reduce by about $32 ($ nominal) below the 2016–17 level. This equates to a 2.0 per cent decrease in the average customer's total bill over 5 years.

By comparison, had we accepted Powerlink's revised proposal, the expected transmission component of the average annual residential electricity bill in 2021–22 would decrease by approximately $38 ($ nominal) below the 2016–17 level. This equates to a 2.3 per cent decrease in the average customer's total bill over 5 years

Our estimated potential impact is based on the typical annual electricity usage of 5173 kWh per annum for a residential customer in Queensland.[17] Customers with different usage will experience different changes in their bills. We also note that there are other factors, such as distribution network costs, wholesale and retail costs, which affect electricity bills.

Similarly, for small business customers in Queensland—for which transmission charges represent approximately 9.3 per cent of a typical annual electricity bill—we have estimated the bill impact for two customer categories:[18]

- Small business customers consuming 10 000 kWh per annum
- Small business customers consuming 20 000 kWh per annum.

We expect our final decision will result in the transmission component of the average annual electricity bill for the small business customer with consumption of 10 000 kWh per annum in 2021–22 to reduce by about $59 ($ nominal) below the 2016–17 level. This equates to a 2.0 per cent decrease in the average customer's total bill over 5 years. By comparison, had we accepted Powerlink's revised proposal, the expected transmission component of the average annual electricity bill for this type of small business customer in 2021–22 would decrease by approximately $70 ($ nominal) or

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15 It also assumes that actual energy demand will equal the forecast adopted in our final decision. Since Powerlink operates under a revenue cap, changes in demand will also affect annual electricity bills across the 2017–22 regulatory control period.

16 AEMC, *Final report: 2016 Residential Electricity Price Trends*, 14 December 2016, p. 96 and *Queensland fact pack and media release*, p. 4.

17 AEMC, *2016 Residential electricity price trends*, December 2016, p. xxi.

18 Powerlink, *Reset RIN – Table 7.6.1*, October 2015.

below the 2016–17 level. This equates to a 2.3 per cent decrease in the average customer's total bill over 5 years.

Likewise, the transmission component of the average annual electricity bill for the small business customer with annual consumption of 20 000 kWh per annum in 2021–22 is expected to be about $103 ($ nominal) below the 2016–17 level as a result of our final decision. This equates to a 2.0 per cent decrease in the average customer's total bill over 5 years. By comparison, had we accepted Powerlink's revised proposal, the expected transmission component of the average annual electricity bill for this type of small business customer in 2021–22 would decrease by approximately $123 ($ nominal) below the 2016–17 level. This equates to a 2.3 per cent decrease in the average customer's total bill over 5 years.

Table 1.3 shows our estimated impact of this final decision over the 2017–22 regulatory control period compared with Powerlink's revised proposal on the average annual electricity bills for residential and small business customers in Queensland.

Table 1.3 AER's estimated impact of our final decision and Powerlink's revised proposal on the average annual electricity bills for the 2017–22 regulatory control period ($ nominal)

	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22
AER final decision						
Residential annual bill	1611[a]	1571	1573	1575	1577	1580
Annual change[c]		–40 (–2.5%)	2 (0.1%)	2 (0.2%)	2 (0.1%)	2 (0.1%)
Small business with 10 000 kWh consumption annual bill	3014[b]	5118	5124	5132	5138	5146
Annual change[c]		–130 (–2.5%)	5 (0.1%)	8 (0.2%)	6 (0.1%)	8 (0.1%)
Small business with 20 000 kWh consumption annual bill	5249[b]					
Annual change[c]		1566	1567	1570	1571	1574
Powerlink revised proposal		–45 (–2.8%)	2 (0.1%)	2 (0.1%)	2 (0.1%)	2 (0.1%)
Residential annual bill	1611[a]	5101	5106	5113	5119	5126
Annual change[c]		–148 (–2.8%)	5 (0.1%)	8 (0.1%)	6 (0.1%)	7 (0.1%)
Small business with 10 000 kWh consumption annual bill	3014[b]	1571	1573	1575	1577	1580
Annual change[c]		–40 (–2.5%)	2 (0.1%)	2 (0.2%)	2 (0.1%)	2 (0.1%)
Small business with 20 000 kWh consumption annual bill	5249[b]	5118	5124	5132	5138	5146
Annual change[c]		–30 (–2.5%)	5 (0.1%)	8 (0.2%)	6 (0.1%)	8 (0.1%)

Source: AER analysis; AEMC, *2016 Residential electricity price trends*, December 2016, p. xxi; and Powerlink, *Revised revenue proposal*, PTRM, December 2016.

(a) Based on Powerlink, *Revenue proposal*, *Consolidated Reset RIN*, January 2016, checked against offers at June 2016 from the Energy Made Easy website (postcode:4000, 4810) using consumption of 5173 kWh per annum.

(b) Based on Powerlink, *Revenue proposal*, *Consolidated Reset RIN*, January 2016.

(c) Annual change amounts and percentages are indicative. They are derived by varying the transmission component of 2016–17 bill amounts in proportion to yearly expected revenue divided by Powerlink's forecast demand. Actual bill impacts will vary depending on electricity consumption and tariff class.