ElectraNet transmission determination 2018 to 2023

April 2018

AUSTRALIAN ENERGY REGULATOR

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Shortened forms

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
CESS	capital expenditure sharing scheme
EBSS	efficiency benefit sharing scheme
MAR	maximum allowed revenue
MIC	market impact component
NER	National Electricity Rules
NSP	network service provider
NTSC	negotiated transmission service criteria
opex	operating expenditure
PTRM	post tax revenue model
RAB	regulatory asset base
STPIS	service target performance incentive scheme
TNSP	transmission network service provider

Summary

The Australian Energy Regulator (AER) makes a transmission determination for each transmission network service provider (TNSP) in accordance with chapter 6A of the National Electricity Rules (NER).[1]

This document is our transmission determination for ElectraNet for the regulatory control period 1 July 2018 to 30 June 2023. Our reasons are included in the AER's final decision on ElectraNet's transmission determination (April 2018) which should be read in conjunction with this document.

Our transmission determination for ElectraNet consists of:[2]

- a revenue determination in respect of the provision by ElectraNet of prescribed transmission services (section 1)
- a determination relating to ElectraNet's negotiating framework (section 0)
- a determination that specifies the negotiated transmission service criteria (NTSC) that apply to ElectraNet (section 3)
- a determination that specifies the pricing methodology that applies to ElectraNet (section 12)
- a determination that specifies pass through events that will apply to this determination in addition to those specified in the NER (section 5).

1 NER, cl. 6A.2.1.

2 NER, cl. 6A.2.2; 6A.7.3(a1).

1 Revenue

We calculate the amount of revenue that ElectraNet requires each year of the regulatory control period in accordance with a building block approach.[3] This is referred to as the *annual building block revenue requirement*. The annual building block revenue is then used to calculate the expected *maximum allowed revenue* (MAR) for each year of the 2018–23 regulatory control period. The annual MAR that ElectraNet may earn from providing prescribed transmission services is subject to adjustments to account for factors such as inflation, approved pass through costs and annual performance rewards or penalties.

Our revenue determination specifies the following matters:[4]

- the amount of the estimated total revenue cap for the regulatory control period and the method of calculating that amount
- the annual building block revenue requirement for each regulatory year of the regulatory control period
- the amount of the MAR for each regulatory year of the regulatory control period or the method of calculating that amount
- the regulatory asset base (RAB) as at the commencement of the regulatory control period
- the methodology that will be used for the indexation of the RAB
- the values that are to be attributed to the performance incentive scheme parameters for the purposes of the application to ElectraNet of the service target performance incentive scheme (STPIS) that applies in respect of the regulatory control period
- the values that are to be attributed to the efficiency benefit sharing scheme parameters for the purposes of the application to ElectraNet of the efficiency benefit sharing scheme (EBSS) that applies in respect of the regulatory control period
- how the capital expenditure sharing scheme (CESS) is to apply to ElectraNet
- the commencement and length of the regulatory control period covered by this determination
- that depreciation for establishing the RAB as at the commencement of the following regulatory control period is to be based on forecast capital expenditure
- annually updating the return on debt.

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3 NER, cl. 6A.5.4.

4 NER, cl. 6A.4.2.

1.1 Method for calculating estimated total revenue cap

We determine an estimated total MAR of $1603.2 million ($nominal) for ElectraNet for the 2018–23 regulatory control period as shown in Table 1. The estimated total MAR is also known as the total revenue cap. It is the sum of the expected MAR for each regulatory year.[5]

Table 1 AER's final determination on ElectraNet's annual expected maximum allowed revenue ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Annual expected MAR (smoothed)	305.3	312.8	320.4	328.3	336.3	1603.2
X factor (%) [a]	n/a [b]	0%	0%	0%	0%	n/a

Source: AER analysis.

(a) 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.

(b) ElectraNet is not required to apply an X factor for 2018–19 because we set the 2018–19 MAR in this transmission determination. The MAR for 2018–19 is around 14.9 per cent lower than the approved MAR for 2017–18 in real terms, or 12.8 per cent lower in nominal terms.

We determine the annual expected MAR by using the X factors to smooth the annual building block revenue requirement as set out below.

1.2 Annual building block revenue requirement

We determine the annual building block revenue requirement for ElectraNet as shown in Table 2.

[5] NER, cl. 6A.5.3.

Table 2 AER's final determination on ElectraNet's annual building block revenue requirement ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Return on capital	145.6	148.9	151.3	154.3	156.5	756.6
Regulatory depreciation	44.2	63.8	68.5	73.3	69.9	319.8
Operating expenditure	92.6	95.4	98.6	101.9	104.9	493.4
Revenue adjustments	–1.3	–1.2	–1.6	0.0	0.3	–3.7
Net tax allowance	4.9	7.5	8.2	9.9	9.9	40.3
Annual building block revenue requirement (unsmoothed)	286.1	314.3	325.1	339.4	341.5	1606.5

Source: AER analysis.

1.3 Method for calculating maximum allowed revenue

We use an expected inflation rate in our post-tax revenue model (PTRM) to calculate the expected MAR (as shown in Table 3) in nominal dollar terms. Therefore, the calculation of the actual annual MAR will require an adjustment for actual inflation. The MAR is also subject to adjustments for updating the return on debt annually, a revenue increment or decrement determined in accordance with the STPIS, and any approved pass through amounts. This section sets out the method of this annual adjustment process.

We determine that the method for calculating ElectraNet's MAR for each year of the 2018–23 period will be the sum of its allowed revenue (AR) for that year and adjustments arising from the STPIS and any approved pass through amounts.

We determine the 2018–19 AR of $305.3 million for ElectraNet. ElectraNet then applies an annual adjustment to determine its AR for each subsequent year of the 2018–23 period, based on the previous year's AR and using the CPI–X methodology. That is, the subsequent year's AR is determined by adjusting the previous year's AR for actual inflation and the X factor determined after the annual return on debt update:

$$AR_t = AR_{t-1} \times (1 + \Delta CPI) \times (1 - X_t)$$

where:

AR = the allowed revenue

t = time period/financial year (for t = 2, (2019–20), 3 (2020–21), 4 (2021–22), 5 (2022–23))

ΔCPI = the annual percentage change in the Australian Bureau of Statistics' (ABS) consumer price index (CPI) all groups, weighted average of eight capital cities from December in year t – 2 to December in year t – 1[6]

X = the smoothing factor determined in accordance with the PTRM as approved in the AER's final decision, and annually revised for the return on debt update in accordance with the formula specified in the return on debt appendix calculated for the relevant year.

The MAR is determined annually in accordance with the NER by adding to (or deducting from) the AR:

- the service target performance incentive scheme revenue increment (or revenue decrement)[7]
- any approved pass through amounts.[8]

The annual MAR is established according to the following formula:

MAR_t = (allowed revenue) + (performance incentive) + (pass through)

$$= AR_t + \left(\frac{(AR_{t-1} + AR_{t-2})}{2} \times S_{ct} \right) + P_t$$

where:

MAR = the maximum allowed revenue

AR = the allowed revenue

S = the revenue increment or decrement determined in accordance with the STPIS

P = the pass through amount (positive or negative) that the AER has determined in accordance with clauses 6A.7.2 and 6A.7.3 of the NER

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6 In the transmission determination for ElectraNet's 2013–18 regulatory control period, the CPI required for the annual MAR adjustment process reflects the March quarter CPI, which is typically published by the ABS in late April each year. For this transmission determination we require ElectraNet to use the December quarter of the previous calendar year CPI for the annual MAR adjustment for its 2018–23 regulatory control period. December quarter CPI is typically released by the ABS towards the end of January of the following year. As the same set of CPI will be used for the RAB roll forward at the next reset for ElectraNet in 2023, this change will allow us to update the actual CPI for RAB roll forward purposes well before the publication date of the AER's final decision at the next reset. There will be an overlapping issue of the March quarter CPI when the transition to the December quarter CPI occurs (this will be in the year 2018–19 for ElectraNet). This is because the CPI for March quarter 2018 will be reflected in both 2017–18 and 2018–19. However, we consider this is only a transitional issue and unlikely to have a material impact on the revenue to be recovered by ElectraNet.

7 NER, cl. 6A.7.4.

8 NER, cll. 6A.7.2 and 6A.7.3.

t = time period/financial year (for *t* = 2 (2019–20), 3 (2020–21), 4 (2021–22), 5 (2022–23))

ct = time period/calendar year (for *t* = 2 (2018), 3 (2019), 4 (2020), 5 (2021)).

ElectraNet may also adjust the MAR for under or over-recovery amounts.[9] That is, if the revenue amounts earned from providing prescribed transmission services in previous regulatory years are higher or lower than the sum of the approved MAR for those years, the difference could be included in the subsequent year's MAR. In the case of an under-recovery, the amount is added to the subsequent year's MAR. In the case of an over-recovery, the amount is subtracted from the subsequent year's MAR.

Table 3 sets out the timing of the annual calculation of the AR and performance incentive.

Table 3 Timing of the calculation of allowed revenues and the performance incentive for ElectraNet

t	Allowed revenue (financial year)	*ct*	Performance incentive (calendar year)
2	1 July 2019–30 June 2020	2	1 January 2018–31 December 2018
3	1 July 2020–30 June 2021	3	1 January 2019–31 December 2019
4	1 July 2021–30 June 2022	4	1 January 2020–31 December 2020
5	1 July 2022–30 June 2023	5	1 January 2021–31 December 2021

Note: The performance incentive for 1 January 2017–31 December 2017 is to be applied to the AR determined for 2018–19 (AR_1).

1.4 Regulatory asset base

We determine an opening RAB value of $2560.2 million as at the commencement of the 2018–23 regulatory control period for ElectraNet.

1.5 Method for indexation of the regulatory asset base

The method for indexing ElectraNet's RAB for each year of the 2018–23 regulatory control period will be the same as that used to escalate its AR for that relevant year—that is, to apply the annual percentage change in the published ABS CPI all groups, weighted average of eight capital cities.[10] For ElectraNet, this will be the December quarter CPI. This method will be used as part of the roll forward of ElectraNet's opening RAB for the purposes of the AER's transmission revenue determination for the regulatory control period commencing on 1 July 2023.

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9 NER, cll. 6A.23.3(e)(5) and 6A.24.4(c).

10 ABS, *Catalogue number 6401.0, Consumer price index*, Australia.

1.6 Performance incentive scheme parameters

All components of version 5 of the STPIS will apply to ElectraNet for the 2018–23 regulatory control period. The parameters applicable to ElectraNet are set out in the tables below. Our final decision calculated the performance targets for ElectraNet using its latest performance data including data for 2017.

Table 4 Final decision — Service Component Caps, floors and targets for 2018–2023

Sub Parameter	Best fit	Cap	Target	Floor
Unplanned outage circuit event rate:				
Transmission line outage - fault	Weibull	8.5%	20.8%	33.9%
Transformer outage – fault	Gamma	11.6%	25.7%	44.3%
Reactive plant – fault	Loglogistic	12.3%	27.0%	43.4%
Transmission line outage – forced outage	Gamma	7.1%	11.2%	16.1%
Transformer outage – forced outage	Uniform	1.1%	11.8%	20.2%
Reactive plant – forced outage	Loglogistic	8.8%	18.7%	33.0%
Loss of supply event frequency (number of events):				
> (x) system minutes	Poisson	1	4	7
> (y) system minutes	Poisson	0	2	4
Average outage duration (minutes):	Pearson5	93	156	251
Proper operation of equipment (number of events):				
Failure of protection system	IntUniform	7	20	28
Material failure of SCADA	Geomet	0	1	3
Incorrect operational isolation of primary or secondary equipment	Poisson	3	8	12

Source: AER analysis.

Table 5 Final decision —MIC parameter values for 2018–2023

Parameter values - MIC	
Performance target	4208
Unplanned outage event limit	715
Dollar per dispatch interval	$708

Source: AER analysis

Table 6 Final decision — Network capability priority projects for 2018–2023 ($2016–17)

ElectraNet proposed project priority ranking	Project	Description	Opex	Capex	Total
1	Tailem Bend – Mobilong 132 kV Tailem Bend – Tungkillo 275 kV Tailem Bend – Cherry Gardens 275 kV South East – Tailem Bend #1 275 kV South East – Tailem Bend #2 275 kV	Apply dynamic ratings to the circuits that make up the Heywood interconnector in South Australia to better account for favourable weather conditions.		100,000	100,000
2	Davenport – Belalie – Mokota – Robertstown 275 kV Davenport – Mt Lock - Canowie – Robertstown 275 kV	Remove and replace plant that are rated lower than the design capability of the conductors		1,300,000	1,300,000
3	Robertstown 275/132 kV transformers	Install DR-E3 transformer management relays and the bushing monitoring add-on to the two 275/132 kV transformers at Robertstown		500,000	500,000

4	State-wide	To review the existing AULimit search program to support other power system analysis software packages currently available in the market such as Power Factory, its limit search criteria, appropriate programing language and any improvement that potentially be achieved in improving the accuracy of the limit derivation methodology.	100,000	200,000	300,000
5	South East 275 kV substation	Install an additional 100 Mar capacitor at South East substation		3,600,000	3,600,000
6	Templers - Waterloo 132 kV	Install Smart Wires Powerline Guardian SD4-1200 and 3 Guardian 390-800 devices on Waterloo - Templers 132 kV.		5,900,000	5,900,000
7	Tungkillo 275 kV	Tie in Tailem Bend to Cherry Gardens 275 kV at Tungkillo.		5,300,000	5,300,000
Total					17,000,000

*note: the improvement targets are outlined in our draft decision[11]

[11] AER, *Draft Decision ElectraNet transmission determination 2018 to 2023 Attachment 11 − Service target performance incentive scheme*, October 2017, pp. 23-24.

Source: AER analysis

1.7 Efficiency benefit sharing scheme parameters

The values for the efficiency benefit sharing scheme (EBSS) parameters that are to apply to ElectraNet in the 2018–23 period, subject to adjustments required by the EBSS, are set out in Table 7.

Table 7 AER's decision on ElectraNet's forecast opex for the EBSS ($million, 2017–18)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Forecast opex	90.4	90.9	91.7	92.5	92.9	458.4
less debt raising costs	–1.3	–1.3	–1.3	–1.3	–1.2	–6.3
less network support costs	–8.4	–8.4	–8.4	–8.4	–8.4	–41.9
Forecast opex for EBSS purposes	**80.7**	**81.2**	**82.1**	**82.9**	**83.3**	**410.2**

Source: AER analysis.

In calculating EBSS carryover amounts, the AER will exclude the following costs from the EBSS:

- debt raising costs
- network support costs.

In addition to these excluded cost categories we will also:

- adjust forecast opex to add (subtract) any approved revenue increments (decrements) made after the 2018–23 regulatory determination. This may include approved pass through amounts.
- adjust actual opex to add capitalised opex that has been excluded from the RAB
- exclude categories of opex not forecast using a single year revealed cost approach for the regulatory control period beginning in 2023 where doing so better achieves the requirements of clause 6A.6.5 of the NER.

When calculating actual opex under the EBSS we will adjust reported actual opex for the 2018–23 period to reverse any movements in provisions.

1.8 Application of the capital expenditure sharing scheme

We will apply version 1 of the CESS as set out in the capital expenditure incentives guideline to ElectraNet's 2018−23 regulatory control period.[12] The guideline provides for the exclusion from the CESS of capex the service provider incurs in delivering a priority project approved under the network capability component of the STPIS.[13]

1.9 Commencement and length of the regulatory control period

The regulatory control period will be five years, commencing on 1 July 2018 and ending on 30 June 2023.

1.10 Depreciation for establishing the regulatory asset base as at the commencement of the next regulatory control period

The depreciation approach to be applied to establish ElectraNet's RAB at the commencement of the 2023–28 regulatory control period will be based on the depreciation schedules (straight-line) using forecast capital expenditure at the asset class level approved for the 2018–23 regulatory control period.

1.11 Annually updating the return on debt

Our final decision on the return on debt approach is to:

- estimate the return on debt using the on-the-day approach (that is, based on prevailing market conditions) in the first regulatory year (2018/19) of the 2018/19–22/23 regulatory control period, and
- gradually transitioning into a trailing average approach (that is, a moving historical average) over 10 years.[14]

Because our return on debt approach involves annual updates to the return on debt, this means that the return on debt will be, or potentially will be, different for different regulatory years in the regulatory control period.[15] The NER require that the resulting change to ElectraNet's annual building block revenue requirement is to be effected

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12 AER, *Capex incentive guideline*, November 2013, pp. 5–9; NER, cl. 6A.6.5A(e).

13 AER, *Capex incentive guideline*, November 2013, p. 6.

14 This decision determines the return on debt methodology for the 2018/19–22/23 regulatory control period. This period covers the first five years of the 10 year transition period. This decision also sets out our intended return on debt methodology for the remaining five years. However, we do not have the power to determine in this decision the return on debt methodology for those years. Under the NER, the return on debt methodology for that period must be determined in future decisions that relate to that period.

15 NER, cl. 6A.6.2(i); NGR r. 87(9).

through a formula specified in the revenue determination.[16] For the purposes of clause 6A.6.2(l) , our decision is that the resulting change to ElectraNet's annual building block revenue requirement is to be effected through:

- the automatic application of the return on debt methodology specified in this section 1.11
- using the return on debt averaging periods specified in confidential appendix D and
- implemented using ElectraNet's final determination post-tax revenue model (PTRM) in accordance with section 3 of the AER's PTRM handbook for transmission network service providers.[17]

The return on debt methodology in this section 1.11 specifies our decision:

- methodology on the return on debt approach, and
- methodology to implement the return on debt approach.

A.1.1 Approach to estimating the return on debt

This section sets out our final decision methodology on the return on debt approach. Below we specify the allowed return on debt formulae for each year of the 10 year transition path. In each formula:

$_{a}R_{a+10}$ corresponds to the estimated return on debt that was entered into in year a and matures in year a+10–which is to be calculated using the return on debt implementation methodology in section 0 and ElectraNet's return on debt averaging periods specified in confidential appendix D.

$_{b}kd_{b+1}$ refers to the allowed return on debt for regulatory year b+1.

In the first regulatory year of transitioning to the trailing average approach (2018/19), the allowed rate of return on debt will be based on the estimated prevailing rate of return on debt for that year (similar to the 'on the day' approach):

$$_{0}kd_{1} = {}_{0}R_{10}$$

In the second regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first and second regulatory years of the transitional period:

$$_{1}kd_{2} = 0.9 \cdot {}_{0}R_{10} + 0.1 \cdot {}_{1}R_{11}$$

In the third regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first, second, and third regulatory years of the transitional period:

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16 NER, cl. 6A.6.2(l);

17 AER, *Final decision—Amendment—Electricity TNSPs PTRM handbook*, 29 January 2015.

$$_2kd_3 = 0.8 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12}$$

In the fourth regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first, second, third and fourth regulatory years of the transitional period:

$$_3kd_4 = 0.7 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13}$$

In the fifth regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first, second, third, fourth and fifth regulatory years of the transitional period:

$$_4kd_5 = 0.6 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14}$$

The calculation for all subsequent regulatory years until the transitional period is completed is set out below:

$$_5kd_6 = 0.5 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15}$$

$$_6kd_7 = 0.4 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16}$$

$$_7kd_8 = 0.3 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16} + 0.1 \cdot {}_7R_{17}$$

$$_8kd_9 = 0.2 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16} + 0.1 \cdot {}_7R_{17} + 0.1 \cdot {}_8R_{18}$$

$$_9kd_{10} = 0.1 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16} + 0.1 \cdot {}_7R_{17} + 0.1 \cdot {}_8R_{18} + 0.1 \cdot {}_9R_{19}$$

A.1.2 Implementing the return on debt approach

This section sets out our decision methodology to implement the return on debt approach. This section specifies:

- our choice of data series
- extrapolation and interpolation issues with adjusting our choice of data series
- step-by-step calculation to calculating the final RBA and BVAL estimate
- contingencies associated with implementing our choice of data series, if the data series we have chosen to estimate the return on debt are unavailable or change in future regulatory years

Choice of data series

Our final decision on the choice of data series is to adopt a simple average of the debt data series published by the RBA and Bloomberg that match, as close as available,

our benchmarks of a BBB+ credit rating and a 10 year debt term. Specifically, we adopt a simple average of:

- The RBA broad-BBB rated 10 year curve, extrapolated to an effective term of 10 years (the RBA curve)
- The Bloomberg Valuation Service (BVAL) broad-BBB rated curve (the BVAL curve). Depending on the maximum term published at the time, this will be either the BVAL:
    - 10 year estimate[18] where it is available
    - 7 year estimate extrapolated to a 10 year term using the 7–10 year margin from the RBA curve. This will be used where the 7 year estimate is available and the 10 year estimate is not available.
    - 5 year estimate extrapolated to a 10 year term using the 5–10 year margin from the RBA curve. This will be used where the 5 year estimate is available and neither the 10 year nor the 7 year estimates are available.

We do not estimate the allowed return on debt in this decision by reference to the 10 year yield curve published by Thomson Reuters (the Reuters curve). Nonetheless, we do not rule out including the Reuters curve in future determinations following a proper period of consultation. See appendix J of our draft decision for our reasoning and further details.[19]

Choice of data series—Extrapolation and interpolation issues

Our final decision on extrapolation and interpolation issues is:

- extrapolation—where we need to extend a curve beyond its observed or published range. For example, before April 2015, Bloomberg publishes its BVAL curve to a maximum term of 7 years, whereas we require an estimate for a 10 year term.
- Interpolation—where we need a value for which there is no published estimate but it lies between two published estimates. For example, the RBA only publishes its curve estimates for one day each month, but we require estimates for each business day.

Specifically, we will make the following adjustments as set out in table 8 and table 9.

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[18] As of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommenced publishing a 10 year yield estimate.

[19] AER, *Draft decision ElectraNet transmission determination 2018 to 2023, Attachment 3 – Rate of return*, October 2017, pp. 3-287 ff.

Table 8 Adjustments to the RBA curve

Adjustment type	Amendment made?	Comments
Interpolation to construct daily estimates	Yes	The RBA curve only provides an estimate for one business day at the end of each month. In our experience, averaging periods commonly start and/or end on dates during the month. We will address this issue by linearly interpolating between month end values where possible. While we are satisfied that interpolation over business days is also reasonable, we will interpolate over all days because: • this is consistent with our widely accepted approach to interpolate estimates of the risk free rate using CGS • interpolating over all days is simpler to implement • it is impractical to interpolate over business days for estimating the risk free rate, as this would require calculations relative to specific trading days 10 years in advance • the difference to the estimates between interpolating over business days or interpolating over all days is immaterial.[20] Where this is not practical due to timing, we will hold the last available RBA monthly estimate constant until the end of the averaging period. It would not be practical to linearly interpolate between two RBA monthly estimates where the allowed return on debt must be estimated and incorporated into the annual debt update process before the publication of the next RBA monthly estimate after the end of the averaging period. Our decision on the annual debt update process is set out in this appendix.
Extrapolation to target term	Yes	The 'effective term' of the RBA bond sample is commonly less than 10 years. For this reason, Lally recommended that the spread component of the yield should be extrapolated from its effective term at publication to the benchmark term (10 years).[21] We agree with Lally's recommendation to extrapolate the spread component of the RBA's published yield in order to match it with the benchmark term of debt. However, we do not agree it is necessary to extrapolate the base component. As identified by the RBA and Lally,[22] the base component of the published 10 year yield already matches the benchmark term of debt. Therefore, extrapolating this component would result be erroneous and lead to overcompensation in most circumstances, where the yield curve is upward sloping.
Conversion to effective annual rate	Yes	The RBA's published methodology does not explicitly specify whether the published yields should be interpreted as effective annual rates. Effective annual rates are a consistent basis on which to compare bond rates and imply that the coupon payments compound during the year. We therefore consulted the RBA, who informed us that 'the spreads and yields in F3 can be best thought of as annual rates with semi-annual compounding'.[23]

[20] For example, the difference between approaches between 2 June 2014 to 30 June 2014 was 22 basis points, which means it would have changed the return on debt by 0.0022 per cent.

[21] Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38–44.

[22] See the 'notes' tab in RBA, *Aggregate measures of Australia corporate bond spreads and yields*, available at: http://www.rba.gov.au/statistics/tables/xls/f03hist.xls; Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38–44.

[23] RBA, *Email in response to: AER follow up question on the basis of YTM quotations in RBA statistical table F3*, 16 October 2014.

Adjustment type	Amendment made?	Comments
		Therefore, this would require conversion into an effective annual rate, using the same approach as is applied to the BVAL yield estimate.

Source: AER analysis.

Table 9 Adjustments to the BVAL curve

Adjustment type	Amendment made?	Comments
Interpolation to construct daily estimates	No	Bloomberg publishes daily estimates.
Extrapolation to target term	Depends on maximum term published by Bloomberg	For most of the time that the BVAL curve has been published, it has had a maximum term of 7 years. However, between September 2014 and November 2014, it was published to a maximum 5 year term.[24] In April 2015, Bloomberg revised its methodology for the BVAL curve (BVCSAB10) and it now publishes a 10 year estimate.[25] For the periods where 7 years is the maximum term, we extrapolate the spread component of the 7 year yield estimate to the 10 year target term. We have done so using the margin between the spread components of the extrapolated RBA 7 and 10 year yield estimates, converted to effective annual rates. We add to this extrapolation the difference between the base CGS estimates from 7 to 10 years. That is: BVAL yield 10 years = BVAL yield 7 years + difference in CGS from 7 to 10 years + difference in RBA extrapolated spread to CGS from 7 to 10 years As recommended by Lally,[26] we are satisfied this approach is comparably reliable to the more complex approaches submitted by other stakeholders,[27] but is simpler to implement and based on publicly available data. For the period where 5 years is the maximum term, we extrapolate the spread component of the 5 year yield estimate to the 10 year target term using an analogous methodology to that used to extrapolate from 7 to 10 years. For the period where 10 years is the maximum term, we do not extrapolate the estimate.
Conversion to effective annual rate	Yes	Bloomberg publishes its yield as annual rates with semi-annual compounding. This needs to be converted into an effective annual rate.

24 Specifically, from 15 September 2014 to 3 November 2014.

25 Specifically, 14 April 2015.

26 Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38–44.

27 Incenta, *Methodology for extrapolating the debt risk premium*, June 2014, pp. 2–3.

Choice of data series—Step-by-step guide to calculations

Below we describe the step-by-step processes of calculating:

- the adjusted RBA estimate
- the adjusted BVAL estimate
- the final estimate—where we combine our implementations of the RBA estimate and the BVAL estimate.

These formula steps relate to the approach specified in this decision. In the event that data availability changes during the regulatory control period, the formulas below will change to reflect the contingencies set out in section 0.

For the purposes of calculating the return on debt, a 'business day' is a day that is not a Saturday or Sunday and not a national or NSW public holiday. This is because the independent data service providers (RBA and Bloomberg) do not publish data on national or NSW public holidays.

Calculation of the adjusted RBA estimate

1. Download RBA table F3—'Aggregate measures of Australian corporate bond yields' from the RBA website.
2. From this file, download the 7 and 10 year 'Non-financial corporate BBB-rated bonds—Yield' entries for dates:
    a. from the most recent published RBA date prior to the commencement of the nominated averaging period for debt
    b. to the first published RBA date following the conclusion of the nominated averaging period for debt
    c. all published dates between a. and b.
3. Download, from RBA table F16—'Indicative Mid Rates of Australian Government Securities - 2013 to Current', daily yields on CGSs for dates within the service provider's averaging period.
4. Linearly interpolate between the two nearest bonds straddling 7 years remaining term to maturity,[28] and the two nearest CGS bonds straddling 10 years remaining term to maturity. This should be done using the following formula: [29]

    yield interpolated = yield lower straddle bond + (yield upper straddle bond - yield lower straddle bond) * (date 10 years from interpolation date - maturity

[28] That is, the bond with the nearest maturity date that is earlier than 10 years from the interpolation date, and the bond with the nearest maturity date than is later than 10 years from the interpolation date.

[29] This formula relies on the operation in Microsoft Excel. Dates can be subtracted from one another to work out the number of days in between two dates.

date lower straddle bond) / (maturity date upper straddle bond - maturity date lower straddle bond).

5. Linearly extrapolate the published RBA 10 year yield (from step 2) from its published effective term to an effective term of 10 years using the formula below:[30]

   $yield_{10} = yield_{10\ year\ published} + [(spread\ to\ swap_{10\ year\ published} - spread\ to\ swap_{7\ year\ published})/(effective\ term_{10\ year\ published} - effective\ term_{7\ year\ published})] * (10 - effective\ term_{10\ year\ published})$.

6. Linearly extrapolate the published RBA 7 year yield (from step 2) from its published effective term to an effective term of 7 years using the formula below:[31]

   $yield_{7}$ = $yield_{7}$ year published + [(spread to $swap_{10}$ year published - spread to $swap_{7}$ year published)/(effective $term_{10}$ year published - effective $term_{7}$ year published)] * (7 - effective $term_{7}$ year published).

7. Subtract from the extrapolated 10 year RBA yield on each publication date the interpolated CGS yield on that date. For the 10 year term, use the RBA series as adjusted in step 5. These are the adjusted RBA 10 year spreads.[32]

8. Obtain daily RBA spread estimates by linear interpolation of the adjusted RBA spreads (from steps 5 and 6) for both 7 and 10 year terms between the published dates identified in step 2. Use the adjusted RBA spread estimates as calculated in step 6. This should be done using the following formula:

   $spread_{interpolated} = spread_{first\ straddling\ publication\ date} + (date_{interpolation} - date_{first\ straddling\ publication\ date}) * (spread_{second\ straddling\ publication\ date} - spread_{first\ straddling\ publication\ date}) / (date_{second\ straddling\ publication\ date} - date_{first\ straddling\ publication\ date})$

   Note: If the annual return on debt estimate must be finalised before a final published RBA month-end estimate is available, hold the last observed RBA spread constant to the end of the averaging period.

9. Add to these daily spreads (from step 8), daily interpolated estimates of the CGS (from step 4) for all business days in the service providers averaging period. Specifically:

   a. add the 7 year interpolated CGS estimates to the 7 year interpolated RBA spreads. These are the interpolated RBA daily 7-year yield estimates.

   b. add the 10 year interpolated CGS estimate to the 10 year interpolated RBA spread. These are the interpolated RBA daily 10-year yield estimates.

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30 As per Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38–44.

31 As per Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38–44.

32 We have re-calculated the published 'spread to CGS' by subtracting our estimate of the interpolated CGS, as calculated in step 4, from the RBA's published yield to maturity. This allows us to combine daily data from the CGS with an estimate of the spread calculated correctly with reference to both the RBA's yield estimate and our estimate of CGS.

10. Convert the interpolated daily yield estimates (from step 9) to effective annual rates, using the formula:[33]

    effective annual rate = $((1 + \text{yield} / 200)^2 - 1)*100$

11. Average the yield estimate for the 10 year RBA yield estimate over all business days in ElectraNet's averaging period. This is our adjusted RBA estimate.

Calculation of the adjusted BVAL estimate

1. For dates after 14 April 2015, download the 10 year Corporate BBB rated Australian BVAL curve (BVCSAB10).[34]

2. Convert the 10 year yields into effective annual rates, using the formula:

    effective annual rate = $((1 + \text{yield} / 200)^2 - 1)*100$

3. Average the extrapolated daily estimates of the BVAL 10 year yield over all business days in the ElectraNet's averaging period. This is our adjusted BVAL estimate.

Final estimate

Take the simple average of the adjusted RBA estimate (from step 11 in the RBA data section) and the adjusted BVAL estimate (from step 4 in the BVAL data section). This is the annual estimate of the return on debt.

Choice of data series—Contingencies

Our final decision is to largely maintain the set of contingencies as set out in our recent decisions.[35] We have made our decision based on the information and third party data that is currently available.[36] Nonetheless, in our experience it is common that the availability of third party data changes.

Specifically, our final decision is to annually update the trailing average portfolio return on debt. Under the NER, the change in revenue resulting from the annual update must

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[33] In this formula, the term 'published yield / 200' is based on the yield being published as a number (e.g. 2.0) rather than a percentage (e.g. 2 %, or 0.02). The RBA yield data is published in this form at the time of this decision. For example, where the yield is published as '2.0', this is equivalent to 2 per cent or 0.02. However, it is necessary to convert from the published yield to either alternative to calculate the effective annual rate. If the spread was published as 2 per cent, this term would be 'published spread/2'.

[34] In previous decisions, we have stated that for dates before 14 April 2015, calculating the adjusted BVAL estimate would require downloading the 7 year Corporate BBB rated Australian BVAL curve (BVCSAB07 index) and adding the difference between the 7 and 10 year daily RBA adjusted yields (as calculated in step 8 of the RBA process) to this yield. However, under the approach in this decision, all averaging period dates should be after 14 April 2015.

[35] For example, see AER, *Final decision—CitiPower determination, Attachment 3: Rate of return*, May 2016, pp. 359–61; Final decision- *AusNet, Attachment 3: Rate of Return*, April 2017, pp.361-363.

[36] As of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommenced publishing a 10 year yield estimate.

occur by automatic application of a formula that is specified in the decision.[37] This means our decision on how to apply these third party data sources must be fully specified upfront in the determination, and must be capable of application over the regulatory control period without the use of subsequent judgement or discretion.

For this reason, we have set out a series of contingencies in table 10, below. These describe how we propose to estimate the annual return on debt in the event of revisions in the RBA's or Bloomberg's methodologies or other changes to data availability.

[37] NGR r. 87(12).

Table 10 Contingency approaches to choice of data series

Event	Changes to approach
Either the RBA or Bloomberg ceases publication, temporarily or permanently, of Australian yield curves that reflect a broad BBB rating.	We will estimate the annual return on debt using the remaining curve.
A different third party commences publication of a 10 year yield estimate (or we are made aware of a different third party publishing a 10 year yield estimate)[38].	We will not apply estimates from a third party data provider that we have not evaluated and included in our final decision approach. We will consider any new data sources in future determinations.
Either Bloomberg or RBA substitutes its current methodology for a revised or updated methodology.	We will adopt the revised or updated methodology. Then, at the next regulatory determination, we will review this updated methodology. As noted above, we would also review any new data sources. However, if Bloomberg or the RBA backcasts or replaces data using a revised or updated methodology we will not use the backcasted data to re-estimate our estimates of the prevailing return on debt for previous years. This would be impractical and would create regulatory uncertainty over whether the allowed return on debt would at some point in the future be re-opened. Instead, we will continue to use the Bloomberg or RBA data that we downloaded at the time of estimating the prevailing return on debt for that point in time.
Bloomberg reduces the maximum published BVAL term from 10 years	If Bloomberg still publishes the BVAL curve to 5 or more years, we will extrapolate the BVAL curve from the longest published term to 10 years using the corresponding yield margin from the RBA curve. [39] If Bloomberg no longer publishes the BVAL curve to 5 years, we will rely entirely on the RBA curve.
The RBA ceases publication of a 10 year yield estimate.	If the RBA ceases publication of a 10 year yield estimate, we will extrapolate the RBA estimate to 10 years using: • if available, the margin between spreads in the Bloomberg curve,[40] from the RBA's longest published target term to 10 years • otherwise, the actual CGS margin from the RBA's longest published estimate to 10 years, plus the average DRP spread for the same term margin over the last month prior to the end of its publication.
The RBA commences publication of daily estimates.	We will cease interpolating the RBA monthly yields. Instead, we will estimate both the RBA yield and the RBA year extrapolation margin (used with the BVAL curve) using these daily estimates.
Either Bloomberg or the RBA publishes a BBB+ or utilities specific yield curve.	We will adopt the BBB+ or utilities curve in place of the provider's existing curve, on the basis that it is a closer fit to a benchmark efficient entity for the service provider.

Source: AER analysis.

[38] Or we determine it is open to us to use the Reuters curve, following a proper assessment and period of consultation on this information.

[39] For example, where Bloomberg only publishes a 6 year curve, we will extrapolate it to 10 years using the 6 to 10 year yield margin from the RBA curve. Or, where Bloomberg only publishes a 7 year estimate, we will extrapolate it to 10 years using the 7 to 10 year yield margin from the RBA curve.

[40] Specifically, the spread to CGS.

As in recent decisions, we have re-worded the contingency for the scenario where either the RBA or Bloomberg ceases publication of Australian yield curves that reflect a broad BBB rating. Specifically, we have clarified that this contingency will apply whether the cessation of publication is temporary (i.e. not published for a period of days) or permanent. This does not change the meaning of the required change in response to this event, and remains consistent with the approach we adopted in decisions prior to Bloomberg publishing a 10 year BVAL estimate. However, we consider this explanation of the 'changes to approach' is clearer.

In general, we have decided on these contingencies based on a series of guiding principles. These are that the contingency must:

- Be practically implementable—the rules require the automatic application of a formula to update the trailing average portfolio return on debt. As a result, we will be unable to analyse changes to the approaches or new approaches during the regulatory control or access arrangement period. Therefore, it is important that any contingency be practical and easily implementable.
- Use the curve in a form as close as possible to its published form—for example, in April 2015 Bloomberg commenced publication of a 10 year BVAL curve. Accordingly, for averaging periods where the 10 year estimate is available, we will adopt this estimate rather than the 7 year BVAL curve extrapolated with RBA data.
- Where necessary, rely on the independent expert judgement of the RBA and Bloomberg—In particular, where the RBA or Bloomberg makes changes to its methodology, we would prefer to evaluate these changes before concluding we are satisfied the curve still meets the criteria set out in the Guideline.[41] However, this is not possible during the regulatory control or access arrangement period. In these circumstances, we therefore are faced with the two alternatives of ceasing to rely on the updated curve, or temporarily relying on the updated curve on the basis that we have assessed the data provider as credible. As we are satisfied that both the RBA and Bloomberg are credible and independent, but not that either curve is clearly superior, we consider it is preferable that we adopt the updated curve to limit stakeholders' exposure to the distinct characteristics of a single curve. This is consistent with our position of placing weight on both curves to minimise the mean squared error.

Averaging periods

Our final decision is to accept ElectraNet's proposed debt averaging periods for 2018/19 to 2022/23.[42]

We specify these averaging periods for the 2018/19 to 2022/23 regulatory years in confidential Appendix N of the draft decision. This is because our practice is to keep the dates of averaging periods confidential until they have expired.

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41 AER, *Explanatory statement—Rate of return guideline*, December 2013, pp. 23–24.

42 ElectraNet, *Proposed averaging period – confidential*, 28 March 2017.

In the Guideline, we proposed that service providers could nominate averaging periods of 10 or more consecutive business days up to a maximum of 12 months.[43] We also proposed that an averaging period should satisfy certain conditions. We developed these conditions so that the application of the averaging period contributes to the achievement of the ARORO.[44]

In general, when assessing service providers' proposed averaging periods, we applied the conditions we proposed in the Guideline, except for one condition that we do not consider is necessary to achieve the ARORO. This condition was that averaging periods should be as close as practical to the commencement of each regulatory year. We remain of the view that the remaining Guideline conditions are important and necessary to promote the ARORO. Those conditions include that at the time the period is nominated all dates in the averaging period must take place in the future, and that all averaging periods should be specified prior to the commencement of the regulatory control or access arrangement period. These conditions, respectively, help to ensure that the return on debt resulting from the averaging period is unbiased and the annual debt update can be practically and automatically applied (as required by the rules).

Table 11 sets out why we consider an averaging period that meets the remaining conditions in the Guideline contributes to the achievement of the ARORO.

43 AER, *Rate of return guideline*, December 2013, p. 21.

44 NER, cll. 6.5.2(c) and 6A.6.2(c); NGR, r. 87(3).

Table 11 Assessment of proposed averaging periods against Guideline

Condition	Reasons for condition	Condition met?
Observed over a period of 10 or more consecutive business days up to a maximum of 12 months	Averaging daily estimates over a number of days smooths out short term volatility in the annually updated return on debt allowance.	Yes
It should be specified prior to the commencement of the regulatory control period.	This allows us to substantively assess the service provider's proposal. This avoids the practical difficulties with either (1) creating a new process for approving averaging period proposals or (2) assessing averaging period proposals during the annual pricing process, which is meant to be a compliance check that takes place over a short time frame.	Yes
At the time it is nominated, all dates in the averaging period must take place in the future.	If a regulated service provider can select an averaging period by looking at historical yields, it may introduce an upward bias.[45]	Yes
An averaging period needs to be specified for each regulatory year within a regulatory control period.	This allows for the annual debt update. The annual debt update reduces the potential for a mismatch between the allowed and actual return on debt for a benchmark efficient entity for the service provider.	Yes
The proposed averaging periods for different regulatory years are not required to be identical but should not overlap.	This avoids double counting averaging periods. This would detract from our specification of the trailing average, which weights periods equally. Not requiring periods to be identical helps preserve confidentiality and provide service providers with a degree of flexibility.	Yes
The nominal return on debt is to be updated annually using the agreed averaging period for the relevant regulatory year.	This prevents a service provider from introducing bias by only updating annually using the agreed averaging period when it is advantageous for it to do so.	Yes
Each agreed averaging period is to be confidential.	This facilitates service providers organising their financing arrangements without market participants being aware of the averaging periods. Accordingly, in practice we keep averaging periods confidential until they expire.	Yes

Source: AER, *Rate of return guideline*, December 2013, pp. 21-22;.

[45] Lally, *Expert Report of Martin Thomas Lally*, 13 February 2011, pp. 9–10.

Annual debt update process

The general process we adopt for the annual debt update for electricity transmission is set out in table 12.

Table 12 Annual debt update process

Step	Timing	Description of step	Reasons for timing
1	25 business days before transmission prices are published.	Averaging period ends on or before this date	We determine the maximum practical end date of the averaging period from the timing of steps 2 and 3.
2	10 business days before transmission prices are published.	So Transmission service provider can factor this its transmission prices, we inform it of updates on the return on debt, annual building block revenue requirement and X factor that incorporates the updated return on debt	15 business days between steps 1 and 2 provides sufficient time for us to calculate (and provide quality assurance checks on) the updated return on debt, revenue and X factor.
3	Transmission prices published on the date determined by the rules	Transmission service provider publishes transmission prices for the relevant year.	10 business days between steps 2 and 3 is based on service providers' advice regarding the minimum period it would require to factor the updated information into its prices.

Source: AER analysis.

We are open to service providers requesting a different notification date than that outlined in step 2 of Table 12 if it better accommodates their internal processes. We note that a longer (or shorter) time period would move back (or forward) the timeframe in which an averaging period should fall.

The process outlined in Table 12 does not apply to the first year of the regulatory period. This is because in our determination, X factors will already incorporate the return on debt for the first year.

The above process factors in the date that the NER require transmission prices to be published (for Transmission service providers, by 15 March each year). However, we are open to a transmission service provider proposing a different process and/or timing it considers better accommodates their internal processes. In ElectraNet's case it did propose a variation from the table above and our decision is to accept its proposal for the reasons set out in our confidential appendix N.

2 Negotiating framework

ElectraNet must comply with its negotiating framework and its NTSC (see section 3 of this determination) when it is negotiating the terms and conditions of access for negotiated transmission services to be provided to a person.[46]

ElectraNet's negotiating framework sets out the procedure to be followed during negotiations between ElectraNet and any person who wishes to receive a negotiated transmission service from ElectraNet, as to the terms and conditions of access for provision of the service.[47]

Our approved negotiating framework for ElectraNet is set out in attachment A to this determination.

On 23 May 2017, the Australian Energy Market Commission (AEMC) published a final determination and final rule on transmission connections and planning arrangements.[48] The final rule sets out significant changes to the arrangements by which parties connect to the transmission network, as well as changes to enhance how transmission network businesses plan their networks. The rule change removes the requirement, on and from 1 July 2018, for TNSPs to develop individual negotiating frameworks for approval by the AER, and for the AER to specify NTSC that apply to TNSPs.

In light of the AEMC rule change, our negotiating framework determination of 30 April 2018 will cease to apply from 1 July 2018.

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46 NER, cl. 6A.9.2(a); 6A.9.3. ElectraNet must also comply with chapters 4, 5 and 6A of the NER.

47 NER, cl. 6A.9.5(a).

48 AEMC, *National Electricity Amendment (Transmission Connection and Planning Arrangements) Rule 2017 No. 4.*

3 Negotiated transmission service criteria

ElectraNet must comply with its negotiating framework (see section 0 of this determination) and its NTSC when it is negotiating the terms and conditions of access for negotiated transmission services to be provided to a person.[49]

ElectraNet's NTSC set out the criteria that are to be applied:[50]

- by ElectraNet in negotiating:
    - the terms and conditions of access for negotiated transmission services, including the prices that are to be charged for the provision of those services by ElectraNet for the regulatory control period
    - any access charges which are negotiated by ElectraNet during the regulatory control period
- by a commercial arbitrator in resolving any dispute, between ElectraNet and a person who wishes to receive a negotiated transmission service, in relation to:
    - the terms and conditions of access for the negotiated transmission service, including the price that is to be charged for the provision of that service by ElectraNet
    - any access charges that are to be paid to or by ElectraNet.

The following NTSC will apply to ElectraNet for the regulatory control period covered by this determination.

National Electricity Objective

1. The terms and conditions of access for a negotiated transmission service, including the price that is to be charged for the provision of that service and any access charges, should promote the achievement of the National Electricity Objective.

Criteria for terms and conditions of access

Terms and conditions of access

2. The terms and conditions of access for a negotiated transmission service must be fair, reasonable and consistent with the safe and reliable operation of the power system in accordance with the NER.
3. The terms and conditions of access for negotiated transmission services, particularly any exclusions and limitations of liability and indemnities, must not be unreasonably onerous. Relevant considerations include the allocation of risk

[49] NER, cl.6A.9.2(a); 6A.9.3. ElectraNet must also comply with chapters 4, 5 and 6A of the NER.

[50] NER, cl. 6A.9.4.

between ElectraNet and the other party, the price for the negotiated transmission service and the cost to the TNSP of providing the negotiated service.

4. The terms and conditions of access for a negotiated transmission service must take into account the need for the service to be provided in a manner that does not adversely affect the safe and reliable operation of the power system in accordance with the NER.

Price of services

5. The price of a negotiated transmission service must reflect the cost that ElectraNet has incurred or incurs in providing that service, and must be determined in accordance with the principles and policies set out in ElectraNet's Cost Allocation Methodology.
6. Subject to criteria 7 and 8, the price for a negotiated transmission service must be at least equal to the avoided cost of providing that service but no more than the cost of providing it on a stand-alone basis.
7. If the negotiated transmission service is a shared transmission service that:

   (a) exceeds any network performance requirements which it is required to meet under any relevant electricity legislation; or

   (b) exceeds the network performance requirements set out in schedule 5.1a and 5.1 of the NER

   then the difference between the price for that service and the price for the shared transmission service which meets network performance requirements must reflect ElectraNet's incremental cost of providing that service (as appropriate).
8. For shared transmission services, the difference in price between a negotiated transmission service that does not meet or exceed network performance requirements and a service that meets those requirements should reflect ElectraNet's avoided costs. Schedule 5.1a and 5.1 of the NER or any relevant electricity legislation must be considered in determining whether any network service performance requirements have not been met or exceeded.
9. The price for a negotiated transmission service must be the same for all Transmission Network Users. The exception is if there is a material difference in the costs of providing the negotiated transmission service to different Transmission Network Users or classes of Transmission Network Users.
10. The price for a negotiated transmission service must be subject to adjustment over time to the extent that the assets used to provide that service are subsequently used to provide services to another person. In such cases the adjustment must reflect the extent to which the costs of that asset are being recovered through charges to that other person.
11. The price for a negotiated transmission service must be such as to enable the TNSP to recover the efficient costs of complying with all regulatory obligations associated with the provision of the negotiated transmission service.

Criteria for access charges

Access charges

12. Any access charges must be based on the costs reasonably incurred by ElectraNet in providing Transmission Network User access. This includes the compensation for forgone revenue referred to in clause 5.4A(h) to (j) of the NER and the costs that are likely to be incurred by a person referred to in clause 5.4A(h) to (j) of the NER (as appropriate).

4 Pricing methodology

The pricing methodology that will apply to ElectraNet for the period of this determination is set out in Attachment B.

The role of ElectraNet's pricing methodology is to answer the question 'who should pay how much'[51] in order for ElectraNet to recover its costs. ElectraNet's pricing methodology provides a 'formula, process or approach'[52] that when applied:

- allocates the aggregate annual revenue requirement to the categories of prescribed transmission services that a transmission business provides and to the connection points of network users[53]
- determines the structure of prices that a transmission business may charge for each category of prescribed transmission services.[54]

ElectraNet's pricing methodology relates to prescribed transmission services only.

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51 AEMC, *Rule determination: National Electricity Amendment (Pricing of Prescribed Transmission Services) Rule 2006 No. 22*, 21 December 2006, p. 1.

52 NER, cl. 6A.24.1(b).

53 NER, cl. 6A.24.1(b)(1).

54 NER, cl. 6A.24.1(b)(2).

5 Pass through events

A pass through event is one which entails ElectraNet incurring materially lower or higher costs in providing prescribed transmission services than it would have incurred but for that event (a negative or positive change event, respectively).[55] Where a pass through event occurs ElectraNet may seek our approval to, or we may require ElectraNet to pass those cost changes through to its users.[56]

Under the NER any of the following is a pass through event for this transmission determination:[57]

- a regulatory change event
- a service standard event
- a tax change event
- an insurance event
- any other event specified in this transmission determination as a pass through event for this determination.

The first four of these pass through events are prescribed by, and defined in, the NER.[58] In addition, the following nominated pass through events will apply:

Table 13 Approved nominated pass through events

Event	Definition
Insurance Cap Event	An Insurance Cap Event occurs if: 1. ElectraNet makes a claim or claims and receives the benefit of a payment or payments under a relevant insurance policy; 2. ElectraNet incurs costs beyond the policy limit of the relevant insurance policy at the time of the event that gives rise to the relevant claim; and 3. The costs beyond the relevant policy limit increase the costs to ElectraNet of providing prescribed transmission services. For this Insurance Cap Event: a) A relevant insurance policy is an insurance policy held during the 2018-19 to 2022-23 regulatory control period or a previous regulatory control period in which ElectraNet was regulated, and b) ElectraNet will be deemed to have made a claim on a relevant insurance policy if the claim is made by a related body corporate of ElectraNet in relation to any aspects of ElectraNet's prescribed transmission services. Note: In making a determination on an Insurance Cap Event, the AER will

55 NER, Chapter 10 Glossary.
56 NER, cl. 6A.7.3(a), (b).
57 NER, cl. 6A.7.3(1a).
58 NER, Chapter 10 Glossary.

Event	Definition
	have regard to, amongst other things: i. the insurance policy for the event, ii. the level of insurance that an efficient and prudent NSP would obtain in respect of the event, and iii. any assessment by the AER of ElectraNet's insurance document in respect of its transmission determination for the relevant period.
Insurer Credit Risk Event	An Insurer Credit Risk event occurs if: A nominated insurer of ElectraNet becomes insolvent, and as a result, in respect of an existing, or potential, claim for a risk that was insured by the insolvent insurer, ElectraNet: 1. is subject to a materially higher or lower claim limit or a materially higher or lower deductible than would have otherwise applied under the insolvent insurer's 2. incurs additional costs associated with self-funding an insurance claim, which would otherwise have been covered by the insolvent insurer. Note: In assessing an insurer's credit risk event pass through application, the AER will have regard to, amongst other things: a) ElectraNet's attempts to mitigate and prevent the event from occurring by reviewing and considering the insurer's track record, size, credit rating and reputation, and b) in the event that a claim would have been made after the insurance provider became insolvent, whether ElectraNet had reasonable opportunity to insure the risk with a different provider.
Natural Disaster Event	Natural Disaster Event means any natural disaster including but not limited to fire, flood or earthquake that occurs during the 2018-19 to 2022-23 regulatory control period that increases the costs to ElectraNet in providing prescribed transmission services, provided the fire, flood or other event was not a consequence of the acts or omissions of the service provider. Note: In assessing a Natural Disaster Event pass through application, the AER will have regard to, amongst other things: a) whether ElectraNet has insurance against the event; and b) the level of insurance that an efficient and prudent NSP would obtain in respect of the event.
Terrorism Event	A terrorism event is: An act (including, but not limited to, the use of force or violence or the threat of force or violence) of any person or group of persons (whether acting alone or on behalf of or in connection with any organisation or government), which from its nature or context is done for, or in connection with, political, religious, ideological, ethnic or similar purposes or reasons (including the intention to influence or intimidate any government and/or put the public, or any section of the public, in fear) and which increases the costs to ElectraNet in providing prescribed transmission services. Note: In assessing a terrorism event pass through application, the AER will have regard to, amongst other things: a) whether ElectraNet has insurance against the event, b) the level of insurance that an efficient and prudent NSP would obtain in respect of the event, and c) whether a declaration has been made by a relevant government authority that an act of terrorism has occurred.