



Final decision

**ElectraNet
transmission determination
2008–09 to 2012–13**

11 April 2008

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Shortened forms

ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
AR	allowed revenue
BPO	base planning object
capex	capital expenditure
CHC	CHC Associates Pty Ltd
CPI	consumer price index
DNSP	distribution network service provider
DRP	<i>Draft statement of principles for the regulation of transmission revenues, 27 May 1999</i>
ECCSA	Energy Consumers Coalition of South Australia
EP	Evans & Peck Pty Ltd
ESCOSA	Essential Services Commission of South Australia
ESIPC	Electricity Supply Industry Planning Council
ETC	Electricity Transmission Code (South Australia)
IDC	interest during construction
kV	kilovolt (one thousand volts)
MAR	maximum allowed revenue
MW	megawatt (one thousand kilowatts)
MWh	megawatt hour
NEL	National Electricity Law
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company
NER	National Electricity Rules

NPV	net present value
opex	operating and maintenance expenditure
PTRM	post-tax revenue model
RAB	regulated asset base
SAE	scope and estimate
SKM	Sinclair Knight Merz Pty Ltd
the current regulatory period	1 January 2003 to 30 June 2008
the next regulatory control period	1 July 2008 to 30 June 2013
TNSP	transmission network service provider
WACC	weighted average cost of capital

Overview

On 31 May 2007 ElectraNet, the operator and manager of the electricity transmission network in South Australia, submitted to the AER its revenue proposal, proposed negotiating framework and proposed pricing methodology for the period 1 July 2008 to 30 June 2013.

Under the National Electricity Law (NEL) and the National Electricity Rules (NER), the Australian Energy Regulator (AER) is responsible for the economic regulation of electricity transmission services provided by transmission network service providers (TNSPs) in the National Electricity Market (NEM).

On 9 November 2007 the AER made its draft decision on ElectraNet's transmission determination. That draft decision did not accept all aspects of ElectraNet's revenue proposal. The AER's draft decision approved a total revenue cap for ElectraNet over the next regulatory control period of \$1195 million.

In accordance with chapter 6A of the NER ElectraNet submitted its revised revenue proposal on 18 January 2008. The revised revenue proposal indicated where ElectraNet has implemented changes required by the AER's draft decision. Where ElectraNet has not fully accepted the requirements of the draft decision, its revised revenue proposal provided additional information to address the matters raised by the AER. A revised revenue proposal may only make revisions so as to incorporate the substance of any changes required by, or to address matters raised in the draft decision.

Under the NER the AER is required to consider ElectraNet's performance over the current regulatory period (1 January 2003 to 30 June 2008) as well as to consider its requirements for the next regulatory control period (1 July 2008 to 30 June 2013).

In the draft decision the AER considered that ElectraNet's expenditure over the current regulatory period was prudent and within the approved level of expenditure. However, ElectraNet's capital expenditure (capex) assessment and project governance processes—particularly in the early years of the current regulatory period—did not represent best practice, although they were considered to be adequate for the modest capital works program that existed at the time. ElectraNet recognised the problem with the management of its capital works program and subsequently introduced improved processes, which have led to ElectraNet identifying the need for significant refurbishment of its network. As a consequence, ElectraNet undertook a greater level of refurbishment during the latter part of the current regulatory period than was anticipated when its current revenue cap decision was made in 2002. ElectraNet will continue this refurbishment program in the next regulatory control period.

Further, the Essential Services Commission of South Australia (ESCOSA)—the jurisdictional regulator—has recently undertaken a review of the reliability standards specified in the South Australian Electricity Transmission Code (ETC). This review has resulted in new standards that will apply to ElectraNet's transmission network from 1 July 2008. These standards will require a greater level of reliability at some locations on the transmission network, particularly in the Adelaide central business district (CBD). ElectraNet's revenue proposal for the next regulatory control period

has taken into account the increased capital works and operating and maintenance expenditure (opex) required to ensure the transmission network can meet the new standards and South Australia's long-term electricity transmission services needs.

ElectraNet's capex proposal has been developed in consultation with ETSA Utilities—the provider of electricity distribution network services in South Australia—and the Electricity Supply Industry Planning Council—the independent network planner in South Australia.

Taking into consideration the additional information ElectraNet provided in its January 2008 revised revenue proposal (revised revenue proposal) the AER has approved a maximum allowed revenue (MAR) for ElectraNet in this final decision that increases from \$226 million in 2008–09 to \$304 million in 2012–13 (\$nominal). The total revenue cap for ElectraNet over the next regulatory control period is \$1319 million. ElectraNet's MAR for the final year of its current regulatory period (2007–08) is \$187 million.

The AER has determined ElectraNet's opening regulated asset base (RAB) to be \$1265 million for the next regulatory control period (as at 1 July 2008). This reflects the prudent expenditure that ElectraNet has made over the current regulatory period. It also includes \$29 million for easement compensation costs and \$17 million for previously optimised assets that will be brought back into service by ElectraNet.

In its May 2007 revenue proposal (original revenue proposal) ElectraNet's forecast capex proposal was \$778 million (\$2007–08). In the draft decision the AER reduced this to \$606 million. Following the AER draft decision, ElectraNet revised its forecast capex proposal to \$719 million. While this revised forecast reflected some of the adjustments made in the AER draft decision, ElectraNet also included revised forecasts for specific projects where the AER had concluded in the draft decision that it was not satisfied with the project scope and estimates. Taking into consideration the additional information provided by ElectraNet in its revised revenue proposal, the AER has approved a forecast capex allowance of \$650 million for ElectraNet over the next regulatory control period. In addition, the AER has provided an indicative contingent project allowance of \$894 million.

Further, ElectraNet's revised capex forecast also included \$45 million of additional asset replacement costs for assets that provide transitional services—existing connection assets. As this proposed revision is not required to incorporate the substance of changes required by or to address matters raised in the draft decision, the AER has not considered the inclusion of the replacement assets in its final decision. An important feature of the regulatory process is the submission of a complete revenue proposal by a TNSP. Where new issues are raised after the consultation process has commenced, all stakeholders may not have the opportunity to be properly informed. Such an outcome is inconsistent with good regulatory practice.

In its original revenue proposal ElectraNet's forecast opex proposal was \$324 million (\$2007–08). In the draft decision the AER reduced this to \$291 million. In response to matters raised in the AER draft decision, ElectraNet revised its forecast opex proposal to \$301 million. After considering the additional information in ElectraNet's revised revenue proposal, the AER approved a forecast opex allowance of \$299 million. This amount represents an increase of 20 per cent compared with ElectraNet's level of

opex in the last five years. The increase in forecast opex is largely driven by the condition of ElectraNet's assets and the growth of the asset base over the next regulatory control period.

ElectraNet is subject to the AER's service target performance incentive scheme, which encourages TNSPs to improve or maintain their service performance levels against measures of network security and reliability (known as parameters). This final decision includes performance targets for the seven parameters and sub-parameters currently applying to ElectraNet under the scheme. These performance targets are higher than those that applied during ElectraNet's current regulatory period. The increased capex associated with ElectraNet's need to meet the new standards specified in the ETC is also expected to deliver increased reliability and security of supply for customers in South Australia.

The AER has estimated that this final decision will result in an 8.5 per cent per annum nominal increase in average transmission charges over the next regulatory control period or an increase of 5.7 per cent per annum in real terms (\$2007–08).

The increase in the average transmission charges is greater than the average growth in the level of peak demand in South Australia, which is forecast to increase by 1.9 per cent per annum over the next regulatory control period. The increase in average transmission charges is primarily because of:

- a higher weighted average cost of capital (WACC) compared with that allowed for ElectraNet during the current regulatory period because of the increased cost of borrowing caused by:
 - a significant widening of the debt risk premium driven by the ongoing global credit crisis—increasing corporate bond yields
 - an increase in Australian government bond yields
- a higher opening RAB than was forecast in the 2002 revenue cap decision
- the need to replace and maintain ageing assets
- the need for increased capex associated with the new reliability standards specified in the revised ETC
- high input costs such as construction materials and labour (as a consequence of the commodity/minerals boom)
- increased opex due to a growing asset base.

Transmission charges represent approximately 10 per cent on average of end user electricity charges in South Australia. The AER has estimated that the rise in average transmission charges under this final decision will result in an increase to the average residential customer's annual bill of \$1084 by around \$9.20 per annum (0.85 per cent).

Summary

Under chapter 6A of the NER the AER must make transmission determinations for TNSPs in respect of both prescribed and negotiated transmission services. This decision is the AER's final decision on the transmission determination that will apply to ElectraNet for the regulatory control period 1 July 2008 to 30 June 2013.

This final decision on the transmission determination for ElectraNet should be read in conjunction with the AER draft decision on the transmission determination for ElectraNet, together with the consultants' reports. Except as specified in this final decision, the AER maintains its conclusions set out in the draft decision.

The key components of this final decision are:

- The AER's final revenue determination for ElectraNet in respect of the provision by ElectraNet of prescribed transmission services, including:
 - confirmation of the prudence of capex undertaken by ElectraNet during the current regulatory period, under transitional and savings provisions in chapter 11 of the NER
 - the opening RAB value for ElectraNet
 - an assessment of the forecast capex allowance for ElectraNet over the next regulatory control period
 - an estimate of the efficient benchmark WACC for ElectraNet
 - an assessment of the forecast opex allowance for ElectraNet over the next regulatory control period
 - an assessment of the methodology to determine the caps and collars for the loss of supply parameters that apply under the service target performance incentive scheme
 - the amount of the estimated total revenue cap over the next regulatory control period.
- The AER's final determination on ElectraNet's negotiating framework for negotiated transmission services.
- The AER's final determination on the negotiated transmission service criteria that will apply to ElectraNet.
- The AER's final determination on ElectraNet's pricing methodology.

The AER's consideration of each of these components is summarised below. Further detail is provided in the relevant chapters and in the appendices attached to this final decision.

Past capital expenditure and opening asset base

AER draft decision

In the draft decision the AER determined that ElectraNet's expenditure of \$363 million on commissioned assets during the current regulatory period and \$44 million of its assets under construction were prudent. The AER also determined that allowances for interest during construction (IDC) costs of \$27 million for commissioned assets and \$1.9 million for assets under construction should be included in ElectraNet's RAB. The AER also determined that ElectraNet's RAB should be adjusted for the revaluation of easements of \$29 million and the readmission of previously optimised assets of \$17 million.

Based on the roll forward methodology, the AER determined ElectraNet's opening RAB to be \$1220 million for the next regulatory control period (as at 1 July 2008).

ElectraNet revised proposal

With the exception of the AER's treatment of easement transaction or acquisition costs, ElectraNet has implemented all aspects of the AER draft decision. It has also included updated forecasts of commissioned assets and assets under construction in the current regulatory period in establishing a revised proposal for the opening RAB. ElectraNet's revised opening RAB for the next regulatory control period is \$1277 million

AER conclusion

The AER confirms the position it took in the draft decision on ElectraNet's proposed easement value adjustment. The AER accepts ElectraNet's proposal that an adjustment for easement compensation costs of \$29 million should be added to the RAB. The AER does not accept ElectraNet's proposal for easement transaction or acquisition costs of \$53 million to be added to the RAB and therefore requires this amount be removed from the opening RAB.

As part of finalising its decision on the amount of capex to be included in the RAB, the AER stated that it would update the roll forward of ElectraNet's RAB with the most recent capex estimates for the final year (2007–08) of the current regulatory period and the latest consumer price index (CPI) data.

The AER has also included \$21 million to the opening RAB for the purposes of providing an equity raising cost allowance associated with ElectraNet's opening RAB—as at January 2003—and capex over the current regulatory period. The equity raising cost was provided in the ACCC's 2002 revenue cap decision as an allowance in perpetuity. The AER has converted the allowance from perpetuity to an amount capitalised in the RAB. This will improve transparency and aid administration.

Using the updated values for commissioned assets and assets under construction, the AER's application of the roll forward methodology has determined that ElectraNet's opening RAB is \$1265 million for the next regulatory control period (as at 1 July 2008). The AER's RAB roll forward calculations are set out in table 1.

Table 1: ElectraNet’s opening RAB for the next regulatory control period (\$m, nominal)

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07	2007–08 ^a
Opening RAB	823.75	832.83	883.96	958.36	1029.45	1082.89
Forecast capex (adjusted for actual CPI) ^b	10.14	73.37	96.36	88.27	79.32	53.86
CPI adjustment on opening RAB	16.65	16.50	20.86	28.59	25.08	45.93
Straight-line depreciation (adjusted for actual CPI)	-17.71	-38.75	-42.81	-45.78	-50.95	-48.20
Closing RAB	832.83	883.96	958.36	1029.45	1082.89	1134.48
Add: prudent capex over 2002 decision ^c						9.47
Add: return on difference ^d						3.04
Add: prudent assets under construction						50.99
Add: easement landowner compensation costs						29.10
Add: readmitted optimised assets						17.44
Add: equity raising cost for 2003 opening RAB and capex ^e						20.54
Opening RAB at 1 July 2008						1265.06
(a)	Updated with actual CPI for 2007–08 (March to March). Based on updated forecasts of commissioned assets and assets under construction.					
(b)	The capex values include a half WACC allowance to compensate for the average six-month period before capex is added to the RAB for revenue modelling purposes.					
(c)	Includes the difference between actual and forecast capex of \$5.1 million from 1 July to 31 December 2002 and \$4.9 million from 1 January 2003 to 30 June 2008. The cash values for disposal of assets have been deducted.					
(d)	This relates to the difference between actual and forecast capex of \$5.1 million for 1 July 2002 to 31 December 2002.					
(e)	Equity raising cost was provided in the ACCC’s 2002 revenue cap decision as an allowance in perpetuity. The AER has converted the allowance from perpetuity to an amount capitalised in the RAB for transparency and administrative benefits. See section 5.6.12 for the discussion of this allowance.					

Forecast capex expenditure

AER draft decision

In the draft decision the AER did not accept ElectraNet’s proposed ex ante capex allowance of \$778 million (\$2007–08) and explained the reasons in respect of the proposal not meeting the capex criteria under clause 6A.6.7(c) of the NER. The AER made several adjustments to ElectraNet’s proposal and considered that an ex ante forecast capex allowance of \$606 million represented the total capex that a prudent operator in the circumstances of ElectraNet would require to achieve the capex

objectives. In addition, the AER approved an indicative contingent projects allowance of \$805 million.

ElectraNet revised proposal

ElectraNet has implemented the AER draft decision in respect of forecast capex except those related to:

- weather stations project costs
- strategic land and easement acquisition costs
- land and easement escalation
- non-labour construction (materials) cost escalation
- cost estimation risk factor
- contingent projects.

ElectraNet also proposed the inclusion of five additional replacement projects for assets that provide transitional services—existing connection assets—which were not included in its original revenue proposal. ElectraNet’s revised ex ante capex proposal is \$719 million (\$2007–08). Its revised revenue proposal includes 19 contingent projects. The total indicative cost for these projects is \$894 million.

AER conclusion

The AER is not satisfied that the revised total forecast capex proposed by ElectraNet reasonably reflects the capex criteria under clause 6A.6.7(c). The AER is therefore required under clause 6A.14.1(2)(ii) to provide an estimate of the total capex that ElectraNet will require over the next regulatory control period which the AER is satisfied reasonably reflects the capex criteria, taking into account the capex factors set out in clause 6A.6.7(e).

Based on its analysis and the advice of Sinclair Knight Merz (SKM), the AER has reduced ElectraNet’s revised ex ante capex proposal by \$70 million (\$2007–08). This represents a reduction of around 11 per cent of ElectraNet’s revised forecast capex allowance. The AER’s amended ex ante capex allowance for the next regulatory control period is \$650 million and is set out in table 2 along with the adjustments made to ElectraNet’s revised capex proposal. In addition, the AER has approved an indicative contingent projects allowance of \$894 million.

This amended allowance represents the AER’s estimate of the total capex that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. The AER is satisfied that the amended ex ante capex allowance of \$650 million over the next regulatory control period, reasonably reflects the capex criteria, taking into account the capex factors.

Table 2: AER's conclusion on ElectraNet's ex ante allowance (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
AER's ex ante capex allowance (draft decision)	126.13	176.92	130.24	115.81	57.20	606.31
ElectraNet's revised capex proposal	132.38	179.70	153.60	172.10	81.56	719.33
Removal of replacement assets providing transitional services	-2.66	-12.69	-12.33	-12.95	-3.87	-44.50
Adjustment to strategic land purchase RY 2 high/medium project	-2.52	1.47	-2.48	-2.52	-2.66	-8.71
Adjustment to weather station project	-0.11	-0.11	-0.11	-0.12	-0.11	-0.56
Adjustment to labour escalators	-	-	-	-	0.02	0.02
Adjustment to land and easement escalators	-0.59	-1.24	-1.31	-1.85	-1.02	-6.01
Adjustment to materials cost escalators	0.25	0.24	0.05	-0.11	-0.15	0.27
CPI updates to network and non network capex ^a	1.12	1.14	0.98	1.31	0.71	5.26
Application of input cost escalators to reflect capex timing	-0.61	-0.89	-0.75	-0.83	-0.39	-3.47
Adjustment to cost estimation risk factor	-2.16	-3.14	-2.55	-2.91	-1.35	-12.12
AER's total adjustments	-7.28	-15.23	-18.50	-19.97	-8.83	-69.81
AER's ex ante capex allowance	125.09	164.47	135.10	152.12	72.73	649.51

Note: Total may not add up due to rounding.

(a) The CPI updates include using actual CPI for 2006–07 and 2007–08 (March to March), and adjusting the labour and materials cost escalators in real terms for the inflation forecast applied in the PTRM.

Cost of capital

AER draft decision

In the draft decision the AER determined a nominal vanilla WACC for ElectraNet of 9.66 per cent. The AER noted that it would update the values of the risk-free rate and debt risk premium to reflect more current market data, based on the agreed averaging period, at the time of its final decision.

ElectraNet revised proposal

ElectraNet recognised that the risk-free rate and debt risk premium would be updated for the AER's final decision using the averaging period requested by ElectraNet on a confidential basis. Subject to these changes being made in the final decision, ElectraNet has implemented all aspects of the AER draft decision with the exception

of the expected inflation rate. ElectraNet proposed an alternative inflation forecasting methodology to derive an average inflation forecast over a 10-year period.

AER conclusion

The AER has determined a nominal vanilla WACC of 10.65 per cent for ElectraNet, based on the updated risk-free rate and debt risk premium, and other parameters prescribed by the NER. Table 3 sets out the WACC parameter values for this final decision. The WACC is greater than that in the revised revenue proposal because of higher corporate bond yields—resulting from a significant widening of the debt risk premium due to the ongoing global credit crisis impacting the financial market—since its submission.

Table 3: AER’s conclusion on WACC parameters

Parameter	AER’s conclusion
Risk-free rate (nominal)	6.20 %
Risk-free rate (real)	3.48 % ^a
Expected inflation rate	2.63 %
Debt risk premium	3.42 %
Market risk premium	6.00 %
Gearing	60 %
Equity beta	1.00
Nominal pre-tax return on debt	9.61 %
Nominal post-tax return on equity	12.20 %
Nominal vanilla WACC	10.65 %

(a) The real risk-free rate was derived using the Fisher equation.

The AER has applied a methodology to determine a forecast inflation rate over a 10-year period by referencing the Reserve Bank of Australia’s (RBA) inflation forecasts for the first two years and the mid-point of the RBA’s target inflation range for the remaining eight years. The AER considers that, based on a simple average, an inflation forecast of 2.63 per cent per annum produces the best estimate of a 10-year inflation forecast to be applied in the post-tax revenue model.

Operating and maintenance expenditure

AER draft decision

In the draft decision the AER rejected ElectraNet’s forecast opex requirement of \$324 million (\$2007–08) and explained the reasons in respect of the proposal not meeting the opex criteria under clause 6A.6.6(c) of the NER. The AER substituted a forecast opex requirement of \$291 million which represented the total opex costs that

a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives.

ElectraNet revised proposal

ElectraNet has implemented the AER draft decision in respect of forecast opex except those related to:

- extrapolation of land values (field support)
- corrective maintenance costs
- uncertainty in maintenance project estimates
- capitalisation of protection systems (maintenance projects)
- equity raising costs.

ElectraNet's revised opex forecast proposal is \$301 million (\$2007–08).

AER conclusion

The AER is not satisfied that ElectraNet's total forecast opex reasonably reflects the opex criteria under clause 6A.6.6(c). The AER is therefore required under clause 6A.14.1(3)(ii) to provide an estimate of the total opex that ElectraNet will require over the next regulatory control period which the AER is satisfied reasonably reflects the opex criteria, taking into account the opex factors set out in clause 6A.6.6(e).

On the basis of its analysis of ElectraNet's proposed opex forecast and the advice of SKM, the AER has applied a reduction of \$1.8 million (\$2007–08) to ElectraNet's revised proposed opex. This results in an amended forecast opex allowance of \$299 million for the next regulatory control period and is as shown in table 4.

Table 4: AER's conclusion on ElectraNet's total opex allowance (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
AER's total opex allowance (draft decision)	54.54	55.90	58.35	60.66	61.68	291.13
ElectraNet's revised proposed total opex	55.89	57.71	59.90	62.61	64.93	301.04
Adjustment to field support – land tax	–0.13	–0.22	–0.31	–0.43	–0.53	–1.62
Adjustment to equity raising costs – capex	–0.17	–0.17	–0.17	–0.17	–0.17	–0.84
Adjustments arising from modelling ^a	0.22	0.23	0.13	0.08	–0.04	0.62
AER's total adjustments	–0.08	–0.16	–0.35	–0.51	–0.74	–1.84
AER's total opex allowance	55.81	57.56	59.55	62.10	64.19	299.20

(a) These adjustments reflect changes to asset growth (resulting from amended capex allowance), actual CPI for 2006–06 and 2007–08 (March to March), removal of replacement capex for transitional services, and debt raising costs (resulting from amended capex allowance).

This amended allowance represents the AER's estimate of the total opex costs that a prudent operator in the circumstances of ElectraNet would require to achieve the opex

objectives. The AER is satisfied that the amended total forecast opex of \$299 million over the next regulatory control period, reasonably reflects the opex criteria, taking into account the opex factors.

Service target performance incentive

AER draft decision

In the draft decision the AER rejected many elements of ElectraNet’s service target performance incentive proposal. Table 5 sets out the AER’s conclusions on performance targets, caps, collars and weightings for each parameter that applies to ElectraNet.

Table 5: Caps, collars, targets and weightings to apply to ElectraNet

Parameter	Recommended values			
	Collar	Target	Cap	Weighting
<i>Circuit availability (%)</i>				<i>MAR (%)</i>
Total transmission	99.10	99.47	99.63	0.3
Critical circuit peak	98.52	99.24	99.51	0.2
Critical circuit non-peak	98.88	99.62	99.95	0
<i>Loss of supply event frequency (no.)</i>				<i>MAR (%)</i>
> 0.05 (x) system minutes	10	8	6	0.1
> 0.2 (y) system minutes	5	4	2	0.2
<i>Average outage duration (minutes)</i>				<i>MAR (%)</i>
Total	119	78	38	0.2

ElectraNet revised proposal

With the exception of that related to the methodology for setting caps and collars for the loss of supply frequency parameters, ElectraNet has implemented all aspects of the AER draft decision.

AER conclusion

The AER has accepted the revised loss of supply event frequency collar values proposed by ElectraNet. The caps, collars, performance targets and weightings to be applied to ElectraNet during the next regulatory control period are set out in table 6.

Table 6: Caps, collars, targets and weightings to apply to ElectraNet

Parameter	Recommended values			
	Collar	Target	Cap	Weighting
<i>Circuit availability (%)</i>				<i>MAR (%)</i>
Total transmission	99.10	99.47	99.63	0.3
Critical circuit peak	98.52	99.24	99.51	0.2
Critical circuit non-peak	98.88	99.62	99.95	0
<i>Loss of supply event frequency (no.)^a</i>				<i>MAR (%)</i>
> 0.05 (x) system minutes	11	8	6	0.1
> 0.2 (y) system minutes	6	4	2	0.2
<i>Average outage duration (minutes)</i>				<i>MAR (%)</i>
Total	119	78	38	0.2

Maximum allowed revenue

AER draft decision

In the draft decision the AER determined an annual building block revenue requirement for ElectraNet that increased from \$209 million in 2008–09 to \$273 million in 2012–13 (\$nominal). The net present value (NPV) of the annual building block revenue requirement for the next regulatory control period was calculated to be \$903 million. Based on this NPV amount, the AER determined a nominal expected MAR (smoothed) for ElectraNet that increases from \$209 million in 2008–09 to \$271 million in 2012–13. The total revenue cap for ElectraNet over the next regulatory control period was calculated to be \$1195 million.

ElectraNet revised proposal

ElectraNet stated that it has applied the post-tax building block approach to calculate its proposed revenues. ElectraNet's proposed revenues were determined on the basis of an opening RAB of \$1277 million. It requested nominal unsmoothed revenues of \$214 million in 2008–09, increasing to \$292 million in 2012–13. ElectraNet's MAR for the final year of its current regulatory period (2007–08) is \$187 million.

The implied energy delivered unit cost of this MAR (average transmission charges) is \$16.20 per MWh in 2008–09 increasing at a nominal average annual rate of 7.7 per cent to \$21.10 per MWh in 2012–13. ElectraNet stated that this average increase in transmission charges will increase the average residential customer bill of \$1058 by approximately \$8.70 per year, or 0.8 per cent.

AER conclusion

The AER has determined an annual building block revenue requirement for ElectraNet that increases from \$226 million in 2008–09 to \$302 million in 2012–13 (\$nominal).

The AER’s final decision on the annual building block revenue requirement is higher than that in ElectraNet’s revised revenue proposal because of a higher return on capital building block. The return on capital is determined by multiplying the WACC by the opening RAB. Although the AER’s final decision on the opening RAB (and ex ante capex allowance to be included over the next regulatory control) has resulted in a lower value than proposed in ElectraNet’s revised revenue proposal, it is the overall increase in the WACC that has resulted in the higher return on capital building block. The WACC is greater than that in the revised revenue proposal and is driven by the significant rise in the cost of debt due to the deterioration of the global credit market.

The NPV of the annual building block revenue requirement for the next regulatory control period has been calculated to be \$969 million. Based on this NPV amount, the AER has determined a nominal expected MAR (smoothed) for ElectraNet that increases from \$226 million in 2008–09 to \$304 million in 2012–13, as shown in table 7. The total revenue cap for ElectraNet over the next regulatory control period is \$1319 million.

Table 7: AER’s final decision on the maximum allowed revenue (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Return on capital	134.67	146.63	163.57	177.16	193.07	815.09
Regulatory depreciation	20.95	20.77	23.97	25.71	24.11	115.52
Opex allowance	57.28	60.62	64.36	68.87	73.07	324.20
Opex efficiency (glide path) allowance ^a	3.55	2.92	2.25	1.54	0.79	11.04
Net tax allowance	9.58	10.26	10.97	11.04	11.00	52.85
Annual building block revenue requirement (unsmoothed)	226.03	241.20	265.12	284.31	302.04	1318.70
MAR (smoothed)	226.03	243.48	262.29	282.55	304.37	1318.71
X factor	– ^b	–4.97 %	–4.97 %	–4.97 %	–4.97 %	–

(a) An allowance for opex efficiency resulting in the current regulatory period.

(b) The MAR for 2008–09 is set as \$226.03 million and ElectraNet is not required to apply an X factor. In the first year of the next regulatory control period (2008–09) the MAR is around 20.99 per cent higher than the MAR in the final year of the current regulatory period (2007–08).

To determine the expected MAR (smoothed) over the next regulatory control period, the AER has set the first year MAR equal to the annual building block revenue requirement for that year and applied an X factor of –4.97 per cent in subsequent

years. The AER's revenue determination for ElectraNet is set out in part 1 of the transmission determination.

ElectraNet's MAR for the next regulatory control period is established through a building block approach. While the AER assesses ElectraNet's proposed pricing methodology, actual transmission charges established at particular connection points are not approved by the AER. ElectraNet establishes its transmission charges in accordance with its approved pricing methodology and the NER.

The effect of the AER's final decision on average transmission charges can be estimated by taking the annual MAR and dividing it by forecast annual energy delivered in South Australia. Based on this approach, the AER estimates that this final decision will result in an 8.5 per cent per annum (nominal) increase in average transmission charges over the next regulatory control period or an increase of 5.7 per cent per annum in real terms (\$2007–08).

Negotiating framework

AER draft decision

The AER assessed ElectraNet's proposed negotiating framework against the NER requirements. ElectraNet made some minor amendments to its negotiating framework, as agreed with the AER. The AER determined that ElectraNet's amended negotiating framework complied with clause 6A.9.5(c) of the NER.

ElectraNet revised proposal

ElectraNet did not address the negotiating framework in its revised revenue proposal.

AER conclusion

The AER has affirmed its draft decision and therefore the negotiating framework set out in part 2 of the transmission determination will apply to ElectraNet for the regulatory control period 1 July 2008 to 30 June 2013. The AER notes that it can request ElectraNet to resubmit its negotiating framework at any time, and would do so if the operation of ElectraNet's negotiating framework does not result in effective negotiation of negotiated transmission services.

Negotiated transmission service criteria

AER draft decision

As required by the NER, the AER determined the negotiated transmission service criteria that gave effect to, and were consistent with, the negotiated transmission service principles set out in clause 6A.9.1.

ElectraNet revised proposal

ElectraNet did not address the negotiated transmission service criteria in its revised revenue proposal.

AER conclusion

The AER has affirmed its draft decision and therefore the negotiated transmission service criteria set out in part 3 of the transmission determination will apply to ElectraNet for the regulatory control period 1 July 2008 to 30 June 2013.

Pricing methodology

AER draft decision

In the draft decision the AER assessed ElectraNet's May 2007 proposed pricing methodology against the AER's final pricing methodology guidelines issued on 29 October 2007, consistent with the election made by ElectraNet as provided for in the agreed interim requirements. While some sections of the proposed pricing methodology complied, a significant portion did not meet the requirements of the guidelines. Consequently, ElectraNet's proposed pricing methodology was not approved by the AER in its draft decision and ElectraNet was required to submit a revised proposed pricing methodology by 14 December 2007.

ElectraNet revised proposal

On 14 December 2007 ElectraNet submitted its revised proposed pricing methodology to the AER. It stated that its revised proposed pricing methodology addressed the additional requirements of the pricing methodology guidelines and that references to the old chapter 6 of the NER (required under the agreed interim requirements) had been removed.

AER conclusion

The AER has assessed ElectraNet's revised proposed pricing methodology against part J of the NER and the pricing methodology guidelines. The AER requested ElectraNet make several changes to improve clarity and ensure compliance with the pricing methodology guidelines. The AER has determined that ElectraNet's amended revised proposed pricing methodology set out in part 4 of the transmission determination complies with the NER and the guidelines.

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1 Introduction

1.1 Background

Under the National Electricity Law (NEL) and the National Electricity Rules (NER), the Australian Energy Regulator (AER) is responsible for the economic regulation of electricity transmission services provided by transmission network service providers (TNSPs) in the National Electricity Market (NEM).

The AER makes determinations according to chapter 6A of the NER in respect of certain services provided by transmission businesses. In performing these obligations, the AER is responsible for regulating:

- the revenues that TNSPs may earn from providing prescribed transmission services
- the terms and conditions of access and the access charges to be applied by TNSPs for providing negotiated transmission services.

The Australian Competition and Consumer Commission (ACCC) determined ElectraNet's current revenue cap for a five-and-a-half-year period from 1 January 2003 to 30 June 2008 (the current regulatory period) under the National Electricity Code, which has been superseded by the NER.¹

On 31 May 2007 ElectraNet submitted to the AER its revenue proposal, proposed negotiating framework and proposed pricing methodology for the period 1 July 2008 to 30 June 2013 (the next regulatory control period).² On 29 June 2007 the AER published these and the proposed negotiated transmission service criteria for ElectraNet as required by clause 6A.11.3. Any person was permitted to make a written submission to the AER on ElectraNet's revenue proposal, proposed negotiating framework and the AER's proposed negotiated transmission service criteria.

Clause 6A.12 of the NER requires the AER to consider any written submissions made under clause 6A.11.3 and to make a draft decision. Following publication of the draft decision, the AER was required to hold a predetermination conference and invite submissions on its draft decision.

ElectraNet, in addition to the making of a written submission as it considers appropriate, was permitted to submit to the AER a revised revenue proposal and a revised proposed negotiated framework (if relevant). Any revised revenue proposal may only make revisions so as to incorporate the substance of any changes required by, or to address matters raised in the draft decision.

¹ ACCC, *South Australian transmission network revenue cap 2003–2007/08: Decision*, 11 December 2002.

² ElectraNet, *Transmission network revenue proposal, 1 July 2008 to 30 June 2013*, 31 May 2007.

On 18 January 2008 ElectraNet submitted its revised revenue proposal to the AER. The AER published ElectraNet's January 2008 revised revenue proposal (revised revenue proposal) as required by clause 6A.12.³

Under clause 6A.13 of the NER, the AER is required to consider any submissions made on its draft decision or on ElectraNet's revised revenue proposal or revised proposed negotiating framework (if relevant) and make a final decision.

1.2 AER draft decision

On 9 November 2007 the AER made its draft decision on ElectraNet's transmission determination.⁴ In the draft decision the AER approved a total revenue cap for ElectraNet over the next regulatory control period of \$1195 million. The annual maximum allowed revenue (MAR) for ElectraNet increases from \$209 million in 2008–09 to \$271 million in 2012–13 (\$nominal). Table 1.1 shows the annual building block calculations including the opex efficiency allowance and smoothed MAR.

Table 1.1: AER's draft decision on the maximum allowed revenue (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Return on capital	117.86	128.64	145.19	157.77	169.05	718.51
Regulatory depreciation	22.44	22.27	16.44	17.58	21.64	100.37
Opex allowance	56.16	59.27	63.71	68.19	71.40	318.72
Opex efficiency (glide path) allowance ^a	2.78	2.29	1.77	1.21	0.62	8.67
Net tax allowance	9.58	10.26	9.52	9.22	9.97	48.55
Annual building block revenue requirement (unsmoothed)	208.81	222.73	236.61	253.98	272.69	1194.82
MAR (smoothed)	208.81	222.88	237.89	253.91	271.02	1194.52

(a) An allowance for opex efficiency resulting in the current regulatory period.

The AER determined ElectraNet's opening regulated asset base (RAB) to be \$1220 million for the next regulatory control period (as at 1 July 2008). This reflects the prudent expenditure that ElectraNet has made over the current regulatory period. The RAB has been increased beyond what it otherwise would have been by the amount of \$29 million for easement compensation costs and \$17 million for previously optimised assets that will be brought back into service by ElectraNet.

The AER draft decision approved a forecast capital expenditure (capex) allowance of \$606 million (\$2007–08), with the indicative cost of approved contingent projects

³ ElectraNet, *Transmission network revised revenue proposal 1 July 2008 to 30 June 2013*, 18 January 2008.

⁴ AER, *ElectraNet transmission determination 2008–09 to 2012–13: Draft decision*, 9 November 2007.

totalling \$805 million. A total operating and maintenance expenditure (opex) allowance of \$291 million for ElectraNet was also approved.

The AER draft decision approved the values that are to be attributed to the service target performance incentive scheme parameters. Table 1.2 sets out the AER's conclusions on performance targets, caps, collars and weightings for each of the parameters that are to apply to ElectraNet under the performance incentive scheme.

Table 1.2: AER's draft decision on caps, collars, targets and weightings to apply to ElectraNet

Parameter	Collar	Target	Cap	Weighting
<i>Circuit availability (%)</i>				<i>MAR (%)</i>
Total transmission	99.10	99.47	99.63	0.3
Critical circuit peak	98.52	99.24	99.51	0.2
Critical circuit non-peak	98.88	99.62	99.95	0
<i>Loss of supply event frequency (no.)</i>				<i>MAR (%)</i>
> 0.05 system minutes	10	8	6	0.1
> 0.2 system minutes	5	4	2	0.2
<i>Average outage duration (minutes)</i>				<i>MAR (%)</i>
Total	119	78	38	0.2

The AER assessed ElectraNet's negotiating framework for negotiated services and, subject to minor drafting amendments agreed between it and ElectraNet, considered that the negotiating framework complied with clause 6A.9.5(c) of the NER.

The AER draft decision also specified the negotiated transmission service criteria for ElectraNet over the next regulatory control period.

1.3 ElectraNet revised proposal

On 18 January 2008 ElectraNet submitted its revised revenue proposal in accordance with chapter 6A of the NER. This revised revenue proposal indicated where ElectraNet has implemented changes required by the AER draft decision. Where ElectraNet has not fully accepted the requirements of the draft decision its revised revenue proposal provided additional information to address the matters raised by the AER and sought to demonstrate that its revised revenue proposal satisfies the requirements of the NER.

ElectraNet's revised revenue proposal sets out a MAR requirement that increases from \$214 million in 2008–09 to \$294 million in 2012–13 (\$nominal) with a total MAR of \$1263 million over the next regulatory control period.

ElectraNet's revised opening RAB is \$1277 million (as at 1 July 2008). ElectraNet has implemented all aspects of the AER draft decision relating to the opening RAB with the exception of the AER's treatment of easement transaction or acquisition costs. ElectraNet has also included updated forecasts of commissioned assets and assets under construction in the current regulatory period when establishing its revised opening RAB proposal.

ElectraNet's revised capex forecast for the next regulatory control period is \$719 million (\$2007–08). ElectraNet has implemented most aspects of the AER draft decision relating to the forecast capex. The exceptions relate to:

- weather stations project costs
- strategic land and easement acquisition costs
- land and easement escalation
- non-labour construction (materials) cost escalation
- cost estimation risk factor
- contingent projects.

The revised capex forecast also includes \$45 million (\$2007–08) of additional replacement costs for assets that provide transitional services—for example, existing connection services. These costs were not included in ElectraNet's May 2007 revenue proposal.

ElectraNet's revised total forecast opex for the next regulatory control period is \$301 million (\$2007–08). ElectraNet has implemented most aspects of the AER draft decision on forecast opex. The exceptions relate to:

- field support costs—land tax
- corrective maintenance costs
- maintenance projects
- equity raising costs.

ElectraNet has implemented most aspects of the AER draft decision relating to the service target performance incentive scheme. The exception relates to the methodology for setting caps and collars for the loss of supply event frequency parameters.

1.4 Review process

Using the review process outlined in part E of chapter 6A of the NER, the AER has assessed ElectraNet's original revenue proposal, proposed negotiating framework and proposed pricing methodology (May 2007), its revised revenue proposal (January 2008) and its revised proposed pricing methodology (December 2007). The review process involved:

- Pre-consultation—ElectraNet and the AER agreed on the transitional arrangements that ElectraNet would be subject to for the next regulatory control period.

- Proposal—ElectraNet submitted its revenue proposal, proposed negotiating framework and proposed pricing methodology to the AER on 31 May 2007, 13 months before the end of its current regulatory period. The AER assessed ElectraNet’s proposal against chapter 6A of the NER and the AER’s first proposed transmission guidelines.⁵
- Public consultation—The AER published ElectraNet’s proposal and the AER’s proposed negotiated transmission service criteria for ElectraNet on 29 June 2007 and called for submissions from interested parties. The AER held a public forum on ElectraNet’s proposal on 24 July 2007, where ElectraNet and interested parties made presentations.
- Submissions—The AER received eight submissions on ElectraNet’s proposal and the AER’s proposed negotiated transmission service criteria for ElectraNet. These included submissions from ETSA Utilities, the Electricity Supply Industry Planning Council (ESIPC), Flinders Power, Southern Generators, the District Council of Ceduna, Government of South Australia, the Energy Consumers Coalition of South Australia and the Energy Users Association of Australia.
- Assessment by a technical expert—The AER engaged Sinclair Knight Merz Pty Ltd (SKM) as a technical expert to advise the AER on a number of key aspects of ElectraNet’s original revenue proposal. Specifically, the AER asked SKM to provide its opinion on:
 - whether the investment processes and procedures adopted by ElectraNet for capex are likely to result in efficient outcomes
 - the prudence of capex undertaken by ElectraNet during the current regulatory period
 - the adequacy, efficiency and appropriateness of the capex projects planned by ElectraNet to meet its present and future service requirements
 - the effectiveness of ElectraNet’s operating practices and procedures and asset management system
 - the appropriateness of ElectraNet’s methodology to forecast its opex requirements
 - the efficiency of ElectraNet’s forecast opex
 - the appropriate performance incentive scheme for service standards.

SKM provided its opinion to the AER on these matters. SKM’s advice represents its independent assessment based on its analysis. The terms of reference guiding SKM’s review are set out in appendix D of its report.⁶

- Additional technical/specialist advice—The AER engaged CHC Associates Pty Ltd (CHC) to provide the AER with technical and engineering advice throughout the review process. CHC assisted the AER in reviewing the technical aspects of

⁵ AER, *First proposed guidelines, models and schemes*, January 2007.

⁶ SKM, *ElectraNet transmission network revenue proposal 2008–2013: Review of ElectraNet revenue proposal*, 23 November 2007.

material contained in ElectraNet's proposal, submissions and SKM's report. The AER also engaged Econtech to review forecast South Australian labour costs.

- Draft decision—The AER made its draft decision on ElectraNet's transmission determination on 9 November 2007. The draft decision was released on 28 November 2007 and the AER requested submissions from interested parties.
- Public consultation—The AER held a predetermination conference on its draft decision on 11 December 2007 to explain its draft decision and receive oral submissions from interested parties.
- Revised proposed pricing methodology—ElectraNet submitted its revised proposed pricing methodology to the AER under the agreed interim requirements on 14 December 2007. The AER has assessed ElectraNet's revised proposed pricing methodology against the AER's pricing methodology guidelines released on 29 October 2007.
- Revised revenue proposal—ElectraNet submitted its revised revenue proposal on 18 January 2008. The AER has assessed ElectraNet's revised revenue proposal against chapter 6A of the NER and the AER's first proposed transmission guidelines.
- Submissions—The AER received five submissions on ElectraNet's revised revenue proposal and two submissions on ElectraNet's revised proposed pricing methodology. Parties making submission included the ESIPC, Transend, the Energy Consumers Coalition of South Australia, Powerlink, TransGrid, Flinders Power and the Major Energy Users Inc.
- Assessment by a technical expert—The AER retained SKM to advise the AER in relation to a number of aspects of ElectraNet's revised revenue proposal. Specifically, the AER asked SKM to provide its opinion on:
 - capex issues—weather stations project costs, land and easement escalation, non-labour construction escalation and contingent projects
 - opex issues—corrective maintenance costs, maintenance projects
 - service target performance incentive scheme issue—caps and collars for the loss of supply parameters.

SKM provided its opinion to the AER on these issues and also responded to a number of comments raised in submissions. SKM's advice represents its independent views based on its review. The AER has considered this advice in making its final decision. The terms of reference guiding SKM's review are set out in chapter 1 of its report.⁷

- Final decision—The AER made its final decision on ElectraNet's transmission determination on 11 April 2008.

1.5 Structure of final decision

This final decision sets out the AER's consideration of ElectraNet's revised revenue proposal and revised proposed pricing methodology, including substantive issues

⁷ SKM, *ElectraNet transmission network revenue proposal 2008–2013: Review of ElectraNet revenue proposal*, 24 April 2008.

raised in submissions. Except as specified in this final decision, the AER maintains its conclusions set out in the draft decision.

The structure of the final decision is set out as follows:

- chapter 2 confirms the prudence of past capex as determined in the draft decision and establishes the opening asset base
- chapter 3 assesses the efficient forecast capex allowance
- chapter 4 determines the benchmark weighted average cost of capital
- chapter 5 assesses the efficient forecast opex allowance
- chapter 6 assesses the methodology to determine the caps and collars for the loss of supply parameters applying under the service target performance incentive scheme
- chapter 7 determines the maximum allowed revenues for the next regulatory control period
- chapter 8 confirms the negotiating framework for negotiated transmission services approved in the draft decision
- chapter 9 confirms the negotiated transmission service criteria approved in the draft decision
- chapter 10 assesses the pricing methodology.

Appendix A sets out the AER's consideration of the cost estimation risk factor.

Appendix B provides a description of the contingent projects and their triggers.

Appendix C sets out the parameter definitions relating to the service target performance incentive scheme.

Appendix D sets out the curves and formulae for calculating the financial incentive under the service target performance incentive scheme.

2 Past capital expenditure and opening asset base

2.1 Introduction

This chapter sets out the AER's consideration of issues raised in response to the draft decision on ElectraNet's opening regulated asset base (RAB), including matters raised by ElectraNet in its January 2008 revised revenue proposal (revised revenue proposal).

2.2 AER draft decision

In the draft decision the AER determined that ElectraNet's expenditure of \$363 million on commissioned assets during the current regulatory period and \$44 million of its assets under construction were prudent. The AER also determined that allowances for interest during construction (IDC) costs of \$27 million for commissioned assets and \$1.9 million for assets under construction should be included in ElectraNet's RAB.⁸ In addition, the AER determined that ElectraNet's RAB should be adjusted for the revaluation of easements of \$29 million and the readmission of previously optimised assets of \$17 million.

Based on the roll forward methodology, the AER determined ElectraNet's opening RAB to be \$1220 million for the next regulatory control period (as at 1 July 2008).⁹ Chapter 3 of the draft decision sets out the roll forward methodology used by the AER to establish the opening RAB.

The AER noted in the draft decision that it would update the roll forward of ElectraNet's RAB with the most recent forecast of capital expenditure for 2007–08 and the latest consumer price index (CPI) data, at the time of its final decision.¹⁰

2.3 ElectraNet revised proposal

With the exception of the AER's treatment of easement transaction or acquisition costs, ElectraNet has implemented all aspects of the AER draft decision. It has also included updated forecasts of commissioned assets and assets under construction in the current regulatory period in establishing a revised proposal for the opening RAB. ElectraNet's revised opening RAB for the next regulatory control period is \$1277 million.¹¹

2.4 Submissions

The Energy Consumers Coalition of South Australia (ECCSA) commented on the prudence of ElectraNet's past capex, adjustment of easement value and the readmission of previously optimised assets.

⁸ Interest during construction cost is also known as finance during construction.

⁹ AER draft transmission determination, p. 49.

¹⁰ *ibid.*, p. 50.

¹¹ ElectraNet revised revenue proposal, p. 11.

2.5 Issues and AER considerations

2.5.1 Easement value adjustment

AER draft decision

The AER did not accept ElectraNet's proposal for an easement value of \$82 million to be added to its RAB because it included an amount for easement transaction or acquisition costs of \$53 million.¹² Consistent with the ACCC's decision for SPI PowerNet in 2002, the AER concluded that ElectraNet had not provided sufficient evidence to satisfy the AER that these costs were not already included in the RAB as a part of transmission line costs. Accordingly, the AER required that the allowance for easement transaction or acquisition costs be removed from the opening RAB.

The AER, however, accepted ElectraNet's proposal that an adjustment for easement compensation costs of \$29 million should be added to its opening RAB for the next regulatory control period.

ElectraNet revised proposal

ElectraNet did not accept the AER's conclusion that insufficient information was provided to demonstrate easement transaction or acquisition costs were not already included in the RAB as part of transmission line costs.¹³ ElectraNet stated that statements provided by SKM who carried out the 1998 jurisdictional asset valuation establish this fact.

ElectraNet's view is that SKM stated unequivocally that its transmission line asset valuation database did not include any elements of route selection or easement acquisition costs and that all aspects of these costs were excluded from the 1998 valuation.¹⁴ The SKM asset valuation was adopted as the jurisdictional asset valuation, and therefore ElectraNet stated that there can be no doubt that easement transaction costs were excluded from the line valuation. Accordingly, it stated that on this basis customers have not paid for easement transaction costs.¹⁵

ElectraNet stated that the nature and quantum of easement transaction costs were discussed in its revenue proposal. It stated that, in 2002, the ACCC's consultant Meritec recommended that \$36 million be introduced to the RAB to recognise the quantum of these costs and that a more comprehensive valuation by SKM suggested a higher value of \$54 million for easement transaction costs.¹⁶

ElectraNet stated that the AER should accept the proposed adjustment for easement transaction costs to be added to the RAB because:

- investors purchased ElectraNet with a reasonable expectation that the easements would be re-valued at a future revenue cap determination and factored this expectation into their investment decision (investors made a prepayment to the

¹² AER draft transmission determination, p. 44.

¹³ ElectraNet revised revenue proposal, p. 7.

¹⁴ *ibid.*, p. 7.

¹⁵ *ibid.*, p. 9.

¹⁶ *ibid.*, p. 8.

South Australian Government for network land lease, including easements, of \$156 million)

- not to include these costs would be inconsistent with the NEM objective of promoting efficient investment in electricity services because it would deny ElectraNet a fair return on its investment and have resultant implications for incentives for future efficient investment
- it is important to preserve regulatory certainty and the reliance investors can place on a regulator's undertaking
- easements are currently undervalued in comparison to easement values allowed by the ACCC in other transmission network service provider (TNSP) revenue determinations.¹⁷

In its May 2007 revenue proposal (original revenue proposal), ElectraNet proposed an easement transaction cost adjustment of \$53 million based on the CPI escalated mid point of the Maloney Field Services and SKM valuations included in the 2002 report of the ACCC's consultant Meritec.¹⁸

ElectraNet further stated that this valuation would provide a conservative total easement value compared with the investor prepayment for network land lease (including easements) of \$156 million and the independent easement valuations that were made available to investors by the South Australian Government at the time of their investment decision.¹⁹

Submissions

The ECCSA stated that the inclusion of easement compensation costs of \$29 million is unreasonable, especially as the AER concedes that there is no evidence that such costs were either incurred and capitalised or not expensed at the time.²⁰ In addition, it considered that it would be inappropriate to use Victorian network data as a proxy for compensation costs given that ElectraNet has advised that its network is different from the Victorian network.²¹

The ECCSA also argued that the dividend that ElectraNet would have returned to the South Australian Government (the previous owner) would be a lesser amount than if the amount had been capitalised.²² Because the South Australian Government received a lower dividend from its electricity transmission business, the South Australian tax payer has effectively paid for these compensation costs at an earlier time—effectively a capital contribution from the taxpayer. To include them in the RAB now would require these costs to be paid for again.

¹⁷ *ibid.*, p. 9.

¹⁸ Adopting the midpoint of the range established by the Maloney Field Services and SKM valuations results in a proxy historical cost of \$45.0 million. For the purposes of the ElectraNet revenue proposal indexation by CPI results in an easement value adjustment of \$52.8 million to be added to the RAB as at 1 July 2008.

¹⁹ ElectraNet revised revenue proposal, p. 10.

²⁰ ECCSA, *SA electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, p. 4.

²¹ *ibid.*, p. 20.

²² *ibid.*, p. 20.

AER considerations

The two elements of the proposed adjusted easement value are based on:

- landowner compensation costs—an estimate of the compensation payments made directly to the landowner that would generally have been recorded on the original easement title at the time of acquiring the easement
- easement acquisition or transaction costs—the additional fees and charges incurred to acquire easement rights.

Easement transaction or acquisition costs

The AER notes that in its revised revenue proposal ElectraNet has restated four arguments from its original revenue proposal as to why the AER should accept ElectraNet's proposed adjustment for easement transaction costs to be added to the RAB. These can be broadly summarised as: realisation of investor expectations; consistency with the NEM objective to promote efficient investment in electricity services; preservation of regulatory certainty; and the lower valuation of ElectraNet's easements compared to easement values allowed by the ACCC in other TNSP revenue determinations.

In the draft decision the AER stated it was satisfied that investors had a reasonable expectation that the regulator would at least be able to consider revaluation of ElectraNet's easements.²³ Accordingly, the value of the easement has been reconsidered.

In the absence of any guidance from the NER on whether the AER must revalue ElectraNet's easements or the methodology by which to do so, the AER considered section 16 of the NEL for this purpose. The AER notes that since it made its draft decision the NEL has been revised (effective 1 January 2008) and sections 7A(3) and 16(2) contain similar provisions to the old section 16(2)(b).

The AER notes that of the four arguments provided by ElectraNet only one relates to the NEL. Specifically, sections 16(2) and 7A(3) of the NEL provide that the AER should take into account the following principle (among others) when exercising a discretion in relation to the parts of a transmission determination for a regulated network service:

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

²³ AER draft transmission determination, p. 40.

Consistent with the draft decision, the AER still considers that the NEL provides little guidance as to whether, and how, the AER should revalue ElectraNet's easements.²⁴

In the draft decision the AER considered past decisions of the ACCC regarding easement valuation and past statements of policy—in particular, the 1999 *Draft Statement of regulatory principles for the regulation of transmission revenues* (DRP).²⁵ This is because the AER is of the view that it can (and should) consider the desirability of consistency with these past decisions and policies.

The AER also relied on the regulatory certainty provided by several past decisions, including TransGrid (2000), EnergyAustralia (2000) and SPI PowerNet (2002). Accordingly, the AER determined that ElectraNet's methodology for establishing its proxy historical landowner compensation costs was consistent with past decisions.

Applying the approach taken in the above mentioned decisions, the AER determined that the easement acquisition or transaction costs were deemed to be already included in transmission line costs unless the TNSP could prove otherwise. Accordingly, the AER did not accept ElectraNet's proposal for easement transaction or acquisition costs of \$53 million to be added to the RAB. This position was consistent with the ACCC's decision for SPI PowerNet (now SP AusNet) in 2002.

In its revised revenue proposal, ElectraNet restated SKM's statement that its 1998 valuation of ElectraNet's transmission line costs did not include any easement acquisition or route selection costs. While the AER recognises that the optimised depreciated replacement cost (ODRC) revaluation of ElectraNet's transmission lines may have excluded undepreciated easement transaction costs, no further evidence as to the exact nature and quantum of these costs was provided by ElectraNet in its revised revenue proposal. In the absence of such evidence, the AER considers it is reasonable that transaction costs be deemed to be already included as a part of transmission line costs.

Moreover, the AER notes that SKM's statement is documented in a file note and was made in response to the comments and observations made in the Meritec report to the ACCC titled *ElectraNet SA asset base review report to the ACCC*.²⁶ As set out in the draft decision the AER noted Meritec's conclusion that some acquisition (transaction) costs would have already been capitalised with the transmission line costs; however, the exact nature and quantum of these amounts is a grey area.²⁷

Accordingly, the valuation Meritec calculated contained the following caveat:

Meritec has looked at the cost of acquisition and sought to assess a realistic value for costs **should they not be recognised in the jurisdictional valuation and considered by ACCC as able to be included**.²⁸
[emphasis added]

The AER also notes that the language reflected in other sections of the SKM file note is less definitive about whether the transmission line asset valuation database did not

²⁴ *ibid.*, p. 41.

²⁵ ACCC, *Draft statement of principles for the regulation of transmission revenues*, 27 May 1999.

²⁶ SKM, *ElectraNet SA asset valuation review file note*, 8 June 2002.

²⁷ Meritec, *ElectraNet SA asset base review report to the ACCC*, July 2002, p. 26.

²⁸ *ibid.*, p. 15.

include any elements of route selection or easement acquisition costs and that all aspects of these costs were excluded from the 1998 valuation. For example, the AER notes the language used:

Para 1 – SKM has advised ElectraNet that the SKM Review of the HMA 1995 valuation definitely did not include any allowance for route selection or easement acquisition costs. Our comparison of SKM 1998 unit rates with HMA 1995 unit rates also led SKM to believe that there was no significant provision for such costs. **It was not possible to be definitive about this however.** SKM unit rates normally include an EPCM (Engineering Procurement and Construction Management) allowance of 15%, but not corporate overheads. These overheads may be considered to be similar.²⁹ [emphasis added]

On the basis of the above considerations and the available information provided in both the original and revised revenue proposals, ElectraNet has not been able to provide sufficient evidence to enable the AER to be satisfied that these costs were not already taken account of in the RAB as a part of depreciated transmission line costs. The AER considers that it is not reasonable to assume that easement transaction costs have not been paid for by customers in the past and, therefore, does not accept ElectraNet's proposal that easement transaction costs be added to the RAB.

Accordingly, the AER confirms its draft decision conclusion not to accept ElectraNet's proposal for easement transaction or acquisition costs of \$53 million to be added to the RAB. The AER requires the easement transaction or acquisition costs to be removed from the opening RAB.

Easement compensation costs

The AER notes that the ECCSA stated that compensation costs should not be included because there is no evidence that such costs were either incurred and capitalised or not expensed at the time. In addition, ECCSA raised the possibility that South Australian taxpayers may have already paid for these compensation costs when it was still owned by the South Australian Government and it is therefore inappropriate to include them in the RAB.

The AER also notes that the ECCSA rejected the use of Victorian network data as a proxy for compensation costs because ElectraNet's network is different from the Victorian network.

In the draft decision the AER considered that in the absence of actual data for compensation costs, indexed historical cost is an appropriate basis for valuing easement compensation costs. While the AER notes the ECCSA concerns about what may or may not have occurred in the past with these costs, the use of an appropriate proxy for historical cost was adopted in the TransGrid (2000), the EnergyAustralia (2000) and, to a lesser extent, the SPI PowerNet (2002) revenue cap decisions. In light of these previous decisions and the inconsistency of easement values, the AER considers it appropriate to revalue ElectraNet's easements.

The AER accepted the ElectraNet proposed methodology, which used SP AusNet's historical easement data as a benchmark proxy for its easement compensation costs. The AER accepted this as an appropriate benchmark because of the historical

²⁹ SKM, *ElectraNet SA asset valuation review file note*, 8 June 2002.

completeness of the landowner compensation cost maintained by the Victorian Government over time.

While the AER accepts that the South Australian network differs from the Victorian network, the issue of compensation costs is related to land values rather than the size and shape of the physical electricity network. In addition, the AER notes that ElectraNet has accurately modelled the Victorian historical easement compensation cost information into the South Australian context using publicly available Australian Bureau of Agricultural Resource Economics and Australian Bureau of Statistics land value data. Accordingly, the AER confirms its draft decision conclusion to accept ElectraNet's methodology regarding landowner compensation costs. Based on this methodology, the AER agrees that the easement compensation cost of \$29 million should be added to the RAB.

Conclusion

In establishing the opening RAB for ElectraNet (as at 1 July 2008), the transitional provisions under clause 11.6.13(b) allows the AER to consider adjustments to the RAB that relate to ElectraNet's easements as agreed by letter dated 3 August 2004 between the ACCC and ElectraNet. This matter cannot be reopened in future revenue determinations.

The AER confirms the position it took in the draft decision on ElectraNet's proposed easement value adjustment. The AER recognises that the current easement value is not consistent with easement values for comparable businesses, and in light of previous decisions, considers it appropriate to revalue ElectraNet's easements.

The AER accepts ElectraNet's proposal that an adjustment for easement compensation costs of \$29 million should be added to the RAB. In the absence of historical cost data, the methodology used to determine the proxy costs is appropriate and adding these costs to the RAB is consistent with the AER's regulatory responsibilities. The AER does not accept ElectraNet's proposal that easement transaction or acquisition costs of \$53 million should be added to the RAB. ElectraNet has been unable to provide sufficient evidence to satisfy the AER that these costs were not already included in the RAB as a part of transmission line costs. The AER therefore requires the amount for easement transaction or acquisition costs be removed from the opening RAB.

2.5.2 Capital expenditure forecast for 2007–08—update of values

AER draft decision

The AER included in ElectraNet's RAB an allowance of \$155.6 million (exclusive of IDC) for assets commissioned in 2007–08 and \$44 million (exclusive of IDC) of assets under construction to be incurred in 2007–08.³⁰ As part of finalising its decision on the amount of capex to be included in the RAB, the AER stated that it would update the roll forward of ElectraNet's RAB with the most recent capex estimates for the final year (2007–08) of the current regulatory period and the latest CPI data.³¹

³⁰ AER draft transmission determination, p. 36.

³¹ The CPI data is available from the Australian Bureau of Statistics.

ElectraNet revised proposal

ElectraNet has updated the 2007–08 forecasts for commissioned assets and assets under construction in its revised revenue proposal. The forecast value of commissioned assets for 2007–08 is now \$155.7 million and the forecast value of assets under construction is now \$50 million.

AER considerations

ElectraNet has provided an updated amount of \$155.7 million (exclusive of IDC) for the commissioning of assets in 2007–08. As part of its review of the updated cost information template for past capex, the AER identified a project that had inadvertently been included—EC.10818 SAP ETI establishment. ElectraNet has confirmed that this project (cost of \$0.2 million) should be removed from the cost information template.³² Therefore, the amount of \$155.5 million is considered to provide a better estimate of the value of assets to be commissioned in 2007–08 and with the effect that the total amount of ElectraNet’s commissioned assets during the current regulatory period being revised to \$364 million (\$nominal).

ElectraNet has also provided an updated amount of \$50 million (exclusive of IDC) for assets under construction in 2007–08.³³ This amount is considered to provide a better estimate of expenditure for assets under construction which would be incurred before the end of the current regulatory period.

To the extent that the actual values for commissioned assets and assets under construction differ from forecast values for the final year of the current regulatory period, a reconciliation will be undertaken—at the time of the next revenue reset—using the actual values as part of the asset base roll forward process at the next revenue reset.³⁴

Based on updated information provided by ElectraNet and the assessment made in the draft decision the AER considers that the total amount of:

- \$364 million in relation to commissioned assets during the current regulatory period is prudent and should be included in ElectraNet’s RAB
- \$50 million in relation to assets under construction at the end of the current regulatory period is prudent and should be included in ElectraNet’s RAB.

Using the updated information provided by ElectraNet the AER has also made consequential revisions to the IDC allowances because they are dependent on the amount, asset category and profile of capex to be included in the RAB.³⁵ Based on the methodology accepted by the AER in the draft decision, the AER considers that the updated capex values result in revised IDC allowances of:

³² ElectraNet response to information request no. 245, confidential, submitted 22 February 2008.

³³ The draft decision adopted a forecast amount of \$44 million for assets under construction in 2007–08.

³⁴ As required under schedule 6A.2.1(f)(3), the reconciliation would include adjustments that remove any benefit or penalty on the returns associated with any difference between forecast and actual values.

³⁵ The ACCC’s 2002 revenue cap decision recognised ElectraNet’s capex on an as-commissioned basis. As such, the ACCC accepted it would be appropriate for capex to include an IDC allowance to provide for the efficient cost of financing projects when they are under construction but not earning revenues.

- \$26 million for ElectraNet’s commissioned assets³⁶
- \$1.5 million for ElectraNet’s assets under construction.³⁷

Table 2.1 shows the breakdown of this allowance and provides a comparison between the draft decision and the conclusion in this final decision.

Table 2.1: AER’s conclusion on interest during construction costs (\$m, nominal)

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07	2007–08	Total
AER’s draft conclusion:							
IDC – commissioned assets	0.14	1.55	3.09	4.47	5.48	11.89	26.62
IDC – assets under construction	–	–	–	–	–	1.88	1.88
AER’s final conclusion:							
IDC – commissioned assets	0.14	1.55	3.09	4.47	5.48	11.51	26.24
IDC – assets under construction	–	–	–	–	–	1.46	1.46

2.5.3 Other issues

AER draft decision

Prudence of past capex

The AER considered that ElectraNet’s past capex—comprising \$363 million expenditure on commissioned projects and \$44 million for assets under construction—was prudent and should be included in its RAB.³⁸

Readmission of previously optimised assets

Based on the advice of its consultant (CHC), the AER accepted ElectraNet’s proposal that previously optimised assets are required for prescribed transmission services during the next regulatory control period. It rolled in the value of these assets of \$17 million into ElectraNet’s opening RAB.³⁹

³⁶ The draft decision accepted the application of an IDC factor of 8.3 per cent to determine the IDC allowance for ElectraNet’s commissioned assets. ElectraNet’s updated cost information template indicated an IDC allowance of \$10.4 million for 2007–08. However, this was not calculated based on an IDC factor of 8.3 per cent. Applying that IDC factor results in an allowance of \$11.5 million.

³⁷ The draft decision applied an IDC factor of 4.2 per cent to ElectraNet’s assets under construction. Based on the updated information, the expenditure profile results in a revised IDC factor of 2.9 per cent to be applied to the assets under construction.

³⁸ AER draft transmission determination, p. 29.

³⁹ *ibid.*, p. 49.

Submissions

Prudence of past capex

The ECCSA noted that ElectraNet's past capex resulted in more replacements works than was forecast.⁴⁰ It was concerned that the AER and its consultant (SKM) did not assess the new projects for compliance with the regulatory test. The ECCSA was also concerned that the AER did not assess the spending profile of the past capex thoroughly in light of the increase in non-network projects (such as IT) being implemented by ElectraNet when compared with that forecast in the ACCC's 2002 revenue cap decision.

Readmission of previously optimised assets

The ECCSA accepted the conclusions reached by CHC but sought some further clarifications. These clarifications related to CHC assumptions with respect to ElectraNet implementing capital works that will result in the readmission of the optimised assets being utilised and future generation/network support options in the south east. The ECCSA stated that the AER should request CHC to advise whether these issues would impact on its recommendation.

AER considerations

Prudence of past capex

The AER notes the ECCSA concerns, however, it considers these issues were addressed in the draft decision. Accordingly, the AER confirms its decision that ElectraNet's past capex is prudent and should be included in its RAB.

In the draft decision the AER reviewed ElectraNet's capex over the current regulatory period, and tested the prudence and efficiency of expenditure through detailed reviews of a targeted sample of projects.⁴¹ To this end, the sample comprised projects across various categories including replacement and IT. The AER notes that the process applied in its ex post prudence assessment is consistent with that applied in previous revenue cap decisions.

In applying the prudence test to projects the AER, assisted by SKM, assessed the need for the investment, whether the most efficient investment had been selected to meet that need, and whether the most efficient project had been developed. Regulatory test applications, where relevant, were reviewed as part of the assessment. The AER notes that replacement projects are not subject to regulatory test applications. Overall, the AER considered that ElectraNet's past capex was prudent, and that the projects (as developed) were efficient and consistent with good industry practice.

While the ex post review of projects takes into account the prudence of the actual capex undertaken, in the draft decision the AER also considered in greater detail the explanations for why ElectraNet's actual capex spending profile was different to that approved by the ACCC in its 2002 revenue cap decision.⁴² The AER was satisfied that lower than forecast demand and anticipated market benefits driven projects that

⁴⁰ ECCSA, *SA electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, pp. 18–20.

⁴¹ AER draft transmission determination, pp. 16–23.

⁴² *ibid.*, pp. 26–29.

never eventuated resulted in lower augmentation capex being undertaken by ElectraNet over the current regulatory period.

The AER also focussed its considerations on the magnitude of replacement expenditure because it significantly exceeded the allowance for this category in the 2002 revenue cap decision. It accepted that higher priority replacement work by ElectraNet became necessary because assets were assessed as being in poor condition and reaching the end of their useful lives. The AER considered that the higher than forecast asset replacement expenditure was reasonable in the context of a new asset management regime implemented by ElectraNet during the current regulatory period.

Readmission of previously optimised assets

The AER confirms its decision to readmit previously optimised assets with a value of \$17 million to ElectraNet's opening RAB for the next regulatory control period. It requested CHC to consider the issues raised by the ECCSA.

CHC advised that the methodology used in its assessment is consistent with the ex ante planning process adopted for developing the capex allowance. CHC assessed that the break-even time for the assets is beyond the next regulatory control period but that the additional expenditure on the assets is justified now (i.e. at the start of the next regulatory control period).⁴³ While circumstances may change and assumptions may not match actual outcomes, in all cases CHC's assessment is that the tolerance for error is large—meaning that the current expectation is that the actual assets features will be utilised well before the break-even time. CHC also considered the issues raised about future options in the south east and concluded that it has no reason to change its original recommendation on account of the information provided by the ECCSA.⁴⁴

Equity raising cost—2002 decision on opening asset base

The AER has also included \$21 million to the opening RAB for the purposes of providing an equity raising cost allowance associated with ElectraNet's opening RAB—as at January 2003—and capex over the current regulatory period. The equity raising cost was provided in the ACCC's 2002 revenue cap decision as an allowance in perpetuity. The AER has converted the allowance from perpetuity to an amount capitalised in the RAB. This will improve transparency and aid administration. Further discussion is set out in section 5.6.12 of this final decision.

2.5.4 Asset base roll forward

AER draft decision

The AER rolled forward ElectraNet's 2003 RAB and determined its opening RAB to be \$1220 million for the next regulatory control period (as at 1 July 2008).

⁴³ Break-even time is referred to by CHC as the period where the implemented asset would be more economic if the additional expenditure on that asset would actually be utilised within a given time frame.

⁴⁴ CHC Associates, *Comments on aspects of the response by the Energy Consumers Coalition of SA dated February 2008, March 2008*, pp. 6–9.

AER considerations

Based on the updated values for commissioned assets and assets under construction, the AER's application of the roll forward methodology has determined that ElectraNet's opening RAB is \$1265 million for the next regulatory control period (as at 1 July 2008). This value is used as an input for the AER's post-tax revenue model for the purposes of determining ElectraNet's maximum allowed revenue during the next regulatory control period.

2.6 AER conclusion

Using the updated values for commissioned assets and assets under construction, the AER's application of the roll forward methodology has determined that ElectraNet's opening RAB is \$1265 million for the next regulatory control period (as at 1 July 2008). The RAB roll forward calculations are set out in table 2.2.

Table 2.2: ElectraNet's opening RAB for the next regulatory control period (\$m, nominal)

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07	2007–08 ^a
Opening RAB	823.75	832.83	883.96	958.36	1029.45	1082.89
Forecast capex (adjusted for actual CPI) ^b	10.14	73.37	96.36	88.27	79.32	53.86
CPI adjustment on opening RAB	16.65	16.50	20.86	28.59	25.08	45.93
Straight-line depreciation (adjusted for actual CPI)	-17.71	-38.75	-42.81	-45.78	-50.95	-48.20
Closing RAB	832.83	883.96	958.36	1029.45	1082.89	1134.48
Add: prudent capex over 2002 decision ^c						9.47
Add: return on difference ^d						3.04
Add: prudent assets under construction						50.99
Add: easement landowner compensation costs						29.10
Add: readmitted optimised assets						17.44
Add: equity raising cost for 2003 opening RAB and capex						20.54
Opening RAB at 1 July 2008						1265.06

- (a) Updated with actual CPI for 2007–08 (March to March). Based on updated forecasts of commissioned assets and assets under construction.
- (b) The capex values include a half WACC allowance to compensate for the average six-month period before capex is added to the RAB for revenue modelling purposes.
- (c) Includes the difference between actual and forecast capex of \$5.1 million from 1 July to 31 December 2002 and \$4.9 million from 1 January 2003 to 30 June 2008. The cash values for disposal of assets have been deducted.
- (d) This relates to the difference between actual and forecast capex of \$5.1 million for 1 July 2002 to 31 December 2002.

3 Forecast capital expenditure

3.1 Introduction

This chapter sets out the AER's consideration of ElectraNet's forecast capital expenditure (capex) issues raised in response to the draft decision, including matters raised by ElectraNet in its January 2008 revised revenue proposal (revised revenue proposal).

3.2 AER draft decision

In the draft decision the AER did not accept ElectraNet's proposed ex ante capex allowance of \$778 million (\$2007–08) and explained the reasons in respect of the proposal not meeting the capex criteria under clause 6A.6.7(c) of the NER.

The AER made the following adjustments to ElectraNet's proposed ex ante capex allowance:

- Transferred the line component of the Adelaide CBD project (\$105 million) to the contingent projects allowance.
- Transferred the transformer ballistic proofing project (\$16.5 million) to the contingent project allowance.
- Reduced the expenditure of the weather stations project by \$1.9 million.
- Removed the strategic land purchase RY2 medium/high priority project, which resulted in a \$12 million reduction.
- Corrected transposition errors to three replacement projects that resulted in a reduction of \$7.6 million.⁴⁵
- Reduced the annual land and easement escalator to 8.17 per cent (nominal), which resulted in a reduction of \$1.5 million
- Applied SKM's non-labour construction cost (materials) escalators for the next regulatory control period, which resulted in a reduction of \$20 million. SKM's escalator for converting 2006–07 cost estimates to 2007–08 dollar terms was also applied, which resulted in a further reduction of \$7.8 million.
- Reduced the cost estimation risk factor to 2.6 per cent, which resulted in a reduction of \$14 million.
- Applied the cost escalators on an annual basis, which resulted in a reduction of \$2.7 million.
- Transferred \$17 million of refurbishment projects from the operating and maintenance expenditure (opex) allowance to the ex ante capex allowance.
- Removed the Northern transmission reinforcement and Parafield Gardens West contingent projects.

⁴⁵ Playford 132 kV replacement—\$3.9 million, Torrens Island power station 66 kV secondary systems—\$2.9 million and Unit asset replacement—\$0.8 million.

The AER noted that while it was satisfied that ElectraNet has the potential to deliver the amended forecast capex program, it considered that there is merit in deferring expenditure for three South Australian Electricity Transmission Code (ETC) driven projects planned for the first three years of the next regulatory control period to the end of that period. The proposed deferral, to be implemented in the final decision, would assist with smoothing ElectraNet's capex profile and enhance the deliverability of the capex program.

The AER considered that an ex ante forecast capex allowance of \$606 million represented the total capex that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. In addition, the AER approved an indicative contingent projects allowance of \$805 million. Table 3.1 sets out the AER's revised ex ante capex allowance for ElectraNet in the draft decision.

Table 3.1: AER's conclusion on ElectraNet's ex ante allowance (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
ElectraNet's proposal	200.16	218.19	164.63	2129.52	65.68	778.08
Adjustment resulting from detailed project reviews ^a	-3.53	-5.40	-4.26	-4.91	-3.70	-21.81
Transfer of Adelaide CBD line works component to contingent projects	-60.62	-23.30	-19.18	-1.50	-	-104.60
Transfer of transformer ballistic proofing to contingent projects	-4.17	-2.11	-4.27	-0.43	-5.49	-16.48
Adjustment to cost accumulation process ^b	-3.42	-7.23	-6.95	-9.05	-2.75	-29.40
Adjustment to cost estimation risk factor	-2.86	-4.01	-2.95	-2.63	-1.30	-13.75
Application of annual escalators	-2.73	-2.56	-0.16	1.37	1.38	-2.70
AER's total adjustments	-77.34	-44.62	-37.77	-17.15	-11.86	-188.74
Transfer of opex projects to capex ^c	3.31	3.34	3.39	3.44	3.48	16.96
AER's ex ante capex allowance	126.13	176.92	130.24	115.81	57.20	606.31

Source: AER draft transmission determination, p. 123.

- (a) These adjustments relate to augmentation, easement and replacement projects.
- (b) This includes adjustments to escalation from 2006–07 to 2007–08 dollar terms, land (and easement) and materials escalators.
- (c) The capex escalators were applied to these projects.

3.3 ElectraNet revised proposal

ElectraNet has implemented the AER draft decision in respect of forecast capex except those related to:

- weather stations project costs
- strategic land and easement acquisition costs

- land and easement escalation
- non-labour construction (materials) cost escalation
- cost estimation risk factor
- contingent projects.

ElectraNet’s revised forecast capex took account of the proposed deferral of ETC driven projects. ElectraNet has also proposed the inclusion of five additional replacement projects for assets that provide transitional services—existing connection assets—which were not included in its May 2007 revenue proposal (original revenue proposal).

ElectraNet’s revised ex ante capex proposal of \$719 million (\$2007–08) is set out in table 3.2.

Table 3.2: ElectraNet’s revised ex ante capex proposal (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
ElectraNet modelling of the draft decision	126.5	180.4	130.5	112.5	56.2	606.0
Adjustment to weather station project costs	0.3	0.3	0.3	0.3	0.3	1.4
Adjustment to strategic land and easement projects	2.5	2.8	2.6	2.5	2.7	13.1
Adjustment to non-labour construction cost escalators	8.0	13.8	10.0	8.5	4.1	44.5
Adjustment to cost estimation risk factor	2.4	3.7	2.7	2.3	1.1	12.1
Shift in timing of ETC load driven projects ^a	–9.2	–33.3	–4.0	33.9	14.2	1.6
Addition of transitional services replacement projects	2.7	12.7	12.3	12.9	3.9	44.5
Adjusted opex to capex transfer ^b	–0.7	–0.7	–0.8	–0.8	–0.8	–3.8
ElectraNet’s revised proposal	132.4	179.7	153.6	172.1	81.6	719.3

Source: ElectraNet revised revenue proposal, p. 37.

Note: Totals may not add up due to rounding.

(a) Includes deferral of Whyalla Terminal and Wudinna projects.

(b) One of the projects transferred to capex by the AER has been reinstated as an opex project.

ElectraNet’s revised revenue proposal includes 19 contingent projects. The total indicative cost for these projects is \$894 million.

3.4 Submissions

The AER received submissions commenting on the AER draft decision and ElectraNet’s revised revenue proposal from the following interested parties: the

Electricity Supply Industry Planning Council (ESIPC); the Energy Consumers Coalition of South Australia (ECCSA); Powerlink; Transend and TransGrid.

The main issues raised in submissions were in relation to:

- ElectraNet’s revised non-labour construction cost escalators
- ElectraNet’s revised cost estimation risk factor
- contingent projects
- the treatment of replacement assets providing transitional services.

3.5 Consultant review

The AER engaged SKM to review the additional information provided by ElectraNet in its revised revenue proposal on the following issues:

- weather stations project costs
- land and easement cost escalation rates
- materials construction cost escalation rates
- Northern transmission reinforcement and Parafield Gardens West contingent projects.

3.6 Issues and AER considerations

3.6.1 Weather stations project costs

AER draft decision

The AER considered that ElectraNet had not estimated the capex for the weather stations project based on the most efficient costs that a prudent operator is likely to incur. SKM advised that by adopting different types of power supplies and communication systems, the estimated project costs could be reduced.

This project, which includes a number of individual projects, relates to installing measuring devices on transmission lines to obtain real-time data in order to calculate line ratings that are reflective of environmental conditions. SKM advised that the proposed \$300 000 per weather station was excessive and recommended that it be costed at \$150 000 per site for the weather stations located away from the substations. The AER accepted SKM’s advice and approved an allowance of \$2.2 million for the project—a reduction of \$1.9 million (\$2007–08).⁴⁶

ElectraNet revised proposal

ElectraNet did not accept the AER’s reduced allowance for this project and proposed a revised cost estimate.⁴⁷

ElectraNet stated that it had consulted with other TNSPs—Transend and SP AusNet—that have implemented the roll-out of weather stations as part of real-time

⁴⁶ AER draft transmission determination, p. 83 and appendix C.

⁴⁷ ElectraNet revised revenue proposal, pp. 16–18.

transmission line ratings. ElectraNet also reviewed the actual costs associated with 10 weather stations it implemented during 2006. Given SKM's recommendations, ElectraNet reassessed its original project scope and developed new costs estimates based on adopting a 3G communications solution at sites where coverage is available. The cost per site estimate has been developed using the following base costs:

- \$0.05 million for substations with existing communications
- \$0.2 million for substation sites with no existing communications nor 3G coverage
- \$0.15 million for remote sites with 3G coverage
- \$0.3 million for remote sites requiring a radio solution.

ElectraNet has now proposed an overall project cost of \$3.6 million (\$2007–08).⁴⁸

ElectraNet also stated that most of the proposed weather stations are in close proximity to ETSA Utilities' distribution lines and therefore provide the most reliable power supply to the stations with minimal ongoing maintenance costs. Further, while noting that it uses existing structures on substation based sites, ElectraNet was satisfied that the use of stand-alone masts for weather stations at remote sites is practical and efficient in the long-run because of issues associated with safety and equipment, reduction of work complexity associated with maintenance, and the ability to locate on public land.

Submissions

Transend noted that it had provided information to ElectraNet regarding estimation of weather station costs and based on its experience confirms ElectraNet's assessment of likely costs as reasonable. It also submitted that it disagrees with SKM's suggestion that weather stations are not critical because they provide market benefits rather than reliability benefits. Additionally, it noted that real-time ratings deliver valuable market benefits and that its Tasmanian experience shows that the use of weather stations is a valuable and cost-effective way to maximise utilisation and minimising constraints on the transmission network.⁴⁹

Consultant review

SKM noted that many of the proposed weather station sites are in remote locations where communications may be problematic and that detailed analysis of costs in the revised proposal provided a better basis for estimation. It also noted that ElectraNet provided relevant new information regarding issues faced in constructing weather stations. Further, it recognised that ElectraNet will derive additional benefits by establishing communications to the Baroota substation and also accepted that there will be additional communication costs at a number of locations.

However, SKM found that the proposed estimate does not provide the lowest cost for some individual sites and that alternative solutions and cost benefit trade-offs had not been sufficiently considered in developing these costs.

⁴⁸ *ibid.*, p. 17—table 4.2.

⁴⁹ Transend, *Submission of the AER's draft decision on ElectraNet's revenue proposal*, 15 February 2008, pp. 3–4.

SKM's assessment of efficient costs for the weather stations project is shown in table 3.3. Based on its assessment, SKM recommended that an un-escalated estimate of \$2.5 million is reasonable compared to ElectraNet's proposed un-escalated cost of \$3.1 million.⁵⁰

Table 3.3: SKM's recommended cost estimates—weather stations (\$m, 2005–06 un-escalated)

Item	No. required	ElectraNet costs	SKM recommended costs
Weather stations	15	0.05	0.05
Mast, power and comms etc for remote sites	11	0.10	0.075
Engineering for 3G solution	1	0.10	0.05
Additional UHF radio comms where 3G not available – remote sites	6	0.15	0.125
Additional UHF radio comms where 3G not available – substation	1	0.20	0.15
Total ^a		3.05	2.53

Source: SKM report p. 4.

(a) This does not include escalation of project cost estimates.

AER considerations

The AER acknowledges that ElectraNet has reassessed its original project costs and developed a new estimate after further consideration of the most appropriate communications solution for individual sites rather than using the earlier basis of estimating a more general solution for most sites. It agrees with SKM that the methodology adopted in the revised proposal provides a more appropriate basis on which to estimate the project costs. This approach has resulted in the revised cost being lower than ElectraNet's original revenue proposal.

The AER notes that SKM has accepted ElectraNet's breakdown of its weather stations communication requirements according to the proposed sites. However, based on its knowledge of installed costs for similar projects, SKM was not satisfied that the proposed cost estimates for the individual sites represent efficient costs, particularly for some of the communications related costs. As shown in table 3.3, SKM's cost estimate results in a reduction of \$0.5 million to ElectraNet's revised project costs.

SKM noted that ElectraNet had not sufficiently considered alternative solutions and cost benefit trade-offs when developing its costs for individual communications solutions. In response to a request from SKM for information, ElectraNet provided further details showing that some sites required additional costs to provide effective communications.⁵¹ The AER notes that SKM has recognised that there will be

⁵⁰ SKM report, p. 4.

⁵¹ ElectraNet response to information request no. 278–284, confidential, submitted 17 March 2008.

additional communication costs at some of the proposed sites and has made allowance for this when developing its recommended costs estimates.⁵²

The AER accepts SKM's assessment that ElectraNet's revised cost estimate for this project is not reasonable because some of the communications related costs do not reflect efficient costs. Accordingly, the AER will adopt the costs recommended by SKM, and is satisfied that the amended costs reflect what is required to achieve the capex objectives by a prudent operator in the circumstances of ElectraNet (clause 6A.6.7(c)). Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$0.6 million to its revised ex ante capex allowance.

In response to Transend's submission that SKM had stated that weather stations are not critical because they are market benefit rather than reliability driven projects, the AER understands that SKM's comments were made in the context of reducing overall project costs. In this context, when considering the type of power supply and communications system to be used for real-time rating projects, it should be noted that default ratings are available at all times as a fall-back position and these projects are market benefit rather than reliability/capacity projects.⁵³ The AER does not consider that these comments were intended to undermine or promote either the market benefit or reliability benefit considerations of the investment decision. The AER recognises that in certain circumstances the use of weather stations to derive real-time ratings will benefit the transmission network by minimising constraints and maximising utilisation.

3.6.2 Strategic land and easements costs

AER draft decision

The AER determined that it was reasonable to provide ElectraNet with an allowance for future easement acquisitions. Based on the evidence presented the AER recognised \$12 million for easement costs in the next regulatory control period out of a proposed allowance of \$24 million (\$2007–08).

The AER did not accept the remaining \$12 million—for the Strategic land purchase RY2 medium/high priority project—because the evidence presented did not satisfy the AER that the project costs were likely to be incurred during the next regulatory control period.⁵⁴

ElectraNet revised proposal

ElectraNet considered that the AER's reduced allowance of \$12 million does not reflect the costs that a prudent TNSP operating in similar circumstances as ElectraNet would need to achieve the capex objectives. It resubmitted the need for the Strategic land purchase RY2 medium/high priority project at a proposed cost of \$13.1 million on the basis that the underlying network projects they relate to:

⁵² SKM report, pp. 3–4.

⁵³ SKM, *ElectraNet transmission network revenue proposal 2008–13: Review of ElectraNet revenue proposal*, 23 November 2007, p. 74.

⁵⁴ AER draft transmission determination, p. 84.

- are required within 10 years based on the ESIPC and customer connection point demand forecasts
- are required within 10–20 years in situations where there are known difficulties that suggest that the land will be unavailable when needed in the future.⁵⁵

Further, it noted that:

- Clause 6.3.1 of the revised South Australian Electricity Transmission Code (ETC) reinforces ElectraNet’s obligation to acquire land and easements before the agreed maximum demand (AMD) breaches the reliability standards, and that the original revenue proposal included strategic land and easement projects that would facilitate meeting the ETC requirement.
- The AER, in its Powerlink revenue determination, recognised the importance of acquiring land and easements early.
- The ‘high, medium and low’ ranking of the planned acquisitions takes account of the demand forecast and whether there are known difficulties that suggests a likelihood of the land and/or easements being unavailable when needed in the future.
- The timely acquisition of land and easements well in advance significantly reduces the impact and time of community consultation, and provides greater project delivery and planning certainty.⁵⁶

Submissions

The ESIPC supported the early acquisition of land, particularly where a delay may result in the relevant land being completely unavailable rather than simply more expensive. It also supported the two criteria used by ElectraNet to assess the need for early land purchases.⁵⁷

AER considerations

The AER recognises that the ETC requires ElectraNet to use its best endeavours to obtain planning approval and acquire all necessary easements on the basis of forecast demand before the AMD breaches the reliability standard.⁵⁸ The ETC reliability standards review final decision noted that such a requirement is consistent with clause 5.6 of the NER, which requires ElectraNet to plan for network developments over a minimum 10-year planning horizon.⁵⁹

In its revised revenue proposal ElectraNet identified 10 sub-projects underlying the planned acquisitions included in the Strategic land purchase RY2 medium/high priority project. Three sub-projects totalling \$4.7 million are required within the

⁵⁵ ElectraNet revised revenue proposal, p. 21.

The cost increase of this project above the draft decision deduction of \$12 million resulted from ElectraNet’s adoption of its proposed land escalation rates and the additional escalation for 2006–07, which it omitted in its original revenue proposal (see discussion in section 3.6.3).

⁵⁶ ElectraNet revised revenue proposal, pp. 19–21.

⁵⁷ ESIPC, *ElectraNet revenue cap—Draft decision*, 18 February 2008, p. 2.

⁵⁸ Electricity Transmission Code, 1 July 2008, clause, 6.3.1.

⁵⁹ ESCOSA, *Review of the reliability standards specified in clause 2.2.2 of the ETC: Final decision*, September 2006, p. 27.

0 to 10-year demand forecast outlook and the remaining seven sub-projects are required within 10 to 20 years.⁶⁰

Sub-projects required within 0 to 10-year demand outlook

The AER has reviewed the sub-projects within the 0 to 10-year demand outlook and notes that ETSA Utilities has confirmed that the Fleurieu Peninsula project (\$4.4 million) is required by 2014.⁶¹ Further, the additional information ElectraNet provided in the regional development plans (RDPs) demonstrates that the other two sub-projects within the 0 to 10-year demand outlook will also be required during, or soon after, the next regulatory control period. The additional information also includes the specific year of expenditure. Given the additional information, the AER considers that it is reasonably likely that the capex forecast for the purchase of land/easements for these three sub-projects will be incurred during the next regulatory control period.

Sub-projects required within 10 to 20-year demand outlook

ElectraNet has noted possible future acquisition difficulties, unavailability and potential strategic benefits as reasons for inclusion of proposed acquisitions for projects required within a 10 to 20-year demand outlook. The AER has reviewed the additional information and recognises that the underlying projects have been considered in long-term development plans. Although this indicated that the required timing has been considered and is within the 10 to 20-year demand outlook, the length of time before the underlying project is required introduces some uncertainty with respect to scope, costs and timing. For example, ElectraNet has forecast expenditure of \$2.1 million for the Eastern Suburbs – Yatala Vale easement project and this has been considered for the purposes of long-term planning. However, according to the RDP, the project establishment timing is still under investigation.⁶²

The ESIPC stated that it supported the early purchase of land where delay may result in the land being completely unavailable rather than more expensive. As previously noted in the Powerlink decision, the AER accepts that it is good industry practice to acquire some easements early if their acquisition is likely to result in lower costs for customers in the longer term.⁶³ However, in the absence of evidence demonstrating that ElectraNet's qualitative assessments will result in a significant detriment, such as an increase in costs to users over the long-term or unavailability of land, it is reasonable to defer these projects to future regulatory control periods.

On balance, given the long period of time before the underlying projects are required and the associated uncertainty, the AER is not reasonably satisfied that the land/easement costs associated with the 10 to 20-year demand outlook projects will be incurred in the next regulatory control period.

The AER considers it reasonable to defer the costs of planned land/easement acquisitions for the 10 to 20-year demand outlook to beyond the next regulatory control period when there will be more certainty over the timing and scope of the

⁶⁰ ElectraNet revised revenue proposal, table 4.3, pp. 20–21.

⁶¹ ElectraNet response to information request no. 250, confidential, submitted 22 February 2008.

⁶² ElectraNet, *Regional development plans – Near metro 275-66 kV transmission system*, p. 30.

⁶³ AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Decision*, 14 June 2007, p. 25.

underlying projects. This deferral does not preclude ElectraNet from developing its future network plans and taking necessary steps, such as advising land planning authorities of its requirements to ensure that land corridors are available in the future and that concerns relating to potential future restrictions are addressed early.

Conclusion

Overall, the AER considers that providing ElectraNet with an ex ante capex allowance after removing the cost of the sub-projects for the 10 to 20-year demand outlook—included in the Strategic land purchase RY2 medium/high priority project—will result in an allowance that reflects efficient costs that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$8.6 million to its revised ex ante capex allowance.

The AER notes that ElectraNet's revised capex model continues to adopt a uniform annual expenditure profile for its Strategic land purchase RY2 medium/high priority project. In the draft decision the AER noted the adoption of uniform expenditure is one indicator that the project was still insufficiently determined.⁶⁴ Given that ElectraNet's revised revenue proposal has addressed this concern by setting out the specific year of expenditure for the three sub-projects required within the 0 to 10-year demand outlook, the AER considers it appropriate to apply this expenditure profile in the capex model rather than the uniform expenditure profile.

3.6.3 Input cost escalators

The input cost escalators in ElectraNet's original revenue proposal were presented in nominal terms. The nominal escalators were deflated by inflation forecasts into real terms in the capex model and were then applied to the network project cost estimates. In ElectraNet's revised revenue proposal the input cost escalators were presented in real terms. Therefore, although in the draft decision the AER presented its conclusion on the input cost escalators in nominal terms, for this final decision and to be consistent with ElectraNet's revised revenue proposal the input cost escalators are presented in real terms.

In the draft decision the AER considered that ElectraNet's base planning objects (BPOs) used for project costing were reasonable and provided an appropriate basis to estimate the cost of its forecast capex program. In its revised revenue proposal, ElectraNet indicated that the BPOs were developed in June 2006 and were therefore in 2005–06 dollar terms. ElectraNet stated that two years' escalation was required to convert its base 2005–06 project cost estimates into end of 2007–08 dollar terms—the post-tax revenue model (PTRM) requires capex to be entered in those dollar terms.

ElectraNet had previously advised the AER that the BPOs were in 2006–07 dollar terms.⁶⁵ The AER is satisfied, however, that the ElectraNet BPOs were in fact developed in June 2006 and considers it reasonable to include input cost escalators for 2006–07, which will appropriately escalate the project cost estimates. The AER's

⁶⁴ AER draft transmission determination, p. 84.

⁶⁵ ElectraNet response to information request no. 131, confidential, submitted 24 August 2007.

review of the capex model also confirms that ElectraNet had omitted input cost escalators for 2006–07 in its original revenue proposal.

The AER’s assessment of ElectraNet’s revised input cost escalators is set out below.

Land and easement costs

AER draft decision

Taking account of SKM’s advice the AER rejected ElectraNet’s proposed land and easement escalation rate of 10 per cent per annum. The AER applied a land and easement escalation rate of 8.17 per cent (nominal) to ElectraNet’s land related capex projects for each year of the next regulatory control period. The escalation rate was calculated using the entire (1989 to 2006) Australian Bureau of Statistics (ABS) data series for residential, rural and commercial land components, weighted according to the contribution of each land component in ElectraNet’s capex program.⁶⁶ The calculation of this rate is set out in table 3.4.

Table 3.4: AER’s draft decision land and easement escalation rate (per cent, nominal)

Land component	ElectraNet proposal (2000–2006)	AER average (1989–2006)	Weighting ^a	AER weighted average
Commercial	14.40	6.27	32.67	2.05
Rural	13.00	8.55	52.11	4.46
Residential	–	10.90	15.22	1.66
Average	10.00 ^b	8.57	Total	8.17

Source: AER draft transmission determination, p. 93.

(a) Weightings were provided by ElectraNet.

(b) ElectraNet derived an average land escalator of 13.7 per cent based on commercial and rural land data. It applied a 10 per cent land escalator in its capex model.

ElectraNet proposed a simple average of the rural and commercial land components based on a sub-set of the ABS data series from 2000 to 2006. The AER considered that in the absence of reasonable information showing that the growth reflecting the boom period is appropriate as a proxy for the next regulatory control period, the long-term historical average of the entire available data, weighted according to the contribution of each land component provided a more appropriate basis to determine a land and easement escalation rate.

ElectraNet revised proposal

ElectraNet did not accept the AER’s annual land and easement escalation rate of 8.17 per cent (nominal) and considered its proposed annual land and easement escalation rate of 10 per cent (real) to be more appropriate.

ElectraNet stated that its proposed annual land and easement escalation rate of 10 per cent was expressed in real terms and was determined by adjusting the 13 per cent nominal forecast rate, based on rural land, for inflation. ElectraNet noted that rural

⁶⁶ ABS, *Australian system of national accounts 2005–06: 5204.0*, table 83.

land accounts for 60 per cent of its proposed land and easement acquisitions included in the capex program and that rural land also has the lowest forecast escalation rate, compared with commercial and residential land. It considered an annual real escalation rate of 10 per cent was a conservative value.

ElectraNet engaged BIS Shrapnel to provide advice on the appropriateness of its proposed land and easement escalation rate. BIS Shrapnel predicted that future rises in land values to 2013 will be of the same order of magnitude of increases over the past seven years as postulated by ElectraNet.

ElectraNet resubmitted an average annual real land and easement escalation rate of 10 per cent in its revised revenue proposal.

Consultant review

In reviewing BIS Shrapnel's report, SKM stated that a number of factors may impinge on the primary factors driving economic growth in South Australia. It is possible that the impact of these factors may impede the level of investment in South Australia and therefore the expected level of economic growth.

SKM has maintained its recommended approach to use long-term historical data, adopted by the AER in the draft decision, for deriving appropriate land and easement escalators over the next regulatory control period for ElectraNet.⁶⁷ SKM noted that ElectraNet applied its forecast escalation rate for 2006–07 of 10 per cent (real). However, it stated that the escalator for 2006–07 should be based on the actual 2006–07 ABS data for each land component now available, weighted according to ElectraNet's forecast capex program and adjusted for actual inflation. Therefore, SKM recommended an escalator of 6.51 per cent (real) be applied for 2006–07.⁶⁸ SKM has also used updated ABS data to derive the long-term historical average. The resulting recommended land and easement escalation rate is shown in table 3.5.

Table 3.5: SKM's recommended land and easement escalation rate (per cent, real)

Land component	ElectraNet revised revenue proposal	SKM average (1989–2007)	Weighting ^b	SKM weighted average
Commercial	–	3.80	32.56	1.24
Rural	10.00	4.87	52.28	2.55
Residential	–	7.64	15.16	1.16
Average	10.00	5.43	Total ^a	4.94

Source: SKM report p. 7.

(a) Total may not add up due to rounding

(b) Weightings reflect the land and easement projects in ElectraNet's revised revenue proposal.

⁶⁷ SKM report, p. 6.

⁶⁸ Actual inflation of 2.1 per cent was used, ABS, *Consumer Price Index*; All Groups; Australia, 6401.0.

AER considerations

Having reviewed the material put forward, the AER confirms its position in the draft decision to apply a long-term historical average for the purposes of estimating forecast land value growth. The AER recognises that forecasting the appropriate escalators to apply over the next regulatory control period is a difficult exercise. In reaching its conclusion the AER has considered the various views on the future level of expected economic growth in South Australia and the degree of its potential flow on effect through to land values, and the appropriateness of using short-term data as a proxy to develop land and easement escalation rates for the next regulatory control period. These issues are discussed further below.

Discrepancies in ElectraNet's original and revised proposal

The AER notes a number of discrepancies with ElectraNet's proposed land and easement escalation rates. In its revised revenue proposal ElectraNet stated that its proposed annual land and easement escalation rate of 10 per cent (real) was determined by the average of the rural land component of the ABS data series from 2000 to 2006.⁶⁹ However, in its original revenue proposal ElectraNet stated that its land and easement escalation rate was calculated as the average of the commercial and rural land components from 2000 to 2006.⁷⁰ Further, in the draft decision the AER noted that ElectraNet had applied a land and easement escalation rate of 10 per cent (nominal) in its capex model—consistent with other escalators—despite ElectraNet's assertion that it is an escalator in real terms.⁷¹

Outlook on potential economic growth in South Australia

BIS Shrapnel's report addresses two key areas that it considers provide a reasonable basis to accept ElectraNet's proposed land and easement escalators:

- the property cycle and the information available in the ABS data series
- the outlook for the South Australian economy from 2008 to 2013.

BIS Shrapnel considered that the use of data from the 1990s unreasonably biases the escalation rate downwards as it reflects depressed conditions that are extremely unlikely to be repeated in the 2008–2013 period.

BIS Shrapnel's report states:

Looking forward, the South Australian economy will be strong. That means strong demand for property. Given that supply has been moderate, this would drive rises in rents and property prices leading to increases in residual land values and hence strong growth in land values...

Given the buoyant outlook for property markets, an historical average from 1989 which includes a decade of depressed property markets is not a reasonable predictor of prices between 2008 and 2013. Our view is that the South Australian economy, about to be boosted by major investment projects, is firmly on the upturn phase of its cycle and, consequently, land values will continue to rise and track the property cycle...

⁶⁹ ElectraNet revised revenue proposal, p. 22.

⁷⁰ ElectraNet revenue proposal, p. 58.

⁷¹ AER draft transmission determination, p. 93.

While we cannot rule out the possibility of a property downturn, we regard it as unlikely. To the contrary, it is more likely that the South Australian economy and property markets will be stronger over the next five years than in the last five.⁷²

The AER notes that BIS Shrapnel's report provides an overview of the potential level of economic growth in South Australia between 2008 and 2013. BIS Shrapnel highlights that economic growth in South Australia is driven by growth in construction and manufacturing sectors, engineering construction and defence related spending.

SKM, however, noted that the following factors may impinge on the primary factors driving land prices in South Australia: housing affordability is at record lows, several interest rate rises, recent global financial events, and recent counterbalances to the strong economic outlook (e.g. the closure of Mitsubishi's Adelaide factory). According to SKM there is no compelling case that the previous seven year period (2000 to 2006) is the best indicator of land price growth over the next regulatory control period. To this end, the AER agrees with SKM's view that the magnitude of potential land price growth is somewhat uncertain.

Further, the AER notes that the International Monetary Fund (IMF) recently calculated the 'housing price gap' for 17 advanced economies between 1997 and 2007 in its April 2008 *World Economic Outlook* report.⁷³ The housing price gap can be interpreted as a measure of overvaluation and used to identify countries that may be prone to a correction in housing prices. The IMF calculated a housing price gap of around 25 per cent for Australia—ranked fourth highest among the surveyed countries—placing Australia at considerable risk of a housing price correction. The AER considers that to the extent that variations in housing prices flow through into land values, the IMF report provides further support that using recent term data to forecast future growth is not appropriate.

In the event that the strong level of economic growth predicted by BIS Shrapnel does not materialise, it is possible that the associated strong demand for property, subsequent rises in rents and property value and strong growth in land values may not eventuate at the magnitude experienced between 2000 and 2006. It is questionable, in this case, whether the proposed 10 per cent per annum (real, based on short-term average of rural land growth) increase in land growth is consistent with sustainable economic growth. The AER notes that the 2006–07 ABS data shows a decrease of 1.2 per cent (real, based on actual rural land growth) occurred in South Australia.

Accordingly, the AER is not satisfied that ElectraNet's proposed real annual land and easement escalation rate based on the 2000–2006 sub-set of data is an appropriate proxy to develop land and easement escalation rates for the next regulatory control period.

⁷² BIS Shrapnel, *Outlook for land values in South Australia*, p.5.

⁷³ IMF, *World Economic Report, The changing housing cycle and the implications for monetary policy*, April 2008, p. 11.

The housing price gap is defined as the increases in house prices that are unexplained by house price growth modelled as a function of an affordability ratio (the lagged ratio of house prices to disposable incomes), growth in disposable income per capita, short-term interest rates, long-term interest rates, credit growth, and changes in equity prices and working age population.

Long-term historical data

The AER considers that long-term rather than short-term historical data is more appropriate to develop land and easement escalation rates. The use of long-term historical data is less exposed to fluctuations in the business cycle, while an escalation rate calculated using a short-term sub-set of data is more likely to capture upward or downward movements in the business cycle, which may favourably or unfavourably bias the escalation rate. The AER also considers that a prudent TNSP will consider using longer term data, where available, that takes in an entire economic cycle to develop efficient forecasts. This approach is consistent with that previously applied in the recent Powerlink and SP AusNet revenue cap determinations.⁷⁴

The AER also agrees with SKM that the 2006–07 land and easement escalation rate should be calculated using the actual ABS data for each land component, weighted according to ElectraNet’s forecast capex program. The AER has used the most recent information to calculate its land and easement escalation rate for the next regulatory control period. Specifically, the AER has re-weighted the land components in accordance with the amended capex projects and used the latest available ABS data.

Table 3.6 sets out the AER’s average land and easement escalation rate calculated using the revised weightings and incorporating the 2006–07 ABS data.

Table 3.6: AER’s conclusion on land and easement escalation rate (per cent, real)

Land component	ElectraNet revised revenue proposal	AER average (1989–2007) ^a	Weighting ^b	AER weighted average
Commercial	–	3.80	42.38	1.61
Rural	10.00	4.87	46.40	2.26
Residential	–	7.64	11.22	0.86
Average	10.00	5.43	Total	4.73

Source: ABS, *Consumer Price Index*; All Groups; Australia, 6401.0.

(a) The average has been adjusted by the actual CPI from June 1989 to June 2007.

(b) The AER determined each weighting based on the adjusted land and easement projects in ElectraNet’s capex program.

Conclusion

Based on the available information, the AER considers that adopting its weighted average land and easement escalation rate calculated using the entire ABS data series is consistent with the benchmark capex that would be incurred by an efficient TNSP over the next regulatory control period (clause 6A.6.7(e)(4)).

Table 3.7 provides a comparison of ElectraNet’s proposed land and easement escalation rates with the AER’s conclusion.

⁷⁴ AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2001–12: Draft decision*, 8 December 2006, p. 76.

AER, *SP AusNet transmission determination 2008–09 to 2013–14: Draft decision*, 31 August 2007, pp. 189–190.

Table 3.7: Comparison of land and easement escalation rates (per cent, real)

	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ElectraNet’s revised proposal	10.00	10.00	10.00	10.00	10.00	10.00	10.00
AER’s conclusion	7.88 ^a	4.73	4.73	4.73	4.73	4.73	4.73

(a) The actual ABS data has been used rather than the forecast (weighted average).

An annual escalation rate of 4.73 per cent (real) for land and easements over the next regulatory control period is considered to provide a forecast capex allowance that reflects the efficient costs a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives.⁷⁵ Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$6 million to its revised ex ante capex allowance.

The AER has also applied individual escalators for each land component using the long-term data series (1989–2007) to derive the relevant components of ElectraNet’s opex allowance (see section 5.6.7).

Labour costs

AER draft decision

The AER accepted ElectraNet’s proposal to apply BIS Shrapnel’s wage forecasts for the next regulatory control period. The AER considered the methodologies employed by both BIS Shrapnel and Econtech (for the AER) were robust, with both resulting in wages forecasts that provided reasonable insight into potential future labour market trends in South Australia.

Submissions

The ECCSA was critical of Econtech’s analysis of labour costs. It noted that Econtech draws a distinction between wages growth in the utilities sector and the construction sector. It considered that this distinction does not exist in reality because most new investment by the utilities sector is carried out as construction activity.

AER considerations

The AER notes that the ECCSA queried the relevance of the utilities sector labour cost forecasts when a significant component of the capex work to be undertaken by ElectraNet will be done by construction workers. The data used to forecast labour cost growth is classified by the employer’s industry sector. Therefore, the contracting company’s classification rather than the type of work undertaken by the employee is the relevant determinant. In this case the AER notes that the contracted companies are likely to be classified to the utilities sector. Accordingly, the AER considers that the utilities sector labour cost forecasts are appropriate to apply to ElectraNet’s capex program.

⁷⁵ 4.73 per cent (real) is equivalent to 7.98 per cent (nominal).

ElectraNet also identified a transposition error in relation to the application of the 2012–13 labour escalation rate that needed to be corrected.⁷⁶ The AER’s conclusion, based on the BIS Shrapnel real wage forecasts, is set out in table 3.8.

Table 3.8: AER’s conclusion on labour wage escalators (per cent, real)

	2006–07	2007–08	2008–09	2009–10	2010–11	2001–12	2012–13
ElectraNet’s revised proposal	4.00	2.60	2.70	3.70	3.40	2.70	2.40
AER’s conclusion	4.00	2.60	2.70	3.70	3.40	2.70	2.50

Source: ElectraNet revised revenue proposal, p. 27; BIS Shrapnel, *Outlook for labour markets and costs 2016-17: electricity, gas and water sectors, Australia and South Australia*, April 2007.

The AER considers that the application of these labour wage escalators will reasonably reflect the efficient costs that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in an increase of \$0.02 million to its revised ex ante capex allowance. The AER’s consideration of labour escalators over the next regulatory control period is further discussed in section 5.6.6.

Non-labour construction costs—materials

AER draft decision

Taking account of SKM’s advice the AER rejected ElectraNet’s proposed non-labour (materials) cost escalators. The AER applied the materials cost escalators set out in table 3.9 for the next regulatory control period. To escalate ElectraNet’s base project cost estimates from 2006–07 dollar terms to 2007–08 dollar terms, the AER also applied the materials cost escalators for 2007–08.

SKM developed material cost escalators for various equipment categories specifically required in electricity infrastructure. It developed these escalators using the methodology set out in its February 2007 *Escalation factors affecting capital expenditure forecasts* report, which was submitted by SP AusNet as part of its revenue proposal.⁷⁷

SKM reclassified the ElectraNet weighting of each capex element based on the project data available in ElectraNet’s capex model. The AER considered that SKM’s reclassification was reasonable and enabled the application of its materials cost escalators to ElectraNet’s capex program to provide an appropriate measure of the cost increases ElectraNet is likely to experience over the next regulatory control period.

⁷⁶ ElectraNet response to information request no. 255, confidential, submitted 22 February 2008.

⁷⁷ SKM, *Escalation factors affecting capital expenditure forecasts*, February 2007.

Table 3.9: AER’s conclusion on materials escalators and capex element weightings (per cent, nominal)

Capex element	Weight ^a	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Labour ^b	29.0	5.6	5.6	6.0	6.3	5.9	5.6
Substation – primary	25.4	1.7	2.2	2.3	2.6	2.6	2.7
Protection and control	20.3	3.8	3.7	3.8	3.8	3.8	3.8
Civil	6.0	4.2	4.2	4.2	4.2	4.2	4.2
Overhead line	4.5	0.6	0.6	0.4	1.8	2.2	2.3
Underground cable	7.3	–0.3	–0.9	0.5	1.7	2.4	2.6
Land ^c	5.4	8.2	8.2	8.2	8.2	8.2	8.2
Misc. materials (escalated at CPI) ^d	2.2	3.0	3.0	3.0	3.0	3.0	3.0
Weighted average annual escalation		3.6	3.6	3.9	4.2	4.2	4.1

Source: AER draft transmission determination, p. 98.

- (a) Weighting may not add up due to rounding.
- (b) SKM applied BIS Shrapnel’s wage forecasts.
- (c) SKM applied its recommended land and easement escalator.
- (d) SKM applied ElectraNet’s proposed CPI.

ElectraNet revised proposal

ElectraNet did not accept the materials cost escalators that the AER applied in the draft decision. It stated that the method adopted in its revised revenue proposal is largely the same as the SKM approach adopted by the AER in the draft decision and that it had no objections to SKM’s forecasting methodology.⁷⁸ However, ElectraNet considered that SKM’s data sources and forecasting methodology were not transparent and could not be replicated. The data sources that could be identified were outdated and did not reflect movements in prices in 2007.⁷⁹

In its revised revenue proposal, ElectraNet summarised its forecasting methodology for materials cost escalators into four steps:⁸⁰

1. Breakdown the capex forecast for network capital projects into components (e.g. structures and fabricated steel, primary plant, transformers, aluminium conductor, labour etc.) and the relevant weights.
2. Breakdown the capex components into inputs (e.g. aluminium, copper, steel, labour, construction etc.) and identify the weight that each input has in explaining the base period cost of the capex components identified in step one. ElectraNet’s capex components and input weights are shown in table 3.10.

⁷⁸ ElectraNet revised revenue proposal, p. 25.

⁷⁹ *ibid.*, p. 25.

⁸⁰ *ibid.*, p. 25.

3. Gather available forecasts for the component inputs identified in step two and select a point estimate/range for that forecast. ElectraNet engaged the Competition Economics Group (CEG) to advise it on the development of these forecasts. ElectraNet's and CEG's forecast component inputs are set out in table 3.11.
4. Calculate weighted average annual escalation rates for each capex component by multiplying the forecasts in step three by the input weights in step two and summing them.

Table 3.10: ElectraNet's capex components and input weights (per cent)

Capex component	Weight	Copper	Aluminium	Crude Oil	Steel	Electricity, Gas and Water wages	Construction costs	Other (escalated at CPI)	Land and easements
Labour	24.27	—	—	—	—	100.00	—	—	—
Structures and fabricated steel	2.39	—	—	—	100.00	—	—	—	—
Primary plant	15.93	6.00	—	4.00	—	—	—	90.00	—
Secondary systems	13.45	—	—	—	—	—	—	100.00	—
Transformers	14.30	10.00	—	4.00	9.00	—	—	77.00	—
Buildings	4.43	—	—	—	—	—	100.00	—	—
Civil construction	12.91	—	—	—	—	—	100.00	—	—
Electrical construction	6.17	—	—	—	—	100.00	—	—	—
Transmission towers	0.71	—	—	—	100.00	—	—	—	—
Aluminium conductor	0.33	—	60.00	—	5.00	—	—	35.00	—
Concrete poles	0.23	—	—	—	—	—	—	100.00	—
Underground copper cable	0.02	55.00	—	5.00	—	—	—	40.00	—
Land and easements	4.45	—	—	—	—	—	—	—	100.00
Materials – other	0.42	—	—	—	—	—	—	100.00	—
Weighted average	100.00	2.39	0.20	1.21	4.40	30.44	17.34	39.56	4.45

Source: ElectraNet capex model, February 2008.

**Table 3.11: ElectraNet and CEG’s forecast component input escalators
(per cent, real)**

	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Copper	30.46	–9.33	–11.10	–3.13	–3.41	–3.51	–3.70
Aluminium	11.66	–15.06	–5.36	2.25	1.37	0.97	0.78
Crude oil	–5.88	18.37	16.07	–3.32	–0.88	–1.66	–1.85
Steel	2.90	0.00	0.00	0.00	0.00	0.00	0.00
Electricity, gas and water wages ^a	4.00	2.60	2.70	3.70	3.40	2.70	2.40
Construction costs	6.40	2.30	1.80	0.70	0.50	0.90	1.80
Other (escalated at CPI)	0.00	0.000	0.00	0.00	0.00	0.00	0.00
Land and easements ^b	10.00	10.00	10.00	10.00	10.00	10.00	10.00

Source: ElectraNet capex model, February 2008.

(a) BIS Shrapnel’s wage forecasts accepted in the draft decision and updated for actual inflation in 2006–07.

(b) ElectraNet applied its revised land and easement escalation rate.

ElectraNet submitted its revised input cost escalators and the overall weighted average input cost escalators by capex components, as shown in table 3.12.

Submissions

Powerlink, TransGrid and Transend supported the materials cost escalators proposed in ElectraNet’s revised revenue proposal. Powerlink stated that in the current high cost environment it is implausible for SKM to suggest that key electricity transmission construction costs components will increase by less than inflation over the next five years.⁸¹

TransGrid stated that both the SKM and CEG methodologies generally provide a sound approach to calculating materials cost escalators. However, the justification for individual cost category forecasts using the SKM methodology is unclear and for this reason the CEG methodology should be given more weight.⁸²

Transend stated that ElectraNet’s revised methodology is more transparent and comprehensive than SKM’s as it incorporates reasonable forecasts for the various cost inputs, based on presently available market data and the composition of ElectraNet’s capital program.⁸³

⁸¹ Powerlink, *ElectraNet revised revenue proposal*, 22 February 2008, p. 3.

⁸² TransGrid, *Submission on the AER’s draft decision for ElectraNet’s revenue proposal*, 22 February 2008, pp. 1–2.

⁸³ Transend, *Submission of the AER’s draft decision on ElectraNet’s revenue proposal*, 15 February 2008, p. 3.

Table 3.12: ElectraNet's revised input cost escalators (per cent, real)

Capex component	Weight	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Labour ^a	24.27	4.00	2.60	2.70	3.70	3.40	2.70	2.40
Structures and fabricated steel	2.39	2.90	0.00	0.00	0.00	0.00	0.00	0.00
Primary plant	15.93	1.59	0.17	–0.02	–0.32	–0.24	–0.28	–0.30
Secondary systems	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transformers	14.30	3.07	–0.20	–0.47	–0.45	–0.38	–0.42	–0.44
Buildings	4.43	6.40	2.30	1.80	0.70	0.50	0.90	1.80
Civil construction	12.91	6.40	2.30	1.80	0.70	0.50	0.90	1.80
Electrical construction ^a	6.17	4.00	2.60	2.70	3.70	3.40	2.70	2.40
Transmission towers	0.71	2.90	0.0	0.00	0.00	0.00	0.00	0.00
Aluminium conductor	0.33	7.14	–9.04	–3.21	1.35	0.82	0.58	0.47
Concrete poles	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Underground copper cable	0.02	16.46	–4.21	–5.30	–1.88	–1.92	–2.01	–2.13
Land and easements ^b	4.45	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Materials – other	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted average annual escalation	100.00	3.58	1.60	1.50	1.58	1.48	1.32	1.38
Weighted average cumulative escalation	1.0000	1.0358	1.0524	–	–	–	–	–
			1.0000	1.0150	1.0310	1.0463	1.0601	1.0747

Source: ElectraNet capex model.

Note: Weighting may not add up due to rounding.

(a) BIS Shrapnel's wage forecasts accepted in the draft decision updated for actual inflation in 2006–07.

(b) ElectraNet has applied its revised land and easement escalator.

Consultant review

SKM made the following recommendations on the appropriateness of ElectraNet's revised materials cost escalators.⁸⁴

- In general, the approach used by ElectraNet and CEG to develop the materials cost escalators provides some improvement to SKM's approach adopted in the draft decision. However, some elements of the approach are not reasonable.
- ElectraNet's BPOs were developed in June 2006 dollar terms and on that basis it is reasonable to include materials cost escalators for 2006–07.
- The weightings applied by ElectraNet to its capex components were reasonable and that the input costs were appropriately allocated to the capex components.
- The component input escalators for steel, construction costs (subject to correcting for transposition errors) and other items in ElectraNet's revised revenue proposal are reasonable.
- It is reasonable to adopt the London Metal Exchange (LME) 27-month forward contract prices and Consensus Economics forecasts as data sources for forecasting aluminium and copper prices.
- The methodology used by CEG to merge the short-term LME 27-month forward contract prices for aluminium and copper (April 2010) with the long-term Consensus Economics forecasts (March 2010) is not reasonable.
- CEG's interpolation of the Consensus Economics forecasts out to 10 years is inappropriate.
- It is reasonable to adopt the New York Mercantile Exchange (NYMEX) forward contract prices as a data source for forecasting crude oil prices.
- The component input escalators for copper, aluminium should be updated with more recent LME (based on an average monthly price) and Consensus Economics data, and the crude oil component input cost escalator should be updated with more recent NYMEX data (based on an average monthly price).

Based on its findings and adjustments, SKM recommended the input cost escalators shown in table 3.13.

⁸⁴ SKM report, pp. 8–12.

Table 3.13: SKM’s forecast component input escalators (per cent, real)

	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Copper	26.19	1.92	–8.46	–5.82	–7.74	–8.42	–9.19
Aluminium	7.95	–3.94	–2.60	–0.92	–2.17	–2.38	–2.60
Crude oil	–14.33	39.26	–8.04	–3.43	–1.12	–1.08	–1.03
Steel	2.90	0.00	0.00	0.00	0.00	0.00	0.00
Electricity, gas and water wages ^a	4.00	2.60	2.70	3.70	3.40	2.70	2.50
Construction costs	7.20	2.30	1.80	0.70	0.50	0.90	1.70
Other (escalated at CPI)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land and easements ^b	6.51	4.94	4.94	4.94	4.94	4.94	4.94

Source: SKM report, p. 12.

(a) SKM applied the BIS Shrapnel wage forecasts accepted in the draft decision.

(b) SKM applied its recommended land and easement escalators.

AER considerations

The AER accepts SKM’s advice that the approach used by ElectraNet in its revised revenue proposal to develop materials cost escalators is generally reasonable. While SKM acknowledged that there were some improvements in the revised methodology put forward by ElectraNet and CEG when compared with the approach applied by it (and adopted in the draft decision), SKM considered that some specific adjustments made to the data for forecasting the copper and aluminium component input escalators were not reasonable and it has used more recent data to develop its recommended copper, aluminium and crude oil component input escalators. These issues are discussed further below. SKM also recommended that the proposed component input escalators for steel, construction costs and other items are reasonable.

Component input weightings

Based on SKM’s advice, the AER is satisfied that ElectraNet’s capex components have been appropriately weighted and that the inputs have been appropriately allocated to the capex components. The AER notes that ElectraNet’s revised approach has resulted in a more detailed breakdown of its capex component inputs and is broadly consistent with the approach recommended by SKM and adopted in the draft decision.

Data sources

The CEG methodology used two data sources to develop its aluminium and copper price forecasts: LME 27-month forward contracts for short-term price forecasts out to April 2010, and Consensus Economics’ long-term price forecasts from March 2010 to 2017. SKM agreed with CEG that in the short-term LME forward contract prices provide the best estimate of the price of aluminium and copper for a relevant future date. For crude oil price forecasts, SKM noted that the data based on NYMEX forward contract prices extend to 2015 and therefore reliance on Consensus Economics data was not required.

The Consensus Economics report provides a single mean price forecast of long-term aluminium and copper prices (among other commodities), which it developed from a survey of commodity price forecasters. SKM stated that its forecasts accepted in the AER draft decision were developed using a similar approach, but agreed that adopting Consensus Economics' forecasts will provide additional transparency and rigour when developing the materials cost escalators. On that basis, SKM considered it appropriate to use Consensus Economics' forecasts. The AER accepts that the CEG approach of using two data sources is reasonable because it captures market data up to the extent of availability and includes credible views from a range of professional forecasters on the price of relevant capex component inputs.

SKM was concerned that the LME and NYMEX forward contract prices used by CEG were obtained from two single days—2 January 2008 and 6 January 2008, respectively. It noted that LME forward prices for aluminium and copper have a tendency to fluctuate considerably from day-to-day and this could potentially bias the outcome. SKM recommended that a monthly average of LME and NYMEX forward contract prices should be adopted as it would be less susceptible to daily price fluctuations.

The AER accepts SKM's recommendation that adopting a monthly average price is more appropriate because it removes potential price distortions that may arise on a single day. The AER notes that SKM used the most recent Consensus Economics January 2008 report, the monthly average of the LME 27-month forward contract price for aluminium and copper, and the monthly average of the NYMEX forward contract price for crude oil to develop its recommended escalators.⁸⁵ To develop a robust forecast, the AER considers there is merit in using the best available information and that it is appropriate to update the forecast materials cost escalators using the most recent data.

Interpolation of data

To merge the short-term LME forward contract price forecasts with Consensus Economics' long-term forecasts, CEG interpolated the LME forecasts as at April 2010 with Consensus Economics' forecast for March 2020.⁸⁶ SKM accepted that applying a linear interpolation to commodity market futures contract pricing is appropriate for inclusion in the process of developing materials cost escalators.⁸⁷ The AER agrees, in this instance, that a linear interpolation appears to be the most reasonable approach to merge the short-term LME data with Consensus Economics long-term forecasts.

SKM noted that before interpolation, CEG amended Consensus Economics' forecasts on the basis of an observation that these forecasts were lower than the LME forward contract price over the relevant period. Subsequently, CEG scaled up Consensus Economics' March 2010 mean forecast by the percentage difference between it and the April 2010 LME 27-month forward contract prices. SKM considered that CEG's upward adjustment is not reasonable because it artificially inflates Consensus Economics' forecasts.

⁸⁵ SKM report, p. 11.

⁸⁶ CEG, *Escalation factors affecting capital expenditure forecasts—A report for ElectraNet*, 18 January 2008, pp. 12–14.

⁸⁷ SKM report, p. 8.

Consensus Economics develops its forecasts from quarterly surveys of commodity price forecasters. SKM noted that each surveyed institution based its own forecasts on different economic assumptions that would take into account latest market information (e.g. LME forward contracts). SKM considered that applying an upward adjustment detracts from the economic assumptions made by the surveyed commodity prices forecasters and the mean price forecasts determined by Consensus Economics. SKM recommended that the upward adjustment of 9 and 18 per cent, for aluminium and copper respectively be removed, and calculated its recommended escalators without this adjustment. The AER accepts SKM's recommendation that such an upward adjustment to economic forecasters' views is inappropriate.

CEG noted that Consensus Economics states that its long-term forecasts are for 5 to 10 years and as a result the specific year defined as long-term is unclear.⁸⁸ The AER notes that CEG took a cautious approach and treated long-term as 10 years, thus interpolating Consensus Economics data using 2017 as the end point.⁸⁹ SKM recommended that, on balance, the interpolation should be to the mid-point of 7.5 years as it provides a balanced approach to the treatment of the ambiguity associated with the applicable period in relation to Consensus Economics long-term forecasts.

In discussions between ElectraNet, CEG and SKM, CEG recognised that it did not consider SKM's proposed adoption of 7.5 years to be unreasonable.⁹⁰ SKM has interpolated its materials cost escalators for 7.5 years. The AER accepts SKM's recommendation and considers it reasonable to interpolate the Consensus Economics data using 2014 as the end point. It also aligns more closely to the end of ElectraNet's next regulatory control period.

Transposition errors

ElectraNet also advised that CEG had identified two errors in the transposition of the component input escalator for 'construction costs' from its report to ElectraNet's capex model.⁹¹ The AER has reviewed these errors and agrees they should be corrected in ElectraNet's capex model as shown in table 3.14.

Table 3.14: Correction of transposition errors (per cent, real)

Construction costs	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ElectraNet's revised proposal	6.40	2.30	1.80	0.70	0.50	0.90	1.80
AER's conclusion	7.20	2.30	1.80	0.70	0.50	0.90	1.70

⁸⁸ CEG, *Escalation factors affecting capital expenditure forecast—A report for ElectraNet*, 18 January 2008, p. 12.

⁸⁹ *ibid.*, p. 13.

⁹⁰ CEG memo 16 March 2008, p. 4.

⁹¹ ElectraNet response to information request no. 255, confidential, submitted 23 February 2008.

Conclusion

The AER notes that ElectraNet's revised methodology for developing materials cost escalators is largely based on the methodology developed by SKM in its February 2007 *Escalation factors affecting capital expenditure forecasts* report.

The AER considers that the materials cost escalators developed under the revised methodology, subject to SKM's adjustments, take account of concerns highlighted in submissions by Powerlink, TransGrid and Transend. SKM's further refinements to the ElectraNet revised methodology for forecasting the materials cost escalators will enhance the process when compared with that adopted in the draft decision. Accordingly, the AER accepts SKM's recommended materials cost escalators and will apply them to ElectraNet's network project cost estimates.

The AER considers that the application of the materials cost escalators as recommended by SKM will reasonably reflect the efficient costs that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in an increase of \$0.3 million to its revised ex ante capex allowance.

Taking into account the adjusted land and easement escalators, the minor corrections to the application of BIS Shrapnel's wage forecasts and the construction costs component input escalators, and SKM's recommended materials cost escalators, the AER's conclusion on the input cost escalators to apply to ElectraNet's network project cost estimates are set out in table 3.15. Non network projects were escalated by CPI (i.e. no real escalation), and this approach by ElectraNet was accepted in the draft decision.

Further, adjustments for CPI updates were needed to be made in the capex model—using actual CPI for 2006–07 and 2007–08 (March to March) which impacts on the escalation of network and non network projects, and for consistency the labour and materials cost escalators in real terms were adjusted for the inflation forecast applied in the PTRM which impacts on the escalation of network projects. Overall, these adjustments resulted in an increase of \$5.3 million to the revised ex ante capex allowance.

**Table 3.15: AER’s conclusion input cost escalators and weightings
(per cent, real)**

Capex component	Weight	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Labour ^a	24.27	4.00	2.60	2.70	3.70	3.40	2.70	2.50
Structures and fabricated steel	2.39	2.90	0.00	0.00	0.00	0.00	0.00	0.00
Primary plant	15.93	1.00	1.69	–0.83	–0.49	–0.51	–0.55	–0.59
Secondary systems	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transformers	14.30	2.31	1.76	–1.17	–0.72	–0.82	–0.88	–0.96
Buildings ^b	4.43	7.20	2.30	1.80	0.70	0.50	0.90	1.70
Civil construction ^b	12.91	7.20	2.30	1.80	0.70	0.50	0.90	1.70
Electrical construction ^b	6.17	4.00	2.60	2.70	3.70	3.40	2.70	2.50
Transmission towers	0.71	2.90	0.00	0.00	0.00	0.00	0.00	0.00
Aluminium conductor	0.33	4.92	–2.36	–1.56	–0.55	–1.30	–1.43	–1.56
Concrete poles	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Underground copper cable	0.02	13.69	3.02	–5.05	–3.37	–4.32	–4.68	–5.11
Land and easements ^c	4.45	7.88	4.73	4.73	4.73	4.73	4.73	4.73
Materials – other	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Weighted average annual escalation ^d	100.00	3.41	1.91	1.04	1.28	1.13	0.97	1.03
Weighted average annual escalation ^e	100.00	3.23	1.23	1.12	1.10	1.16	1.11	1.14
Weighted average cumulative escalation ^e	1.0000	1.0323	1.0450	–	–	–	–	–
			1.0000	1.0112	1.0223	1.0342	1.0457	1.0576

(a) The AER has applied BIS Shrapnel’s wage forecasts.

(b) The AER has corrected ElectraNet’s identified transposition errors.

(c) The AER has applied its revised land and easement escalators.

(d) For a like-with-like comparison with ElectraNet’s proposed cost escalators, the SKM recommended real materials cost escalators have been adjusted using CEG’s proposed inflation forecasts set out in ElectraNet’s revised revenue proposal.

(e) These figures have been adjusted for CPI updates—actual 2006–07 and 2007–08 CPI, and the inflation forecast used in the PTRM. For consistency with the PTRM, the real labour and materials escalators applied in the capex model have been adjusted for the inflation forecast used in the PTRM. The PTRM applies an inflation forecast of 2.63 per cent for this final decision.

Application of escalators to the capex program

ElectraNet revised proposal

ElectraNet's approach to escalating the network project cost estimates in its capex model was based on applying the real cumulative input cost escalators (weighted average). These cumulative escalators were derived from the annual input cost escalators over the next regulatory control period and reflect capex being incurred at the end of the year.

Consultant review

SKM considered that the real cumulative input cost escalators to be applied to ElectraNet in its next regulatory control period should be used in a manner that is consistent with the PTRM cash flow timing assumptions.⁹² The PTRM assumes that capex is incurred on average in the middle of the year. Because capex is not added to the RAB until the end of the year, the PTRM provides a half real WACC adjustment in recognition of this forgone return on capital. As such, the real cumulative input cost escalators should be applied to the network project cost estimates consistent with the PTRM timing assumption for capex.

SKM recommended that the real cumulative input cost escalator to be applied to ElectraNet's capex incurred in the first year during the next regulatory control period should be adjusted by half-a-year. In subsequent years the real cumulative input cost escalator to be applied to capex will be based on the preceding year's annual real input cost escalator multiplied by the half real input cost escalator for the year in which the capex is incurred.⁹³

AER considerations

ElectraNet noted in its revised revenue proposal that the PTRM requires capex to be entered in end of 2007–08 dollar terms. This is taken account of by escalating the network project cost estimates (\$2005–06) for two years. In order to apply the real input cost escalators beyond 2007–08 for capex to be incurred over the next regulatory control period, the project cost estimates must be escalated by the relevant year's real cumulative escalator. That is, for capex to be incurred in year 1 of the next regulatory control period, the project cost estimates are escalated by the real cumulative escalator for that year. For capex to be incurred in year 2 of the next regulatory control period, the project cost estimates are escalated by the real cumulative escalator for that year and so on.

ElectraNet has calculated the real cumulative input cost escalators based on capex being incurred at the end of the year over the next regulatory control period. However, the PTRM assumes that capex is incurred in the middle of the year. The AER accepts SKM's recommendation that the real cumulative input cost escalators employed over the next regulatory control period should be applied in a manner that is consistent with the capex timing assumptions in the PTRM to ensure appropriate compensation

⁹² SKM report, p. 13.

⁹³ Cumulative input cost escalators for:

$$\text{Year 1} = (1 + \text{year 1 escalator})^{1/2}$$

$$\text{Year 2} = (1 + \text{year 1 escalator}) \times (1 + \text{year 2 escalator})^{1/2}$$

$$\text{Year } n = (1 + \text{year 1 escalator}) \times (1 + \text{year 2 escalator}) \times \dots \times (1 + \text{year } n \text{ escalator})^{1/2}$$

is provided. Accordingly, the AER has adjusted the real cumulative input cost escalators to recognise the half-year capex timing assumption as shown in table 3.16.

Table 3.16: AER's adjusted cumulative input cost escalators (real)

	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ElectraNet's revised proposal	1.0000	1.0358	1.0524	–	–	–	–	–
			1.0000	1.0150	1.0310	1.0463	1.0601	1.0747
AER's conclusion (unadjusted for capex timing) ^a	1.0000	1.0323	1.0450	–	–	–	–	–
			1.0000	1.0112	1.0223	1.0342	1.0457	1.0576
AER's conclusion (adjusted for capex timing)	1.0000	1.0323	1.0450	–	–	–	–	–
			1.0000	1.0056	1.0167	1.0282	1.0399	1.0516

(a) These figures have been adjusted for CPI updates—actual 2006–07 and 2007–08 CPI (March to March), and the inflation forecast used in the PTRM. For consistency with the PTRM, the real labour and materials escalators (and consequently the cumulative cost escalators) applied in the capex model have been adjusted for the inflation forecast used in the PTRM. The PTRM applies an inflation forecast of 2.63 per cent for this final decision (see section 4.5.3).

Overall, the AER considers that the application of the adjusted real cumulative input cost escalators will reasonably reflect the efficient costs that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. Following a request from the AER, ElectraNet advised that the application of the adjusted real cumulative input cost escalators in the capex model results in a reduction of \$3.5 million to its revised ex ante capex allowance.

3.6.4 Cost estimation risk factor

AER draft decision

ElectraNet's original revenue proposal applied a 5.2 per cent cost estimation risk factor to its network projects to reflect the probability of outturn costs being higher than estimates. This is based on a methodology developed by Evans & Peck (EP). In the draft decision, the AER identified deficiencies in the methodology adopted to derive the proposed cost estimation risk factor and considered that it did not lend itself towards the intended outcome of accurately providing allowances for likely costs. Therefore, on balance, the AER considered that the proposed risk factor was not appropriate.⁹⁴

However, recognising the reasonableness of providing a cost estimation risk factor for risks outside ElectraNet's control, the AER allowed a 2.6 per cent risk factor. This was based on a more general approach undertaken by EP for Powerlink during its revenue reset and accepted by the AER.⁹⁵ This was considered reasonable, given ElectraNet's reliance on Powerlink for developing the BPOs and project scope and estimates (SAEs).

⁹⁴ AER draft transmission determination, pp. 102–105.

⁹⁵ AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Decision*, 14 June 2007, pp. 38–43.

ElectraNet revised proposal

ElectraNet re-engaged EP to review and comment on the issues raised by the AER in the draft decision.⁹⁶ Based on EP's comments, ElectraNet did not accept the 2.6 per cent cost estimation risk factor allowed by the AER. After accounting for the draft decision changes to the forecast capex projects, ElectraNet has submitted a revised cost estimation risk factor of 4.6 per cent to apply to its network capex program. EP's key comments noted by ElectraNet were:

- In the absence of reliable historical data, the risk workshop approach based on the combined knowledge of core personnel with actual project delivery knowledge is a valid approach to adopt and is widely used in the construction industry.
- The parameters identified by experienced personnel take account of new initiatives and estimating process used by ElectraNet.
- The implicit conservatism exhibited by the 'Pert' distribution due to its higher weighting towards the 'most likely' value provides a moderated outcome.
- The output of risk modelling process is highly dependant on the number of projects in the portfolio and a larger number provides a greater opportunity to diversify risks.
- Sensitivity analysis shows that significant alterations to the risk boundary inputs do not have a significant impact on the risk adjusted capex.
- Developing risk based estimates do not transfer risks from ElectraNet to customers and the approach used to diversify those risks explicitly results in a reasonable value for the risk allowance that ensures that inefficient expenditure or cost overruns are incurred by ElectraNet.
- It is incorrect to state that only two cost saving opportunities were identified, given that the minimum value in the model is below the 'most likely' value and thereby each of the inherent risks identified in the model is a potential gain.
- A comparison of risk adjusted cost estimates of major public utilities and industry companies indicated that 4.6 per cent is within the bounds of other infrastructure programs.⁹⁷

ElectraNet also noted that:

- Powerlink considered a 2.6 per cent risk adjustment extremely conservative and well below its historical performance
- its analysis to examine the impact of the size of the capital program on the portfolio risk factor indicated that it is reasonable to expect a smaller capital program to have a higher risk profile than a larger one
- the AER's consultant SKM concluded that the figure of 5.2 per cent for overall portfolio risk adjustment is within the range it expects from industry experience and should be accepted by the AER.⁹⁸

⁹⁶ Evans & Peck, *Risk review of capital works program – Supplementary report—Response to AER's draft determination*, January 2008.

⁹⁷ ElectraNet revised revenue proposal, pp. 30–31.

⁹⁸ *ibid.*, pp. 31–32.

Submissions

Transend supported ElectraNet's position that it is reasonable to expect a smaller capital program to have a higher risk profile than a larger one. Transend encourages the AER to consider the appropriate risk factor for ElectraNet and not simply be guided by precedent set for other companies with different capex program structures.⁹⁹

Powerlink submitted that given its experience of a 9.4 per cent asymmetry in forward cost estimating, ElectraNet's revised 4.6 per cent risk factor is not unreasonable.¹⁰⁰

AER considerations

For the reasons stated below and set out in more detail in appendix A, the AER on balance considers that ElectraNet's revised proposal does not fully address the deficiencies identified in the draft decision in relation to the methodology adopted for developing the proposed risk factor. The AER recognises that ElectraNet's cost estimation risk analysis is based on a sophisticated method for determining an allowance for unforeseen cost increases. In reaching its conclusion the AER has assessed the different risk categories and models making up the risk analysis; the appropriateness of the workshop based inputs and the sensitivity of the risk factor on these inputs; the potential for some risks in the proposed risk factor already being compensated for in other parts of the regulatory framework; whether new initiatives and estimating procedures have been accounted for; and the relationship between the size of the project portfolio and the risk factor.

The cost estimation risk analysis is aimed at providing efficient allowances for costs that are likely to be incurred as part of the project portfolio cost estimation process. Although the risk workshop appears to be accepted industry practice for risk based analysis, it has to be considered in light of the overall modelling exercise undertaken to derive the proposed risk factor. The AER agrees with EP that, 'the output from the risk based approach, like all modelling exercises is reliant on the quality of the input', and to this extent the verification of the reasonableness of the inputs is necessary to satisfy the AER that the intended outcome is achieved.¹⁰¹

The AER's analysis of the risk modelling confirmed that the overall risk factor consisted of three categories—Inherent risks, Contingent risks and Adelaide CBD risks. The dollar value for each category, its proportion to the total risk adjustment and the corresponding risk factor as a percentage of the base capex estimate is shown in table 3.17.

⁹⁹ Transend, *Submission of the AER's draft decision on ElectraNet's revenue proposal*, 15 February 2008, pp. 3–4.

¹⁰⁰ Powerlink, *ElectraNet revised revenue proposal*, 22 February 2008, p. 2.

¹⁰¹ EP supplementary report, p. 26.

Table 3.17: Itemisation of the total risk adjustment

	Dollar value outcome of each risk category (\$m) ^a	Dollar value as a proportion of total risk adjustment (%)	Risk factor (%) ^b
Inherent risk	8.87	29.71	1.34
Contingent risk	11.55	38.71	1.81
Adelaide CBD risk	9.43	31.58	1.40
Total risk adjustment	30.67	100	4.64

Source: AER analysis of ElectraNet's risk model

(a) Dollar values are approximate only as each component was derived after separate simulations of the risk model.

(b) The risk factor is a percentage of the dollar value of the unadjusted capex estimate.

ElectraNet stated that the risk workshop approach is reasonable in the absence of reliable historical cost data because it depends on the combined knowledge of key ElectraNet personnel.¹⁰² The AER acknowledges that in the inherent risk category the risk workshop using industry knowledge appears to be a reasonable way to develop the cost boundaries as the inherent risk probability distributions were based around the base cost estimates. In the draft decision the AER considered that the BPOs and SAEs underlying these base cost estimates were reasonable. The risk workshop developed upper and lower cost boundaries around these base cost estimates.

However, annual dollar consequences were used when developing the contingent and Adelaide CBD risk categories. These dollar values, along with the likelihood of occurrence formed the most likely value for these categories. The dollar consequences and likelihood of occurrences used in the contingent and Adelaide CBD risk categories are not based on comparable actual past outcomes.

The AER tested the risk model's sensitivity to the annual dollar value consequence assigned to each contingent risk element. This analysis indicated that the risk model is sensitive to changes in the annual dollar value consequence assigned to each contingent risk element. Therefore, the AER considers that corporate knowledge, per se, whereby these annual dollar consequences and likelihood of occurrences are developed without any evidence of independently verified past experiences does not lend itself to achieving the stated outcome of providing efficient allowances for costs that are likely to be incurred.

The AER's concerns relating to the transfer of risks were mainly directed to the risk elements identified in the contingent risk category. In particular, the AER questioned whether all contingent risk elements should be transferred to users. Typical business risks are not automatically transferred to consumers in a competitive business environment because some risks will be borne by the firm. Some of these contingent risk elements' cost and opportunities are potentially captured via the capital asset pricing model (CAPM) because these risks are faced by the market as a whole. Compensation via the risk factor assumes that these risks are not already captured by the equity beta and paid for by users via the CAPM based return on capital. Based on

¹⁰² ElectraNet revised revenue proposal, p. 30.

the available information, the AER is not reasonably satisfied that the inclusion of these types of risks in calculating the cost estimation risk factor has sufficiently accounted for the possibility of users paying for these risks via both the CAPM and the risk factor.

In response to the AER's concerns about the lack of moderation to take account of new initiatives, ElectraNet stated that the Pert distribution is heavily weighted towards the 'most likely' value and is implicitly conservative, which results in a moderated outcome. Although the inputs to the inherent risk category appear to display some moderating influences, given the lack of verification of the inputs used to develop the most likely values for the contingent and Adelaide CBD risk categories, the benefit of the Pert distribution's weighting towards the most likely outcome is negated. Given the weight of these two risk categories and the sensitivity of the annual dollar consequence inputs to the overall risk factor, the AER is not satisfied that ElectraNet has sufficiently demonstrated that the proposed risk factor has accounted for new initiatives and estimating procedures.

In regard to comparing the effect of the size of the capital program on the risk factor, ElectraNet demonstrated this by adjusting its capital program (through applying a multiple to the existing capital program) a number of times and repeated its risk analysis. It noted that the results indicated that a smaller capital program or project portfolio has a higher risk profile compared to a larger program, and therefore it is reasonable for its capex to have a higher risk factor than Powerlink.

Although this outcome appears reasonable for inherent risks, after accounting for all three risk categories, the AER's analysis indicates that where the capital program and dollar consequences are simultaneously increased, the risk factor increases over a larger program. Therefore, in the context of ElectraNet's risk model, the results indicate that the impact of the size of the capital program on the overall risk factor is sensitive to the underlying inputs to the model. The AER cannot reasonably conclude that a larger project portfolio will necessarily have a lower risk factor. In light of its analysis, the AER considers that the relationship between the size of the project portfolio and the risk factor is unclear.

In the draft decision the AER noted that the 2.6 per cent risk factor was based more on EP's experience and knowledge of the delivery of major infrastructure projects and programs.¹⁰³ EP acknowledged that its analysis for Powerlink was based on its experience.¹⁰⁴ This industry experience was applied by EP in the context of Powerlink's capex program. In the absence of an appropriately determined risk factor and given ElectraNet's reliance on Powerlink for determining BPOs and project SAEs, the AER considers that it is reasonable for ElectraNet to also apply the risk factor of 2.6 per cent to its network capex program.

On balance, given the available information, the AER is not reasonably satisfied that ElectraNet's revised cost estimation risk factor is appropriate. Therefore, consistent with the draft decision, the AER considers that a 2.6 per cent risk factor will provide ElectraNet with a total capex allowance that reasonably reflects the efficient costs that a prudent operator in the circumstances of ElectraNet would require to achieve the

¹⁰³ AER draft transmission determination, p. 104.

¹⁰⁴ EP, supplementary report, p. 21.

capex objectives. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$12 million to its revised ex ante capex allowance.

3.6.5 Capital expenditure profile—ETC driven projects

AER draft decision

The AER noted that a significant portion of the capex required in the early years of the next regulatory control period is driven by the deadline for remedying any breaches resulting from the amended reliability standards of the ETC—as determined by the Essential Services Commission of South Australia (ESCOSA)—which is due to come into effect on 1 July 2008. A requirement of the ETC is that ElectraNet use its best endeavours to implement the new reliability standards within 12 months and in any case within three years of the new standards coming into effect. Consequently, the profile of the forecast capex is weighted heavily towards the first three years of the next regulatory control period.

The AER considered there was merit in deferring three proposed ETC driven projects towards the end of the next regulatory control period.¹⁰⁵ Recognising that the ESCOSA is the decision making body in regard to any deferral of ETC driven projects, the AER wrote to the ESCOSA requesting it consider allowing ElectraNet to defer the commissioning of the following three projects:

- Whyalla terminal rebuild (Project 10509)
- Wudinna transformer reinforcement (Project 11102)
- Ardrossan West substation partial rebuild and transformer capacity increase (Project 10615).

ElectraNet revised proposal

ElectraNet noted that, in response to the AER's request, the ESCOSA released a discussion paper seeking stakeholder comments on the following amendments to the ETC:

- Whyalla Terminal—Connection point to remain classified as a category 3 load until 30 June 2010 and then to be transferred to category 4 thereafter, allowing deferral of the associated project rebuild from 2011 to 2013
- Wudinna—Connection point to remain classified as a category 1 load until 30 June 2009 and then to be transferred to category 2 thereafter, allowing deferral of the associated project reinforcement from 2011 to 2012
- Ardrossan West—No change to the ETC was required to accommodate the potential deferral of the associated project partial rebuild from 2011 to 2012, given that the required transformer capacity is not currently forecast to be exceeded until 2009, and 2012 is within the three-year timeframe allowed by the ETC for restoring the required transformer capacity.¹⁰⁶

¹⁰⁵ AER draft transmission determination, pp. 119–121.

¹⁰⁶ ElectraNet revised revenue proposal, p. 33.

However, ElectraNet considered that the deferral of the Ardrossan West project from 2011 to 2012 is no longer feasible based on the record demand experienced by ETSA Utilities on the Yorke Peninsula at the end of December 2007. ETSA Utilities advised ElectraNet that it expects to revise its connection point demand forecast by advancing the need for this project by one year.

Subject to the ESCOSA amending the ETC before the AER's final decision, ElectraNet accepted the deferral of the Whyalla terminal and Wudinna projects. It has taken the proposed deferrals into account in its revised forecast capex proposal.

Submissions

The ESIPC supported the changes to the timing of projects proposed by the AER to help smooth the capex program over the next regulatory control period.¹⁰⁷ It noted that any deferral of the projects should not result in the connection points in question falling below the reliability levels that they currently enjoy.

AER considerations

On 13 March 2008 the ESCOSA released its final decision on the amendments to the ETC based on the AER's request. The ESCOSA decided that, in accordance with the proposed amendments set out in its discussion paper, the Whyalla terminal connection point will remain classified as a category 3 load until 30 June 2010 and will then be transferred to category 4, and the Wudinna connection point will remain classified as a category 1 load until 30 June 2009 and will then be transferred to category 2.¹⁰⁸

Whyalla terminal rebuild and Wudinna transformer reinforcement projects

Given that the ESCOSA has finalised the process for amending the ETC, the AER considers that the profile of ElectraNet's ex ante capex allowance should be adjusted for the deferral of the Whyalla terminal and Wudinna projects. Based on ElectraNet's revised revenue proposal, the application of these adjustments in ElectraNet's capex model results in around \$47 million (\$2007–08) of the capex in the first three years being deferred to the fourth and fifth years of the next regulatory control period.

Ardrossan West partial rebuild project

The AER notes that ElectraNet's original revenue proposal stated that this project is required in 2011 and that it was driven by the new ETC changes.¹⁰⁹ As a result, the AER sought the ESCOSA's agreement to allow deferral of the project commissioning date to 2012 by amending the ETC.

In its discussion paper the ESCOSA clarified that it understood the Ardrossan West project was expected to be required in 2012, based on load forecast when it was considering the new ETC changes in 2006. The ESCOSA considered that no change to the ETC was required to accommodate the potential deferral of the project from 2011 to 2012, given that the required transformer capacity is not currently forecast to be exceeded until 2009, and 2012 is within the three-year timeframe allowed by the ETC for restoring the required transformer capacity.

¹⁰⁷ ESIPC, *ElectraNet revenue cap—draft decision*, 18 February 2008, p. 2.

¹⁰⁸ ESCOSA, *Amendments to the Electricity Transmission Code: Final decision*, March 2008.

¹⁰⁹ ElectraNet response to information request no. 199, confidential, submitted 3 October 2007.

However, in its revised revenue proposal, ElectraNet stated that recent load occurring on the Yorke Peninsula suggests that the Ardrossan West project will need to be advanced from 2012 to 2011. Following a request from the AER, ElectraNet provided a copy of ETSA Utilities' revised Ardrossan West connection point demand forecast.¹¹⁰ The AER's review of this information confirms that the 2007–08 actual load experienced by ETSA Utilities is much higher than was forecast in 2007 and will result in the revised forecast for 2008–09 being advanced by one year when compared with the 2007 forecast.¹¹¹ It agrees with ElectraNet that the revised forecast will advance the need for project by one year. The AER therefore accepts that the possible deferral of the Ardrossan West project from 2011 to 2012 is no longer feasible.

In the draft decision the AER considered that the replacement component of the Ardrossan West project should be reclassified as an augmentation. In its revised revenue proposal ElectraNet provided updated project summaries including the Ardrossan West project. The summary indicated that the project was still classified under the category of connection and replacement. ElectraNet has confirmed with the AER that this was an oversight—the replacement component of works for Ardrossan West should be classified as an augmentation and that the entire project will be subject to a regulatory test assessment before implementation.¹¹²

3.6.6 Replacement of assets that provide transitional services

AER draft decision

The replacement of assets providing transitional services—existing connection assets—was not considered in the draft decision because ElectraNet did not propose this in its original revenue proposal.

ElectraNet revised proposal

ElectraNet proposed to include \$45 million of asset replacement costs for assets providing transitional services.¹¹³ The replacement projects it proposed to include in its revised forecast capex allowance involved the replacement of existing substation assets at the Morgan to Whyalla and the Mannum to Adelaide water pumping stations.¹¹⁴

Initially ElectraNet's approach assumed that all asset replacements for transitional services would not be included in its regulated revenue cap and, therefore, it did not include the replacement assets in its original revenue proposal submitted to the AER in May 2007.

Submissions

Powerlink, TransGrid and Transend supported ElectraNet's proposed approach to continue to treat the replacement assets as providing prescribed transmission services.

The ESIPC noted that any capex undertaken on connection assets will be borne by the customer involved and it would be an abrogation of a customer's rights to simply

¹¹⁰ ElectraNet response to information request no. 253, confidential, submitted 22 February 2008.

¹¹¹ ESIPC, *Annual planning report*, June 2007, p. 173 (table 7.2.2).

¹¹² ElectraNet response to information request no. 252, confidential, submitted 22 February 2008.

¹¹³ Clause 11.6.11 of the NER deals with the treatment of assets that provide transitional services.

¹¹⁴ ElectraNet revised revenue proposal, p. 36.

leave it to the TNSP to assess and build connection assets without reference to the affected customer. The ESIPC stated it would prefer that the replacement assets be treated as providing negotiated transmission services.¹¹⁵

AER considerations

The AER notes that clause 6A.12.3(a) of the NER permits ElectraNet to submit a revised revenue proposal to the AER within 30 business days of the AER publishing its draft decision. However, clause 6A.12.3(b) only allows ElectraNet to make revisions to its original revenue proposal to incorporate the substance of any changes required by or to address matters raised in the draft decision.

ElectraNet's inclusion of replacement assets for transitional services in its revised revenue proposal is not in accordance with this clause. As the AER has formed the view that the proposed revisions are not required to incorporate the substance of changes required by or to address matters raised in the draft decision, the AER will not consider the inclusion of the replacement assets in its final decision.

Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$45 million to its revised ex ante capex allowance.

3.6.7 Other issues

AER considerations

The ESIPC requested an assurance from the AER that ElectraNet's project definitions and scopes represented an efficient capital works program.¹¹⁶ As noted in the draft decision, SKM's detailed review of a sample of projects analysed the need for the project, assessed the range of feasible alternatives, and considered whether the scope, cost and timing were efficient.¹¹⁷ SKM found that the projects were generally prudent and efficient, and there were no issues or problems that it considered were serious or likely to be systematic. Therefore, based on the information provided by ElectraNet and the detailed projects review process the AER is satisfied that ElectraNet's project definitions and scopes represent an overall efficient capex program.

The AER notes that the ECCSA submission referred to some issues it had already submitted on ElectraNet's original revenue proposal and considered in the draft decision. In particular, the ECCSA was concerned about who should pay for the costs associated with increased reliability for the Adelaide CBD¹¹⁸ and ElectraNet's asset replacement policies¹¹⁹ were specifically discussed in the draft decision.¹²⁰

¹¹⁵ ESIPC, *ElectraNet revenue cap—draft decision*, 18 February 2008, pp. 5–6.

¹¹⁶ ESIPC, *ElectraNet revenue cap—draft decision*, 18 February 2008, p. 5.

¹¹⁷ AER draft transmission determination, p. 80.

¹¹⁸ ECCSA, *SA Electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, p. 17.

¹¹⁹ *ibid.*, p. 24

¹²⁰ AER draft transmission determination, appendix C, p. 244 (who should pay for the increase in the Adelaide CBD reliability) and appendix C, pp. 248–252 (ElectraNet's replacement capex program).

The ECCSA also stated that the approved forecast capex was double the amount that ElectraNet had trouble spending in the current regulatory period.¹²¹ Although the comment about ElectraNet’s forecast capex being double that allowed for the current regulatory period is correct, ElectraNet did not have trouble spending it—rather, its spending profile differed from what was originally forecast and reflected changing circumstances. Further, the issue of ElectraNet’s ability to deliver its forecast capex program was also considered in the draft decision.¹²²

3.6.8 Contingent projects

AER draft decision

After reviewing ElectraNet’s proposed 17 contingent projects (\$947 million) the AER approved 17 contingent projects with a total indicative cost of \$805 million. The Northern transmission reinforcement contingent project (\$250 million) was not approved because it included capital works for assets providing both prescribed and negotiated transmission services. The Parafield Gardens West contingent project (\$14 million) was excluded because it was wholly providing negotiated transmission services. Two proposed ex ante capex projects—Adelaide CBD line works (\$105 million) and Transformer ballistic proofing (\$18 million)—were transferred to contingent projects.¹²³

ElectraNet revised proposal

ElectraNet did not accept the AER’s removal of the Parafield Gardens West contingent project. It considered that this project, as proposed in its original revenue proposal, provides prescribed transmission services and not negotiated transmission services. It stated that:

While the project is intended to remove constraints associated with the expansion of generation facilities, the scope of works is wholly within the shared transmission network and physically removed from any generation connection. The works do not include any new or expanded facilities to connect generation to the transmission network.¹²⁴

Therefore, ElectraNet submitted that the indicative cost of \$14 million, as originally proposed, should be included in the contingent projects allowance. It noted that this amount is above the applicable cost threshold. The trigger event is the same as originally proposed—application of the regulatory test demonstrating that the project would deliver net market benefits.

While accepting that the originally proposed Northern transmission reinforcement project did not satisfy the NER because it included some works for negotiated transmission services, ElectraNet has now proposed a revised project at an estimated cost of \$75 million. It stated that the revised project scope includes only those components of capital works required to provide prescribed transmission services.¹²⁵

¹²¹ ECCSA, *SA Electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, p. 5.

¹²² *ibid.*, pp. 116–121.

¹²³ AER draft transmission determination, pp. 107–115.

¹²⁴ ElectraNet revised revenue proposal, p. 39.

¹²⁵ *ibid.*, pp. 38–39.

Submissions

Transend supported ElectraNet's position that the Parafield Gardens West project will supply prescribed transmission services in accordance with the NER. It also supported the AER's decision to transfer the Adelaide CBD project line works component to contingent projects.¹²⁶

The ESIPC submitted that the NER should be applied in a manner that ensures the following:

- Clarity of trigger points—The ESIPC identified a number of contingent projects that have a trigger which could only be evaluated after an actual demand increase has occurred rather than on forecast demand. It considered that the triggers for these projects should be redrafted on a prospective basis to reflect forecast loads based on evidence of new load connections from ETSA Utilities or new connection agreements.¹²⁷
- Driver for efficient investment—The AER should consider redrafting the trigger events to ensure that the proposed response to a trigger is the most efficient long-term solution and the capex allowance reflects efficient costs. It further stated that the AER should not rely solely on the regulatory test being undertaken and should consider more explicit project evaluation techniques.
- Scope of work relevant to contingent projects—The transmission determination should limit the contingent project expenditure only to capital works required after adjusting for projects implemented and/or deferred under a 'business as usual' scenario.

Consultant review

SKM reviewed the two contingent projects in the revised revenue proposal and found that:¹²⁸

- The capital works for the revised Northern transmission reinforcement contingent project include only those associated with providing prescribed transmission services as the project is required to support power flows in the shared network and is located within the shared network; the proposed project scope and cost estimates were reasonable; and the indicative cost exceeds the threshold.
- Although the need for the Parafield Gardens West contingent project may be driven by a project that also includes a negotiated transmission service component, it is satisfied that the proposed contingent project is within the shared network and therefore provides prescribed transmission services.
- The Parafield Gardens West project scope and estimate is reasonable and the indicative cost exceeds the threshold.

¹²⁶ Transend, *Submission of the AER's draft decision on ElectraNet's revenue proposal*, 15 February 2008, p. 5.

¹²⁷ ESIPC, *ElectraNet revenue cap—draft decision*, 18 February 2008, p. 5. The contingent projects identified were: Eyre Peninsula, Riverland, Yorke Peninsula, South East, Bungama, Southern Suburbs and Playford.

¹²⁸ SKM report, p. 15–17.

SKM's review also considered the scope of work relevant to contingent projects. It was satisfied that interactions between contingent and ex ante projects would not be expected to give rise to windfall gains to ElectraNet in the event that contingent projects are triggered. It expected, however, that any such impact would be noted by ElectraNet in its application for a revenue adjustment to the AER when a contingent project has been triggered.

Given that the ESIPC examines whether expected load projects are committed before including these in its demand forecasts, SKM agrees that load driven trigger events should be based on forecast load rather than actual demand.

AER considerations

Northern transmission reinforcement and Parafield Gardens West contingent projects

The AER accepts SKM's findings that ElectraNet's revised Northern transmission reinforcement contingent project scope and indicative costs are reasonable. It is satisfied that the proposed capital works relate to the shared transmission network and therefore provide only prescribed transmission services.

The AER also accepts SKM's advice that the Parafield Gardens West project as proposed by ElectraNet provides prescribed transmission services and the scope and estimates are reasonable. Although the project is intended to remove constraints associated with the expansion of generation, the AER is satisfied that the resulting capital works on the shared network/deep connection assets constitute prescribed transmission services under the NER.

Clarity of trigger points

The AER notes the ESIPC submission and confirms that the relevant project triggers as proposed and approved in the draft decision were intended on a prospective basis. It was expected that the project would be triggered once the underlying agreed maximum demand (AMD) was confirmed, rather than on a historical basis (when the actual increase in demand occurred).

The AER considers that further clarification of the trigger will better reflect its intent. It has clarified the triggers by making minor amendments—for example, the trigger for the Eyre Peninsula contingent project is an increase in forecast demand in the lower Eyre Peninsula region exceeding the 2007 published 2013–14 aggregated demand forecast for the region by 15 MW.¹²⁹ The triggers for the following projects have been similarly amended: Eyre Peninsula reinforcement; Riverland reinforcement; Yorke Peninsula reinforcement; South East reinforcement; Bungama reinforcement; Southern suburbs reinforcement; and the Playford (Davenport) to Leigh Creek 132 kV transmission line.

The forecasts to be used are those provided by the ESIPC in its annual planning reports. The ESIPC has confirmed that a trigger on the basis of forecast demand sufficiently addresses its concerns.¹³⁰ ElectraNet has also confirmed that it has no

¹²⁹ Aggregate of connection point demand forecasts for the region published by the Electricity Supply Industry Planning Council in its annual planning report.

¹³⁰ ESIPC, confidential email, *Re: Contingent project trigger events*, 7 March 2008.

objection to this clarification.¹³¹ The ESIPC also advised the AER that it ‘only includes projects in its forecasts once they satisfy a committed criterion which involves such things as financial close, development approvals etc.’¹³² Therefore, if a relevant contingent project is triggered by a forecast step-load increase, the ESIPC’s approach to forecasting demand provides comfort that the underlying increase in forecast demand is supported by committed loads.

Driver for efficient investment

The AER notes that the efficiency of ElectraNet’s specific projects in response to a trigger will be addressed pursuant to an application under clause 6A.8.2 of the NER. The AER considers that its assessment under the provisions of the NER will ensure that ElectraNet’s response to a trigger is the most efficient option. In this regard, the AER has released its *Process guideline for contingent project applications under the National Electricity Rules – September 2007* (contingent project guideline).¹³³

The draft decision also noted that ElectraNet is expected to comply with the contingent project guidelines. In order for a contingent project application to be assessed the TNSP should have completed the regulatory test, all feasibility studies and options assessment.¹³⁴ Further, the AER agrees with the ESIPC that the regulatory test assessment is only one piece of information—albeit a major one—along with other documents such as tender assessments, contracts, and investment appraisals. Additionally, a TNSP is expected to begin pre-lodgement consultations as soon as it is confident that the trigger event is likely to occur.¹³⁵

Scope of work relevant to contingent projects

The AER agrees with the ESIPC’s submission that contingent projects should only include expenditure that has not been provided for in the ex ante capex allowance. In response to a request from the AER, ElectraNet provided supporting material and stated that there were no capital works associated with its contingent projects that may defer capex nor include capex already allowed for in the ex ante capex allowance.¹³⁶ After reviewing the additional information, SKM confirmed ElectraNet’s response.¹³⁷

Further, the AER is satisfied that an assessment of a contingent project application under clause 6.A.8.2 of the NER will consider whether the proposed cost estimate has taken account of interactions with other capex projects. In the draft decision the AER noted that the scope of a contingent project must not include any project costs approved in the ex ante capex allowance.¹³⁸ Overall, the AER is satisfied that its assessment of the revised revenue proposal and the future assessment process under clause 6A.8.2 will ensure that contingent project costs do not include any expenditure provided under the ex ante capex allowance.

¹³¹ ElectraNet response to information request no. 277, confidential, submitted 7 March 2008.

¹³² ESIPC, confidential email, *Re: Contingent project trigger events*, 7 March 2008.

¹³³ AER, *Process guideline for contingent project applications under the National Electricity Rules*, September 2007.

¹³⁴ *ibid.*, p. 8.

¹³⁵ *ibid.*, p. 6.

¹³⁶ ElectraNet response to information request no. 263 & 264, confidential, submitted 22 February 2008.

¹³⁷ SKM report, p. 16–17.

¹³⁸ AER draft transmission determination, p. 253.

Conclusion

The AER accepts the Northern transmission reinforcement (\$75 million) and the Parafield Gardens West (\$14 million) contingent projects as proposed in the revised revenue proposal. The indicative costs of both projects satisfy the cost threshold.¹³⁹

The AER has approved 19 contingent projects for ElectraNet with a total indicative cost of \$894 million. Table 3.18 sets out the AER's approved contingent projects and the indicative costs. Appendix B provides a summary of all contingent projects approved by the AER and describes the triggers and indicative costs.

Table 3.18: AER's approved contingent projects and indicative costs (\$m)

Project name	Cost
Eyre Peninsula reinforcement	150
Riverland reinforcement	130
Yorke Peninsula reinforcement	41
South East reinforcement	33
Bungama reinforcement	12
Southern Suburbs reinforcement	16
Playford (Davenport) to Leigh Creek 132 kV transmission line	11
Fleurieu Peninsula reinforcement	65
Murray Mallee reinforcement	34
Munno Para reinforcement	26
Lucindale West reinforcement	17
Western Suburbs reinforcement	15
Tailem Bend to Tungkillo reinforcement	41
Parafield Gardens West	14
Para – Brinkworth – Davenport 275 kV transmission lines	12
Heywood interconnection capacity upgrade	80
Northern transmission reinforcement	75
Adelaide CBD line works component	105
Transformer ballistic proofing	17
Total indicative cost	894

¹³⁹ Five per cent of the MAR is \$11 million, which makes this amount the cost threshold for ElectraNet's contingent projects.

3.7 AER conclusion

The AER has considered ElectraNet’s revised forecast capex proposal of \$719 million (\$2007–08) and, for the reasons outlined in this chapter, is not satisfied that this total capex forecast proposed by ElectraNet reasonably reflects the capex criteria under clause 6A.6.7(c):

- the efficient costs of achieving the capex objectives
- the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the capex objectives
- a realistic expectation of the demand forecast and cost inputs required to achieve the capex objectives.

In reaching this conclusion, the AER has had regard to the capex factors set out in clause 6A.6.7(e).

As the AER is not satisfied that ElectraNet’s forecast capex reasonably reflects the capex criteria, under clause 6A.6.7(d), the AER must not accept the forecast capex in ElectraNet’s revised revenue proposal. The AER is therefore required under clause 6A.14.1(2)(ii) to provide an estimate of the total capex that ElectraNet will require over the next regulatory control period that the AER is satisfied reasonably reflects the capex criteria, taking into account the capex factors.

Based on its analysis and the advice of SKM the AER has reduced ElectraNet’s revised ex ante capex proposal by \$70 million. This represents a reduction of around 11 per cent of ElectraNet’s revised forecast capex allowance.

The AER’s amended ex ante capex allowance for the next regulatory control period is \$650 million and is set out in table 3.19 along with the adjustments made to ElectraNet’s revised capex proposal. In addition, the AER has approved an indicative contingent projects allowance of \$894 million.

Although some adjustments made by the AER are set out on a project specific basis, it notes that the total capex after these adjustments is only an allowance. The AER’s project specific conclusions should not be taken to bind ElectraNet to a particular set of project specific capex budgets—ElectraNet has the ultimate discretion on how it allocates its capex allowance.

This amended allowance represents the AER’s estimate of the total capex that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. The AER is satisfied that the amended ex ante capex allowance of \$650 million over the next regulatory control period, reasonably reflects the capex criteria, taking into account the capex factors.

Table 3.19: AER's conclusion on ElectraNet's ex ante allowance (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
AER's ex ante capex allowance (draft decision)	126.13	176.92	130.24	115.81	57.20	606.31
ElectraNet's revised capex proposal	132.38	179.70	153.60	172.10	81.56	719.33
Removal of replacement assets providing transitional services	-2.66	-12.69	-12.33	-12.95	-3.87	-44.50
Adjustment to Strategic land purchase RY 2 high/medium project	-2.52	1.47	-2.48	-2.52	-2.66	-8.71
Adjustment to weather station project	-0.11	-0.11	-0.11	-0.12	-0.11	-0.56
Adjustment to labour escalators	-	-	-	-	0.02	0.02
Adjustment to land and easement escalators	-0.59	-1.24	-1.31	-1.85	-1.02	-6.01
Adjustment to materials cost escalators	0.25	0.24	0.05	-0.11	-0.15	0.27
CPI updates to network and non network capex ^a	1.12	1.14	0.98	1.31	0.71	5.26
Application of input cost escalators to reflect capex timing	-0.61	-0.89	-0.75	-0.83	-0.39	-3.47
Adjustment to cost estimation risk factor	-2.16	-3.14	-2.55	-2.91	-1.35	-12.12
AER's total adjustments	-7.28	-15.23	-18.50	-19.97	-8.83	-69.81
AER's ex ante capex allowance	125.09	164.47	135.10	152.12	72.73	649.51

Note: Total may not add up due to rounding.

(a) The CPI updates include using actual CPI for 2006–07 and 2007–08 (March to March), and adjusting the labour and materials cost escalators in real terms for the inflation forecast applied in the PTRM.

4 Cost of capital

4.1 Introduction

This chapter sets out the AER's consideration of issues raised in response to the draft decision on ElectraNet's weighted average cost of capital (WACC) including matters raised by ElectraNet in its January 2008 revised revenue proposal (revised revenue proposal).

The AER's consideration of debt and equity raising costs, and corporate income tax allowances is not set out in this chapter because they are not compensated for through the WACC. Analysis of debt and equity raising costs is found in chapter 5 and the discussion of corporate income tax is found in chapter 7.

4.2 AER draft decision

In the draft decision the AER determined a nominal vanilla WACC for ElectraNet of 9.66 per cent. This WACC was derived in accordance with clause 6A.6.2 of the NER and based on market rates prevailing at the time of the draft decision. Table 4.1 summarises the AER draft decision on the WACC parameters. The AER noted that it would update the values of the risk-free rate and debt risk premium to reflect more current market data, based on the agreed averaging period, at the time of its final decision.

Table 4.1: AER's conclusion on WACC parameters

Parameter	AER's conclusion
Risk-free rate (nominal)	6.25 %
Risk-free rate (real)	3.19 % ^a
Expected inflation rate	2.97 %
Debt risk premium	1.68 %
Market risk premium	6.00 %
Gearing	60 %
Equity beta	1.00
Nominal pre-tax return on debt	7.93 %
Nominal post-tax return on debt	12.25 %
Nominal vanilla WACC	9.66 %

Source: AER draft transmission determination, p. 133.

(a) The real risk-free rate was derived using the Fisher equation.

4.3 ElectraNet revised proposal

ElectraNet recognised that the risk-free rate and debt risk premium would be updated for the AER's final decision using the averaging period requested by ElectraNet on a confidential basis.¹⁴⁰ Consistent with this approach, ElectraNet has implemented all aspects of the AER draft decision with the exception of the expected inflation rate. ElectraNet proposed an alternative inflation forecasting methodology to derive an average inflation forecast over a 10-year period.

4.4 Submissions

Submissions were received from Transend, Powerlink, the Energy Consumers Coalition of South Australia (ECCSA) and TransGrid regarding the AER draft decision on the WACC. These submissions commented on the AER's inflation forecasting methodology applied in the draft decision.

4.5 Issues and AER considerations

4.5.1 Risk-free rate

AER draft decision

The AER determined a nominal risk-free rate of 6.25 per cent based on the moving average of 10 days for Commonwealth Government Securities (CGS) yields with a 10-year maturity for the period ending 5 October 2007.¹⁴¹ The AER accepted ElectraNet's proposal to use a 10-day averaging period to estimate the risk-free rate and agreed to the request for the start and end dates of the averaging period to remain confidential until the expiration of the period. It noted that the risk-free rate would be updated, based on the agreed averaging period, at the time of its final decision. The intention is to produce a rate of return consistent with market conditions around the time of the final decision.

AER considerations

The AER has updated the risk-free rate based on the averaging period proposed by ElectraNet and accepted by the AER. For this final decision, the moving average of 10 days for CGS yields—indicative mid-rates published by the Reserve Bank of Australia (RBA)—with a 10-year maturity for the period ending 17 March 2008, results in a proxy nominal risk-free rate of 6.20 per cent (effective annual compounding rate).

4.5.2 Debt risk premium

AER draft decision

The AER determined a benchmark debt risk premium of 1.68 per cent which was added to the nominal risk-free rate to determine the return on debt for the WACC calculation.¹⁴² This debt risk premium was calculated based on a 10-day moving average for BBB+ rated corporate bonds with a maturity of 10 years for the period

¹⁴⁰ ElectraNet revised revenue proposal, p. 58.

¹⁴¹ AER draft transmission determination, p. 128.

¹⁴² *ibid.*, p. 129.

ending 5 October 2007—fair yields sourced from Bloomberg. The AER noted that the debt risk premium would be updated, based on the agreed averaging period, at the time of its final decision.

AER considerations

The AER has previously used BBB 10-year corporate bond fair yields sourced from Bloomberg for the purposes of establishing a 10-year benchmark debt risk premium with a BBB+ credit rating.¹⁴³ In late October 2007, Bloomberg ceased publication of its BBB fair yields for bonds with 9 or 10-year maturities. The AER understands that the decision to cease publication was based on a lack of data for these long-dated corporate bonds (within the BBB credit rating category) from which Bloomberg could produce a fair yield. The longest maturity BBB bond fair yield now published by Bloomberg is 8 years.

Due to the unavailability of the Bloomberg fair yields for BBB rated 10-year corporate bonds, it is necessary to adopt an alternative proxy for deriving a 10-year BBB+ benchmark debt risk premium, as required by the NER. The AER recently considered this issue and the details are set out in its final decision on the SP AusNet transmission determination.¹⁴⁴ Specifically, the methodology applied by the AER is to take the Bloomberg fair yield for BBB rated 8-year corporate bonds and add the Bloomberg fair yield spread between A rated 8 and 10-year corporate bonds, in order to derive a proxy 10-year BBB+ corporate bond yield.¹⁴⁵

The AER considers that this methodology remains appropriate for the purposes of determining the benchmark debt risk premium, based on the agreed averaging period, for this final decision. The 10-day moving average benchmark debt risk premium for the period ending 17 March 2008, based on 10-year BBB+ rated corporate bonds with a maturity of 10 years, is 3.42 per cent (effective annual compounding rate).¹⁴⁶ Adding this debt risk premium to the nominal risk-free rate of 6.20 per cent produces a nominal return on debt of 9.61 per cent.

The AER is satisfied that the debt risk premium of 3.42 per cent and the resulting nominal return on debt of 9.61 per cent determined for this final decision is consistent, under clause 6A.6.2(e) of the NER, with the required margin between the 10-year CGS yield and observed Australian benchmark corporate bond yields corresponding to a BBB+ credit rating and maturity of ten years. The AER, however, notes that this debt risk premium is higher than that provided for in the draft decision and in previous revenue cap decisions. To this end, it has examined the actual observed yields for two BBB+ Australian corporate bonds with the longest maturity dates over the averaging period. As shown in table 4.2, these observed corporate bond yields were generally consistent with the benchmark nominal return on debt calculated for this final decision.

¹⁴³ Bloomberg's BBB fair yields are assumed to approximate BBB+ fair yields due to the estimation technique employed and the market being disproportionately weighted with longer term BBB+ rated bonds.

¹⁴⁴ AER, *SP AusNet transmission determination, 2008–09 to 2013–14: Final decision*, January 2008, pp. 94–98.

¹⁴⁵ The proxy corporate bond yield less the risk-free rate produces the debt risk premium.

¹⁴⁶ Source: Bloomberg.

Table 4.2: Observed BBB+ bond yields (effective annual compounding rate) over the averaging period

Date	Santos (7.6 years maturity)	AXA (8.7 years maturity)	Average
4 March 2008	8.95 %	10.63 %	9.79 %
5 March 2008	9.01 % ^a	10.69 % ^a	9.85 %
6 March 2008	9.08 %	10.71 %	9.90 %
7 March 2008	9.12 %	10.90 %	10.01 %
10 March 2008	9.19 %	10.98 %	10.09 %
11 March 2008	9.17 %	10.96 %	10.07 %
12 March 2008	9.11 %	10.95 %	10.03 %
13 March 2008	9.25 %	11.06 %	10.15 %
14 March 2008	9.17 %	10.93 %	10.05 %
17 March 2008	9.03 %	10.87 %	9.95 %
Average	9.11 %	10.87 %	9.99 %

Source: UBS AG.

The AER has also examined the movement of the debt risk premium derived from Bloomberg fair yields for comparison with that determined in the draft decision, as shown in figure 4.1. Since September 2007 the debt risk premium has steadily increased from around 1.70 per cent to reach above 2.00 per cent by the middle of November 2007. The steady increase continued into 2008 and the debt risk premium reached above 2.50 per cent in mid-February 2008. From then the debt risk premium increased at a faster rate and had risen above 3.00 per cent by the beginning of March 2008. In the middle of March 2008 the debt risk premium was tracking above 3.50 per cent but by early April it dipped to around 3.30 per cent. The AER notes that the average debt risk premium over the 10-day period immediately following the agreed averaging period was around 3.50 per cent.

Overall, the AER is satisfied that the significant increase in the debt risk premium is driven by the ongoing global credit crisis impacting on the financial market. In particular, the AER notes the recent collapse of global investment bank, Bear Stearns, is symptomatic of the credit crisis and potentially contributing further upward pressure on the debt risk premium discussed above.

Figure 4.1: Debt risk premium from September 2007 to April 2008



4.5.3 Forecast inflation

AER draft decision

The AER did not accept the inflation forecasting methodology proposed by ElectraNet.¹⁴⁷ The AER instead adopted an inflation forecasting methodology based on the Reserve Bank of Australia's (RBA) target inflation range. Specifically, the AER would be guided by the RBA's assessment of inflationary expectations in adjusting monetary policy. Where the RBA has a bias to tighten monetary policy, inflation will be taken to be at the top of the 2 to 3 per cent inflation target range. Where the RBA has a bias to relax monetary policy, inflation expectations will be taken to be at the bottom of the range. Where the RBA has a neutral position, inflation will be taken to be at the mid-point.

Based on this approach, and recent RBA statements on monetary policy, the AER considered an inflation estimate of 3 per cent was appropriate at the time of the draft decision. However, because ElectraNet's proposed inflation forecast of 2.97 per cent was not materially different from this, the AER applied the proposed inflation estimate in the post-tax revenue model (PTRM).

ElectraNet revised proposal

ElectraNet did not agree with the AER's approach to inflation forecasting, despite the application of the proposed estimate in the PTRM for the draft decision. It proposed an alternative methodology to provide an updated inflation estimate to be applied in the PTRM for the final decision.¹⁴⁸ ElectraNet stated that the AER's approach to determining the inflation forecast, based on a short-term period, does not result in

¹⁴⁷ AER draft transmission determination, pp. 131–132.

¹⁴⁸ ElectraNet revised revenue proposal, pp. 58–61.

properly calculating the real risk-free rate with a maturity of 10 years. ElectraNet submitted a report by the Competition Economics Group (CEG) that recommended that inflation be forecast over a 10-year period.¹⁴⁹ Based on CEG's advice, ElectraNet proposed an average expected inflation estimate over 10 years of 2.53 per cent per annum.

Submissions

The AER received submissions from Transend and TransGrid supporting the AER's approach to inflation forecasting as applied in the SP AusNet final decision.¹⁵⁰

Powerlink submitted that the AER's inflation forecast is not a 10-year forecast. It stated that, if the AER decides to maintain its position to apply the RBA target range for inflation, the mid-point of the target (2.5 per cent) is the maximum long-term inflation forecast that can reasonably be adopted.¹⁵¹

The ECCSA submitted that the inflation forecasting method used by the AER in the SP AusNet final decision has greater merit than that considered in the ElectraNet draft decision.¹⁵²

AER considerations

In the draft decision the AER accepted ElectraNet's proposed inflation forecast, however, it did not accept the methodology used to derive that forecast. The AER recognises that inflation forecasts can change over time because of market circumstances, in a similar manner to bond yields. Regulatory practice in Australia has been to update these parameter values at the time of making a final determination. The AER considers that it is appropriate to update the inflation forecast for the purposes of this final decision.

The inflation forecasting methodology proposed by ElectraNet in its revised revenue proposal is broadly similar to that applied by the AER for the SP AusNet final transmission determination. The difference between the two approaches, however, is with the range of sources used to establish the short-term inflation forecasts in deriving the 10-year average inflation estimate. While ElectraNet's proposed methodology draws on forecasts from a number of independent economic forecasters, the AER's approach in the SP AusNet transmission determination relies on the RBA's inflation expectations.

The AER's detailed considerations on inflation forecasting methodologies are set out in its recent final decision on the SP AusNet transmission determination.¹⁵³ In that decision, the AER noted the RBA's responsibility for monetary policy in Australia, its control of official interest rates and the significant impact it can have on both inflation

¹⁴⁹ CEG, *A methodology for estimating expected inflation*, 17 January 2008.

¹⁵⁰ Transend, *Submission of the AER's draft decision on ElectraNet's revenue proposal*, 15 February 2008, p. 6.

TransGrid, *Submission on the AER's draft decision for ElectraNet's revenue proposal*, 22 February 2008, p. 3.

¹⁵¹ Powerlink, *ElectraNet revised revenue proposal*, 22 February 2008, p. 1.

¹⁵² ECCSA, *SA electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, p. 23.

¹⁵³ AER, *SP AusNet transmission determination, 2008–09 to 2013–14: Final decision*, January 2008, pp. 99–106.

expectations and outturn inflation. It considered that the RBA’s inflation forecasts represent the best estimates of forecast inflation at this time.

The AER determined that a methodology that is likely to result in the best estimate of inflation over a 10-year period is to apply the RBA’s short-term inflation forecasts—currently extending out to two years—and adopt the mid-point of its target inflation band beyond that period (i.e. 2.5 per cent) for the remaining eight years. An implied 10-year forecast is derived by averaging these individual forecasts. This approach draws on publicly available RBA data, which is published on a regular basis. It also provides greater transparency in deriving an inflation forecast and allows the forecasts to be updated regularly.

In the absence of an objective market-based approach, the AER considers that this methodology remains appropriate for the purposes of determining an inflation forecast in this final decision. The AER has updated the inflation forecast for the first two years of the regulatory control period using the latest published RBA inflation expectations as shown in table 4.3.¹⁵⁴ The AER considers that, based on a simple average, an inflation forecast of 2.63 per cent per annum produces the best estimate for a 10-year period to be applied in the PTRM for this final decision.

Table 4.3: AER’s conclusion on inflation forecast (%)

	June 2009	June 2010	June 2011	June 2012	June 2013	June 2014	June 2015	June 2016	June 2017	June 2018	Average
Forecast inflation	3.25	3.00	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.63

Source: RBA, *Statement on monetary policy*, 11 February 2008, p. 55.

4.6 AER conclusion

The AER has determined a nominal vanilla WACC of 10.65 per cent for ElectraNet, based on the updated risk-free rate and debt risk premium, and other parameters prescribed by the NER. Table 4.4 sets out the WACC parameter values for this final decision and provides a comparison with the WACC submitted in ElectraNet’s revised revenue proposal. The WACC is greater than that in the revised revenue proposal because of higher corporate bond yields—caused by a significant widening of the debt risk premium due to the ongoing global credit crisis impacting the financial market—since its submission.

The AER has applied a methodology to determine a forecast inflation rate over a 10-year period by referencing the RBA’s inflation forecasts for the first two years and the mid-point of the RBA’s target inflation range for the remaining eight years. The AER considers that, based on a simple average, an inflation forecast of 2.63 per cent per annum produces the best estimate of a 10-year inflation forecast to be applied in the PTRM for this final decision.

¹⁵⁴ RBA, *Statement on monetary policy*, 11 February 2008.

Table 4.4: AER's conclusion on WACC parameters

Parameter	ElectraNet's revised proposal	AER's conclusion
Risk-free rate (nominal)	6.25 % ^a	6.20 %
Risk-free rate (real)	–	3.48 % ^b
Expected inflation rate	2.53 %	2.63 %
Debt risk premium	1.68 % ^a	3.42 %
Market risk premium	6.00 %	6.00 %
Gearing	60 %	60 %
Equity beta	1.0	1.00
Nominal pre-tax return on debt	–	9.61 %
Nominal post-tax return on equity	–	12.20 %
Nominal vanilla WACC	9.66 %	10.65 %

- (a) ElectraNet adopted the risk-free rate and debt risk premium values used in the draft decision.
(b) The real risk-free rate was derived using the Fisher equation.

5 Operating and maintenance expenditure

5.1 Introduction

This chapter sets out the AER's consideration of forecast operating and maintenance expenditure (opex) issues raised in response to the draft decision, including matters raised in ElectraNet's January 2008 revised revenue proposal (revised revenue proposal).

5.2 AER draft decision

In the draft decision the AER rejected ElectraNet's forecast opex requirement of \$324 million (\$2007–08) and explained the reasons in respect of the proposal not meeting the opex criteria under clause 6A.6.6(c) of the NER.

The AER substituted a forecast opex requirement of \$291 million which represented the total opex costs that a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives.

Table 5.1 sets out the AER's revised total forecast opex allowance for ElectraNet in the draft decision.

Table 5.1: AER's conclusion on ElectraNet's total opex allowance (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
ElectraNet's proposed controllable opex	54.16	55.84	58.35	61.27	62.46	292.08
Debt raising costs	0.60	0.67	0.75	0.80	0.84	3.67
Equity raising costs	0.15	0.15	0.15	0.15	0.15	0.75
Network support costs	4.67	4.87	5.13	5.55	7.05	27.27
ElectraNet's proposed total opex	59.58	61.53	64.38	67.78	70.50	323.77
AER's controllable opex	49.24	50.42	52.61	54.55	54.60	261.42
Debt raising costs	0.60	0.64	0.70	0.74	0.77	3.46
Equity raising costs	–	–	–	–	–	–
Network support costs	4.69	4.84	5.04	5.36	6.30	26.25
AER's total opex allowance	54.54	55.90	58.35	60.66	61.68	291.13

Source: AER draft transmission determination, p. 183.

5.3 ElectraNet revised proposal

ElectraNet has implemented the AER draft decision in respect of forecast opex except those related to:

- extrapolation of land values (field support)
- corrective maintenance costs
- uncertainty in maintenance project estimates
- capitalisation of protection systems (maintenance projects)
- equity raising costs.

ElectraNet’s revised opex forecast proposal is \$301 million (\$2007–08), as set out in table 5.2.

Table 5.2: ElectraNet’s revised opex forecast (\$m 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Revised controllable opex proposal	50.40	52.03	53.95	56.29	57.61	270.27
Network support costs	4.69	4.84	5.04	5.36	6.30	26.22
Debt raising costs	0.64	0.68	0.74	0.79	0.85	3.70
Equity raising costs	0.17	0.17	0.17	0.17	0.17	0.84
Revised total opex proposal	55.89	57.71	59.90	62.61	64.93	301.04

Source: ElectraNet revised revenue proposal, p. 51.

5.4 Submissions

Transend considered that efficient base year expenditure should be determined by reference to actual expenditure rather than expenditure set in the current revenue cap. Transend also noted that arbitrary percentage reductions (opex maintenance projects—uncertainty) do not satisfy the requirement of the NER.

The Energy Consumers Coalition of South Australia (ECCSA) stated that the AER has not carried out a balanced review and that the proposed opex allowance is too high, given the expected capital expenditure (capex) by ElectraNet. Specific concerns include:

- opex methodology
- changes in scope
- field maintenance
- labour escalators
- asset growth escalators.

These issues are discussed in more detail below.

5.5 Consultant review

The AER engaged SKM to review the additional information provided by ElectraNet in its revised revenue proposal on the following issues:

- land value escalator
- capitalisation of protection systems
- uncertainty in opex maintenance project estimates
- corrective maintenance.

5.6 Issues and AER considerations

5.6.1 Base year opex

AER draft decision

The AER considered ElectraNet’s opex forecasting methodology provided a sound basis for determining the efficient opex required by a prudent operator in the circumstances of ElectraNet. The methodology provided for extrapolation of base year costs for some components of opex and the derivation of bottom up (zero base) cost estimates for other components. Zero based estimates were accepted where the base year expenditure either did not exist or did not reflect likely future expenditure patterns for that opex component.

Submissions

The ECCSA considered the hybrid approach (combining base year extrapolation and zero based estimates) to determining opex forecasts is incorrect because:

... it allows ElectraNet to argue for increases in opex where it considers the base case is too low, and to retain the base case where the opex is as needed or where there is some ‘fat’.¹⁵⁵

Transend also discussed the AER’s derivation of the base year expenditure, stating that:

... [it] cannot support the AER’s proposition that actual operating expenditure is necessarily efficient where it is less than the allowance provided in a previous revenue cap decision.¹⁵⁶

Transend considered that a better approach would be to assume that the incentive properties of the regulatory regime are such that the reported actual operating expenditure is efficient.

AER considerations

The AER considers that the hybrid approach proposed by ElectraNet and accepted by the AER represents the most appropriate means of forecasting ElectraNet’s opex requirement in the next regulatory control period. The circumstances of ElectraNet, including changing asset management practices and implementation of new maintenance regimes, means that relying solely on base year extrapolation to forecast the opex requirement would not result in an efficient allowance. Therefore, the AER has accepted ElectraNet’s opex methodology, which uses base year extrapolation for

¹⁵⁵ ECCSA, *SA Electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, p. 28.

¹⁵⁶ Transend, *Submission of the AER’s draft decision on ElectraNet’s revenue proposal*, 15 February 2008, p. 2.

elements not significantly affected by changing maintenance arrangements, and zero based forecasts for the remaining elements.

The ECCSA's concern has been addressed by ensuring the base year represents an efficient level of opex, and by the detailed assessment of the expenditure forecasts for the zero based elements of ElectraNet's opex.

In considering Transend's concern with the efficient base year the AER is satisfied that its approach is reasonable. If a TNSP's base year actual expenditure is significantly greater than that allowed in a transmission determination, the AER will review the expenditure in greater detail to determine an efficient base year from which to forecast future expenditures. However, where the actual expenditure is equal to or below the allowed amount, the AER considers it unnecessary to undertake a detailed review. In both cases the AER will undertake sufficient analysis to ensure that the base year expenditure is an efficient amount from which to forecast future expenditures.

5.6.2 Changes in scope

AER draft decision

The opex forecasting methodology accepted by the AER includes some scope changes to the base year expenditure, to recognise ongoing changes in opex requirements or to remove one-off expenditures from the base year.

Submissions

The ECCSA noted the inclusion of generator testing costs in the base year estimates and supported the recognition of the requirement for generators to bear some of the costs.

The ECCSA queried whether skills development costs represent a step change, as ElectraNet (and other employers) have always needed to develop staff.

The removal of revenue reset costs from the base year was noted by the ECCSA. It stated that the AER's estimate of land tax is 'as good as feasible'.¹⁵⁷

AER considerations

Of the four scope changes implemented in the draft decision, only the skills development change has been criticised by the ECCSA. The scope change accepted by the AER in its draft decision does not imply that skills development is a new activity for ElectraNet, or that ElectraNet should expect to source fully trained staff from the market.

Rather, the scope change reflects an increase in recruitment and training costs needed to maintain ElectraNet's workforce. The AER considers that ElectraNet's skills development program has both short-term focus (international recruitment) and a longer term focus (graduate program and accelerated power engineer development program). As such, the skills development costs represent the reasonable costs of a

¹⁵⁷ ECCSA, op cit., pp. 31–32.

prudent operator in the current labour market environment and the AER maintains its conclusion from the draft decision.

5.6.3 Asset growth escalators

AER draft decision

The AER accepted ElectraNet’s proposed asset growth escalators.

Submissions

The ECCSA stated that:

... the AER has implicitly agreed with ElectraNet that opex increases at the rate of 40% of the rate of increase in asset value.¹⁵⁸

The ECCSA has provided examples of where asset replacement would not lead to an increase in opex.

AER considerations

The asset growth escalators applied in the opex model do not include replacement capex—it is based on load driven network capex. The ECCSA is incorrect in stating that the AER has approved opex increases in line with replacement asset value. Instead, ElectraNet’s opex will increase in line with the commissioning of new load driven assets, taking into account the economies of scale factors approved in the AER draft decision, and the revised capex forecasts.

Replacement of existing assets will also impact on opex requirements, generally reducing costs at least in the short-term, and ElectraNet’s routine maintenance forecasts for new equipment take this into account.¹⁵⁹

The forecast asset growth values used in the opex model reflected the changes incorporated in the capex forecasts by the AER. As noted in the AER draft decision, these values have been revised to reflect the capex estimates in this final decision. The revised asset growth escalators are shown in table 5.3 and are applied in the opex model to derived ElectraNet’s controllable opex forecast.

Table 5.3: Asset growth (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13
Transmission lines	1.30	6.22	7.49	6.41	16.05
Substations	8.84	42.22	50.82	43.50	108.92
Secondary systems	3.70	17.69	21.30	18.29	45.64
Communications assets	1.93	9.22	11.09	9.50	23.77
Total	15.77	75.36	90.70	77.64	194.38

Source: ElectraNet opex model.

¹⁵⁸ *ibid.*, pp. 37–38.

¹⁵⁹ ElectraNet, *Transmission network revenue proposal 1 July 2008 to 30 June 2013*, 31 May 2007, p. 83.

5.6.4 Opex capex trade-off

Submissions

The ECCSA considered ElectraNet's opex allowance should fall, given the pattern of capex in the current regulatory period and that forecast for the next regulatory control period. The ECCSA stated:

... opex should only increase with the age of assets (and there is no age increase overall) or with assets to provide for new areas not previously installed. Opex related to assets which are replacements of existing assets (even if they have a higher capacity) do not cause an increase in opex.¹⁶⁰

AER considerations

The AER considers the drivers for the increase in opex include:

- network risk management programs
- size of the asset base
- labour costs
- age of assets.

None of these factors is leading to a reduction in opex requirements for ElectraNet. The risk management program—opex maintenance projects—is designed to ensure that network risk does not increase in the next regulatory control period. The impact of new capex is addressed in section 5.5.3, and, as ECCSA noted is appropriate, replacement capex does not result in increased opex. Materials costs are not a major driver of opex but still lead to an increase, in the current economic environment. The issue of labour costs is discussed in section 5.5.6, but again the AER has accepted that labour costs are likely to increase in the next regulatory control period. The age of ElectraNet's assets is not increasing (as noted by ECCSA) but it is not reducing either, which implies that at best the impact on opex requirements is neutral.

As set out in ElectraNet's May 2007 revenue proposal, the methodology applied by ElectraNet takes into account the replacement capex resulting in lower levels of routine maintenance.¹⁶¹ Overall, the AER rejects the ECCSA's contention that the pattern of ElectraNet's capex expenditure in the current and next regulatory control periods should lead to an automatic reduction in opex.

5.6.5 Opex efficiency allowance

AER draft decision

The AER implemented the opex efficiency allowance as required under clause 11.6.10 of the NER.

Submissions

The ECCSA did not support ElectraNet retaining the benefits of its opex underspend.

¹⁶⁰ ECCSA, *op cit.*, p. 39.

¹⁶¹ ElectraNet, *Transmission network revenue proposal 1 July 2008 to 30 June 2013*, May 2007, p. 82.

AER considerations

The AER notes the ECCSA's comments but, as stated in the draft decision, the AER is required to implement the arrangements agreed between ElectraNet and the ACCC for the current regulatory period.¹⁶²

In the next regulatory control period the first proposed efficiency benefit sharing scheme will apply to ElectraNet, which imposes different incentives on the TNSP.¹⁶³ The scheme rewards sustained efficiency gains through the operation of a symmetrical carryover mechanism that allows a TNSP to retain the benefits of an efficiency gain for the length of the carryover period regardless of the year of the regulatory control period in which the gain is initiated.

5.6.6 Labour cost escalators

AER draft decision

The AER accepted ElectraNet's proposed labour cost escalators. It considered that they reflected a realistic expectation of increases in the cost of labour over the next regulatory control period.

Submissions

The ECCSA was critical of Econtech's analysis of labour costs and raised the following issues:

- During the late 1990s and early 2000s the statistical increase in average wages was caused by the large number of low paid staff culled from the industry rather than wages growth.
- Econtech draws a distinction between wages growth in the utilities sector and the construction sector, but ECCSA considered this distinction does not exist in reality because the majority of new investment by the utilities sector is carried out as construction activity.
- Econtech did not perform a statistical analysis of the errors that may be prevalent using the relatively small South Australian utilities and mining data sets.

Overall, the ECCSA's view is that:

- The wages growth forecast for the utilities sector by Econtech has to be treated with caution because it may not reflect ElectraNet's employment profile.
- The AER's forecast methodology introduces an asymmetric risk, whereby ElectraNet gains the benefit of an increased opex allowance because of rising labour costs growth but its allowance will not be reduced if the growth of labour costs falls in the future.
- The AER should only allow a wages premium greater than the historical measure of the underlying premium above the consumer price index (CPI).

¹⁶² AER draft transmission determination, pp. 214–215.

¹⁶³ AER, *First proposed electricity transmission network service provider efficiency benefit sharing scheme, version 01*, 1 January 2007.

AER considerations

The ECCSA raised concerns about sampling errors in the Econtech forecasts. Econtech's report details its data sources and methodology, and discusses how issues such as small sample size are treated.¹⁶⁴ Similarly, the ECCSA's concern over the impact of industry restructuring in the late 1990s is also discussed in the Econtech report, which notes the key effect of productivity increases occurring through the greater capitalisation of the utilities sector.¹⁶⁵ The ECCSA comments on capex related labour costs are discussed in section 3.6.3.

Overall, the AER is satisfied that the Econtech report has provided a robust analysis of likely future labour costs in the utilities sector in South Australia.

The AER considers that using macro-economic modelling to derive labour cost forecasts, where available, is a more robust methodology than simply imposing a CPI escalator or historical average. The ECCSA's view that this introduces an asymmetry to the opex forecasting is incorrect. If labour cost forecasts were declining or less than the CPI, TNSPs will be exposed to the lower estimates of labour costs, just as when the labour cost forecasts are greater than the CPI, the opex modelling uses the higher estimates. The AER notes that the Econtech modelling clearly shows labour cost forecasts for some sectors of the economy, in some years, at less than the CPI.¹⁶⁶

The ECCSA has argued that in previous revenue cap decisions labour costs were set at around the CPI level and were less than actual labour cost growth. It stated that labour cost forecasts in this current transmission determination should not increase beyond the level of the premium allowed previously or at most should only be increased to recognise the growth in the labour cost premium, not the total increase in labour costs. The AER considers that implementing ECCSA's proposal—where robust forward looking estimates based on macro-economic modelling are available—would not meet its obligations under clause 6A.6.6 of the NER (i.e. the AER's obligation to ensure that the forecast opex reasonably reflects the efficient costs a prudent operator in the circumstances of ElectraNet would require to meet the opex objectives).

The AER maintains its view that ElectraNet's proposed labour cost escalators are reasonable.

5.6.7 Land value escalator

AER draft decision

The AER used 17 years of historical ABS data to derive a weighted average increase in South Australian land values. This average was used to escalate land values in the next regulatory control period, in order to estimate ElectraNet's likely land tax liability and hence its overall field support costs.

¹⁶⁴ Econtech, *Labour cost growth forecasts*, 13 August 2007, p. A10.

¹⁶⁵ *ibid.*, 13 August 2007, p. 41.

¹⁶⁶ Econtech, *Labour cost growth forecasts*, 13 August 2007, unpublished data.

ElectraNet revised revenue proposal

ElectraNet provided an expert opinion from BIS Shrapnel that supports its land value escalator, which was derived by using seven years of historical ABS data, rather than the longer data series. ElectraNet contended that applying the longer data series would significantly understate the expected escalation in land values and the land tax it is required to pay over the next regulatory control period.

Submissions

The ECCSA stated that the AER's estimate of land tax is 'as good as feasible'.

Consultant review

The SKM recommendations are discussed in detail in section 3.6.3. In summary, SKM noted a number of risks to the economy and did not consider the recent boom in property prices to be sustainable. It noted that property prices may now be at the top of a cycle and considered projecting long-term average growth from the top of a cycle to be an optimistic assumption.

SKM reconfirmed the recommendation from its earlier report that the long-term property escalator be adopted.

AER considerations

The AER's consideration of this issue is set out in detail in section 3.6.3 of this decision.

In summary, the AER considers that the future level of expected economic growth in South Australia and the degree of its flow on effect through to land values is uncertain. To this end, the AER is not satisfied that ElectraNet's proposed real annual land escalation rate based on the 2000–2006 data sub-set is an appropriate proxy to develop a forecast land escalation rate for the next regulatory control period.

The AER considers that a land and easement escalation rate based on long-term historical data will better reflect applicable land and easement escalation rates. This approach is consistent with that previously applied in the recent Powerlink and SP AusNet revenue cap determinations.¹⁶⁷

The AER therefore confirms its position in the draft decision to apply a long-term historical average for the purposes of estimating forecast land value growth.

The AER has used the most recent information to calculate its land and easement escalation rate.¹⁶⁸ The AER has applied individual escalators for each land component using the long-term data series (1989–2007) to derive the relevant components of ElectraNet's opex allowance.

¹⁶⁷ AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2001–12: Draft decision*, 8 December 2006, p. 76.

AER, *SP AusNet transmission determination 2008–09 to 2013–14: Draft decision*, 31 August 2007, pp. 189–190.

¹⁶⁸ ABS, *Australian system of national accounts 2006–07*: 5204.0, table 83.

5.6.8 Corrective maintenance costs

AER draft decision

The AER did not accept ElectraNet's proposed corrective maintenance expenditure estimate, because it did not account for the impact of changes in the routine maintenance program and the opex maintenance projects expenditure. An adjustment of \$1.5 million was made for the next regulatory control period, which was based on eliminating real growth from the estimate of corrective maintenance costs.

ElectraNet revised revenue proposal

ElectraNet has rejected the AER's assessment of corrective maintenance costs, stating that the proposed amounts are a conservative estimate of likely requirements in the next regulatory control period. ElectraNet stated that given that the overall maintenance focus is to maintain the current level of network performance and risk (rather than seek improvement), the required corrective maintenance effort will remain proportional to the size of the asset base. Further, ElectraNet noted that offsetting increases in short-term corrective maintenance costs were not factored into the opex requirement.

Consultant review

SKM considered that the forecast level of corrective maintenance spending should be considered alongside the opex maintenance projects expenditure. In particular SKM noted that the historical data supports ElectraNet's claim that there is likely to be an increase in corrective maintenance in the short-term, and states that this is captured in the base year corrective maintenance expenditure. However, SKM maintained its position that by the end of the five-year cycle of the new asset management plan, there should be a fall in corrective maintenance requirements because the spending on opex projects will result in replacement or repair of many assets that may have otherwise caused a need for corrective maintenance.¹⁶⁹

SKM has recommended holding corrective maintenance constant for the final two years of the next regulatory control period, to reflect the expected downturn in expenditure. It noted that the actual adjustment reflects modelling limits rather than a disconnect between the size of the asset base and the need for corrective maintenance.

AER considerations

The AER understands that corrective maintenance refers to both:

- emergency maintenance (i.e. maintenance that must be done to immediately rectify a fault)
- deferred maintenance (i.e. maintenance to rectify known faults that is not required to be done immediately).

As such, corrective maintenance is not scheduled as part of normal preventative maintenance programs.

¹⁶⁹ SKM report, p. 18.

Opex maintenance projects include elements from preventative maintenance and corrective maintenance, as well as site inspections. Consideration of the corrective maintenance program should take into account inter-relationships with the opex maintenance projects, as the scoping of opex maintenance projects (including site inspections) may give rise to emergency corrective maintenance tasks, and the deferred corrective maintenance may be able to be incorporated into opex maintenance projects.

The AER recognises the significant increase in opex maintenance projects work is likely to give rise to an increase in corrective maintenance in the short-term. However, the AER also concurs with SKM that over time the ongoing opex maintenance projects should lead to a reduction in corrective maintenance as network assets are refurbished or replaced as a result of the opex maintenance projects inspection and testing regime.

As noted by SKM, a step increase in corrective maintenance occurred in 2005–06, although ElectraNet argued that the corrective maintenance forecast does not recognise the likely short-term cost increases.¹⁷⁰

The AER notes that the corrective maintenance cost forecast does not represent a requirement on ElectraNet to spend a specific amount or to undertake a specific set of projects. The corrective maintenance forecast contributes to the overall opex requirement to enable ElectraNet to achieve the opex objectives. SKM recommended holding corrective maintenance costs constant in the final two years of the next regulatory control period, noting the variation reflects the modelling arrangements, rather than a specific adjustment based on known overestimation by ElectraNet. For this reason, the AER has decided not to implement SKM's recommended adjustment for this component of opex.

Corrective maintenance costs are forecast using base year extrapolation and these costs increase in line with load driven capex, and the CPI. The AER recognises that outturn corrective maintenance expenditures may be over or under that forecast in any year, but has accepted that base year extrapolation is a reasonable indication of likely expenditure requirements. That being the case, the AER does not consider it necessary to adjust the forecast for corrective maintenance, either to recognise the likely above forecasts costs in the early years of the next regulatory period or the possible below forecast costs in the latter years.

5.6.9 Uncertainty in maintenance project cost estimates

AER draft decision

The AER adjusted ElectraNet's proposed maintenance cost estimates to take account of the level of uncertainty surrounding maintenance projects. The adjustments were based on SKM's recommendation and amounted to a reduction of \$2.4 million over the next regulatory control period.

¹⁷⁰ ElectraNet revised revenue proposal, p. 46.

ElectraNet revised revenue proposal

ElectraNet considered the adjustments are arbitrary and are not justified in the light of the opex objectives. ElectraNet noted that the original cost estimates are within ± 20 per cent accuracy and were based on historical expenditures for similar work. ElectraNet considered that basing the estimates on actual costs of similar tasks also means that the potential for efficiencies has already been factored into the estimates. It noted that no contingency amounts are included in the cost estimates and the estimates were developed using sound risk management principles.

Submissions

The ECCSA considered that uncertainty regarding all projects proceeding and in the cost estimates should be reflected in the allowances. It also stated that the opex project work should lead to a compensating reduction in routine maintenance.

Consultant review

SKM noted the new information provided by ElectraNet and advised that it now viewed the opex project scoping estimates as reasonable.¹⁷¹

AER considerations

The AER has considered ElectraNet's revised revenue proposal and notes the information regarding the accuracy of the original cost estimates and the exclusion of any contingency in the project cost estimates. In view of SKM's reservations about ElectraNet's cost estimates, the AER also notes that ElectraNet has provided a significant amount of new information in support of its forecast, including the following information:

- details of the inputs to the project scope estimates
- details of specific project scoping processes for sample projects
- results of a review of the asset management plan, arising from detection of earlier errors.

The AER considers that this new information clarifies the processes used by ElectraNet to formulate the scope of the opex projects, as well as indicating that there is only a limited likelihood of further errors in the estimates.

The AER accepts ElectraNet's revised opex maintenance projects cost forecasts for this component of opex maintenance projects.

5.6.10 Capitalisation of protection systems—opex maintenance projects

AER draft decision

The AER noted that a number of maintenance projects could be more correctly classified as capital works, in accordance with ElectraNet's capitalisation policy. The projects reclassified as capex included \$4.2 million for capitalisation of protection systems.

¹⁷¹ SKM report, pp. 19–20.

ElectraNet revised revenue proposal

ElectraNet stated that maintenance projects relating to protection systems should not be reclassified as capital works. ElectraNet's revised revenue proposal sets out that these projects relate to the replacement of individual relays at each of 19 sites. ElectraNet noted its capitalisation policy clearly classifies relay panels as the unit of property—not individual relays—and hence the project should not be capitalised.

Consultant review

SKM noted the new information provided by ElectraNet and recommended that the protection systems should not be capitalised.¹⁷²

AER considerations

The information provided by ElectraNet, setting out that individual relays rather than relay panels are being replaced, supports its proposal not to capitalise this opex maintenance project expenditure. ElectraNet's capitalisation policy suggests that these protection systems should only be capitalised where there is either an extension of life for the substation protection system as a whole or there is an increase in functionality of the system as a whole. The additional information indicates that replacement of a small number of electro-mechanical relays with digital relays would not necessarily provide any additional functionality. Further the proportion of the total relay panels being replaced is generally low and the majority of the assets are already beyond their economic and/or technical lives.

The AER accepts ElectraNet's revised proposal for the treatment of the protection system maintenance projects and includes the cost forecasts in the opex allowance.

5.6.11 Debt raising costs

AER draft decision

The AER accepted ElectraNet's proposal to apply the Allen Consulting Group's (ACG) methodology for calculating an allowance for benchmark debt raising costs.¹⁷³ The AER considered that an allowance of 8.5 basis points per annum (bppa) for debt raising costs is a reasonable benchmark for ElectraNet. It therefore determined an average allowance of \$0.7 million per annum (\$2007–08) over the next regulatory control period in the draft decision.

AER considerations

The calculations for determining benchmark debt raising costs depend on the value of the opening regulated asset base (RAB) and the level of forecast capex being rolled into the RAB. Given the updated opening RAB and revised forecast capex allowance as discussed in chapters 2 and 3 respectively, the AER has amended the benchmark debt raising costs allowance in this final decision.

Table 5.4 shows the build up of debt raising costs and the total benchmark for various bond issues, based on the ACG methodology applied in the draft decision.

¹⁷² SKM report, pp. 20–21.

¹⁷³ AER draft transmission determination, pp. 177–179.

ElectraNet has an opening RAB of around \$1265 million and the assumed benchmark gearing ratio is 60:40. The notional debt component of ElectraNet’s RAB is therefore around \$759 million. Based on the ACG methodology, this debt size would require around four bond issues, which results in an allowance of 8.5 bppa for debt raising costs. Using the post-tax revenue model (PTRM), this benchmark is multiplied by the debt component of ElectraNet’s RAB to provide an average allowance of about \$0.7 million per annum (\$2007–08).

Table 5.4: Benchmark debt raising costs for corporate bond issues

Fee	Explanation/source	1 issue	2 issues	3 issues	4 issues
Amount raised	Multiples of median bond issue size	\$200m	\$400m	\$600m	\$800m
Gross underwriting fees	Bloomberg for Australian internal issues, term adjusted	6.0	6.0	6.0	6.0
Legal and roadshow	\$75k–\$100k: industry sources	1.0	1.0	1.0	1.0
Company credit rating	\$30k–\$50k (once off): S&P ratings	2.5	1.3	0.8	0.6
Issue credit rating	3.5 (2–5) basis points up front: S&P ratings	0.7	0.7	0.7	0.7
Registry fees	\$3k /issue: Osborne Associates	0.2	0.2	0.2	0.2
Paying fees ^a	\$1/\$1m quarterly: Osborne Associates	0.0	0.0	0.0	0.0
Total	Basis points per annum	10.4	9.2	8.7	8.5

Source: ACG, *Debt and equity raising transaction costs: final report to the ACCC*, December 2004.
(a) Rounded to one decimal place.

Table 5.5 shows the AER’s conclusion on the debt raising cost allowance for ElectraNet. The AER considers this allowance represents the reasonable costs that a prudent operator in ElectraNet’s circumstances would require to meet the opex objectives in the next regulatory control period.

Table 5.5: AER’s conclusion on debt raising costs (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Debt raising allowance	0.63	0.67	0.73	0.77	0.81	3.60

5.6.12 Equity raising costs

AER draft decision

ElectraNet proposed to apply ACG’s benchmark cash flow approach to establish the requirement for equity raising costs associated with the equity component of its forecast capex over the next regulatory control period.¹⁷⁴ The AER noted that it had considered this cash flow approach to determining an allowance for equity raising

¹⁷⁴ AER draft transmission determination, pp. 179–181.

costs in its recent Powerlink determination to be reasonable and consistent with the principles of benchmark financing arrangements, subject to some adjustments.¹⁷⁵

Based on the capex allowance in the draft decision, the benchmark cash flow analysis indicated that ElectraNet would be able to fund its capex program over the next regulatory control period with retained cash flows and therefore would not require additional equity finance. As such, the AER did not provide ElectraNet with an allowance for benchmark equity raising costs.

ElectraNet revised revenue proposal

ElectraNet noted the AER's acceptance of the the proposed benchmark cash flow analysis. It stated that the AER's conclusion that no benchmark equity raising is required to fund the capex program in the next regulatory control period will depend on excluding the line component capex of the Adelaide CBD project from the cash flow analysis.

ElectraNet argued that the line component of the Adelaide CBD project should not be excluded from the analysis to determine benchmark equity raising costs because there is no uncertainty whatsoever that the project will proceed—that is, the South Australian Electricity Transmission Code requires the project to be completed by December 2011. Using the cash flow analysis adopted in the draft decision, ElectraNet's revised capex forecast plus the Adelaide CBD line component capex results in benchmark equity raising costs of \$0.8 million for the next regulatory control period.

ElectraNet further noted that benchmark equity raising costs should also be considered as part of future contingent project revenue determination processes.

Submissions

Transend supported ElectraNet's revised revenue proposal on the issue of equity raising costs. It noted that it is important that debt and equity raising costs are included in the costs of a contingent project as a principle to ensure that TNSPs are not disadvantaged if a project is treated as a contingent project as opposed to being included in the ex ante allowance.

AER considerations

Forecast capex

The AER confirms its decision to not provide ElectraNet with an allowance for benchmark equity raising costs associated with the equity component of its forecast capex program.

Based on the capex allowance in this final decision, the benchmark cash flow analysis indicates that ElectraNet would be able to fund its capex program over the next regulatory control period with retained cash flows and therefore did not require additional equity finance, as shown in table 5.6. The AER considers ElectraNet's proposed equity raising costs do not represent the reasonable costs that a prudent operator in ElectraNet's circumstances would require to meet the opex objectives in

¹⁷⁵ These adjustments relate to the benchmark dividend yield assumption and the interest payment calculations for the cash flow analysis.

the next regulatory control period. Accordingly, the AER will not provide ElectraNet an allowance for equity raising costs for the next regulatory control period.

Table 5.6: Benchmark capex funding requirement (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Capital expenditure funding	133.30	179.86	151.62	175.21	85.97	725.95
Debt funding component	79.98	107.92	90.97	105.12	51.58	435.57
Equity funding component	53.32	71.94	60.65	70.08	34.39	290.38
Less: retained cash flows	57.91	59.85	67.55	72.73	76.56	334.61
Additional equity requirement	–4.59	12.09	–6.90	–2.65	–42.18	–44.23

Note: Negative sign for the additional equity requirement row indicates that there are sufficient retained cash flows to finance the equity component of capex.

In applying the benchmark cash flow analysis to determine any equity raising requirements, the AER has excluded capex associated with contingent projects—including the line component of the Adelaide CBD project—because this maintains consistency with the revenue modelling that only includes the ex ante capex allowance. Further, the AER notes that the allowance for benchmark debt raising costs is calculated using a formulaic approach in the PTRM and is based on the ex ante capex allowance.

The AER acknowledges that there is no uncertainty about the requirement of the Adelaide CBD project. However, as set out in the draft decision, there is a level of ambiguity with the line route that has resulted in the project scope being uncertain, and therefore the line component capex of the Adelaide CBD project was treated as a contingent project under clause 6A.8.1.¹⁷⁶ ElectraNet has accepted the AER draft decision to treat the line component of the Adelaide CBD project as a contingent project.

The AER considers that when a contingent project is triggered and an application is made to amend a revenue determination, it would be appropriate to consider the impact of the associated capex on the benchmark equity raising requirement by reapplying the benchmark cash flow analysis. This approach is generally consistent with the treatment of benchmark debt raising costs under the formula based approach in the PTRM. When a contingent project is triggered and an application is made to amend a revenue determination, the additional capex is included in the PTRM and the incremental benchmark debt and/or equity raising cost may be calculated.

2002 decision on opening asset base

The AER has identified that benchmark equity raising costs associated with ElectraNet’s opening asset base were allowed in the ACCC’s 2002 revenue cap decision. The ACCC considered that a benchmark equity raising cost was appropriate and provided an annual allowance in the opex building block.¹⁷⁷ As the benchmark

¹⁷⁶ AER draft transmission determination, p. 82.

¹⁷⁷ ACCC, *South Australian transmission network revenue cap 2003–2007/08: Decision*, 11 December 2002, pp. 27–28.

equity raising cost was calculated in perpetuity, this allowance should be provided in subsequent revenue determinations.

The AER notes that equity raising cost was a relatively new area of analysis being considered by the ACCC at the time of setting the revenue caps for ElectraNet and SPI PowerNet (now SP AusNet) in 2002. Following this, the ACCC engaged ACG to undertake a review of the legitimacy of regulated utilities recovering equity raising costs and the benchmark value of such costs.¹⁷⁸ In subsequent revenue cap determinations, the ACCC and AER applied the principles set out in the ACG report—in summary: allow benchmark equity raising cost when setting an initial RAB value; disallow benchmark equity raising cost when the RAB has been established; and assess the need for benchmark equity raising cost associated with capex on a case by case basis.¹⁷⁹

As discussed above, the AER's consideration of equity raising cost associated with ElectraNet's forecast capex resulted in no allowance being provided over the next regulatory control period because the benchmark cash flow analysis indicated that ElectraNet would be able to fund its forecast capex program with retained cash flows.

ElectraNet has not included the 2002 revenue cap decision's perpetuity allowance in its revenue proposal. The AER considers that it is appropriate to maintain the intent of the 2002 revenue cap decision by continuing the equity raising cost allowance for ElectraNet in this final decision. In calculating the equity raising cost associated with the opening RAB for the next regulatory control period, the AER notes that the equity raising cost allowance provided by the ACCC in 2002 is based on the opening RAB for each year of the current regulatory period. This implies that ElectraNet was provided with an allowance for equity raising costs associated with its opening RAB—as at January 2003—and capex over the current regulatory period.

Clause 11.6.9 of the NER allows the AER to adjust the opening RAB (as at 1 July 2008) for ElectraNet having regard to an existing determination. While the ACCC provided the equity raising cost allowance in opex, based on the perpetuity method, the AER considers that there is merit in treating this allowance as a part of ElectraNet's RAB under this clause—that is, to capitalise the allowance. This would improve transparency, given that the nature of the allowance is associated with the opening RAB, and ensure that future revenue resets for ElectraNet would be administratively simpler in the provision of such an allowance.

Further, the AER notes that treating the equity raising cost allowance in perpetuity or in the RAB would be net present value (NPV) neutral. In the ACG report, it was recommended that equity raising costs be added to the RAB and amortised along with other assets:

¹⁷⁸ ACG, *Debt and equity raising transaction costs: final report to the ACCC*, December 2004.

¹⁷⁹ For example, see these determinations:

ACCC, *NSW and ACT transmission network revenue cap TransGrid 2004–05 to 2008–09: Final decision*, 27 April 2005, pp. 146–147;

AER, *Directlink Joint Venture application for conversion and revenue cap: Draft decision*, 8 November 2005, pp. 222–224.

AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Decision*, 14 June 2007, pp. 97–98.

The suggested approach takes the view that the IPO [initial public offer] costs were incurred in order to finance the construction of the original assets and should be depreciated along them. Although this provides a faster recovery of costs than the perpetuity approach, in NPV terms there is no difference, and it is administratively quicker and less costly.¹⁸⁰

In converting the allowance from a perpetuity approach to a capitalisation approach, the AER has taken the equity component of ElectraNet's 2003 opening RAB and each year's prudent capex allowance over the current regulatory period, and applied the benchmark equity raising transaction cost.¹⁸¹ To ensure there is no difference in NPV terms the sum of this—after adjusting for the foregone return and perpetuity allowance received over the current regulatory period—will result in \$21 million being added to the opening RAB (see section 2.6). This amount will be amortised over the life of ElectraNet's asset base for the purposes of providing the equity raising cost allowance associated with ElectraNet's opening RAB—as at January 2003—and capex over the current regulatory period.¹⁸²

5.7 AER conclusion

The AER has considered ElectraNet's revised forecast total opex of \$301 million (\$2007–08) and, for the reasons outlined in this chapter, is not satisfied that this total opex forecast proposed by ElectraNet reasonably reflects the opex criteria under clause 6A.6.6(c):

- the efficient costs of achieving the opex objectives
- the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the opex objectives
- a realistic expectation of the demand forecast and cost inputs required to achieve the opex objectives.

In reaching this conclusion the AER has had regard to the opex factors set out in clause 6A.6.6(e) of the NER.

As the AER is not satisfied that ElectraNet's total forecast opex reasonably reflects the opex criteria, under clause 6A.6.6(d), it must not accept the forecast opex in ElectraNet's revised revenue proposal. The AER is therefore required under clause 6A.14.1(3)(ii) to provide an estimate of the total opex that ElectraNet will require over the next regulatory control period which the AER is satisfied reasonably reflects the opex criteria, taking into account the opex factors.

On the basis of its analysis of ElectraNet's proposed opex forecast and the advice of SKM, the AER has applied a reduction of \$1.8 million to ElectraNet's revised proposed opex. This results in an amended forecast opex allowance of \$299 million for the next regulatory control period and is as shown in table 5.8.

¹⁸⁰ ACG, *Debt and equity raising transaction costs: final report to the ACCC*, December 2004, p. 56.

¹⁸¹ The benchmark equity raising transaction cost approved in the ACCC 2002 revenue cap decision was 3.55 per cent.

¹⁸² A standard life of 43 years for amortisation purposes, consistent with ElectraNet's weighted average network life, has been assumed.

Table 5.8: AER’s conclusion on ElectraNet’s total opex allowance (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
AER’s total opex allowance (draft decision)	54.54	55.90	58.35	60.66	61.68	291.13
ElectraNet’s revised proposed total opex	55.89	57.71	59.90	62.61	64.93	301.04
Adjustment to field support – land tax	–0.13	–0.22	–0.31	–0.43	–0.53	–1.62
Adjustment to equity raising costs – capex	–0.17	–0.17	–0.17	–0.17	–0.17	–0.84
Adjustments arising from modelling ^a	0.22	0.23	0.13	0.08	–0.04	0.62
AER’s total adjustments	–0.08	–0.16	–0.35	–0.51	–0.74	–1.84
AER’s total opex allowance	55.81	57.56	59.55	62.10	64.19	299.20

(a) These adjustments reflect changes to asset growth (resulting from amended capex allowance), actual CPI for 2006–06 and 2007–08 (March to March), removal of replacement capex for transitional services, and debt raising costs (resulting from amended capex allowance).

This amended allowance represents the AER’s estimate of the total opex costs that a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives. The AER is satisfied that the amended total forecast opex of \$299 million over the next regulatory control period, reasonably reflects the opex criteria, taking into account the opex factors.

6 Service target performance incentives

6.1 Introduction

This chapter sets out the AER's consideration of issues relating to the service target performance incentive scheme (scheme) raised in response to the draft decision, including matters raised in ElectraNet's January 2008 revised revenue proposal (revised revenue proposal).

6.2 AER draft decision

In the draft decision the AER specified the scheme's parameter definitions for the next regulatory control period. The peak periods for the circuit availability parameters are 8:00 am to 8:00 pm weekdays, with all other times being non-peak periods. The AER also outlined the critical circuits to apply for the circuit availability parameter and the x and y thresholds for the loss of supply event frequency parameters.

Table 6.1 sets out the AER draft decision on the caps, collars, performance targets and weightings to apply to ElectraNet for the next regulatory control period.

Table 6.1: Caps, collars, targets and weightings to apply to ElectraNet

Parameter	Recommended values			
	Collar	Target	Cap	Weighting
<i>Circuit availability (%)</i>				<i>MAR (%)</i>
Total transmission	99.10	99.47	99.63	0.3
Critical circuit peak	98.52	99.24	99.51	0.2
Critical circuit non-peak	98.88	99.62	99.95	0
<i>Loss of supply event frequency (no.)</i>				<i>MAR (%)</i>
> 0.05 (x) system minutes	10	8	6	0.1
> 0.2 (y) system minutes	5	4	2	0.2
<i>Average outage duration (minutes)</i>				<i>MAR (%)</i>
Total	119	78	38	0.2

Source: AER draft transmission determination, p. 202.

6.3 ElectraNet revised proposal

With the exception of that related to the methodology for setting caps and collars for the loss of supply event frequency parameters, ElectraNet has implemented all aspects of the AER draft decision.

Table 6.2 sets out ElectraNet's revised values for the loss of supply event frequency parameters.

Table 6.2: ElectraNet’s proposed caps, collars, targets and weightings for the loss of supply event frequency parameter

Parameter	Recommended values			
	Collar	Target	Cap	Weighting
<i>Loss of supply event frequency (no.)</i>				<i>MAR (%)</i>
> 0.05 (x) system minutes	11	8	6	0.1
> 0.2 (y) system minutes	6	4	2	0.2

Source: ElectraNet revised revenue proposal, p. 66.

6.4 Submissions

The AER received one submission from the Energy Consumers Coalition of South Australia (ECCSA) raising two issues. These are discussed below.

6.5 Issues and AER considerations

6.5.1 Circuit availability parameters—critical circuit targets

AER draft decision

The AER accepted SKM’s recommendation to increase the number of transmission circuits deemed to be critical circuits.¹⁸³ In recommending the increased number of critical circuits, SKM also provided revised performance targets for the critical circuit availability peak and non-peak parameters. The revised targets took into account the increased number of critical circuits.¹⁸⁴ The AER accepted and adopted SKM’s critical circuit availability parameter targets.

ElectraNet revised proposal

ElectraNet accepted the increase in critical circuits and the corresponding change in the critical circuit peak and non-peak parameter targets and did not seek to vary the position taken by the AER in the draft decision.¹⁸⁵

Submissions

The ECCSA noted the increase in the number of ElectraNet’s critical transmission circuits and stated that it did not agree with the AER decision to allow lower performance targets for the critical circuit availability parameter.¹⁸⁶

Consultant review

SKM stated that the increase in the number of circuits from six to 14 was recommended to capture circuits associated with the main transmission corridors

¹⁸³ AER draft transmission determination, p. 202.

¹⁸⁴ AER draft transmission determination, p. 193.

¹⁸⁵ ElectraNet revised revenue proposal, p. 64.

¹⁸⁶ ECCSA, *SA Electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, p. 49.

within South Australia as well as those circuits used for the South Australia–Victoria interconnection.

Targets are set using historical performance and the Para–Davenport transmission line, now included as a critical circuit, has historically recorded lower performance than average network performance. The lower critical circuit target reflects the historical performance of all transmission circuits now deemed critical.

AER considerations

The AER considers that the increase in the number of circuits deemed to be critical (albeit coupled with a slight decrease in performance target) creates a greater incentive for ElectraNet to improve and maintain overall network reliability, therefore increasing benefits to consumers. The AER is satisfied that the performance targets for the critical circuit availability peak and non-peak parameters are appropriate given the increased number of critical circuits and their past performance.

6.5.2 Circuit availability—peak periods

AER draft decision

The AER accepted ElectraNet’s proposed peak period of 8:00 am to 8:00 pm weekdays for the circuit availability parameters. South Australian demand throughout the day varies little and the AER accepted ElectraNet’s methodology for determining peak periods. Additionally, the proposed period complies with clause 2.3 of the scheme and outages outside the proposed period were less likely to affect South Australian pool prices. The proposed period also provided ElectraNet with the opportunity to carry out work during daylight hours outside the peak period.¹⁸⁷

ElectraNet revised proposal

ElectraNet noted that the AER had accepted the proposed peak period definition of 8:00 am to 8:00 pm on weekdays.¹⁸⁸

Submissions

The ECCSA recommended the AER apply the peak period from 8:00 am to 8:00 pm on all days rather than 8:00 am to 8:00 pm on weekdays. It stated that the South Australian transmission network peak system periods extend beyond weekdays into weekend and holiday periods.¹⁸⁹

Consultant review

SKM noted that weekdays rather than all days are specified in the scheme. It also noted that its recommendation to set peak and off-peak periods was made on the basis of recent summer and winter peak maximum demand, and the impact on spot prices in the South Australian spot market.

AER considerations

The AER notes that the scheme should provide incentives for ElectraNet to provide greater reliability when users place greatest value on the reliability of the transmission

¹⁸⁷ AER draft transmission determination, p. 191.

¹⁸⁸ ElectraNet revised revenue proposal, p. 63.

¹⁸⁹ ECCSA, *op cit.*, p. 49.

system. The AER considers that the period from 8:00 am to 8:00 pm on weekdays rather than all days is likely to better reflect the times when users as a whole place greatest value on network reliability. The AER also notes that weekdays are included as a standard definition under the scheme.

Excluding days other than weekdays from the definition of peak period will provide more opportunity for ElectraNet to carry out extended works on transmission circuits. While any work on transmission circuits may have more impact on some transmission users than others, the AER must consider the impact on the overall market.

The AER maintains its view that the peak period should be from 8:00 am to 8:00 pm on weekdays.

6.5.3 Loss of supply event frequency parameters—caps and collars

AER draft decision

The AER rejected the cap and collar values for loss of supply event frequency parameters proposed by ElectraNet as they were inconsistent with clause 2.5(e) of the scheme. It accepted SKM's 'curve of best fit' methodology for calculating the cap and collar values because it takes into account the inherent kurtosis and skewness in the data by selecting the probability distribution that best fits the data.

ElectraNet revised proposal

ElectraNet proposed an alternative methodology to calculate caps and collars for the loss of supply event frequency parameters, which it stated was consistent with that proposed by PB Associates (PB), the consultant for the AER in the recent SP AusNet revenue reset. ElectraNet stated that the methodology sets the caps and collars to the nearest integer one standard deviation above and below the mean and is based on five years of performance data.¹⁹⁰

Consultant review

SKM noted ElectraNet's alternative approach to calculating the cap and collar values for the loss of supply event frequency parameters. It also noted that in previous AER revenue cap decisions, one standard deviation has generally only been recommended where two standard deviations would result in impractical outcomes.

In reviewing its recommendation, SKM considered that setting the collar values to those proposed by ElectraNet was within the acceptable bounds of the curve of best fit methodology. Further, it noted that the collar values proposed by ElectraNet are more likely to result in long-run revenue neutrality.

SKM recommended that the AER accepts ElectraNet's proposed collar values, stating that the amended values would continue to provide sufficient incentive for performance improvement in line with the objectives of the scheme.

AER considerations

ElectraNet proposed that the loss of supply event frequency parameter caps and collars be calculated to the nearest integer one standard deviation above and below the

¹⁹⁰ ElectraNet revised revenue proposal, pp. 64–65.

mean and that they be based on five years of performance data resulting in an increase in the collar values of both loss of supply event frequency parameters.¹⁹¹ Its revised proposal was based on PB's proposed methodology, which was accepted by the AER in the SP AusNet draft decision.

In providing advice to the AER for the SP AusNet draft decision, PB stated that loss of supply event frequency parameter caps and collars were calculated using two standard deviations from the target and then rounded to the nearest whole number.¹⁹² It also noted that where setting caps results in values being above 100 per cent performance, it is appropriate to set a lower cap and recommended, under these circumstances, that caps be set using one standard deviation from the target.

In recommending ElectraNet's service target performance values for the next regulatory control period, SKM applied the curve of best fit methodology. SKM has reviewed ElectraNet's proposed caps and collars for the loss of supply event frequency parameters and recommended that the AER accept them.

The AER accepts ElectraNet's proposed cap and collar values for the loss of supply event frequency parameters on the basis that they fit within the scope of SKM's recommended methodology and still provide sufficient incentive for performance improvement.

6.6 AER conclusion

The AER accepts the revised loss of supply event frequency collar values proposed by ElectraNet.

The definitions that apply to ElectraNet for the next regulatory control period have not changed from the draft decision and are set out in appendix C. The performance incentive curves for each parameter are set out in appendix D.

The caps, collars, performance targets and weightings to be applied to ElectraNet during the next regulatory control period are set out in table 6.3.

¹⁹¹ ElectraNet's proposed methodology does not result in an increase in cap values.

¹⁹² PB Associates, *SP AusNet revenue reset—An independent review*, 16 August 2007, p. 218.

Table 6.3: Caps, collars, targets and weightings to apply to ElectraNet

Parameter	Recommended values			
	Collar	Target	Cap	Weighting
<i>Circuit availability (%)</i>				<i>MAR (%)</i>
Total transmission	99.10	99.47	99.63	0.3
Critical circuit peak	98.52	99.24	99.51	0.2
Critical circuit non-peak	98.88	99.62	99.95	0
<i>Loss of supply event frequency (no.)</i>				<i>MAR (%)</i>
> 0.05 (x) system minutes	11	8	6	0.1
> 0.2 (y) system minutes	6	4	2	0.2
<i>Average outage duration (minutes)</i>				<i>MAR (%)</i>
Total	119	78	38	0.2

7 Maximum allowed revenue

7.1 Introduction

This chapter sets out the AER's calculation of ElectraNet's maximum allowed revenue (MAR) for the next regulatory control period based on the revised building block components allowed in this final decision. It also sets out the AER's consideration of ElectraNet's revised proposal to change the standard asset life of its computers, software and office machines asset class for the purposes of determining the regulatory depreciation allowance. Except as specified in this final decision, the AER maintains the conclusions set out in the draft decision.

7.2 Determining the MAR by adjusting for performance incentive and pass through amounts

Clause 6A.5.4 of the NER outlines the calculation of the annual building block revenue requirement for each year of the regulatory control period, which consists of the following components:

1. Indexation of the regulated asset base (RAB), calculated in accordance with clause 6A.6.1 and schedule 6A.2.
2. A return on capital for that year, calculated in accordance with clause 6A.6.2.
3. The depreciation for that year, calculated in accordance with clause 6A.6.3.
4. The estimated cost of corporate income tax of the transmission network service provider (TNSP) for that year, determined in accordance with clause 6A.6.4.
5. The revenue increments or decrements for that year arising from the efficiency benefit sharing scheme (EBSS), as referred to in clause 6A.6.5.
6. The forecast operating and maintenance expenditure (opex) accepted or substituted by the AER in accordance with clause 6A.6.6.
7. The compensation for risks not otherwise compensated for.

The annual building block revenue requirement can be lumpy over the regulatory control period. To minimise price shocks, revenues are smoothed within a regulatory control period while maintaining the principle of cost recovery under the building block approach. Smoothing requires diverting some of the cost recovery to adjacent years within the regulatory control period so that the net present value (NPV) of the smoothed revenues is equal to the NPV of the annual building block revenue requirement (unsmoothed revenue stream). That is, a smoothed profile of the TNSP's MAR is determined for the regulatory control period under the CPI – X mechanism.

The MAR for the first year is generally set equal to the allowed revenue (AR) for the first year of the regulatory control period:

$$\text{MAR}_1 = \text{AR}_1$$

where:

$$\text{MAR}_1 = \text{the maximum allowed revenue for year 1}$$

AR₁ = the allowed revenue for year 1.

The MAR for the subsequent years of the regulatory control period requires an annual adjustment based on the previous year's AR. That is, the subsequent year's AR is determined by adjusting the previous year's AR for actual inflation and the X factor:

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

where:

AR = the allowed revenue

t = time period/financial year (for *t* = 2, 3, 4, 5)

ΔCPI = the annual percentage change in the ABS Consumer Price Index All Groups, Weighted Average of Eight Capital Cities from March in year *t* – 2 to March in year *t* – 1

X = the smoothing factor.

The MAR is determined annually by adding to (or deducting from) the AR, the service target performance incentive scheme revenue increment (or revenue decrement) in accordance with 6A.7.4, and any approved pass through amounts in accordance with 6A.7.3 (see table 7.1 for the timing of calculating the AR and performance incentive):

$$\begin{aligned} \text{MAR}_t &= (\text{allowed revenue}) + (\text{performance incentive}) + (\text{pass through}) \\ &= AR_t + \left(\frac{(AR_{t-1} + AR_{t-2})}{2} \times S_{ct} \right) + P_t \end{aligned}$$

where:

MAR = the maximum allowed revenue

AR = the allowed revenue

S = the revenue increment or decrement determined in accordance with the service target performance incentive scheme

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

t = time period/financial year (for *t* = 2, 3, 4, 5)

ct = time period/calendar year (for *ct* = 2, 3, 4, 5).

Table 7.1: Timing of the calculation of allowed revenues and the performance incentive

<i>t</i>	Allowed revenue (financial year)	<i>ct</i>	Performance incentive (calendar year)
2	1 July 2009–30 June 2010	2	1 January 2008–31 December 2008
3	1 July 2010–30 June 2011	3	1 January 2009–31 December 2009
4	1 July 2011–30 June 2012	4	1 January 2010–31 December 2010
5	1 July 2012–30 June 2013	5	1 January 2011–31 December 2011

7.3 AER draft decision

In the draft decision the AER determined an annual building block revenue requirement for ElectraNet that increased from \$209 million in 2008–09 to \$273 million in 2012–13 (\$nominal). The NPV of the annual building block revenue requirement for the next regulatory control period was calculated to be \$903 million. Based on this NPV amount, the AER determined a nominal expected MAR for ElectraNet that increases from \$209 million in 2008–09 to \$271 million in 2012–13, as shown in table 7.2. The total revenue cap for ElectraNet over the next regulatory control period was calculated to be \$1195 million.

Table 7.2: AER's draft decision on the maximum allowed revenue (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Return on capital	117.86	128.64	145.19	157.77	169.05	718.51
Regulatory depreciation	22.44	22.27	16.44	17.58	21.64	100.37
Opex allowance	56.16	59.27	63.71	68.19	71.40	318.72
Opex efficiency (glide path) allowance ^a	2.78	2.29	1.77	1.21	0.62	8.67
Net tax allowance	9.58	10.26	9.52	9.22	9.97	48.55
Annual building block revenue requirement (unsmoothed)	208.81	222.73	236.61	253.98	272.69	1194.82
MAR (smoothed)	208.81	222.88	237.89	253.91	271.02	1194.52

(a) An allowance for opex efficiency resulting in the current regulatory period.

The effect of the AER draft decision on average transmission charges can be estimated by taking the annual MAR and dividing it by forecast annual energy delivered in South Australia.¹⁹³ Based on this approach, the AER estimated that its draft decision would result in a 5.9 per cent per annum (nominal) increase in average

¹⁹³ The forecast energy delivered (customer sales) figures were obtained from ESIPC's *Annual Planning Report*, June 2007.

transmission charges over the next regulatory control period or an increase of 2.9 per cent per annum in real terms (\$2007–08).

7.4 ElectraNet revised proposal

ElectraNet stated in its January 2008 revised revenue proposal (revised revenue proposal) that it has applied the post-tax building block approach to calculate its proposed revenues. ElectraNet’s proposed revenues were determined on the basis of an opening RAB of \$1277 million. It requested nominal unsmoothed revenues of \$214 million in 2008–09, increasing to \$292 million in 2012–13.¹⁹⁴ ElectraNet’s MAR for the final year of its current regulatory period (2007–08) is \$187 million. Table 7.3 summarises ElectraNet’s total proposed annual building block revenue requirement (unsmoothed) and the expected MAR for each year of the next regulatory control period.¹⁹⁵

Table 7.3: ElectraNet’s proposed annual building block revenue requirement and maximum allowed revenue (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Return on capital	123.38	134.96	151.88	166.19	182.74	759.15
Regulatory depreciation	20.46	20.11	23.08	25.38	23.74	112.78
Opex allowance	57.31	60.67	64.56	69.19	73.57	325.29
Opex efficiency payment	3.55	2.91	2.24	1.53	0.79	11.02
Net tax allowance	9.73	10.47	11.32	11.53	11.62	54.67
Annual building block revenue requirement (unsmoothed)	214.43	229.12	253.09	273.82	292.45	1262.91
MAR (smoothed)	214.43	231.98	250.97	271.52	293.75	1262.65

Source: ElectraNet revised revenue proposal, p. 71.

ElectraNet has proposed its expected MAR over the next regulatory control period by setting the first year’s MAR equal to the first year’s annual building block revenue requirement and applying an X factor of –5.52 per cent to escalate its MAR annually for each of the four remaining years.¹⁹⁶

The implied energy delivered unit cost of this MAR (average transmission charges) is \$16.20 per MWh in 2008–09 increasing at a nominal average annual rate of 7.7 per cent to \$21.10 per MWh in 2012–13. ElectraNet stated that this average increase in transmission charges will increase the average residential customer bill of \$1058 by approximately \$8.70 per year, or 0.8 per cent.¹⁹⁷

¹⁹⁴ ElectraNet revised revenue proposal, p. 71.

¹⁹⁵ While the total value of the annual building block revenue requirement is different from the total value of the expected MAR (smoothed), the two are equivalent in NPV terms.

¹⁹⁶ ElectraNet revised revenue proposal, p. 71.

¹⁹⁷ ElectraNet revenue proposal, pp. 72–73.

7.5 Standard asset lives

7.5.1 AER draft decision

The AER approved the asset lives proposed by ElectraNet subject to some exceptions.¹⁹⁸ These exceptions were the proposed standard asset lives for two asset classes—computers, software and office machines and network switching centres—and the tax standard asset life for the commercial buildings asset class. The AER determined that the asset lives proposed by ElectraNet for these asset classes do not provide for them to be depreciated over their economic and/or tax life. The AER instead determined that computers, software and office machines and network switching centres should be depreciated over five years, and commercial buildings should be depreciated over 40 years for tax purposes.

The AER also assigned an asset life of 12.5 years for a number of opex refurbishment projects that it considered were more appropriately classified as capital expenditure (capex) and therefore transferred to the ex ante capex allowance. The AER's further consideration of these refurbishment projects is set out in section 5.6.10.

7.5.2 ElectraNet revised proposal

ElectraNet has implemented all aspects of the AER draft decision in relation to asset lives with the exception of the standard asset life for computers, software and office machines.¹⁹⁹ It noted that the AER was not satisfied that the proposed asset life of three years for the computers, software and office machines asset class is consistent with Australian industry standards.

In response to the draft decision, ElectraNet has conducted more detailed analysis of the expected economic life of its computers, software and office machines asset class based on past experience and in consultation with its IT service provider. It noted that the tax ruling states that computers generally have an effective life of four years and three years for laptops. Major software used by ElectraNet has a policy life of three to five years.

Using a weighted average life methodology to determine an appropriate standard asset life for its computers, software and office machines asset class, ElectraNet submitted a revised proposed standard asset life for the computers, software and office machines asset class of four years. Table 7.4 sets out ElectraNet's standard asset lives associated with its asset classes in the revised revenue proposal.

¹⁹⁸ AER draft transmission determination, pp. 207–212.

¹⁹⁹ ElectraNet revised revenue proposal, p. 54.

Table 7.4: ElectraNet’s revised proposal on standard lives and asset classes

Asset class	Standard asset life (years)
Substation primary	45
Substation establishment	55
Substation demountable buildings	15
Substation fences	35
Substation secondary systems—electromechanical	27
Substation secondary systems—electronic	15
Transmission lines—overhead	55
Transmission lines—underground	40
Network switching centres (e.g. SCADA)	5
Communication—civil	55
Communication—other	15
Commercial buildings	30
Computers, software, and office machines	4
Office furniture, movable plant and miscellaneous	10
Easements	n/a
Land	n/a
Refurbishment projects (2008–13)	12.5

Source: ElectraNet revised revenue proposal, p. 56.
AER draft transmission determination, p. 212.

7.5.3 Submissions

The Energy Consumers Coalition of South Australia (ECCSA) noted that the AER has accepted that ElectraNet can reduce the standard asset life for some of its asset classes. This has resulted in a faster rate of depreciation than in previous decisions and consumers incurring higher costs for the services provided.²⁰⁰

7.5.4 AER considerations

The AER has assessed the additional information submitted by ElectraNet on the appropriate standard asset life for computer related equipment and approves the revised proposal to use a four-year standard asset life. It accepts that the key asset types that fall within ElectraNet’s asset class of computers, software and office machines generally have an expected or technical life of three to five years.

²⁰⁰ ECCSA, *SA electricity transmission revenue reset—AER draft decision on ElectraNet SA application*, February 2008, pp. 26–27.

ElectraNet’s methodology for calculating the weighted average life for its computers, software and office machines asset class was reviewed. Based on the expected lives of the asset types within the computers, software and office machines asset class weighted with the forecast capex over the next regulatory control period, the AER found that the calculation of a weighted average life of four years for this asset class was reasonable. Accordingly, the AER agrees that applying a standard asset life of four years for ElectraNet’s computer, software and office machines asset class is appropriate for depreciation purposes.

The AER considers that the approved asset lives for different asset classes—set out in table 7.4—provide a depreciation profile that reflects the nature of the category of assets over the economic life of that category of assets as required under clause 6A.6.3(b) of the NER.²⁰¹

7.6 AER assessment of building blocks

7.6.1 Opening asset base and roll forward

The NER requires that the roll forward of ElectraNet’s RAB, as at the end of each year of the next regulatory control period, be calculated by taking the opening RAB value, adjusting it for inflation, adding any additional capex, and subtracting disposals and depreciation for the year. The closing RAB value for one year then becomes the opening RAB value for the following year.

As discussed in chapter 2, the AER has determined the opening value of ElectraNet’s RAB to be \$1265 million as at 1 July 2008. Based on this opening value, the AER has modelled ElectraNet’s RAB over the next regulatory control period as shown in table 7.5.

Table 7.5: AER’s forecast roll forward of ElectraNet’s regulated asset base (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	1265.06	1377.40	1536.49	1664.13	1813.63
Net capital expenditure	133.30	179.86	151.62	175.21	85.97
Inflation adjustment on opening RAB	33.21	36.16	40.33	43.68	47.61
Straight-line depreciation	–54.16	–56.93	–64.31	–69.39	–71.72
Closing RAB	1377.40	1536.49	1664.13	1813.63	1875.48

Note: The straight-line depreciation less the inflation adjustment on the opening RAB provides the regulatory depreciation building block allowance.

7.6.2 Forecast capital expenditure

As discussed in chapter 2, the AER has determined a forecast capex allowance for ElectraNet of \$650 million (\$2007–08) during the next regulatory control period.

²⁰¹ An asset class titled *Equity raising cost—2003 opening RAB and 2003–08 capex* with a standard life of 43 years has also been used (based on weighted average standard life of the network). See section 5.6.12 for further discussion.

The annual nominal allowance is shown in table 7.5 and is used to calculate the forecast roll forward value of ElectraNet's RAB.²⁰²

7.6.3 Depreciation

The AER has assessed ElectraNet's depreciation schedules and considers that the methods and rates used are in accordance with clause 6A.6.3 of the NER, based on the standard asset lives set out in ElectraNet's revised revenue proposal and approved by the AER. Using a post-tax nominal framework, the AER has made allowances for nominal regulatory depreciation—also referred to as the return of capital—that sums the (negative) straight-line depreciation and the (positive) annual inflation effect on the opening RAB. Regulatory depreciation is used to model the nominal asset values over the regulatory control period and to determine the depreciation allowance. Table 7.5 shows the resulting figures.

In modelling the applicable straight-line depreciation in the post-tax revenue model (PTRM), the AER has based its calculations on the average remaining lives for existing assets (by asset class) as provided by ElectraNet and the approved standard lives for new assets (by asset class).

7.6.4 Weighted average cost of capital

The AER has determined the annual return on capital allowance by applying the weighted average cost of capital (WACC) to ElectraNet's opening RAB for each year of the next regulatory control period.

The nominal vanilla WACC of 10.65 per cent is based on a post-tax nominal return on equity of 12.20 per cent and a pre-tax nominal return on debt of 9.61 per cent. Table 7.9 shows the AER's return on capital allowance for this final decision.

7.6.5 Operating and maintenance expenditure

As discussed in chapter 5, the AER has determined a forecast opex allowance for ElectraNet of \$299 million (\$2007–08) during the next regulatory control period. Table 7.9 shows the annual opex allowance, which equates to an average amount of \$65 million per annum in nominal terms.

7.6.6 Operating and maintenance expenditure efficiency allowance

In the draft decision the AER determined an opex efficiency allowance of \$8.1 million (\$2007–08) for ElectraNet over the next regulatory control period.²⁰³ The AER noted that it would update the calculation of annual opex efficiency savings with the most recent forecast of controllable opex for 2007–08 and the latest CPI data, at the time of its final decision.

Clause 11.6.10 of the transitional provisions in the NER provides for adjustments to the MAR arising from any carry-over mechanisms implemented as part of the previous revenue determination and other arrangements agreed between the AER and the TNSP. This includes the opex efficiency glide path mechanism provided for in the

²⁰² In accordance with the timing assumptions of the PTRM, the nominal capex values include a half WACC allowance to compensate for the average six-month period before capex is added to the RAB for revenue modelling purposes.

²⁰³ AER draft transmission determination, pp. 214–215.

ACCC's 2002 revenue cap decision for ElectraNet. The ACCC and ElectraNet agreed to a glide path methodology for sharing actual opex amounts lower than forecast in a letter dated 4 August 2004.

The methodology set out in that letter references the ACCC's 1999 *Draft statement of regulatory principles for the regulation of transmission revenues* (DRP), which allows for glide pathing of current period opex savings in the calculation of the MAR for the next regulatory control period. There is no requirement to ensure that the opex savings arise from efficiencies implemented by the TNSP. The efficiency benefit sharing scheme is a mechanistic approach to the treatment of lower than forecast opex. Specifically, the agreed methodology is as follows:

1. Calculate the total opex savings during the current regulatory period based on the difference between the ACCC's opex allowance and ElectraNet's actual controllable opex for each year.
2. Divide the total opex savings by the number of years in the current regulatory period to calculate the average saving.
3. Determine the annual opex efficiency allowance by glide pathing the average saving over the next regulatory control period—in the first year, 100 per cent of the average saving will be recovered, reducing by 20 per cent each year—
year 1 = 100 per cent, year 2 = 80 per cent, year 3 = 60 per cent,
year 4 = 40 per cent, and year 5 = 20 per cent.

ElectraNet has updated its forecast 2007–08 opex in its revised revenue proposal. As a result, it has calculated the opex efficiency allowance to be \$10 million over the next regulatory control period.²⁰⁴

Based on the above methodology, the AER used the updated 2007–08 opex forecast to calculate the opex savings realised during the current regulatory period. It has determined an opex efficiency allowance of \$10 million (\$2007–08) for ElectraNet over the next regulatory control period, as shown in tables 7.6 and 7.7.²⁰⁵

²⁰⁴ ElectraNet revised revenue proposal, p. 70.

²⁰⁵ Table 7.9 shows this allowance in nominal dollar terms—\$11 million—over the next regulatory control period.

Table 7.6: Calculation of annual opex efficiency savings (\$m, 2007–08)

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07	2007–08 ^a	Total
Opex allowance	26.98	54.07	53.95	54.53	55.10	55.44	300.06
Less: network support	2.30	4.59	4.59	4.59	4.59	4.59	25.25
Less: equity/debt raising costs	0.34	0.80	0.80	0.92	0.92	0.92	4.71
Adjusted allowance	23.34	48.67	48.56	49.02	49.59	49.93	270.10
Less: controllable opex	26.99	40.08	38.30	47.18	50.01	49.93 ^b	251.05
Total efficiency	-2.66	8.59	10.26	1.84	-0.42	1.44	19.05
Average annual opex efficiency savings							3.46

(a) Actual CPI for 2007–08 (March to March) used.

(b) Updated forecast figure.

Table 7.7: AER's opex efficiency glide path allowance (\$m, 2007–08)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Opex efficiency glide path	100 %	80 %	60 %	40 %	20 %	–
Opex efficiency allowance	3.46	2.77	2.08	1.39	0.69	10.39

7.6.7 Estimated taxes payable

Using the PTRM, the AER has modelled ElectraNet's benchmark income tax liability during the next regulatory control period based on the tax depreciation and cash flow allowances provided in this final decision. The amount of tax payable is estimated using 60 per cent benchmark gearing, rather than ElectraNet's actual gearing, and a statutory company income tax rate of 30 per cent. In accordance with clause 6A.6.4(a) of the NER, the value of imputation credits (γ) of 0.5 has been applied when calculating the net tax allowance.

Under the post-tax nominal framework, the application of the statutory tax rate generates an effective tax rate that can provide more appropriate and cost-reflective revenue outcomes. The effective tax rate is defined as the difference between pre-tax and post-tax rates of return. It is sensitive to several factors, including the corporate tax rate and the range of available tax concessions that serve to lessen tax liabilities or defer them to a later period. Based on the approach to modelling the cash flows in the PTRM, the AER has derived an effective tax rate of 25.55 per cent for this draft transmission determination. Table 7.8 shows the AER's estimate of ElectraNet's tax payments.

Table 7.8: AER’s modelling of net tax allowance (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Tax payable	19.15	20.52	21.95	22.08	22.00	105.69
Value of imputation credits	–9.58	–10.26	–10.97	–11.04	–11.00	–52.85
Net tax allowance	–9.58	–10.26	–10.97	–11.04	–11.00	–52.85

Note: Total may not add up due to rounding.

7.7 AER determination—maximum allowed revenue

7.7.1 Annual building block revenue requirement

Based on its assessment of the building block components and using the PTRM, the AER has determined an annual building block revenue requirement for ElectraNet that increases from \$226 million in 2008–09 to \$302 million in 2012–13 (\$nominal). Table 7.9 shows the annual building block calculations.

Table 7.9: AER’s final decision on annual building block revenue requirement (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Return on capital	134.67	146.63	163.57	177.16	193.07	815.09
Regulatory depreciation	20.95	20.77	23.97	25.71	24.11	115.52
Opex allowance	57.28	60.62	64.36	68.87	73.07	324.20
Opex efficiency (glide path) allowance ^a	3.55	2.92	2.25	1.54	0.79	11.04
Net tax allowance	9.58	10.26	10.97	11.04	11.00	52.85
Annual building block revenue requirement (unsmoothed)	226.03	241.20	265.12	284.31	302.04	1318.70

(a) An allowance for opex efficiency resulting in the current regulatory period.

The AER’s final decision on the total annual building block revenue requirement of \$1319 million is higher than the amount of \$1263 million in ElectraNet’s revised revenue proposal. When comparing table 7.3 with table 7.9, it can be seen that the increase is the result of a higher return on capital building block.

The return on capital is determined by multiplying the WACC by the opening RAB. Although the AER’s final decision on the opening RAB (and ex ante capex allowance to be included over the next regulatory control) has resulted in a lower value than proposed in ElectraNet’s revised revenue proposal, it is the overall increase in the WACC that has resulted in the higher return on capital building block. The WACC is greater than that in the revised revenue proposal—which was based on the WACC determined in the draft decision—and is driven by the significant rise in the cost of debt due to the deterioration of the global credit market since November 2007.

Consistent with the NER requirements the AER has updated the bond rates to determine a WACC of 10.65 per cent, which provides a rate of return that is reflective of market conditions around the time of the final decision. All things being equal, if the WACC of 9.66 per cent determined in the draft decision was used the annual building block revenue requirement would be \$214 million in 2008–09 increasing to \$284 million in 2012–13—a total amount of \$1243 million over the next regulatory control period.

7.7.2 Expected maximum allowed revenue—smoothed

The NPV of the annual building block revenue requirement for the next regulatory control period has been calculated to be \$968 million. Based on this NPV amount, the AER has determined a nominal expected MAR (smoothed) for ElectraNet that increases from \$226 million in 2008–09 to \$304 million in 2012–13, as shown in table 7.10. The total revenue cap for ElectraNet over the next regulatory control period is \$1319 million. ElectraNet’s MAR for the next regulatory control period is to be calculated using the formula described in section 8.2.

To determine the expected MAR (smoothed) over the next regulatory control period, the AER has set the first year MAR equal to the annual building block revenue requirement for that year and applied an X factor of –4.97 per cent in subsequent years, as shown in table 7.10. The AER considers that the X factor profile results in an expected MAR in the final year of the next regulatory control period that is not unreasonably different from the annual building block revenue requirement for that year, and is therefore in accordance with clause 6A.6.8(c)(2) of the NER. The AER’s revenue determination for ElectraNet is set out in part 1 of the transmission determination.

Table 7.10: AER’s final decision on the maximum allowed revenue (\$m, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
MAR (smoothed)	226.03	243.48	262.29	282.55	304.37	1318.71
X factor	– ^a	–4.97 %	–4.97 %	–4.97 %	–4.97 %	–

(a) The MAR for 2008–09 is set as \$226.03 million and ElectraNet is not required to apply an X factor. The MAR in the first year of the next regulatory control period (2008–09) is around 20.99 per cent higher than the MAR in the final year of the current regulatory period (2007–08).

The average revenue increase of 10 per cent per annum (nominal) over the next regulatory control period consists of:

- an initial increase of 21 per cent from 2007–08 to 2008–09
- a subsequent average annual increase of 7.7 per cent per annum (nominal) during the remainder of the next regulatory control period.

In real terms (\$2007–08), the average revenue increase of 7.6 per cent per annum over the next regulatory control period consists of an initial increase of 18 per cent from 2007–08 to 2008–09 and a subsequent average annual increase of 5.0 per cent per annum during the remainder of the next regulatory control period.

Figure 7.1 shows the revenue path allowed in this final decision (both smoothed and unsmoothed) in nominal and real terms.

Figure 7.1: Revenue path from 2008–09 to 2012–13 (\$m)



7.8 Average transmission charges

ElectraNet’s MAR for the next regulatory control period is established through a building block approach. While the AER assesses ElectraNet’s proposed pricing methodology, actual transmission charges established at particular connection points are not approved by the AER. ElectraNet establishes its transmission charges in accordance with its approved pricing methodology and the NER.

The effect of the AER’s final decision on average transmission charges can be estimated by taking the annual MAR and dividing it by forecast annual energy delivered in South Australia.²⁰⁶ Based on this approach, the AER estimates that this final decision will result in an 8.4 per cent per annum (nominal) increase in average transmission charges over the next regulatory control period or an increase of 5.6 per cent per annum in real terms (\$2007–08).

The increase in the average transmission charges is greater than the average growth in the level of peak demand in South Australia, which is forecast to increase on average

²⁰⁶ The forecast energy delivered (customer sales) figures were obtained from ESIPC’s *Annual planning report*, June 2007.

by 1.9 per cent per annum over the next regulatory control period.²⁰⁷ The increase in average transmission charges is primarily because of:

- a higher WACC compared with that allowed for ElectraNet during the current regulatory period because of the increased cost of borrowing caused by:
 - a significant widening of the debt risk premium driven by the ongoing global credit crisis—increasing corporate bond yields
 - an increase in Australian government bond yields
- a higher opening RAB than was forecast in the 2002 revenue cap decision
- the need to replace and maintain ageing assets
- the need for increased capex associated with the new reliability standards specified in the South Australian Electricity Transmission Code (ETC), which is determined by the Essential Services Commission of South Australia under the *Essential Services Commission Act 2002* (SA)
- high input costs such as construction materials and labour (as a consequence of the commodity/minerals boom)
- increased opex due to a growing asset base.

Transmission charges represent approximately 10 per cent on average of end user electricity charges in South Australia. The AER estimates that the rise in average transmission charges under this final decision will result in an increase to the average medium residential customer's annual bill of \$1084 by around \$9.20 per annum (0.85 per cent).²⁰⁸

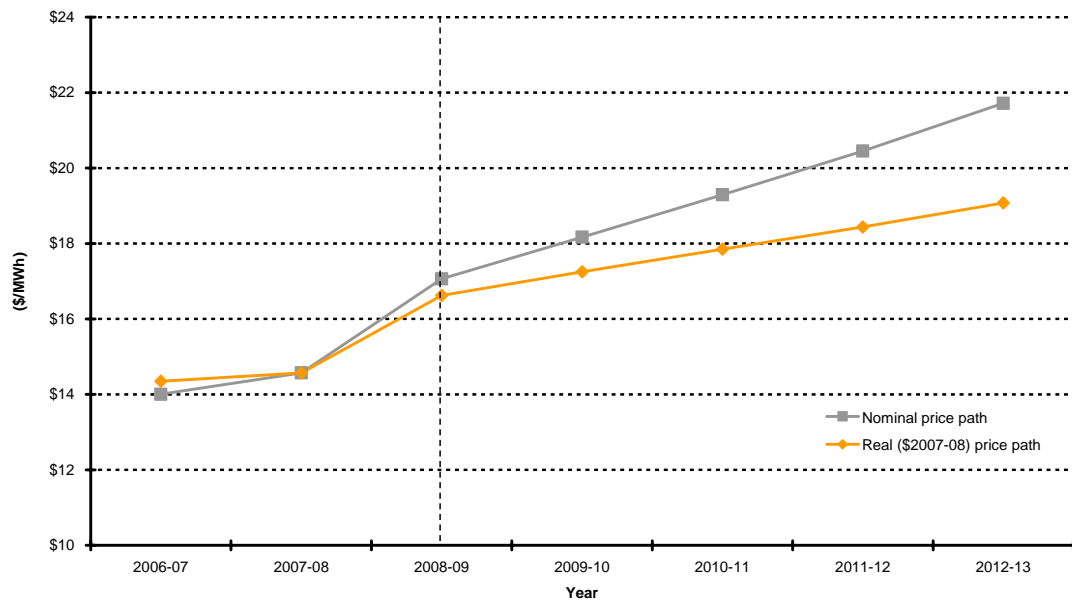
Figure 7.2 shows the resulting average price path of this final decision during the next regulatory period compared with the average price for the final two years of the current regulatory period in nominal and real terms (\$2007–08). The average transmission charge in 2007–08 is \$14.60 per MWh. The nominal average transmission charge is forecast to increase from around \$17.10 per MWh in 2008–09 to \$21.80 per MWh in 2012–13. The real average transmission charge is forecast to increase from around \$16.70 per MWh in 2008–09 to \$19.20 per MWh in 2012–13.

²⁰⁷ Based on 10 per cent probability of exceedence peak demand (native demand) between 2008–09 and 2012–13.

ESIPC, *Annual planning report*, June 2007, p. 9.

²⁰⁸ The customer billing data is from the Essential Services Commission of South Australian. ESCOSA, *2006–07 annual performance report: Performance of South Australian energy retail market*, November 2007, p. 34.

Figure 7.2: Price path from 2008–09 to 2012–13 (\$/MWh)



8 Negotiating framework for negotiated transmission services

8.1 Introduction

The AER's transmission determination for ElectraNet must include a determination relating to ElectraNet's negotiating framework for negotiated transmission services. The negotiating framework specifies the procedure that a transmission network service provider (TNSP) must follow when negotiating terms and conditions of access with an applicant seeking a negotiated transmission service. Where an access dispute occurs a commercial arbitrator must have regard to the negotiating framework. There are three types of negotiated transmission services that a service applicant may request and negotiate with a TNSP:

- connection services (which might include entry, exit and TNSP to market network service providers connection services)
- use of system services supplied by the shared transmission network that exceed or are below the network's specified performance standard under any legislation of a participating jurisdiction
- use of system services relating to augmentations or extensions required to be undertaken on a transmission network as described in clause 5.4A of the NER.

The negotiating framework relates only to negotiated transmission services. The pricing of prescribed transmission services is covered by the pricing methodology discussed in chapter 10 of this final decision.

8.2 AER draft decision

The AER assessed ElectraNet's proposed negotiating framework against the NER requirements. ElectraNet made some minor amendments to its negotiating framework, as agreed with the AER. The AER determined that ElectraNet's amended negotiating framework complied with clause 6A.9.5(c) of the NER.

8.3 ElectraNet revised proposal

ElectraNet did not address the negotiating framework in its January 2008 revised revenue proposal.

8.4 Submissions

The AER received no submissions on the negotiating framework.

8.5 AER conclusion

The negotiating framework set out in part 2 of the transmission determination will apply to ElectraNet for the regulatory control period 1 July 2008 to 30 June 2013. The AER notes that it can request ElectraNet to resubmit its negotiating framework at any time, and would do so if the operation of ElectraNet's negotiating framework does not result in effective negotiation of negotiated transmission services.

9 Negotiated transmission service criteria

9.1 Introduction

The NER requires the AER to include in a transmission determination the negotiated transmission service criteria (negotiating criteria) that will apply to a transmission network service provider (TNSP) for a regulatory control period.²⁰⁹ The negotiating criteria are to be used by the TNSP in negotiating the terms and conditions, including price and any access charges, for accessing a negotiated transmission service. In the event of a dispute about the terms and conditions of access, or any charges to be paid to the TNSP, a commercial arbitrator must consider the negotiating criteria when making a decision under part K of the NER.

TNSPs are not required to submit negotiating criteria to the AER with their revenue proposals. The AER must determine the negotiating criteria in accordance with the NER.

9.2 AER draft decision

As required by the NER, the AER determined the negotiated transmission service criteria that gave effect to and were consistent with the negotiated transmission service principles set out in clause 6A.9.1.

9.3 ElectraNet revised proposal

ElectraNet did not address the negotiating transmission service criteria in its January 2008 revised revenue proposal.

9.4 Submissions

The AER received no submissions on the proposed negotiating criteria.

9.5 AER conclusion

The negotiated transmission service criteria set out in part 3 of the transmission determination will apply to ElectraNet for the regulatory control period 1 July 2008 to 30 June 2013.

²⁰⁹ NER, clause 6A.2.2(3).

10 Pricing methodology

10.1 Introduction

This chapter sets out the AER's consideration of ElectraNet's revised proposed pricing methodology for the regulatory control period 1 July 2008 to 30 June 2013 submitted on 14 December 2007.

10.2 Regulatory requirements

10.2.1 NER requirements

Clause 6A.24.1(b) of the NER defines a pricing methodology in terms of the pricing principles set out in clause 6A.23 of the NER:

A pricing methodology is a methodology, formula, process or approach that, when applied by a Transmission Network Service Provider:

- (1) allocates the aggregate annual revenue requirement for prescribed transmission services provided by that provider to:
 - (i) the categories of prescribed transmission services for that provider; and
 - (ii) transmission network connection points of Transmission Network Users; and
- (2) determines the structure of the prices that a Transmission Network Service Provider may charge for each of the categories of prescribed transmission services for that provider.

In accordance with clause 6A.10.1(e) of the NER, ElectraNet's proposed pricing methodology must:

- (1) give effect to and be consistent with the Pricing Principles for Prescribed Transmission Services; and
- (2) comply with the requirements of, and contain or be accompanied by such information as is required by, the pricing methodology guidelines made for that purpose under rule 6A.25.

Clause 6A.14.3(g) of the NER states that the AER must approve ElectraNet's proposed pricing methodology if it is satisfied that the methodology:

- (1) gives effect to and is consistent with the Pricing Principles for Prescribed Transmission Services; and
- (2) complies with the requirements of the pricing methodology guidelines.

10.2.2 Pricing methodology guidelines requirements

The AER's pricing methodology guidelines (the guidelines) were developed in accordance with clause 6A.25.1(a) of the NER and were published on 29 October 2007.

The guidelines specify or clarify:²¹⁰

- (a) the information that is to accompany a proposed pricing methodology;
- (b) permitted pricing structures for the recovery of the locational component of providing prescribed TUOS services;
- (c) permitted postage stamp pricing structures for prescribed common transmission services and the recovery of the adjusted non-locational component of providing prescribed TUOS services;
- (d) the types of transmission system assets that are directly attributable to each category of prescribed transmission services; and
- (e) those parts of a proposed pricing methodology, or the information accompanying it that will not be publicly disclosed without the consent of the TNSP.

10.3 AER draft decision

The NER required the AER to develop transitional arrangements for those transmission network service providers (TNSPs) that were required to submit proposed pricing methodologies before the guidelines were published. After consulting with the relevant TNSPs, the AER released the agreed interim requirements on 16 February 2007. ElectraNet submitted its proposed pricing methodology to the AER on 31 May 2007 under the agreed interim requirements. Under clause 2.3(a) of the agreed interim requirements, ElectraNet could elect to have its proposed pricing methodology assessed under the guidelines within 10 days of the publication of the guidelines. The guidelines were published by the AER on 29 October 2007, and on 7 November 2007 ElectraNet elected to have its proposed pricing methodology assessed under them.

In the draft decision the AER assessed ElectraNet's proposed pricing methodology against the final guidelines. While some sections of the proposed pricing methodology complied with the guidelines, a significant portion did not meet their requirements. Consequently, the AER did not approve ElectraNet's proposed pricing methodology in the draft decision and ElectraNet was required to submit a revised proposed pricing methodology by 14 December 2007.

10.4 ElectraNet revised proposed pricing methodology

On 14 December 2007 ElectraNet submitted its revised proposed pricing methodology to the AER. It stated that its revised proposed pricing methodology addressed the additional requirements of the guidelines and that references to the old chapter 6 of the NER (required under the agreed interim requirements) had been removed. ElectraNet stated that it is confident its revised proposed pricing methodology satisfies the requirements of both the NER and the guidelines.²¹¹

²¹⁰ AER, *Electricity transmission network service providers – Pricing methodology guidelines*, 29 October 2007, p. 1.

²¹¹ ElectraNet, *Revised proposed pricing methodology, 1 July 2008 to 30 June 2013*, 14 December 2007, p. 2.

ElectraNet's revised proposed pricing methodology outlines:

- the calculation of the aggregate annual revenue requirement (AARR)
- allocation of the AARR to categories of prescribed transmission service to derive the annual service revenue requirement (ASRR) for each category of prescribed transmission service
- allocation of the ASRR for each category of prescribed transmission service to connection points
- a description of the derivation of prices and charges for each category of prescribed transmission service including the calculation of any excess demand charge
- a description of billing arrangements, prudential requirements, prudent discounts and ElectraNet's proposed approach to monitoring of, and compliance with, its approved pricing methodology
- a description of the key differences between the proposed pricing methodology and the pricing methodology applied in the current regulatory period
- hypothetical worked examples required to comply with the information requirements of the guidelines.

10.5 Submissions

The AER received two submissions on ElectraNet's revised proposed pricing methodology.

The Major Energy Users (MEU) noted that ElectraNet has elected to calculate its postage stamped prices using both historical energy and capacity, and the price that results in the lower estimated charge will be used. The MEU considered this approach may be contrary to a pricing methodology based on long-run marginal cost.²¹²

The MEU considered that where transmission assets are attributable to more than one category of prescribed transmission service ElectraNet's proposed priority ordering approach does not explicitly allocate costs to the individual customers affected.²¹³

The MEU stated that ElectraNet's proposed pricing methodology does not make it clear that locational prescribed transmission use of system (TUOS) service prices may move by more than 2 per cent between a regulatory control period.²¹⁴

The MEU also stated that ElectraNet has not identified the points in the network where costs will be allocated and prices determined. It considered that the most appropriate points are the connection points where entry and exit assets interface with the assets that comprise the shared network.²¹⁵

²¹² Major Energy Users Inc., *ElectraNet revised pricing methodology*, 1 February 2008, p. 1.

²¹³ *ibid.*, p. 2.

²¹⁴ *ibid.*, p. 3.

²¹⁵ *ibid.*, p. 3.

The MEU disagreed with ElectraNet's use of data from the most recent financial year in calculating locational TUOS prices. Further, it noted that the guidelines provide a choice of two locational pricing structures for inclusion in ElectraNet's proposed revised pricing methodology. It stated that while transmission customers have a choice in the postage stamp pricing structure to calculate the non-locational prescribed TUOS service and prescribed common transmission service prices, no choice is afforded to customers for the locational price structure.²¹⁶

Flinders Power noted that under clause 6A.19.2 of the NER, costs allocated to prescribed transmission services must not be reallocated to negotiated transmission services. However, costs that have been allocated to negotiated transmission services may be reallocated to prescribed transmission services. Flinders Power noted that while these are cost allocation issues, the implications of these requirements could be reflected in ElectraNet's proposed pricing methodology.²¹⁷

Flinders Power noted that ElectraNet intends to use modified cost reflective network pricing (CRNP). It further noted that the use of utilisation adjustment and the resulting departure from the 50/50 split between locational and non-locational elements of prescribed transmission use of system charge can result in distortion.²¹⁸

10.6 Issues and AER considerations

The pricing principles for prescribed transmission services (the pricing principles) outline the high level principles for the development of transmission prices while the guidelines supplement the pricing principles. The guidelines also outline the information that ElectraNet is required to provide in its revised proposed pricing methodology. In assessing ElectraNet's revised proposed pricing methodology, the AER has considered whether it gives effect to, and is consistent with, the pricing principles and whether it complies with the requirements of the guidelines.

This section outlines the AER's assessment of ElectraNet's revised proposed pricing methodology against the pricing principles and the guidelines.

10.6.1 Determination of the AARR and its allocation to categories of prescribed transmission services

ElectraNet stated that it is the co-ordinating network service provider for South Australia and therefore collects regulated revenue entitlements for both ElectraNet and Murraylink. It noted Murraylink's obligation to provide ElectraNet with sufficient information to enable it to determine transmission prices within South Australia. The requirements surrounding coordinating network service providers are outlined in clause 6A.29.1 of the NER. The AER considers that the information provided by ElectraNet is sufficient to comply with the information requirements of section 2.1(a) and (b) of the guidelines.

ElectraNet is required to calculate the AARR in accordance with clause 6A.22.1 of the NER. Section 6.3 of ElectraNet's revised proposed pricing methodology outlines

²¹⁶ *ibid.*, p. 4.

²¹⁷ Flinders Power, *ElectraNet transmission network revenue proposal–2008/09 to 2012/13 submission*, 17 August 2007, p. 7.

²¹⁸ *ibid.*, p. 7.

how the AARR will be determined and states that the operating and maintenance costs expected to be incurred in the provision of prescribed common transmission services will be derived from budget projections.²¹⁹ These costs are recovered via prescribed common service prices and charges (as outlined in section 6.11). The AER considers ElectraNet's proposed calculation of its AARR complies with the NER and that it has provided sufficient information to comply with section 2.1(c) of the guidelines.

The AARR must be allocated to the following categories of prescribed transmission services:

- prescribed entry services
- prescribed exit services
- prescribed common transmission services
- prescribed TUOS services.

The principles for allocating the AARR to categories of prescribed transmission service are outlined in clause 6A.23.2 of the NER. ElectraNet must also comply with the information requirements outlined in section 2.1(d) of the guidelines.

ElectraNet has provided a description of each category of prescribed transmission service. In discussing prescribed entry services and prescribed exit services, ElectraNet refers to assets being 'fully dedicated' to serving a generator or customer.²²⁰ The AER notes this terminology is inconsistent with the NER and has requested ElectraNet redraft this section and refer to assets being 'directly attributable' to generators and customers. ElectraNet made changes to its amended revised proposed pricing methodology.²²¹ The amended revised proposed pricing methodology is included in part 4 of the transmission determination.

ElectraNet noted that section 2.4 of the guidelines outlines the types of transmission assets attributable to each category of prescribed transmission service. ElectraNet proposed to allocate assets to either prescribed common transmission service or to individual network branches.²²² Each individual network branch will then be allocated to prescribed entry services, prescribed exit services or shared network. Under clause 6A.22.3 of the NER, ElectraNet proposed to use the attributable cost share, using the optimised replacement cost (ORC) to allocate asset costs to each category of prescribed transmission service. Section 6.6 of ElectraNet's revised proposed pricing methodology provides a hypothetical example of the allocation of the AARR to the categories of prescribed transmission service.²²³

In appendix B of its revised proposed pricing methodology ElectraNet provided further details of its cost allocation process. It noted that any asset that may be

²¹⁹ ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, 14 December 2007, p. 5.

²²⁰ *ibid.*, pp. 5–6.

²²¹ ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, version 1.0, 3 April 2008, p. 6.

²²² ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, 14 December 2007, p. 6.

²²³ *ibid.*, p. 6.

attributable to more than one category of prescribed transmission service is subject to the priority ordering approach outlined in clause 6A.23.2(d) of the NER, which states:

Where, as a result of the application of the attributable cost share, a portion of the AARR would be attributable to more than one category of prescribed transmission services, that attributable cost share is to be adjusted and applied such that any costs of a transmission system asset that would otherwise be attributed to the provision of more than one category of prescribed transmission services, is allocated as follows:

- (1) to the provision of prescribed TUOS services, but only to the extent of the stand-alone amount for that category of prescribed transmission services;
- (2) if any portion of the costs of a transmission system asset is not allocated to prescribed TUOS services, under subparagraph (1), that portion is to be allocated to prescribed common transmission services, but only to the extent of the stand-alone amount for that category of prescribed transmission services;
- (3) if any portion of the costs of a transmission system asset is not attributed to prescribed transmission services under subparagraphs (1) and (2), that portion is to be attributed to prescribed entry services and prescribed exit services.

Appendix E of ElectraNet's revised proposed pricing methodology outlines its proposed priority ordering approach, as required under section 2.1(d)(2) of the guidelines. ElectraNet relies on an assumption that substation infrastructure and establishment costs are proportionate to the number of high voltage circuit breakers in the substation.

Based on this assumption, ElectraNet proposed to allocate substation infrastructure and establishment costs using the ratio of the number of high voltage circuit breakers in the stand alone arrangement to the number of high voltage circuit breakers in the substation. Costs will be allocated to prescribed TUOS services based on the number of circuit breakers that would be required if the substation were built to provide prescribed TUOS services only.

The remaining costs will be allocated to prescribed common transmission services based on the number of circuit breakers that would be required had the substation been built solely for that purpose. The remaining costs are allocated to prescribed entry and/or prescribed exit services according to ElectraNet's cost allocation methodology (as outlined in appendix B of its revised proposed pricing methodology). Appendix E of the revised proposed pricing methodology provides a number of hypothetical worked examples of its priority ordering approach, as required by section 2.1(d)(2) of the guidelines.

The AER considers ElectraNet's proposed priority ordering approach is consistent with the requirements outlined in the pricing principles and the explanation in appendix E complies with the information requirements outlined in section 2.1(d)(2) of the guidelines.

Section 2.1(d)(3) of the guidelines requires ElectraNet to provide details of the allocation of asset costs that may be attributable to both prescribed entry services and

prescribed exit services. In appendix B of its revised proposed pricing methodology, ElectraNet stated:²²⁴

In the case of a shared connection asset, such as a transformer, serving multiple transmission connection points which may provide both prescribed entry and prescribed exit services the cost of the shared connection asset will be allocated to the connection points in accordance with ElectraNet's costs allocation methodology or as negotiated between the connecting parties.

The AER considers the explanation provided in ElectraNet's revised proposed pricing methodology needed more clarification and requested ElectraNet to provide additional details. In its amended revised proposed pricing methodology, ElectraNet has stated that where asset costs may be attributable to both prescribed entry services and prescribed exit services, they will be allocated to prescribed entry and exit services using an appropriate cost allocator that is consistent with its cost allocation methodology. It stated that costs may be allocated based on capacity, agreed maximum demand, the number of units (circuit breakers) installed or as negotiated between connecting parties.²²⁵ It also noted the same methodology would be adopted when allocating costs to connection points.

Flinders Power noted that under clause 6A.19.2 of the NER negotiated transmission service costs may be allocated to prescribed transmission services. ElectraNet stated that any reallocation of costs from negotiated services to prescribed transmission services would be recovered via the ASRR for the category of prescribed transmission service according to ElectraNet's revised proposed pricing methodology.²²⁶

In response to the MEU's concern that costs should be allocated to individual customers, the AER notes that costs must first be allocated to categories of prescribed transmission service. Allocation of costs to connection points is determined in the next step of the cost allocation process.

The AER is satisfied that ElectraNet's proposed approach to calculating its AARR and its allocation to categories of prescribed transmission service complies with clause 6A.23.2 of the NER and section 2.1(d) of the guidelines.

10.6.2 Allocation of the ASRR to transmission network connection points

Section 6.8 of ElectraNet's revised proposed pricing methodology outlines its proposed approach to allocating the ASRR for prescribed entry services, prescribed exit services and prescribed TUOS services to each transmission network connection point in accordance with clause 6A.23.3 of the NER. The allocation of the ASRR for prescribed common transmission services to connection points is conducted when prices and charges are determined.

ElectraNet proposed to allocate the ASRR for prescribed entry services and prescribed exit services to transmission network connection points according to the attributable connection point cost share for prescribed entry and exit services provided

²²⁴ *ibid.*, p. 23.

²²⁵ ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, version 1.0, 3 April 2008, pp. 6–7.

²²⁶ ElectraNet response to information request no. 270, submitted 7 March 2008.

by the TNSP at each connection point.²²⁷ ElectraNet has provided hypothetical worked examples of the allocation process in tables 4 to 7.²²⁸ The information provided by ElectraNet is sufficient to comply with section 2.1(e)(1)A of the guidelines and the hypothetical examples satisfy section 2.1(e)(1)B of the guidelines. Further, its proposed calculation of the attributable connection point cost share is consistent with clause 6A.22.4 of the NER.

In section 6.5 of its revised proposed pricing methodology, ElectraNet has stated that where a shared connection asset serves multiple transmission connection points and provides both prescribed entry services and prescribed exit services, costs will be allocated to connection points according to its cost allocation methodology or as negotiated with the connecting parties. The AER considers that this approach is satisfactory because it provides for costs to be allocated to multiple customers at connection points. It also addresses the MEU's concerns that where an asset provides more than one prescribed transmission service (i.e. entry or exit service), costs will be allocated to the individual customers affected. The information provided complies with section 2.1(e)C of the guidelines.

Section 6.8.3 of ElectraNet's revised proposed pricing methodology deals with how ElectraNet intends to recover the ASRR allocated to prescribed TUOS services. Consistent with clause 6A.23.3(c)(1) of the NER, ElectraNet proposed that the ASRR for the locational component of prescribed TUOS services should be adjusted and allocated between connection points based on estimated proportionate use, using the modified CRNP methodology.²²⁹ The remainder of the ASRR to be collected through prescribed non-locational TUOS services is to be adjusted in the manner described in clause 6A.23.3(c)(2) of the NER.²³⁰ The AER is satisfied that the information provided by ElectraNet regarding the recovery of the portion of the ASRR allocated to prescribed TUOS services complies with the NER and meets the information requirements of sections 2.1(e)(2)–(3) of the guidelines.

ElectraNet stated that it intends to use modified CRNP to allocate costs associated with the locational component of prescribed TUOS services. The AER notes the concerns of Flinders Power with respect to the use of modified CRNP however, its use is expressly allowed under clause 6A.23.3(c)(1) of the NER. Schedule 6A.3 of the NER outlines both the CRNP and modified CRNP methodology. Modified CRNP takes account of the utilisation of transmission assets and is beneficial to transmission customers located at the end of long radial lines. The AER notes that if CRNP, as opposed to modified CRNP, was used to allocate costs at these connection points, transmission prices may be considerably higher.

Clause 6A.23.3(d) requires that prescribed TUOS services be split between the locational and non-locational component on a 50/50 basis or:

...an alternative allocation to each component, that is based on a reasonable estimate of future network utilisation and the likely need for future transmission investment, and that has the objective of providing more

²²⁷ ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, 14 December 2007, pp. 8–9.

²²⁸ *ibid.*, pp. 8–10.

²²⁹ *ibid.*, p. 10.

²³⁰ *ibid.*, p. 11.

efficient locational signals to Market Participants, Intending Participants and end-users.

The use of modified CRNP results in a departure from the 50/50 split as costs are first allocated based on an asset's utilisation by customers (resulting in the locational component cost allocation), with the remainder being allocated to the non-locational component. As the utilisation of each asset changes from year to year, the split between the locational and non-locational ASRR for prescribed TUOS services will also change.

The AER notes the MEU's concerns that ElectraNet has not stated the points in the transmission network where costs will be allocated and prices calculated. The process of allocating costs first to each category of prescribed transmission service (to determine the ASRR for each category) and then allocating the ASRR to connection points shows that costs will be allocated to connection points. Clause 6A.23.4(a) states that separate prices must be developed for the recovery of the ASRR and, given the ASRR is allocated to connection points, it is implicit that prices will be calculated at connection points.

While neither the pricing principles nor the guidelines require a statement outlining the point in the network where costs will be calculated and prices determined, the AER considers ElectraNet could, in order to remove any doubt, confirm the location of this point. The AER requested ElectraNet to provide additional details in its amended revised proposed pricing methodology. ElectraNet has stated that the connection point for determining prescribed TUOS locational prices and charges will be the agreed point (or points) of supply between ElectraNet and the transmission network user. It also noted that it is the point at which contract agreed maximum demand is defined in connection agreements and the location historical and current metered energy is measured.²³¹

The MEU is concerned with ElectraNet's proposed use of data from the most recent financial year to calculate prices. Schedule 6A.3.2 of the NER outlines the CRNP and modified CRNP methodology for the locational component of prescribed TUOS services. Determining the allocation of generation to load is one step in the methodology. Schedule 6A.3.2(3) of the NER requires that the allocation of generation to load be determined over a range of operating conditions from the previous financial year. The AER considers that ElectraNet's approach to determining the period it will use to allocate generation to load for locational prices is consistent with the NER.

The AER is satisfied that ElectraNet's proposed approach to the allocation of the ASRR to connection points complies with clause 6A.23.3 of the NER and provides sufficient information to comply with the requirements of sections 2.1(e)(2) and (3) of the guidelines.

10.6.3 Price structures

Section 6.10 of ElectraNet's revised proposed pricing methodology outlines its proposed pricing structures and its methodology for determining charges.

²³¹ ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, version 1.0, 3 April 2008, p. 14.

ElectraNet proposed to recover the ASRR for prescribed entry and prescribed exit services via a fixed annual charge for each entry and exit point using a fixed \$/day entry and exit price.²³² The AER considers ElectraNet's proposed approach complies with clause 6A.23.4(c) of the NER and that it has provided sufficient information to comply with section 2.1(f)(2) of the guidelines.

Section 2.2 of the guidelines specifies permitted pricing structures for the recovery of the locational component of prescribed TUOS services. Clause 6A.23.4(e) states that prices for the recovery of the locational component of prescribed TUOS services must be based on demand at times of greatest transmission network utilisation and for which network investment is most likely to be contemplated.

ElectraNet has proposed to calculate locational prices based on contract agreed maximum demand according to section 2.2(c)(1) of the guidelines. ElectraNet proposed to apply the contract agreed maximum demand prevailing at the time transmission prices are published to the lump sum dollar amount to be recovered at each connection point. The lump sum dollar amount is determined via modified CRNP. Locational prices will be expressed as \$/MW/day. It proposed to determine locational charges by multiplying the locational price by the contract agreed maximum demand prevailing at the time charges are determined.

Section 2.1(f)(3)C of the guidelines requires ElectraNet to outline the process for deriving the locational charge for each billing period and to provide details of any adjustment mechanism applied to a measure of forecast demand once actual demand is known. The information provided by ElectraNet to the AER is that any over or under recovery arising during the financial year from increases or decreases in contract agreed maximum demand will be corrected in the overs and unders adjustment in the following financial year.²³³ Following a request from the AER, ElectraNet has included these details in its amended revised proposed pricing methodology.²³⁴

Section 2.2(g) of the guidelines requires ElectraNet to specify penalties for exceeding the contract agreed maximum demand if it is to be used to calculate locational prices. In section 6.13 of its revised proposed pricing methodology ElectraNet has outlined the calculation of the excess demand charge to be applied where a transmission customer exceeds its contract agreed maximum demand. ElectraNet noted that if the contract agreed maximum demand is exceeded at any time in the financial year, the excess demand charge will apply and the actual maximum demand will become the contract agreed maximum demand. Additionally, ElectraNet will recover from the customer the incremental charges that would have applied had the actual maximum demand been the contract agreed maximum demand.

The guidelines specify two permitted locational pricing structures that ElectraNet may apply.²³⁵ While the MEU has stated that transmission customers should be provided

²³² ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, 14 December 2007, p. 13

²³³ ElectraNet response to information request no. 259, confidential, submitted 22 February 2008.

²³⁴ ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, version 1.0, 3 April 2008, p. 15.

²³⁵ The guidelines also provide for TNSPs to propose alternative locational pricing structures that comply with the NER.

with a choice of structure, the guidelines provide for the use of one structure and not a combination of two or more structures.

ElectraNet noted that clause 6A.23.4(f) of the NER states:

Subject to paragraphs (g), (h), and (i), prices for recovering the locational component of the ASRR for the provision of prescribed TUOS services must not change by more than 2 per cent per annum compared with the load weighted average price for this component for the relevant region.

In its submission, the MEU stated that ElectraNet has not been explicit that movements greater than 2 per cent may occur at a regulatory reset. The NER does not state that prices may change by more than what is prescribed in clause 6A.23.4(f), even between regulatory control periods. However, the AER notes that the 2 per cent side constraint may be relaxed under clause 6A.23.4(g) of the NER, which states:

The change in price referred to in paragraph (f) may exceed 2 per cent per annum if, since the last time prices were set:

- (1) the load at the connection point has materially changed;
- (2) in connection with that change, the Transmission Customer requested a renegotiation of its connection agreement with the Transmission Network Service Provider; and
- (3) the AER has approved the change of more than 2 per cent per annum.

ElectraNet has stated that if it is required to set a locational price either at a new connection point or where the load has changed at an existing connection point after it has determined its locational prices, it will calculate an interim price based on estimated demand. The AER considers that this approach is appropriate and the information provided complies with section 2.1(g) of the guidelines.

The AER considers ElectraNet's proposed locational pricing structures comply with the relevant clauses of the pricing principles and section 2.2 of the guidelines. Additionally, ElectraNet has complied with the information requirements outlined in sections 2.1(f)(3) and 2.1(g) of the guidelines.

The guidelines specify the permitted postage stamp pricing structures that can be used to determine prices for the non-locational component of prescribed TUOS services and prescribed common transmission services. ElectraNet has elected to use the structure outlined in section 2.3(c) of the guidelines, which requires it to determine two prices at each connection point—one based on the contract agreed maximum demand and another based on historical energy. The price to be applied will be the one that results in the lowest estimated charge for each category of service.

The MEU raised concerns that ElectraNet's proposed approach, which is also specified in the guidelines, does not reflect long-run marginal costs as required by the AEMC. The AER notes that under clauses 6A.23.4(d) and 6A.23.4(j) of the NER, prices for the non-locational component of prescribed TUOS services and prescribed common transmission services must be postage stamped. Postage stamping is a system of charging whereby the price per unit is the same regardless of how much energy is used or the location on the transmission network. Therefore, it is conceivable that a user located close to a generator will pay the same price as a user located at the end of a long radial line. Under these circumstances, postage stamp

prices and charges recover costs in the least distortionary manner and are not necessarily intended to reflect long-run marginal costs in the same way as locational prices.²³⁶

ElectraNet proposed to add the costs expected to be incurred in the provision of prescribed common transmission services, which will be removed from the MAR before calculating the AARR, to the ASRR for prescribed common transmission services. This amount will be recovered via prescribed common transmission prices. The AER considers that this process is appropriate.

Section 2.3(c)(7) of the guidelines requires ElectraNet to specify penalties for exceeding the contract agreed maximum demand if it is to be used to calculate postage stamped prices. The excess demand charge is identical to what is proposed for use for the locational price and is outlined in section 6.13 of ElectraNet's revised proposed pricing methodology.

The AER considers the proposed postage stamp pricing structures comply with the pricing principles outlined in clause 6A.23 of the NER and section 2.3 of the guidelines. Additionally, ElectraNet has complied with the information requirements outlined in sections 2.1(f)(4) and 2.1(f)(5).

10.6.4 Additional information

ElectraNet has provided details of its billing arrangements as required under section 2.1(l) of the guidelines. Its proposed billing arrangements are consistent with clause 6A.27 of the NER.

Section 2.1(m) of the guidelines requires ElectraNet to provide details of prudential requirement arrangements permitted under clause 6A.28 of the NER. ElectraNet stated that no capital contributions or prepayments have been made in respect of prescribed assets, however, if those payments are made in the future, they will be taken into account when calculating charges.

ElectraNet stated that none of its customers currently receives prudent discounts, but if prudent discounts are offered in the future, ElectraNet will adjust the non-locational component of prescribed TUOS services in accordance with clauses 6A.26.1(d)–(g) of the NER. The AER considers that this approach is consistent with the NER and that ElectraNet has provided sufficient information to comply with the information requirements in the guidelines.

Section 2.1(s) of the guidelines requires ElectraNet to provide details of how it intends to monitor and develop records of its compliance with its approved pricing methodology, the pricing principles and part J of the NER. ElectraNet states:²³⁷

In order to monitor and maintain records of its compliance with its approved pricing methodology, the pricing principles for prescribed transmission services, and part J of the Rules ElectraNet proposes to:

²³⁶ For detailed discussion on the economic principles of electricity transmission prices see: *AER, Electricity transmission network service providers – pricing methodology guidelines: Final decision*, October 2007, pp. 4–10.

²³⁷ ElectraNet, *Revised proposed pricing methodology 1 July 2008 to 30 June 2013*, 14 December 2007, p. 19.

- Maintain the specific obligations arising from part J of the Rules in its compliance management system;
- Maintain electronic records of the annual calculation of prescribed transmission prices and supporting information; and
- Periodically subject its transmission pricing models and processes to functional audit by suitably qualified persons.

The AER considers ElectraNet's approach to monitoring and compliance is appropriate and that it has provided sufficient information to comply with section 2.1(s) of the guidelines.

Section 2.1(r) of the guidelines requires ElectraNet to describe the differences between its pricing methodology for the current regulatory period and that proposed for the next regulatory control period. ElectraNet noted that the additional information requirements imposed under the guidelines were not required for its current pricing methodology. Further, it noted that the priority ordering approach outlined in clause 6A.23.2(d) of the NER will result in relatively minor reallocation of charges between categories of prescribed transmission service. ElectraNet also noted the 2 per cent side constraint for locational prices may be relaxed subject to AER approval in accordance with 6A.23.4(g) of the NER.

ElectraNet noted that several information requirements specified in the guidelines do not apply to it:²³⁸

- Transitional arrangements are not required as a result of the implementation of its revised proposed pricing methodology
- It does not have relevant derogations in accordance with chapter 9 of the NER
- There are no transitional arrangements arising from chapter 11 of the NER.

ElectraNet did not provide a confidential version of its revised proposed pricing methodology as provided for under section 2.5 of the guidelines, and therefore it is not required to provide information under section 2.1(n) of the guidelines.

10.7 AER conclusion

The AER has considered ElectraNet's revised proposed pricing methodology submitted on 14 December 2007, and has requested that ElectraNet make several changes to improve the methodology's clarity and to ensure it complies with the guidelines. ElectraNet's changes are reflected in part 4 of the transmission determination. The AER is satisfied that ElectraNet's amended revised proposed pricing methodology complies with the NER and the guidelines and therefore approves it.

²³⁸ *ibid.*, p. 20.

Appendix A: Consideration of cost estimation risk factor

This appendix sets out the AER's consideration of ElectraNet's proposed cost estimation risk factor in its revised revenue proposal.

Past evidence of actual outcomes

The cost estimation risk analysis is aimed at providing efficient allowances for costs that are likely to be incurred. Although the risk workshop appears to be accepted industry practice for risk based analysis, it has to be considered in light of the overall modelling exercise undertaken to derive the risk factor. The AER agrees with Evans & Peck (EP) that, 'the output from the risk based approach, like all modelling exercises is reliant on the quality of the input' and to this extent the verification of the reasonableness of the inputs is necessary for the AER to be satisfied that the intended outcome is achieved.²³⁹

In this instance, the risk workshop grouped risk into three broad categories:

- Inherent risks—Included all network projects except the Adelaide CBD project. Risk profiles were developed using estimated boundaries of cost ranges (minimum and maximum) for each asset class. The most likely value is the base cost estimate developed using the base planning objects (BPOs) and scope and estimates (SAEs).
- Contingent risks—Additional risk elements considered appropriate by EP have been assessed with a corresponding annual dollar consequence, likelihood of occurrence, and minimum, most likely and maximum probabilities.
- Adelaide CBD risks—A detailed analysis of individual risks in this project was carried out and each individual risk category assigned a most likely dollar value, likelihood of occurrence and a risk profile.

The AER's analysis of the risk modelling confirmed that the overall risk factor consisted of the above three categories. The dollar value for each category, its proportion to the total risk adjustment and the corresponding risk factor as a percentage of the base capex estimate are shown in table A.1.

ElectraNet stated that the risk workshop approach is reasonable in the absence of reliable historical cost data because it depends on the combined knowledge of key ElectraNet personnel.²⁴⁰ The AER acknowledges that the inherent risk probability distributions were based around the base cost estimates. The BPOs and SAEs underlying these base cost estimates were considered reasonable by the AER in the draft decision. The risk workshop developed upper and lower cost boundaries around these base cost estimates for the inherent risk category. Therefore, the risk workshop using industry knowledge appears to be a reasonable methodology to develop the cost boundaries for inherent risk elements.

²³⁹ EP supplementary report, p. 26.

²⁴⁰ ElectraNet revised revenue proposal, p. 30.

Table A.1: Itemisation of the total risk adjustment

	Dollar value outcome of each risk category (\$m) ^a	Dollar value as a proportion of total risk adjustment (%)	Risk factor (%) ^b
Inherent risk	8.87	29.71	1.34
Contingent risk	11.55	38.71	1.81
Adelaide CBD risk	9.43	31.58	1.40
Total risk adjustment	30.67	100	4.64

Source: AER analysis of ElectraNet's risk model

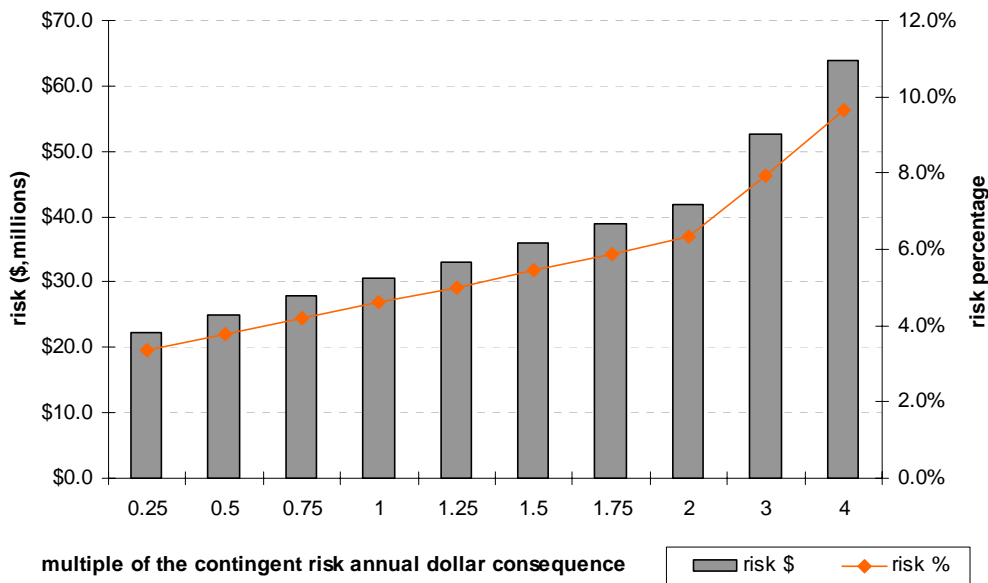
(a) Dollar values are approximate only as each component was derived after separate simulations of the risk model.

(b) The risk factor is a percentage of the dollar value of the unadjusted capex estimate.

In contrast, the Adelaide CBD and contingent risks categories were based around dollar consequences and a corresponding likelihood of occurrence (risk profile) for the identified risk elements. These values and risk profiles were determined at the risk workshop. Unlike the base cost estimates in the inherent risk category, the dollar consequences and likelihood of occurrences used in the Adelaide CBD and contingent risks categories are not based on comparable actual past outcomes. The AER considers that corporate knowledge, per se, whereby these annual dollar consequences and likelihood of occurrences are developed without any evidence of independently verifiable past experiences, does not lend itself to achieving the stated outcome of providing efficient allowances for costs that are likely to be incurred.

This is even more the case because the AER analysis indicated that the risk model is sensitive to the annual dollar value consequence assigned to each contingent risk element. Holding everything else constant, changing the annual dollar consequence for each contingent risk element (multiplying by various values to adjust the dollar consequences) resulted in significant changes to the overall risk factor, as shown in figure A.1. To be accepted as reasonable inputs to the model, these dollar consequences need to be verified. In the absence of this verification, the AER is not satisfied that ElectraNet has addressed concerns that the risk profiles are not based on past evidence of actual occurrences or actual cost impacts of the identified risk elements.

Figure A.1: Contingent risk annual dollar consequence sensitivity test results



Source: The AER analysis of ElectraNet’s risk model.

Note: The total risk shown comprises the inherent risk, CBD risk and contingent risk categories. The inherent and CBD risks have been held constant throughout this sensitivity test.

Transfer of risks to users

The AER’s concerns about the transfer of risks were mainly directed to the risk elements identified in the contingent risk category. In particular, the AER questioned whether all contingent risk elements should be transferred to users. Typical business risks are not automatically transferred to consumers in a competitive business environment because some risks will be borne by the firm. Some of these contingent risk elements’ cost and opportunities are potentially captured via the capital asset pricing model (CAPM) because these risks are faced by the market as a whole. Compensation via the risk factor assumes that these risks are not already captured by the equity beta and paid for by users via the CAPM based return on capital. Based on the available information, the AER is not reasonably satisfied that the inclusion of these types of risks in calculating the cost estimation risk factor has sufficiently accounted for the possibility of users paying for these risks via both the CAPM and the risk factor.

New initiatives, estimating procedures and moderation

EP noted that the risk workshop process primarily identified the probabilistic profile based on the experience of the workshop participants. It concluded that the process adopted produced a moderated outcome because of post workshop reductions to some upper boundaries, implicit conservatism in the Pert distribution, the cancelling out effect of a portfolio of projects, and the decision not to correlate projects.²⁴¹

The AER recognises that EP’s comments are valid in relation to the inherent risk category. This category, which was developed by using the base cost estimates and the risk workshop method of using experienced staff to identify the cost boundaries,

²⁴¹ EP supplementary report, p.10.

appear to suggest that new initiatives would have influenced the probabilistic profile. The Pert distribution's weighting towards the most likely outcome also suggests that the inherent risk outcome is moderated towards the most likely value.

However, the Adelaide CBD and contingent risk categories were developed using annual dollar consequences. The dollar values, along with the likelihood of occurrence, formed the most likely value for these categories, unlike the inherent risk category where the most likely value was the base estimate developed using BPOs and SAEs. Given the lack of verification of the inputs used to develop the most likely values for the Adelaide CBD and contingent risk categories, the benefit of the Pert distribution's weighting towards the most likely outcome is negated.

Further, when developing these dollar consequences, it is necessary to demonstrate how they relate to past experiences—for example, an assessment of the reasonableness of the proposed design standards contingent risk element should be made by comparing ElectraNet's past experiences with its new design standardisation and increased outsourcing initiatives. In the absence of appropriate comparisons with past outcomes, the reasonableness of the inputs is unverifiable.

Although the inputs to the inherent risk category appear to display some moderating influences, given the weight of the other two risk categories (as shown in table A.1) and the sensitivity of the annual dollar consequences (as shown in figure A.1), the AER is not satisfied that ElectraNet has sufficiently demonstrated that the proposed risk factor has accounted for new initiatives and estimating procedures.

Sensitivity testing

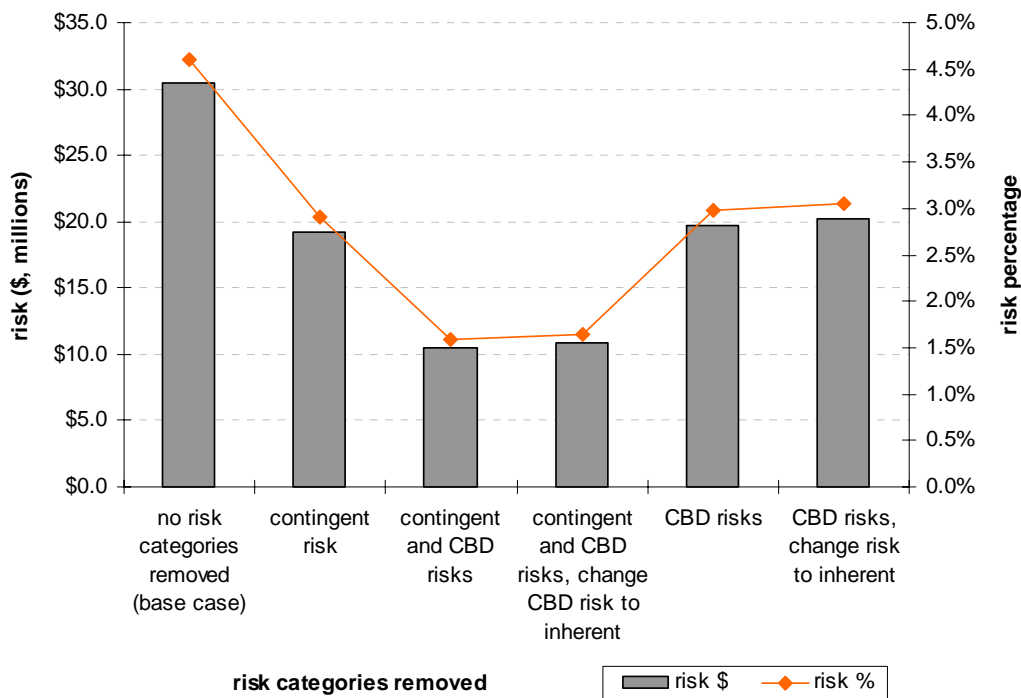
EP's sensitivity analysis suggested that changes to the risk boundaries do not lead to a significant impact on the risk adjusted capex.²⁴² However, given the interaction of the three risk categories, the AER considers that testing the influence of each risk category will provide a better picture of the sensitivity of the model to the inputs rather than just changing the risk boundaries.

Figure A.2 shows that there is a significant change to the overall risk factor depending on the mix of risk categories used. For example, calculating the Adelaide CBD project risks using the inherent risk methodology rather than as a separate risk assessment causes the overall risk factor to drop to 3 per cent. The AER notes that EP's testing also showed a risk factor of only 2.9 per cent after removal of the contingent risk category.²⁴³

²⁴² *ibid.*, p. 25.

²⁴³ *ibid.*, p. 24.

Figure A.2: Results of removing risk categories



EP noted that the maximum value of the P50 risk factor recorded in its sensitivity analysis was 8.0 per cent based on doubling the maximum value of the inherent risks.²⁴⁴ The AER confirms that this test results in a risk factor consistent with EP’s findings. However, in order to derive a clearer picture of the model’s sensitivity to the risk profiles, the AER as well as doubling the inherent risk maximum values, also simultaneously doubled the dollar consequences applied to the other two risk categories within the model. This test resulted in an overall risk factor of 11.33 per cent. Therefore, the AER considers that changes to the risk profiles of the three risk categories will significantly impact on the risk adjusted capex estimate, and that, depending on the combination of changes, the overall risk factor will be significantly affected.

In its supplementary report EP concluded that, based on its experience, ElectraNet’s revised 4.6 per cent risk factor is not unreasonable compared to typical risk based outcomes for other projects and that it is at the lower end of its expectations. The AER notes that ElectraNet’s risk model outcomes are sensitive to variations in the risk profiles. Further, as shown in figure A.2 the combination of risk categories adopted in the risk analysis methodology will also affect the proposed risk factor. Given these sensitivities, EP’s proposed range of typical risk based outcomes will need to be normalised to account for underlying applicable factors such as the modelling methodology, regulatory framework, operational environment etc. Therefore, in this instance, based on the available information the AER does not consider it reasonable to place much weight on EP’s range of typical risk based outcomes.

²⁴⁴ *ibid.*, p. 24.
A P50 scenario represents a 50 per cent probability that the escalation rate will not exceed the value identified.

Comparison of ElectraNet and Powerlink capex project portfolios

In its final decision for Powerlink's transmission determination the AER did not accept the calculated historical risk asymmetry. It considered this was not directly relevant for comparison with the proposed risk factor because the adopted sample period distorted the data and the distribution functions were derived without accounting for the value of the projects.²⁴⁵ Further, given the lack of an acceptable historical risk analysis that accounts for all drivers, the variance between Powerlink's forward looking risk factor of 2.6 per cent and its historical analysis outcome does not necessarily confirm an extreme conservatism as noted by EP.²⁴⁶ Therefore, Powerlink's view on the reasonableness of ElectraNet's revised risk factor based on a comparison with its 9.4 per cent historical risk asymmetry is not appropriate in this instance.

Transend stated that the AER should not be guided by precedent set for companies with different capital portfolios.²⁴⁷ In the draft decision the AER noted that the 2.6 per cent risk factor was based more on EP's experience and knowledge of the delivery of major infrastructure projects and programs.²⁴⁸ EP acknowledged that its analysis for Powerlink was based on its experience.²⁴⁹ This industry experience was applied by EP in the context of Powerlink's capex program. In the absence of an appropriately determined risk factor and given ElectraNet's reliance on Powerlink for determining BPOs and project SAEs, the AER considers it is reasonable for ElectraNet to also apply the risk factor of 2.6 per cent to its capex program. As such, the AER is not simply being guided by precedent set for companies with different capex programs.

In the context of comparison with Powerlink, ElectraNet analysed how the size of the capital program affected the risk factor. It noted that the results indicated that a smaller capital program has a higher risk profile compared to a larger program. Therefore, it concluded that it was reasonable for ElectraNet's capex to have a higher risk profile than Powerlink's. Similarly, Transend submitted that the cost estimation asymmetry is heightened for companies without the opportunity to mitigate risks across a larger portfolio of projects.²⁵⁰

The AER recognises that in the case of the inherent risk category, a lower number of projects provides a smaller base to diversify any one single realised risk and therefore could result in a relatively higher risk factor for a smaller project portfolio. Given the characteristics of ElectraNet's risk model, increasing the capital program affects only the inherent risk outcome because it increases the value of the base estimates and the number of projects. However, this does not take into account that the risk model inputs include most likely values for the Adelaide CBD and that the contingent risk categories are calculated using annual dollar consequences for the identified risk elements.

²⁴⁵ AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Decision*, 14 June 2007, p. 40.

²⁴⁶ EP supplementary report, p. 21.

²⁴⁷ Transend, *Submission of the AER's draft decision on ElectraNet's revenue proposal*, 15 February 2008, pp. 3–4.

²⁴⁸ AER draft transmission determination, p. 104.

²⁴⁹ EP, supplementary report, p. 21.

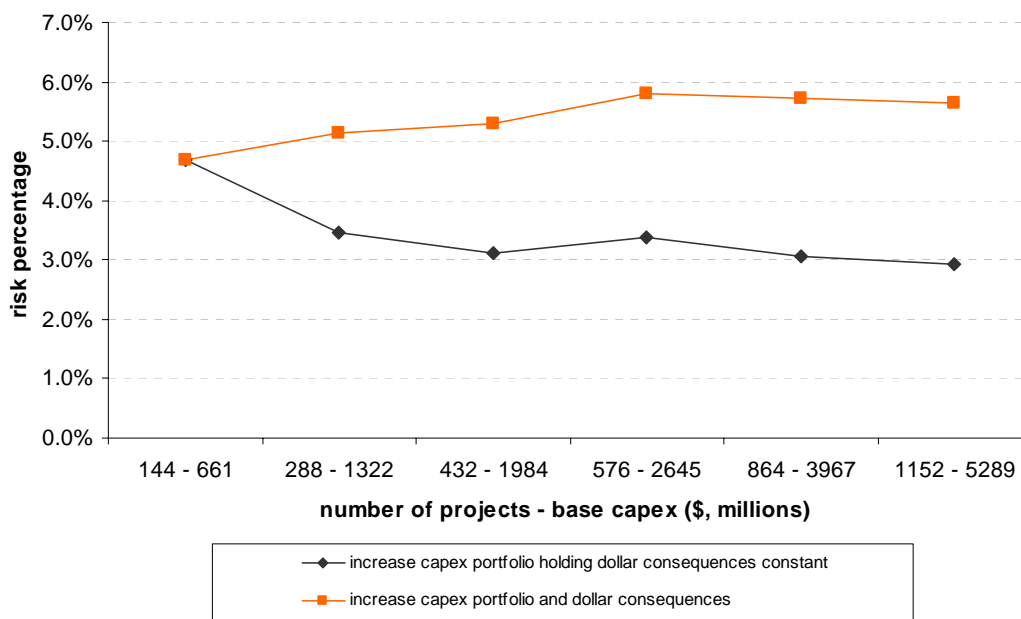
²⁵⁰ Transend, *Submission of the AER's draft decision on ElectraNet's revenue proposal*, 15 February 2008, pp. 3–4.

To derive a risk factor for an enlarged capital program comparable with ElectraNet’s revised risk factor, it is necessary to increase not only the project portfolio but also the annual dollar consequences associated with the Adelaide CBD and the contingent risk categories. Otherwise, the risk factor comparison for the enlarged capital program will only reflect the inherent risk category while the proposed risk factor depends on all three risk categories.

The AER’s test results as shown in figure A.3 indicate that where the capital program and dollar consequences are simultaneously increased by the same multiplier the risk factor increases over a larger program. In the context of ElectraNet’s risk model, the results indicate that the impact of the size of the capital program on the overall risk factor is sensitive to the underlying inputs to the model. From this, the AER cannot reasonably conclude that a larger project portfolio will necessarily have a lower risk factor.

Accordingly, the AER considers that the relationship between the size of the project portfolio and the risk factor is unclear, and therefore each TNSP’s proposed risk factor will be reviewed in the context of its risk model inputs and methodology.

Figure A.3: Impact of size of capex portfolio on the risk factor



Conclusion

On balance, given the available information, the AER is not reasonably satisfied that ElectraNet’s revised cost estimation risk factor is appropriate. The AER considers that a 2.6 per cent risk factor, consistent with the draft decision, will provide ElectraNet with a total capex allowance that reasonably reflects the efficient costs that a prudent operator in the circumstances of ElectraNet would require to achieve the capex objectives. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$12 million to its revised ex ante capex allowance.

Appendix B: Contingent projects and their triggers

This appendix sets out the drivers of approved contingent projects, their scope and specific trigger events. Under clause 6A.8.2 of the NER, ElectraNet must demonstrate to the AER's satisfaction that the relevant trigger event relating to a contingent project has occurred before an assessment of any adjustments to ElectraNet's maximum allowed revenue (MAR). Where a trigger event has occurred, the scope of the contingent project must not include any projects (or associated project scope) that were contained in ElectraNet's approved ex ante capex allowance.

The AER released its *Process guideline for contingent project applications under the National Electricity Rules – September 2007* (contingent project guidelines) to assist transmission network service providers (TNSPs) to prepare contingent project applications that meet the NER processes and requirements. Under this guideline, the timing of the assessment process of a contingent project application includes pre-lodgement consultations. The AER envisages that at the end of the pre-lodgement process the TNSP should have a good understanding of the information required by the AER and also be in a position to submit an application that complies with the NER.

Where ElectraNet makes a contingent project application, it is expected to comply with the contingent project guideline and accordingly, either before or during the pre-lodgement consultation it is expected to develop feasible options and costs that address the need for the project. The AER expects ElectraNet to provide best available supporting information with its contingent project application, which would generally include:

- the final regulatory test assessment
- tender submissions
- contracts
- other investment appraisals.

Eyre Peninsula reinforcement

The driver for this project is the possibility that ElectraNet will not be able to meet the new connection point reliability standards of the South Australian Electricity Transmission Code (ETC). The connection points currently supplied via the Eyre Peninsula radial line network are Middleback (ETC category 1); Yadnarie (ETC category 2); Wudinna (ETC category 2); and Port Lincoln (ETC category 3). The ETC allows ElectraNet to contract agreed maximum demand of up to 120 per cent of transmission line capacity for category 1, 2 and 3 connection points under system normal operating conditions.

The scope of the project involves the construction of a new double circuit 275 kV line from Cultana to Yadnarie, and a double circuit line from Yadnarie to Port Lincoln. The indicative cost of this project is \$150 million.

The trigger for this project is an increase in forecast demand in the lower Eyre Peninsula region exceeding the 2007 published 2013–14 aggregated demand forecast for the region by 15 MW.²⁵¹

Riverland reinforcement

The driver for this project is the possibility that the Murraylink interconnector will not be able to supply the required network support to ElectraNet to enable it to meet its reliability standards. ElectraNet is required to provide continuous N–1 equivalent transmission line and transformer capacity under new ETC reliability standards, because the relevant connection points are category 4.

The scope of this project is the construction of transmission lines and associated substation works, to reinforce the Riverland region of South Australia. The indicative cost of this project is \$130 million.

The trigger for this project is an increase in forecast demand in the Riverland region exceeding the 2007 published 2013–14 aggregated demand forecast for the region by 30 MW or publication by VENCORP of available Murraylink dispatch into South Australia that is insufficient to provide the necessary network support to meet ETC reliability standards in the Riverland region.²⁵²

Yorke Peninsula reinforcement

The driver for this project is the possibility that with increased net demand an unplanned outage of the Waterloo – Hummocks 132 kV transmission line will result in thermal overloading of the Bungama – Hummocks line, resulting in voltages below minimum standards specified in the NER and potential voltage collapse.

The scope of this project involves constructing the Brinkworth–Kadina East 132 kV transmission line and associated substation works. The indicative cost of this project is \$41 million.

The trigger for this project is an increase in forecast demand in the Yorke Peninsula region exceeding the 2007 published 2013–14 aggregated demand forecast for the region by 25 MW.²⁵³

South East reinforcement

The driver for this project is that with increased net demand expected by approximately 2015, an unplanned outage of the South East 275/132 kV transformer will overload the remaining unit at South East, resulting in voltage below minimum standards specified in the NER and potential voltage collapse. The capacity made available from a control scheme implemented by ElectraNet in the current regulatory period to prevent overload will also run out at this time.

The scope of this project involves establishing a new 275/132 kV substation west of Penola and transmission line works connecting both the Tailem Bend to South East

²⁵¹ Aggregate of connection point demand forecasts for the region published by the Electricity Supply Industry Planning Council in its annual planning report.

²⁵² *ibid.*

²⁵³ *ibid.*

275 kV transmission line and the Kincaig to Penola West 132 kV transmission line. The indicative cost of this project is \$33 million.

The trigger for this project is an increase in forecast demand in the South East region exceeding the 2007 published 2013–14 aggregated demand forecast for the region by 15 MW.²⁵⁴

Bungama reinforcement

The driver for this project is an unplanned outage of the Bungama 275/132 kV transformer with increased net demand in approximately 2015. This will overload the Brinkworth to Bungama 132 kV transmission line, with voltage below minimum standards specified in the NER and potential voltage collapse.

The scope of this project involves installing a second transformer and related infrastructure at Bungama. The indicative cost of this project is \$12 million.

The trigger for this project is an increase in forecast demand in the Port Pirie area exceeding the 2007 published 2013–14 aggregated demand forecast for the area by 20 MW.²⁵⁵

Southern Suburbs reinforcement

The driver for this project is an unplanned outage of a Morphett Vale East 275/66 kV transformer with increased net demand in about 2015. This will result in thermal overloading of the remaining unit.

The scope of this project involves installing a third 225 MVA 275/66 kV transformer and related infrastructure at Morphett Vale East. The indicative cost of this project is \$16 million.

The trigger for this project is an increase in forecast demand in the Southern Suburbs of Adelaide exceeding the 2007 published 2013–14 demand forecast for the Southern Suburbs by 35 MW.²⁵⁶

Playford (Davenport) to Leigh Creek 132 kV transmission line

The driver for this project is an unplanned load increase resulting in the Playford (Davenport) to Leigh Creek 132 kV transmission line thermal rating capacity being exceeded. This line is designed with a thermal rating of 49° Celsius and has marginally adequate ratings for the magnitude of the current load.

The scope of this project involves rebuilding 25 km of the Playford (Davenport) to Leigh Creek 132 kV transmission line, as ElectraNet does not consider uprating practical, given existing transmission line structures. The indicative cost of this project is \$11 million.

The trigger for this project is an increase in forecast demand on the Playford (Davenport) to Leigh Creek 132 kV transmission line more than 25 km from the

²⁵⁴ *ibid.*

²⁵⁵ *ibid.*

²⁵⁶ *ibid.*

Playford (Davenport) end exceeding the 2007 published 2013–14 aggregated demand forecasts for the existing loads connected to this line by 10 MW.²⁵⁷

Fleurieu Peninsula reinforcement

The driver of this project is that ETSA Utilities has advised that, due to growth in net demand, the capacity of its distribution system at Victor Harbour and Goolwa is likely to be exceeded by 2014, requiring an application to connect to the transmission network.

The scope of the project involves constructing a new 275 kV double circuit transmission line from the Tungkillo to Cherry Gardens circuit to Square Water Hole, or from the Cherry Gardens to Morphett Vale East 275 kV circuit to Square Water Hole. Square Water Hole will be a 275/66 kV connection point substation that is assigned as a category 4 load. The indicative cost of this project is \$65 million.

The trigger for this project is a distribution network service provider (DNSP) application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP.

Murray Mallee reinforcement

The driver for this project is that ETSA Utilities has advised that capacity of its distribution system at Geranium, Lameroo and Pinnaroo is likely to be exceeded by 2015, requiring an application to connect to the transmission network.

The scope of the project involves constructing a new ETC category 1 132/33 kV connection point substation with a single 25 MVA transformer connected by a radial 132 kV transmission line from the proposed Coonalpyn West substation. The indicative cost of this project is \$34 million.

The trigger for this project is a DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP.

Munno Para reinforcement

The driver for this project is that ETSA Utilities has advised it will need to make an application to connect to the transmission network at some time between 2013 and 2015. The capacity of its distribution system at Para and Parafield Gardens West substations is likely to be exceeded by 2013, 2014 or 2015, based on high-, medium- or low-load forecasts, respectively. ElectraNet is required to provide continuous N–1 transmission line and transformer contingency capacity at these connection points.

The scope of the project involves constructing a new 275/66kV substation with a single 225 MVA transformer connected to the Para to Bungama 275 kV transmission line. The indicative cost of this project is \$26 million.

The trigger for this project is a DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP.

²⁵⁷ *ibid.*

Lucindale West reinforcement

The driver of this project is that ETSA Utilities has advised it will need to make an application for a new connection point because capacity of its distribution system at Kingston and Lucindale is likely to be exceeded towards the end of the next regulatory control period. The timing of the application will depend on potential new loads.

The scope of the project involves constructing a new ETC category 4 132/33 kV connection point substation with two 25 MVA transformers connected to the Snuggery–Keith 132 kV transmission line. The indicative cost of this project is \$17 million.

The trigger for this project is a DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP.

Western Suburbs reinforcement

The driver of this project is that ETSA Utilities has advised it will need to make an application to connect to the transmission network between 2015 and 2017 because the capacity of its distribution system at these locations is likely to be exceeded by 2015, 2016 or 2017, based on high-, medium- or low-load forecasts, respectively. ElectraNet is required to provide continuous N–1 transmission line and transformer contingency capacity at connection points in the Kilburn, Torrens Island and Le Fevre substations.

The scope of the project involves installing a new ETC category 4, 275/66 kV transformer at the City West or Kilburn substation, depending on where demand growth occurs. The indicative cost of this project is \$15 million.

The trigger for this project is a DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP.

Tailem Bend to Tungkillo reinforcement

The driver for this project is the benefit that would result from the removal of Heywood interconnector flow constraints, which would otherwise arise if generation connects between Heywood and Tailem Bend or between the Tailem Bend and Tungkillo substations.

The scope of this project involves stringing a 275 kV circuit (currently vacant on an existing tower) from Tailem Bend to Tungkillo and populating diameters at the Tungkillo switching station and Tailem Bend substation. The indicative cost of this project is \$41 million.

The trigger for this project is the successful completion of the regulatory test demonstrating that the project would deliver net market benefits.

Parafield – Brinkworth – Davenport 275 kV transmission lines

The driver for this project is the benefit resulting from increasing the thermal capacity of the Parafield – Brinkworth – Davenport 275 kV transmission lines to 80° Celsius. With the recent thermal uprating from 49° to 65° Celsius, the lines can adequately accommodate existing transmission network loads. In the event that generation is

expanded in Hallett or other similar points between Adelaide to Port Augusta, thermal capacity may need to be increased. This project addresses the potential for such need.

The scope of this project is the uprating of 197 structures along the Parafield – Brinkworth – Davenport 275 kV transmission lines to 80° Celsius thermal capacity. The indicative cost of this project is \$12 million.

The trigger for this project is the successful completion of the regulatory test demonstrating that the project would deliver net market benefits.

Heywood interconnector capacity upgrade

The driver for this project would be the benefit that would result from an upgrade to the capacity of the Heywood interconnector.

The scope of this project involves adding series capacitors at Black Range, stringing a 275 kV circuit from Tailem Bend to Tungkillo (currently vacant on an existing tower) and associated works at the Tungkillo and Tailem Bend substations. The indicative cost of this project is \$80 million.

The trigger for this project is the successful completion of the regulatory test demonstrating that the project would deliver net market benefits.

Adelaide CBD lines work component

The driver for the Adelaide CBD project is the need to meet new ETC reliability standards requiring N-1 transmission line and substation capacity for at least 100 per cent of agreed maximum demand. To address this, ElectraNet proposed to construct much of the new circuit connecting a substation in the Western Suburbs to the CBD using overhead lines. Recently, there has been significant difficulty in gaining approval for overhead lines in densely populated areas. ElectraNet is going through the development approval process for these lines and has put forward four potential route options, involving different lengths of underground cable.

The scope of this project involves the construction of 275 kV transmission lines along the approved route. The indicative cost of this project is \$105 million.

The trigger for this project is the successful completion of the regulatory test and the receipt of development approval for the project.

Transformer ballistic proofing

The driver for this project is the need to address identified credible threats to critical infrastructure. The proposed scope of the project is construction of physical barriers around some transformers. Based on the works proposed by ElectraNet, the indicative cost of this project is \$18 million.

The trigger for this project is a legal, regulatory or administrative determination made by a relevant authority or minister, indicating the need for this project and a description of the credible threats.

Northern transmission reinforcement project

The driver for this project is the load requirements of the BHP Billiton Olympic Dam expansion project. When the proposed Olympic Dam expansion reaches a loading of 340 MW, the existing shared transmission network between Adelaide and Port Augusta will be incapable of supporting the required power transfer. This project addresses the need for augmenting the network only to the extent that the services provided fall within the definition of prescribed transmission services.

The proposed scope of the project involves the installation of two static var compensators (SVCs) at Davenport substation, two 100 Mvar 275 kV capacitor banks and additional controls on the Davenport 275 kV line reactors to provide the SVCs an extended dynamic range. The indicative cost of this project is \$75 million.

The trigger for this project is a customer application to connect or amend the connection agreement in accordance with chapter 5 of the NER and the successful completion of the regulatory test.

Parafield Gardens West project

The driver for this project is the potential constraints that would occur on power flows through the existing prescribed shared transmission network in the event that existing generation expanded or new generation connected or committed to connect, to the Le Fevre Peninsula or through the Torrens Island to Parafield Gardens West area. The project scope is associated with the shared transmission network and is physically removed from any generation connection.

The scope of the project is based on converting a 275 kV transmission line into a substation and creating a new 275 kV breaker-and-a-half diameter. The indicative cost of this project is \$14 million.

The trigger for this project is the successful completion of the regulatory test demonstrating that the project would deliver net market benefits.

Appendix C: Parameter definitions

The following parameter definitions apply to ElectraNet during its next regulatory control period.

Parameter 1	Transmission circuit availability
Sub-parameters	transmission circuit availability critical circuit availability peak critical circuit availability non peak
Unit of measure	Percentage of total possible hours available
Source of data	The following circuits are defined as critical:

Line no.^a	Voltage (kV)	Circuit name	Length (km)
1904	275	Para – Tailem Bend no.2	105.4
1910	275	Davenport – Brinkworth (east circuit)	147.4
1911	275	Brinkworth – Para (east circuit)	133.8
1918	275	Davenport – Para (west circuit)	265.5
1919	275	Davenport – Canowie Canowie – Robertstown	212.5
1920	275	Davenport – Robertstown no. 2	212.5
1921	275	Para – Tailem Bend no.1	101.6
1922	275	Tailem Bend – South East no. 1	308.2
1923	275	Tailem Bend – South East no. 2	308.2
1930	275	South East – Heywood no. 1	12.0
1931	275	South East – Heywood no. 2	12.0
1938	275	Robertstown – Cherry Gardens no. 1	163.7
1939	275	Robertstown – Cherry Gardens no. 1	163.7

(a) Some of these lines will be split because of capital works. The number of circuits (and the denominator in the availability calculation) will change as these splits occur.

Peak periods are 8.00 am to 8.00 pm weekdays and non-peak periods are all other times.

Definition/formula	<p>formula:</p> $\frac{1 - \Sigma (\text{number of interrupted circuit hours})}{\text{total possible circuit hours available}}$ <p>where: number of interrupted circuit hours means in relation to each circuit, the number of hours during each reporting period in which that circuit was unavailable to provide transmission services</p> <p>total possible circuit hours available is the number of circuits multiplied by 8760 hours</p>
Inclusions	<p>circuits include regulated overhead lines and underground cables (each with a designated ElectraNet transmission segment identification number). Transformers, reactive plant and other primary plant are excluded from the performance parameter</p> <p>subject to the exclusions specified below, outages on all parts of the regulated transmission system from all causes including planned, forced and fault events</p>
Exclusions	<p>unregulated transmission assets</p> <p>any outages shown to be caused by a ‘third party system’—eg. intertrip signals, generator outage, customer installation, customer request or NEMMCO direction</p> <p>outages to control voltages within required limits, both as directed by NEMMCO and where NEMMCO does not have direct oversight of the network (in both cases only where the element is available for immediate energisation if required)</p> <p>the opening of only one end of a transmission line where the transmission line remains energised and available to carry power</p> <p>the number of interrupted hours related to a single transmission line redevelopment project or substation redevelopment project is capped at 336 hours (14 days)</p> <p>force majeure events</p>

Parameter 2	Loss of supply event frequency
Sub-parameter	<p>frequency of events where loss of supply exceeds 0.05 system minutes</p> <p>frequency of events where loss of supply exceeds 0.2 system minutes</p>
Unit of measure	number of events per annum
Definition/formula	<p>number of events greater than 0.05 system minutes per annum</p> <p>number of events greater than 0.2 system minutes per annum</p> <p>system minutes are calculated for each supply interruption by the ‘load integration method’ using the following formula:</p> $\frac{\Sigma (\text{MWh unsupplied} \times 60)}{\text{MW peak demand}}$ <p>where:</p> <p>MWh unsupplied is the energy not supplied as determined by using NEM metering and substation load data. This data is used to estimate the profile of the load over the period of the interruption by reference to historical load data</p> <p>period of the interruption starts when a loss of supply occurs and ends when ElectraNet offers supply restoration to the customer</p> <p>MW peak demand means the maximum amount of aggregated electricity demand recorded at entry points to the ElectraNet transmission network and interconnector connection points during the financial year in which the event occurs or at any time previously</p> <p>the performance parameter applies to exit points only</p> <p>an interruption 0.2 system minutes also registers as a >0.05 system minutes event</p> <p>interruptions affecting multiple connection points at exactly the same time are aggregated (i.e. system minutes are calculated by events rather than connection point interruptions)</p>
Inclusions	subject to the exclusions specified below, all unplanned customer outages on all parts of the regulated transmission system

forced outages where notification to affected customers is less than 24 hours (except where NEMMCO reschedules the outage after notification has been provided)

Exclusions

successful reclose events (less than one minute duration).

unregulated transmission assets

any outages shown to be caused by a 'third party system'—e.g. intertrip signals, generator outage, customer installation, customer request or NEMMCO direction

planned outages

for supply outages resulting from an interconnector outage, the period of the interruption is capped at half an hour. This is done to include the impact of automatic under-frequency load shedding, but to exclude the impact of any market failure to respond and restore load within required timeframes (i.e. excluding factors outside of ElectraNet's control)

pumping station supply interruptions (these interruptions were excluded from historical data used for target setting due to the highly irregular nature of these loads, which makes accurate estimation of load profiles unreliable)

force majeure events

where ElectraNet protection operates incorrectly ahead of third party protection, the portion of customer load that would have been lost had ElectraNet protection not operated is removed from the total lost load

where ElectraNet protection operates correctly due to a fault on a third party system no lost load is recorded

Parameter 3 Average outage duration

Unit of measure	minutes
Definition/formula	$\frac{\text{Aggregate minutes duration of all unplanned outages}}{\text{Number of connection point events}}$ <p>the cumulative summation of the outage duration time for the period, divided by the number of connection point outage events during the period</p> <p>where: outage duration time for a connection point starts when a loss of supply occurs and ends when ElectraNet offers supply restoration to the customer</p> <p>the performance parameter applies to exit points only</p> <p>outage duration extends to the point at which supply restoration is offered to the customer</p>
Inclusions	<p>subject to the exclusions specified below, customers supply outages on all parts of the regulated transmission system</p> <p>forced outages where notification to affected customers is less than 24 hours (except where NEMMCO reschedules the outage after notification has been provided)</p>
Exclusions	<p>successful reclose events (less than one minute duration)</p> <p>unregulated transmission assets</p> <p>any outages shown to be caused by a ‘third party system’—eg intertrip signals, generator outage, customer installation, customer request or NEMMCO direction</p> <p>planned outages</p> <p>for supply outages resulting from an interconnector outage, the duration is capped at half an hour. This is done to include the impact of automatic under-frequency load shedding, but to exclude the impact of any market failure to respond and restore load within required timeframes (i.e. excluding factors outside of ElectraNet’s control)</p> <p>force majeure events</p> <p>where ElectraNet protection operates correctly due to a fault on a third party system no outage duration is recorded</p>

Appendix D: Performance incentive curves

The following tables and figures represent the scale of the financial penalty or reward (y-axis) resulting from ElectraNet's performance (x-axis) against each of its parameters. Tables D.1 to D.5 show the set of linear equations represented in figures D.1 to D.5.

In accordance with the service target performance incentive scheme the s-factor result for each calendar year should be determined by the following formula:

$$S_{ct} = S_1 + S_2 + S_3 + S_4 + S_5$$

where:

S_{ct} = the total service standards factor (s-factor)

ct = the time period/calendar year

S_1 = s-factor for transmission circuit availability

S_2 = s-factor for critical circuit availability peak

S_3 = loss of supply event frequency > 0.05 system minutes

S_4 = loss of supply event frequency > 0.2 system minutes

S_5 = average outage duration

Note: The critical circuit availability non-peak parameter has been given a zero weighting and therefore does not affect ElectraNet's s-factor result during the next regulatory control period.

Figure D.1: Transmission circuit availability

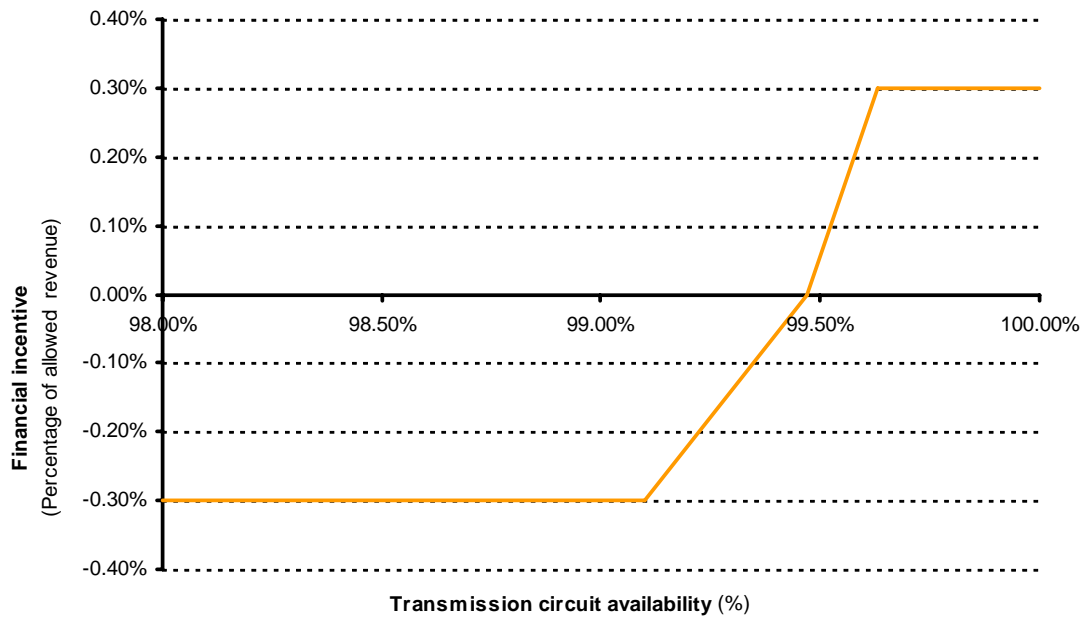


Table D.1: Transmission circuit availability

		Where:	
$S1 = -0.003000$		Availability <	99.10%
$S1 = 0.810811 \times \text{Availability} + -0.806514$		99.10% ≤ Availability ≤	99.47%
$S1 = 1.875000 \times \text{Availability} + -1.865063$		99.47% ≤ Availability ≤	99.63%
$S1 = 0.003000$		99.63% <	Availability

Figure D.2: Critical circuit availability peak

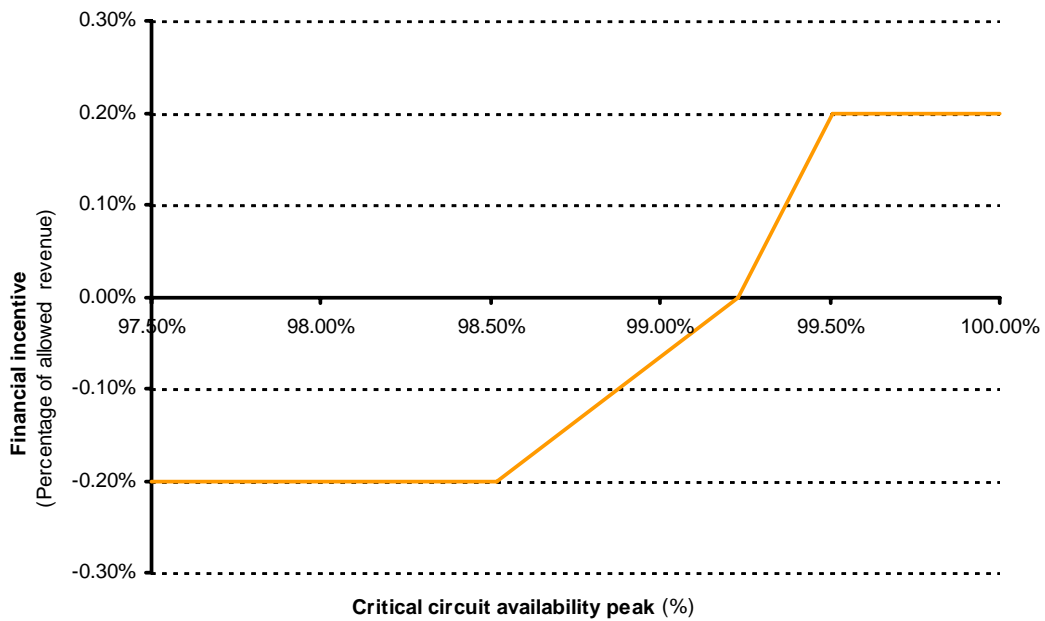


Table D.2: Critical circuit availability peak

		Where:	
S2	= -0.002000	Availability	< 98.52%
S2	= 0.277778 x Availability + -0.275667	98.52%	≤ Availability ≤ 99.24%
S2	= 0.740741 x Availability + -0.735111	99.24%	≤ Availability ≤ 99.51%
S2	= 0.002000	99.51%	< Availability

Figure D.3: Loss of supply event frequency > 0.05 system minutes

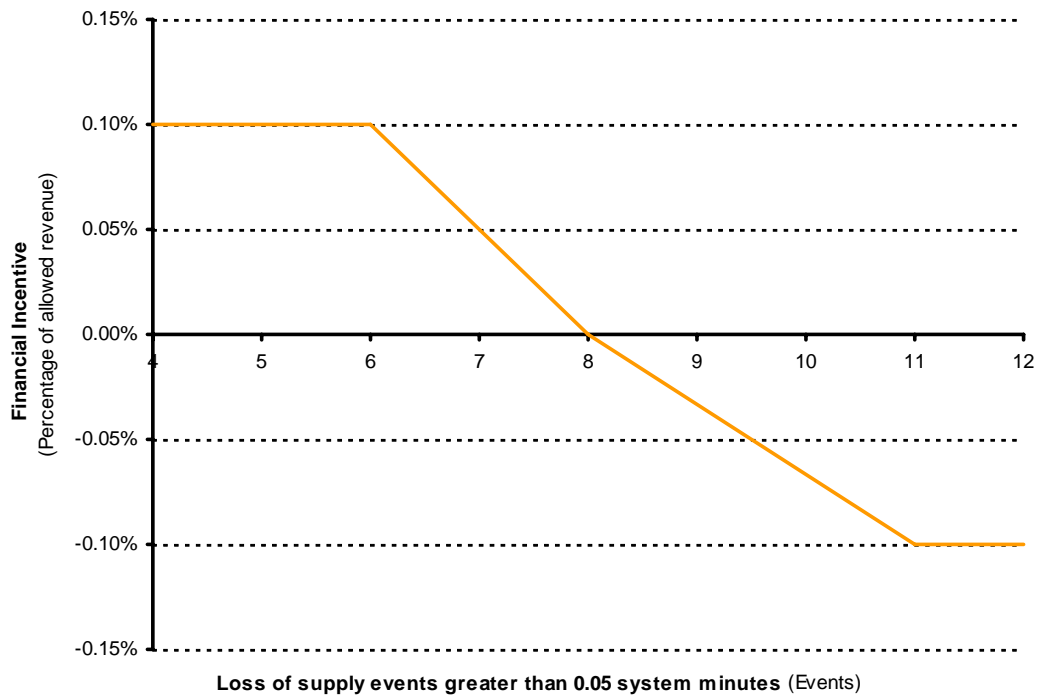


Table D.3: Loss of supply event frequency > 0.05 system minutes

Where:

S3 = -0.001000		11	<	No. of events	
S3 = -0.000333 x No. of events + 0.002667		8	≤	No. of events	≤ 11
S3 = -0.000500 x No. of events + 0.004000		6	≤	No. of events	≤ 8
S3 = 0.001000				No. of events	< 6

Figure D.4: Loss of supply event frequency > 0.2 system minutes

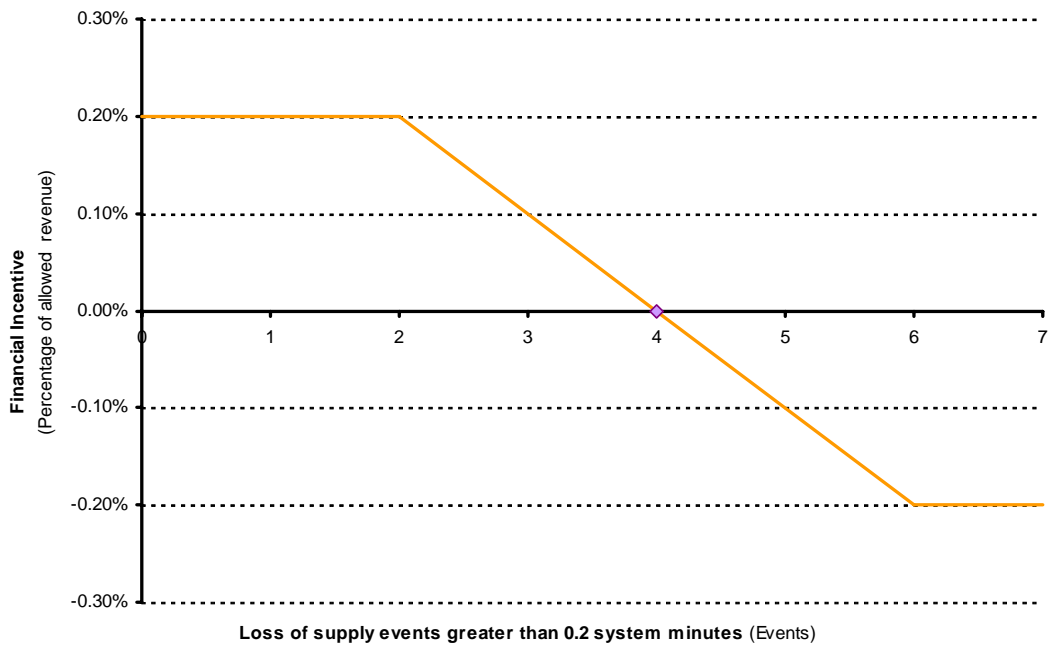


Table D.4: Loss of supply event frequency > 0.2 system minutes

Where:

S4 = -0.002000		6	<	No. of events
S4 = -0.001000 x No. of events + 0.004000		4	≤	No. of events ≤ 6
S4 = -0.001000 x No. of events + 0.004000		2	≤	No. of events ≤ 4
S4 = 0.002000				No. of events < 2

Figure D.5: Average outage duration

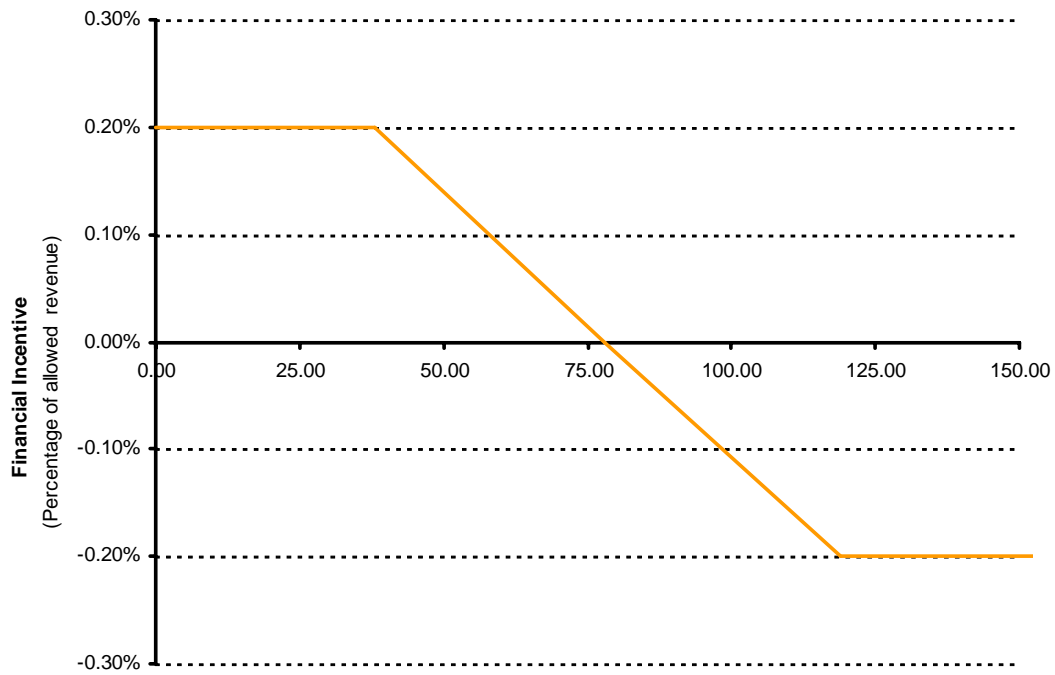


Table D.5: Average outage duration

		Where:	
S5	= -0.002000	119	< Average outage duration
S5	= -0.000049 x Average outage duration + 0.003805	78	≤ Average outage duration ≤ 119
S5	= -0.000050 x Average outage duration + 0.003900	38	≤ Average outage duration ≤ 78
S5	= 0.002000		Average outage duration < 38