



Draft decision

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

9 November 2007

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## Request for submissions

This document sets out the Australian Energy Regulator's (AER) draft transmission determination for ElectraNet during the period 1 July 2008 to 30 June 2013.

The AER will hold a pre-determination conference on this draft transmission determination on **Tuesday, 11 December 2007** in Adelaide for the purpose of explaining its draft decision and receiving oral submissions from interested parties. Interested parties can register to attend the pre-determination conference by calling the Network Regulation North Branch of the AER on (02) 6243 1233 or by emailing [aer inquiry@ aer.gov.au](mailto:aer inquiry@ aer.gov.au) by **Wednesday, 5 December 2007**.

Interested parties are invited to make written submissions on issues regarding this draft transmission determination and the consultants' reports to the AER by **Monday, 18 February 2008**.

Submissions can be sent electronically to [aer inquiry@ aer.gov.au](mailto:aer inquiry@ aer.gov.au)

Alternatively, submissions can be mailed to:

Mr Mike Buckley  
General Manager  
Network Regulation North  
Australian Energy Regulator  
GPO Box 3131  
Canberra ACT 2601

The AER prefers that all submissions be publicly available to facilitate an informed and transparent consultative process. Submissions will be treated as public documents unless otherwise requested. Parties wishing to submit confidential information are requested to:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non-confidential version of the submission.

All non-confidential submissions will be placed on the AER website, [www.aer.gov.au](http://www.aer.gov.au).

A copy of ElectraNet's revenue proposal, proposed negotiating framework, proposed pricing methodology, consultancy reports and submissions from interested parties are available on the AER website.

Inquiries about the draft transmission determination or about lodging submissions should be directed to the Network Regulation North Branch on (02) 6243 1233.

# Contents

<b>Request for submissions .....</b>	<b>iii</b>
<b>Shortened forms .....</b>	<b>vii</b>
<b>Overview .....</b>	<b>ix</b>
<b>Summary.....</b>	<b>xii</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 Background.....	1
1.2 Regulatory requirements.....	1
1.3 Transitional arrangements.....	4
1.4 Review process .....	5
1.5 Structure of draft decision.....	6
1.6 Electricity industry arrangements in South Australia .....	7
1.7 ElectraNet network .....	8
<b>2 Past capital expenditure.....</b>	<b>10</b>
2.1 Introduction.....	10
2.2 Regulatory requirements.....	10
2.3 Submissions .....	13
2.4 Consultant review .....	13
2.5 Issues and AER considerations.....	16
2.6 AER conclusion .....	29
<b>3 Opening asset base.....</b>	<b>31</b>
3.1 Introduction.....	31
3.2 Regulatory requirements.....	31
3.3 ElectraNet proposal.....	33
3.4 Submissions .....	33
3.5 Issues and AER considerations.....	34
3.6 AER conclusion .....	49
<b>4 Forecast capital expenditure .....</b>	<b>51</b>
4.1 Introduction.....	51
4.2 Regulatory requirements.....	51
4.3 ElectraNet proposal.....	53
4.4 Submissions .....	54
4.5 Consultant review .....	55
4.6 Issues and AER considerations.....	57
4.7 AER conclusion .....	122
<b>5 Cost of capital .....</b>	<b>124</b>
5.1 Introduction.....	124
5.2 Regulatory requirements.....	124
5.3 ElectraNet proposal.....	125
5.4 Submissions .....	125
5.5 Issues and AER considerations.....	125
5.6 AER conclusion .....	132
<b>6 Operating and maintenance expenditure.....</b>	<b>134</b>

6.1	Introduction.....	134
6.2	Regulatory requirements.....	134
6.3	ElectraNet proposal.....	135
6.4	Submissions .....	137
6.5	Consultant review .....	139
6.6	Issues and AER considerations.....	141
6.7	AER conclusion .....	182
<b>7</b>	<b>Service target performance incentive .....</b>	<b>184</b>
7.1	Introduction.....	184
7.2	Regulatory requirements.....	184
7.3	ElectraNet proposal.....	185
7.4	Submissions .....	185
7.5	Consultant review .....	186
7.6	Issues and AER considerations.....	187
7.7	AER conclusion .....	202
<b>8</b>	<b>Maximum allowed revenue.....</b>	<b>203</b>
8.1	Introduction.....	203
8.2	Regulatory requirements.....	203
8.3	Determining the MAR by adjusting for performance incentive and pass through amounts.....	205
8.4	ElectraNet proposal.....	206
8.5	Standard asset lives .....	207
8.6	AER assessment of building blocks.....	212
8.7	AER determination—maximum allowed revenue.....	216
8.8	Average transmission charges.....	218
<b>9</b>	<b>Negotiating framework for negotiated transmission services .....</b>	<b>220</b>
9.1	Introduction.....	220
9.2	Regulatory requirements.....	220
9.3	ElectraNet proposal.....	222
9.4	Submissions .....	224
9.5	Issues and AER considerations.....	224
9.6	AER determination .....	225
<b>10</b>	<b>Negotiated transmission service criteria .....</b>	<b>227</b>
10.1	Introduction.....	227
10.2	Regulatory requirements.....	227
10.3	Submissions .....	228
10.4	Issues and AER considerations.....	228
10.5	AER determination .....	230
<b>11</b>	<b>Pricing methodology.....</b>	<b>231</b>
11.1	Introduction.....	231
11.2	Regulatory requirements.....	231
11.3	ElectraNet proposal.....	232
11.4	Submissions .....	233
11.5	Issues and AER considerations.....	234
11.6	AER determination .....	236

<b>Appendix A: Transitional arrangements.....</b>	<b>237</b>
<b>Appendix B: Summary of reliability standards in Electricity Transmission Code</b>	<b>239</b>
<b>Appendix C: Review of ex ante capital expenditure.....</b>	<b>241</b>
<b>Appendix D: Contingent projects and their triggers.....</b>	<b>253</b>
<b>Appendix E: Parameter definitions.....</b>	<b>260</b>
<b>Appendix F: Performance incentive curves .....</b>	<b>265</b>
<b>Appendix G: Amended ElectraNet negotiating framework for negotiated transmission services .....</b>	<b>271</b>
<b>Appendix H: Determination specifying the negotiated transmission service criteria that apply to ElectraNet.....</b>	<b>287</b>

## Shortened forms

ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
AR	allowed revenue
APR	annual planning report
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)
ETSA	ETSA Utilities
EUAA	Energy Users Association of Australia
GWh	gigawatt hour
IDC	interest during construction
kV	kilovolt, (one thousand volts)
MAR	maximum allowed revenue
MVA	megavolt ampere
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
POE	probability of exceedence
PPI	producer price index

PTRM	post-tax revenue model
RAB	regulated asset base
RFM	roll forward model
SKM	Sinclair Knight Merz Pty Ltd
SRP	<i>Statement of principles for the regulation of electricity transmission revenues</i> , 8 December 2004
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

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. The AER's principal task is to set the revenues that a TNSP can receive from the provision of prescribed transmission services.

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

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 consider its requirements for the next regulatory control period.

The AER has assessed 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 appeared to be adequate for the modest capital works program that existed at the time. ElectraNet recognised this problem and subsequently introduced improved arrangements. These improved processes 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 later part of the current regulatory period than was anticipated at the time 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 in South Australia. This review has resulted in new standards that apply to ElectraNet's transmission network from 1 July 2008. These standards will require a greater level of reliability, particularly in the Adelaide CBD area. ElectraNet's revenue proposal for the next regulatory control period has taken into account the increased capital works and operating expenditure (opex) that will be required to ensure the transmission network can meet the new standards and the long term needs of South Australia in respect of electricity transmission services.

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

The AER has approved a maximum allowed revenue (MAR) for ElectraNet under this draft transmission determination that increases from \$209 million in 2008–09 to \$271 million in 2012–13 (\$nominal). The total MAR for ElectraNet over the next regulatory control period is \$1195 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 \$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. 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.

ElectraNet's forecast capex proposal of \$778 million (\$2007–08) is a significant increase on its current level of capex. The AER has reduced ElectraNet's forecast capex proposal to \$606 million. The reduction is primarily because of the transfer of two projects' costs to contingent projects (\$122 million). This reflects the AER's view that there is substantial uncertainty about key aspects of these projects. ElectraNet will be able to apply for an increase in its allowed revenues if the details of these projects become more certain. These, including several other less certain projects, have resulted in an indicative contingent project allowance of \$805 million. A number of other adjustments have been made to ElectraNet's proposal following the AER's review.

ElectraNet's forecast opex proposal of \$324 million (\$2007–08) has been reduced to \$291 million following the AER's review. This amount still represents an increase of 18 per cent compared with ElectraNet's level of opex in the current regulatory period. 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. This scheme encourages TNSPs to improve or maintain their service performance levels against measures of network security and reliability (known as parameters). This draft transmission determination includes performance targets for the seven parameters and sub-parameters that currently apply 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 draft transmission determination will result in a 5.9 per cent per annum nominal increase in average transmission charges over the next regulatory control period or an increase of 2.9 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.<sup>1</sup> The increase in average transmission charges is primarily because of:

- the need for increased capex associated with the new reliability standards specified in the ETC. The ETC is determined by the ESCOSA under the *Essential Services Commission Act 2002* (SA)
- the urgent need to replace and maintain ageing assets
- 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 increase in average transmission charges under this draft transmission determination will add approximately \$6.40 to the average residential customer's annual bill of \$1058 (0.6 per cent).<sup>2</sup>

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<sup>1</sup> ESIPC, *Annual planning report*, June 2007, p. xi.

<sup>2</sup> The customer billing data is from the Essential Services Commission of South Australian. ESCOSA, *2005–06 annual performance report—SA energy retail market*, November 2006, pp. 71–73

# Summary

## Introduction

In 2002, the Australian Competition and Consumer Commission (ACCC) determined ElectraNet's revenue cap for a five-and a-half-year period from 1 January 2003 to 30 June 2008 (the current regulatory period).<sup>3</sup> The AER assumed responsibility for regulating electricity transmission services provided by ElectraNet on 1 July 2005.

The AER is required to provide ElectraNet with sufficient revenues to meet the efficient costs of maintaining and developing the South Australian network, given the forecast growth in demand for electricity transmission services.

The new chapter 6A of the NER took effect on 16 November 2006. The AER must make a transmission determination for ElectraNet according to the new chapter 6A and the AER's transmission guidelines.

The transmission guidelines required under the NER were not completed before ElectraNet was required to submit its revenue proposal. Clause 11.6.18 of the NER provides that the 'first proposed transmission guidelines' published by the AER on 31 January 2007 will apply to ElectraNet for the purposes of making a transmission determination for its next regulatory control period.

The AER published ElectraNet's revenue proposal, proposed negotiating framework and proposed pricing methodology on 29 June 2007. Interested parties were invited to make a submission on all documents. Eight submissions were received. A public forum on ElectraNet's revenue proposal was held in Adelaide on 24 July 2007.

The AER engaged Sinclair Knight Merz Pty Ltd (SKM) as a technical expert to advise it on a number of key aspects of ElectraNet's revenue proposal, including capex, opex and service standards. The AER also engaged CHC Associates Pty Ltd to provide additional expert engineering advice, including the readmission of previously optimised assets into the RAB. Econtech Pty Ltd was also commissioned to provide wage growth forecasts in the utilities sector.

This draft transmission determination should be read in conjunction with the consultants' reports.

The key components of this draft transmission determination are:

- The AER's draft revenue determination for ElectraNet in respect of the provision by ElectraNet of prescribed transmission services, including:

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<sup>3</sup> ACCC, *South Australian transmission network revenue cap 2003–2007/08: Decision*, 11 December 2002.

- an assessment 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 weighted average cost of capital (WACC) for ElectraNet
  - an assessment of the forecast opex allowance for ElectraNet over the next regulatory control period
  - the values to be attributed to the performance incentive scheme parameters for the purposes of the application to ElectraNet of a service target performance incentive scheme
  - the amount of the estimated total revenue cap over the regulatory control period for ElectraNet.
- The AER's draft determination relating to ElectraNet's negotiating framework for negotiated transmission services.
  - The AER's draft determination on the negotiated transmission service criteria that will apply to ElectraNet.
  - The AER's draft determination in relation to 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 draft transmission determination.

## Past capital expenditure

### Regulatory requirements

Clause 11.6.9 of the transitional provisions provides that the value of the RAB for the first regulatory control period prescribed in the NER may be adjusted to have regard for an existing revenue determination and any other arrangements agreed between the AER and TNSP.

In accordance with this provision the AER has undertaken an ex post prudence assessment of the capex undertaken in the current regulatory period before it is included in the RAB, as this is foreshadowed in the ACCC's 2002 revenue cap decision for ElectraNet. The process for reviewing past capex is set out in the *Statement of principles for the regulation of electricity transmission revenues*<sup>4</sup> (SRP)

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<sup>4</sup> AER, *Compendium of electricity transmission regulatory guidelines: Statement of principles for the regulation of electricity transmission revenues*, 22 August 2005.

and the ACCC's *NSW and ACT transmission network revenue cap decisions*.<sup>5</sup> Appendix B of the SRP sets out the prudence test for revenue caps determined under the ACCC's *Draft statement of principles for the regulation of transmission revenues* (DRP).<sup>6</sup>

### **ElectraNet proposal**

ElectraNet stated that it anticipated actual capitalisation of investments to be \$390 million during the current regulatory period (on an as-commissioned basis). This is 1 per cent more than the 2002 ACCC revenue cap decision allowance of \$386 million (adjusted for actual consumer price index (CPI)). Of the \$390 million of past capex that ElectraNet proposed to roll into its RAB, \$27 million relates to interest during construction (IDC) costs.

ElectraNet stated that as well as commissioned works, its assets under construction as at 30 June 2008 are estimated to be \$44 million. This amount needs to be recognised in the RAB because of the transition to recognising capex on a partially as-incurred (hybrid) approach during the next regulatory control period.

### **AER conclusion**

The AER has reviewed ElectraNet's capex over the current regulatory period and has tested the prudence and efficiency of expenditure through detailed reviews of a targeted sample of projects. The AER has been assisted in this analysis by advice from SKM.

The AER's conclusion is that ElectraNet's expenditure of \$363 million (exclusive of IDC costs) on commissioned projects during the current regulatory period is prudent and that the projects were efficient and consistent with good industry practice.

Notwithstanding this, the AER notes that ElectraNet's cost estimation processes—particularly in the early years of the current regulatory period—were not representative of best practice which resulted in some projects' actual costs being considerably different to the original estimate. However, the AER acknowledges that ElectraNet has adopted a more sophisticated project cost estimating package that, going forward, should improve the accuracy of initial cost estimates.

The AER further concludes that ElectraNet's proposal of \$44 million for assets under construction is also prudent. This amount should be included in ElectraNet's RAB to reflect the transition to a partially as-incurred approach to recognising capex during the next regulatory control period.

The AER also accepts ElectraNet's proposal of \$27 million relating to an IDC allowance for commissioned projects. The AER further considers that an additional

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<sup>5</sup> ACCC, *NSW and ACT transmission network revenue cap TransGrid 2004–05 to 2008–09: Final decision*, 27 April 2005.

ACCC, *NSW and ACT transmission network revenue cap EnergyAustralia 2004–05 to 2008–09: Decision*, 27 April 2005.

<sup>6</sup> ACCC, *Draft statement of principles for the regulation of transmission revenues*, 27 May 1999.

IDC allowance of \$1.9 million relating to assets under construction should be included in the RAB. ElectraNet had not made a provision for such an amount in its revenue proposal.

## **Opening regulated asset base**

### **Regulatory requirements**

Under the requirements of chapter 6A, ElectraNet's RAB from the beginning of the current regulatory period (1 January 2003) is 'rolled forward' to establish the RAB at the commencement of the next regulatory control period (1 July 2008). The RAB is an essential part of the building block calculation as it provides a basis for calculating returns on and of capital for the next regulatory control period.

Schedule 6A.2.1(c) of the NER provides that the RAB for the first year of the regulatory control period must be determined by rolling forward the RAB value set out in the schedule. For ElectraNet this value is \$824 million (as at 1 January 2003). This value is adjusted to allow for the difference between estimated capex and actual capex in the previous regulatory period. In making such an adjustment, the AER is required to remove any associated benefit or penalty to ElectraNet.

Clause 11.6.9 of the transitional provisions further provides that the value of the RAB for the first regulatory control period under the revised NER may be adjusted to take account of an existing revenue determination and any other arrangements agreed between the AER and the TNSP. The 2002 ElectraNet revenue cap decision was made by the ACCC based on the incentive framework contained in its DRP. The AER will roll forward ElectraNet's RAB consistent with the DRP and the ACCC's 2002 revenue cap decision.

### **ElectraNet proposal**

ElectraNet proposed an opening RAB of \$1277 million as at 1 July 2008. The proposed opening RAB includes a slightly higher than forecast past capex amount of \$390 million (inclusive of IDC costs) and \$44 million of assets under construction at the end of the current regulatory period. ElectraNet has sought to adjust its opening RAB value by \$5.1 million to account for higher than estimated commissioned assets between July and December 2002 in the previous regulatory period. Further, it has proposed to roll in the return on this difference over the current regulatory period of \$3.1 million.

ElectraNet has also proposed adjustments to its opening RAB for the readmission of previously optimised assets (\$21 million) and the revaluation of easements (\$82 million).

### **AER conclusion**

The AER has reviewed the roll forward model for the inputs to the previous regulatory period—1 July 2002 to 31 December 2002—and is satisfied with ElectraNet's proposed adjustments to the opening RAB for the current regulatory period.

Following a detailed ex post prudence assessment of ElectraNet's capex in the current regulatory period, the AER has determined that \$363 million of ElectraNet's commissioned assets during the current regulatory period were prudent and should be included in its RAB.

The AER will also roll into ElectraNet's RAB an amount for prudent expenditure on assets under construction at the end of the current regulatory period as a result of the transition to recognising capex on a partially as-incurred approach. The AER has determined that \$44 million of ElectraNet's assets under construction were prudent and should be included in its opening RAB for the next regulatory control period.

The AER accepts ElectraNet's proposal that an adjustment for easement compensation costs of \$29 million should be added to the opening RAB for the next regulatory control period. The AER does not accept ElectraNet's proposal for easement transaction or acquisition costs of \$53 million to be added to the RAB.

The AER accepts ElectraNet's proposal that the previously optimised assets are required for prescribed transmission services during the next regulatory control period. The AER notes that ElectraNet applied an optimised depreciated replacement cost methodology to calculate the value for these assets and that the value derived was consistent with the requirements of the DRP. Accordingly, it accepts the readmission of these assets subject to adjustment for error corrections—total value of \$17 million—into the opening RAB for the next regulatory control period.

The AER has determined ElectraNet's opening RAB to be \$1220 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 <sup>a</sup>	2007–08 <sup>b</sup>
Opening RAB	823.75	832.83	883.96	958.36	1029.45	1082.89
Forecast capex (adjusted for actual CPI) <sup>c</sup>	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	26.38
Straight-line depreciation (adjusted for actual CPI)	-17.71	-38.75	-42.81	-45.78	-50.95	-48.47
Closing RAB	832.83	883.96	958.36	1029.45	1082.89	1114.92
Add: prudent capex over 2002 decision <sup>d</sup>						10.00
Add: return on difference <sup>e</sup>						3.04
Add: prudent assets under construction						45.87
Add: easement landowner compensation costs						29.10
Add: readmitted optimised assets						17.44
Opening RAB at 1 July 2008						1220.36

(a) Updated for actual 2006–07 capex and CPI data.

(b) Forecast.

(c) 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.

(d) 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.

(e) This relates to the difference between actual and forecast capex of \$5.1 million for 1 July 2002 to 31 December 2002.

## Forecast capital expenditure

### Regulatory requirements

Clause 6A.6.7(a) of the NER provides that a TNSP must include in its revenue proposal the total forecast capex for the regulatory control period to achieve the capex objectives, which are to:

- (1) meet the expected demand for prescribed transmission services over that period;
- (2) comply with all applicable regulatory obligations associated with the provision of prescribed transmission services;
- (3) maintain the quality, reliability and security of supply of prescribed transmission services; and

- (4) maintain the reliability, safety and security of the transmission system through the supply of prescribed transmission services.

Clause 6A.6.7(c) also provides that the AER must accept the capex forecast included in a revenue proposal if it is satisfied that the total of the forecast for the regulatory control period reasonably reflects the capex criteria, which are:

- (1) the efficient costs of achieving the capital expenditure objectives
- (2) the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the capital expenditure objectives; and
- (3) a realistic expectation of the demand forecast and cost inputs required to achieve the capital expenditure objectives.

In making this assessment the AER consider the capex factors set out in clause 6A.6.7(e). The AER is also required to assess contingent projects according to clause 6A.8.1 of the NER.

### **ElectraNet proposal**

ElectraNet has proposed an ex ante capex allowance totalling \$778 million for the next regulatory control period. Table 2 sets out the annual profile of ElectraNet’s capex proposal.

**Table 2: ElectraNet’s proposed ex ante capex allowance (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Proposed capex	200.2	218.2	164.6	129.5	65.6	778.1

Source: ElectraNet revenue proposal, p. 61.

ElectraNet’s revenue proposal also includes 17 contingent projects. The indicative costs for these projects range from \$11 million to \$250 million, and totals \$947 million.

ElectraNet’s capex proposal is almost double the capex expected to be incurred during the current regulatory period. It noted that significantly higher capital investment is required due to the combined effect of ‘volume of work’ and ‘price of work’ cost drivers. Volume of work cost drivers include:

- the amended mandated reliability standards set out in the ETC. The amended ETC is to commence operation on 1 July 2008, the start of ElectraNet’s next regulatory control period
- the age profile of ElectraNet’s network
- additional investment to address the physical security of critical infrastructure.

Price of work cost drivers include:

- rising wages growth, land escalation values and non-labour construction costs
- the rising price of electricity transmission equipment.

## AER conclusion

The AER is not satisfied that the capex allowance proposed by ElectraNet reasonably reflects the capex criteria, as set out in clause 6A.6.7(c) of the NER, taking into account the capex factors in clause 6A.6.7(e). Because of this, under clause 6A.6.7(d), the AER must not accept the forecast capex in ElectraNet's revenue proposal.

On the basis of its analysis of ElectraNet's proposed capex forecast and the advice of SKM, the AER has reduced ElectraNet's ex ante capex allowance by \$186 million (\$2007–08). This represents a reduction of around 24 per cent of ElectraNet's proposed forecast capex of \$778 million and will result in a revised forecast capex allowance of \$592 million. Of this reduction, \$122 million will be transferred to contingent projects.

The AER also accepts SKM's recommendation to transfer \$17 million of opex refurbishment projects to capex, which will result in a total ex ante capex allowance of \$606 million for ElectraNet over the next regulatory control period. Table 3 shows the ex ante allowance by capex category. In addition, the AER has approved an indicative contingent projects allowance of \$805 million.

**Table 3: 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 <sup>a</sup>	-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 <sup>b</sup>	-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 <sup>c</sup>	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

Note: The AER will update the capex model with the latest CPI data at the time of its final transmission determination.

(a) These adjustments relate to augmentation, easement and replacement projects.

(b) This includes adjustments to escalation from 2006–07 to 2007–08 dollar, land (and easement) and materials escalators.

(c) The capex escalators have been applied to these projects.

This revised 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 revised forecast of \$606 million over the next regulatory control period reasonably reflects the capex criteria, taking into account the capex factors.

## **Cost of capital**

### **Regulatory requirements**

The NER prescribes a number of the WACC parameter values to be adopted by the AER for the purposes of setting a rate of return for TNSPs. For parameters where values have not been prescribed—nominal risk-free rate and the debt risk premium—the NER sets out the method to be used by the AER to determine the values.

### **ElectraNet proposal**

In estimating the WACC for its revenue proposal, ElectraNet has used the values for the WACC parameters set out in the NER. For the purposes of its revenue proposal, ElectraNet has calculated a nominal vanilla WACC of 8.79 per cent.

### **AER conclusion**

For this draft transmission determination, the AER has determined a nominal vanilla WACC of 9.66 per cent for ElectraNet. The WACC is greater than that proposed by ElectraNet because of higher bond yields in the financial market since ElectraNet submitted its revenue proposal.

The AER recognises that there is some concern over the appropriateness of using observed indexed CGS yields to derive an inflation forecast, as provided for in the post-tax revenue model. For the time being, the AER will be guided by the Reserve Bank of Australia’s stance on monetary policy and official target inflation range of 2 to 3 per cent when determining the appropriate forecast inflation rate. Based on this approach, the AER considers that an inflation forecast of 3 per cent per annum provides the best estimate at this time. Given that ElectraNet has proposed an inflation forecast of 2.97 per cent, which is not materially different to the AER’s estimate, it is reasonable for the AER to accept ElectraNet’s proposed value but not for the reasons put forward by ElectraNet.

Table 4 outlines the WACC parameter values for this draft transmission determination. The AER will update the nominal risk-free rate and debt risk premium, based on the agreed averaging period, at the time of its final transmission determination.

**Table 4: AER’s conclusion on WACC parameters**

<b>Parameter</b>	<b>AER’s conclusion</b>
Risk-free rate (nominal)	6.25 %
Risk-free rate (real)	3.19 % <sup>a</sup>
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 equity	12.25 %
Nominal vanilla WACC	9.66 %

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

## **Operating and maintenance expenditure**

### **Regulatory requirements**

Clause 6A.6.6(a) of the NER provides that a TNSP must include in its revenue proposal the total forecast opex for the regulatory control period to achieve the opex objectives, which are to:

- (1) meet the expected demand for prescribed transmission services over that period;
- (2) comply with all applicable regulatory obligations associated with the provision of prescribed transmission services;
- (3) maintain the quality, reliability and security of supply of prescribed transmission services; and
- (4) maintain the reliability, safety and security of the transmission system through the supply of prescribed transmission services.

Clause 6A.6.6(c) also provides that the AER must accept the forecast opex included in a revenue proposal if the AER is satisfied that the total forecast opex for the regulatory control period reasonably reflects the opex criteria, which are:

- (1) the efficient costs of achieving the operating expenditure objectives;
- (2) the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the operating expenditure objectives; and
- (3) a realistic expectation of the demand forecast and cost inputs required to achieve the operating expenditure objectives.

In making this assessment, the AER must have regard to the opex factors set out in clause 6A.6.6(e).

### ElectraNet proposal

ElectraNet’s forecast opex for the next regulatory control period is \$324 million, \$77 million greater than its expected opex in the current regulatory period. ElectraNet identified the following significant cost drivers:

- asset growth
- an ageing asset base
- labour skills shortages and real wages growth
- cost scope changes.

### AER conclusion

The AER is not satisfied that ElectraNet’s proposed opex forecasts reasonably reflect the opex criteria as set out in clause 6A.6.6(c) of the NER, taking into account the opex factors in clause 6A.6.6(e). Because of this, under clause 6A.6.6(d), the AER must not accept the forecast opex in ElectraNet’s revenue proposal.

On the basis of its analysis of ElectraNet’s proposed opex forecast and the advice of SKM, the AER has applied a reduction of \$33 million (\$2007–08) to ElectraNet’s proposed opex. This represents a reduction of around 10 per cent of ElectraNet’s proposed opex of \$324 million and results in a revised forecast opex allowance of \$291 million. Table 5 shows the total opex allowance by expense category.

**Table 5: AER’s conclusion on ElectraNet’s opex forecast (\$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

Note: Total may not add up due to rounding.  
The AER will update the opex model with the latest CPI data at the time of its final transmission determination.

This revised estimate represents the AER's estimate of the total opex that a prudent operator in ElectraNet's circumstances would require to achieve the opex objectives. The AER is satisfied that the revised total forecast opex of \$291 million over the next regulatory control period, reasonably reflects the opex criteria, taking into account the opex factors.

## **Service target performance incentive**

### **Regulatory requirements**

Clause 6A.7.4 of the NER required the AER to publish a service target performance incentive scheme (scheme) by 28 September 2007 that complies with the principles in clause 6A.7.4(b) of the NER.

At the time ElectraNet submitted its revenue proposal, the AER had not published its final scheme. The transitional provisions in clause 11.6.18 of the NER provide that the first proposed scheme published by the AER on 31 January 2007 will apply to ElectraNet during its next regulatory control period.

### **ElectraNet proposal**

ElectraNet has proposed performance targets, caps, collars and weightings for each of the parameters that apply to it under the scheme.

ElectraNet also proposed certain aspects of the parameter definitions, including critical circuits, peak and non-peak periods for the availability parameters, and the 'x' and 'y' thresholds for the loss of supply event frequency parameters.

### **AER conclusion**

The AER has rejected many elements of ElectraNet's service target performance incentive proposal. In summary the AER:

- Rejects the list of critical circuits as it does not meet the objectives in clause 1.4 of the scheme.
- Rejects the proposed x and y thresholds for the loss of supply event frequency parameters because the proposed 1.0 system minute threshold does not meet the requirements of the scheme.
- Rejects ElectraNet's proposed performance target for the loss of supply event frequency parameters as the use of performance data for a period longer than five years does not meet the requirements in clause 2.5(h) of the scheme and is not consistent with the objectives of the scheme.
- Rejects ElectraNet's proposed performance target for the average outage duration parameter as it does not meet the scheme's requirements.
- Rejects the actual cap and collar values proposed by ElectraNet for all parameters as the methodology applied for calculating the cap and collar values was not sound.
- Accepts the proposed peak period as 8.00 am to 8.00 pm weekdays and non-peak period at all other times.

- Accepts ElectraNet’s proposed performance target for the transmission circuit availability parameter.
- Accepts the method used by ElectraNet to calculate the performance targets for the critical circuit availability peak and non-peak parameters. However, because of revisions to the definitions of critical circuits and peak periods for these parameters, the AER rejects the actual performance targets proposed by ElectraNet as these are not based on the definitions that apply to ElectraNet under the scheme.
- Accept the weightings proposed by ElectraNet.

Table 6 sets out the AER’s conclusions on performance targets, caps, collars and weightings for each of the parameters that apply to ElectraNet under the scheme.

**Table 6: AER’s conclusion on caps, collars, targets and weightings to apply to ElectraNet**

<b>Parameter</b>	<b>Collar</b>	<b>Target</b>	<b>Cap</b>	<b>Weighting</b>
<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

## Maximum allowed revenue

### Regulatory requirements

Under clause 6A.2 of the NER the AER is required to make a revenue determination for a TNSP in respect of the provision of prescribed transmission services. Clause 6A.4.2(a) requires a revenue determination to specify, amongst other things:

- (1) the amount of the estimated total revenue cap for the regulatory control period or the method of calculating that amount;
- (2) the annual building block revenue requirement for each regulatory year of the regulatory control period;
- (3) the amount of the maximum allowed revenue for each regulatory year of the regulatory control period or the method of calculating that amount.



## ElectraNet proposal

ElectraNet’s MAR for the final year of its current regulatory period (2007–08) is \$187 million. ElectraNet has proposed a nominal MAR of \$209 million in 2008–09, increasing to \$283 million in 2012–13. ElectraNet stated that the implied energy delivered unit cost of this MAR is \$13.3 per MWh in 2007–08 increasing at a nominal average annual rate of 6.8 per cent to \$18.5 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 \$7.50 per year, or 0.7 per cent.

## AER determination

The AER has determined an annual building block revenue requirement for ElectraNet that increases 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 has been calculated to be \$903 million. Based on this NPV amount, the AER has 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. The total revenue cap for ElectraNet over the next regulatory control period is \$1195 million.

To determine the expected MAR over the next regulatory control period, the AER has applied an X factor of –8.56 per cent in the first year (based on setting the first year MAR equal to the annual building block revenue requirement for that year) and –3.66 per cent in subsequent years.

**Table 7: 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 <sup>a</sup>	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
X factor <sup>b</sup>	–8.56 %	–3.66 %	–3.66 %	–3.66 %	–3.66 %	–

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

(b) The X factor of –8.56 per cent in 2008–09 is not required to be applied by ElectraNet. It provides an indication of the  $P_0$  adjustment between the MAR in the final year of the current regulatory period (2007–08) and the MAR in the first year of the next regulatory control period (2008–09).

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 draft transmission determination on average transmission charges can be estimated by taking the annual MAR and dividing it by forecast annual energy delivered in South Australia.<sup>7</sup> Based on this approach, the AER estimates that this draft transmission determination will result in a 5.9 per cent per annum (nominal) increase in average transmission charges over the next regulatory control period or an increase of 2.9 per cent per annum in real terms (\$2007–08).

## **Negotiating framework for negotiated transmission services**

### **Regulatory requirements**

Clause 6A.2.2(2) of the NER states that a transmission determination made by the AER under clause 6A.2.1 must include a determination relating to the TNSP's negotiating framework.

### **ElectraNet proposal**

ElectraNet stated that its proposed negotiating framework is in accordance with clause 6A.9.5(a) of the NER and sets out the procedure to be followed when negotiating terms and conditions of access for a negotiated transmission service.

### **AER determination**

Under clause 6A.14.3(f) of the NER the AER will approve ElectraNet's negotiating framework (as amended) for the next regulatory control period.

The AER has assessed ElectraNet's negotiating framework and, subject to minor drafting amendments agreed between it and ElectraNet, considers that the negotiating framework in appendix G complies with clause 6A.9.5(c) of the NER.

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**

### **Regulatory requirements**

Under clause 6A.2.2 of the NER, the AER is required to make a determination specifying the negotiated transmission service criteria (criteria) that apply to a TNSP as part of its transmission determination for that TNSP. The AER's determination

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<sup>7</sup> The forecast energy delivered (customer sales) figures were obtained from ESIPC's *Annual Planning Report*, June 2007.

must set out the criteria to apply to a TNSP in negotiating the provision of negotiated transmission services, specifically:

- the terms and conditions of access for negotiated transmission services, including the prices that are to be charged
- access charges that are negotiated by the provider during a regulatory control period.<sup>8</sup>

The criteria must also be applied by a commercial arbitrator to resolve disputes about negotiated transmission services, specifically:

- the terms and conditions of access for the negotiated transmission service, including the price to be charged for the provision of that service by the TNSP
- access charges to be paid to, or by the TNSP.<sup>9</sup>

Clause 6A.9.4(b) of the NER requires that the criteria must give effect to, and be consistent with, the negotiated transmission service principles specified in clause 6A.9.1.

### **AER determination**

Under clause 6A.11.3 of the NER, the AER published its proposed criteria for ElectraNet and ElectraNet's revenue proposal, proposed negotiating framework, proposed pricing methodology and supplementary information in July 2007.

As required by clause 6A.9.4 of the NER, the determination by the AER in appendix H specifies the negotiated transmission service criteria for ElectraNet over the next regulatory control period.

## **Pricing methodology**

### **Regulatory requirements**

Clause 6A.10 of the NER requires ElectraNet to submit a proposed pricing methodology to the AER. The proposed pricing methodology will be applied by ElectraNet when allocating the aggregate annual revenue requirement to categories of prescribed transmission services and transmission network connection points of network users. The pricing methodology will also be applied to determine the structure of the prices a TNSP may charge for each category of prescribed transmission services.<sup>10</sup>

ElectraNet's proposed pricing methodology must give effect to, and be consistent with, the pricing principles for prescribed transmission services, and must comply with the requirements of the pricing methodology guidelines.

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<sup>8</sup> National Electricity Rules, clause 6A.9.4 (a)(1).

<sup>9</sup> National Electricity Rules, clause 6A.9.4(a)(2).

<sup>10</sup> National Electricity Rule, clause 6A. 24.1

Clause 11.8 of the NER requires the AER to develop transitional arrangements (referred to as ‘agreed interim requirements’) for those TNSPs that submit a proposed pricing methodology before the AER publishes its pricing methodology guidelines.<sup>11</sup>

Under the agreed interim requirements, if ElectraNet elects to have its proposed pricing methodology assessed against the pricing methodology guidelines and, as a result of that assessment, the AER refuses to approve its proposed pricing methodology, ElectraNet must submit to the AER a revised proposed pricing methodology. A revised proposed pricing methodology must be submitted to the AER within 10 business days of the AER publishing its draft transmission determination for ElectraNet.

### **ElectraNet proposal**

ElectraNet stated that its proposed pricing methodology has been developed to be consistent with the pricing principles in clause 6A.23 of the NER and that the provisions of part C of the old NER have been applied where they supplement the pricing principles.<sup>12</sup>

Following the publication of the AER pricing methodology guidelines on 29 October 2007, and as provided for under the agreed interim requirements, ElectraNet has elected to have its proposed pricing methodology assessed under the pricing methodology guidelines.

### **AER determination**

The AER has assessed ElectraNet’s proposed pricing methodology against part J of the NER and the pricing methodology guidelines. Based on its assessment, the AER has decided not to approve ElectraNet’s proposed pricing methodology.

ElectraNet must submit to the AER a revised pricing methodology by 14 December 2007.

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<sup>11</sup> Under clause 6A.25, the AER must publish the pricing methodology guidelines by 31 October 2007.

<sup>12</sup> The ‘old NER’ means version 9 of the NER.

# 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 AER is required to provide ElectraNet an opportunity to recover sufficient revenues to meet the efficient costs of maintaining its network.

On 31 May 2007 ElectraNet submitted to the AER its revenue proposal, proposed negotiating framework and proposed pricing methodology for the next regulatory control period (1 July 2008 to 30 June 2013). On 29 June 2007 the AER published these and the proposed negotiated transmission service criteria for ElectraNet.

The 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.<sup>13</sup>

## 1.2 Regulatory requirements

### 1.2.1 National Electricity Law

The NEL sets out the functions and powers of the AER, including its role as the economic regulator of the NEM. Section 16 of the NEL states that when performing or exercising a regulatory function or power, the AER must do so in a manner that will or is likely to contribute to the achievement of the NEM objective.

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<sup>13</sup> ACCC, *South Australian transmission network revenue cap 2003–2007/08: Decision*, 11 December 2002.

The NEM objective is:

To promote efficient investment in, and efficient use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system.<sup>14</sup>

Further, the NEL specifies that in performing or exercising its regulatory functions or powers, the AER must ensure that the regulated transmission system operator to which the determination applies and any affected registered participant be:

- informed of material issues under the AER's consideration
- given a reasonable opportunity to make submissions in respect of that determination before it is made.

The NEL also specifies that in making a transmission determination, the AER must, under the NER:

- provide the regulated transmission system operator with a reasonable opportunity to recover the efficient costs of complying with a regulatory obligation
- provide the regulated transmission system operator with effective incentives to promote economic efficiency in providing the services subject to the determination
- make allowance for the value of regulated assets and the value of any proposed new assets.

In addition, the AER must have regard to any valuation of assets forming part of the transmission system owned, controlled or operated by the regulated transmission service operator applied in any relevant determination or decision.

### **1.2.2 National Electricity Rules**

Chapter 6A of the NER sets out provisions the AER must apply in exercising its regulatory functions and powers for electricity transmission networks for prescribed transmission services and negotiated transmission services. In particular, the AER must make a transmission determination for a TNSP that includes a:

- revenue determination for the TNSP in respect of prescribed transmission services
- determination relating to the TNSP's negotiating framework
- determination specifying the negotiated transmission service criteria that apply to the TNSP
- determination specifying the pricing methodology to apply to the TNSP.

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<sup>14</sup> National Electricity Law, section 7.

### **1.2.3 Revenue determination**

Under clause 6A.4.2 of the NER the AER must use the building block approach to set a CPI – X revenue cap for a TNSP. A revenue determination for a TNSP is to specify, for a regulatory control period of not less than five years, the following matters:

- the amount of the estimated total revenue cap for the regulatory control period or the method of calculating that amount
- the annual building block revenue requirement for each year of the regulatory control period
- the amount of the maximum allowed revenue for each year of the regulatory control period or the method of calculating that amount
- appropriate methodologies for the indexation of the regulated asset base
- the values that are to be attributed to the performance incentive scheme parameters for the purposes of the application to the provider of any service target performance incentive scheme applying to the regulatory control period
- the values that are to be attributed to the efficiency benefit sharing scheme parameters for the purposes of the application to the provider of any efficiency benefit sharing scheme applying to the regulatory control period
- the commencement and length of the regulatory control period.

### **1.2.4 Negotiating framework for negotiated transmission services**

Clause 6A.9 of the NER sets out the arrangements for negotiated transmission services. Each TNSP must prepare a negotiating framework setting out the procedures to be followed by the TNSP and service applicants when negotiating for the provision of negotiated transmission services.

The AER's determination on the negotiating framework must set out requirements that are to be complied with for the preparation, replacement, application or operation of the TNSP's negotiating framework.

### **1.2.5 Negotiated transmission service criteria**

The negotiated transmission service criteria must give effect to and be consistent with the negotiated transmission service principles set out in clause 6A.9.1 of the NER.

Under clause 6A.9.4 the AER's determination on the negotiated transmission service criteria must set out the criteria that the TNSP must apply in negotiating:

- the terms and conditions of access for negotiated transmission services, including the prices that are to be charged
- any access charges which are negotiated by the provider during that regulatory control period.

The negotiated transmission service criteria also must include criteria, which a commercial arbitrator will apply to resolve disputes, regarding:

- the terms and conditions of access for the negotiated transmission service, including the price that is to be charged for the provision of that service by the TNSP
- any access charges that are to be paid to, or by, the TNSP.

### **1.2.6 Pricing methodology**

Under clause 6.A.14.3(g) the AER is responsible for approving the pricing methodologies of TNSPs in accordance with the NER.

The NER requires a TNSP to submit a proposed pricing methodology for prescribed transmission services to the AER 13 months prior to the end of its current regulatory period. The AER will assess the proposed pricing methodology against the pricing principles for prescribed transmission services in clause 6A.23 and the AER's pricing methodology guidelines. Clause 6A.25 requires the AER to publish the pricing methodology guidelines by 31 October 2007.

Clause 11.8 of the NER required the AER to develop transitional arrangements (referred to as 'agreed interim requirements') for those TNSPs that will submit a proposed pricing methodology prior to the AER publishing its final pricing methodology guidelines. The AER published the agreed interim requirements in February 2007.

Under the agreed interim requirements, ElectraNet was required to submit a proposed pricing methodology that is consistent with the pricing principles for prescribed transmission services in part J of the NER and, to the extent possible, also consistent with part C of chapter 6 of version 9 of the NER.

The agreed interim requirements provide ElectraNet with the opportunity to have its proposed pricing methodology assessed against the AER's final pricing methodology guidelines when published. The AER published its final pricing methodology guidelines in October 2007.

## **1.3 Transitional arrangements**

In 2005 the Commonwealth, state and territory governments agreed to review arrangements for the economic regulation of the energy sector, including the economic regulation of electricity transmission services. These arrangements established the AEMC as the NEM's rule-making body.

The AEMC commenced a review of the rules for regulating electricity transmission networks in the NEM in mid 2005. The new chapter 6A of the NER was released in November 2006. The NER requires the AER to publish several transmission guidelines in September and October 2007.

ElectraNet lodged its revenue proposal on 31 May 2007, before the AER's final guidelines were developed.

Transitional arrangements were included in the NER to account for the timing between the development of the AER's transmission guidelines and the submission of ElectraNet's revenue proposal. Clause 11.6.18 provides that the first proposed



transmission guidelines published in January 2007 by the AER apply to ElectraNet for the purposes of making a transmission determination for its next regulatory control period.<sup>15</sup>

## 1.4 Review process

The AER has assessed ElectraNet's revenue proposal, proposed negotiating framework and proposed pricing methodology in accordance with the review process outlined in part E of chapter 6A of the NER. To date, this process has 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 prior to 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.<sup>16</sup>
- 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 interested parties to make submissions. 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 ETSA Utilities (ETSA), the Electricity Supply Industry Planning Council (ESIPC), Flinders Power, Southern Generators, the District Council of Ceduna, the 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 it on a number of key aspects of ElectraNet's revenue proposal.<sup>17</sup> Specifically, the AER asked SKM to provide its opinion on:
  - whether the investment processes and procedures adopted by ElectraNet for capital expenditure (capex) are likely to result in efficient outcomes
  - the prudence of capex undertaken by ElectraNet during the current regulatory period

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<sup>15</sup> See appendix A for a summary of the relevant NER transitional arrangements applicable to ElectraNet.

<sup>16</sup> AER, *First proposed guidelines, models and schemes*, January 2007.

<sup>17</sup> Sinclair Knight Merz Group is a leading global project delivery organisation working with public and private sector clients across several chosen market areas. Services include engineering, scientific studies, planning, economics, logistics, architecture, geotechnical engineering, project management and spatial information.

- 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 operating and maintenance expenditure (opex) requirements
- the efficiency of ElectraNet’s forecast opex
- the appropriate performance incentive scheme for service standards.

SKM has provided its opinion to the AER on these matters. SKM’s advice represents its independent views based on its review. The AER has considered this advice in making its draft transmission determination. The terms of reference guiding SKM’s review are set out in appendix D of its report.<sup>18</sup>

- 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.<sup>19</sup> CHC assisted the AER in reviewing the technical aspects of material contained in ElectraNet’s proposal, submissions and SKM’s report. The AER also engaged Econtech to provide a forecast of South Australian labour costs.<sup>20</sup>

## 1.5 Structure of draft decision

The AER’s consideration of ElectraNet’s revenue proposal, proposed negotiating framework and proposed pricing methodology, together with the negotiated transmission service criteria to apply to ElectraNet, are set out as follows:

- Chapter 2 assesses the prudence of past capex.
- Chapter 3 determines the opening asset base.
- Chapter 4 assesses the efficient forecast capex allowance.
- Chapter 5 determines the benchmark weighted average cost of capital.
- Chapter 6 assesses the efficient forecast opex allowance.
- Chapter 7 determines the performance values for each of the parameters applying under the service target performance incentive scheme.
- Chapter 8 determines the maximum allowed revenues for the next regulatory control period.

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<sup>18</sup> SKM, *ElectraNet transmission network revenue proposal 2008–2013: Review of ElectraNet revenue proposal*, 23 November 2007.

<sup>19</sup> CHC Associates Pty Ltd is a professional engineering consultancy firm that brings together senior engineering managers who have played key roles in the development of the New South Wales and south east Australian electricity systems and markets.

<sup>20</sup> Econtech Pty Ltd is an economic consulting firm that specialises in economic modelling, forecasting and policy analysis.

- Chapter 9 assesses the negotiating framework for negotiated transmission services.
- Chapter 10 determines the negotiated transmission service criteria.
- Chapter 11 assesses the pricing methodology.

Appendix A sets out the transitional arrangements applicable to ElectraNet.

Appendix B sets out the reliability standards in the South Australian Electricity Transmission Code.

Appendix C sets out the AER's consideration of its detailed review of ex ante capex.

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

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

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

Appendix G provides a copy of the ElectraNet negotiating framework for negotiated transmission services

Appendix H sets out the negotiated transmission service criteria.

## **1.6 Electricity industry arrangements in South Australia**

The ESIPC is a statutory corporation formed in 1999 under the *Electricity Act 1996* (SA). The ESIPC is the nominated jurisdictional planning body under the NER. It provides independent oversight of transmission planning in South Australia, and is responsible for preparing and publishing the Annual Planning Report. The ESIPC liaises with ElectraNet, ETSA, generators and retailers active in South Australia to encourage efficient outcomes in the development of the power system.

The Essential Services Commission of South Australia (ESCOSA)—the jurisdictional regulator—administers ElectraNet's licence for operating the electricity transmission network in South Australia. Under the *Essential Services Commission Act 2002* (SA), the ESCOSA is permitted to make, monitor and review codes and rules relating to the conduct or operation of a regulated industry or regulated entity. As a condition of its operating licence, ElectraNet is required to comply with the South Australian Electricity Transmission Code (ETC).

In June 2006, with the assistance of the ESIPC, the ESCOSA finalised a review of the ETC connection point reliability standards.<sup>21</sup> The review resulted in a number of amendments to the reliability standards set out in the ETC. The amended ETC is to

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<sup>21</sup> See appendix B for a summary of the reliability standards in the ETC.

commence operation on 1 July 2008, the start of ElectraNet's next regulatory control period. Further discussion of the ETC is set out in section 4.6.4.

## **1.7 ElectraNet network**

ElectraNet's transmission network spans more than 1000 km, from the Victorian border near Mount Gambier to Port Lincoln on the Eyre Peninsula. It operates radial extensions of over 200 km each from the main network to Leigh Creek, the Yorke Peninsula and Woomera. Figure 1.1 illustrates ElectraNet's network and highlights the major load centres and transmission lines in South Australia. It connects major generation sources at Port Augusta, Torrens Island and the eastern states via the Heywood and Murraylink interconnectors. Additional generation sources are connected in the south-east of the state and on the Eyre and Yorke Peninsulas.

ElectraNet operates over 5611 circuit kms of transmission lines, with nominal voltages of 275 kV, 132 kV and 66 kV. Further, it operates and maintains 76 substations which include 8828 megavolt ampere (MVA) of installed transformer capacity throughout South Australia. Transmission from the main network to country areas of South Australia is via long radial 132 kV lines.

The South Australian transmission network is characterised by long distances, a low energy density and a small customer base compared to other states. The demand profile is peaky mainly due to air conditioning load over summer, with the top 25 per cent of demand being present for only 3 per cent of the time.

**Figure 1.1: Map of ElectraNet's transmission network**



- |   |   |  |                        |
|---|---|--|------------------------|
| <b>ElectraNet's Transmission Network</b>      | — 275kV Transmission Lines (Underground cable between EastTce & Magill substations) | — 132kV Transmission Lines               | ● Substations          |
| — 275kV Transmission Lines double circuit     | — 66kV Transmission Lines   | --- 132kV Transmission Lines Proposed    | ○ Substations Proposed |
| — 275/132kV Transmission Lines triple circuit |   | — 66kV Transmission Lines double circuit |                        |
| <b>State Regions</b>                          | ■ Mid North   | □ Metro                                  | ■ South East           |
| ■ Upper North                                 | ■ Riverland   | ■ Eyre                                   | ■ Eastern Hills        |
| <b>Customer's Assets</b>                      | 🏠 Bottling Plant  | 🔥 Gas Fired Plant                        | --- 275kV BHP Lines    |
| 🏠 Coal Field                                  | 🏠 Iron Ore Mine   | 🌪️ Gas Turbines                          | --- 132kV BHP Lines    |
| 🏠 Coal Fired Plant                            | ⚡ Uranium Mine  | 🏠 Government Facility                    | — Murraylink DC cable  |
| 🌪️ Wind Farms Proposed                        | ⚡ Uranium Mine Proposed   | 🌪️ Refinery                              | 🏠 Geothermal Proposed  |
| 🌪️ Wind Farms                                 | ⚡ Water Pumps   |  |                        |

Source: ElectraNet, *Transmission network revenue proposal 1 July 2008 to 30 June 2013*, 31 May 2007, p. 18.

## 2 Past capital expenditure

### 2.1 Introduction

When ElectraNet's revenue cap was set in 2002, the regulatory arrangements provided for an ex post assessment of capex undertaken in the current regulatory period to determine if those expenditures were prudent. Only capex that is found to be prudent is included in ElectraNet's regulated asset base (RAB) for the next regulatory control period.

This chapter presents the AER's review of the prudence of ElectraNet's commissioned projects and assets under construction, the allowance for interest during construction (IDC) costs and an analysis of the capital expenditure (capex) spending profile.

### 2.2 Regulatory requirements

#### 2.2.1 NER requirements

Clause 6A.6 and schedule 6A.2 of the NER outline how the RAB is determined. Schedule 6A.2.1 provides that the RAB for the first year of the next regulatory control period must be determined by rolling forward the RAB value prescribed in the schedule. For ElectraNet this value is \$824 million (as at 1 January 2003). This value is then adjusted in accordance with schedules 6A.2.1(c)(2) and 6A.2.1(f) to calculate the RAB for the first year of the regulatory control period.

Clause 11.6.9 of the transitional provisions provides that the value of the RAB for the first regulatory control period under the revised NER may also be adjusted to have regard for an existing revenue determination and any other arrangements agreed between the AER and the transmission network service provider (TNSP). In accordance with this provision the AER will undertake an ex post prudence assessment of the capex undertaken in the current regulatory period as this is foreshadowed in the ACCC's 2002 revenue cap decision for ElectraNet.<sup>22</sup>

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<sup>22</sup> ACCC, *South Australian transmission network revenue cap 2003–2007/08: Decision*, 11 December 2002.

## 2.2.2 Statement of regulatory principles

The process for reviewing past capex is set out in the *Statement of principles for the regulation of electricity transmission revenues* (SRP)<sup>23</sup> and the ACCC's *NSW and ACT transmission network revenue cap decisions*.<sup>24</sup> This process was adopted by the AER in its recent determination for Powerlink.<sup>25</sup>

A key element of the ACCC's 2002 revenue cap decision for ElectraNet is that it provides for an ex post prudence assessment of capex undertaken in the current regulatory period before it is included in the RAB. That is, an assessment of the prudence of investment undertaken in the current regulatory period is to be made at the end of the regulatory period. Only prudent expenditure is to be included in the RAB for the next regulatory control period. Appendix B of the SRP sets out the prudence test for revenue caps which were determined under the ACCC's *Draft statement of principles for the regulation of transmission revenues* (DRP).<sup>26</sup>

### General principles for the assessment of prudence

Prudence can be defined in terms of a TNSP acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of delivering services. An assessment of whether a TNSP developed a project in accordance with good industry practice necessarily requires the exercise of judgment, taking into account the specific engineering and economic facts, and circumstances of the investment.

In undertaking the ex post prudence assessment of projects, and considering the information available to the TNSP at the time it made the decisions to invest, the AER's task is to assess whether a prudent TNSP would have made the same decisions. If the AER determines that a prudent TNSP would have made different decisions to those actually made, then the task is to quantify the difference in investment under each set of decisions. By implication, this difference represents the cost of inefficiency and is excluded from the RAB.

### The application of the prudence test to investments

The prudence test involves a systematic examination of a TNSP's decisions in selecting and delivering investments. The purpose of the examination is to establish whether the TNSP made decisions at each stage of the investment process that were consistent with good industry practice. The examination consists of three sequential stages and is applicable to projects regardless of whether or not they have undergone the regulatory test. The three stages are:

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<sup>23</sup> AER, *Compendium of electricity transmission regulatory guidelines: Statement of principles for the regulation of electricity transmission revenues*, 22 August 2005.

<sup>24</sup> ACCC, *NSW and ACT transmission network revenue cap TransGrid 2004–05 to 2008–09: Final decision*, 27 April 2005.

ACCC, *NSW and ACT transmission network revenue cap EnergyAustralia 2004–05 to 2008–09: Decision*, 27 April 2005.

<sup>25</sup> AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Draft decision*, 8 December 2006.

<sup>26</sup> ACCC, *Draft statement of principles for the regulation of transmission revenues*, 27 May 1999.

1. Assess whether there is a justifiable need for the investment. This stage examines whether the TNSP correctly assessed the need for investment against its statutory and NER obligations. The assessment focuses on the need for investment, without specifically focusing on what the correct investment to meet that need is. An affirmation of the need for an investment does not imply acceptance of the specific project that was developed.
2. Assuming the need for an investment is recognised, assess whether the TNSP proposed the most efficient investment to meet that need. The assessment reviews whether the TNSP objectively and competently analysed the investment to a standard that is consistent with good industry practice.
3. Assess whether the most efficient project was developed and, if not, whether the difference reflects decisions that are consistent with good industry practice. This assessment examines the factors that caused changes in the project design and/or delivery and how the TNSP responded to those factors relative to what could be expected of a prudent operator.

### **2.2.3 ElectraNet proposal**

ElectraNet used a probabilistic approach to derive its capex forecast for the current regulatory period. Capital development plans and expenditure forecasts for 24 scenarios were developed. The scenarios were derived from variations in key drivers such as load growth and generation patterns. The capex allowance of \$358 million (\$2002–03) approved by the ACCC was the probability weighted average of these 24 scenarios.<sup>27</sup>

In its revenue proposal, ElectraNet stated that it anticipated actual capitalisation of investments to be \$390 million during the current regulatory period (on an as-commissioned basis). In comparison with the 2002 revenue cap decision allowance of \$386 million (adjusted for actual CPI), this is 1 per cent more than the allowance provided by the ACCC.<sup>28</sup>

Table 2.1 sets out the 2002 forecast capex allowance and the actual outcomes for the current regulatory period.

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<sup>27</sup> ElectraNet, *Transmission network revenue proposal 1 July 2008 to 30 June 2013*, 31 May 2007, p. 33.

<sup>28</sup> *ibid.*, pp. 34–35.



**Table 2.1: 2002 capex allowance and actual outcomes (\$m, nominal)**

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07	2007–08	Total
2002 ACCC allowance <sup>a</sup>	9.7	68.2	87.8	78.6	68.6	45.4	358.3
2002 ACCC allowance (CPI adjusted)	9.7	70.5	92.6	84.8	76.2 <sup>b</sup>	52.0 <sup>b</sup>	385.9
Less: actual capex	2.1	34.9	42.8	65.5	98.0 <sup>c</sup>	146.5 <sup>c</sup>	389.8
Variation	-7.6	-35.6	-49.8	-19.3	21.7	94.4	3.9

Source: ElectraNet, *Transmission network revenue proposal 1 July 2008 to 30 June 2013*, 31 May 2007, p. 33.

Note: All figures are inclusive of IDC.

(a) Figures are in 2002–03 dollar terms.

(b) Based on an estimated inflation rate of 3.01 per cent for 2006–07 and 2.44 per cent for 2007–08.

(c) Forecast.

ElectraNet stated that in addition to commissioned works, its assets under construction as at 30 June 2008 are estimated to be \$44 million. This amount needs to be recognised in the RAB because of the transition to recognising capex on a partially as-incurred (hybrid) approach during the next regulatory control period.<sup>29</sup>

## 2.3 Submissions

The Energy Consumers Coalition of South Australia (ECCSA) noted that an ex post review of ElectraNet's capex during the current regulatory period is required.

## 2.4 Consultant review

The AER engaged SKM to review the efficiency and prudence of ElectraNet's past network and non-network capex as well as two projects where some expenditure will be incurred at the end of the current regulatory period (assets under construction). Specifically, SKM was required to:

- assess whether ElectraNet had justified the need for its investments
- assuming the need for an investment is recognised, assess whether ElectraNet proposed the most efficient investment to meet that need
- assess whether the project that was judged to be the most efficient was developed and, if not, whether the difference reflects decisions that were consistent with good industry practice.

SKM concluded that ElectraNet's capex during the current regulatory period was generally prudent and efficient. SKM has not identified any systemic issues or problems with the implementation of the projects. Accordingly, SKM recommended

<sup>29</sup> *ibid.*, p. 97.

that ElectraNet's past capex be accepted as reasonable, noting the recommended adjustment as shown in table 2.2.<sup>30</sup>

**Table 2.2: SKM's recommendations on past capex**

	2003 (Jan to Jun)	2003-04	2004-05	2005-06	2006-07	2007-08	Total
ElectraNet	2.1	34.9	42.8	65.5	98.0	146.5	389.8
SKM's adjustment for inefficient project costs			-0.03				-0.03
SKM's recommendation	2.1	34.9	42.8	65.5	98.0	146.5	389.8 <sup>a</sup>

Source: SKM report, p. 35.

(a) Total may not add up due to rounding.

A summary of SKM's general findings is presented below.

### **Project scope**

SKM stated that all past capex projects reviewed by it were prudently scoped to meet the network or other requirements of ElectraNet's defined planning horizon. SKM found that ElectraNet gave due consideration to scope suggestions proposed by interested parties. It also actively worked with the Electricity Supply Industry Planning Council (ESIPC) to develop its past capex projects.<sup>31</sup>

In some cases, it resulted in the implementation of a project of lesser scope than was suggested by the interested party due to the fact that it represented a more efficient investment decision.

### **Project governance**

SKM noted that all reviewed past capex projects were implemented in accordance with ElectraNet's stated project governance and project management processes that existed at the time. While SKM considered that ElectraNet's project governance and project management processes were not representative of best practice at the start of the current regulatory period, it noted that they were adequate for the modest capex program that existed at that time. Moreover, it noted that, as the capex program increased during the current regulatory period, ElectraNet implemented a new project governance and management regime. SKM considered that this regime is more consistent with good industry practice and contains appropriate controls, checks, accountability, reviews and approval gateways.<sup>32</sup>

### **Efficiency gains**

SKM stated that during the current regulatory period ElectraNet actively sought efficiency opportunities in both labour contracts and plant procurement. In relation to

<sup>30</sup> SKM report, p. 35.

<sup>31</sup> *ibid.*, p. 27.

<sup>32</sup> *ibid.*, p. 27.

labour contracts, SKM noted that ElectraNet has successfully negotiated economic labour rates through the implementation of a collaborative dual contractor arrangement, which will apply for the next several years. A number of projects undertaken in the current regulatory period have benefited from this arrangement.<sup>33</sup>

SKM also noted that ElectraNet took advantage of efficient plant purchase opportunities during the current regulatory period. For example, it varied a project scope to allow the pre-purchase of two surplus Powerlink transformers at significantly reduced cost.

### **Project variations**

SKM found no instances of systemic problems or issues with any of the past capex projects it reviewed, notwithstanding that a number of projects had substantial cost/time overruns or scope variations. SKM noted that it is common for an originally planned project scope to change during the course of project implementation as issues such as site availability, detailed design considerations, line route planning and approvals, and additional information (such as new loads) can constrain the options available for implementation. Where project scopes changed, SKM found that ElectraNet generally acted in accordance with good industry practice and generally implemented a project SKM considered to be efficient, given the constraints and uncertainty that existed at the time.<sup>34</sup>

SKM also noted that the projects that had some implementation delays were generally caused by factors outside of ElectraNet's control, such as delays in obtaining development approvals. These delays were not the result of deficiencies in the application process but resultant from individual or council objections to the application.

ElectraNet has since adopted a revised community consultation process and sought to streamline approvals to minimise delays in future projects. Changes to the South Australian Electricity Transmission Code (ETC) also require ElectraNet to seek approval for new line routes in advance of the project being required, which should further minimise the risk of project delays.

### **Project costs**

SKM noted that in several of the projects it reviewed the estimated cost of the project increased from the initially approved project budget. The cause for these increases included a change of scope, delays in project implementation which caused projects to incur significant cost increases and inaccurate initial project estimates.

SKM also noted that ElectraNet applied a contingency allowance of between 5 and 10 per cent of total expected project costs to all of the projects it reviewed and in virtually all instances this contingency allowance was expended. SKM considered that

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<sup>33</sup> *ibid.*, p. 27.  
<sup>34</sup> *ibid.*, p. 28.

the allocation and expenditure of the contingency allowance reflected in part that the initial cost estimates were too low.

SKM considered that ElectraNet's cost-estimating systems at the beginning of the regulatory period were often inaccurate. However, over the course of the current regulatory period, ElectraNet has adopted a number of systems from Powerlink, including a project cost-estimating package. ElectraNet has now integrated this package into its project planning and governance process and it is expected that this will significantly improve the accuracy of its cost estimates.<sup>35</sup>

While SKM found some deficiencies in the initial estimates of project costs, it was generally satisfied that ElectraNet obtained the appropriate board approvals for significant variations. Moreover, it noted that these variations were based on more refined cost estimates and were appropriately documented.

There was only one project where SKM did not accept ElectraNet's costs as reasonable. SKM recommended a downward adjustment of \$34 000 be made to the capex for the General building upgrades project (EC.10459).<sup>36</sup>

On the basis that only one small adjustment was recommended to the projects reviewed, and based on the views formed of ElectraNet's procurement, design, project management and implementation practices, SKM has found no evidence of systemic cost inefficiencies. Moreover, SKM concluded that the final projects developed were generally efficient despite early cost estimation issues.

## **2.5 Issues and AER considerations**

The application of the prudence test to ElectraNet's commissioned and assets under construction projects is necessary to determine the appropriate amount of past capex that should be rolled into ElectraNet's RAB.

### **2.5.1 Detailed review of selected commissioned and assets under construction projects**

#### **Consultant review**

In consultation with the AER, SKM selected 10 past capex projects and two projects under construction for review as shown in table 2.3. The projects reviewed included both network and non-network projects, projects that were both reported as being completed within budget and appeared to have substantial cost overrun or scope changes. Projects were also selected that were completed at various times during the current regulatory period.

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<sup>35</sup> *ibid.*, p. 28.  
<sup>36</sup> *ibid.*, p. 29.

**Table 2.3: Past capex projects reviewed by SKM (\$m, nominal)**

Project ID	Project description	Project category	Project cost
EC.10337	Tungkillo substation stage 1	Reliability augmentation	28.3
EC.10396	Para – Mobilong line uprate	Refurbishment	14.6
EC.10428	Whyalla – Yadnarie line monitoring	Reliability augmentation	0.7
EC.10453	Davenport – Brinkworth – Para line uprate	Refurbishment	4.5
EC.10459	General building upgrade	Facilities project	0.2
EC.10694	Substation and telecommunications spares	Inventory/spares	7.8
EC.85013	Magill aged asset replacement	Reliability augmentation	15.1
EC.10384	Bungama substation redevelopment stage 1	Reliability augmentation	4.2
EC.85035	South East – Snuggery 132 kV line	Reliability augmentation	35.4
EC.10418	Project streamline	Information technology	4.3
EC.10161	Adelaide central reinforcement <sup>a</sup>	Augmentation/connection	11.0
EC.85007	Playford 132 kV relocation <sup>a</sup>	Replacement	5.3

Source: SKM report, p. 26.

(a) Assets under construction

### **AER considerations**

The selection of projects to be reviewed by SKM was undertaken in consultation with the AER and was designed to cover a broad range of projects across different capex categories, locations and timings. In selecting the projects for detailed review, both SKM and the AER considered the following factors:

- **Materiality**—the cost associated with the project and the proportion of the total allowance it comprises. Both small- and large-value projects have been selected to assess whether ElectraNet implements small projects with the same diligence as large projects.
- **Project/asset category**—a comprehensive selection of projects across each of the classifications adopted (by project type or capex category) ensures the detailed project reviews capture the key processes and systems employed by the business.
- **Timing of the expenditure**—ensures changes in processes and systems can be identified across the entire expenditure period. The drivers for any changes identified need to be understood to ensure prudent decision-making processes have been adopted.
- **Variations in project costs and scope from original estimates**—this provides further insight into the governance and business practices for undertaking capital projects and how cost-estimating processes incorporate feedback from specific experience.

ElectraNet was notified of the selected projects for detailed review. In response, it provided SKM and the AER with specific information in detailed project packs.

In total, the projects sampled represent around 24 per cent of the value of ElectraNet's total capex during the current regulatory period (around 26 per cent of total network capex and 13 per cent of total non-network capex). The two projects under construction sampled represented around 37 per cent of the value of total assets under construction.

## **2.5.2 Prudence of network commissioned projects**

### **ElectraNet proposal**

ElectraNet's network past capex categories included augmentation, connection, replacement, strategic land/easements, security/compliance and inventory/spares.<sup>37</sup> It anticipated \$328 million (exclusive of interest during construction (IDC) costs) in network capex to be commissioned during the current regulatory period.

### **Consultant review**

SKM reviewed eight past network capex projects. These projects included those categorised as augmentation, replacement, refurbishment, connections and inventory/spares. SKM concluded that all of these reviewed projects met the prudence test and, accordingly, it did not recommend any adjustments.

SKM noted that four projects had either scope/cost increases (EC.10384 Bungama substation redevelopment stage 1, EC.10396 Para – Mobilong line uprate, EC.85013 Magill aged asset replacement) or implementation delays (EC.85035 South East – Snuggery 132 kV line). In all cases, SKM generally accepted ElectraNet's justification for the scope/costs increases as reasonable.

### **AER considerations**

The AER has considered SKM's findings and is of the view that the ex post assessment of ElectraNet's network projects provides sufficient evidence to demonstrate that the network capex undertaken during the current regulatory period is prudent given that:

- All projects had a justifiable need for investment. ElectraNet correctly assessed the need for investment against its statutory obligations.
- ElectraNet proposed the most efficient investment to meet the network requirements. It demonstrated that it considered other reasonable network and some non-network solutions.
- ElectraNet's stated project evaluation and implementation procedures were followed, consistent with good industry practice.

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<sup>37</sup> ElectraNet revenue proposal, p. 34.

- Final project costs appeared reasonable. Where there were significant variations in costs between the initial and final estimates, ElectraNet sought board approval for the variation.
- ElectraNet has well-structured and systematic governance arrangements for its procurement process and is achieving reasonable efficiencies.
- The project governance regime was adequate for the modest capex at the start of the current regulatory period. The project governance regime developed a greater degree of sophistication as the level of capex increased during the current regulatory period.

The AER notes that some projects that were reviewed in detail had scope and cost increases from initial to final ElectraNet board approvals. These projects are discussed below.

***Project EC.10384—Bungama substation redevelopment stage 1***

The scope and budget of this project increased when the opportunity arose to purchase from Powerlink (at a competitive price) two new 275/132 kV 220 MVA transformers required for a later part of the project. SKM’s cost estimates for the purchase of the transformers demonstrate they were obtained at well below market rates and therefore represented an efficient investment. In this context, the AER agrees that the scope/cost increase was justified to avoid higher additional procurement costs in the near future.

***Project EC.10396—Para – Mobilong line uprate***

ElectraNet stated that the need to increase project costs was because additional line hardware was required, which only became apparent during implementation of the first stage of the project. Additionally, it stated that market pressures increased input and construction costs during the implementation timeframe of the project.

The AER notes that SKM agreed that the cost increase was commensurate with the listed scope changes and unforeseen price increases.<sup>38</sup> The AER is aware of the general increases in input and construction costs that have occurred over the current regulatory period and it agrees that the scope/cost increases were justified.

***Project EC.85013—Magill aged asset replacement***

The ElectraNet board approved the decision to expand the scope of the project after a review determined the need to replace technically obsolete and high-risk secondary and protection systems at the Magill substation. SKM considered that the budget and scope increase was reasonable.<sup>39</sup> While the AER cannot comment on the engineering requirement for the secondary systems, it notes that ElectraNet has refined its asset management system over the current regulatory period which should identify necessary replacements earlier in the project development life cycle. On this basis, the AER considers the scope change as reasonable.

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<sup>38</sup> SKM report, p. 185.

<sup>39</sup> *ibid.*, p. 185.

***Project EC.85035—South East – Snuggery 132 kV line***

The South East – Snuggery 132 kV line project had a cost increase of \$21 million because of difficulties in obtaining development approvals which delayed implementation. While the AER accepts that the development approval delays were largely outside of ElectraNet’s control, it has some concerns about the significant increases in costs.

SKM noted that this project was one of the first new transmission line projects that ElectraNet had undertaken since it had become a separate entity from ETSA. Accordingly, SKM stated that ElectraNet’s in-house cost-estimating expertise was likely to have had a developmental rather than refined status. Moreover, SKM noted that most of the cost increases associated with the delay were largely unavoidable and reflected changed market conditions at the time. In addition, SKM noted that these cost increases would have equally applied to alternative network options and therefore would not affect the ranking or selection of the most efficient option.<sup>40</sup>

Notwithstanding the above, the AER notes that SKM considered that some of the increased costs (such as locality allowance etc.) would have been foreseeable by ElectraNet. While the AER acknowledges that there were deficiencies in ElectraNet’s cost estimates for this project, on the basis that ElectraNet has demonstrated improvements in its cost estimation techniques over the current regulatory period and the fact that the project (as developed) was considered efficient by SKM, the AER will accept the prudence of this project.

The AER notes that overall SKM concluded this project (even with the cost increase) was appropriately identified and classed as a reliability augmentation and passed the prudence test.

**Conclusion**

The AER considers ElectraNet’s overall network past capex is prudent and that the projects (as developed) were efficient and consistent with good industry practice. While there were some issues early in the current regulatory period relating to cost estimation and development approval processes, they appear to have been addressed by ElectraNet. For example, ElectraNet has adopted a number of systems from Powerlink, including a more sophisticated project cost-estimating package which should improve the accuracy of initial cost estimates.

ElectraNet has also implemented changes to its planning, development and easement acquisition processes. It no longer approaches individual councils for planning approval but rather deals directly with the South Australian Development and Assessment Commission (DAC), which is a one-stop-shop for development approvals. Avoiding engagement with numerous councils facilitates a more streamlined development approval process.

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<sup>40</sup> *ibid.*, p. 202.



In addition, ElectraNet has also improved its process for drafting development applications. ElectraNet now identifies a preferred corridor with detailed survey and design early in the route selection process.

This improvement allows for consultation with landowners, the negotiation of preferred alignments and resolution of issues prior to the development approval being submitted to the DAC. These improved processes should reduce delays caused by costly court appeals.

Based on the evidence presented, the conclusions of SKM and the fact that ElectraNet has implemented improved governance and project management systems, including development approval processes during the current regulatory period, the AER considers the total amount of \$328 million for network past capex is prudent.

### **2.5.3 Prudence of non-network commissioned projects**

#### **ElectraNet proposal**

ElectraNet's non-network past capex categories included business IT and building/facilities. It anticipates \$35 million (exclusive of IDC costs) in non-network capex to be commissioned during the current regulatory period.<sup>41</sup>

#### **Consultant review**

SKM reviewed a project in each of ElectraNet's non-network past capex categories—business IT (EC.10418 Project streamline) and building/facilities (EC.10459 General building upgrade). SKM noted that the capex undertaken for Project streamline was prudent and, accordingly, it did not recommend any adjustments.<sup>42</sup>

#### ***Project EC.10459—General building upgrade***

SKM considered that while ElectraNet correctly assessed the need for this facilities investment, it questioned the urgency attached to it. It stated that calling for tenders and requiring the building work to be undertaken during the traditional Christmas shutdown period likely incurred a premium cost to ElectraNet of around \$34 000 or 28 per cent of the original budget. It noted that while this was insignificant in the context of ElectraNet's overall capital budget, it was material for this individual project. Accordingly, SKM recommended a downward adjustment of \$34 000 for the estimated premium paid.<sup>43</sup>

#### **AER considerations**

The AER notes that SKM was satisfied with the prudence of the expenditure for Project streamline. SKM considered that there were efficiencies in ElectraNet leveraging off the IT system developed and implemented by Powerlink. The AER agrees with this conclusion and notes that ElectraNet has adopted a number of

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<sup>41</sup> ElectraNet revenue proposal, p. 34.

<sup>42</sup> SKM report, p. 206.

<sup>43</sup> *ibid.*, p. 191.

Powerlink systems and practices including the implementation of a new asset management regime.

The AER notes that while SKM assessed the general building upgrade project as reasonable it did identify an issue with the prudence of the expenditure, in particular, whether a premium was paid to complete the works during the Christmas period. Accordingly, SKM recommended a downward adjustment of \$34 000.

The AER is of the view that the issue identified with the General building upgrade project is a relatively minor anomaly in the overall non-network capex expenditure and is not evidence of any systemic project management/governance failings. Moreover, any premium paid would more than likely have offset the costs associated with ElectraNet having to secure temporary accommodation for its employees while the project implementation was delayed.

On the basis that SKM has not identified any systemic problems with the past non-network capex, the AER considers that it is reasonable to accept the total amount of \$35 million as prudent. The AER does not accept the downward adjustment recommended by SKM for the General building upgrade project.

#### **2.5.4 Prudence of assets under construction projects**

##### **ElectraNet proposal**

ElectraNet stated that the transition to recognising capex on a partially as-incurred approach requires an amount for prudent expenditure on assets under construction at the end of the current regulatory period to be rolled into the RAB. ElectraNet's forecast of prudent expenditure on assets under construction (as at 30 June 2008) is \$44 million.<sup>44</sup>

##### **Consultant review**

SKM noted that a number of forecast capex projects have incurred some expenditure during the current regulatory period. Given that both the past and forecast capex are considered to be prudent and efficient, it recommended that the proposed amount of \$44 million for assets under construction be accepted as prudent and efficient on the same basis.

In addition to assessing the prudence of the assets under construction, SKM also reviewed the calculation of the forecast capex budgets for these projects. It confirmed that ElectraNet has correctly removed the assets under construction component from the forecast capex budget on projects that will continue into the next regulatory control period.<sup>45</sup>

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<sup>44</sup> ElectraNet revenue proposal, p. 33.

<sup>45</sup> SKM report, p. 34.

## **AER considerations**

In the 2002 revenue cap decision, the ACCC determined the capex allowance on an as-commissioned basis. Under this approach, capex is rolled into the RAB when the asset is commissioned or placed into service.

In accordance with the NER, the AER's first proposed guidelines adopted the partially as-incurred (hybrid) approach to recognising capex. This requires modelling of the return on capital in the year that expenditure is incurred, while the return of capital is modelled on an as-commissioned basis.

ElectraNet's revenue proposal has adopted the partially as-incurred approach to recognising capex for the next regulatory control period. To facilitate a smooth transition to this approach, a prudent amount of capex incurred in the current regulatory period must be included in ElectraNet's RAB to recognise assets that are under construction but will not be commissioned until the next regulatory control period.

The AER notes that the capex incurred in the current regulatory period for assets under construction are largely costs associated with initial project development work. These project costs include up-front development requirements, initial design estimates, deposits on critical plant and equipment, and the establishment of construction contracts.

The AER accepts that these types of costs are generally reasonable during the early stages of project development. It also notes that SKM has accepted the prudence of these costs in relation to the two assets under construction projects it reviewed. On this basis, the AER considers that the total amount of \$44 million for assets under construction is prudent.<sup>46</sup>

### **2.5.5 Interest during construction**

#### **ElectraNet proposal**

ElectraNet has proposed to roll in \$390 million of past capex into its RAB. This includes an IDC allowance of \$27 million. ElectraNet calculated this IDC allowance based on the nominal vanilla WACC of 8.3 per cent determined for the current regulatory period. Table 2.4 shows the IDC allowance proposed by ElectraNet for each year of the current regulatory period.

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<sup>46</sup> As indicated in section 4.6.5, the AER has removed an allowance for the EC.10716 Strategic land purchase RY2 medium/high priority project from forecast capex. Accordingly, the assets under construction component of this project (\$0.25 million) has also been removed.

**Table 2.4: ElectraNet’s proposed interest during construction costs (\$m, nominal)**

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07	2007–08	Total
ElectraNet	0.1	1.6	3.1	4.5	6.7	10.7	26.6

Source: ElectraNet revenue proposal—historical cost information templates.

### Submissions

The Energy Users Association of Australia (EUAA) stated that IDC should not be allowed in the next regulatory control period as a result of moving to the partially as-incurred approach to recognising capex.<sup>47</sup>

### Consultant review

SKM reviewed ElectraNet’s proposed IDC allowance and methodology to apply to the completed capex projects. SKM noted that the IDC factor applied by ElectraNet was a value of 8.3 per cent, which was based on the regulated WACC determined by the ACCC for the current regulatory period. SKM identified that ElectraNet had applied its proposed IDC factor to all past network capex projects, regardless of the actual construction period for individual projects. SKM also noted that ElectraNet had accepted that this approach was different from the standard approach for calculating IDC, but claimed that it was consistent with the approach applied by the ACCC in the 2002 revenue cap decision.

SKM undertook further analysis and modelling of ElectraNet’s past capex to assess the reasonableness of the IDC proposal. SKM reviewed annual project expenditures for a range of sample projects across ElectraNet’s capex portfolio, and modelled IDC using the period that each year’s expenditures was incurred prior to being capitalised.

SKM found that its more detailed modelling of IDC returned a similar result as ElectraNet’s proposed IDC amount. Based on this outcome and the consistency of the methodology applied in the 2002 revenue cap decision, SKM stated that the IDC amount proposed by ElectraNet was reasonable.

In addition to the IDC proposed for completed capex projects, SKM identified that ElectraNet had not proposed to apply IDC to its assets under construction. SKM recommended that IDC should be allowed as a matter of principle due to the lag between the expenditure on assets under construction and its inclusion in the RAB.

However, SKM considered that, as the assets under construction amount is all being ‘capitalised’ at a specified date (1 July 2008) rather than at the actual commissioning dates for the various projects, the application of an 8.3 per cent IDC factor would not be appropriate. Based on a review of ElectraNet’s expenditure on its assets under construction, SKM calculated an IDC factor of 4.2 per cent as being appropriate.

<sup>47</sup> Energy Users of Association of Australia, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 9.

Based on this IDC factor, SKM recommended that \$1.9 million be added to ElectraNet's proposed value for assets under construction.<sup>48</sup>

### **AER considerations**

As discussed in section 2.5.4, the ACCC's 2002 revenue cap decision for ElectraNet recognised capex on an as-commissioned basis. As such, the return on and return of capital were modelled at the time of the assets being commissioned. However, to provide for the efficient cost of financing projects when they are under construction but not earning revenues, the ACCC considered that it was appropriate to provide an allowance for IDC.<sup>49</sup> That is, the capitalised value of the project is increased by an IDC factor.

The AER notes that ElectraNet's proposed IDC allowance is based on a simplified methodology using the nominal vanilla WACC determined for the current regulatory period. While ElectraNet's methodology is not as technically rigorous as other available methodologies, the AER has conducted its own analysis (based on a more technically correct method) of the IDC allowance in considering the reasonableness of the ElectraNet proposal.

The AER derived IDC values based on ElectraNet's historical expenditure profiles (S-curves) for different asset categories. The S-curves show the profile of expenditure over the construction period of an asset and therefore is used to assess the costs required to compensate ElectraNet for financing the project prior to its capitalisation. Based on this analysis, the AER found that the more correct application of IDC factors resulted in a total IDC allowance that is broadly similar to the amount proposed by ElectraNet. This is consistent with SKM's findings. On this basis, the AER accepts ElectraNet's proposed IDC allowance of \$27 million to be included with its commissioned projects for rolling into the RAB.

The AER also notes SKM's recommendation to include IDC costs for assets under construction that had not been included in ElectraNet's proposal. The AER agrees that providing an IDC allowance for assets under construction is required in order for ElectraNet's capex to satisfy the prudence test as it provides for the inclusion in the RAB of costs of financing projects from the start of construction to the end of the current regulatory period.

The AER has reviewed SKM's IDC calculations and agrees that applying an IDC factor of 8.3 per cent to ElectraNet's assets under construction would not be appropriate. The AER considers that SKM's calculated IDC factor of 4.2 per cent is consistent with the expenditure profiles of ElectraNet's assets under construction. Accordingly, the AER will increase ElectraNet's assets under construction allowance by \$1.9 million to account for IDC costs.

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<sup>48</sup> SKM report, pp. 32–33.

<sup>49</sup> Also known as finance during construction.

The AER notes that no IDC allowance has been proposed by ElectraNet for its forecast capex. This is consistent with the transition to the partially as-incurred approach for recognising capex over the next regulatory control period.

## **2.5.6 Past capital expenditure spending profile**

### **ElectraNet proposal**

ElectraNet stated that it has managed changing network priorities in the light of the actual circumstances that have eventuated over the course of the current regulatory period, and achieved an outcome within 1 per cent of the ACCC's approved capex allowance.<sup>50</sup>

However, this has only been possible because:

- lower than forecast demand growth has allowed the deferral of some major load driven projects—for example, the required timing of reinforcement of the southern suburbs was impacted by the closure of the Port Stanvac oil refinery
- establishment of network support arrangements as part of the conversion of the Murraylink interconnector to regulated status has allowed the deferral of reinforcement of the Riverland 275/132 kV system
- market benefits driven projects have not eventuated—for example, the South Australian component of SNI and an upgrade to the Heywood interconnector.

ElectraNet stated that the deferrals noted above have made it possible for it to manage the following offsetting factors:

- a shift in the required timing of major projects
- delays in obtaining development approvals—for example, the protracted delays related to the South East – Snuggery 132 kV transmission line project.
- the need to undertake a higher than forecast level of replacement expenditure—for example, detailed condition assessments of substation and transmission line assets during the period have led to a more comprehensive understanding of asset condition, which has influenced the decision to commit higher levels of replacement expenditure within the period
- an increase in project costs due to underestimating the required scope and, therefore, cost of projects
- the higher than forecast input costs experienced later in the period (unrelated to scope changes)—for example, wages growth, metal prices and plant and equipment costs
- the need for capex above forecast levels on strategic land/easements, inventory and spares, and business IT.

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<sup>50</sup> ElectraNet revenue proposal, p. 35.

ElectraNet stated that the majority of capex to be commissioned in 2007–08 is associated with three major projects that are well advanced—the Tungkillo substation establishment, the South East – Snuggery 132 kV transmission line and Cherry Gardens substation replacement. ElectraNet is confident that it will achieve its budgeted capital program for 2007–08.

### **Submissions**

The EUAA stated that analysis of the delivery of projects for the current regulatory period showed that the first three years were heavily underspent compared with the capex profile approved by the ACCC in the 2002 revenue cap decision.<sup>51</sup>

### **Consultant review**

SKM noted that the timing of capex forecast in the 2002 revenue cap decision has changed and is now heavily weighted towards the end of the current regulatory period. It stated that despite being ranked as the highest priority project for the current regulatory period, the commissioning of the Playford substation replacement project has been deferred until the next regulatory control period. SKM also noted that the actual profile of expenditure has changed, with a lower than forecast expenditure for augmentations and a higher than forecast expenditure for replacements.

In general, SKM agreed with ElectraNet’s reasons for changing both the timings and profile of its capex during current regulatory period. In particular, it considered that the decision to defer the Playford substation replacement project and to bring forward the Cherry Gardens replacement project was reasonable given that this project provided benefits and efficiencies when combined with the Tungkillo substation project. It also considered that, while there may have been some benefit in continuing with the construction of the Playford project as planned during the current regulatory period, it would have resulted in a significant overspend of the capex allowance provided in the 2002 revenue cap decision—which SKM noted ElectraNet was seeking to avoid.

Notwithstanding the above, SKM considered that the benefits of the improved capital governance and project management processes implemented by ElectraNet during the current regulatory period were apparent because of its increased capacity to deliver projects in the latter part of the current regulatory period. It stated that ElectraNet’s new asset management regime has appropriately prioritised its asset replacement projects.

While SKM considered it difficult to determine whether the capital phasing was in part due to a deliberate strategy to maximise profits during the current regulatory period, it did not find any evidence of this in the projects it reviewed.<sup>52</sup>

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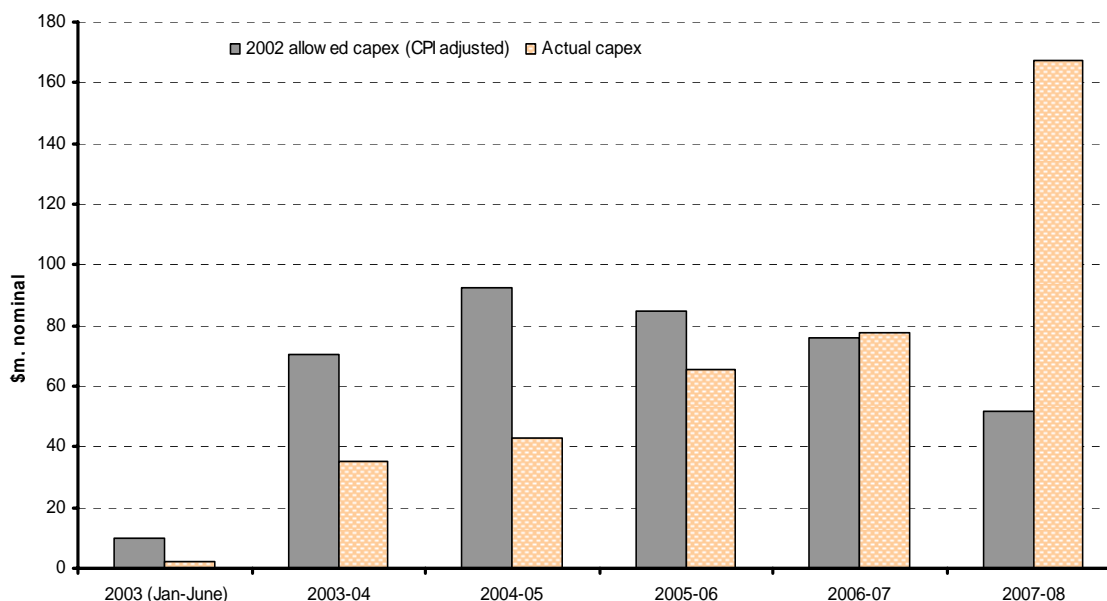
<sup>51</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 3.

<sup>52</sup> SKM report, pp. 30–31.

## AER considerations

The AER notes that ElectraNet’s actual capex spending profile is very different to that approved by the ACCC in its 2002 revenue cap decision (see figure 2.1). Expenditure for projects such as the South East – Snuggery (scheduled for commencement in 2004–05) and the Playford relocation (scheduled for commencement in late 2002) were delayed such that the majority of ElectraNet’s capex occurred within the last three years of the current regulatory period.

**Figure 2.1: Comparison of ElectraNet’s 2002 allowance and its actual capex profile**



Note: Updated for 2006–07 actual capex as advised by ElectraNet. The 2007–08 actual capex is forecast.

The AER considers that, even though ElectraNet did not follow its forecast spending profile, the explanations provided in its proposal are reasonable. The AER notes that ElectraNet stated that a number of project deferrals offset the need to undertake a higher than forecast asset replacement program during the current regulatory period. These issues are discussed below.

ElectraNet stated that forecast demand growth over the period was lower than anticipated, leading to the deferral of some major load driven projects. Having analysed ElectraNet’s demand forecasts and compared them to the actuals over the current regulatory period, the AER agrees that demand was lower than anticipated.

The AER also notes that several market benefits driven augmentation projects foreshadowed in the 2002 revenue cap decision for completion during the current regulatory period—Heywood augmentation and the Victorian border – Monash component of SNI—never eventuated. This resulted in ElectraNet not being required to spend the amount of \$83 million allowed for these augmentations in the 2002 revenue cap decision. An underspend of \$30 million by ElectraNet compared with the allowed forecast can also be attributed to a number of connections projects that did not eventuate during the current regulatory period.



The AER is satisfied that these underspends/deferrals were outside of ElectraNet's control and do not reflect any systemic issues with its demand forecasting arrangements. In particular, it notes that proposed market benefits projects, by their very nature, are subject to the application of regulatory tests and the outcomes are generally beyond a TNSP's control. For example, changes in the market operations have delayed any market benefits justifying the proposed upgrade of the Heywood interconnector.

Despite these underspends/deferrals, the main reason for the change in the capex profile is that ElectraNet had to prioritise its capital spend within the ACCC allowance when higher priority replacement work became necessary. This higher priority work, ElectraNet claimed, resulted from the need to replace more of its ageing assets, which were starting to reach the end of their useful lives and were in poor condition. This resulted in an overspend of \$74 million in replacement expenditure compared to the 2002 revenue cap decision allowance.

Over the current regulatory period, ElectraNet progressively introduced a new asset management regime to manage the risk and the costs of its ageing asset base in the forthcoming and subsequent regulatory control periods. ElectraNet claimed that it developed a more comprehensive understanding of asset condition, which influenced its decision to commit to higher levels of replacement expenditure within the current regulatory period.

The AER notes that as part of the new asset management regime undertaken by ElectraNet many of the routine maintenance tasks have changed in frequency and scope. There is a focus now on condition monitoring in addition to defect identification. For this reason, it is likely that the increase in replacement capex during the current regulatory period includes a catch-up component for expenditure that would have been addressed earlier under a more rigorous asset management regime.

The AER is satisfied that the higher than forecast asset replacement expenditure is reasonable in the context of the new asset management regime. Further discussion of the asset management regime associated with the forecast replacement works is contained in chapter 4 and appendix C of this draft transmission determination.

## **2.6 AER conclusion**

### **Prudence of commissioned and assets under construction projects**

The AER's conclusion is that ElectraNet's expenditure of \$363 million on commissioned projects during the current regulatory period is prudent and should be included in its RAB.

To allow a smooth transition to the partially as-incurred approach, a prudent amount of expenditure incurred in the current regulatory period must also be included in ElectraNet's RAB to recognise assets that are under construction but will not be commissioned until the next regulatory control period. The AER's conclusion is that ElectraNet's proposal of \$44 million for assets under construction at the end of the current regulatory period is also prudent and should be included in its RAB.

**Interest during construction**

The AER's conclusion on IDC is:

- to accept ElectraNet's proposed IDC allowance of \$27 million to be included with its commissioned projects
- to require the addition of an allowance of \$1.9 million for ElectraNet's assets under construction.

## 3 Opening asset base

### 3.1 Introduction

This chapter sets out the methodology that has been used by the AER to determine ElectraNet's closing regulated asset base (RAB) for the current regulatory period. The closing RAB becomes the opening RAB for the next regulatory control period and is used to calculate ElectraNet's maximum allowed revenue (MAR).

This chapter discusses the adoption of a roll forward methodology consistent with the regulatory principles operating when the ACCC determined ElectraNet's current revenue cap.<sup>53</sup> It also sets out the AER's consideration of adjustments to the opening RAB for the revaluation of easements and the readmission of previously optimised assets.

### 3.2 Regulatory requirements

#### 3.2.1 NER requirements

In determining an opening RAB for a transmission determination, the AER is bound by the relevant provisions of the NER. Clause 6A.6.1 and schedule 6A.2 of the NER outline the approach that is used to determine the opening RAB. The AER also uses its roll forward model (RFM) to determine the roll forward of the RAB.

Schedule 6A.2.1(c) of the NER provides that the RAB for the first year of the regulatory control period must be determined by rolling forward the RAB value set out in the schedule. For ElectraNet this value is \$824 million (as at 1 January 2003). This value is adjusted to allow for the difference between estimated capital expenditure (capex) and actual capex in the previous regulatory period. Schedule 6A.2.1(f) of the NER outlines how this value is further adjusted to roll forward and calculate the value of the RAB at the beginning of the first year of the regulatory control period.

Clause 11.6.9 of the transitional provisions of the NER provides that the value of the RAB for the first regulatory control period under the revised NER may also be adjusted to have regard for an existing revenue determination and any other arrangements agreed between the AER and TNSP. The 2002 ElectraNet revenue cap decision was made by the ACCC based on the framework contained in its *Draft statement of regulatory principles for the regulation of transmission revenues* (DRP).<sup>54</sup> Accordingly, the AER will roll forward ElectraNet's RAB consistent with the DRP rather than the methodology outlined in schedule 6A.2.1(f) of the NER.

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<sup>53</sup> ACCC, *South Australian transmission network revenue cap 2003–2007/08: Decision*, 11 December 2002.

<sup>54</sup> ACCC, *Draft statement of principles for the regulation of transmission revenues*, 27 May 1999.

### 3.2.2 Draft statement of regulatory principles

As noted previously in section 3.2.1 ElectraNet's 2002 revenue cap decision was made in accordance with the DRP. The capex included in that revenue cap decision was a forecast that was based on an assessment of the likely investment required over the regulatory period. The closing RAB at the end of the current regulatory period must take account of actual capex.

The DRP requires the closing RAB to be determined following an ex post prudence assessment of actual capex. The AER's approach to the determination of what constitutes a prudent investment is discussed in section 2.2.2 of this decision.

Chapter 5 of the DRP, which discusses changes to the asset base over time, provides guidance on the treatment of excess return on capital associated with a lower than forecast capex. It states that the TNSP is entitled to retain the return on the difference between forecast and actual expenditure.<sup>55</sup>

Guidance on how excess return of capital (depreciation) associated with a lower than forecast capex should be treated is provided by proposed statement S5.3 in the DRP. It states that:

At the start of the regulatory period only actual capital expenditure in the previous regulatory period will be included (retained in the case of previously forecast expenditures) in the asset base. At the commencement of the regulatory period this means that ... any excess depreciation associated with forecast capital expenditures that did not eventuate [in the previous regulatory period] will be applied as a reduction in the value of the remaining items within the regulatory asset base at the start of the next regulatory period.<sup>56</sup>

The DRP requires forecast depreciation to be used in determining the value of the closing asset base. This means that excess depreciation associated with lower than forecast capex in the current regulatory period is treated as a bring-forward of depreciation, resulting in the establishment of a lower opening RAB at the start of the next regulatory control period.

The DRP does not explicitly indicate how a higher than forecast capex should be treated at the end of the regulatory period. The approach taken by the ACCC and the AER in previous regulatory decisions was to provide the TNSP with both returns on and of capital that exceeds the forecast amount if the capex was found to be prudent after an ex post assessment.<sup>57</sup> That is, the undepreciated value of the additional prudent capex and any foregone return on capital was added to the closing RAB.

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<sup>55</sup> *ibid.*, p. 56.

<sup>56</sup> *ibid.*, p. 64.

<sup>57</sup> ACCC, *NSW and ACT transmission network revenue cap—TransGrid 2004–05 to 2008–09: Final decision*, 27 April 2005.

ACCC, *NSW and ACT transmission network revenue cap—EnergyAustralia 2004–05 to 2008–09: Decision*, 27 April 2005.

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

### 3.3 ElectraNet proposal

ElectraNet has proposed an opening RAB for the next regulatory control period of \$1277 million as at 1 July 2008. The proposed opening RAB includes a higher than forecast past capex amount of \$390 million (including interest during construction (IDC) costs) and \$44 million of assets under construction at the end of the current regulatory period.<sup>58</sup> The AER's consideration of these amounts is discussed in detail in chapter 2.

ElectraNet has used the AER's asset base RFM to determine its proposed opening RAB. In performing the roll forward of its RAB, ElectraNet has deducted the cash amount received for any disposal of its assets from the RAB. It has also adjusted the capex allowance and regulatory (economic) depreciation as determined in the ACCC's 2002 revenue cap decision for actual inflation using the consumer price index (CPI).<sup>59</sup>

In accordance with schedule 6A.2.1(c)(2) of the NER, ElectraNet has sought to adjust its opening RAB value by \$5.1 million to account for higher than estimated commissioned assets between July and December 2002 in the previous regulatory period. Further, it has proposed to roll in the return on this difference over the current regulatory period of \$3.1 million to establish the opening RAB as at 1 July 2008.

ElectraNet has also proposed adjustments to its opening RAB for the readmission of previously optimised assets (\$21 million) and the revaluation of easements (\$82 million).<sup>60</sup>

### 3.4 Submissions

The ECCSA stated that ElectraNet's proposal to use actual inflation to roll forward its RAB was acceptable. However, it requested that the AER ensure these calculations were correct in determining the opening RAB.<sup>61</sup>

The EUAA stated that changes to ElectraNet's accounting systems and asset classes have implications for the composition of assets classes and regulatory depreciation. It proposed that the AER ensure that these adjustments did not result in a higher valuation of assets.<sup>62</sup>

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<sup>58</sup> ElectraNet revenue proposal, p. 34.

<sup>59</sup> As ElectraNet's MAR for the current regulatory period was determined using forecast inflation, the MAR is adjusted annually to account for actual CPI.

<sup>60</sup> ElectraNet revenue proposal, p. 34.

<sup>61</sup> Energy Consumers Coalition of South Australia, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 18.

<sup>62</sup> Energy Users of Association of Australia, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 9.

## **3.5 Issues and AER considerations**

### **3.5.1 Opening RAB—1 January 2003**

Schedule 6A.2.1(c) of the NER states that ElectraNet's opening RAB as at 1 January 2003) must be rolled forward to determine the opening RAB as at 1 July 2008, subject to schedule 6A.2.1(c)(2) and any applicable transitional provisions.

The timing of a revenue cap decision requires that a revenue cap for a future regulatory control period must be set before the end of the current regulatory period. This means the actual capex for the final year of the current regulatory period cannot be known before the closing RAB is established. This, in turn, means that ElectraNet's opening RAB value of \$824 million, prescribed in schedule 6A.2.1(c)(1)—which was taken from the 2002 revenue cap decision—is based, to some extent at least, on estimates of capex in the later part of the previous regulatory period.

Schedule 6A.2.1(c)(2) is designed to deal with this situation. It provides that, once the actual capex for the final part of the previous regulatory period (in the case of ElectraNet, this is the six-month period from 1 July 2002 to 31 December 2002) is known, the opening RAB at 1 January 2003 must be adjusted for the difference between the forecast and actual expenditure.

The AER has developed an asset base RFM based on the capex incentive framework of the DRP. This model also provides for the adjustments to the opening RAB as required under schedule 6A.2.1(c)(2).

#### **ElectraNet proposal**

ElectraNet has used the AER's RFM and has adjusted the opening RAB for differences between actual and forecast capex during 1 July 2002 to 31 December 2002. In this period, ElectraNet stated that actual expenditure is \$5.1 million higher than forecast. The resulting foregone return on the difference between actual and forecast capex to be rolled into the RAB at 1 July 2008 is \$3.1 million.<sup>63</sup>

#### **AER considerations**

The AER notes that the NER requires that:

- the opening RAB for ElectraNet is to be determined by rolling forward the value given to the RAB at a date specified in the table in schedule 6A.2.1(c)(1)
- the value of \$824 million prescribed in the table is to be adjusted for the difference between actual and forecast capex for any part of a preceding period
- this adjustment must remove any benefit or penalty on the returns associated with any difference between actual and forecast capex.

The AER has reviewed the RFM for the inputs to the previous regulatory

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<sup>63</sup> ElectraNet revenue proposal, p. 95.

period—1 July 2002 to 31 December 2002—and is satisfied with ElectraNet’s proposed adjustments to the opening RAB for the current regulatory period. Therefore, in accordance with schedule 6A2.1(c)(2), the AER accepts the adjustments to ElectraNet’s RAB of \$5.1 million for the difference between actual and forecast capex, and \$3 million associated with the foregone return on that difference.<sup>64</sup>

Table 3.1 shows the annual accumulated foregone return on capital associated with higher than forecast capex from July to December 2002.

**Table 3.1: Return on capital associated with capex difference from July to December 2002 (\$m, nominal)**

Return on capex difference	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07	2007–08	Total
Capex in 2002 (Jul to Dec)	0.21	0.52	0.48	0.54	0.64	0.70	3.04

Note: Total may not add up due to rounding.

### 3.5.2 Roll forward methodology

#### AER considerations

Under the AER’s RFM, the closing RAB (nominal) for each year of the current regulatory period is calculated by:

1. adjusting the opening RAB for the difference between actual CPI and forecast inflation
2. adjusting the forecast capex (allowed in the 2002 revenue cap decision) for the difference between actual CPI and forecast inflation
3. adjusting the forecast regulatory depreciation (allowed in the 2002 revenue cap decision) for the difference between actual CPI and forecast inflation.<sup>65</sup>

As part of its review of the RFM, the AER identified an error with the forecast regulatory depreciation input figure for January to July 2003 because it was not consistent with that contained in the 2002 revenue cap decision. ElectraNet agreed to correct this error and provided an updated RFM.

The AER has also reviewed the different asset classes adopted by ElectraNet during the current regulatory period for the purpose of representing the values used in the RFM. The asset class mapping spreadsheet provided by ElectraNet demonstrates that it has appropriately mapped the opening RAB, capex and regulatory depreciation values categorised in the revised asset classes with those in the previously used asset

<sup>64</sup> Updated for actual 2006–07 CPI data.

<sup>65</sup> Regulatory (or economic) depreciation is calculated by determining the straight-line depreciation for the RAB less the CPI adjustment on the opening RAB.

classes. Therefore, the AER is satisfied that the input values in the RFM are consistent with the values forecast in the 2002 revenue cap decision.

During the current regulatory period ElectraNet has undertaken slightly more capex than was forecast in its 2002 revenue cap decision. However, as indicated in chapter 2, the AER has determined that \$363 million of ElectraNet's commissioned assets during the current regulatory period were prudent and should be included in its RAB.<sup>66</sup> Therefore, at the end of the current regulatory period, an adjustment to reflect the higher than forecast capex will be made to the closing RAB by adding the prudent additional expenditure. That is, the undepreciated value of the additional prudent capex is included in the RAB at the end of the current regulatory period.

In the case of a net prudent overspend, the DRP incentive framework requires that the return on the additional prudent capex also be added to the value of the closing RAB. However, over the current regulatory period ElectraNet's actual capex was lower than forecast between 2003 and 2005–06 and higher than forecast in 2006–07 and 2007–08.<sup>67</sup> The AER calculates that the accumulated return on capital associated with the lower than forecast expenditures in the earlier years more than offsets the foregone return on capital resulting in the latter years. Consequently, no adjustment to the closing RAB is required due to the excess returns that ElectraNet has received over the current regulatory period.

Table 3.2 shows that there is an aggregate excess return on capital of \$38 million received by ElectraNet because of the profile of its actual capex during the current regulatory period. However, in accordance with the DRP's capex incentive framework, the aggregate excess return on capital is not deducted from a TNSP's closing RAB. Instead, ElectraNet retains the excess return on capital within the current regulatory period.

The AER will also roll into ElectraNet's RAB an amount for prudent expenditure on assets under construction at the end of the current regulatory period as a result of the transition to recognising capex on a partially as-incurred approach. As indicated in chapter 2, the AER has determined that \$44 million of ElectraNet's assets under construction were prudent and should be included in its RAB.<sup>68</sup>

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<sup>66</sup> An IDC allowance of \$27 million for commissioned assets is also added to the RAB.

<sup>67</sup> See figure 2.1 for a comparison of ElectraNet's annual forecast capex approved by the ACCC in 2002 and its actual capex for the current regulatory period.

<sup>68</sup> An IDC allowance of \$1.9 million for assets under construction is also added to the RAB.



**Table 3.2: Accumulated return on capital associated with capex differences (\$m, nominal)**

Return on capex difference	2003–04	2004–05	2005–06	2006–07	2007–08	Total
Capex in 2003 (Jan to Jun)	-0.78	-0.72	-0.81	-0.95	-0.98	-4.23
Capex in 2003–04	-	-3.04	-3.45	-4.03	-4.13	-14.65
Capex in 2004–05	-	-	-4.46	-5.22	-5.34	-15.01
Capex in 2005–06	-	-	-	-1.87	-1.91	-3.78
Capex in 2006–07	-	-	-	-	0.14	0.14
Capex in 2007–08	-	-	-	-	-	-
Total	-0.78	-3.75	-8.72	-12.06	-12.24	-37.55

Note: Total may not add up due to rounding. The negative sign refers to excess return associated with actual capex lower than forecast in the year.

### 3.5.3 Easement value adjustment

The South Australian jurisdictional valuation for the transmission network in 1999 included \$3.1 million for easements. ElectraNet argued that the easement value included in the jurisdictional asset base was undervalued.<sup>69</sup>

#### Regulatory requirements

The NER would not usually permit the AER to revalue sunk assets in the RAB. Schedule 6A.2.1(c) prescribes ElectraNet's opening RAB value at \$824 million (as at 1 January 2003). This figure can only be adjusted in order to replace forecast capex with actual capex (schedule 6A.2.1(c)(2)) and to apply the method for rolling forward the RAB in accordance with schedule 6A.2.1(f).

However, clause 11.6.13(b) provides an exception to this rule, allowing the AER to consider adjustments to the RAB that relate to ElectraNet's easements. It states:

Without limiting the operation of the new Chapter 6A, in establishing the opening regulatory asset base for ElectraNet for the regulatory control period subsequent to ElectraNet's current regulatory control period, the AER may also consider adjustments to the regulatory asset base for ElectraNet that relate to easements, as agreed by letter dated 3 August 2004, between the ACCC and ElectraNet.

#### ElectraNet proposal

ElectraNet stated that its revenue proposal, easement value adjustment submission and confidential documents provided to the AER establish that ElectraNet's investors had a reasonable expectation that the easements would be revalued.

<sup>69</sup> ElectraNet revenue proposal, pp. 98–100.

In accordance with clause 11.6.13, ElectraNet has proposed a revaluation of its easements from \$3.5 million—in the current regulatory period—to \$82 million for the next regulatory control period. ElectraNet does not have the actual records relating to the cost of its easements. Accordingly, it has proposed a method to estimate a value for its easements.

The proposed methodology for determining the adjusted easement value is based on:

- landowner compensation costs
- easement acquisition or transaction costs.

Landowner compensation costs are an estimate of the compensation payments made directly to the landowner at the time of acquiring the easement and recorded on the title. ElectraNet has proposed a methodology using internal, SP AusNet, Australian Bureau of Agricultural Resource Economics (ABARE) and Australian Bureau of Statistics (ABS) data to establish an indexed proxy historical adjustment. Based on this methodology, ElectraNet has proposed a landowner compensation cost adjustment of \$29 million to be added to its RAB as at 30 June 2008.

Easement acquisition or transaction costs are the additional fees and charges incurred to acquire easement rights. ElectraNet has valued these costs using the mid-point of values recommended in two 2002 consultant reports, one by Meritec<sup>70</sup> (on behalf of the ACCC), and one by SKM.<sup>71</sup> Based on this methodology, ElectraNet has proposed an easement acquisition or transaction cost adjustment of \$53 million to be added to its RAB as at 30 June 2008. Table 3.3 sets out ElectraNet’s total proposed adjustment for the value of its easements.

**Table 3.3: ElectraNet’s proposed easement revaluation (\$m, 2007–08)**

Component	Valuation adjustment
Landowner compensation costs	29.1
Easement acquisition or transaction costs	52.8
Total	81.9

Source: ElectraNet revenue proposal, p. 100.

In appendix S of its revenue proposal, ElectraNet submitted that the AER should revalue the easements because:

- a) Investors acquired ElectraNet with a reasonable expectation that the easements would be revalued.
- b) Leaving the easements at their current value would be inconsistent with the NEM objective to promote efficient investment in electricity services.

<sup>70</sup> Meritec, *ElectraNet SA Asset base review report to the ACCC*, July 2002, p. 32.

<sup>71</sup> SKM, *ElectraNet SA Asset valuation review file note*, 8 June 2002.

- c) It is important to preserve regulatory certainty and the reliance investors can place on a regulator's undertaking.
- d) The easements are currently undervalued, and as a consequence ElectraNet's RAB is set at an inappropriately low level.

### **Submissions**

The South Australian Government does not consider that the AER should include any allowance for easement transaction costs. It stated that these costs were likely to be expensed at the time or capitalised along with the total cost of building the asset.<sup>72</sup>

ECCSA stated that it does not support a revaluation of ElectraNet's easements. It considered that ElectraNet's investors purchased the assets on a competitive basis with full knowledge of the amount included in the purchase price for easements. It does not accept that any statements made by the ACCC about possible future revaluation binds the AER into any course of action.<sup>73</sup>

The ECCSA also does not accept the methodology used by ElectraNet to calculate its revaluation. First, ElectraNet easements are not comparable to Victorian easements. Second, the ECCSA stated it is unlikely that ElectraNet did not expense all of its easement acquisition costs when the easements were acquired.<sup>74</sup>

The EUAA stated that it strongly opposes the easement value adjustment of \$82 million and believed that the arguments advanced by ElectraNet are not of sufficient merit to justify any change. The EUAA considered that the expectations of investors, when acquiring the business, would have factored in the risk of 'expectations' as to revaluations not being realised. The letter from the ACCC cited by ElectraNet as support for their position is nothing more than a commitment to 'consider' the issue.<sup>75</sup>

### **AER consideration**

The AER notes that the NER allow it to consider adjustments to ElectraNet's RAB for easements, as agreed by a letter between the ACCC and ElectraNet. The letter referred to in clause 6A.2.1(c) stated:

[T]he ACCC would consider revaluation of ElectraNet's asset base if ElectraNet was able to establish that such a step accords with the reasonable expectations of ElectraNet's investors.<sup>76</sup>

In establishing the reasonable expectations of ElectraNet's investors, the AER considered a number of confidential documents provided by ElectraNet (including

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<sup>72</sup> Government of South Australia, *ElectraNet revenue proposal submission*, 24 August 2007.

<sup>73</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 19.

<sup>74</sup> *ibid.*, pp. 21–22.

<sup>75</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, pp. 3–4.

<sup>76</sup> ACCC letter to ElectraNet dated 3 August 2004.

due diligence reports) which were relied upon by the investors who acquired ElectraNet in 2000.<sup>77</sup> After reviewing these documents, the AER is satisfied that investors had a reasonable expectation that the regulator would at least be able to consider revaluation of ElectraNet's easements. Accordingly, the AER considers that clause 11.6.13(b) applies and that the revaluation of easements can be considered by the AER.

Clause 11.6.13(b) does not state whether the AER must revalue ElectraNet's easements or, if it decides to do so, the methodology to be applied. In the absence of any guidance from the NER, the AER has considered section 16 of the NEL which requires, among other things, that the AER exercise its power in a manner that will or is likely to contribute to the achievement of the NEM objective.

Section 16(2) further provides that, in making a transmission determination, the AER must, in accordance with the NER:

- (a) provide a reasonable opportunity for the regulated transmission system operator to recover the efficient costs of complying with a regulatory obligation; and
- (b) provide effective incentives to the regulated transmission system operator to promote economic efficiency in the provision by it of services that are the subject of the transmission determination, including—
  - (i) the making of efficient investments in the transmission system owned, controlled or operated by it and used to provide services that are the subject of the transmission determination; and
  - (ii) the efficient provision by it of services that are the subject of the transmission determination; and
- (c) make allowance for the value of assets forming part of the transmission system owned, controlled or operated by the regulated transmission system operator, and the value of proposed new assets to form part of that transmission system, that are, or are to be, used to provide services that are the subject of the transmission determination; and
- (d) have regard to any valuation of assets forming part of the transmission system owned, controlled or operated by the regulated transmission system operator applied in any relevant determination or decision.

While the AER has considered each of these factors, it is of the view that they provide little guidance as to whether, and how, the AER should revalue sunk assets such as ElectraNet's easements. The first two factors have little application to the present case. The third factor is relevant, in that easements form part of the asset base for which the AER must make allowance in the transmission determination. However, the value to be assigned to this class of assets in the asset base is to be determined by the AER in accordance with the NER. This factor does not direct the AER as to how this value is to be determined. The final factor (past valuations) suggests that the valuation

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<sup>77</sup> ElectraNet, *Easement confidential submission*.

adopted for the current determination (\$3.5 million) should be used. However, for the reasons discussed below, the AER does not consider that this factor should be decisive.

The AER has also had regard to past decisions of the ACCC regarding easement valuation and past statements of policy, in particular, the DRP.<sup>78</sup> The AER is of the view that it can (and should) have regard to the desirability of consistency with these past decisions and policies.

***Should the AER revalue ElectraNet's easements?***

While clause 11.6.13(b) of the NER empowers the AER to revalue ElectraNet's easements, it does not actually compel the AER to do so. In deciding whether to revalue ElectraNet's easements, the AER has considered past decisions of the ACCC. In most cases where the ACCC has had the ability to revalue easements it has done so (TransGrid (2000), EnergyAustralia (2000), SPI PowerNet (2002)). The two cases where the ACCC decided not to revalue easements were Snowy (2001), where the amount involved was immaterial, and ElectraNet (2002), where ElectraNet's valuation methodology was rejected.

In the present case, the amount involved is material—the methodology proposed by ElectraNet is similar to that which was used by SPI PowerNet in 2002—and the current value of \$3.5 million is not consistent with easement values for comparable businesses. In light of these previous decisions and the inconsistency of easement values, the AER considers that it is appropriate to revalue ElectraNet's easements.

The AER notes that its SRP proposes a 'lock-in' approach to establishing an opening RAB, which would preclude the revaluation of sunk assets. However, in the present case, the application of this principle is qualified by the ACCC's letter of 3 August 2004 (which is referred to in clause 11.6.13(b)). The revaluation of ElectraNet's easements is an exception to the lock-in approach. Accordingly, the lock-in approach set out in the SRP is not applicable to this decision.

***How should this value be determined?***

In terms of the value placed upon the easements, ElectraNet has suggested a two-stage process. The AER considers each in turn.

***Compensation costs***

The DRP suggests that the contribution to the RAB represented by easements should be based on the actual cost to the TNSP of obtaining the easement rights, updated periodically in line with what would be an optimised depreciated replacement cost (ODRC) based valuation.<sup>79</sup> However, in past decisions of the ACCC, the use of deprival value or replacement cost has been rejected in favour of indexed historical cost. Given the DRP was only a statement of policy as to how the ACCC would approach the task of electricity transmission network regulation, as a guide to decision making today, the AER considers that it is of less value than past decisions by the

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<sup>78</sup> ACCC, *Draft statement of principles for the regulation of transmission revenues*, 27 May 1999.  
<sup>79</sup> *ibid.*, p. 45.

ACCC in this area. Accordingly, the AER is of the view that indexed historical cost remains the appropriate basis for the valuation of easements.

In the absence of actual data relating to compensation paid to landowners, the AER is prepared to apply a valuation of ElectraNet's easements on an appropriate proxy for historical costs. A similar course of action was adopted in the TransGrid (2000), EnergyAustralia (2000) and, to a lesser extent, SPI PowerNet (2002) revenue cap decisions.

In the current proposal, ElectraNet cannot provide records of the actual compensation costs of acquiring the easements. Instead, it has proposed a methodology for establishing its proxy historical landowner compensation costs. This methodology uses extensive Victorian easement compensation cost information, provided by SP AusNet (formerly SPI PowerNet), as benchmark data. The Victorian data is sorted by region and easement area and a cost per hectare per year of purchase is found for each Victorian easement.

The methodology also relies on ElectraNet's easement data from its Geographical Information System (GIS). The GIS provides information on freehold easement areas by year of purchase. This data has also been divided into regions for the purposes of comparison with the Victorian cost information.

The model uses publicly available ABARE and ABS land value data to translate the Victorian historical easement compensation cost information into the South Australian context. It does this by finding the ratio relationship between land values in similar regions of South Australia and Victoria. These ratios are then applied to the Victorian cost information and ElectraNet easement area information to establish ElectraNet's indexed proxy historical easement compensation costs.

Figure 3.1 illustrates the methodology for estimating the proxy historical cost.

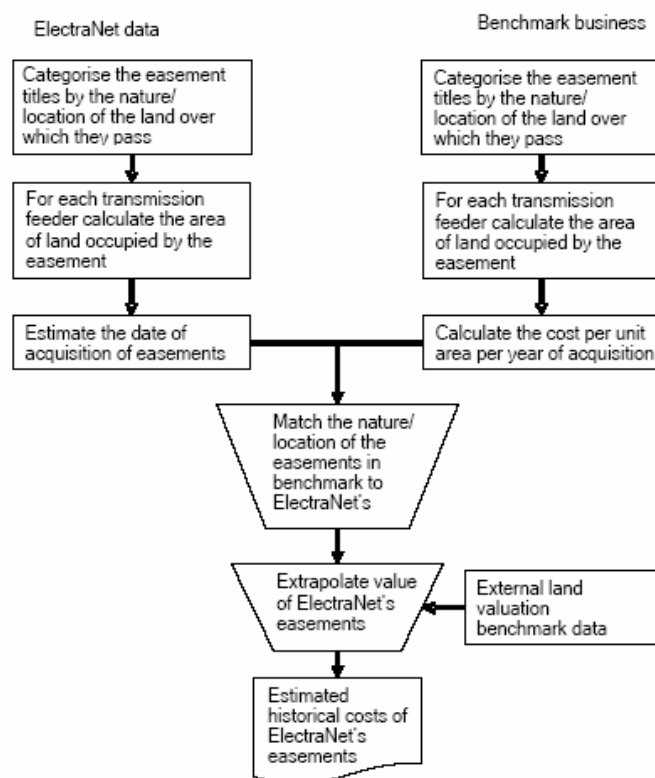
The AER considers SP AusNet's historical easement data to be an appropriate benchmark because of the historical completeness of the landowner compensation cost maintained by the Victorian government over time (the historical costs of approximately 95 per cent of SP AusNet's easements could be traced to title documents). These historical costs have also been accepted by the ACCC in its 2002 revenue cap decision for SPI PowerNet.<sup>80</sup>

The AER has investigated ElectraNet's methodology and considers that it is sound. It considers that the model's key input information and assumptions are appropriate and the final cost outcomes are acceptable in the context of limited historic information. Accordingly, the AER accepts 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.

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<sup>80</sup> ACCC, *Victorian transmission network revenue caps 2003–2008: Decision*, 11 December 2002.

**Figure 3.1: ElectraNet’s proposed landowner compensation cost methodology**



Source: ElectraNet revenue proposal, appendix S—*Easement value adjustment submission to the AER*, 31 May 2007, p. 20.

### ***Acquisition or transaction costs***

In making a decision on easement acquisition or transaction costs, the AER has considered ElectraNet’s proposal, its supporting information and the ACCC’s decision for SPI PowerNet.

The AER notes that ElectraNet relies on a valuation provided in a 2002 Meritec report as an input into its mid-point calculation of transaction costs. The 2002 Meritec report was commissioned by the ACCC for the purposes of reviewing ElectraNet’s 2001 revenue proposal in relation to its asset base. Meritec concluded 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.<sup>81</sup> 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.<sup>82</sup>

<sup>81</sup> Meritec, *ElectraNet SA asset base review report to the ACCC*, July 2002, p. 26.  
<sup>82</sup> *ibid.*, p. 15.

In the supporting information provided by ElectraNet, the AER notes SKM's statement that its 1998 valuation of ElectraNet's transmission line costs did not include any easement acquisition or route selection costs.<sup>83</sup> While the AER recognises that the ODRC revaluation of ElectraNet's transmission lines may have excluded undepreciated easement transaction costs, no evidence as to the exact nature and quantum of these costs has been provided.

This position is consistent with the ACCC's decision for SPI PowerNet in 2002. In that decision, SPI PowerNet, like ElectraNet, proposed a hybrid methodology that separated easement costs into compensation and transaction costs. The ACCC considered that transaction costs were already included in transmission line costs unless the TNSP could prove otherwise. SPI PowerNet could not provide sufficient evidence to suggest that transmission costs were separately valued. It did, like ElectraNet, provide a letter by SKM stating that line replacement costs did not include transaction costs. However, the ACCC decided that, in the absence of any evidence to suggest otherwise, transaction costs would be deemed to be already included as a part of transmission line costs.

On the basis of the above considerations and the available information, the AER has assumed that easement transaction costs have 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.

### **Conclusion**

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 for easement transaction or acquisition costs of \$53 million to be added to the RAB. ElectraNet has not been able to provide sufficient evidence to enable the AER to be satisfied that these costs were not already included in the RAB as a part of transmission line costs. The AER requires that the allowance for easement transaction or acquisition costs be removed from the opening RAB.

### **3.5.4 Readmission of previously optimised assets**

ElectraNet owns a number of transmission assets that were optimised out of its RAB when it was established by the jurisdiction (South Australian jurisdictional authorities) in 1998. Generally, these assets were determined to have a lower value than the actual assets in place and each was notionally substituted, for regulatory purposes, by an alternative asset that provided the required level of service at lower cost, as assessed at the time.

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<sup>83</sup> SKM, *ElectraNet SA Asset valuation review file note*, 8 June 2002.



### **Regulatory requirements**

Schedule 6A.2.1(f)(8)(ii) of the NER states that the AER can adjust a TNSP's RAB at the beginning of its regulatory control period where the past capex:

- relates to an asset used for the provision of prescribed transmission services
- is considered by the AER to be reasonably required to achieve one or more of the capex objectives
- is properly allocated to prescribed transmission services in accordance with the TNSP's cost allocation methodology
- was not previously recovered.

The NER does not prescribe the methodology that the AER should use to adjust a TNSP's RAB. However, schedule 6A.2.1(f)(8)(ii)(B) refers to the past capex being reasonably required to achieve one or more of the capex objectives. These are described in clause 6A.6.7(a), which states that forecast capex included in a TNSP's revenue proposal must be expected to achieve each of the following capex objectives in relation to prescribed transmission services:

- meet the expected demand
- comply with associated regulatory obligations
- maintain the quality, reliability and security of supply
- maintain the reliability, safety and security of supply of the transmission system.

### **ElectraNet proposal**

In accordance with schedule 6A.2.1(f)(8)(ii) of the NER, ElectraNet proposed that the AER adjust its opening RAB in the next regulatory control period to include previously optimised assets. Specifically, ElectraNet's proposal sought to readmit the value of the surplus capacity of four previously optimised assets—total value of \$21 million—on the basis that these assets are required to provide prescribed transmission services during the next control regulatory period.<sup>84</sup>

ElectraNet engaged GHD to review the current asset optimisations reflected in ElectraNet's RAB. GHD recommended that the value of the surplus capacity of the following four transmission lines:

- Tailem Bend to Keith 132 kV
- Para (Tungkillo) to Tailem Bend 275 kV
- Davenport to Cultana 275 kV
- Robertstown (Tungkillo) to Cherry Gardens 275 kV

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<sup>84</sup> Based on SKM's 1998 optimisation review the excess capacity of these assets was removed from ElectraNet's opening asset value.

be readmitted into ElectraNet's RAB on the basis of load growth and well-accepted optimisation principles.<sup>85</sup>

Based on the advice of the Allen Consulting Group (ACG), ElectraNet used the ODRC methodology to calculate the value of the previously optimised assets.<sup>86</sup> Using this approach, ElectraNet calculated the value of the previously optimised assets as the difference between the current replacement cost of the non-optimised asset (the actual asset in service) and the optimised asset (reflected in the RAB) adjusted for depreciation. The current replacement costs of these assets were calculated by GHD using ElectraNet's base planning objects (unit cost estimates) which were modified for local variation factors.

### **Submissions**

The ECCSA stated that:

- optimised assets can only be readmitted to the RAB when it becomes necessary for capital to be spent in order to provide the service
- ElectraNet must provide evidence of the need for previously optimised assets
- assets that have been removed from the RAB through optimisation can only be readmitted at the value that was removed from the RAB, after allowing for depreciation.<sup>87</sup>

The EUAA noted that ElectraNet proposed to readmit \$21 million of previously optimised assets. It also noted that, although it was not in the position to comment on the technical aspects of the revaluation undertaken by GHD, the forecast load requirements for the Davenport to Cultana 275 kV transmission line needed close examination.<sup>88</sup>

### **Consultant review**

The AER engaged CHC to review ElectraNet's proposal and to provide advice on whether the surplus capacity of the previously optimised assets should be readmitted into the RAB. The review considered the merits of ElectraNet's proposal, GHD's reports and the information that ElectraNet supplied to GHD (including load flow analysis undertaken by ElectraNet) for its analysis against the NER requirements. As a part of its review, CHC also assessed the replacement costs of the assets currently in service and the assets now considered optimal to establish the value of the assets to be readmitted to the opening RAB for the next regulatory control period.

CHC's assessment was guided by schedule 6A.2.1(f)(8)(ii) and the capex objectives outlined in clause 6A.6.7(a) of the NER. CHC assessed each of ElectraNet's

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<sup>85</sup> GHD, *ElectraNet—Asset optimisation review report*, May 2007.

<sup>86</sup> ElectraNet revenue proposal, p. 98.

<sup>87</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 18.

<sup>88</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 10.

previously optimised assets against the NER requirements and determined that all assets:

- are used for prescribed transmission services
- meet at least one of the capital expenditure objectives.

CHC assumed that the proposed assets would be properly allocated to prescribed transmission services in accordance with ElectraNet's cost allocation methodology and have not been previously recovered.

CHC concluded that the AER should accept ElectraNet's proposal subject to its recommended modified replacement costs. CHC modified the costs of three asset values to reflect inconsistencies found in GHD's report, which ElectraNet accepted and corrected.<sup>89</sup>

### **AER considerations**

#### ***Review of CHC findings***

The AER notes that CHC assessed each previously optimised asset against the NER's requirements and considered that they have been met. The AER agrees that all the previously optimised assets are used for prescribed transmission services and meet at least one of the NER's capex objectives.

CHC stated that its assessment relied on the assumption that ElectraNet had allocated the previously optimised assets to prescribed transmission services. The AER notes that ElectraNet's revenue proposal stated that its forecast capital and operational expenditures have been properly allocated to prescribed transmission services, consistent with the AER's cost allocation guidelines.<sup>90</sup>

In addition, the AER's primary consultant (SKM) has assessed ElectraNet's cost allocation methodology and considered that it was well defined, controlled and audited.

The AER also notes that ElectraNet's optimised assets were removed from its RAB in 1998 and have not been previously recovered. Accordingly, the AER agrees with CHC that ElectraNet's previously optimised assets should be readmitted into the opening RAB for the next regulatory control period.

The AER notes that CHC modified the costs of three asset values for errors and that these errors have been accepted by ElectraNet. Accordingly, these modified values are used as inputs into ElectraNet's proposed ODRC methodology and, as a result, reduce the total optimised asset value from \$21 million to \$17 million.

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<sup>89</sup> CHC Associates, *Readmission of optimised assets to the regulated asset base*, September 2007, p. 7.

<sup>90</sup> ElectraNet revenue proposal, p. 47.

### ***Review of methodology to value the optimised assets***

The NER does not prescribe the methodology the AER should use to adjust a TNSP's RAB for previously optimised assets. In the absence of any guidance from the NER, the AER has considered section 16 of the NEL—in particular, the factors of section 16(2). The AER considered each of these factors in the easement revaluation section of this chapter, and it formed the view that they provide little guidance as to how to value sunk assets such as ElectraNet's previously optimised assets.

Accordingly, in reviewing the appropriateness of ElectraNet's proposed methodology to value the optimised assets, the AER considered past ACCC statements of policy, in particular, the DRP. It also reviewed previous ACCC decisions which considered the readmission of previously optimised assets.

### ***Draft regulatory principles***

Based on the DRP, the ACCC's preferred approach to readmitting optimised assets into the RAB is to accept whichever is the lessor value of the following:<sup>91</sup>

- the value of the optimised asset carried forward and adjusted for the rate of return (weighted average cost of capital)
- the ODRC.

### ***ElectraNet—2002 revenue cap decision***

In its 2002 revenue cap decision, the ACCC approved the readmission of some of ElectraNet's optimised assets—total value of \$13 million—into its RAB on the basis that the assets were needed in the next regulatory period. ElectraNet calculated this value using an ODRC methodology, which the ACCC accepted.<sup>92</sup>

### ***SPI PowerNet (now known as SP AusNet)—2002 revenue cap decision***

The ACCC approved the readmission of previously optimised assets (total value of \$154 million) into SPI PowerNet's (SPI) RAB on the basis that the assets were needed because of changing network patterns and higher than anticipated load growth. Consistent with the DRP, the ACCC accepted an ODRC methodology for valuing the assets.<sup>93</sup>

### ***ElectraNet—2007 proposal***

Consistent with the 2002 revenue cap decision, ElectraNet has proposed an ODRC methodology to value its remaining optimised assets to be readmitted into its RAB. In accordance with the DRP, the AER calculated the value of these optimised assets

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<sup>91</sup> ACCC, *Draft statement of principles for the regulation of transmission revenues*, 27 May 1999, p. 51.

<sup>92</sup> ACCC, *South Australian Transmission Network Revenue Cap 2003–2007/08: Decision*, 11 December 2002, pp. 46–47.

<sup>93</sup> ACCC, *Victorian transmission network revenue caps 2003–2008: Decision*, 11 December 2002, pp. 46–47.

using the ODRC and carried forward methodologies. The comparison of these values indicated that the ODRC of the optimised assets is the lesser value.<sup>94</sup>

#### *Consideration of submissions*

The AER agrees with the ECCSA that optimised assets should only be readmitted to the RAB when it becomes necessary for capital to be spent to provide the service. The AER considers that ElectraNet has provided evidence that, without the previously optimised assets, it would be necessary to undertake capex to provide prescribed transmission services over the next regulatory control period. Additionally, the AER is satisfied that the EUAA's comment regarding the load forecast requirements for the Davenport to Cultana 275 kV line has been addressed in CHC's analysis.

The AER notes that the ECCSA's proposed methodology does not reflect the view set out in the DRP and accepted in previous ACCC decisions. Consistent with the DRP and previous decisions, ElectraNet has applied the ODRC methodology for the purposes of determining the value of the optimised assets. Accordingly, the AER has decided to accept ElectraNet's proposal.

#### *Conclusion*

The AER accepts ElectraNet's proposal that the previously optimised assets are required to provide prescribed transmission services during the next regulatory control period. The AER notes that ElectraNet applied an ODRC methodology to calculate the value of these assets and that the value derived was consistent with the DRP.

As noted above, ElectraNet's proposal to value these assets at \$21 million contained a number of errors that have been acknowledged by ElectraNet. Accordingly, the AER rejects the proposal to include an amount of \$21 million in the RAB for assets that were previously optimised. The AER instead requires that the previously optimised assets be readmitted to ElectraNet's opening RAB for the next regulatory control period at a value of \$17 million.

### **3.6 AER conclusion**

Consistent with the NER and the DRP, ElectraNet has proposed to roll forward its RAB, established in the ACCC's 2002 revenue cap decision, to determine an opening RAB for the next regulatory control period. Applying the roll forward methodology, the AER has determined ElectraNet's opening RAB to be \$1220 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 MAR during the next regulatory control period.

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<sup>94</sup> Based on the *SKM 2001 optimisation review final report*, the value of the remaining optimised assets was \$15.1 million (as at 30 June 2001). Applying the WACC allowed in the ACCC's 2002 revenue cap decision for ElectraNet of 8.3 per cent to this value results in a carried forward value of \$26.4 million (\$2007–08). This compares to the \$17.4 million value derived from the ODRC methodology.

The RAB roll forward calculations are set out in table 3.4. The AER will update the roll forward of ElectraNet's RAB with the most recent forecast of capex for 2007–08 and the latest CPI data, at the time of its final transmission determination.

**Table 3.4: ElectraNet's opening RAB for the next regulatory control period (\$m, nominal)**

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07 <sup>a</sup>	2007–08 <sup>b</sup>
Opening RAB	823.75	832.83	883.96	958.36	1029.45	1082.89
Forecast capex (adjusted for actual CPI) <sup>c</sup>	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	26.38
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	1114.92
Add: prudent capex over 2002 decision <sup>d</sup>						10.00
Add: return on difference <sup>e</sup>						3.04
Add: prudent assets under construction						45.87
Add: easement landowner compensation costs						29.10
Add: readmitted optimised assets						17.44
Opening RAB at 1 July 2008						1220.36

(a) Updated for actual 2006–07 capex and CPI data.

(b) Forecast.

(c) 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.

(d) 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.

(e) This relates to the difference between actual and forecast capex of \$5.1 million for 1 July 2002 to 31 December 2002.

ElectraNet's opening RAB for the next regulatory control period is approximately 48 per cent higher (in nominal terms) than its opening RAB for the current regulatory period. This increase largely results from:

- the inclusion of commissioned assets (\$390 million, inclusive of IDC costs) for the current regulatory period
- the inclusion of an assets under construction component (\$46 million, inclusive of IDC costs) for the current regulatory period to allow for the transition to recognising capex on a partially as-incurred approach
- the readmission of previously optimised assets (\$17 million)
- an easement value adjustment (\$29 million).

## 4 Forecast capital expenditure

### 4.1 Introduction

This chapter sets out the AER's conclusion on ElectraNet's forecast capital expenditure (capex) allowance for the next regulatory control period. The AER has assessed ElectraNet's capex proposal by examining whether:

- its governance framework, capex policies and procedures facilitate efficient investment outcomes
- the methods used to develop the capex proposal, including probabilistic planning, demand forecasts and network planning criteria, are robust and appropriate
- there is a genuine need for the projects proposed in the revenue proposal and whether the scope, timing and costs are efficient
- the cost accumulation process employed by ElectraNet was reasonable
- ElectraNet's contingent projects satisfy the NER requirements and should be treated as contingent projects
- the capex program is deliverable.

The AER's conclusion on the efficient capex allowance for ElectraNet for the next regulatory control period is set out in section 4.7.

### 4.2 Regulatory requirements

#### 4.2.1 Capex objectives

Clause 6A.6.7(a) of the NER provides that a transmission network service provider (TNSP) must include the total forecast capex for the regulatory control period in order to achieve the capex objectives, which are to:

- (1) meet the expected demand for prescribed transmission services over that period;
- (2) comply with all applicable regulatory obligations associated with the provision of prescribed transmission services;
- (3) maintain the quality, reliability and security of supply of prescribed transmission services; and
- (4) maintain the reliability, safety and security of the transmission system through the supply of prescribed transmission services.

#### 4.2.2 Capex criteria and factors

Clause 6A.6.7(c) also provides that the AER must accept the capex forecast included in a revenue proposal if it is satisfied that the total of the forecast for the regulatory control period reasonably reflects the capex criteria, which are:

- (1) the efficient costs of achieving the capital expenditure objectives

- (2) the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the capital expenditure objectives; and
- (3) a realistic expectation of the demand forecast and cost inputs required to achieve the capital expenditure objectives.

In making this assessment the AER must have regard to the following capex factors (clause 6A.6.7(e)):

- (1) the information included in or accompanying the Revenue Proposal;
- (2) submissions received in the course of consulting on the Revenue Proposal;
- (3) such analysis as is undertaken by or for the AER and is published prior to or as part of the draft decision of the AER on the Revenue Proposal under rule 6A.12 or the final decision of the AER on the Revenue Proposal under rule 6A.13 (as the case may be);
- (4) benchmark capital expenditure that would be incurred by an efficient TNSP over the regulatory control period;
- (5) the actual and expected capital expenditure of the TNSP during any preceding regulatory control periods;
- (6) the relative prices of operating and capital inputs;
- (7) the substitution possibilities between operating and capital expenditure;
- (8) whether the total labour costs included in the capital and operating expenditure forecasts for the regulatory control period are consistent with the incentives provided by the applicable service target performance incentive scheme in respect of the regulatory control period;
- (9) the extent to which the forecast of required capital expenditure of the TNSP is referable to arrangements with a person other than the provider that, in the opinion of the AER, do not reflect arm's length terms; and
- (10) whether the forecast of required capital expenditure includes amounts relating to a project that should more appropriately be included as a contingent project under clause 6A.8.1(b).

Clause 6A.6.7(d) states that, if the AER is not satisfied that a TNSP's forecast capex reasonably reflects the capex criteria, then the AER must not accept the forecast capex in a revenue proposal. If the AER does not accept the total forecast capex proposed by a TNSP, clause 6A.14.1(2)(ii) of the NER requires the AER to include in its draft decision:

...an estimate of the total of the Transmission Network Service Provider's required capital expenditure for the regulatory control period that the AER is satisfied reasonably reflects the capital expenditure criteria, taking into account the capital expenditure factors.

The AER is also required to assess contingent projects in accordance with clause 6A.8.1 of the NER.



### 4.3 ElectraNet proposal

ElectraNet has proposed an ex ante capex allowance totalling \$778 million (\$2007–08) for the next regulatory control period. Table 4.1 sets out the annual profile of ElectraNet’s capex proposal.

**Table 4.1: ElectraNet’s proposed ex ante capex allowance (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Capex proposal	200.2	218.2	164.6	129.5	65.6	778.1

Source: ElectraNet revenue proposal, p. 61.

ElectraNet’s capex proposal includes \$44 million for expenditure on assets under construction to be included in its opening regulated asset base (RAB).<sup>95</sup> Work on these projects began in the current regulatory period but these projects will be commissioned in the next regulatory control period. ElectraNet’s assets under construction were reviewed as part of the past capex assessment in section 2.5.4.

Table 4.2 sets out ElectraNet’s proposal by capex categories.

**Table 4.2: ElectraNet’s capex proposal by category (\$m, 2007–08)**

Type	Investment category	Forecast capex	Percentage of total capex (%)
Load driven	Augmentation	228.0	29.3
	Connection	157.8	20.3
	Strategic land/easements	23.9	3.1
Non-load driven	Replacement	240.3	30.9
	Security/compliance	70.4	9.0
	Inventory/spares	15.7	2.0
	Total network	736.1	94.6
Non-network	Business IT	28.8	3.7
	Buildings/facilities	13.3	1.7
	Total non-network	42.0	5.4
Total capex		778.1	100.0

Source: ElectraNet revenue proposal, p. 65.

Note: Total may not add up due to rounding.

<sup>95</sup> ElectraNet revenue proposal, p. 97.

Load driven network investment includes expenditure on augmentation, connection, and strategic land and easements. Non-load driven network investment includes replacement expenditure on ageing assets, compliance with legal and regulatory obligations and ensuring the physical security of critical infrastructure. ElectraNet used a probabilistic approach to forecast its load driven investment requirements for the next regulatory control period. ElectraNet highlighted that the primary drivers of its capex are the amended reliability standards set out in the South Australian Electricity Transmission Code (ETC) that applies from 1 July 2008 and the need to replace ageing assets.<sup>96</sup>

ElectraNet has undertaken a deterministic assessment of its non-load driven and non-network expenditure for investments such as replacement, security and compliance, inventory and spares, business information technology, and buildings and facilities.

ElectraNet's revenue proposal also includes 17 contingent projects. The indicative costs for these projects range from \$11 million to \$250 million and totals \$947 million.

ElectraNet's capex proposal is almost double the capex expected to be incurred during the current regulatory period. It noted that significantly higher capital investment is required due to the combined effect of 'volume of work' and 'price of work' cost drivers. Volume of work cost drivers include:

- the amended mandated reliability standards set out in the ETC. The amended ETC is to commence operation on 1 July 2008, the start of ElectraNet's next regulatory control period
- the age profile of ElectraNet's network
- additional investment to address the physical security of critical infrastructure.

Price of work cost drivers include:

- rising wages growth, land escalation values and non-labour construction costs
- the rising price of electricity transmission equipment.

## 4.4 Submissions

The AER received submissions commenting on ElectraNet's capital governance framework and capex proposal from the following interested parties:

- ETSA Utilities (ETSA)
- the Government of South Australia

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<sup>96</sup> The Essential Services Commission of South Australia publishes the South Australian Electricity Transmission Code. ESCOSA, *Electricity Transmission Code ET/05 1 July 2008*, September 2006.

- Flinders Power
- the Energy Users Association of Australia (EUAA)
- the Energy Consumers Coalition of South Australia (ECCSA)
- the District Council of Ceduna
- the Electricity Supply Industry Planning Council (ESIPC).

The main issues raised in relation to ElectraNet’s proposal were:

- the size and projected increase of ElectraNet’s demand forecasts
- the proposed step increases in IT and security budgets
- the uncertainty associated with forecasting capex escalation factors and the increased levels of those escalators
- the value in undertaking further long-term strategic network planning
- the need to ensure the proposed contingent projects satisfy the NER requirements and the costs that can be attributed to a specific project are funded by the proponent of that project rather than spread across all consumers
- its ability to deliver the proposed capex program.

## **4.5 Consultant review**

The AER engaged SKM to provide an independent assessment of the efficiency and appropriateness of ElectraNet’s capital governance framework and capex proposal. Specifically, SKM was required to:

- review the capital governance framework, including capex strategies, policies and procedures
- review the demand forecasts, methodology and information that underpin ElectraNet’s forecast capex program
- assess the adequacy and appropriateness of ElectraNet’s probabilistic forecasting
- review ElectraNet’s capex proposal to ensure it is in accordance with the requirements under clause 6A.6.7 of the NER
- undertake a detailed review of a suite of 12 network and non-network projects
- determine whether the forecast capex program is deliverable
- assess whether each proposed contingent project is reasonably required in order to achieve the capex objectives outlined in clause 6A.6.7 of the NER.

In the event that SKM disagreed with any element of ElectraNet’s capex proposal, SKM was required to:

- outline why the proposal was not in accordance with the NER

- provide an alternative efficient capex cost estimate and/or timing with the justification for the variance if it considered that ElectraNet had over- or underestimated its investment requirements.

As part of its assessment SKM evaluated the documentation provided by ElectraNet in its revenue proposal, sought additional information on specific projects and undertook follow-up discussions with ElectraNet. SKM found from its review of ElectraNet’s forecast capex proposal that:

- the new capital governance arrangements are well developed and represent a significant improvement on previous practices. The planning processes are being actively used, audited and continuously improved and should result in appropriately initiated projects and disciplined implementation
- the asset management approach is sound and in line with good industry practice
- the primary factors driving the capex program were the amended ETC reliability standards and the need to replace ageing assets
- the demand forecasts used to derive connection and augmentation projects are robust and consistent with good industry practice
- the projects were generally prudent and efficient and there were no issues or problems that it considered were serious or likely to be systematic
- the base planning objects (BPOs) used for project costing represent reasonable cost estimates
- the proposed labour escalators were reasonable. However, the proposed land and easement escalators, and non-labour construction cost escalators were overstated
- the proposed cost estimation risk factor provides a reasonable allowance for contingency but there was concern about the ability to verify and quantify the inputs used in the methodology for developing the risk factor
- all of the proposed contingent projects meet the NER requirements—ElectraNet’s substation ballistic proofing project and the line works component of the Adelaide CBD project should be treated as contingent projects.
- the capex program is deliverable.

Table 4.3 shows SKM’s recommended adjustments to ElectraNet’s forecast capex proposal and its recommended forecast capex allowance for the next regulatory control period.

**Table 4.3: SKM’s recommended forecast capex allowance (\$m, 2007–08)**

Category	Total
ElectraNet’s capex proposal	778.1
Adjustments as a result of detailed project reviews	–8.9
Transfer of capex projects to contingent projects	–121.7
Transfer of opex projects to capex	15.9
Adjustments to cost accumulation process	–33.1
SKM’s total recommended adjustments	–147.8
SKM’s recommended capex allowance	630.3

Source: SKM report, p. 175.

SKM considered that ElectraNet’s ex ante capex allowance was likely to be prudent and efficient subject to its recommended reduction of \$149 million. Based on its assessment, SKM recommended a forecast capex allowance of \$630 million (around a 19 per cent reduction to ElectraNet’s proposal) and a provision for contingent projects of \$1069 million based on indicative costs.

Table 4.4 compares ElectraNet’s capex proposal with SKM’s recommended ex ante capex allowance for each year of the next regulatory control period.

**Table 4.4: Comparison of ex ante capex allowance (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
ElectraNet’s proposal	200.2	218.2	164.6	129.5	65.6	778.1
SKM’s recommendation	163.8	146.6	133.2	125.8	61.1	630.3

Source: ElectraNet revenue proposal, p. 65.  
SKM report, p. 175.

## 4.6 Issues and AER considerations

### 4.6.1 ElectraNet governance framework, capex polices and procedures

This section examines whether ElectraNet’s capital governance arrangements and capex policies and procedures are appropriate, and provide a framework that is likely to result in prudent and efficient investment decisions under clause 6A.6.7 of the NER.

#### ElectraNet proposal

ElectraNet has developed detailed policies and procedures that govern its investment decision-making process. Key aspects of some of the policies and procedures are as follows:

1. ElectraNet undertakes a review of system performance to identify any constraints in the augmentation and connection asset categories and,

depending on the outcome, develops solutions following a hierarchy which is generally based on increasing order of costs. Regular joint planning with ETSA is undertaken to ensure that both transmission and distribution solutions are considered in accordance with the NER. The assessment of options selected for network augmentations is made in accordance with the regulatory test.<sup>97</sup>

2. The governance framework is supported by a number of strategic and asset management plans from which projects are initiated and prioritised. These include its:
  - *Network 2025 vision*
  - regional development plans
  - asset management plan
  - critical infrastructure policy
  - IS&T strategic plan
  - facilities management plan
  - strategic land and easement acquisition plan.
3. ElectraNet's internal SAP based accounts have been structured so that each category of transmission services can be separately identified to ensure that its capital cost allocation methodology accords with clause 6A.6.7(b)(2) of the NER. This clause requires a TNSP to properly allocate capex into prescribed and negotiated transmission services.<sup>98</sup>
4. ElectraNet has engaged Powerlink Queensland (Powerlink) to develop detailed capital project scopes and cost estimates.<sup>99</sup>
5. ElectraNet has updated its project management methodology (PMM) that is aimed at ensuring that the owner of the assets is able to maintain control of feasibility works, schematics, design, procurement, and delivery of capital works projects. The PMM provides procedural guidelines that are focused on achieving the specific project goals and ElectraNet has developed these procedures as part of its functional organisational structure. These are available as an ongoing tool on its intranet. The key objectives of the PMM are to help meet market and customer expectations, maximise commercial focus, and assist in better resource management. The PMM manages the project through the following five generic phases:
  - Concept—this stage considers the scope, functional definition and economic aspects.

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<sup>97</sup> ElectraNet revenue proposal, p. 51.

<sup>98</sup> ElectraNet revenue proposal, p. 47.

<sup>99</sup> ElectraNet revenue proposal, p. 56.

- Scope definition—this stage considers the diagrams, standards, budget estimates, outline drawings and regulatory approvals.
  - Delivery planning—at this stage working drawings and specifications are considered and tender invitations are issued.
  - Delivery—this stage considers the awarding of construction contracts.
  - Finalisation—at this stage system check out, training and project acceptance is done.<sup>100</sup>
6. The PMM includes underlying procedures that are supported by project governance documents such as the project action advice, project concept report, project approval report and project change request. It also includes close out reports and approval gateways at every stage.

### Submissions

The EUAA stated that it was concerned that ElectraNet may not be sufficiently considering demand side management (DSM) options to address network constraints.<sup>101</sup>

### Consultant review

SKM was required to assess whether ElectraNet’s capital governance framework was consistent with achieving efficient investment outcomes.

SKM found that:<sup>102</sup>

- Subject to some concerns (discussed below), ElectraNet has reasonably considered likely solutions to address investment needs and that optimal projects are selected.
- As a result of the updated project management and governance framework, ElectraNet’s governance processes are in line with good industry practice. The PMM forms and policies are well documented for each step of the project. Although the PMM is still being fully implemented, albeit at an advanced stage, there is evidence that it is actively used, audited and continuously improved. Problems associated with split responsibility are avoided by appointing a project manager that has carriage of the project from phase 1 to delivery.
- ElectraNet’s overall asset management approach is sophisticated and in line with good industry practice. Detailed condition assessment of all plant has provided a robust approach to assessing system risk and allocating project priorities. There is evidence of integration of policies, procedures and systems (including SAP and project server software) which is a good framework for ensuring good management and decision making.

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<sup>100</sup> ElectraNet response to information request no. 10, confidential, submitted 9 September 2007.

<sup>101</sup> Energy Users Association of Australia, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 12.

<sup>102</sup> SKM report, pp.14–17.

- Costs estimates reviewed by SKM were in line with its view of reasonable estimates. It noted that ElectraNet had implemented a new cost estimating system developed by Powerlink which was considered to be sophisticated and robust. Rigorous change control and approval mechanisms are in place to manage any scope or cost changes.
- Based on its detailed review of a sample of projects, SKM concluded that ElectraNet has appropriately separated the capex required to provide prescribed transmission services from negotiated transmission services.<sup>103</sup>
- SKM considered that ElectraNet’s capital governance framework is well developed and is confident that it will result in appropriately initiated projects and proper implementation, although the effectiveness of the new initiatives will be borne out only after the process is fully implemented. Based on its detailed review of projects, SKM stated that there is evidence that the governance framework is being used and actively enforced, with rigorous management reporting and compliance auditing being undertaken.
- However, SKM considered that some areas could be improved. It observed that:
  - procedures related to developing alternative project options are not as detailed as required or sufficiently prescriptive
  - separation of responsibility between project governance and delivery may be warranted instead of the ‘project sponsor’ being responsible from inception to delivery
  - certifying engineering consultants are appointed by the design engineers and there is no requirement that verifiers be rotated or that ElectraNet appoint them independently
  - while obvious alternative solutions are considered, ElectraNet has not sufficiently demonstrated that non-network alternatives such as DSM is robustly pursued other than through the consultation process.

Overall, SKM was satisfied that ElectraNet’s governance framework was in line with good industry practice.

#### **AER considerations**

The AER notes that SKM has identified some areas that could be changed to improve ElectraNet’s capital governance framework. It also notes that SKM has not recommended any changes to ElectraNet’s forecast capex based on its findings. Nevertheless, the AER considers that ElectraNet’s incorporation of these suggested changes to its governance framework could result in better implementation of its projects and thereby enhance the efficiency of its investment decisions.

The EUAA stated that it was concerned that ElectraNet had not demonstrated that it had sufficiently considered non-network solutions, including DSM options, when developing its capex program.

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<sup>103</sup> *ibid.*, p. 85.



The AER notes that SKM had some concern that ElectraNet was depending on the consultation process to identify non-network options and that there was little evidence that such options were being actively pursued. The AER sought further information from ElectraNet about its processes for identifying non-network options and examples of DSM solutions adopted or actively sought.

ElectraNet stated that it considers DSM at the planning stage and targets any known or possible businesses that can provide services and invites them to actively participate in the public consultation process. It also stated that it is supportive of entering into DSM contracts. The AER was also provided an example where, due to a possible new connection load identified by ETSA, ElectraNet is currently evaluating a DSM option as an alternative to more expensive network augmentation. Further, it noted the receipt of a DSM proposal in response to a request for information published jointly with ETSA in March 2007.<sup>104</sup> The AER considers that ElectraNet has provided information that demonstrates it seeks DSM options as a possible solution to address constraints.

The AER accepts SKM's advice, based on its overall review of the governance framework and the detailed review of a sample of projects, that ElectraNet's capital governance framework contains appropriate controls, checks, accountability, reviews and approval gateways, and is consistent with good industry practice. It also accepts SKM's findings that ElectraNet has appropriately separated the capex required to provide prescribed transmission services from negotiated transmission services. Therefore, the AER is satisfied that ElectraNet's capital governance framework is likely to result in efficient and prudent investment decisions.

#### **4.6.2 Probabilistic planning approach**

This section discusses whether ElectraNet's probabilistic planning approach, which it used to develop its forecast annual load driven capex profile, is a robust methodology and is likely to provide a reasonable outcome.

##### **ElectraNet proposal**

ElectraNet used a probabilistic approach to develop its capex forecast to account for the uncertainty surrounding generation and load developments in South Australia during the next regulatory control period.<sup>105</sup> ElectraNet engaged ROAM Consulting (ROAM) to produce probabilistic generation planting scenarios that are consistent with ElectraNet's demand forecasts, under a range of other assumptions. The assumptions in addition to demand forecasts related to inter-regional trade and greenhouse gas abatement policy changes.<sup>106</sup> Seven elements made up ROAM's probabilistic planning approach:<sup>107</sup>

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<sup>104</sup> ElectraNet response to information request no. 239, confidential, submitted 29 October 2007.

<sup>105</sup> ElectraNet revenue proposal, pp. 53–55.

<sup>106</sup> ROAM Consulting is a provider of energy market modelling services ([www.roamconsulting.com.au](http://www.roamconsulting.com.au)).

<sup>107</sup> ROAM Consulting, *2007 South Australian generation and load scenario analysis*, May 2007, pp. 2–15

1. The identification of theme sets that will impact on the development of ElectraNet's network including load growth, inter-regional trade and the introduction of a carbon tax. In consultation with ElectraNet and ESIPC, the development of each theme set was allocated a probability of proceeding.
2. The development of 18 scenarios as set out in table 4.5. Each possible combination of the three theme sets ( $3 \times 3 \times 2$ ) forms a scenario and determines the top down probability of that scenario eventuating.<sup>108</sup>
3. The identification of the scenario dependent generation developments (e.g. technology type, location, size and fuel type).
4. Analysis was undertaken to derive the weighting applicable to each generation project assumed to proceed within the given scenario. This was to account for the uncertainty relating to which of the various prospective generation developments will be developed under each particular theme. This was not captured in the top down probabilities.
5. The initial scenario probabilities were calculated from a combination of the top down and bottom up probabilities.
6. The initial scenario probabilities were moderated to account for the minimum reserve margin.<sup>109</sup>
7. For completeness, the final project probabilities included a number of generation projects that were not utilised in any of the scenarios because they were deemed unsuitable for the bottom up scenario undertaken in element four. ROAM considered some projects, which typically involved wind farms or sub-critical baseload power stations, were unlikely to proceed under the studied market conditions.

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<sup>108</sup> Scenario probability = (load growth probability)  $\times$  (inter-regional trade probability)  $\times$  (carbon probability).

<sup>109</sup> The minimum reserve margin condition is defined as having sufficient plant (or firm interconnection capability, demand side management) to supply peak 10 per cent probability of exceedence (POE) demand, plus the assumed reserve margin. NEMMCO reviewed the minimum reserve levels in 2006. South Australia presently has a local minimum reserve margin of -50 MW, meaning that a minimum local generation level equal to its 10 per cent POE maximum demand, less 50 MW, is required to meet the reliability criteria.

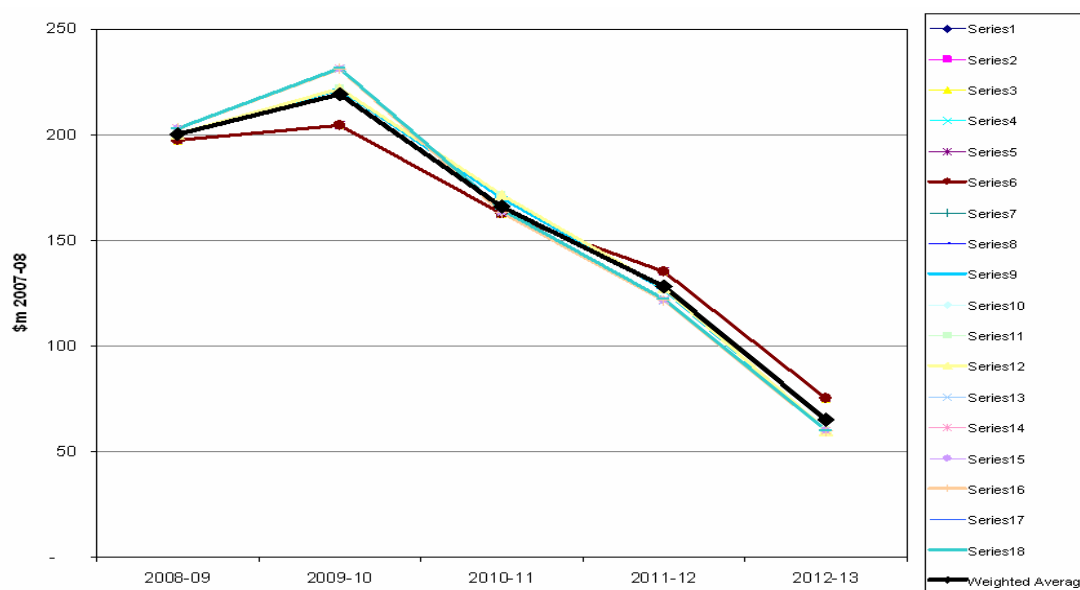
**Table 4.5: ROAM’s market development scenarios and associated probabilities**

Load growth theme		Inter-regional trade theme		Carbon value theme	
Low (25 %)	Low load growth, with addition of occasional industrial loads and delayed expansion of Olympic Dam	Neutral (50 %)	‘As is’ inter-regional trading	Low (60 %)	‘As is’ carbon values/ abatement schemes
Medium (50 %)	Moderate load growth, with addition of industrial loads, and forecast timing for expansion of Olympic Dam	Export (35 %)	Significantly higher average power export from South Australia	High (40 %)	Significantly increased carbon value and rollout of carbon abatement schemes
High (25 %)	High load growth, with addition of industrial loads, and forecast timing for expansion of Olympic Dam	Import (15 %)	Significantly higher average power import to South Australia	n/a	n/a

Source: ElectraNet revenue proposal, p. 54.

ElectraNet derived its load driven capex forecasts from a combination of the capex requirements determined under each of the 18 scenarios. It noted there is little variation, less than \$4 million, in the capex requirements across the 18 scenarios because the majority of projects are required irrespective of the level of demand growth and where generation is located to meet this demand. Figure 4.1 illustrates this variation.

**Figure 4.1: ElectraNet’s capex profile for each of the 18 scenarios (\$m, 2007–08)**



Source: ElectraNet response to information request no. 221, confidential, submitted 5 October 2007.

ElectraNet stated that 90 per cent of network projects included in its forecast capex program are required to be completed within the next regulatory control period irrespective of whether demand growth follows the high, medium or low demand forecast and irrespective of where new generation sources locate to meet the growth in demand.<sup>110</sup> ElectraNet has catered for different combinations of generating plant and big industrial loads by means of the contingent project mechanism.

Non-load driven and non-network projects were prepared deterministically as the requirements for these projects were not dependent on demand forecasts or the location of future generation. For example, replacement projects were determined based on condition assessment and asset replacement recommendation reports and IT projects were determined based on historical expenditures. As a result, the same non load driven and non-network capex appears in each scenario.

The weighted average of the scenario based capex sought by ElectraNet for the next regulatory control period is \$778 million.

### **Submissions**

Flinders Power supported the greater reliance ElectraNet has placed on anticipated capital projects in determining the capex allowance, which it considered to be an improvement on the previous approach of relying on a probabilistic assessment of potential scenarios.<sup>111</sup>

The EUAA, while accepting that the approach taken by ROAM was a reasonable method for dealing with the complexity and uncertainty associated with future generation, noted that the sophistication of the scenario analysis detracts from the assumptions underlying it—specifically, the need, timing and cost estimates for individual projects.<sup>112</sup>

The ESIPC stated that:<sup>113</sup>

- it participated with ElectraNet and contributed to the development of the 18 scenarios
- it supported ElectraNet’s approach to remove any uncertain projects from its ex ante capex allowance
- its assessment of ElectraNet’s proposed capex program showed the projects match the identified emerging network limitations.

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<sup>110</sup> ElectraNet revenue proposal, p. 63.

<sup>111</sup> Flinders Power, *ElectraNet transmission network revenue proposal—2008/09 to 2012/13 submission*, 17 August 2007, p. 1.

<sup>112</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 18.

<sup>113</sup> Electricity Supply Industry Planning Council, *ElectraNet transmission network revenue proposal submission*, August 2007, p. 10.

### **Consultant review**

SKM reviewed the probabilistic planning approach and found that:<sup>114</sup>

- The scenario analysis is a key input into ElectraNet’s capex forecasting in respect of the location of future generation to meet demand growth for the purpose of modelling future network limitations.
- ElectraNet has used the scenario analysis to model the transmission network and identify the need for augmentation and connection point reinforcements.
- The methodology used in the development of the scenarios, leading to predicted generation plant development is robust.
- Given that a majority of the capex program is driven by connection point demand and ETC requirements, the use of scenario analysis in the development of the forecast capex program has little consequence on the overall capex program.
- Because of the removal of any uncertain projects it is unsurprising that the forecast capex program is largely independent of the 18 scenarios.

### **AER considerations**

SKM has reviewed ROAM’s methodology used in the development of the 18 scenarios for ElectraNet’s forecast capex and found it to be robust. It noted that ROAM’s scenario analysis has minimal impact on ElectraNet’s capex program because:

- the amended ETC reliability standards impose time-constrained connection point requirements on ElectraNet. These new standards in the ETC are driving a large proportion of ElectraNet’s capex program, and are by definition independent of the location of planned or predicted generation and load growth theme set
- there are few major constraints on the backbone of the network at this time, and no major new line developments are proposed which would be sensitive to generation development.<sup>115</sup>

SKM concluded that, given the current requirements of the South Australian network and that there are no major projects driven by generation development or backbone constraints, the capital requirement under each of the 18 scenarios is very similar.

The AER considers that SKM’s observations provide an insight into the drivers and composition of ElectraNet’s capex proposal. ElectraNet’s analysis based on ROAM’s generation scenarios show that the underlying factors driving ElectraNet’s forecast capex are not drastically influenced by the location of future generation or the introduction of a carbon trading scheme. Overall, it appears to the AER that ElectraNet’s forecast capex program, while based on a probabilistic approach, is

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<sup>114</sup> SKM report, pp. 22–24.

<sup>115</sup> There are some which are proposed as contingent projects, e.g. Taillem Bend to Tungkillo 275 kV, Parafield Gardens West, Heywood interconnection, and Para – Brinkworth – Davenport.

generally consistent with a deterministic approach given the small variance in outcomes between the modelled scenarios.

The ESIPC supported ElectraNet's approach to remove any uncertain projects from its capex program. It considered that the load driven projects, taken together, constitute a reasonable development program to meet the emerging network limitations over the next regulatory control period. The AER considers that the ESIPC's role and involvement in the development of the scenarios provides assurance as to the objectiveness of ElectraNet's forecast capex proposal.

The AER agrees with SKM's conclusion that ROAM's probabilistic scenario planning methodology is robust. However, it notes the EUAA's comments and considers that a definitive view on the efficiency of ElectraNet's capex program can only be obtained by examining the need, timing, scope and cost estimates of the projects that make up the overall capex program. The AER has reviewed a sample of projects from ElectraNet's capex categories and also reviewed the cost estimation process to determine the reasonableness of the overall capex program. Discussion on the AER's review of specific projects and the cost estimation process is set out in sections 4.6.5 and 4.6.6 respectively.

### **4.6.3 Demand forecasts**

The expected growth in electricity demand is an important factor driving the need to augment electricity networks. Demand forecasts are used in conjunction with network planning to determine the amount and timing of load driven expenditure. ElectraNet and the ESIPC both publish annual 10-year demand forecasts for South Australia. This section discusses whether ElectraNet's demand forecasts can reasonably be relied upon for the purposes of developing its load driven capex requirements over the next regulatory control period.

#### **ElectraNet proposal**

ElectraNet stated that growth in demand is the principal driver of transmission system augmentation and connection point reinforcement. In determining its capex forecast, ElectraNet has relied heavily upon the connection point demand forecasts independently provided by ETSA and its direct-connect customers.<sup>116</sup>

ElectraNet noted that historical increases in agreed maximum demand (AMD) have generally followed the medium growth connection point forecast.<sup>117</sup> For this reason, ElectraNet's load driven capex forecast is based on the medium demand forecast provided by ETSA.

To compare its forecast with the medium growth forecast included in NEMMCO's 2006 *Statement of opportunities* (SOO) on a like-with-like basis, ElectraNet applied a

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<sup>116</sup> ETSA provides ElectraNet with three types of demand forecasts representing high, medium and low economic activity under summer peak demand conditions.

<sup>117</sup> AMD is the maximum demand specified in the connection agreement between a TNSP (ElectraNet) and a transmission customer or DNSP (ETSA) for a connection point or group of connection points.

four per cent diversity factor to its connection point forecast, and subtracted assumed embedded and non-scheduled generation and direct load curtailments.<sup>118</sup> ElectraNet then added new direct-connected customer demand to the SOO forecast, and subtracted transmission and power station auxiliary losses. ElectraNet stated that its adjusted medium growth connection point forecast shows a close alignment with the adjusted SOO forecasts. Table 4.6 sets out this comparison.

**Table 4.6: Comparison of ElectraNet’s 2007 adjusted connection point load with NEMMCO 2006 adjusted SOO forecasts (summer peak-demand, medium economic growth, MW)**

	2008–09	2009–10	2010–11	2011–12	2012–13
ElectraNet 2007 demand forecasts	3460	3582	3692	3789	4180
NEMMCO 2006 SOO (adjusted)	3512	3608	3675	3726	4064

Source: ElectraNet revenue proposal, p. 53.

### Submissions

ETSA stated that it has used best endeavours to produce its connection point demand forecasts and considered its demand forecasts were sound. It commented that, in determining system peak-demand, adverse weather conditions and diversity between each customer’s summer peak-demand and their demand at the time of the connection point peak demand needs to be accounted for. The impact of this needs to be considered when reviewing the level of actual demand against the demand forecast at each connection point.<sup>119</sup>

The ESIPC supported the connection point forecasts used in ElectraNet’s revenue proposal.<sup>120</sup>

The ECCSA considered there is a sizeable jump and a dramatic increase in the revenue sought by ElectraNet compared to its demand forecasts.<sup>121</sup>

### Consultant review

From its review of ElectraNet’s demand forecasts, SKM considered that:<sup>122</sup>

- the demand forecasts used to derive the connection and augmentation projects are robust and consistent with good industry practice
- ETSA’s connection point demand forecasts used by ElectraNet were developed using good industry practice

<sup>118</sup> ElectraNet revenue proposal, pp. 52–53.

<sup>119</sup> ETSA Utilities, *ElectraNet transmission revenue reset 2008–13*, 17 August 2007.

<sup>120</sup> ESIPC, *ElectraNet transmission network revenue proposal submission*, August 2007, p. 9.

<sup>121</sup> Energy Consumers Coalition of South Australia (ECCSA), *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 11.

<sup>122</sup> SKM report, pp. 18–23.

- it is reasonable for transmission planning purposes that ElectraNet makes no allowance for existing or planned wind farms connected to the transmission system
- the comparison between the ESIPC's base case 10 per cent probability of exceedence (POE) forecast and the aggregated connection point demand forecast shows a high degree of consistency
- the ESIPC's reconciliation provides further confidence in the connection point forecasts used as the primary input into the planning studies by ElectraNet.

### **AER considerations**

#### *ElectraNet connection point forecasts*

The AER notes that ElectraNet has applied a bottom up approach to develop forecast demand growth in South Australia. In June 2007, ElectraNet released its 2007 annual planning review.<sup>123</sup> The demand forecasts contained in this review are the sum of the summer peak-demand forecasts for all of ElectraNet's connection exit points for each year.

ETSA is the primary customer for the majority of these connection exit points and the remainder consist of directly connected customers. The South Australian summer peak load recorded in 2007 did not exceed that recorded in 2006. On that basis, ETSA used its 2006 load forecast for each connection point, with the exception of six connection points.<sup>124</sup> ETSA provided three forecasts at each of its connection points, a medium, low case and high case forecast. These forecasts are generally comparable to medium or base case, low and high case economic growth trends respectively. In its submission, ETSA stated that the forecasts are sound and should be relied upon for the purpose of ElectraNet's revenue determination. SKM considered that ETSA's connection point demand forecasts were developed using good industry practice.

ElectraNet engaged ROAM to conduct a reconciliation of its 2007 bottom up forecasts. In the absence of 2007 top down forecasts, ROAM relied on the summer peak-demand forecasts published in the SOO. Its reconciliation compared the high, medium and low connection point forecasts with the respective high, medium and low 10 per cent POE forecasts in the SOO. ROAM used the same reconciliation methodology as that undertaken by the ESIPC in its 2006 *Annual planning report* (APR).<sup>125</sup> It found that ElectraNet's 2007 connection point demand forecasts exhibit a significant correlation with those produced using the SOO forecasts.<sup>126</sup> The AER considers that ROAM's reconciliation methodology was robust; however, it does not necessarily provide a true indication of the accuracy of ElectraNet's 2007 demand

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<sup>123</sup> ElectraNet, *Annual planning review 2007–2017*, June 2007.

<sup>124</sup> Snuggery Rural, Mobilong and Whyalla Terminal all recorded new peak-load values. Lower than expected industrial growth reduced the Western Suburbs forecast. Tailern Bend and Dalrymple also had reduced forecasts. ElectraNet, *Annual Planning Review 2007–2017*, June 2007, pp. 18–19.

<sup>125</sup> ESIPC, *Annual planning report*, June 2006, p. 17.

<sup>126</sup> ROAM Consulting, *2007 South Australian generation and load scenario analysis*, May 2007, pp. 18–19.



forecasts, given the unavailability of updated and comparable 2007 top down demand forecasts at the time ROAM undertook its reconciliation.

### *ESPIC forecasts*

The AER notes that the ESIPC forecasts and publishes demand forecasts for South Australia. The ESIPC is a statutory corporation formed in 1999 under the *Electricity Act 1996* (SA) as part of the restructuring of the South Australian electricity industry.<sup>127</sup> It was established to:

- review the development plans of the private industry participants against the forecast needs of consumers
- provide independent, expert advice to the South Australian Government and the Essential Services Commission of South Australia (ESCOSA)
- fulfil a number of South Australian representative roles in the NEM.

The ESIPC is responsible for preparing and publishing the APR for South Australia. It released the 2007 APR containing its demand forecasts in June 2007. Consistent with its previous APRs, the ESIPC used the economic assumptions prepared by the National Institute of Economic and Industry Research (NIEIR) as the basis for its 2007 demand forecasts. NIEIR prepared high, base case and low global economic forecasts.<sup>128</sup>

The ESIPC employed a new methodology to that used in previous APRs in developing its 2007 summer peak-demand forecasts. With the assistance of Monash University's Business and Economic Forecasting Unit, the ESIPC applied a top-down econometric approach to forecast demand. The new methodology involved the construction of 48 economic models that represent each half hour NEM trading interval. The ESIPC then populated the models with NIEIR's high, base case and low economic forecasts and specific information regarding the possible expansion of a number of major mining projects.<sup>129</sup> Several thousand demand traces were created using simulated half-hour temperature and residual profiles and the probability distribution of the peak demand estimated for each of the next 10 summers.<sup>130</sup> Different POE levels were used to incorporate variability in weather conditions and other random components of demand.

The ESIPC stated that its intention is to develop forecasts that are conditional only on economic conditions and not on the timing or the absence of unusual weather events on the day that the summer peak-demand occurs.<sup>131</sup> It stated that the forecast POE levels appeared consistent with NIEIR's forecast economic assumptions.

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<sup>127</sup> Under section 6E of the *Electricity Act 1996* (SA).

<sup>128</sup> ESIPC and other jurisdictional planning bodies use NIEIR's economic assumption to maintain a consistent basis to estimate demand forecasts across the NEM, such as those contained in the SOO.

<sup>129</sup> ESIPC, *Annual planning report*, June 2007, pp. 24–25.

<sup>130</sup> Demand trace provides an estimate of what might happen under different temperature profiles and if random (unexplained) effects occur. *ibid.*, pp. 24–25.

<sup>131</sup> *ibid.*, p. 19.

The ESIPC projected the 10 per cent POE demand to grow by 2.3 per cent annually on average under the base case economic assumptions, around 1.0 per cent under the low case and 4.9 per cent under the high case.<sup>132</sup>

The AER notes that the ESIPC’s base case 10 per cent POE forecast for 2007–08 is 3473 MW, some 240 MW lower than that forecast in its 2006 APR.<sup>133</sup> The ESIPC stated that the revision between its 2007 and 2006 APRs reflects its new forecasting methodology. The 2007–08 low and base case demand forecasts do not include the major expansion of Olympic Dam proposed by BHP Billiton (BHP). The ESIPC’s base 10 per cent POE demand forecasts for the next regulatory control period are set out in table 4.7.

**Table 4.7: ESIPC’s summer peak-demand forecasts (MW)**

	2008–09	2009–10	2010–11	2011–12	2012–13
ESIPC 2007 state-wide summer native demand, base case 10 % POE	3473	3535	3574	3644	3736

Source: ESIPC, *Annual planning report*, June 2007, p. 9.

The ESIPC noted that there is no formal link between the connection point forecasts used for network planning and the overall state-wide peak demand forecasts; however, it endeavours to reconcile the two sets of forecasts to ensure that network planning is done on a consistent basis with expected state-wide peak demand levels.<sup>134</sup> The reconciliation process undertaken by the ESIPC includes adjusting the state-wide forecasts to reflect assumed losses and generator house loads, deducting for embedded generation and assumed DSM, and the application of a diversity factor.

The ESIPC’s 2007 reconciliation between its base case 10 per cent POE state-wide demand forecasts and ElectraNet’s medium connection exit point demand forecasts showed a high level of consistency during the near term, with differences of around 100 MW or less than two per cent during the next regulatory control period.<sup>135</sup> Figure 4.2 depicts the ESIPC’s reconciliation.

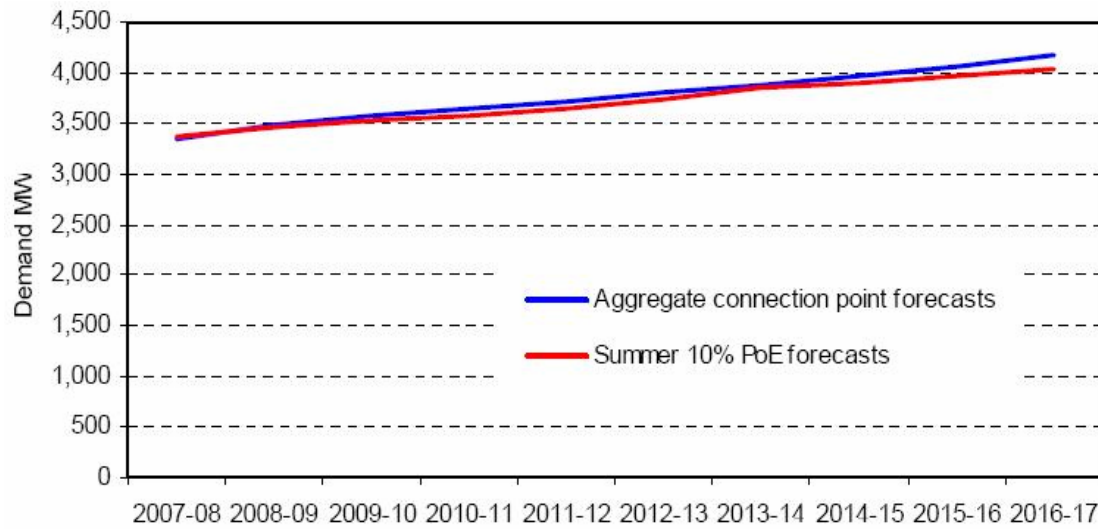
<sup>132</sup> *ibid.*, p. 26.

<sup>133</sup> *ibid.*, p.21.

<sup>134</sup> *ibid.*, p. 27.

<sup>135</sup> *ibid.*, pp. 27–28.

**Figure 4.2: ElectraNet’s connection point demand forecasts reconciled with the ESIPC’s state-wide demand forecast**



Source: ESIPC, *Annual planning report*, June 2007, p. 29.

In its submission, the ESIPC indicated these differences were likely to be reflective of the economic assumptions it used and considered they were immaterial within the context of network planning. It endorsed the use of the demand forecasts contained in ElectraNet’s revenue proposal.

The AER considers that the ESIPC’s reconciliation of ElectraNet’s demand forecasts confirms that these forecasts are reasonable and therefore provides an appropriate basis to determine the capex requirements.

SKM noted that the reconciliation undertaken by the ESIPC provides further confidence in the connection point forecasts used by ElectraNet. The AER agrees with SKM’s conclusion that there is a high degree of correlation between the ESIPC’s reconciled top down econometric forecasts and ElectraNet’s bottom up connection point forecasts.

The ESIPC also undertook a back-cast of its demand forecasts for the past 10 years. It concluded that the back-cast POE estimates appeared consistent with historical economic data.<sup>136</sup> The ESIPC also concluded the pattern of behaviour in peak demand POE levels was consistent with the course of annual energy volumes observed in South Australia over this period. The AER considers that a back-cast review, such as that undertaken by the ESIPC, perform an important appraisal of the forecasting methodology and promote continuous improvement to the planning process. The inclusion of such a review would provide greater assurance that the demand forecasts underpinning a TNSP’s capex proposal are reliable.

<sup>136</sup> *ibid.*, p. 25.

### ***Conclusion***

The AER accepts that SKM's review found the demand forecasts used by ElectraNet, as the basis for developing its network planning and capex program, to be reasonable. The AER also notes that the results of the ESIPC's reconciliation provide a high degree of confidence in the reliability of the demand forecasts. Overall, the AER considers that ElectraNet's connection point demand forecasts form an appropriate basis to develop the proposed capex program. It is satisfied that ElectraNet's demand forecasts represent a realistic expectation of the demand forecast.

The ECCSA stated that the revenue sought by ElectraNet needs to be compared with the demand forecasts. The AER considers that such a comparison may be overly simplistic because the revenues are comprised of a number of building blocks which are not solely related to demand forecasts. To ensure ElectraNet's allowed revenues—specifically, the capex proposal—are efficient, the AER has reviewed the demand forecasts as well as other factors driving the capex program. The AER has also reviewed a sample of the proposed capex projects and the cost accumulation process to determine their reasonableness. Discussion on the AER's review of specific projects and ElectraNet's cost accumulation process can be found in sections 4.6.5 and 4.6.6 respectively.

#### **4.6.4 Network planning criteria**

This section examines whether ElectraNet's planning criteria is consistent with the NER and its legislative obligations. This section also discusses ElectraNet's network planning criteria, the ESIPC's role as the South Australian network planner and the effect that the amended reliability standards has on ElectraNet's forecast capex requirements over the next regulatory control period.

Network planning criteria form the basis for assessing the requirement for and design of load driven capex. A key element of ElectraNet's planning criteria is the ETC. The ESCOSA issued amended reliability standards for the South Australian network that are set out in the ETC which commences operation on 1 July 2008, the start of ElectraNet's next regulatory control period.

#### **ElectraNet proposal**

##### ***Network planning***

ElectraNet noted that its planning responsibilities are primarily set out in clauses 5.6.2, 5.6.2A, 5.6.6 and 9.28.3 of the NER. It also noted that the ESIPC is responsible for network planning in South Australia and that its capex program has been developed in conjunction with the ESIPC. ElectraNet's *Network 2025 vision* consultation paper sets out its objectives, principles and vision for the management and development of the transmission network, and a framework for developing expenditure plans.<sup>137</sup> It published the *Network 2025 vision* consultation paper to aid in discussion with the government, industry, user groups and community stakeholders on how to best plan for the long term needs of the South Australian electricity network.

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<sup>137</sup> ElectraNet, *Network 2025 vision consultation paper*, November 2006.

Further, its *Network 2025 vision* forms the basis for its more detailed regional development plans (RDPs) and five-year *Asset management plan 2007 to 2012* (AMP). ElectraNet's annual planning review is derived from information within the RDPs.

### ***Electricity Transmission Code***

The ESCOSA administers ElectraNet's licence for operating the South Australian electricity transmission network. As a condition of this licence, ElectraNet must comply with the ETC. The NER also requires ElectraNet to comply with all relevant regulatory obligations, which includes the ETC.

The ETC specifies reliability standards for N, N-1 and partial N-2 capacity across a number of load categories and allocates each transmission exit point into one of these categories.<sup>138</sup> ElectraNet noted that the ETC requires it to use its best endeavours to correct any breach of the reliability standards within one year, and in any event no later than three years after the commencement of the amended reliability standards on 1 July 2008. For each new connection point, ElectraNet must seek the ESCOSA's approval for the applicable reliability standard and load category.

ElectraNet stated that the amended reliability standards at a number of connection points result in the requirement to augment its network during the next regulatory control period. The most significant of these requirements is to provide additional capacity to the Adelaide central business district (CBD) for 100 per cent of the AMD under an N-1 condition.

ElectraNet considered that the ETC is an important driver of the level of investment needed to deliver the required capacity at connection points and to the transmission system. It stated that the ETC obligations and growth in customer demand drive around 50 per cent of its capex program.

### **Submissions**

The ESIPC stated that the ETC provides clear reliability standards for each transmission connection point in South Australia.<sup>139</sup> It supported the reliability standards applicable in South Australia and considered that ElectraNet must be allowed to earn revenue commensurate with achieving these standards on a 'lowest cost' basis.

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<sup>138</sup> N reliability is where the transmission system is planned and developed to supply the maximum demand, provided that all network elements are in service. This means that the loss of a single transmission element (a line, a transformer or other associated equipment) could cause supply interruption to some customer. N-1 reliability provides a higher level of reliability. It means that no customers would be affected even with any one network element out of service.

<sup>139</sup> ESIPC, *ElectraNet transmission network revenue proposal submission*, August 2007, p. 5.

## Consultant review

From its review of ElectraNet’s network planning SKM found that:

- the *Network 2025 vision* was developed to address long-term load growth, ageing network assets, regulatory requirements and customer expectations
- the RDPs and the AMP are developed to support the planning strategies and feed into the capital and maintenance work programs
- ElectraNet’s asset management approach has been reviewed and updated in recent years, and is sound and consistent with good industry practice
- recent amendments to the ETC have changed the security of supply criteria at a number of connection points, requiring additional redundancy. This is driving a significant portion of the capex proposed by ElectraNet for the next regulatory control period, most notably the Adelaide CBD project
- the timing of a number of augmentation projects is driven by the grace period obligations contained in the ETC and that it may be possible to seek an extension of time for some of the lower priority ETC projects.

## AER considerations

### *Network planning*

ElectraNet’s *Network 2025 vision* consultation paper outlines its long-term network planning strategy and the development of this vision provided stakeholders an opportunity to review and comment on it. ElectraNet incorporated stakeholder comments into its *Network 2025 vision* information paper. The information paper identifies three long-term objectives—‘safe, secure and value for money’—for the electricity transmission network. To achieve these objectives, ElectraNet has established a set of guiding principles and strategies.

SKM noted that the guiding principles and strategies outlined in ElectraNet’s *Network 2025 vision* were developed to address long-term load growth, ageing assets, regulatory requirements and customer expectations. The AER considers that ElectraNet’s *Network 2025 vision* is an informative and useful publication and that engaging stakeholder consultation is a constructive step for providing effective ongoing and long-term network planning.

The AER notes that ElectraNet’s RDPs are based on a 20-year outlook of the transmission network and considers a range of plausible generation and load growth scenarios. The RDPs outline:

- the augmentation and replacement projects
- possible future interconnection, generation and regional economic development
- regional reliability based on network configuration
- the management of regional voltage levels
- the most efficient regional network configuration
- future easement, land acquisition and environmental issues.

SKM noted that ElectraNet's AMP was developed as part of the *Network 2025 vision* strategy and is based on a five-year planning cycle that is reviewed annually. Both the AMP and the RDP were developed to support the asset and planning strategies that feed into ElectraNet capital and maintenance works programs. Overall, the AER agrees with SKM's findings that ElectraNet's network planning is sound and consistent with good industry practice.

### ***Electricity Transmission Code***

Section 28(1) of the *Essential Services Commission Act 2002* (SA) provides that the ESCOSA may make codes or rules relating to the conduct or operations of a regulated industry or regulated entities. Section 28(2) provides that the ESCOSA may vary or revoke a code or rules made under that section.

The AER notes that the ESCOSA undertook extensive public consultation to review the reliability standards in the ETC.<sup>140</sup> In the first stage of the review process the ESCOSA requested the ESIPC to review the transmission connection point reliability standards. The ESIPC undertook an economic assessment of the capital cost of moving to the next reliability category compared to the value of the increased reliability that would be delivered to the relevant connection point.<sup>141</sup> The AER notes that the information provided by ElectraNet shows that the South Australian network reliability standards based on the ETC are no higher than in other jurisdictions. In particular, the new Adelaide CBD standard provides an N-1 transmission standard that is already applied in other jurisdictions.<sup>142</sup>

Two features of the amended ETC are of particular importance to the AER's consideration of ElectraNet's capex proposal: first, the grace period that ElectraNet has to correct any breach in the revised reliability standards and, second, the requirements set out in clause 2.10 relating to the category 6 load for Adelaide CBD.

The grace period assigns the timeframe ElectraNet has to address any breach in the ETC reliability standards. In particular, whenever the AMD at a connection point or group of connection points exceeds the equivalent transformer capacity standard required for category 2, 3, 4, 5 and 6 loads, ElectraNet must:

- (a) use its best endeavours to ensure that the equivalent transformer capacity at the connection point or group of connection points meets the required standard within 12 months; and

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<sup>140</sup> The ESCOSA commenced the review in August 2004 when it requested the ESIPC to evaluate the transmission connection point reliability standards listed in the ETC. The ESIPC reported to the ESCOSA in October 2005. In February 2006, the ESCOSA released a discussion paper on the review of clause 2.2.2 of the ETC, and received six submissions. In June 2006, the ESCOSA released its draft decision and received four submissions. The ESCOSA released its final decision on the *Review of the reliability standards specified in clause 2.2.2 of the Electricity Transmission Code* accompanied with the *Electricity Transmission Code ET/05* in September 2006. The ESCOSA's discussion paper, draft and final decisions and all submissions are available at [www.escosa.sa.gov.au](http://www.escosa.sa.gov.au).

<sup>141</sup> ESIPC, *Transmission code review*, October 2005, p. 5.

<sup>142</sup> ElectraNet response to information request no.ed 216, confidential, submitted 22 October 2007.

- (b) ensure that the equivalent line capacity or equivalent transformer capacity at the connection point or group of connection points meets the required standard within 3 years.<sup>143</sup>

The AER notes that the grace period obligates ElectraNet to correct any breach in the ETC reliability standards within three years. The AER sought further information from ElectraNet on the breakdown of the annual capex required as a direct result of the amended ETC reliability standards. Table 4.8 sets out ElectraNet's proposed capex program for the next regulatory control period with the augmentation and connection categories allocated into key drivers: the ETC requirements, load growth, new distribution connection points and other augmentation and connection expenditure.

**Table 4.8: ElectraNet's proposed capex by category—including key drivers of augmentation and connection category (\$m, 2007–08)**

Category	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Augmentation and connection	114.1	121.2	90.2	45.6	14.4	385.6
Amended ETC	58.9	61.3	50.1	8.1	0.3	178.7
Load growth	29.2	38.8	21.6	28.9	11.3	129.8
New distribution connection points	15.8	11.4	12.3	4.3	0.0	43.9
Other augmentation and connection expenditure	10.2	9.7	6.2	4.3	2.8	33.2
Replacement	46.9	66.7	36.8	59.6	30.4	240.3
Strategic land/easements	6.5	4.4	7.7	2.6	2.7	23.9
Security/compliance	9.8	16.6	20.3	13.1	10.6	70.4
Inventory/spares	6.3	2.4	2.4	2.4	2.4	15.7
Business IT	7.3	6.2	6.8	5.2	3.2	28.8
Buildings/facilities	9.5	0.6	0.4	1.0	1.7	13.3
Total capex	200.2	218.2	164.6	129.5	65.5	778.1

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

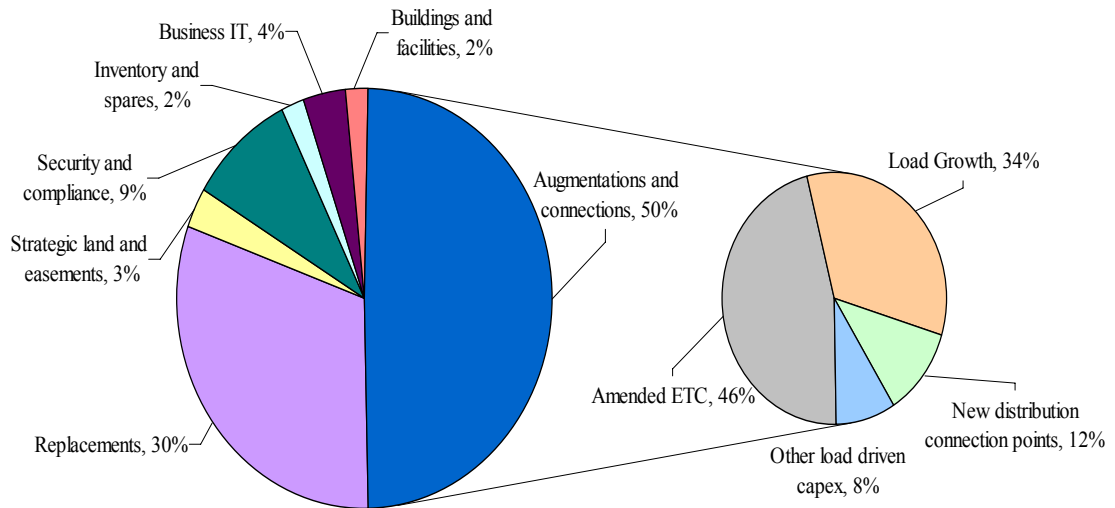
Relative to ElectraNet's proposed augmentation and connection investment of \$386 million, around \$179 million (46 per cent) is required during the next regulatory control period to meet the amended ETC reliability standards. Figure 4.3 illustrates the percentage breakdown of each capex category relative to the total forecast capex

<sup>143</sup> ESCOSA, *Electricity Transmission Code ET/05 1 July 2008*, September 2006, clauses 2.6.3, 2.7.3, 2.8.3, 2.9.3 and 2.10.3.



and the proportion of each of the drivers of the augmentation and connection categories. It also shows that the load driven capex (comprising the augmentation and connection categories) makes up 50 per cent of the proposed capex program.

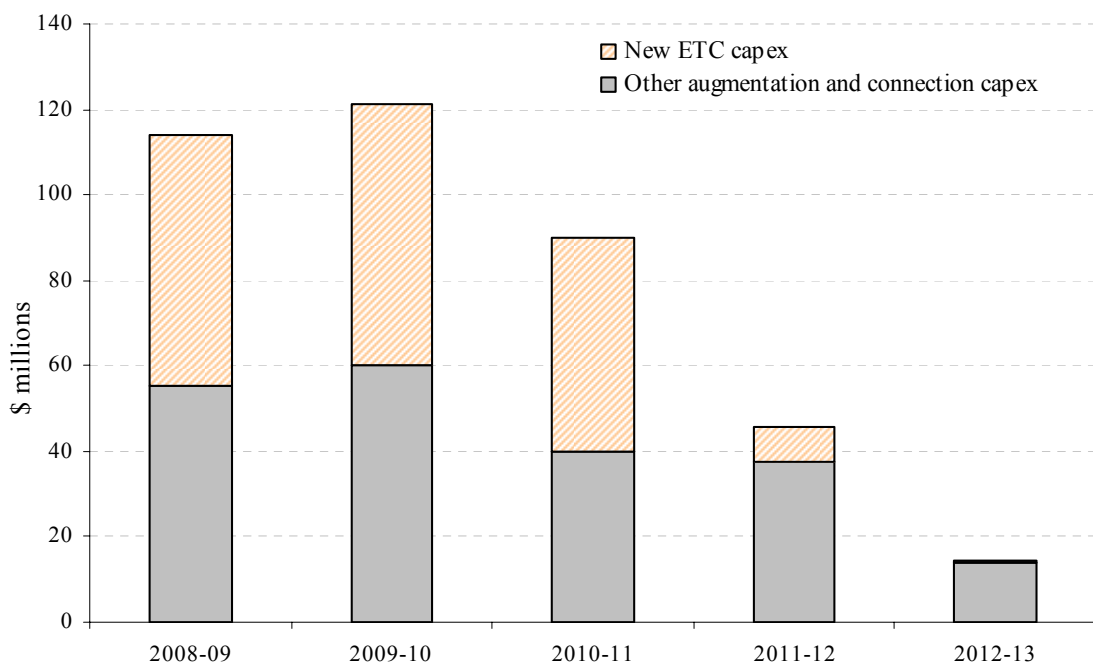
**Figure 4.3: ElectraNet’s load driven capex by drivers**



Note: The right-hand side shows each capex driver as a percentage of the augmentation and connection categories.

Figure 4.4 shows the portion and proposed timing of the augmentation and connection investment driven by the ETC requirements. The AER notes that ElectraNet’s forecast augmentation and connection investment profile demonstrates that it proposes to undertake the majority of this investment in the first three years of the next regulatory control period to meet the ETC grace period obligations.

**Figure 4.4: ETC capex as a proportion of total augmentation and connection capex (\$m, 2007–08)**



Clause 2.10 of the ETC outlines the reliability standards applicable for category 6 loads. The ETC designates the Adelaide CBD exit connection point as a category 6 load.<sup>144</sup> The AER notes that the ETC is quite explicit in detailing the requirements for the Adelaide CBD. Clause 2.10.1(c) sets out that after 31 December 2011 ElectraNet must:

- (i) provide N–1 transmission line capacity in Adelaide Central for at least 100% of agreed maximum demand; and
- (ii) provide the transmission line capacity referred to in clause 2.10.1(c)(i) on a continuous basis by means of independent and diverse transmission substations (which must be commissioned and commercially available), one of which must be located west of King William Street.<sup>145</sup>

Clause 2.10.1(c) of the ETC obligates ElectraNet to construct a new independent transmission line and substation to provide the Adelaide CBD with N–1 reliability. A critical factor in the Adelaide CBD requirement specifies that the transmission line and substation must be commissioned and in service no later than 31 December 2011. The AER’s detailed review of ElectraNet’s proposed Adelaide CBD project is set out in section 4.6.5 and appendix C.

#### ***Joint network planning***

The AER notes that in addition to the functions and responsibilities listed in section 4.6.3, the ESIPC is also the nominated jurisdictional planning body under the NER and provides independent oversight of transmission planning in South Australia.<sup>146</sup> The ESIPC liaises with ElectraNet, ETSA, generators and retailers active in South Australia, and works to encourage efficient outcomes in developing the power system.

In its submission, the ESIPC indicated that it undertook a significant amount of joint planning with ElectraNet and ETSA to develop the network development plans in ElectraNet’s revenue proposal. This included identifying efficient solutions to network constraints that formed a number of projects in the forecast capex program and a number of ElectraNet’s proposed contingent projects. While joint planning provides some assurance that the most efficient project options are identified for addressing emerging network constraints, the AER has sought greater assurance on the efficiency of the proposed projects by undertaking a detailed review of some projects in the forecast capex program. The AER’s detailed review of projects is set out in section 4.6.5 and appendix C.

#### ***Conclusion***

In summary, the AER considers that:

- ElectraNet’s network planning framework is sound and consistent with good industry practice

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<sup>144</sup> It is the only load assigned for this category.

<sup>145</sup> *ibid.*, clause 2.10.2, p. 12.

<sup>146</sup> As per the derogations under clause 9.28.3 of the NER.

- the amended ETC reliability standards impose additional planning requirements on ElectraNet, which drives a significant portion of its proposed augmentation and connection capex
- ElectraNet’s joint planning with the ESIPC and ETSA, and engagement with other stakeholders provides some assurance that the most efficient project options have been identified.

#### 4.6.5 Detailed review of selected forecast capex projects

This section discusses the AER’s review of ElectraNet’s main capex categories and issues identified during the detailed project reviews. SKM undertook a detailed review of a sample of projects from ElectraNet’s augmentation, connection, replacement, security and compliance, and non-network capex categories.

##### ElectraNet proposal

ElectraNet stated that its forecast capex program is largely driven by the ETC mandated timing requirements for augmentation and connection projects.<sup>147</sup> It noted that its ageing asset base requires increased replacements and that the proposal includes additional investment to address concerns about the physical security of critical infrastructure.

ElectraNet’s forecast capex program consists of a possible 138 projects that may take place during the next regulatory control period. This includes 30 augmentation projects, 14 connection projects, 7 easement projects, 29 replacement projects, 3 inventory and spares projects, 13 security and compliance projects, and 41 non-network projects.<sup>148</sup>

##### Submissions

The Government of South Australia stated that the AER should ensure all expenditure is ‘fully justified’ while being mindful of the financial impact its decision will have on South Australian consumers.<sup>149</sup>

The ECCSA stated that the AER should undertake its own objective assessment of whether there is a case for replacement of existing assets. It further stated that the quantum increase in IT and security and compliance capex is not justified.<sup>150</sup>

The EUAA stated that the AER should ensure that the proposed capex is the most efficient option. It also raised concerns about the key drivers for the increase in security and compliance capex.<sup>151</sup>

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<sup>147</sup> ElectraNet revenue proposal, p. 22.

<sup>148</sup> ElectraNet revenue proposal—forecast capex cost information templates.

<sup>149</sup> Government of South Australia, *ElectraNet revenue proposal submission*, 24 August 2007.

<sup>150</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 51.

<sup>151</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 2, 17.

The ESIPC stated that the projects proposed by ElectraNet, taken together, constitute a reasonable development program to meet the emerging network constraints. However, it noted that it had not assessed the reasonableness of the quantum of costs associated with each project and that the cost estimates should be reviewed by the AER.<sup>152</sup>

### **Consultant review**

The purpose of the detailed project review is twofold—to assess the prudence and efficiency of each project, and to test whether ElectraNet has complied with its stated capex policies and procedures. The sample of projects selected, in consultation with the AER, was targeted to cover a wide range of factors that underpin ElectraNet’s forecast capex allowance. These factors included the costs, project drivers, timing, geographic location and probability of proceeding, and potential issues identified from project descriptions. SKM reviewed 13 projects with a total value of \$410 million (53 per cent of ElectraNet’s proposed ex ante capex allowance).<sup>153</sup>

In assessing the efficiency of each project in the sample, SKM was specifically required to provide its opinion on the following matters:

- whether or not there was genuine need for the project
- whether ElectraNet had considered the complete range of feasible alternatives
- whether the scope, cost and timing of the proposed project was efficient. If SKM found the scope, cost and timing of the proposed project was not efficient it was required to recommend an alternative scope, cost and timing
- whether the project aligns with ElectraNet’s strategic plans, governance arrangements, and capex policies and procedures.

Based on its detailed review of a sample of projects, SKM recommended a reduction of \$131 million (\$2007–08) from ElectraNet’s proposed ex ante capex allowance.<sup>154</sup> Of this reduction, \$122 million is transferred to contingent projects. It recommended the following adjustments:<sup>155</sup>

- ElectraNet’s proposed augmentation allowance be reduced by \$106 million—\$104 million associated with the line works component of the Adelaide CBD project be treated as a contingent project and the Weather stations project be reduced by \$1.9 million.
- ElectraNet’s proposed replacement capex allowance be reduced by \$7 million—Playford 132 kV replacement project be reduced by \$4.2 million and the Torrens Island power station 66 kV secondary systems project be reduced by \$2.8 million.

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<sup>152</sup> ESIPC, *ElectraNet transmission network revenue proposal submission*, August 2007, p. 8.

<sup>153</sup> SKM report, p. 62.

<sup>154</sup> *ibid.*, pp. 86–87.

<sup>155</sup> *ibid.*, pp. 65–76.

- ElectraNet’s proposed security and compliance allowance be reduced by \$18 million—Transformer ballistic proofing project be treated as a contingent project.

From its review of ElectraNet’s proposed opex, SKM recommended that a number of opex refurbishment projects be classified as capex. This resulted in a total of \$16 million being transferred from opex to the ex ante capex allowance.<sup>156</sup>

Overall, SKM’s detailed review did not identify any issues or problems that it considered to be serious or systematic, and found that the projects reviewed were generally prudent and efficient.<sup>157</sup>

### **AER considerations**

The AER notes that SKM generally found that the sample of projects reviewed in detail were justified, prudent and efficient subject to the following:

- two projects being recommended as contingent projects—Adelaide CBD (line works component) and Transformer ballistic proofing projects
- one project cost being reduced to take account of more efficient scoping—the Weather stations project
- minor adjustments to two projects to correct identified errors—Playford 132 kV replacement and Torrens Island power station projects.

Further, based on its review, SKM noted that it had not identified any issues or problems it considered were serious or likely to be systematic within ElectraNet’s proposed ex ante capex allowance.

The AER’s considerations of SKM’s recommendations on specific projects and issues identified by the AER are set out below, based around ElectraNet’s main capex categories. Appendix C provides further discussion on ElectraNet’s proposed ex ante capex.

### ***Load driven capex—Augmentation and connection***

ElectraNet’s proposed capex for augmentation and connection totals \$386 million (\$2007–08) over the next regulatory control period.<sup>158</sup> This compares with a total of \$195 million incurred during the current regulatory period.<sup>159</sup> Load driven capex represents 50 per cent of the total forecast capex proposal. In terms of the subcategories of load driven capex, augmentation accounts for 30 per cent of the total forecast capex, while connection accounts for 20 per cent.

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<sup>156</sup> *ibid.*, pp. 118–119.

<sup>157</sup> The recommended adjustment to the Adelaide CBD project is related to the uncertainty with the line route and type of construction for that project.

<sup>158</sup> ElectraNet revenue proposal—forecast capex cost information templates.

<sup>159</sup> ElectraNet revenue proposal, p. 64.

The value of the load driven projects reviewed by SKM is \$215 million (52 per cent of ElectraNet's load driven capex). In terms of the subcategories, the value of the projects reviewed equals 59 per cent of augmentation and 51 per cent of connection.

*Project 10161—Adelaide CBD*

ElectraNet's cost information templates indicate that this project has an estimated cost of \$138 million (\$2007–08). This is the single largest project identified in ElectraNet's capital works program and it amounts to about 18 per cent of ElectraNet's proposed ex ante capex allowance.

This project includes a new substation in the west of the city and the construction of transmission lines to connect the substation, and the Southern Suburbs project which comprises an additional transformer at the new location.<sup>160</sup> ElectraNet has stated that, in conjunction with ETSA, it is currently applying the regulatory test and an application notice is due by the end of 2007.

The AER accepts SKM's conclusion that the Adelaide CBD project meets the capex objectives, as it is required to meet the new ETC reliability standards. The new standards also require ElectraNet to commission this project by 2011.

The AER agrees with SKM that the overall cost of the project is in doubt due to the uncertainty of the line route for this project. It also notes that, according to ElectraNet's cost information templates, the cost of the lines component makes up approximately 14 per cent of the proposed ex ante capex allowance. Given the level of uncertainty, the AER considers that it is not possible to establish an efficient estimate for the line works component of the Adelaide CBD project as required by clause 6A.6.7(c)(1).

Clause 6A.6.7(e)(10) allows the AER to consider whether any forecast capex includes amounts relating to projects that are more appropriately treated as contingent projects. Given the level of ambiguity with the line route resulting in the project scope being uncertain, the AER considers that the line works component should be treated as a contingent project under clause 6A.8.1. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$105 million to the proposed ex ante capex allowance. This amount is transferred to the contingent projects allowance.

Overall, the AER considers that treating the line works component as a contingent project will allow the AER to be satisfied that the proposed allowance relating to the Adelaide CBD project for the next regulatory control period reasonably reflects the efficient costs of achieving the capex objectives by a prudent TNSP (clause 6A.6.7(c)). The proposed trigger for this contingent project is the successful completion of the regulatory test and the receipt of development approval.

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<sup>160</sup> Project 10336 Southern Suburbs (SIMS stage 2) has an estimated cost of \$15 million and has not been included in the Adelaide CBD cost estimate.

Appendix C provides further details on the AER's consideration of the Adelaide CBD project.

*Project 11320—Weather stations*

ElectraNet's cost information templates indicate that this project has an estimated cost of \$4.1 million (\$2007–08). The project involves the installation of measuring devices on the transmission lines to obtain real-time data in order to calculate accurate line ratings that are reflective of the environmental conditions at the relevant time. It includes a number of individual sub-projects.

The AER accepts SKM's advice that the proposed cost for this project is not reasonable because the project has not been scoped efficiently.

Given SKM's advice the AER is not satisfied that ElectraNet has estimated the project based on the most efficient costs that a prudent TNSP would require to achieve the capex objectives (clause 6A.6.7(c)). The AER accepts SKM's recommendation to reduce ElectraNet's proposed allowance for the Weather stations project. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$1.9 million to the proposed ex ante capex allowance.

Appendix C provides further details on the AER's consideration of the Weather stations project.

*Load driven capex—Easement*

ElectraNet's proposed capex for easements over the next regulatory control period is \$24 million (\$2007–08). This is a significant increase compared to the \$7.7 million incurred during the current regulatory period. The AER has reviewed this capex category to determine whether ElectraNet's proposed allowance is reflective of the efficient costs that a TNSP will reasonably incur to achieve the capex objectives.<sup>161</sup>

The easement capex category comprises of six specific easement projects and one strategic land purchase project. ElectraNet's *Strategic land & easement acquisition plan 2008–13* (land and easement plan) sets out its easement and land acquisition strategy for the current and next regulatory control period. The analysis in this document provides the rationale and cost estimates for ElectraNet's proposed easement costs. ElectraNet's planned acquisitions have been ranked as low, medium or high priority according to its assessment of the underlying project required in the next regulatory control period and the degree of difficulty of acquisition. It has included only the costs associated with high- and medium-priority projects in its proposed easement allowance.

The AER reviewed the land and easement plan and noted that many of the underlying network augmentations that drive the easement projects are listed as contingent projects in the next regulatory control period and the year by which they may be

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<sup>161</sup> National Electricity Rules, clause 6A.6.7(c).

required is after the next regulatory control period (beyond 2013). The AER acknowledges that ElectraNet is concerned with potential development delays and notes that ElectraNet considers that acquiring easements ‘well in advance’ of a project has a strategic value.

While the AER has concerns about the lack of rigorous economic assessment supporting the acquisition of strategic easements, it is nonetheless largely satisfied that, in this instance, it is reasonable to provide ElectraNet an allowance for easements where the need and timing have been sufficiently demonstrated. Given the defined timing and cost of the specific easement projects, the AER considers that it is reasonably likely that these costs will be incurred during the next regulatory control period. Therefore, it accepts that these costs would achieve the capex objectives and should be included in the ex ante capex allowance.

However, for the Strategic land purchase RY2 medium/high priority project the AER is not reasonably satisfied that the cost will be incurred during the next regulatory control period to achieve the capex objectives.

In reviewing ElectraNet’s cost information templates, the AER notes that the Strategic land purchase RY2 medium/high priority project provides for a uniform annual expenditure profile. The AER sought clarification from ElectraNet on the reasons for this uniform expenditure. In response, ElectraNet noted that this project consists of a number of projects with different timings and that the final expenditure plans will depend on appropriate routes and negotiation with landowners.<sup>162</sup>

The AER considers that this uncertainty as to the expenditure plans of the sub-projects and the adoption of uniform expenditure demonstrates that the need for these strategic land projects is still not sufficiently determined. Therefore, ElectraNet has not reasonably satisfied the AER that this project is likely to be incurred during the next regulatory control period.

Accordingly, the AER considers that providing ElectraNet an ex ante capex allowance after removing the cost of this project will result in an ex ante capex allowance that reflects the efficient costs that ElectraNet will reasonably incur to achieve the capex objectives (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 \$12 million to the proposed ex ante capex allowance.

***Non-load driven capex—Replacement***

ElectraNet’s proposed replacement capex totals \$240 million (\$2007–08) over the next regulatory control period. This compares with a total of \$184 million incurred during the current regulatory period. Replacement capex represents 31 per cent of the total forecast capex proposal.

As part of its detailed review, SKM reviewed seven replacement projects with a total value of \$156 million, which is 65 per cent of ElectraNet’s replacement capex. Based

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<sup>162</sup> ElectraNet response to information request no. 195, confidential, submitted 18 September 2007.



on its review, SKM did not find any serious concerns or systemic failings with the proposed replacement capex. It noted that ElectraNet has assessed its management and replacement of ageing assets using a risk assessment methodology that is consistent with good industry practice and it considered the proposed risk ranking and level of replacement projects to be reasonable.

SKM recommended adjustments to two projects based on errors identified during the review. The AER also identified a transposing error with another project. The AER's conclusion on the correction of these errors is set out below and further discussion is contained in appendix C. Appendix C also provides a discussion on the reasonableness of ElectraNet's replacement capex program.

#### *Error adjustments*

The AER and SKM identified three projects that had transposition errors associated with their costs being entered in ElectraNet's capex model. The AER considers that it is appropriate to correct the errors with these project costs. Following a request from the AER, ElectraNet advised that the correction of the transposition errors in its capex model results in a total reduction of \$7.6 million to the proposed ex ante capex allowance.

These projects and the corresponding reduction to their costs in 2007–08 dollar terms, when modelled correctly, are:

- Project 85007 Playford 132 kV replacement—\$3.9 million
- Project 11109 Torrens Island power station 66 kV secondary systems—\$2.9 million
- Project 11350 Unit asset replacements—\$0.8 million.

Appendix C provides further details on the AER's consideration of these projects.

#### *Non-load driven capex—Security and compliance*

ElectraNet's proposed security and compliance capex totals \$70 million (\$2007–08) over the next regulatory control period. This compares with a total of \$1.9 million incurred during the current regulatory period. Security and compliance capex represents nine per cent of the total forecast capex proposal. As part of its detailed review, SKM reviewed the two largest projects from this capex category—Substation security fencing and Transformer ballistic proofing—with a total value of \$35 million (50 per cent of ElectraNet's security and compliance capex by value).

#### *Project 10809—Transformer ballistic proofing*

ElectraNet's cost information templates indicated that this project has an estimated cost of \$18 million (\$2007–08). It involves the construction of concrete based ballistic enclosures at critical transformer sites and vehicle barriers to protect them against malicious damage. ElectraNet stated that the need for this project was identified as part of its security and safety risk review.

SKM stated that, while it supports the objective of protecting critical infrastructure, it considered that until the credibility of the threat level is sufficiently assessed it cannot reasonably determine the necessary scope of the project to mitigate the threat.

Therefore SKM recommended that this project should be treated as a contingent project.

The AER recognises the need for protecting critical infrastructure and notes that this project is likely to meet the capex objectives after an appropriate assessment of the threat level.

Clause 6A.6.7(e)(10) allows the AER to consider whether any forecast capex includes amounts relating to projects that are more appropriately treated as contingent projects. Based on SKM's advice, the AER considers that treating the Transformer ballistic proofing project as a contingent project will allow it to be reasonably satisfied that the forecast capex allowance reflects the efficient costs of achieving the capex objectives by a prudent TNSP (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 \$16.5 million to the proposed ex ante capex allowance. This amount is transferred to the contingent projects allowance.

SKM recommended that the trigger for this project should be an instruction from South Australia Police notifying ElectraNet of the need for this project and a description of the credible threat. The AER notes the importance of properly identifying the threat levels that drive the scope of this project and also recognises that a cost-benefit analysis of the proposed solution is an integral part of scoping the appropriate project. The threat levels and the costs of protecting against them should be considered prior to the trigger so that the occurrence of the trigger is all that is required for amending a revenue determination. The principles of critical infrastructure protection as stated in the *Critical infrastructure protection national strategy* also recognise that the threat levels determine the appropriate response and the need to set priorities for the allocation of resources.<sup>163</sup>

The AER considers that the appropriate trigger event for this contingent 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. This trigger event is reasonably specific and capable of objective verification (clause 6.8.1(c)(1)) and is described in such terms that its occurrence is all that is required for amending a revenue determination.

Appendix C provides further details on the AER's consideration of the Transformer ballistic proofing project.

#### ***Non-load driven capex—Inventory spares***

ElectraNet's proposed inventory/spares capex for the next regulatory control period is \$16 million (\$2007–08). This is consistent with the total amount incurred during the current regulatory period. The AER has reviewed this capex category to determine whether ElectraNet's proposed allowance is reflective of the efficient costs that a prudent TNSP will reasonably incur to achieve the capex objectives.

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<sup>163</sup> Trusted Information Sharing Network for Critical Infrastructure Protection, *Critical infrastructure protection national strategy, version 2.1*, 12 March 2004, section 7.3 ([www.tisn.gov.au](http://www.tisn.gov.au)).

The AER requested ElectraNet to provide further information on the need for the projects in this category. ElectraNet noted that its inventory/spares capex category includes three distinct projects. It also stated that the largest of these three projects—Inventory purchase FY reset 2—is influenced by the ongoing need for replacement of parts and that the overall cost estimate is based on its historical expenditure.<sup>164</sup> ElectraNet also noted that the inventory/spares strategy is set out in its AMP.

The AER has reviewed the AMP and notes that ElectraNet’s proposed inventory/spares strategy has been addressed in it. The proposed expenditure for the next regulatory control period is similar to the historical expenditure.

ElectraNet also stated that the other two projects are needed to satisfy the new reliability standards under the ETC that require ElectraNet to hold a spare transformer and sufficient spares. The AER acknowledges that the new reliability standards under the ETC require ElectraNet to have in place more stringent transformer replacement plans and, in the event of failure of a transformer, repair or replace transformers within prescribed timeframes.<sup>165</sup>

Considering that ElectraNet has developed its spares/inventory forecast expenditure based on reasonable historical costs and the new reliability standards as stated in the ETC, the AER is satisfied that the proposed spares/inventory forecast expenditure is appropriate.

#### ***Non-network capex***

ElectraNet’s proposed non-network capex for the next regulatory control period totals \$42 million (\$2007–08). This compares with a total of \$39 million incurred during the current regulatory period. This capex category represents 5 per cent of ElectraNet’s forecast capex proposal. ElectraNet categorises its non-network capex into IT and facilities capex. The IT category consists of 29 projects with a total value of \$13 million and the facilities category consists of 12 projects with a total value of \$29 million.

The ECCSA submitted that the IT budget shows a significant step increase compared with the current regulatory period.<sup>166</sup> The AER notes that the proposed non-network capex is similar to the amount incurred by ElectraNet in the current regulatory period. However, it recognises that there is a step increase in the first year of the next regulatory control period compared to the latter years of the current regulatory period. ElectraNet’s proposed Enterprise system (SAP) upgrade support project and Pirie Street office renovation project costs make up 57 per cent of the total non-network capex in the first year of the next regulatory control period.

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<sup>164</sup> ElectraNet response to information request no. 196, confidential, submitted 18 September 2007.

<sup>165</sup> ESCOSA, *Review of the reliability standards specified in clause 2.2.2 of the ETC: Final decision*, September 2006, sections 3.3 and 3.4.

<sup>166</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 58.

SKM undertook a detailed review of one of ElectraNet's IT project—Enterprise system (SAP) upgrade support. This project has a total cost estimate of \$4.3 million over the next regulatory control period. This is the single largest IT project with \$3.5 million (80 per cent of the project costs) proposed in the first year of the next regulatory control period.

SKM noted that the SAP software is integral to a number of different operational and network planning processes including asset management strategies and that ElectraNet has already invested significant resources in establishing this operating platform.<sup>167</sup>

The AER accepts SKM's findings that the need for this IT project has been justified because the software vendor will not support the current SAP version from December 2009. It also accepts SKM's conclusion that the estimated costs are efficient as they were based on identified needs and associated costs in consultation between ElectraNet staff and the vendor. This process provides the AER with confidence that the solution adopted by ElectraNet to satisfy the need has been subjected to a detailed identification process rather than based on a general solution.

The AER also requested more information from ElectraNet on some IT projects due to an initial concern that some of the projects listed in the cost information templates had uniform or near uniform expenditure. ElectraNet provided explanations justifying the proposed expenditure profiles with examples of how they were derived from historical average levels of expenditure.<sup>168</sup> It also noted that the projects were consistent with its *IS&T strategic plan 2008–13*. After the reviewing the information provided by ElectraNet, the AER is satisfied that the expenditure profile has been developed consistent with reasonable historical expenditures.

The facilities component of the non-network capex includes \$7 million (\$2007–08) for renovating ElectraNet's Pirie Street office accommodation. ElectraNet advised that this project is required to accommodate an expanding workforce due to the growth of its network. ElectraNet provided its *Facility management plan 2008–13* to justify its assessment. Having reviewed this information, the AER is satisfied that ElectraNet has demonstrated the need for new accommodation. It also notes that ElectraNet has considered three possible options to address its need and has developed an economic analysis to identify the least cost solution. The AER considers that the option to renovate the Pirie Street office accommodation is the least cost solution of the three options that ElectraNet considered.

Based on SKM's recommendation on the SAP project and the AER's review of ElectraNet's *Facility management plan 2008–13*, the AER considers that the non-network capex step increase in the first year of the next regulatory control period is reasonable.

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<sup>167</sup> SKM report, p. 76.

<sup>168</sup> ElectraNet response to information request no. 200, confidential, submitted 3 October 2007.

## **Conclusion**

Overall, based on its detailed review of projects, the AER considers that the amounts sought by ElectraNet in its ex ante capex allowance should not be approved. The total adjustments of \$143 million outlined by the AER in this chapter will result in an ex ante capex allowance that reflects the efficient costs that ElectraNet will reasonably incur to achieve the capex objectives (clause 6A.6.7(c)).

### *Opex refurbishment projects reclassified as capex*

SKM recommended that a number of opex refurbishment projects should be classified as capex and this has been accepted by the AER. This issue is discussed further in section 6.6.4. The transfer of ElectraNet's refurbishment projects would result in an addition of \$16 million (\$2007–08) to its ex ante capex allowance.<sup>169</sup>

## **4.6.6 Cost accumulation process**

This section examines whether ElectraNet's cost accumulation process provides a reasonable basis for estimating the cost and profile of its capex over the next regulatory control period. It discusses the process ElectraNet has employed to develop its base project cost estimates and then converting them into a capex profile for the next regulatory control period. Specifically, it reviews the BPOs used to develop the project costs, input escalators for land and easements, labour and non-labour (materials) construction costs, and the application of a cost estimation risk factor.

ElectraNet has undertaken the following cost accumulation process in developing the annual capex profile for its network projects over the next regulatory control period:<sup>170</sup>

1. Based on advice from Powerlink, ElectraNet estimated the capital costs for each project in 2006–07 dollar terms.<sup>171</sup>
2. It then allocated each project's estimated cost into annual expenditure based on its historical S-curves which vary according to the project type.<sup>172</sup> The annual expenditure profile is adjusted for project probabilities.
3. To present the project cost estimates in 2007–08 dollar terms, CPI, and real labour, non-labour (materials) and land escalators were applied.
4. Annual expenditure profiles over the next regulatory control period were escalated by real labour, non-labour (materials) and land escalators.
5. Based on advice from Evans & Peck (EP), ElectraNet added a 5.2 per cent cost estimation risk factor to the network projects.

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<sup>169</sup> The capex escalators have not yet been applied to the refurbishment projects.

<sup>170</sup> ElectraNet's non-network projects follow the cost accumulation process up to step 4 and is only escalated by CPI.

<sup>171</sup> Powerlink owns, develops, operates and maintains the Queensland's electricity transmission network.

<sup>172</sup> ElectraNet's S-curves range from two to four years depending on the project type.

## **Base planning objects**

### ***ElectraNet proposal***

ElectraNet engaged Powerlink to develop detailed scope and estimates (SAEs) for each project in the concept phase. These SAEs identify all of the known requirements to deliver the projects. Powerlink was also engaged to develop project cost estimates based on the BPOs.<sup>173</sup> ElectraNet's project cost estimates are by necessity high-level estimates, where the number of project items is estimated, and the costs of these items are based on the BPOs.

ElectraNet also engaged Maunsell Australia (Maunsell) and Worley Parsons to provide independent check estimates of six substation projects.

### ***Consultant review***

SKM noted that the BPOs group materials, equipment, labour and other costs into objects which can be added together and built upon to generate a project cost estimate. After reviewing ElectraNet's BPOs SKM was satisfied that the process used to determine project costs is suitable.

A number of BPOs were reviewed to determine the accuracy of the BPOs used as the basis for ElectraNet's project cost estimates. SKM was generally satisfied that the BPOs represent reasonable costs for the described objects.<sup>174</sup>

### ***AER considerations***

The BPOs used by ElectraNet to underpin the majority of its network project cost estimates are essentially unit rates for different components used in the construction of switchyard bays, substations and transmission lines. SKM noted that ElectraNet's BPOs are based on typical transmission objects which can be added together and built upon to generate the project cost estimate, and this process is commonly accepted practice within the industry.

SKM reviewed the BPOs and was generally satisfied that the process used by ElectraNet to determine project costs is reasonable. It also reviewed the costs of a number of BPOs to determine their accuracy. SKM concluded that the BPOs used by ElectraNet represent reasonable costs for the described objects.

The AER accepts SKM's advice that ElectraNet's BPOs are reasonable and provide an appropriate basis to estimate the cost of its forecast capex program. Therefore, the AER is satisfied that ElectraNet's proposed BPOs reasonably reflect the efficient costs that a prudent TNSP would require to achieve the capex objectives.

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<sup>173</sup> ElectraNet revenue proposal, p. 56.

<sup>174</sup> SKM report, p. 63.

## **S-curves**

### ***ElectraNet proposal***

ElectraNet stated that its S-curves applied to develop the capex program are based on historical project expenditure.<sup>175</sup>

### ***Consultant review***

SKM considered that the generic S-curves for particular project portfolio types used by ElectraNet to develop its proposed capex were reasonable.

### ***AER considerations***

ElectraNet has used generic S-curves to estimate the expenditure profile associated with different types of projects. The S-curves are based on historical project expenditure profiles and their application reflects the fact that most of the capex is incurred well in advance of a project's commissioning date. ElectraNet informed the AER that the S-curves are based on historical spend profiles of projects that were undertaken in the past three years.

SKM considered that ElectraNet's S-curves were reasonable for the purposes of developing the capex profile of different projects. The AER accepts SKM's findings. It considers that ElectraNet's S-curves, which are based on its historical expenditure profiles for projects over the past three years, provide a reasonable basis to estimate the capex profile over the next regulatory control period for a prudent TNSP.

## **Land and easement costs**

### ***ElectraNet proposal***

ElectraNet stated that land and easement values are increasing above the CPI. It based its land and easement escalators on historical Australian Bureau of Statistics (ABS) data pertaining to unimproved land values in South Australia.<sup>176</sup> ElectraNet's proposed land and easement escalator of 10 per cent per annum is based on the average of the commercial and rural land components for the period June 2000 to June 2006, which yielded a value of 13.7 per cent per annum, adjusted for CPI.<sup>177</sup>

### ***Submissions***

The ECCSA stated that using a simple average of residential, rural and commercial land values biases the land and easement escalation outcome.<sup>178</sup>

### ***Consultant review***

SKM noted that the ABS data series ElectraNet used to develop its land and easement escalators extends back to 1989.<sup>179</sup> It considered that ElectraNet's selected sample

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<sup>175</sup> ElectraNet response to information request no. 128, confidential, submitted 26 August 2007.

<sup>176</sup> ABS, *Australian system of national accounts 2005–06: 5204.0*, table 83.

<sup>177</sup> The capex model accepts nominal escalators as inputs and adjusts for CPI to derive real escalators.

<sup>178</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 49.

<sup>179</sup> SKM report, pp. 41–43.

period from June 2000 to June 2006 forms part of a significant boom period in the growth of land and property values throughout Australia, and may not be representative of sustainable long-term growth. SKM stated that, by selecting this period to develop the escalator, ElectraNet’s proposal inferred that the period of rapidly increasing land values would continue throughout the next regulatory control period.

It was SKM’s opinion that ElectraNet has not given sufficient consideration to the possibility of the boom phase in land value in South Australia ending or at least tapering off during the next regulatory control period. Therefore, SKM considered that ElectraNet’s proposed 10 per cent per annum cost escalator overstates the probable cost that could reasonably be considered to materialise over the next regulatory control period. Hence, it recommended that the proposed escalator should not be accepted.

Therefore, SKM considered that an appropriate land and easement escalation rate should be an average based on the longest available ABS data series for residential, rural and commercial land components, weighted according to the contribution of each land component in the proposed capex program. SKM’s calculations are set out in table 4.9.

**Table 4.9: SKM’s recommended land and easement escalation rate (per cent, nominal)**

Land component	SKM average (1989–2006)	Weighting <sup>a</sup>	SKM weighted average <sup>b</sup>
Commercial	6.27	32.67	2.05
Rural	8.55	52.11	4.46
Residential	10.90	15.22	1.66
Average	8.57	Total	8.17

(a) Weightings were provided by ElectraNet.

(b) SKM weighted average is equal to the SKM average multiplied by the weighting

Source: SKM report, p. 42.

SKM recommended that for consistency the same annual land and easement value escalators should also be applied to ElectraNet’s proposed opex.

#### ***AER considerations***

The AER notes that SKM analysed the effect of adopting short-term and long-term trends to forecast land price escalation rates and found that ElectraNet’s proposed escalator of 10 per cent was outside the probable range that it considered would materialise over the next regulatory control period and therefore should not be accepted. SKM also noted that the difference in applying short- and long-term trends were substantial.

The ABS data series spans 1989 to 2006 but ElectraNet has only utilised a sub-set of that data from 2000 to 2006. The AER considers that a prudent TNSP will consider longer term data taking in an entire economic cycle, where available, to develop an efficient forecast. It agrees with SKM that using the data period as proposed by



ElectraNet captures a period which is generally considered as being part of a significant boom period in land values and may not reflect long-term growth rates. 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 AER considers that the longer term data will better reflect applicable land value escalation rates.

The ECCSA stated that applying the simple average of residential, rural and commercial land values biases the outcome, because in practice ElectraNet’s land is more related to rural land. Residential and commercial land values are both related to urban land and tend to exhibit higher growth.

The AER accepts SKM’s recommendation that the use of the long-term historical average of the entire ABS data series, weighted according to the contribution of each land component provides a more appropriate basis to determine a land and easement escalation rate for ElectraNet.<sup>180</sup>

The average land value escalation rate calculated using the longer term data and weighted according to ElectraNet’s three different land components and ElectraNet’s proposed non-weighted escalator are set out in table 4.10.

**Table 4.10: AER’s conclusion on land and easement escalator (per cent, nominal)**

Land component	ElectraNet proposal (2000–2006)	AER average (1989–2006)	Weighting <sup>a</sup>	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 <sup>b</sup>	8.57	Total	8.17

(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.

Based on the available information, the AER considers that the adoption of the weighted average rate calculated using the longer term data is consistent with the benchmark capex that would be incurred by an efficient TNSP over the regulatory control period (clause 6A.6.7(e)(4)).

Therefore, an annual escalation rate of 8.17 per cent for land and easements over the next regulatory control period would provide a forecast capex allowance that reflects the efficient costs a prudent TNSP operating under the circumstances of ElectraNet would require to achieve the capex objectives. Following a request from the AER,

<sup>180</sup> ElectraNet response to information request no. 140, confidential, submitted 29 August 2007.

ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$1.5 million to the proposed ex ante capex allowance.<sup>181</sup>

The AER has also applied individual escalators for each land component using the long-term data series (1989–2006) to derive components of ElectraNet’s opex allowance (see section 6.6.3).

### Labour costs

#### *ElectraNet proposal*

ElectraNet engaged BIS Shrapnel to provide expert opinion regarding the outlook for labour costs and labour market issues relevant to the electricity sector in South Australia.<sup>182</sup> BIS Shrapnel forecast that the average weekly ordinary time earnings (AWOTE) in the South Australian utilities sector would average 5.9 per cent per annum over the next regulatory control period. ElectraNet proposed to apply BIS Shrapnel’s forecast labour rates, as set out in table 4.11, to its proposed projects.

**Table 4.11: ElectraNet’s proposed labour escalation rates (per cent, nominal)**

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	Average
Wages growth	5.6	5.6	6.0	6.3	5.9	5.6	5.9

Source: ElectraNet revenue proposal, p. 57.

#### *Submissions*

The ECCSA was concerned that ElectraNet is implying that wages will massively increase beyond the historical rate, although the same pressures have been present during 2005 and 2006, and actual wages have not risen excessively.<sup>183</sup>

The EUAA also noted that ElectraNet’s forecast capex proposal includes a significant element of increase for input costs, particularly wage costs. However, it noted that this view on increasing cost pressures in SA is not shared by all.<sup>184</sup>

#### *Consultant review*

SKM found that BIS Shrapnel’s report to be both industry and state specific and based on in-depth macroeconomic modelling. SKM concluded that the forecast wage escalation rates proposed by ElectraNet could be considered highly reasonable for use as a prediction of probable future wage costs. It therefore recommended that the AER accept ElectraNet’s proposed labour cost forecasts.

<sup>181</sup> The adjustment to ElectraNet’s land and easement escalators was made after applying the project adjustments set out in section 4.6.5.

<sup>182</sup> ElectraNet revenue proposal, appendix D—BIS Shrapnel, *Outlook for labour markets and costs to 2016–17: Electricity, gas and water sector Australia and South Australia*, April 2007.

<sup>183</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 47.

<sup>184</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 13.

### *AER considerations*

ElectraNet escalated its labour costs in accordance with the recommended escalators outlined in the BIS Shrapnel report, which average 5.9 per cent per annum over the next regulatory control period. SKM considered that the proposed escalators were reasonable for their intended use as a prediction of probable future labour costs.

The AER engaged Econtech to provide advice on wage forecasts for the utilities sector in South Australia and other Australian states and territories.<sup>185</sup> A comparison of the BIS Shrapnel and Econtech's wage forecasts for South Australia is set out in table 4.12.

**Table 4.12: BIS Shrapnel and Econtech labour escalation rates—South Australia electricity, gas and water industry (per cent, nominal)**

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	Average
BIS Shrapnel	5.6	5.6	6.0	6.3	5.9	5.6	5.9
Econtech	4.5	5.4	7.4	6.9	6.1	5.8	6.3

Source: BIS Shrapnel, *Outlook for labour markets and costs 2016-17: electricity, gas and water sectors, Australia and South Australia*, April 2007; Econtech, *Forecast of labour costs growth for South Australia*, 16 November 2007, p. 3.

Note: The average is calculated for 2008–09 to 2012–13 (the next regulatory control period).

The AER considers the methodologies employed by both BIS Shrapnel and Econtech are robust and both resulting wage forecasts are reasonable for the purposes of providing insight into potential future labour market wage trends in South Australia. It also considers that there is not a material difference between BIS Shrapnel and Econtech's wage forecasts. On balance, the AER accepts ElectraNet's proposal to apply the BIS Shrapnel wage forecasts in the cost accumulation process.

The AER is satisfied that the proposed labour escalation rates reflect the costs that a prudent TNSP operating under the circumstances of ElectraNet would require to achieve the capex objectives. Further discussion on the AER's consideration of labour escalators over the next regulatory control period is set out in section 6.6.9.

### **Non-labour construction costs—materials**

#### *ElectraNet proposal*

ElectraNet engaged EP to develop forecasts for non-labour (materials) cost escalators to apply to its proposed projects.<sup>186</sup> ElectraNet provided EP with a weighting for the various elements that make up its plant, equipment and materials costs. EP used ABS producer price index (PPI) data to represent probable escalators for each capex element, as shown in table 4.13.

<sup>185</sup> Econtech Pty Ltd is an economic consulting firm that specialises in economic modelling, forecasting and policy analysis. Econtech, *Forecast of labour costs growth for South Australia*, 16 November 2007.

<sup>186</sup> ElectraNet revenue proposal, appendix E—Evans & Peck, *Escalation and ElectraNet infrastructure projects*, May 2007

EP used the historical nine-year average for each respective index to predict a minimum, most likely and maximum forecast range for each element over the next regulatory control period.<sup>187</sup>

**Table 4.13: ABS indices used in Evans & Peck analysis<sup>188</sup>**

Capex element	Evans & Peck recommended index
Aluminium	ABS 6427 – PPI – table 16 <sup>b</sup>
Copper	ABS 6427 – PPI – table 47 <sup>c</sup>
Steel	ABS 6427 – PPI – table 30 <sup>d</sup>
Plant and equipment	ABS 6427 – PPI – table 16
Other <sup>a</sup>	ABS 6427 – PPI – table 16

(a) Other comprises of buildings, clearing access and environmental, concrete poles, establishment and foundations.

(b) 6427.16 – output of the general construction industry.

(c) 6427.47 – copper materials used in the manufacture of electrical equipment.

(d) 6427.30 – indices of metallic materials used in the fabricated metal products industry.

Source: Evans & Peck, *Escalation and ElectraNet infrastructure projects*, May 2007, table 7, p. 16.

A Pert distribution was assigned to each index for each year using the forecast range.<sup>189</sup> A Monte Carlo analysis of each Pert distribution was conducted to determine the likely range of escalation parameters for each year.<sup>190</sup> Table 4.14 sets out EP’s derived P50 and P80 recommended materials escalation rates. ElectraNet elected to apply the EP P50 recommendation to its cost accumulation process.

<sup>187</sup> Steel was an exception to the nine-year average. EP tempered the steel nine years’ average with a two-year moving average and a linear trend over the period.

<sup>188</sup> EP did not include labour or easements into its calculations.

<sup>189</sup> The Pert distribution uses three inputs—minimum, most likely and maximum—but emphasises the ‘most likely’ value to generate a distribution that closely resembles a normal distribution. A Pert distribution constructs a smooth curve by placing progressively more emphasis on values near the most likely value, in favour of values around the edges (minimum and maximum). A Pert distribution is often used in Monte Carlo simulations to assess cost and project risks.

<sup>190</sup> EP used @risk software to conduct its Monte Carlo analysis.

**Table 4.14: Evans and Peck’s recommended materials escalators  
(per cent, nominal)**

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
EP recommended escalation (P50)	4.4	4.5	4.6	4.6	4.8	5.0
EP recommended escalation (P80)	4.9	4.9	5.1	5.2	5.4	5.7

Source: Evans & Peck, *Escalation and ElectraNet infrastructure projects*, May 2007, p. 18.

Note: A P50 scenario represents a 50 per cent probability the escalation rate will not exceed the value identified while a P80 scenario represents an 80 per cent probability the escalation rate will not exceed the value identified.

### **Submissions**

The ESIPC stated that industry costs have increased in excess of the CPI and accepted the need to provide cost escalation forecasts under the current regulatory arrangements but noted that these forecast are, however, very uncertain. It suggested that the current approach of predicting specific escalators and then converting to a CPI plus equivalent escalator is very risky and could act against the interests of customers and the network service provider. It suggested that the AER should consider developing a more specific capital price index with the assistance of the ABS and industry.<sup>191</sup>

The ECCSA noted that there may be some validity in ElectraNet’s claims that materials cost have risen; however, the Australian currency has risen significantly and this has had a marked impact on the costs of imported materials.<sup>192</sup>

### **Consultant review**

SKM has noted for some time that movements in the CPI do not accurately reflect changes in costs associated with infrastructure projects. It therefore considered that the CPI is an inappropriate basis to develop materials cost escalators to account for future movements in the cost of future capital works.<sup>193</sup>

SKM considered the approach employed by EP is sophisticated and appropriate for trend based forecasting; however, it highlighted a number of shortcomings that resulted in it not being suitable as an appropriate proxy to forecast non-labour materials cost.

SKM considered that ElectraNet’s proposed materials cost escalators do not adequately consider the likelihood of commodity price reductions or at least lower growth than the trend of recent years. The capex categories used for each escalator do not provide a proper comparative analysis of known prices within the electricity industry. The application of the general construction index to ‘plant and equipment’ and ‘other’ categories inappropriately biases the overall escalation for specialist

<sup>191</sup> ESIPC, *ElectraNet transmission network revenue proposal submission*, August 2007, p. 21.

<sup>192</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 49.

<sup>193</sup> SKM report, pp. 43–52.

electrical infrastructure towards a general index. SKM concluded that ElectraNet's proposed escalators are not reasonable.

SKM recommended alternative materials cost escalators to apply to ElectraNet based on a study it conducted for SP AusNet, which was submitted to the AER as part of SP AusNet's revenue proposal.<sup>194</sup> Its recommended materials cost escalators for ElectraNet are set out in table 4.15. SKM derived the weighting for each capex element based on the project data contained in ElectraNet's capex model. This is the same data used by ElectraNet to develop its weighting for the purpose of applying EP's proposed escalators. SKM's recommended materials cost escalators are lagged for one-year.

**Table 4.15: SKM's recommended non-labour (materials) escalators and capex element weightings (per cent, nominal)**

Capex element	Weighting <sup>a</sup>	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Labour <sup>b</sup>	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 <sup>c</sup>	5.4	8.2	8.2	8.2	8.2	8.2	8.2
Misc materials (escalated at CPI) <sup>d</sup>	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

(a) Weighting may not add up due to rounding.

(b) SKM applied ElectraNet's proposed labour escalators.

(c) SKM applied its recommended land and easement escalator.

(d) SKM applied ElectraNet's proposed CPI.

Source: SKM report, p. 52.

### ***AER considerations***

ElectraNet escalated its forecast materials cost based on PPIs developed by EP. The AER agrees with SKM that EP's approach to developing materials cost escalators exhibit the following deficiencies:

<sup>194</sup> SKM, *Escalation factors affecting capital expenditure forecasts*, February 2007. This was submitted as appendix C to SP AusNet's *Electricity transmission revenue proposal 2008/09–2013/14*. This document is available on the AER website ([www.aer.gov.au](http://www.aer.gov.au)).

- The sample periods selected for each PPI do not consider the full quantum of available data.
- There is insufficient justification in EP’s report to validate the use of PPIs as a basis for developing future materials cost escalators for ElectraNet. Given that each PPI (specifically the general construction index) encompasses a broad range of inputs from a variety of industries it is difficult to construct an accurate like with like comparison with equipment used in the electricity supply industry.
- EP’s PPI based recommendations are at odds with publicly available data from the Australian Bureau of Agricultural and Resource Economics (ABARE), the International Monetary Fund (IMF) and the World Bank. The data indicates that commodity prices are expected to return towards historical averages in the medium term.<sup>195</sup>

Given the above concerns with ElectraNet’s proposed materials cost escalators, the AER accepts SKM’s advice that ElectraNet’s proposed materials cost escalators are not reasonable.

The AER notes that both the EUAA and the ECCSA were concerned with the proposed materials cost escalators and it has considered their submissions in forming a view on ElectraNet’s proposed escalation rates. The AER also notes the ESIPC has commented that the use of industry specific escalators would be more appropriate.

In this regard, SKM has recommended a set of alternative escalators which are based on likely industry equipment costs to apply to ElectraNet. It developed these escalators using the methodology set out in its *Escalation factors affecting capital expenditure forecasts* report that was submitted by SP AusNet as part of its revenue proposal.<sup>196</sup> The AER considers that the SKM alternative escalators are based on a more robust methodology of forecasting than the trend based escalation of PPIs due to the following reasons:

- The escalators are derived from industry cost data collected from a number of network service providers showing increases relative to CPI since 2002.
- The inputs to electricity infrastructure equipment have been weighted based on market research.
- SKM considered a number of economic forecasts for each input cost component including base materials, labour, exchange rates and CPI to produce weighted forecasts.

Further, the AER has previously considered and found that SKM’s observations/projections represent a reasonable basis for comparison with SP AusNet’s proposed

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<sup>195</sup> ABARE, *Australian commodities—March quarter 07.1*, March 2007.  
 IMF, *World Economic Outlook—Financial systems and economic cycles*, September 2006.  
 World Bank, *Background paper—The outlook for metals markets prepared for G20 deputies meeting Sydney 2006*, September 2006.

<sup>196</sup> SKM, *Escalation factors affecting capital expenditure forecasts*, February 2007.

capex cost escalations over the relevant regulatory control period and are reasonable when compared against data from a number of independent sources including ABARE, the IMF and the World Bank.<sup>197</sup>

Based on its research, SKM developed escalators for various equipment categories that are specifically required in electricity infrastructure. The AER considers that, in this instance, escalators based on SKM's market based analysis applied to specific equipment categories are appropriate to calculate the materials costs reasonably faced by ElectraNet over the next regulatory control period.

The AER notes that, in developing recommended materials escalators for ElectraNet, SKM has had to reclassify ElectraNet's capex into different elements and weightings. The weighting for each capex element is based on the project data contained in ElectraNet's capex model. This approach was required to enable SKM to apply its alternative escalators to measure the impact of materials costs on the forecast capex program.

The AER considers that the approach undertaken by SKM to reclassify ElectraNet's capex element weightings is reasonable as these weightings are consistent with the project data available in ElectraNet's capex model. It also considers that SKM's recommended materials cost escalators when applied to the reclassified capex element weightings provide an appropriate measure of cost increases ElectraNet is likely to experience over the next regulatory control period.

In its *Escalation factors affecting capital expenditure forecasts* report, SKM adopted a two-year lag time to account for the timing differences between raw materials price movements and the movements in finished goods prices. In its SP AusNet draft transmission determination, the AER considered the appropriateness of SKM's two-year lag by comparing movements in base metal prices derived from the London Metals Exchange with that of the PPI data for metals used in manufactured goods. Based on this comparison, the AER adopted a one-year lag as a reasonable basis for developing materials cost escalators.<sup>198</sup> Recognising the AER's previous decision, SKM has developed its recommended materials cost escalators for ElectraNet based on a one-year lag. The AER considers that it is reasonable to continue to apply a one-year lag in developing the appropriate materials cost escalators for ElectraNet.

Following a request from the AER, ElectraNet advised that this conclusion results in a reduction of \$20 million to the proposed ex ante capex allowance.<sup>199</sup> Overall, the AER considers that the application of the materials cost escalators as recommended by SKM will reasonably reflect the efficient costs that a prudent TNSP operating under the circumstances of ElectraNet would require to achieve the capex objectives.

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<sup>197</sup> AER, *SP AusNet transmission determination 2008–09 to 2013–14: Draft decision*, August 2007, p. 90.

<sup>198</sup> *ibid.*, appendix B.3.3.

<sup>199</sup> The SKM materials escalators were applied to the forecast capex allowance after making the project adjustments set out in section 4.6.5.



## Cost estimation risk factor

### *ElectraNet proposal*

ElectraNet proposed to apply a cost estimation risk factor of 5.2 per cent based on the methodology and modelling developed by EP.<sup>200</sup> The risk factor is applied only to network projects and has been modelled as a separate cost driver to other cost escalation factors. EP used the following process to develop the inputs to the risk model:

1. Risk workshop—EP conducted a risk workshop with ElectraNet to identify each risk element for both inherent and contingent risk categories and the probability of each risk occurring. The risk associated with the Adelaide CBD project was analysed in detail as a separate project because it comprised 20 per cent of the value of the capex program. All remaining projects were analysed together.
2. Risk profile and consequential costs of the Adelaide CBD project—The Adelaide CBD project risks were identified in detail with each risk item assigned a likelihood of occurrence and allocated a minimum, most likely and maximum consequential dollar value of occurrence.
3. Inherent risk—To calculate the effect of inherent risks in the other projects, EP determined a risk profile for each asset class. Applying this risk profile to each individual project cost estimate derives the risk adjusted cost estimate.
4. Contingent risks—To calculate the effect of contingent risks, each risk element was assigned a consequential annual dollar value of occurrence and a likelihood of occurrence based on a minimum, most likely and maximum probability.

Using these inputs, a Monte Carlo simulation was undertaken to develop a likely range of costs for the overall capex program.<sup>201</sup> The proposed risk factor represents a P50 scenario. The simulation results showed that the risks facing the capex program totalled around \$37 million, which is equivalent to 5.2 per cent of the base capex estimate—that is, the base capex estimate is increased by a cost estimation risk factor of 5.2 per cent.

### *Submissions*

The EUAA urged the AER to examine the underlying information on which the EP modelling of the cost estimation risk factor is undertaken because the robustness of the modelling is dependent on the value of the parameters used, which it considered were not transparent. It also questioned what portion of the risk users should bear as it considered good planning and project management could mitigate some of the

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<sup>200</sup> ElectraNet revenue proposal, appendix F—Evans & Peck, *Risk review of capital works program*, May 2007.

<sup>201</sup> Pert distributions were assigned to each CBD and contingent risk element as part of the Monte Carlo simulation.

contingent and inherent risks detailed in appendix F of ElectraNet's revenue proposal.<sup>202</sup>

#### ***Consultant review***

SKM agreed with ElectraNet and EP that risks within the capital works program can never be fully eliminated and therefore should be accurately quantified in order to be properly managed.<sup>203</sup> Its review of the risk report found that the modelling process generally was both methodologically and technically sound but it noted that like any modelling technique the output was dependent on the quality of inputs. SKM identified some concerns associated with the inputs applied in constructing the risk model, for example, the inclusion of several contingent risk elements can be viewed as a means for ElectraNet to inappropriately transfer typical operational business risk within its control to users.

SKM noted that ElectraNet had not attempted to systematically capture and analyse examples of the types of risks that fed into the model from its recent projects but depended on a risk workshop method of identification which it considered was common industry practice.

SKM did not accept that ElectraNet's historical underestimation figure of 22 per cent has any direct comparison to the proposed risk adjustment figure of 5.2 per cent.<sup>204</sup> It stated that the historical figure cannot be used to justify the reasonableness of the proposed risk adjustment because EP's report did not indicate the proportion of inherent and contingent risks that contributed to ElectraNet's historical underestimation. It further noted that inherent within the 22 per cent figure there were:

- costs that were based on a cost estimation process that has been replaced
- cost overruns due to project management methodologies that have now been completely overhauled by ElectraNet.

SKM noted that ElectraNet has not allowed for other risk or contingency amounts in individual project estimates.

Notwithstanding its concerns about the reliability of some of the inputs and their quantification used in the EP modelling, based on its industry experience SKM considered that a 5.2 per cent cost estimation risk factor is not excessive.

#### ***AER considerations***

The AER recognises that the cost estimation risk analysis is aimed at providing efficient allowances for costs likely to be incurred as part of the project portfolio cost estimation process. This is due to an underlying assumption that there is a higher probability that costs will increase rather than decrease. In its recent Powerlink revenue determination, the AER considered that a detailed risk analysis is inherently

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<sup>202</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 16.

<sup>203</sup> SKM report, pp. 52–55.

<sup>204</sup> *ibid.*, p. 54.

complex. There is a lack of information about the types of unforeseen risks being mitigated and the AER accepted that it was not possible to explicitly identify all the risks captured by the analysis because many of them are unforeseen and their cost impact is unknown.

SKM had concerns with the verification and ability to quantify some of the inputs in the EP modelling for ElectraNet, and questioned the applicability of the methodology used by ElectraNet. However, notwithstanding the methodology used and based on its industry experience, SKM recommended that the proposed 5.2 per cent risk factor was generally within the range adopted by industry for overall portfolio risk adjustment.<sup>205</sup>

The EP methodology and modelling approach adopted by ElectraNet involved the identification of risk elements and assigned probabilities and cost impacts through a risk workshop. The AER notes that the risk workshop was not based on any systematic evaluation of past evidence of actual occurrences or the actual cost impacts of the risk elements identified by ElectraNet. In the absence of such evidence, ElectraNet's projected risk profiles and costs are based more on arbitrary projections rather than actual past outcomes.

The AER notes that ElectraNet has introduced initiatives to overhaul its previous project management and cost estimation practices, which resulted in significant cost overruns in the past. ElectraNet has not demonstrated any attempt to moderate the risk workshop outcomes to take account of these new initiatives. Therefore, the AER considers that if the risk workshop outcomes had been moderated to take account of the new initiatives the risk factor is likely to have been lower than the proposed 5.2 per cent.

EP also analysed a sample of 29 past projects and claimed that historically it resulted in a 22 per cent underestimation factor. Initially ElectraNet compared this past outcome with the proposed 5.2 per cent risk factor.<sup>206</sup> It later acknowledged that the historical analysis had no bearing on the calculation of the 5.2 per cent risk factor and that its usefulness was more of a sensibility check to demonstrate that the underestimation was a real issue in the current regulatory period, and that the proposed risk factor is below the historical result.<sup>207</sup> SKM similarly concluded that the 22 per cent underestimation factor was not directly comparable with the proposed 5.2 per cent risk factor. The AER agrees with ElectraNet and SKM that the historical analysis does not have a direct bearing on the proposed risk factor. All that it provides is some indication that there is a tendency for projects to exhibit higher outturn costs.

The AER notes that the EUAA has questioned the extent to which good planning and project management could mitigate the identified risks, and what portion of risks should be transferred to end users. It agrees with SKM that the inclusion of several of the contingent risks has the potential for ElectraNet to inappropriately transfer typical

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<sup>205</sup> SKM report, p. 54.

<sup>206</sup> ElectraNet revenue proposal, p. 60.

<sup>207</sup> ElectraNet response to information request no. 163, confidential, submitted 28 August 2007.

operational business risks that are usually considered as being within the control of its management to users. Based on the information available before it, the AER is not satisfied that ElectraNet has sufficiently demonstrated that the risks included in its risk model are those that are suitably transferred to users.

The AER further notes that ElectraNet's risk assessment appears to have identified only two instances of cost saving opportunities. ElectraNet noted that the risk analysis is a more sophisticated and accurate tool that recognises both risks and opportunities,<sup>208</sup> and EP has stated that it is familiar with numerous project cost outcomes that have been in the range of 80 to 250 per cent of budgeted estimates.<sup>209</sup> Based on the available information, the AER is not satisfied that ElectraNet has sufficiently identified and accounted for all possible gains achieved from projects that could come under budget.

The deficiencies identified above indicate that the methodology adopted by ElectraNet does not lend itself towards its intended outcome of accurately providing allowances for likely costs. Therefore, on balance, the AER does not consider that the 5.2 per cent risk factor proposed by ElectraNet is appropriate in this instance.

However, the AER considers that it is reasonable to provide a cost estimation risk factor to take account of risks that are outside of ElectraNet's control when estimating projects. It accepts that ElectraNet has sufficiently established that there is a tendency for outturn costs to be greater than forecast costs, due to factors unforeseen at the time of preparing the project cost estimates. As noted above the AER, however, considers that the proposed risk factor is excessive.

Earlier in 2007 the AER considered the magnitude of the risk factor based on EP's analysis when it assessed the Powerlink revenue proposal. In the Powerlink revenue determination the AER allowed a risk factor of 2.6 per cent as it considered that this figure provided a better approximation of cost estimation risks and was based more on EP's experience and knowledge of delivery of major infrastructure projects and programs.<sup>210</sup>

The AER notes that Powerlink has been engaged by ElectraNet to develop detailed scopes of work for each project at the concept stage and also to develop project cost estimates.<sup>211</sup> The document supporting ElectraNet's BPOs has been reviewed and the AER notes that Powerlink has developed the BPOs. Taking account of ElectraNet's reliance on Powerlink methodologies for determining BPOs and project SAEs for its revenue proposal, the AER considers that the information provided suggests that it is appropriate for ElectraNet to apply the same 2.6 per cent risk factor as Powerlink to its capex program.

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<sup>208</sup> ElectraNet revenue proposal, p. 59.

<sup>209</sup> Evans & Peck, *Risk review of capital works program*, May 2007, p. 15.

<sup>210</sup> AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Decision*, 14 June 2007, pp. 38–43.

<sup>211</sup> ElectraNet revenue proposal, p. 56.

In allowing a risk factor for ElectraNet's project cost estimates, the AER recognises that there is a potential for double counting if risks that are captured through the risk factor have not been stripped out of individual project estimates as part of the BPO updating process. ElectraNet advised that its updating process explicitly reconciles the BPOs with risks that were encountered in a typical project. Therefore, its update is done against an adjusted (risk removed) project cost rather than the total outturn costs.<sup>212</sup> Further, ElectraNet confirmed that the BPOs used to develop project cost estimates do not include any risk contingencies and therefore avoids double counting.<sup>213</sup> SKM's detailed review of sample projects also indicate that ElectraNet has not double counted for the risks that are captured by the proposed risk factor. Therefore, the AER is satisfied that the BPOs adopted by ElectraNet do not take account of the risks that are outside ElectraNet's control and that the BPOs do not double count for such risks.

On balance, the AER is satisfied that a 2.6 per cent risk factor will provide ElectraNet with a total forecast capex allowance that reasonably reflects the efficient costs a prudent TNSP 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 \$14 million to the proposed ex ante capex allowance.<sup>214</sup>

#### **Application of escalators to the capex program**

##### ***ElectraNet proposal***

ElectraNet's approach to escalating the forecast capex in its model was based on applying a uniform scale factor derived by averaging the annual escalators over the next regulatory control period.<sup>215</sup>

##### ***Consultant review***

SKM noted that ElectraNet developed a uniform overall average escalator for the next regulatory control period—a scale factor—to equalise the escalation rate for each year, and applied this scale factor to model the escalated annual capex proposal.

SKM considered that the effect of this approach is to simplify ElectraNet's calculations, but in this instance it also resulted in artificially inflating the capex in the early years over the next regulatory control period and subsequently understating the capex in the latter years. This could deliver a windfall gain to ElectraNet.

SKM recommended that the annual escalators be applied to develop the capex profile, rather than the uniform scale factor.

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<sup>212</sup> ElectraNet response to information request no. 208, confidential, submitted 3 October 2007.

<sup>213</sup> ElectraNet response to information request no. 132, confidential, submitted 24 August 2007.

<sup>214</sup> The adjustment to ElectraNet's proposed risk factor was made after applying the project adjustments set out in section 4.6.5 and the revised cost escalators set out in this section.

<sup>215</sup> ElectraNet capex model.

### ***AER considerations***

SKM noted that ElectraNet has converted its annual escalators into a uniform scale factor and applied this escalation rate for each year of the next regulatory control period. It also noted that this approach could deliver a windfall gain to ElectraNet. SKM recommended that the annual escalators be applied to each year of the capex profile, rather than the uniform scale factor.

The AER notes that applying a uniform scale factor has the potential to distort the ‘true’ escalated capex profile in any given year. In this instance, the application of a uniform scale factor in ElectraNet’s proposal has resulted in the capex profile being higher in the early years of the next regulatory control period when compared with the profile based on annual escalators. The capex profile resulting from a scale factor is then lower in the later years of the next regulatory control period when compared with the profile based on annual escalators. The AER does not consider that the proposed approach provides a reasonably accurate reflection of the capex profile faced by ElectraNet.

Accordingly, the AER accepts SKM’s recommendation and will apply the escalators on an annual basis and not as a uniform scale factor over the next regulatory control period. It considers that the application of the escalators on an annual basis will reasonably reflect the efficient costs that a prudent TNSP operating under the circumstances of ElectraNet would require to achieve the capex objectives. Following a request from the AER, ElectraNet advised that the application of the annual escalators in its capex model results in a reduction of \$2.7 million to the proposed ex ante capex allowance.

### **Conclusion**

In summary, the AER’s conclusion is that:

- ElectraNet’s proposed BPOs are reasonable and provide an appropriate basis to estimate the costs of its forecast capex program.
- ElectraNet’s S-curves are reasonable for the purposes of developing the capex profile of different projects.
- SKM’s recommended land and easement escalator of 8.17 per cent per annum is appropriate for the purposes of estimating forecast land value growth.
- ElectraNet’s proposed labour escalation rates are reasonable for the purposes of estimating forecast wages growth.
- SKM’s recommended materials cost escalators are appropriate for the purposes of estimating forecast electricity infrastructure equipment cost growth.
- ElectraNet’s proposed cost estimation risk factor of 5.2 per cent is not reasonable and should be substituted with a risk factor of 2.6 per cent.
- The escalators should be applied on an annual basis and not as a uniform scale factor over the next regulatory control period.

Table 4.16 sets out the overall effect of the AER’s adjustments, which result in a reduction of \$38 million in ElectraNet’s ex ante capex allowance.<sup>216</sup>

**Table 4.16: AER’s conclusion on forecast capex escalators (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Base planning objects	–	–	–	–	–	–
S-curves	–	–	–	–	–	–
Land and easements	–0.11	–0.32	–0.37	–0.44	–0.28	–1.53
Labour	–	–	–	–	–	–
Non-labour (materials)	–1.66	–4.62	–4.92	–7.15	–1.76	–20.09
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
Total	–7.37	–11.51	–8.40	–8.84	–1.96	–38.08

#### 4.6.7 Contingent projects

This section sets out the AER’s consideration of ElectraNet’s proposed contingent projects and any other projects from the ex ante capex allowance that should be treated as contingent projects.

##### Regulatory requirements

The AER is required to assess contingent projects in accordance with clause 6A.8.1 of the NER. To accept a proposed contingent project the AER must be satisfied that:

- the project is reasonably required to be undertaken to achieve the capex objectives
- the proposed contingent capex is not otherwise provided in the ex ante capex allowance and reasonably reflects the capex criteria
- the indicative cost exceeds either \$10 million or 5 per cent of the maximum allowed revenue (MAR) for the first year of the regulatory control period (cost threshold)
- the information provided in relation to contingent projects complies with the AER’s submission guidelines made under clause 6A.10.2
- the proposed trigger event is appropriate.

<sup>216</sup> The adjustments to ElectraNet’s forecast capex escalators were made after applying the project adjustments set out in section 4.6.5.

Clause 6A.8.2 of the NER sets out the requirements to amend a revenue determination where a trigger event for a contingent project identified in that revenue determination occurred.

### ElectraNet proposal

ElectraNet proposed that 17 projects with a total indicative cost of \$947 million be included as contingent projects in its revenue determination. These projects, their proposed triggers and indicative costs as proposed by ElectraNet are set out in table 4.17. ElectraNet stated that its proposed MAR for the first year of the next regulatory control period is \$209 million. Five per cent of the MAR is \$10.4 million, which makes this amount the cost threshold for contingent projects in its revenue proposal.

**Table 4.17: ElectraNet’s proposed contingent projects (\$m, 2007–08)**

Project name	Trigger	Cost
Eyre Peninsula reinforcement	An increase in demand in the lower Eyre Peninsula region exceeding the published 2013–14 aggregated demand forecast for the region by 15 MW	150
Riverland reinforcement	An increase in demand in the Riverland region exceeding the 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	130
Yorke Peninsula reinforcement	An increase in demand in the Yorke Peninsula region exceeding the published 2013–14 aggregated demand forecast for the region by 25 MW	41
South East reinforcement	An increase in demand in the South East region exceeding the published 2013–14 aggregated demand forecast for the region by 15 MW	33
Bungama reinforcement	An increase in demand in the Port Pirie area exceeding the published 2013–14 aggregated demand forecast for the area by 20 MW	12
Southern Suburbs reinforcement	An increase in demand in the Southern Suburbs of Adelaide exceeding the published 2013–14 demand forecast for the Southern Suburbs by 35 MW	16
Playford (Davenport) to Leigh Creek 132 kV transmission line	An increase in demand on the Playford (Davenport) to Leigh Creek 132 kV transmission line more than 25 km from the Playford (Davenport) end exceeding the published 2013–14 aggregated demand forecasts for the existing loads connected to this line by 10 MW	11
Fleurieu Peninsula reinforcement	DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP	65
Murray Mallee reinforcement	DNSP application to connect in accordance with Chapter 5 of the NER and successful completion of the regulatory test by the DNSP	34



<b>Project name</b>	<b>Trigger</b>	<b>Cost</b>
Munno Para reinforcement	DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP	26
Lucindale West reinforcement	DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP	17
Western Suburbs reinforcement	DNSP application to connect in accordance with chapter 5 of the NER and successful completion of the regulatory test by the DNSP	15
Tailem Bend to Tungkillo reinforcement	Application of the regulatory test demonstrating that the project would deliver net market benefits	41
Parafield Gardens West	Application of the regulatory test demonstrating that the project would deliver net market benefits	14
Para–Brinkworth–Davenport 275 kV transmission lines	Application of the regulatory test demonstrating that the project would deliver net market benefits	12
Heywood interconnection capacity upgrade	Application of the regulatory test demonstrating that the project would deliver net market benefits	80
Northern transmission reinforcement	Customer application to connect in accordance with chapter 5 of the NER and a regulatory ruling that required network assets should be treated as providing prescribed transmission services	250
Total indicative cost		947

### **Submissions**

Flinders Power stated that ElectraNet’s proposed contingent project should be carefully reviewed to ensure that they satisfy the respective criteria in the NER. It also supported the Davenport – Brinkworth – Para transmission line uprating project being moved to the ex ante capex allowance.<sup>217</sup>

The ESIPC supported the Heywood interconnector upgrade and the Riverland reinforcement being included as contingent projects but noted that the proposed trigger event for the Riverland project may not be the most appropriate.<sup>218</sup>

The ESIPC also noted concern over whether some of the proposed contingent projects would provide prescribed or negotiated transmission services. Where there is some doubt over the classification, it supported the inclusion of these projects as ‘contingent’, subject to the agreement of the AER, with an additional trigger being

<sup>217</sup> Flinders Power, *ElectraNet transmission network revenue proposal—2008/09 to 2012/13 submission*, 17 August 2007, p. 2.

<sup>218</sup> ESIPC, *ElectraNet transmission network revenue proposal submission*, August 2007, p. 19.

defined as a regulatory ruling that the project should be considered as providing prescribed transmission services.<sup>219</sup>

The Government of South Australia considered that the AER should ensure that the benefits outweigh the costs to consumers of including contingent projects in ElectraNet's RAB. In particular, costs that can be attributed to specific projects should be funded by the proponent of the project rather than be smeared across all customers.<sup>220</sup>

The ECCSA stated that projects that do not add value to South Australian consumers should be carefully examined to ensure that consumers are not levied with the costs of providing services which do not provide them with a net benefit.<sup>221</sup>

The District Council of Ceduna was concerned that there are no plans to upgrade the network capacity from Wudinna to Ceduna.<sup>222</sup>

### **Consultant review**

SKM was required to assess whether ElectraNet's proposed contingent projects met the contingent project criteria and whether there were any projects in the proposed ex ante allowance that would be more appropriately classified as contingent.

SKM noted that project scopes and estimates are not accurately defined until the trigger event has occurred. It supported ElectraNet's approach to setting out the contingent projects by adopting a high level definition of the project requirement, scope, trigger event and cost estimate. SKM noted that a number of the proposed contingent projects were close to the cost threshold. Based on a cost benchmarking exercise of six projects closest to the cost threshold, SKM concluded that ElectraNet's estimates were reasonably consistent with its own estimates and above the cost threshold.

SKM categorised ElectraNet's proposed contingent projects into the following categories:

- market benefit driven projects
- new customer connection application driven projects
- significant increases in network load driven projects.

SKM undertook its review based on the type of project identified rather than a review of each individual project in detail. Based on its review SKM stated that:

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<sup>219</sup> *ibid.*, p. 21.

<sup>220</sup> Government of South Australia, *ElectraNet revenue proposal submission*, 24 August 2007, p. 1.

<sup>221</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 16.

<sup>222</sup> District Council of Ceduna, *ElectraNet price reset application 2008–13 submission*, 8 August 2007.

- All projects in the market benefit category are triggered by an application of the regulatory test and it understands that all SA customers will benefit from these projects. However, the underlying need for the Parafield Gardens West project would be a significant expansion of generation facilities and therefore the generator, as a negotiated transmission service applicant, would normally meet the costs associated with this project. SKM accepted that some part of the assets may provide prescribed transmission services due to the deep connection assets providing market benefits. However, it questioned whether the cost of these assets will meet the materiality cost threshold stated in the NER. Given the high degree of uncertainty associated with the project at this stage, it could not determine the actual portion of assets that will provide prescribed transmission services and therefore considered the inclusion of the project as a contingent project to be reasonable.
- The new customer connection category of projects has trigger events that are credible and could impact on the transmission network but the timing is uncertain. Except for the Northern transmission reinforcement project (Olympic Dam), SKM considered that all contingent projects in this category will be triggered by an application for a new connection point by ETSA and that these are credible events. The Northern transmission reinforcement project would be a connection application that serves only one customer and therefore it is primarily providing negotiated transmission services. However, SKM recognised that some portion of the assets would provide prescribed transmission services. Given the uncertainty of the project scope and costs at this stage, it considered that this project should be included as a contingent project and noted that the portion providing prescribed transmission services will most likely meet the materiality cost threshold stated in the NER.
- The significant load increase category of projects has trigger events that are credible and could impact on the network but the timing is uncertain. SKM considered that each trigger has been credibly defined as a quantified load increase.

Based on its review, and noting the comments on the Parafield Gardens West and Northern transmission reinforcement projects, SKM concluded that it is satisfied that all contingent projects proposed by ElectraNet meet the NER requirements.

#### **AER considerations**

The AER notes that some of the proposed contingent project costs are close to the cost threshold and that SKM has reviewed these project estimates using its asset valuation database. Based on SKM's findings that ElectraNet's proposed contingent project cost estimates that are close to the cost threshold are in reasonable agreement with SKM's estimates, the AER accepts that the proposed contingent projects satisfy the cost threshold. Subject to its considerations on the Northern transmission reinforcement and Parafield Gardens west projects below, the AER considers that ElectraNet's proposed contingent projects satisfies the requirements of clause 6A.8.1 of the NER.

#### ***Northern transmission reinforcement***

The Northern transmission reinforcement project relates to new transmission lines and substation works in the upper north region of South Australia, and is expected that the load it will be required to supply will be in excess of 400 MW. The associated

transmission work is estimated at \$250 million. ElectraNet has proposed the following trigger event:

Customer application to connect in accordance with Chapter 5 of the National Electricity Rules and a regulatory ruling that required network assets should be treated as providing prescribed transmission services.<sup>223</sup>

SKM noted that the project is dependent on a connection application that will primarily provide transmission services to one customer (BHP's Olympic Dam) but recognised that it will include some augmentation assets (deep connection assets) that provide prescribed transmission services. Therefore, it recommended that this project be treated as a contingent project.<sup>224</sup>

The ESIPC stated in its submission that:

A regulatory ruling on whether some of the proposed project should be classified as negotiated or prescribed services may result in changes to the capital program ... Where there is some doubt over the definition, the Planning Council supports, subject to the agreement of the AER the listing of those projects as 'contingent' with one of the triggers being a regulatory ruling as to whether the project should be considered as part of the prescribed or the negotiated services.<sup>225</sup>

The AER accepts SKM's advice that if the Olympic Dam expansion goes ahead, the proposed network connection assets associated with this contingent project will primarily provide negotiated transmission services. However, as a direct result of this new connection it is also likely that ElectraNet will need to augment/reinforce other parts of the network that provide prescribed transmission services to meet the reliability requirements of the NER or jurisdictional electricity legislation.

The AER does not consider that it is empowered by the NER to undertake a specific test for the purpose of a 'regulatory ruling' as envisaged by ElectraNet's proposed trigger and ESIPC's submission. Whether a service is defined as prescribed or negotiated will be driven by the TNSP/user interpretation of the definition in the NER and it is unclear who would formally make this ruling. Therefore, the AER considers that part of the trigger event as proposed by ElectraNet is not reasonably specific and capable of objective verification in accordance with clause 6A.8.1(c)(1).

Under clause 6A.8.1 of the NER, the AER must accept a proposed contingent project if it is satisfied that (amongst other things) the project is reasonably required to meet the capex objectives. The capex objectives in clause 6A.6.7 refer only to prescribed transmission services. Therefore, a proposed contingent project that provides both negotiated and prescribed transmission services would fail to meet the criteria as set out in clause 6A.8.1(b) in two ways. First, the proposed contingent project (as a whole) would not be reasonably required in order to achieve the capex objectives (clause 6A.8.1(b)(1)). Second, the proposed contingent project cost, defined as the

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<sup>223</sup> ElectraNet revenue proposal, appendix H, p. 36.

<sup>224</sup> SKM report, p. 85.

<sup>225</sup> ESIPC, *ElectraNet transmission network revenue proposal submission*, August 2007, p. 21.

total forecast capex for the proposed project, would not reasonably reflect the capex criteria, taking into account the capex factors (clause 6A.8.1(b)(2)(ii)). Each of the capex criteria refer back to the capex objectives, which each in turn relate only to prescribed transmission services.

Accordingly, under the NER requirements the AER considers that the proposed Northern transmission reinforcement project should not be included as a contingent project because:

- the trigger event is not capable of objective verification and therefore it is not appropriate (clause 6A.8.1(b)(4))
- it contains capital works for assets which provide both prescribed transmission services and negotiated transmission services and therefore does not satisfy clause 6A.8.1(b).

The AER notes that the NER does not prevent a contingent project being proposed as part of a broader project relating to the provision of transmission services as long as the proposed contingent project cost relates only to assets that provide prescribed transmission services. While it recognises the uncertainty associated with the project scope and the cost at this stage, the AER considers that if a revised Northern transmission reinforcement project is submitted as a contingent project ElectraNet must distinguish between the two transmission services by clearly separating the assets that provide prescribed transmission services from the assets of the broader project and provide its best estimate of the capex. A contingent project must only include assets that provide prescribed transmission services and the capex that needs to meet the materiality cost threshold in clause 6A.8.1(b)(2)(iii) will be that (and only that, to the extent that it can be defined at this stage) relating to these assets.

#### ***Parafield Gardens West***

ElectraNet has stated that currently generation at Pelican Point is constrained under both planned and unplanned single transmission line outage conditions. Therefore, the Parafield Gardens West contingent project is required in the event that generation at Pelican Point, Torrens Island or Western Suburbs expands. It proposed the application of the regulatory test demonstrating net market benefits as an appropriate trigger for the project.<sup>226</sup>

The AER accepts SKM's findings that the project is driven by an expansion of generation facilities and therefore it would be providing negotiated transmission services. It also accepts that some part of the assets may provide prescribed transmission services as there could be a market benefit associated with a portion of the deep connection assets.

However, the AER considers that—based on the same requirements of clauses 6A.8.1(b)(1) and 6A.8.1(b)(2)(ii) considered above—the Parafield Gardens West project should not be included as a contingent project because it contains capital

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<sup>226</sup> ElectraNet revenue proposal, appendix H, p. 30.

works providing both negotiated and prescribed transmission services and therefore does not satisfy clause 6A.8.1(b).

#### ***Riverland reinforcement***

While supporting the inclusion of the Riverland reinforcement as a contingent project, the ESIPC noted that it was unsure whether the proposed trigger was appropriate. This project is required to augment the transmission network in the Riverland region in the event that the Murraylink interconnector cannot provide the necessary network support required by ElectraNet to meet its ETC reliability standards. ElectraNet's proposed trigger includes two possible events—that is, either a demand increase of 30 MW beyond what has been forecast for the Riverland region in 2013–14 or VENCORP publishing advice to the effect that the dispatch of Murraylink is insufficient to provide network support to the Riverland region.

The AER understands that the ESIPC's concerns, in relation to the proposed trigger event for the Riverland reinforcement project, relate to:

- the need to consider alternative upgrades to transmission lines in Victoria prior to undertaking more expensive network development in the Riverland region and
- whether it will be provided an opportunity to discuss the issue with VENCORP prior to the trigger occurring.

The AER sought clarification from the ESIPC regarding its concerns with the proposed trigger. The ESIPC, having further considered the trigger, advised that the trigger is appropriate because it would be in a position to consult with VENCORP in identifying possible solutions to the network constraints in the Riverland region prior to the occurrence of the trigger. As such, the AER considers that it is reasonable to accept the proposed trigger for the Riverland reinforcement project.

#### ***Para – Brinkworth – Davenport***

Flinders Power stated that it supports including the uprating (from 65° to 80° Celsius) of the Para – Brinkworth – Davenport 275 kV transmission lines as an *ex ante* capex project. The AER notes that ElectraNet is currently uprating these lines from 49° to 65° Celsius thermal capacity and has proposed a further uprating (from 65° to 80° Celsius) as a contingent project subject to the application of the regulatory test demonstrating net market benefits. The AER considers that it is appropriate to accept ElectraNet's proposal to treat this project as a contingent project until the net market benefits can be demonstrated to justify the further uprating.

#### ***Eyre Peninsula***

The District Council of Ceduna was concerned about the lack of plans to develop network capacity from Ceduna to Wudinna. The AER notes that it is proposing to accept the contingent project in relation to reinforcement of the Eyre Peninsula put forward by ElectraNet if a step increase in demand of sufficient magnitude occurs. Accordingly, the AER considers that any potential developments in the Ceduna/Wudinna area are taken into account by this contingent project.

#### ***Ex ante capex projects treated as contingent projects***

Based on its detailed review of *ex ante* capex projects, SKM recommended that the transmission line works component of the Adelaide CBD project and the Transformer

ballistic proofing project be treated as contingent projects. Section 4.6.5 discusses the AER considerations for accepting SKM's recommendations on these two projects.

The AER notes that the line works component of the Adelaide CBD project cost estimate of \$105 million and the Transformer ballistic proofing project cost estimate of \$17 million both satisfy the cost threshold.<sup>227</sup>

The trigger events that the AER considers appropriate for these two projects are:

- Adelaide CBD line works component—the successful completion of the regulatory test and the receipt of development approval.
- Transformer ballistic proofing—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.

The proposed trigger events for these two contingent projects address the uncertainty associated with the scope of these projects. The trigger events satisfy clause 6A.8.1(c) which states the matters that the AER must give weight to in determining a trigger. In particular, the proposed trigger events are probable during the next regulatory control period but the project should not be included in the ex ante allowance because the costs associated with the capital works are not sufficiently certain (clause 6A.8.1(c)(5)(ii)). Further, the AER considers that the trigger events are reasonably specific and capable of objective verification (clause 6.8.1(c)(1)) and are described in such terms that their occurrence is all that is required for amending a revenue determination.<sup>228</sup>

### ***Conclusion***

The AER has approved 17 contingent projects for ElectraNet with a total indicative cost of \$805 million. Table 4.18 sets out the AER's approved contingent projects and the indicative costs. Appendix D provides a summary of all the contingent projects approved by the AER and describes the specific triggers and indicative costs for these projects.

The AER has not accepted two contingent projects—Northern transmission reinforcement and Parafield Gardens West—due to them providing negotiated transmission services, which in effect takes account of the concerns raised regarding the cost and benefits to South Australian consumers in accordance with the NER requirements.

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<sup>227</sup> According to ElectraNet, five per cent of the MAR is \$10.4 million, which makes this amount the cost threshold for contingent projects in its revenue proposal. For the purposes of the indicative cost of the Transformer ballistic contingent project, the cost from the capex model has been rounded up from \$16.5 million to \$17 million.

<sup>228</sup> National Electricity Rules, clause 6A.8.1(c)(4).

**Table 4.18: AER's approved contingent projects and indicative costs (\$m)**

Project name	ElectraNet's proposal	AER's conclusion
Eyre Peninsula reinforcement	150	150
Riverland reinforcement	130	130
Yorke Peninsula reinforcement	41	41
South East reinforcement	33	33
Bungama reinforcement	12	12
Southern Suburbs reinforcement	16	16
Playford (Davenport) to Leigh Creek 132 kV transmission line	11	11
Fleurieu Peninsula reinforcement	65	65
Murray Mallee reinforcement	34	34
Munno Para reinforcement	26	26
Lucindale West reinforcement	17	17
Western Suburbs reinforcement	15	15
Tailem Bend to Tungkillo reinforcement	41	41
Parafield Gardens West	14	–
Para – Brinkworth – Davenport 275 kV transmission lines	12	12
Heywood interconnection capacity upgrade	80	80
Northern transmission reinforcement	250	–
Adelaide CBD line works component	–	105
Transformer ballistic proofing	–	17
Total indicative cost	947	805

#### 4.6.8 Deliverability of the capex program

ElectraNet's forecast capex is predominately determined based on expected demand, the amended reliability standards set out in the ETC and the need to replace ageing assets. An assessment of deliverability is made because under the capex incentive framework a TNSP is able to retain, within the regulatory control period, the excess return on and of capital associated with a lower than approved capex allowance.

##### ElectraNet proposal

ElectraNet recognised that its proposed capex program of \$778 million is a significant increase when compared to the capex allowance of \$386 million provided in the



ACCC's 2002 revenue cap decision for the current regulatory period. However, it stated that while the program is approximately 100 per cent larger in dollar terms, a significant proportion of this additional capex requirement is attributable to higher input costs, and significant plant and equipment expenditure rather than work increases in actual physical terms. It also noted that during the current regulatory period it was able to ramp up its capex from \$35 million in the first year to over \$100 million in the final two years.

ElectraNet stated that it was confident about delivering the higher capex program in the next regulatory control period and noted the following initiatives that it has implemented, or commenced to implement to ensure deliverability:

- Design standardisation—ElectraNet noted that designs for transmission lines and substations now adopt a high degree of standardisation resulting in significant benefits in terms of being able to outsource most of the engineering design and support work. It also noted that standardisation enabled equipment modules to be bulk-purchased.
- Program management—ElectraNet has changed its past practice of engaging construction contractors on a project by project basis and has now moved to create large construction programs comprising many projects over a three to five-year period and awarding them to a smaller number of major contractors.
- Supply chain management—ElectraNet stated that the design standardisation and its program management approach in combination enables it to procure materials and equipment via long-term contracts resulting in the ability to order well in advance to ensure timely delivery.
- Increased outsourcing—ElectraNet stated that the design standardisation initiative has enabled practically all of the design work to be outsourced. It also noted that standard designs for new substations have been established allowing consultants/contractors a degree of certainty about the design process, so requiring less support and training.
- Increased internal staffing—ElectraNet is confident that it can continue to increase internal staffing to enable delivery of the capex program.
- Strengthened project governance—ElectraNet stated that the significant improvements to the project management processes have enhanced the organisational focus on project delivery.

### **Submissions**

The ECCSA expressed some concern that ElectraNet will not be able to deliver its forecast capex for the next regulatory control period, noting that expenditure in the early years of the current regulatory period was less than that forecast.<sup>229</sup>

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<sup>229</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 46.

The EUAA stated that, although ElectraNet has argued that it has shown an ability to ramp up its capex in the current regulatory period, the ability to deliver over the next regulatory control period is a concern. This is because the proposed ex ante allowance is much higher than what is being delivered in the current regulatory period.<sup>230</sup>

#### **Consultant review**

Overall, SKM concluded that ElectraNet should be able to deliver its capex program, because:

- ElectraNet has demonstrated an ability to ramp up its capex program during the current regulatory period
- its construction contractors have provided written confirmation that they have sufficient resources to undertake the proposed capex program.

However, SKM was concerned that the capex profile was ‘lumpy’ with expenditure in the early years being nearly three times that of the later years of the next regulatory control period. It stated that such a profile could undermine ElectraNet’s stated objective of providing certainty for its construction contractors. While recognising that the key driver for this capex profile was the ETC timing requirements, SKM noted that an extension of time for some of the ‘low priority’ ETC driven projects could be possible. It also noted that deferring some of the capex to achieve a smoother capex profile would have an additional benefit of delaying some of the cost increase to consumers.

SKM stated that it had not undertaken a detailed analysis of the viability of deferring projects. However, based on its industry experience it considered that four ETC driven and one replacement project could be possible candidates for deferral towards the end of the next regulatory control period. It did note, however, that there could be valid reasons for not deferring the projects.<sup>231</sup>

#### **AER considerations**

##### ***Initiatives—Dual contractor arrangements and capital governance processes***

The AER notes that a key initiative implemented by ElectraNet to enable it to deliver the capex program is its new project management approach. ElectraNet has moved away from its past practices of engaging contractors on a project by project basis to a new dual contractor strategy. Securing committed contractors with a continuous workload is one of ElectraNet’s desired outcomes from this approach.

The AER notes the concerns raised in submissions on whether ElectraNet can deliver the proposed capex program since the proposed allowance is much higher than the capital works program being delivered by ElectraNet in the current regulatory period. It also notes that SKM has reviewed ElectraNet’s two party contracting system, which

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<sup>230</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 3

<sup>231</sup> SKM report, p. 172.

is different to the previous approach of contracting project by project.<sup>232</sup> Further, in response to SKM's request for information on whether the two contractors are able to resource adequately in order to undertake ElectraNet's forecast capex program, ElectraNet advised that its contractors have provided assurances that they are capable of engaging the required resources to deliver ElectraNet's capex program.<sup>233</sup> Based on advice from ElectraNet, the AER is satisfied that ElectraNet has taken meaningful steps to ensure that its approach to delivering the proposed capex program is geared towards ensuring deliverability.

SKM has reviewed ElectraNet's capital governance processes including some of the initiatives that will enable ElectraNet to deliver its proposed capex program. Based on its experience in capital governance amongst Australian utilities SKM found that these new processes implemented by ElectraNet are in line with good industry practice. SKM also noted that the dual contractor arrangement appears to be working well and that in recent years ElectraNet has significantly increased its capital works program. The AER notes that design standardisation has enabled ElectraNet to establish standard designs for new substations and that this could provide benefits across ElectraNet's replacement capex program in this instance, as its proposed replacement projects are predominantly substation related.

On balance, the AER considers that the initiatives implemented or being implemented by ElectraNet is likely to provide it with the potential to be able to deliver the amended forecast capex program.

#### *Capital expenditure profile—ETC driven projects*

The AER notes SKM's finding 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 ESCOSA), which is due to come into effect on 1 July 2008. In particular, the profile of the forecast capex is weighted heavily towards the first three years of the next regulatory control period. The AER is aware that a condition of ElectraNet's transmission licence is that it must comply with the ETC. 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.

While SKM and the AER consider ElectraNet has implemented appropriate strategies to facilitate deliverability of the forecast capex program, there is a risk that given the scale involved, ElectraNet may not be able to deliver some of the projects within the proposed timeframe. The AER notes that under the ex ante framework set out in the NER, a TNSP is able to retain the excess return on and return of capital where actual capex is less than the allowance provided. To this end, if ElectraNet did not undertake the ETC driven projects within the proposed timeframe over the next regulatory control period it will retain the associated benefit of the excess return on and return of capital relating to the lower than forecast capex.

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<sup>232</sup> *ibid.*, pp. 15–16.

<sup>233</sup> ElectraNet response to information request no.ed 155, confidential, submitted 27 August 2007.

Further the AER understands that failure to deliver the projects within the specified timeframe in the ETC would result in no financial impact on ElectraNet under the transmission licensing regime administered by the ESCOSA, notwithstanding that the ETC requires certain projects to be completed within three years of the commencement date of the amended ETC. In such a situation, ElectraNet would make a windfall gain despite not meeting the timeframe of the ETC driven projects. The AER does not consider that the intent of either regulatory regime would be for such an outcome. To minimise the potential for such an outcome the AER considers that there is merit in smoothing the capex profile over the next regulatory control period.

SKM suggested that a smoother capital works program could be attained if ElectraNet was able to seek an extension of time for some of the 'lower priority' ETC driven projects. This would enable ElectraNet to still undertake the necessary investment required by the new reliability standards in the ETC, however, the timing of these projects would be deferred to the end of the regulatory control period. The AER considers that providing a smoother capex profile would align with ElectraNet's stated objective of providing certainty to its contractors and would also enhance the deliverability of the forecast capex program over the next regulatory control period.

Although SKM recommended four ETC driven projects as possible for deferral, in consultation with the ESIPC, the AER identified three low priority projects as suitable for deferral and requested ElectraNet to advise on whether the projects could practically be deferred to the fourth and fifth year of the next regulatory control period. The three projects are:

- Whyalla terminal rebuild (includes both connection and replacement assets)
- Wudinna 2 × 25 MVA 132/66 kV transformer reinforcement
- Ardrossan West 132 kV substation rebuild and 2 × 25 MVA transformer capacity increase (includes both connection and replacement assets).<sup>234</sup>

While noting that its construction contractors have provided feedback that the capex program is deliverable, ElectraNet stated that:

- whether the ETC related capex can be deferred is ultimately a decision for the ESCOSA
- the new reliability standards of the ETC that are effective from 1 July 2008 were based on recommendations from the ESIPC that were developed after an economic assessment demonstrated the benefit
- agreement by the ESCOSA to defer any of the projects should be done formally to ensure that ElectraNet is not liable to customers for any losses resulting from

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<sup>234</sup> Although ElectraNet had proposed a replacement component for this project, the AER has determined that the replacement component should be reclassified as augmentation capex and consequently would require an application of the regulatory test prior to implementation (see appendix B).

non-compliance with ETC due to delayed completion of capital works associated with the relevant projects

- the possibility of deferring the Whyalla project is dependent on ETSA continuing to be able to provide network support to ElectraNet to meet its ETC reliability standards.<sup>235</sup>

Recognising that the ESCOSA is the decision making body in regard to any deferral of ETC driven projects, the AER has written to the ESCOSA requesting it to consider allowing ElectraNet to defer the commissioning of the three identified ETC driven projects. If the ESCOSA agreed to the deferral of these three projects then the AER would be in a position to adjust ElectraNet's capex program in its final transmission determination. This proposed adjustment is expected to defer \$40 million (\$2007–08) of the capex in the first year to the fourth year and another \$28 million of capex in the second year to the fifth year of the next regulatory control period.<sup>236</sup>

SKM also suggested that—Project 10519 – RTU replacement program—could potentially be deferred to the latter part of the next regulatory control period. According to ElectraNet, this project involves the replacement of network remote monitoring equipment that is considered technically obsolete and is no longer supported by the manufacturer.<sup>237</sup> The project has been estimated to cost \$4.2 million (\$2007–08) with most of the expenditure being in the first three years of the next regulatory control period.

The AER notes that SKM's recommendation regarding this project is not based on a detailed review of the actual viability of the deferral. It is focused on identifying projects at a high level that may assist in smoothing ElectraNet's capex profile to enhance the deliverability of the capex program. Given the need for this project is to replace obsolete assets which are no longer supported by the manufacturer and in the absence of a detailed review by SKM, on balance, the AER considers that it is reasonable for the capex profile of this project to remain as proposed by ElectraNet.

While the AER is satisfied that ElectraNet has the potential to deliver the amended forecast capex program during the next regulatory period, it considers that there is merit in deferring the three proposed ETC driven projects towards the end of the next regulatory control period. If the ESCOSA agrees to the deferral of these projects, it will assist in smoothing the overall capex profile and enhance the deliverability of the capex program.

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<sup>235</sup> ElectraNet response to information request no. 231, confidential, submitted 18 October 2007.

<sup>236</sup> These values are based on ElectraNet's cost information templates. If the proposed deferral is implemented in the final transmission determination, the adjustment to the project costs will change due to the AER's amended cost accumulation process.

<sup>237</sup> ElectraNet revenue proposal, appendix G, p. 44.

## 4.7 AER conclusion

The AER has considered ElectraNet’s proposed forecast capex allowance of \$778 million (\$2007–08), and for the reasons outlined in this chapter is not satisfied that the forecast capex 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, and
- 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) of the NER.

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 allowance in ElectraNet’s revenue proposal. Therefore, the AER is 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.

Based on its analysis of ElectraNet’s proposed ex ante capex allowance and the advice of SKM the AER has reduced ElectraNet’s ex ante capex allowance by \$186 million. This represents a reduction of around 24 per cent of ElectraNet’s proposed forecast capex of \$778 million and results in a revised forecast capex allowance of \$592 million. Of this reduction, \$122 million is transferred to contingent projects.

The AER also accepts SKM’s recommendation to transfer \$17 million of opex refurbishment projects to capex, which results in a total ex ante capex allowance of \$606 million for the next regulatory control period. The AER’s revised ex ante capex allowance is set out in table 4.19. In addition, the AER has approved an indicative contingent projects allowance of \$805 million.

Although the adjustments made by the AER for the most part are set out on a project specific basis, it notes that the total capex after all of 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 revised 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 revised forecast ex ante allowance of \$606 million over the next regulatory control period, reasonably reflects the capex criteria taking into account the capex factors.

**Table 4.19: 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 <sup>a</sup>	-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 <sup>b</sup>	-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 <sup>c</sup>	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

Note: The AER will update the capex model with the latest CPI data at the time of its final transmission determination.

(a) These adjustments relate to augmentation, easement and replacement projects.

(b) This includes adjustments to escalation from 2006–07 to 2007–08 dollar, land (and easement) and materials escalators.

(c) The capex escalators have been applied to these projects.

## 5 Cost of capital

### 5.1 Introduction

This chapter provides an estimate of an efficient (market-based) benchmark weighted average cost of capital (WACC) or the rate of return for ElectraNet over the next regulatory control period. The key issues considered include the WACC parameters specified in the NER, and the determination of the debt margin and inflation forecast.

The AER's consideration of debt and equity raising costs, and corporate tax allowances is not set out in this chapter because they are not compensated for through the WACC. Accordingly, the analysis of debt and equity raising costs is found in chapter 6 and the analysis of corporate tax is found in chapter 8.

### 5.2 Regulatory requirements

The AER must determine the WACC by reference to the values, methodologies and benchmarks prescribed in chapter 6A of the NER. Clause 6A.6.2 provides that the appropriate expression of the rate of return for a transmission network service provider (TNSP) under the post-tax nominal framework is the WACC:<sup>238</sup>

$$\text{WACC} = k_e \frac{E}{V} + k_d \frac{D}{V}$$

where:

$k_e$  = the return on equity

$k_d$  = the return on debt

$E/V$  = the market value of equity as a proportion of the market value of equity and debt, which is  $1 - D/V$

$D/V$  = the market value of debt as a proportion of the market value of equity and debt, which is deemed to be 0.6.

It also states that the return on equity is determined by using the capital asset pricing model (CAPM):

$$k_e = r_f + \beta_e \times \text{MRP}$$

where:

$r_f$  = the nominal risk-free rate of return for the regulatory control period determined in accordance with clause 6A.6.2(c)

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<sup>238</sup> Based on the nominal vanilla WACC approach, the tax liability of a TNSP is explicitly modelled using the post-tax revenue model (PTRM).



MRP = the market risk premium, which is deemed to be 6 per cent

$\beta_e$  = the equity beta which is deemed to be 1.

### 5.3 ElectraNet proposal

In estimating the WACC for its revenue proposal, ElectraNet has used the values for the WACC parameters set out in the NER. For the purposes of its revenue proposal ElectraNet has calculated a nominal vanilla WACC of 8.79 per cent. The parameters underlying ElectraNet's calculation of the WACC are presented in table 5.1.

**Table 5.1: ElectraNet's WACC parameters**

Parameter	ElectraNet's proposal
Risk-free rate (nominal)	5.71 %
Risk-free rate (real)	2.66 %
Expected inflation rate	2.97 %
Debt risk premium	1.14 %
Market risk premium	6.00 %
Gearing	60 %
Equity beta	1.00
Nominal vanilla WACC	8.79 %

### 5.4 Submissions

The AER received submissions from the Energy Consumers Coalition of South Australia (ECCSA) and the Energy Users Association of Australia (EUAA) on the equity beta, risk-free rate and market risk premium (MRP). These submissions are discussed further in section 5.5.

### 5.5 Issues and AER considerations

#### 5.5.1 The WACC parameters specified in the NER

Businesses are typically funded by a combination of equity and debt; therefore, a weighted average cost of equity and debt must be established to derive the rate of return. This is usually referred to as the WACC. The derivation of the WACC requires several parameters, which are discussed below.

#### ElectraNet proposal

ElectraNet has estimated the return on equity using the CAPM and adopted the parameter values specified in the NER for the equity beta, MRP, and gearing.

## Submissions

The EUAA submitted that the equity beta should be significantly less than one. It stated that applying an equity beta of one implies that TNSPs are exposed to the same risk as the market as a whole. The EUAA stated:

This is incongruous when 99% of TNSP revenue is guaranteed and total compensation for its costs of service assured by regulatory arrangements.<sup>239</sup>

The ECCSA expressed similar concern at the value of the equity beta prescribed in the NER.

The EUAA submitted that the MRP of 6 per cent provides returns on equity that are higher than the level required by the market. It argued that a ‘forward-looking’ estimate of the MRP should be adopted rather than an estimate based on historical trends.

## AER considerations

The AER notes the issues raised by the ECCSA and the EUAA on the equity beta and MRP. However, for both of these parameters, the NER prescribes the values that must be adopted by the AER for the purposes of setting a rate of return for TNSPs. These parameters and values are outlined in section 5.2 of this draft transmission determination and have been applied by the AER for the purposes of determining the WACC for ElectraNet.

In deriving the WACC for a post-tax nominal framework, several other market based parameters including the risk-free rate, debt risk premium and inflation forecast must be estimated. These parameters are discussed in the following sections.

### 5.5.2 Risk-free rate

The risk-free rate measures the return an investor would expect from an asset with zero volatility and zero default risk. The yield on long-term Commonwealth Government Securities (CGS) is often used as a proxy for the risk-free rate because the risk of government default on interest and debt repayments is considered to be low.

In the CAPM framework, all information used for deriving the rate of return should be as current as possible. While it may be theoretically correct to use the on-the-day rate as it represents the latest available information, this can expose the TNSP to day-to-day volatility. For this reason, an averaging method is used to minimise volatility in observed bond yields.

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<sup>239</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue proposal 2008/09 to 2012/13*, 20 September 2007, p. 30.

## **Regulatory requirements**

Clause 6A.6.2(c) states that the nominal risk-free rate is to be determined by the AER:

... on a moving average basis from the annualised yield on Commonwealth Government bonds with a maturity of 10 years using:

- (1) the indicative mid rates published by the Reserve Bank of Australia; and
- (2) a period of time which is either:
  - (i) a period ('the agreed period') proposed by the relevant Transmission Network Service Provider, and agreed by the AER (such agreement is not to be unreasonably withheld); or
  - (ii) a period specified by the AER, and notified to the provider prior to the commencement of that period, if the period proposed by the provider is not agreed by the AER under subparagraph (i),

and, for the purposes of subparagraph (i):

- (iii) the start date and end date for the agreed period may be kept confidential, but only until the expiration of the agreed period; and
- (iv) the AER must notify the Transmission Network Service Provider whether or not it agrees with the proposed period within 30 business days of the date of submission of the Revenue Proposal under clause 6A.10.1(a).

Clause 6A.6.2(c) states that if there are no CGS with a maturity of 10 years on any day in the averaging period, the AER must determine the nominal risk-free rate by:

... interpolating on a straight line basis from the two Commonwealth Government bonds closest to the 10 year term and which also straddle the 10 year expiry date.

## **ElectraNet proposal**

ElectraNet has nominated an averaging period of 10 days to calculate the risk-free rate. It proposed a risk-free rate of 5.71 per cent based on annualised CGS yields with a maturity of 10 years for the purposes of its proposal, recognising that the AER will determine the applicable risk-free rate at the time of its final transmission determination.

## **Submissions**

The EUAA submitted that the risk-free rate should be based on five-year CGS yields to accord with the length of the regulatory control period. It stated that debt could be readily refinanced in Australia and there is no reason why the bond yield period should be different from the regulatory period under consideration.

## **AER considerations**

The AER notes the EUAA's submission; however, clause 6A.6.2(c) of the NER requires the AER to determine the nominal risk-free rate using annualised CGS yields with a maturity of 10 years.

In accordance with clause 6A.6.2(c) ElectraNet has proposed an averaging period to estimate the risk-free rate. The AER accepted ElectraNet's proposal on the basis that it considered the 10-day period and the proposed dates of the period were reasonable. The AER agreed to ElectraNet's request for the start and end dates of the averaging period to remain confidential until the expiration of the period.

For this draft transmission determination, the moving average of 10 days for CGS yields with a 10-year maturity for the period ending 5 October 2007, results in a proxy nominal risk-free rate of 6.25 per cent (effective annual compounding rate).<sup>240</sup> The AER will update the risk-free rate, based on the agreed averaging period, at the time of its final transmission determination.

### 5.5.3 Debt risk premium

The debt risk premium (or debt margin) is added to the nominal risk-free rate to calculate the return on debt, which is an input for calculating the WACC. It is intended to equate to a commercial cost of debt. The debt risk premium is the margin above the risk-free rate that investors in a benchmark efficient TNSP are likely to demand as a result of issuing debt to fund the business operations.

The debt risk premium varies depending on the entity's gearing, credit rating and the term of the debt. Applying the return on debt (as a percentage) to the RAB, adjusted for the assumed gearing, will generate the interest expense for regulatory purposes (also referred to as the cost of debt).

#### Regulatory requirements

Clause 6A.6.2(b) states that the return on debt is calculated as:

$$k_d = r_f + \text{DRP}$$

where:

$r_f$  = the nominal risk-free rate

DRP = the debt risk premium for the regulatory control period determined in accordance with clause 6A.6.2(e).

Clause 6A.6.2(e) of the NER prescribes the methodology for determining the debt risk premium:

The debt risk premium for a regulatory control period is the premium determined for that regulatory control period by the AER as the margin between the 10 year Commonwealth annualised bond rate and the observed annualised Australian benchmark corporate bond rate for corporate bonds which have a BBB+ credit rating from Standard and Poors and a maturity of 10 years.

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<sup>240</sup> Reserve Bank of Australia.

## ElectraNet proposal

Based on the NER requirements for setting the debt risk premium and using Bloomberg data, ElectraNet has proposed a debt risk premium of 1.14 per cent. ElectraNet has recognised that the AER will determine the debt risk premium using updated market data at the date of its final transmission determination.

## AER considerations

Consistent with previous regulatory practice, the AER considers that the debt risk premium should be determined with reference to the same averaging period that was adopted for determining the risk-free rate. The AER also accepts ElectraNet's proposal to use Bloomberg data to determine a debt risk premium based on corporate bonds which have a BBB+ credit rating from Standard and Poors and a maturity of 10 years is consistent with the requirements of the NER. In previous regulatory decisions, the AER considered that Bloomberg provides estimates of BBB+ rated and long-term fair yields, which are consistent with observed yields of similarly rated actual corporate bonds.<sup>241</sup>

For this draft transmission determination, the 10-day moving average benchmark debt risk premium for the period ending 5 October 2007, based on BBB+ rated corporate bonds with a maturity of 10 years, is 1.68 per cent (effective annual compounding rate).<sup>242</sup> Adding this debt risk premium to the nominal risk-free rate of 6.25 per cent provides a nominal return on debt of 7.93 per cent. As with the nominal risk-free rate, the debt risk premium will be updated by the AER based on the agreed averaging period, at the time of its final transmission determination.

### 5.5.4 Forecast inflation

The expected inflation rate is not an explicit parameter within the WACC calculation (when expressed in real terms); however, it is used in the post-tax revenue model (PTRM) to forecast nominal allowed revenues. It is an implicit component of the nominal risk-free rate, with implications for the return on both equity and debt.

Regulatory practice has to date forecast the expected inflation rate as the difference in the CGS (nominal) and the indexed CGS yields, as determined using the Fisher equation.<sup>243</sup> This is the method of inflation that is used in the PTRM.

## Regulatory requirements

Clause 6A.5.3(b)(1) states that the PTRM must specify:

a methodology that the AER determines is likely to result in the best estimates of expected inflation ...

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<sup>241</sup> 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.

<sup>242</sup> Bloomberg.

<sup>243</sup>  $(1 + \text{inflation rate}) = (1 + \text{nominal bond rate}) \div (1 + \text{indexed bond rate})$ .

Clause 6A.14.3(b) states that the AER must approve the total revenue cap and annual maximum allowed revenue (MAR) set out in a TNSP's revenue proposal if it is satisfied that those amounts have been properly calculated using the PTRM.

Clause 6A.14.3(a) states that if the AER is not required to approve a matter in accordance with clause 6A.14.3 then subject to any provision of chapter 6A it may, but is not required to, refuse to approve or accept that matter.

### **ElectraNet proposal**

ElectraNet proposed an annual inflation forecast of 2.97 per cent per annum for the next regulatory control period. This has been determined based on the difference between the observed CGS yield and indexed CGS yield (adjusted upwards by 20 basis points).

ElectraNet submitted research conducted by NERA suggesting that observed indexed CGS yields are biased downwards in the order of approximately 20 basis points. NERA stated that the supply of indexed CGS has fallen in recent years and the increased demand for them has depressed indexed CGS yields relative to those of comparable corporate bonds. It concluded that yields on indexed CGS will show a downward bias from what they would be in the absence of these conditions. Based on NERA's findings, ElectraNet has applied an upward adjustment of 20 basis points to the observed indexed CGS yields for use as proxies for the real risk-free rate.

### **Submissions**

The ECCSA and EUAA both submitted that applying an adjustment of 20 basis points to the indexed CGS yields used as proxies for the real risk-free rate is inappropriate. The EUAA's submission was supported by a report from Professor Martin Lally which reviewed the NERA research.<sup>244</sup>

Professor Lally argued that NERA's suggested approach of adjusting the risk-free rate upwards by 20 basis points is invalid, for the following reasons:<sup>245</sup>

- Changes in supply and demand for an asset do not affect its suitability as a proxy for the risk free rate within the CAPM. These changes are a part of the 'financial landscape and entirely consistent with the CAPM'.
- Insured corporate bonds—which NERA proposed as a more suitable proxy for the risk-free rate—violate the criteria for a risk-free asset in the context of the CAPM to a greater degree than government bonds.<sup>246</sup> Therefore, CGS would seem to be a much better proxy for the risk-free rate.
- If insured corporate bonds were a better proxy for the risk-free rate, using them would have the effect of raising the risk-free rate within the CAPM and lowering

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<sup>244</sup> Lally, M., *Absolute and relative bias in government bond yields*, 5 August 2007.

<sup>245</sup> *ibid.*, p.13.

<sup>246</sup> Lally identified these criteria as: the return on the asset is certain; the asset is liquid; there are no restrictions upon the purchase of the asset by any investor; and investors are not attracted or repelled from the asset for reasons other than the probability distribution on its return.

the MRP. NERA had wrongly judged the latter effect to be zero and therefore overestimated the increment to the cost of equity.

### **AER considerations**

ElectraNet has not calculated its forecast of inflation in accordance with the methodology set out in the PTRM. This means that the AER is not required to accept ElectraNet's forecast inflation and may, but is not required to, reject it.

The AER notes that this issue has been raised in several electricity and gas transmission applications before it and the ACCC. The AER's detailed considerations are set out in its recent draft decision on SP AusNet's transmission determination.<sup>247</sup>

In summary, the AER agrees that there appears to be some evidence of distortion in the indexed CGS market and therefore the observed yields may no longer be providing an appropriate benchmark proxy for the real risk-free rate. Consequently, the market-implied inflation estimate using the Fisher equation is likely to exceed the best estimate of forecast inflation. However, the AER does not consider that the proposed addition of 20 basis points to indexed CGS yields, for the purpose of estimating inflation using the Fisher equation, is a methodology that is likely to result in a best estimate of expected inflation.

The AER notes that no other market-based methodology exists that can be relied upon to objectively derive an inflation forecast. In the absence of an objective market-based methodology to forecast expected inflation the AER will be guided by the Reserve Bank of Australia's (RBA) 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. This approach should provide certainty to the market in the absence of a well regarded market-based measure.

The AER recognises that the current market sentiment is that inflationary pressure in the short to medium term may result in a tendency for the RBA to tighten monetary policy. The RBA has recently released its *Statement on monetary policy* which includes a forecast of inflation over the next few years.

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<sup>247</sup> AER, *SP AusNet transmission determination 2008–09 to 2013–14: Draft decision*, 31 August 2007, pp. 113–24.

The RBA forecasts that both CPI inflation and underlying measures are likely to rise above 3 per cent in the near term to June 2008. Over the medium term, the RBA indicated that:

... upward pressure on the inflation rate should diminish, helped in part by the rise in the exchange rate, assuming it is sustained, and some moderation in the pace of demand growth. But with demand growth still close to trend, and pressure on capacity only diminishing gradually, inflation is unlikely to decline far. Underlying and CPI inflation are accordingly both forecast to be close to 3 per cent during 2008 and 2009.<sup>248</sup>

Consistent with the way in which the WACC is determined, the relevant forecast inflation to be adopted in the revenue proposal should be based on the current market expectation. Accordingly, the AER considers that an inflation forecast of 3 per cent per annum, which is at the upper end of the RBA's target range, provides the best inflation estimate at this time. The AER notes that, in accordance with the regulatory arrangements under the CPI – X framework, the TNSP's revenue cap is adjusted for actual inflation outcomes over the regulatory control period.

While ElectraNet has not calculated its forecast inflation in accordance with the PTRM, or in the manner that will, in the AER's opinion result in the best estimate of expected inflation, the AER is of the view that ElectraNet's forecast inflation should be accepted in this case. ElectraNet's proposed inflation forecast of 2.97 per cent is not materially different to the AER's estimate of 3 per cent. Accordingly, the AER considers that in this case it is reasonable to accept the proposal.

## 5.6 AER conclusion

The NER prescribes a number of the WACC parameter values to be adopted by the AER for the purposes of setting a rate of return for TNSPs. For the parameters where the values have not been prescribed—nominal risk-free rate and the debt risk premium—the NER sets out the methodology to be used by the AER for determining the values.

For this draft transmission determination the AER has determined a nominal vanilla WACC of 9.66 per cent for ElectraNet. The WACC is greater than that proposed by ElectraNet because of higher bond yields in the financial market since ElectraNet submitted its revenue proposal.

The AER recognises that there is some concern over the appropriateness of using observed indexed CGS yields to derive an inflation forecast, as provided for in the PTRM. For the time being, the AER will be guided by the RBA's stance on monetary policy and official target inflation range of 2 to 3 per cent when determining the appropriate forecast inflation rate. Based on this approach, the AER considers that an inflation forecast of 3 per cent per annum provides the best estimate at this time. Given that ElectraNet has proposed an inflation forecast of 2.97 per cent, which is not

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<sup>248</sup> RBA, *Statement on monetary policy*, 12 November 2007, pp. 68–69.



materially different to the AER’s estimate, it is reasonable for the AER to accept ElectraNet’s proposed value but not for the reasons put forward by ElectraNet.

Table 5.2 outlines the WACC parameter values for this draft transmission determination. The AER will update the nominal risk-free rate and debt risk premium, based on the agreed averaging period, at the time of its final transmission determination.

**Table 5.2: AER’s conclusion on WACC parameters**

<b>Parameter</b>	<b>AER’s conclusion</b>
Risk-free rate (nominal)	6.25 %
Risk-free rate (real)	3.19 % <sup>a</sup>
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 equity	12.25 %
Nominal vanilla WACC	9.66 %

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

## **6 Operating and maintenance expenditure**

### **6.1 Introduction**

This chapter sets out the AER's assessment of ElectraNet's forecast operating and maintenance expenditure (opex) proposal for the next regulatory control period. The AER has reviewed ElectraNet's opex proposal against the requirements of the NER.

The opex forecasts in ElectraNet's proposal refer to its requirements for the provision of prescribed transmission services in the next regulatory control period.

This chapter sets out ElectraNet's opex proposal, submissions from interested parties, a summary of consultants' reviews and the AER's conclusion on ElectraNet's opex allowance for the next regulatory control period.

ElectraNet has requested an opex glide path allowance for its opex savings in the current regulatory period. This issue is addressed in chapter 8.

### **6.2 Regulatory requirements**

#### **6.2.1 Opex objectives**

Clause 6A.6.6(a) provides that a transmission network service provider (TNSP) must include in its revenue proposal the total forecast opex for the regulatory control period in order to achieve the opex objectives, which are to:

- (1) meet the expected demand for prescribed transmission services over that period;
- (2) comply with all applicable regulatory obligations associated with the provision of prescribed transmission services;
- (3) maintain the quality, reliability and security of supply of prescribed transmission services; and
- (4) maintain the reliability, safety and security of the transmission system through the supply of prescribed transmission services.

#### **6.2.2 Opex criteria and factors**

Clause 6A.6.6(c) provides that the AER must accept the forecast opex included in a revenue proposal if the AER is satisfied that the total forecast opex for the regulatory control period reasonably reflects the opex criteria, which are:

- (1) the efficient costs of achieving the operating expenditure objectives;
- (2) the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the operating expenditure objectives; and
- (3) a realistic expectation of the demand forecast and cost inputs required to achieve the operating expenditure objectives.

In making this assessment, the AER must have regard to the opex factors set out in clause 6A.6.6(e):

- (1) the information included in or accompanying the Revenue Proposal;
- (2) submissions received in the course of consulting on the Revenue Proposal;
- (3) such analysis as is undertaken by or for the AER and is published prior to or as part of the draft decision of the AER on the Revenue Proposal under rule 6A.12 or the final decision of the AER on the Revenue Proposal under rule 6A.13 (as the case may be);
- (4) benchmark operating expenditure that would be incurred by an efficient TNSP over the regulatory control period;
- (5) the actual and expected operating expenditure of the TNSP during any preceding regulatory control periods;
- (6) the relative prices of operating and capital inputs;
- (7) the substitution possibilities between operating and capital expenditure;
- (8) whether the total labour costs included in the capital and operating expenditure forecasts for the regulatory control period are consistent with the incentives provided by the applicable service target performance incentive scheme in respect of the regulatory control period;
- (9) the extent to which the forecast of required operating expenditure of the TNSP is referable to arrangements with a person other than the provider that, in the opinion of the AER, do not reflect arm's length terms; and
- (10) whether the forecast of required operating expenditure includes amounts relating to a project that should more appropriately be included as a contingent project under clause 6A.8.1(b).

Clause 6A.6.6(d) states that if the AER is not satisfied that a TNSP's forecast opex reasonably reflects the opex criteria then the AER must not accept the forecast opex in a revenue proposal. If the AER does not accept the total forecast opex proposed by a TNSP, clause 6A.14.1(3)(ii) of the NER requires the AER to include in its draft decision:

... an estimate of the total of the Transmission Network Service Provider's required operating expenditure for the regulatory control period that the AER is satisfied reasonably reflects the operating expenditure criteria, taking into account the operating expenditure factors.

### **6.3 ElectraNet proposal**

ElectraNet's forecast opex for the next regulatory control period is \$324 million (\$2007–08), which is \$77 million greater than its expected opex in the current regulatory period. ElectraNet identified the following significant cost drivers:

- asset growth
- an ageing asset base

- labour skills shortages and real wages growth
- cost scope changes.

Table 6.1 sets out ElectraNet’s forecast opex by cost category and year for the next regulatory control period.

**Table 6.1: ElectraNet’s forecast opex by category and year (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Field maintenance	23.6	24.2	25.3	26.4	26.4	125.9
Field support	8.1	8.6	8.9	9.5	10.0	45.1
Operations	2.0	2.0	2.1	2.2	2.3	10.6
Asset manager support	6.4	6.5	6.6	6.8	6.9	33.1
Corporate support	14.1	14.5	15.4	16.4	16.9	77.3
Total controllable opex	54.2	55.8	58.4	61.3	62.5	292.1
Other opex	5.5	5.8	6.1	6.6	8.0	31.8
Total opex proposal	59.6	61.5	64.4	67.8	70.5	323.8

Source: ElectraNet revenue proposal, p. 91.

### 6.3.1 Opex forecasting methodology

ElectraNet forecasts its opex by defining base year opex and modelling the impact of future cost drivers and efficiency factors on all components of its base year expenditure.

In defining its base year opex, ElectraNet calculated its efficient opex for 2005–06. It then adjusted base year estimates for changes in the mode and scope of its operation in the next regulatory control period. It also used a bottom up approach to forecasting a significant amount of opex where it was considered that the base year did not accurately reflect future expenditure requirements.

### 6.3.2 Components of forecast opex

#### Efficient base year controllable costs

ElectraNet’s actual controllable opex for 2005–06 was \$47 million, which is \$1.8 million (\$2007–08) lower than the forecast efficient level of expenditure included in the ACCC’s 2002 revenue cap decision for the current regulatory period.<sup>249</sup>

<sup>249</sup> ElectraNet revenue proposal, p. 38–39.

### **Scope changes**

ElectraNet stated a number of new programs and obligations require additional opex, compared to base year opex costs, specifically:

- skills development
- land tax
- generator testing.

These issues are addressed in section 6.6.3. Further scope changes include the removal of revenue reset costs from the base year (as these costs do not occur in every year of the regulatory control period) as well as the removal of a one-off superannuation funding top-up from the base year.

### **Zero base estimates**

ElectraNet claimed that the base year costs were not a good indicator of future costs for some opex categories. Accordingly, it developed zero based (bottom up) forecasts for the following categories:

- routine maintenance
- maintenance projects
- insurance
- self-insurance
- land tax
- network support
- debt and equity raising costs.

### **Escalators**

ElectraNet applied escalators to base year forecasts to take into account the impact of asset base growth, wages growth, increases in land values and growth in other non-labour costs in the next regulatory control period. Section 6.6.9 discusses the escalators in more detail.

## **6.4 Submissions**

The following stakeholders made submissions on the opex component of ElectraNet's revenue proposal:

- The Energy Consumers' Coalition of South Australia (ECCSA)
- The Energy Users' Association of Australia (EUAA)
- Flinders Power
- The Government of South Australia.

These submissions are discussed in general below and where relevant in specific sections of the opex chapter.

The ECCSA submitted that ElectraNet's efficient base year should not be based on a single year's opex. It also stated that a range of benchmarks should be used, and suggested an efficient base year opex of \$40 million per annum. This figure was derived from an average of historical opex for the past seven years, excluding 2006–07 and 2007–08. It further submitted that the use of 2005–06 opex to calculate the efficient base year opex would result in an inflated figure, as there was a step but unexplained change between 2004–05 and 2005–06 costs. It noted the increase arose from higher field maintenance costs but the reasons were not provided by ElectraNet.<sup>250</sup>

The ECCSA was also concerned with ElectraNet's bottom up estimates for some opex components, because it perceived this practice provides opportunities for cherry picking.<sup>251</sup>

The EUAA submitted that ElectraNet's efficient base year should be 2004–05, when savings programs were initiated, rather than 2005–06, which saw an increase in opex of approximately 23 per cent from 2004–05. It stated that the AER must ensure that a number of expenditures were appropriate, given steady increases in forecast opex from year to year. The EUAA strongly recommended that ElectraNet be required to explore productivity and efficiency gains to offset costs to the greatest extent possible.<sup>252</sup> It also submitted that the AER's regulatory decisions should encourage ElectraNet to investigate demand side management and non-network options.<sup>253</sup>

Flinders Power noted that ElectraNet's proposed increase in opex caters for a number of initiatives which are likely to result in more efficient asset usage and asset life optimisation but called for the AER to be satisfied that the expenditure is 'justified'. Flinders Power further noted expenses should be 'efficient, sustainable and manageable' and an independent review should be sought to ensure the AER is satisfied.<sup>254</sup>

Flinders Power raised specific concerns about the cost of the generator testing program set out by ElectraNet to comply with the NER. It submitted that regardless of cost allowances, the cost and roll-out of the program should be undertaken by ElectraNet.<sup>255</sup>

Flinders Power also stated that the AER ought to take into account under or over expenditure by ElectraNet in the current regulatory period.<sup>256</sup>

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<sup>250</sup> Energy Consumers Coalition of South Australia, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, pp. 35–37.

<sup>251</sup> *ibid.*, p. 38.

<sup>252</sup> Energy Users of Association of Australia, *Australian Energy Regulator Review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, pp. 21–23.

<sup>253</sup> *ibid.*, p. 25.

<sup>254</sup> Flinders Power, *ElectraNet transmission network revenue proposal—2008/09 to 2012/13 submission*, 17 August 2007, pp. 2–3.

<sup>255</sup> *ibid.*, p. 4.

<sup>256</sup> *ibid.*, p. 3.

The Government of South Australia emphasised that the AER should be mindful of the financial impact of its decision on South Australian consumers in looking at whether expenditure is ‘fully justified’.<sup>257</sup>

## 6.5 Consultant review

SKM reviewed ElectraNet’s revenue proposal, including ElectraNet’s forecast opex, forecasting methodology (including base year extrapolation and zero base estimate) and network support forecasts. SKM did not review debt and equity raising costs.

SKM reviewed and analysed the following matters in relation to the contribution of opex forecasts to ElectraNet’s delivery of prescribed transmission services:

- the efficiency of ElectraNet’s forecast opex for each year of the next regulatory period and whether there exists any scope for efficiencies
- the appropriateness of ElectraNet’s allocation of opex costs to specific activities, including the distinctions between regulated and non-regulated activities; routine maintenance and refurbishments/renewals; and the treatment of joint and common costs such as corporate administration expenses, financing charges and depreciation
- the effectiveness of ElectraNet’s operating practices and procedures and asset management system in ensuring only necessary and efficient opex occurs
- the key internal and external factors that may affect the level of efficient opex required by ElectraNet over the next regulatory period
- the appropriateness of ElectraNet’s methodology to forecast its opex requirements
- the appropriateness of any trade-off between capex and opex.

SKM’s overall recommendations compared to ElectraNet’s proposal are shown in table 6.2. The recommendations are discussed in detail in section 6.6.

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<sup>257</sup> Government of South Australia, *ElectraNet revenue proposal submission*, 24 August 2007.

**Table 6.2: SKM’s recommended adjustments and opex forecast (\$m, 2007–08)**

		2008–09	2009–10	2010–11	2011–12	2012–13	Total
Field maintenance	ElectraNet	23.6	24.2	25.3	26.4	26.4	125.9
	SKM	19.4	19.8	20.5	21.0	20.1	100.7
	Difference	–4.2	–4.4	–4.8	–5.4	–6.4	–25.2
Field support	ElectraNet	8.1	8.6	8.9	9.5	10.0	45.1
	SKM	8.0	8.3	8.6	9.1	9.5	43.5
	Difference	–0.1	–0.3	–0.3	–0.4	–0.5	–1.6
Operations	ElectraNet	2.0	2.0	2.1	2.2	2.3	10.6
	SKM	2.0	2.0	2.1	2.2	2.3	10.6
	Difference	–	–	–	–	–	–
Asset manager support	ElectraNet	6.4	6.5	6.6	6.8	6.9	33.1
	SKM	6.1	6.3	6.4	6.5	6.7	32.0
	Difference	–0.3	–0.2	–0.2	–0.3	–0.2	–1.1
Corporate support	ElectraNet	14.1	14.5	15.4	16.4	16.9	77.3
	SKM	13.8	14.2	15.1	16.1	16.6	75.8
	Difference	–0.3	–0.3	–0.3	–0.3	–0.3	–1.5
Total controllable opex	ElectraNet	54.2	55.8	58.4	61.3	62.5	292.1
	SKM	49.3	50.7	52.8	54.9	55.1	262.6
	Difference	–4.9	–5.1	–5.6	–6.4	–7.4	–29.5
Network support	ElectraNet	4.7	4.9	5.1	5.6	7.0	27.3
	SKM	4.7	4.8	5.0	5.4	6.3	26.2
	Difference	–	–0.1	–0.1	–0.2	–0.7	–1.1
Total opex <sup>a</sup>	ElectraNet	59.6	61.5	64.4	67.8	70.5	323.8
	SKM	54.7	56.3	58.7	61.2	62.4	293.2
	Difference <sup>b</sup>	–4.9	–5.2	–5.7	–6.6	–8.1	–30.5

(a) Total opex includes debt and equity raising costs that were not assessed by SKM.

(b) Totals may not add due to rounding.

Source: SKM report, p. 130.

SKM did not recommend any adjustments to the proposed base year opex. However SKM did recommend a number of adjustments to those elements that were forecast using a bottom up approach, escalators, and additional opex arising from changes in the scope of ElectraNet’s opex needs.

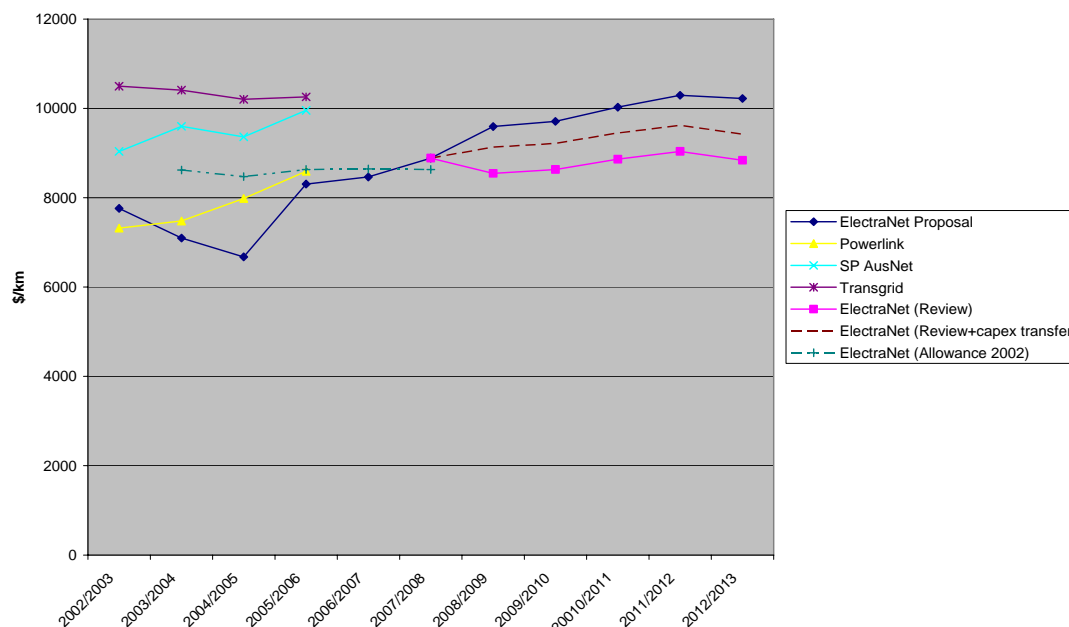
The bulk of the adjustments reflect SKM’s view that some of the field maintenance costs should be capitalised rather than expensed. This accounts for around \$15 million reduction in opex, but is counter balanced by a commensurate increase in capex.

The combined impact of SKM’s recommended adjustments is shown in figure 6.1. It presents ElectraNet’s controllable opex as a proportion of line length, and also shows a comparison with other Australian TNSPs. SKM stated it used the opex/line length ratio in its comparisons with other TNSPs to take into account the fact that ElectraNet has a geographically extensive network with relatively low load. Figure 6.1 shows that while ElectraNet’s proposed opex allowance resulted in a steep increase in the



opex/line length ratio, implementing SKM’s proposed adjustments leads to a fairly stable ratio, throughout the next regulatory control period.

**Figure 6.1: Controllable opex per kilometre of line (\$m, 2007–08)**



Source: SKM report, p. 131.

## 6.6 Issues and AER considerations

### 6.6.1 ElectraNet forecasting methodology

#### ElectraNet proposal

ElectraNet forecasts its opex requirement using both base year extrapolation and zero based estimates, derived using a bottom up approach.<sup>258</sup>

#### Submissions

The ECCSA stated that the zero base methodology allows ElectraNet to ‘cherry pick’ and results in higher opex requirements when compared to extrapolating from the base year.<sup>259</sup>

<sup>258</sup> ElectraNet revenue proposal, pp. 80–81.

<sup>259</sup> ECCSA, op. cit., p. 38.

## Consultant review

SKM reviewed the forecasting methodology and stated that zero base estimates have only been applied where the base year expenditure has not been indicative of future expenditure requirements.<sup>260</sup>

## AER considerations

The AER considers that ElectraNet has provided a robust methodology for forecasting its opex requirement for the next regulatory control period. It accepts the use of zero base forecasts for some opex components as well as extrapolation of base year opex for the remaining opex categories. Specific issues regarding opex methodology and forecasts are considered in sections 6.6.2 to 6.6.6 of this draft transmission determination. Details of the rationale for zero basing the specific opex components are discussed in section 6.6.3 and 6.6.4 of this draft transmission determination.

The AER has used ElectraNet's forecasting methodology and model to review the efficient opex required by ElectraNet in the next regulatory control period. However the AER considers that a number of corrections and adjustments to the opex model are required. Many of these changes impact on the model in more than one area. For this reason the total impact of the individual changes is different to the consolidated impact of all the changes. Where the AER has noted an efficient opex requirement for a specific category of expenditure, the amounts specified reflect the amounts derived from the consolidated model, incorporating all changes and not just the specific change discussed.

### 6.6.2 Efficient base year

#### ElectraNet proposal

ElectraNet identified 2005–06 as the base year for forecasting opex in the next regulatory control period noting it is the most recent full year of audited accounts available.<sup>261</sup> It removed one-off costs incurred in 2005–06 from base year costs. ElectraNet submitted that its 2005–06 costs are lower than the efficient level of expenditure set by the ACCC in its 2002 revenue cap decision, when adjusted for CPI (see table 6.3).

**Table 6.3: Actual and allowed opex for 2005–06 (\$m, 2007–08)**

	Total opex
ACCC revenue cap decision (CPI adjusted)	48.4
ElectraNet's actual opex	46.6
Difference	-1.8

Source: ElectraNet revenue proposal, p. 123.

<sup>260</sup> SKM report, p. 104.

<sup>261</sup> ElectraNet revenue proposal, p. 81.

## **Submissions**

The ECCSA submitted that a single year should not be used as the basis for efficient base year costs. It suggested the use of a range of benchmarks, and recommended base year costs of \$40 million. It arrived at this figure by deriving average opex for the last seven years, excluding 2006–07 and 2007–08. It further submitted that 2005–06 costs would result in an inflated base, as there was a step change in opex costs in 2005–06.<sup>262</sup>

## **Consultant review**

SKM supported ElectraNet’s proposal to use 2005–06 as the base year from which to forecast opex. SKM benchmarked ElectraNet’s controllable opex against other Australian transmission entities and noted that ElectraNet was generally within an acceptable range across a number of benchmarking measures.<sup>263</sup>

SKM’s analysis also recognised that the base year forecasts apply to only a limited number of opex components, with several major expenditure items being forecast using a zero base approach. SKM calculated the average opex in the current regulatory period for the base year components, and noted that the 2005–06 opex was very close to the average opex in the current regulatory period.<sup>264</sup>

It stated that based on an examination of the line items to be forecast using a base year methodology, ElectraNet’s 2005–06 expenditure in these categories represents an efficient and appropriate basis for forecasts into the next regulatory control period.<sup>265</sup>

## **AER considerations**

In its review of the proposed base year the AER has considered both the efficiency and the appropriateness of the base year expenditure.

The AER has considered the appropriateness of the base year opex and has accepted the exclusion from the base year of the zero based opex components. This is discussed in section 6.6.1.

In considering the efficiency of the base year opex the AER considers that where the proposed base year actual expenditure is close to or less than the efficient allowance provided in the previous revenue cap decision, it is reasonable to accept the base year as an efficient starting point for forecasting.

ElectraNet’s proposed forecasting methodology does not use base year extrapolation for major components of its opex estimates. Hence the comparison of allowed and actual base year expenditures must be adjusted to only review those elements that remain in the base year. This comparison must be a like for like comparison—that is,

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<sup>262</sup> ECCSA, *op. cit.*, pp. 35–37.

<sup>263</sup> SKM report, p. 105.

<sup>264</sup> *ibid.*, p. 105.

<sup>265</sup> *ibid.*, p. 105.

actual expenditures must be compared to the efficient allowances for the base year opex categories set out in the 2002 revenue cap decision.

In the AER's review of ElectraNet's opex it became apparent that such a comparison was open to interpretation, due to the forecasting and analysis used in the last revenue reset process. The AER could not unambiguously allocate ElectraNet's opex to the categories used in that process.

ElectraNet provided information to show that the underspend amounts in 2003–04 and 2004–05 were due to corporate efficiencies, and claimed these efficiencies were included in the base year opex. ElectraNet also noted that while the underspend represents ongoing corporate efficiencies, the same level of underspend is not maintained throughout the current regulatory period, due to other cost increases in the latter years of the regulatory period.<sup>266</sup>

The AER reviewed ElectraNet's information on how it achieved the efficiencies, noting the bulk of the efficiency was due to staff cuts, as well as some changes to systems and programs. ElectraNet provided the AER with additional information on staffing, demonstrating that staff numbers in the corporate support and asset management areas had only increased marginally in 2005–06, in line with general growth in the size of the business. On this basis the AER accepts ElectraNet's claim that the 2005–06 base year includes the corporate efficiencies made in 2003–04.

The estimates of base year opex, that exclude the zero base elements do not show a step change in expenditure, and are close to or less than the average opex for the current regulatory period. The concerns of ECCSA therefore do not apply when the base year opex has the zero based elements removed.

The AER notes that 2005–06 opex includes previous efficiency gains and the expenditures have been audited. Further the AER considers that 2005–06 expenditures are representative of average opex over the current regulatory period for base year opex elements, and does not show any step change from earlier years of the current regulatory period. For these reasons the AER accepts ElectraNet's proposal to use 2005–06 as the base year from which to forecast opex estimates.

### **6.6.3 Changes in scope**

Variations to ElectraNet's opex requirement will occur if the nature of ElectraNet's operations and maintenance activities change. Changes in the scope of opex may arise due to new regulatory or compliance obligations or from expenditure program changes that impact on costs. These impacts result in the base year expenditure no longer being representative of future expenditures.

ElectraNet has listed four changes in scope:

- generator testing

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<sup>266</sup> The opex underspend is subject to an efficiency sharing claim by ElectraNet, which is discussed in chapter 8.

- skills development
- revenue reset costs
- land tax.

### **Generator testing**

Generator testing is a new obligation placed on TNSPs under clause 5.7.6 of the NER that came into effect on 15 March 2007.

#### ***ElectraNet proposal***

ElectraNet stated it has developed a systematic and ongoing generator testing and network model development program in order to comply with its new obligations under the NER.<sup>267</sup> Its expenditure forecasts are shown in table 6.4.

**Table 6.4: ElectraNet’s proposed generator testing costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Generator testing costs	0.7	0.7	0.7	0.7	0.7	3.3

Source: ElectraNet opex model.

#### ***Submissions***

Flinders Power submitted that any costs of the generator testing and model validation should be borne by the TNSP.<sup>268</sup>

#### ***Consultant review***

SKM noted that ElectraNet has proposed a conservative testing and modelling regime, compared to that recommended by its consultant. However, SKM considered ElectraNet is also too conservative in its approach to cost allocation and externally sourced test costs ought to be shared with the owner of the generator. Therefore, it recommended a reduction in opex of \$1.1 million (\$2007–08) in the next regulatory control period.<sup>269</sup>

#### ***AER considerations***

ElectraNet has forecast costs of \$3.3 million (\$2007–08) to fulfil its obligations under clause 5.7.6 of the NER. The forecast costs are derived from two activities: generator testing and generator modelling. It cited the need to direct and control generator tests as justification for including the generator testing costs in its forecasts. However the AER considers the generators’ responsibility for the testing costs is a matter of cost allocation, and is not likely to affect NSP control of tests. The AER also considers that generators should be required to bear the costs of generator tests, as clause 5.7.6(i) states that “[t]he Generator, the Network Service Provider and NEMMCO must each bear its own costs associated with tests conducted under this clause 5.7.6.”

<sup>267</sup> ElectraNet revenue proposal, pp. 83–84.

<sup>268</sup> Flinders Power, op. cit., p. 4.

<sup>269</sup> SKM report, p. 124.

The AER agrees with SKM’s conclusion that it is appropriate for the generator to bear the costs of testing and the ElectraNet’s costs should be limited to test design, and meeting the network modelling requirements.

The AER considers that the \$3.3 million proposed by ElectraNet relating to its generator testing program exceeds the opex that would be incurred by an efficient TNSP over the regulatory control period, and does not reflect the efficient costs required to achieve the opex objectives. Therefore the AER does not approve this amount.

Having reviewed ElectraNet’s proposal the AER considers an estimate that reasonably reflects the costs that a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$2.1 million for generator testing for the next regulatory control period.

### Skills development

#### *ElectraNet proposal*

ElectraNet stated the need for initiatives to develop and retain skilled resources is driven by the skills shortages that have been evident in the past three years.<sup>270</sup> The skills development initiatives include university cadetships, graduate development and international recruitment programs. Table 6.5 shows the costs proposed by ElectraNet.

**Table 6.5: ElectraNet’s proposed skills development costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Skills development costs	0.7	0.7	0.7	0.7	0.7	3.5

Source: ElectraNet opex model.

#### *Submissions*

The ECCSA submitted that skills development costs should be identified in terms of numbers of staff and types of training, to ensure appropriate expenditure.<sup>271</sup>

#### *Consultant review*

SKM supported the inclusion of the skills development initiatives in the scope change estimates. However it recommended a reduction in opex forecast of \$1.3 million (\$2007–08) over the next regulatory control period to remove the salaries components of the initiatives from the forecast. SKM noted that a large proportion of the labour costs were accounted for in other opex categories, and increases in graduate numbers were covered by asset growth escalators applied to corporate support areas.<sup>272</sup>

<sup>270</sup> ElectraNet revenue proposal, p. 83.

<sup>271</sup> ECCSA, op. cit., pp. 39–40.

<sup>272</sup> SKM report, p. 125.

### *AER considerations*

ElectraNet founded its need for skills development and retention initiatives on growing shortages of power engineers, and an ageing workforce. A 2004 report prepared for Engineers Australia confirms both facets of ElectraNet's justification for increased expenditure on skills development.<sup>273</sup>

The median age for power engineers is 41–45 years, with 40 per cent of power engineers over the age of 45, and 27 per cent over 50. Further, power engineers under 26 make up only 6 per cent of the total number of power engineers in the industry. These figures are supported by data collected by the Department of Employment and Workplace Relations (DEWR).<sup>274</sup> According to DEWR, 66 per cent of job openings for electrical engineers arise from workers leaving the occupation. DEWR research conducted in July 2006 showed a continued shortage of electrical engineers in South Australia.<sup>275</sup>

The Association of Professional Engineers and Managers Australia estimate graduate salaries for electrical engineers in 2005 at \$48 900.<sup>276</sup> ElectraNet forecasts graduate salaries of approximately \$54 500 per annum per graduate over the next regulatory control period. The higher salary used by ElectraNet reflects a reasonable adjustment to account for wages inflation between 2005 and 2007.

While the need for skills development is justified by external research, there was an error in calculating the opex necessary to address skills development. As set out in SKM's report, participant salaries for the graduate and accelerated power engineer development program were largely included in other opex items. A second error regarding the treatment of graduate numbers was also found. To correct for these modelling errors the labour component of skills development opex requirement is reduced from 100 per cent to 30 per cent. Accordingly the AER does not accept the inclusion of the amount sought by ElectraNet for skills development.

Instead, the AER considers an estimate that reasonably reflects the costs that a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$2.2 million (\$2007–08) for skills development over the next regulatory control period. The adjustment is included in the opex requirement for the corporate support category of opex and is also shown in table 6.24 (see sections 6.6.8 and 6.7).

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<sup>273</sup> Gosbell, V and Robinson, D, *Assessing the future of electrical power engineers, A report on electrical power engineering manpower requirements in Australia*, Institute of Engineers Australia, 2004.

<sup>274</sup> Department of Employment and Workplace Relations, *Job prospects—Electrical and electronics engineers*, September 2007.

<sup>275</sup> Department of Employment and Workplace Relations, *State and Territory skills in demand lists—South Australia*, 19 July 2007.

<sup>276</sup> Association of Professional Engineers and Managers Australia, *Professional network*, August/September 2005.

## **Revenue reset costs**

### ***ElectraNet proposal***

ElectraNet has removed revenue reset costs from its base year costs as they do not occur in all years of the next regulatory control period. Revenue reset costs for the next regulatory control period were estimated based on budget costs for the current revenue reset and added to opex forecasts for the years in which they will be incurred.<sup>277</sup>

### ***Submissions***

The ECCSA submitted that revenue reset costs were a business decision. It submitted that ElectraNet's decision to spend more money in the expectation of a higher revenue cap is not a step change for which it should be compensated.<sup>278</sup>

### ***Consultant review***

SKM considered the forecast expenditure to be reasonable and support the removal of one-off costs from the base year estimates.<sup>279</sup>

### ***AER considerations***

The AER considers it appropriate to remove revenue reset costs from the base year, as these costs do not represent ongoing expenditures. However, revenue reset costs are also a legitimate operating cost for a TNSP in the current regulatory environment.

ElectraNet derived its forecast revenue reset costs by extrapolating the costs it incurred (or expects to incur) in the final three years of the current regulatory period. The AER considers this methodology is appropriate, and notes that it does not result in a step change in revenue reset costs. The revenue reset costs fluctuate in the three years in which they are incurred, with a step increase in the fourth year of the current regulatory period, reflecting the bulk of the work done to develop the required revenue proposal.

The AER also compared ElectraNet's current regulatory period revenue reset costs with those of Powerlink (these details were not readily available for other TNSPs). The pattern of expenditure (peaking in year four) is similar to Powerlink's, although Powerlink's actual expenditure is significantly higher than that of ElectraNet.

The AER is satisfied that ElectraNet's forecast revenue reset costs reasonably reflects the costs a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives over the next regulatory control period.

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<sup>277</sup> ElectraNet revenue proposal, p. 84.

ElectraNet response to information request no. 207, confidential, submitted 5 October 2007.

<sup>278</sup> ECCSA, op. cit., p. 40.

<sup>279</sup> SKM report, p. 125.



## Superannuation top-up costs

### *ElectraNet proposal*

ElectraNet paid an additional contribution into the superannuation fund during 2005–06 to manage a superannuation reserve shortfall. ElectraNet has removed the superannuation top-up costs from the base year costs as it was a once-off payment required by the fund manager and is not expected to occur in any years of the next regulatory period.

### *Consultant review*

SKM considered that the removal of the one-off superannuation fund top-up from the base year was justified.<sup>280</sup>

### *AER considerations*

The AER considers it appropriate to remove the one-off superannuation top-up from the base year.

## Land tax

### *ElectraNet proposal*

ElectraNet stated the South Australian government has imposed a new land tax on ElectraNet from 2006–07.<sup>281</sup> Land tax opex estimates are based on applying the land tax formula specified by the Valuer General to unimproved land values. ElectraNet has estimated unimproved land values for its total portfolio of land in the next regulatory control period. It stated that it used ABS data to derive future land value estimates. Table 6.6 shows ElectraNet's estimated land valuation and the resultant land tax obligation.

**Table 6.6: ElectraNet's land tax forecast (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Property valuation	32.3	38.0	42.5	51.0	57.0	220.8
Land tax costs	1.1	1.4	1.5	1.8	2.1	7.9

Source: ElectraNet revenue proposal, p. 83.

### *Submissions*

The EUAA submitted that property values for land tax forecasts should be critically analysed. In support of its submission, the EUAA pointed to a 173 per cent increase in ElectraNet's closing property value, as compared to the 2007–08 value.<sup>282</sup>

<sup>280</sup> SKM report, p. 103.

<sup>281</sup> ElectraNet revenue proposal, p. 83.

<sup>282</sup> EUAA, op. cit., p. 25.

### ***Consultant review***

SKM noted that the land tax payment in the base year was not representative of future land tax payments to be made under the newly imposed land tax. In such circumstances it stated a zero based forecast is appropriate.<sup>283</sup>

SKM considered that using a land growth escalator to forecast likely increases in land values was appropriate, but did not support using the escalator derived by ElectraNet. It stated that an escalator based on a longer data series was more likely to represent sustainable growth in land values.

SKM noted that historical measures are likely to be imperfect forecasts, and that the 17 years of data they propose using may not represent a full economic cycle. However it stated that the years 2000–2006 used by ElectraNet represent boom years, and are less representative of a full cycle than the longer data series. SKM noted that a range of possible escalators can be derived, but considered its proposed escalators represent a likely outcome, and the ElectraNet escalators are too high to be sustained throughout the next regulatory control period.<sup>284</sup>

SKM recommended reducing the opex allowance for land tax by \$1.8 million (\$2007–08) over the next regulatory control period.

### ***AER considerations***

The AER considers ElectraNet’s proposed estimation of land tax from a zero base is appropriate, given the change in land tax obligations placed on ElectraNet.

The estimates of land value are based on known land values and escalated by ABS data. The estimates are derived for residential, commercial and rural land, and the total of these land value forecasts is the basis for deriving ElectraNet’s land tax obligation. However, ElectraNet derived its proposed escalators using only seven years of data from the ABS—where the seven years cover a recent boom in land values in South Australia. To use these escalators implies an acceptance of the continuation of the increase in land values at the boom level. As noted by SKM a longer data series is available (see also section 4.6.6).

The South Australian government forecast land tax revenues to increase in line with inflation:

Land value growth is projected to moderate in subsequent years moving to levels broadly in line with inflation.<sup>285</sup>

The forward estimates used by the South Australian government present a conservative view of land value growth in South Australia but ElectraNet’s proposed land value escalators present an overly positive view. The AER considers that SKM’s proposed land value escalators represent a reasonable view of likely land value growth in South Australia. It also considers that using all 17 available years of data is

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<sup>283</sup> SKM report, p. 123.

<sup>284</sup> *ibid.*, p. 123.

<sup>285</sup> South Australian Government, *Budget paper 3, Budget statement*, August 2007, p. 3.13.

a better choice than selecting an arbitrary number of data points from the series. Accordingly the AER does not accept the amount proposed by ElectraNet for land tax.

Instead, the AER considers an estimate that reasonably reflects the costs a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$6.1 million (\$2007–08) for land tax obligations over the next regulatory control period.

#### 6.6.4 Field maintenance

Field maintenance includes the following maintenance sub-categories:

- routine maintenance
- corrective maintenance
- condition based maintenance
- opex maintenance projects.

Table 6.7 shows the total field maintenance expenditure proposed by ElectraNet.

**Table 6.7: ElectraNet’s forecast field maintenance costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Routine maintenance	7.6	8.1	8.5	9.0	9.2	42.3
Condition based maintenance <sup>a</sup>	0.1	0.1	0.1	0.2	0.2	0.7
Corrective maintenance	4.8	5.2	5.5	6.0	6.6	28.2
Maintenance projects	11.1	10.8	11.1	11.2	10.4	54.7
<b>Total field maintenance costs</b>	<b>23.6</b>	<b>24.2</b>	<b>25.3</b>	<b>26.4</b>	<b>26.4</b>	<b>125.9</b>

(a) The AER has accepted ElectraNet’s proposed condition based maintenance forecast without adjustment. No specific concerns were identified by interested parties, consultants or the AER.  
Source: ElectraNet opex model.

There is an overall increase in field maintenance of 54 per cent compared to the expected field maintenance expenditure in the current regulatory period (2003–04 to 2007–08).<sup>286</sup> Most of the increase relates to increases in routine maintenance and opex maintenance project costs. The components of field maintenance are discussed separately below.

<sup>286</sup> ElectraNet revenue proposal, p. 93.

## **Field Maintenance—routine maintenance sub-category**

### ***ElectraNet proposal***

ElectraNet stated that it has moved to a detailed routine maintenance model, building in asset condition and assessment into normal maintenance practices to better forecast and mitigate risk. It further submitted that this shift was necessary as a significant portion of its asset base (35 per cent) is in the 40- to 60-year age group.<sup>287</sup> ElectraNet proposed an increase in routine maintenance of 82 per cent.<sup>288</sup>

ElectraNet's modelling recognised individual equipment to which its maintenance standards are applied, and is directly linked to its capex plans for augmentation and connection works. It provides an accurate forecast of required routine maintenance expenditure for new and existing equipment.

The key inputs to the model are:

- maintenance tasks defined in ElectraNet's maintenance standards
- standard pricing for specific maintenance tasks (derived from outsourced maintenance agreements)
- equipment headcounts (sourced from the asset register)
- escalation and productivity factors (based on existing contractual agreements).<sup>289</sup>

ElectraNet's proposed routine maintenance forecast is \$42 million (\$2007–08) for the next regulatory control period.<sup>290</sup>

### ***Submissions***

The ECCSA stated that routine maintenance should not be a zero based cost because ElectraNet's new maintenance regime was included in the 2002 revenue reset proposal. It submitted that ElectraNet has already adopted its routine maintenance model and should extrapolate from base year costs for this component of expenditure.<sup>291</sup>

### ***Consultant review***

SKM has supported ElectraNet's move to the Powerlink asset management model, which underpins routine maintenance forecasts, but noted there is insufficient history of the application of the policies and practices to assess if ElectraNet has been effective in its implementation of the new regime.<sup>292</sup>

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<sup>287</sup> ElectraNet revenue proposal, p. 86.

<sup>288</sup> ElectraNet opex model, Trendslink tab, version provided on 9 July 2007.

<sup>289</sup> ElectraNet revenue proposal, p. 87.

<sup>290</sup> ElectraNet opex model, loc. cit.

<sup>291</sup> ECCSA, op. cit., pp. 38–39.

<sup>292</sup> SKM report, pp. 108–109.

SKM reviewed maintenance policy, procedure and strategy documents to develop its understanding of ElectraNet's new routine maintenance regime. It noted the unit costs associated with tasks are generally reasonable, and that the maintenance and inspection cycles align with Powerlink practices thereby providing a sound basis for ElectraNet's practices.<sup>293</sup>

Large increases in routine maintenance expenditure forecasts for secondary systems and substations were justified by ElectraNet on the basis of detailed condition assessment reports and the new maintenance regime. SKM considered that the three fold increase required for substation maintenance indicated that past expenditure was inadequate.<sup>294</sup>

It further noted changes in the frequency and scope of routine maintenance tasks, which now include an element of condition monitoring as well as defect identification. Routine maintenance tasks also include a number of new tasks noted by SKM:

- power transformer insulation condition monitoring
- infra-red scanning
- power quality monitoring
- pollution monitoring
- increased safety test
- fire protection system testing.

SKM did not identify any issues arising from the proposed expenditure on the additional tasks, or ElectraNet's overall routine maintenance proposal. Generally SKM considered the increase in routine maintenance necessary to deal with risks arising from increasing asset age and past under-expenditure on some routine maintenance tasks.<sup>295</sup>

The exception to this was in regard to communication site routine inspection tasks, where SKM identified a number of tasks that should be included in routine substation maintenance tasks or specialised tasks, such as air conditioner maintenance or weed control. SKM recommended a reduction of \$1.1 million (\$2007–08) to take into account its concerns over routine maintenance task specification.<sup>296</sup>

SKM also identified a number of errors in its review of the ElectraNet routine maintenance information, and further errors were notified by ElectraNet during the review process. SKM recommended correcting for these errors and the net effect of

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<sup>293</sup> *ibid.*, p. 109.

<sup>294</sup> *ibid.*, p. 109.

<sup>295</sup> *ibid.*, pp. 109–110.

<sup>296</sup> *ibid.*, p. 110.

all adjustments is an increase of \$4.2 million to ElectraNet's proposed routine maintenance costs in the next regulatory control period.<sup>297</sup>

#### *AER considerations*

The AER is concerned about the significant increase in field maintenance, and in particular increases in both routine maintenance and maintenance projects. Maintenance projects are considered later in this section.

ElectraNet's routine maintenance includes regular testing and inspection work, and also asset condition assessment. Routine maintenance tasks are developed in conjunction with capital expenditure plans, applying ElectraNet's routine maintenance standards to individual asset components.<sup>298</sup>

ElectraNet stated that the increases are driven by a new maintenance regime, coupled with the influence of labour and non-labour costs. The issue of labour and non-labour costs is considered in section 6.6.9.

The new maintenance regime has been implemented by ElectraNet to manage risks associated with an aging asset profile, and to ensure its network is able to continue to provide an acceptable level of service. To assess the need for the increased maintenance proposed by ElectraNet the AER has reviewed two measures of service levels—service targets measured in the service target performance incentive scheme (STPIS)<sup>299</sup> and ITOMS<sup>300</sup> reports.

There has not been any noticeable deterioration in service levels measured under the STPIS, in fact ElectraNet has received a performance bonus in each of the past four years, due to its improving service standards. However ITOMS information shows a marked drop in service levels since 1999. The apparent discrepancy arises because the two service measures consider different aspects of network performance.

The STPIS looks at total network performance, for example by measuring transmission outages, where inbuilt network redundancy means the failure of an individual component only rarely impacts on overall network reliability. The STPIS provides a lagging indication of the extent of any network reliability problems.

The ITOMS review measures the reliability of individual components of the network. As individual assets become increasingly unreliable the level of service measure declines. As such the ITOMS service measure is more likely to be a leading indicator of network reliability problems, as an increasing number of component failures will increase the probability of more general network failures. The AER considers the information shown in the ITOMS review supports ElectraNet's claim that an increase

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<sup>297</sup> *ibid.*, p. 110.

<sup>298</sup> ElectraNet revenue proposal, p. 87.

<sup>299</sup> AER, *Service standards compliance reports 2003–2006*, (see [www.aer.gov.au](http://www.aer.gov.au)).

<sup>300</sup> The International Transmission Operations and maintenance study is a consortium of transmission companies that work together with the UMS Group, comparing performance and practices and identifying best transmission industry practices worldwide (see [www.umsgroup.com](http://www.umsgroup.com)).

in maintenance expenditure is required to manage the risks faced in operating its network.

The AER considers that the adoption and implementation of the new asset management and maintenance regime is a prudent action by ElectraNet, which should result in a better understanding of its network and better maintenance practices. It also notes that SKM has indicated its support for the new maintenance regime, and has stressed that it considered the maintenance practices of the early part of the current regulatory period to be unsustainable.

However the AER considers that ElectraNet's forecast routine maintenance overstates that expenditure requirement for communications site maintenance. The AER considers that it should be possible for ElectraNet to consolidate some tasks and accepts SKM's recommended adjustment to communications site routine maintenance forecasts.

The AER notes that inadequacies in ElectraNet's past maintenance program, coupled with the opex underspend in the current regulatory period, do not sit well with ElectraNet's request for significant increases opex for routine maintenance and maintenance projects in the next regulatory control period. However, the AER must provide an efficient allowance for ElectraNet given its current circumstances, irrespective of past practice.

The AER also notes that inadequacies in ElectraNet's past maintenance program that are in part driving the need for increased routine maintenance and maintenance project work do not sit well with ElectraNet's request for efficiency sharing of its opex underspend in the current regulatory period. However, the treatment of the opex underspend in the current regulatory period is governed by the NER, and the arrangements put in place during the current regulatory period. This issue is discussed in chapter 8. Again in reviewing ElectraNet's routine maintenance forecast the AER must now provide an efficient allowance for ElectraNet given its current circumstances, irrespective of past practice.

The forecast routine maintenance proposal by ElectraNet has been adjusted for errors identified during the review of ElectraNet's revenue proposal.

The AER has taken into account error corrections and the results of SKM's review in considering routine maintenance forecasts for the next regulatory control period. The AER considers an estimate that reasonably reflects the costs a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$46.5 million (\$2007–08) for routine maintenance over the next regulatory control period. Accordingly the AER does not accept ElectraNet's proposed estimate for routine maintenance and substitutes an estimate of \$46.5 million. This represents an increase to ElectraNet's proposal of \$4.2 million.

## **Field maintenance—corrective maintenance sub-category**

### ***ElectraNet proposal***

ElectraNet forecast a requirement for corrective maintenance for all asset classes, derived by extrapolating the base year requirement in each asset class to account for asset growth and changes in labour and non-labour costs.<sup>301</sup>

ElectraNet forecast corrective maintenance expenditure of \$28 million (\$2007–08) for the next regulatory control period.

### ***Consultant review***

SKM noted that ElectraNet’s forecast of corrective maintenance does not recognise any beneficial impact on corrective maintenance due to large increases in routine maintenance and maintenance projects expenditure. SKM argued that the increase in other field maintenance categories should result in reduced corrective maintenance, after the completion of the first full maintenance cycle.<sup>302</sup>

SKM supported ElectraNet’s statement that the overall age profile of system assets does not decline, but stated that condition rather than age drives corrective maintenance. Further SKM stated that large increases proposed in maintenance projects should address some of the higher failure risks identified by ElectraNet.

SKM recommended removing any real growth from the forecasts of corrective maintenance expenditure for the last two years of the next regulatory control period, to adjust for the impact of the completion of a full cycle of routine maintenance and the large increase in maintenance project expenditure. It stated this adjustment would reduce ElectraNet’s forecast corrective maintenance requirement by \$1.5 million.<sup>303</sup>

SKM also notes that the adjustment to the maintenance contract efficiency factor will impact on this opex category.<sup>304</sup>

### ***AER considerations***

Corrective maintenance is undertaken when assets fail, or seem likely to fail. ElectraNet’s new asset management regime is designed to support early detection and management of likely asset failures. It is reasonable to expect the improvements in the field maintenance regime will reduce the amount of corrective maintenance in the medium to long term. However against that impact ElectraNet’s asset age profile is increasing which is an indicator of possible increases in corrective maintenance.

The AER considers that ElectraNet has overstated its corrective maintenance requirement, by failing to factor in the impact of maintenance projects and changes to the routine maintenance program. It agrees that the adjustment proposed by SKM, to remove real growth from corrective maintenance estimates in the last two years of the

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<sup>301</sup> ElectraNet opex model, loc. cit.

<sup>302</sup> SKM report, p. 122.

<sup>303</sup> *ibid.*, p. 122.

<sup>304</sup> *ibid.*, p. 122.



next regulatory control period is necessary. The timing of this adjustment reflects the completion of a full routine maintenance cycle under the fully implemented new asset management regime. Accordingly the AER does not accept ElectraNet's proposed estimate for corrective maintenance.

Instead the AER considers an estimate that reasonably reflects the costs that a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$26 million (\$2007–08) for corrective maintenance over the next regulatory control period.

### **Field maintenance—opex maintenance projects sub-category**

#### ***ElectraNet proposal***

ElectraNet stated that this category of expenditure aims to mitigate risks identified in its asset condition assessment process.<sup>305</sup> As a result, the expenditure profile can vary quite significantly between regulatory control periods. Thus, forecasts are based on a specific list of projects and risks, rather than forecast from a base year.

ElectraNet has used detailed asset condition information derived from independent asset condition assessment reports to develop operational maintenance projects for different asset categories. Projects are bundled to group together similar work at common locations, to gain efficiency.<sup>306</sup>

ElectraNet's proposed expenditure on maintenance projects over the next regulatory control period is \$55 million (\$2007–08).

#### ***Submissions***

The ECCSA submitted that maintenance projects reflect a new management approach to long-standing maintenance requirements, and do not represent a step change.<sup>307</sup>

#### ***Consultant review***

SKM considered ElectraNet's large increase in maintenance project expenditure to be necessary. It stated that expenditure on direct maintenance in the current regulatory period was unsustainable. The large increase in maintenance project expenditure was viewed as a 'catch-up' component, to redress under-expenditure in the current regulatory period.<sup>308</sup>

While it found that the processes and procedures used to prioritise maintenance projects were reasonable, SKM was concerned with ElectraNet's forecast for the following reasons:

- errors in compiling maintenance projects

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<sup>305</sup> ElectraNet revenue proposal, p. 87.

<sup>306</sup> ElectraNet, *Asset management plan 2008 to 2013*, 30 May 2007.  
ElectraNet response to information request nos. 34, 50 and 53, confidential, submitted 25 July 2007.

<sup>307</sup> ECCSA, op. cit., p. 39.

<sup>308</sup> SKM report, p. 112.

- uncertainty in the quantum of assets and scope of work
- level of detail available in project estimates
- the scope to rationalise timing and bundling of projects
- the extent to which some maintenance projects can be capitalised.

It considered each of these issues, and adjusted the forecast expenditure, to arrive at its recommended forecast. This is approximately \$27 million less than ElectraNet's proposed figure. Each of these five issues is discussed below.

### ***Corrections***

#### *Consultant review*

The following errors were found in ElectraNet's proposal document and supporting material:

- A detailed review of a sample of projects identified inconsistencies between a defined project and the relevant condition assessment report. This was caused by an identification error, as the wrong feeder was referenced. Correcting for the error, it was discovered that the revised project included works which related to projects in other years. It also found a project which was listed twice. Adjusting for these errors, SKM recommended a reduction in the forecast of \$1.3 million.
- Costs for some substation programs were modelled over five years, when cost estimates were based on a time period of less than five years. Correcting for this error, resulted in a reduction of \$3.1 million.

SKM recommended a reduction of \$4.4 million to account for these errors.<sup>309</sup>

#### *AER considerations*

Where errors in the opex model and supporting material were raised, ElectraNet reviewed them and agreed to SKM's proposed adjustments. The AER has used the corrected data in its opex forecasts.

### ***Uncertainty***

#### *Consultant review*

SKM stated condition assessment reports used to plan maintenance projects do not always provide guidance on the quantity and scope of work required. So, ElectraNet often estimated these figures, and included an assessment stage in project implementation to confirm the estimates. As a result, these estimates are uncertain, often until after the project has commenced. Thus, any errors in the estimation of scope and quantity directly impact project costs. Further, the timing of projects is discretionary, providing opportunities to combine projects with each other or routine maintenance tasks to reduce costs.

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<sup>309</sup> *ibid.*, p. 113.

In light of this, SKM considered that a simple summation of project costs is not appropriate. While the full extent of efficiency benefits will not be discernible until full project details are available and subjected to project management discipline, a nominal adjustment was proposed to account for the uncertainty inherent in ElectraNet's forecast.

SKM recommended a five per cent reduction of project costs in substations, secondary systems and communications, and 10 per cent for lines.<sup>310</sup> A smaller reduction was proposed for substations because more detailed condition assessment reports are available for this category. Its combined impact would be a \$2.8 million reduction.

#### *AER considerations*

ElectraNet's forecast project expenditure is derived from the sum of its maintenance project estimates. However, SKM considered that a simple cumulative figure does not reflect the degree of uncertainty and scope for efficiency inherent in maintenance project expenditure forecasts.

The AER reviewed ElectraNet's asset management plan, a sample of condition assessment reports and SKM's findings. The asset management plan identified general substation condition and environmental issues, which were prioritised based on a risk matrix taking into account the impact and likelihood of risk, into high, medium or low risk categories.

As these risks are general risks, which are not specifically related to a substation or transmission line, condition assessment reports do not provide guidance on the scope or quantity of work required to address them. Thus, the work required was estimated, based on ElectraNet's prioritisation, to arrive at the forecast annual expenditure to address these risks.

Further, a review of a sample of condition assessment reports found that they do not always provide guidance on the scope and quantity of work required, even in the context of a specific line or substation. For instance, ElectraNet stated that it does not have detailed design solutions and estimates for each site, relating to substation auxiliary supplies. It relied on an average of estimates it developed.

SKM noted:

- project estimates are uncertain, and are often confirmed as part of project implementation
- there is scope to gain efficiencies by bundling projects together or with routine maintenance tasks to reduce costs
- the extent of efficiencies will not be discernible until full details are available and subject to project management discipline.

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<sup>310</sup> Excluding transformer refurbishment, which is treated separately.

The AER considers that this uncertainty inherent in ElectraNet's expenditure forecasts means it has overstated its opex requirement in the next regulatory control period. The AER agrees with SKM's recommendation that a nominal reduction of five per cent for substations and 10 per cent for lines projects is necessary. The difference in reductions for these sub-categories reflects the condition assessment methodology.

### *Estimates*

#### *Consultant review*

SKM noted that given the uncertainty surrounding the quantum and scope of work required for maintenance projects, ElectraNet used high-level cost estimates based on historical experience. ElectraNet used an estimate at a  $\pm 20$  per cent accuracy level.

SKM also noted that average historical costs for transmission line opex projects were escalated by a factor of 20 per cent to convert them to 2006–07 dollars using a four per cent escalation factor and an average historical cost that is five years old. While SKM considered the annual escalation factor of four per cent to be reasonable, given the mix of labour and materials, it stated that the assumption that the average historical cost is five years old appeared unreasonable. It considered that this assumption suggested that the historical costs are evenly distributed over the last 10 years.

Given ElectraNet's marked increase in expenditure in opex maintenance projects in recent years, SKM formed the view that historical costs are more representative when taken from the last five years, rather than the last 10 years. Therefore, it considered that a 20 per cent escalator was not appropriate for transmission lines opex projects and it recommended a 10 per cent escalator be applied instead.<sup>311</sup>

The impact of SKM's recommended estimate is a reduction of \$1.2 million to ElectraNet's field maintenance opex.

#### *AER considerations*

SKM suggested that the historical costs should be measured over the period spanning the last five years, rather than the period proposed by ElectraNet, to ensure the forecast costs better reflect likely future costs. Figure 6.2 shows a marked increase in opex project costs in 2005–06 and this increase is captured when using SKM's recommended historical cost measure.

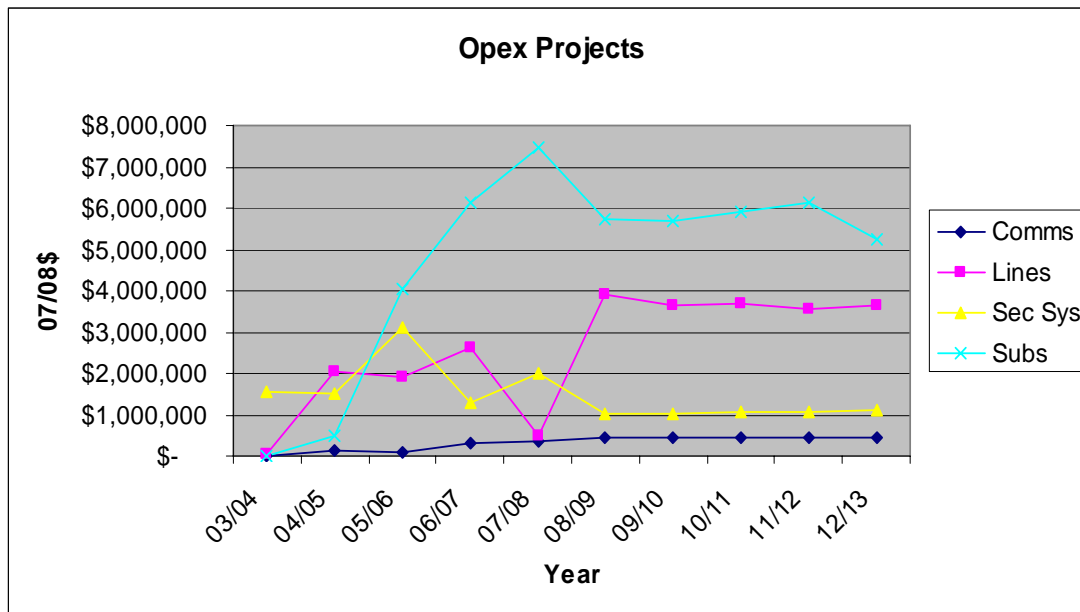
The AER notes that the asset management plan documents ElectraNet's adoption of Powerlink's asset management strategies, and the implementation of condition assessments in 2005–06. The new asset management strategy means that there has been a change in costs and the historical costs applicable to forecast expenditure are not well represented by costs incurred prior to the implementation of the new asset management strategy.

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<sup>311</sup> SKM report, p. 114.

The AER agrees with SKM’s recommendation that the transmission lines opex project escalator should be calculated using the most recent five year historical cost data and that the 10 per cent escalator proposed by SKM represents a reasonable proxy for these costs. This adjustment is reflected in the AER’s opex maintenance projects forecasts.

**Figure 6.2: Opex project expenditure 2003–04 to 2012–13 (\$2007–08)**



Source: SKM report, p. 112.

### ***Transformer refurbishment***

#### *Consultant review*

SKM noted ElectraNet’s plan that transformers between 35 and 45 years of age would be subjected to detailed internal and external refurbishment, where a reasonable remaining life can be expected. Costs for this refurbishment were based on 40 per cent of procurement costs. Where transformers are over 45 years of age, an external refurbishment is planned. Costs are estimated at one-third of full refurbishment cost.

SKM considered the extent of transformer refurbishment proposed to be excessive. In support of its position, it cited that certain specific conditions need to be met before a transformer within the target age range can be refurbished. Further, even where a transformer is chosen for refurbishment, the scope of work necessary is often not determinable until work has commenced. Thus, a detailed assessment may reveal that not all nominated transformers may benefit from refurbishment, or that the extent of refurbishment would not be appropriate. SKM considered that an industry-driven pilot project may be a more practical way of addressing concerns surrounding ageing transformers, rather than ElectraNet’s proposed refurbishment program. This is because there is limited confidence in the benefits that can be derived from such a program.

SKM reviewed refurbishment projects, and found that estimating refurbishment costs at 40 per cent of procurement cost may be reasonable for transformers of a certain size. However, it stated costs do not rise in direct proportion to the replacement cost

of transformers, as not all cost components vary significantly with transformer size and its replacement cost.<sup>312</sup>

SKM recommended a reduction in refurbishment estimates for larger transformers. This was influenced by uncertainty about the extent to which the refurbishment program will be implemented, and the fact that costs do not rise proportionally to transformer size. It recommended a reduction of \$2.7 million to account for its revised refurbishment estimates.

#### *AER considerations*

The AER reviewed ElectraNet's transformer refurbishment project forecasts and SKM's findings. It agrees with SKM's reasoning that refurbishment costs will not increase proportionately with the size of the transformer, and therefore ElectraNet's proposed expenditure forecast for transformer refurbishment should not be approved. The adjusted estimate for transformer refurbishment is reflected in the AER's opex maintenance projects forecasts.

#### *Capitalisation of maintenance projects*

##### *Consultant review*

SKM considered that a number of proposed maintenance projects are more appropriately considered capital projects.

SKM undertook net present value analysis to demonstrate that ElectraNet's proposed transformer refurbishment projects were only viable where there is an extension of the economic life of the transformer.

As a result, SKM considered these projects to be capital in nature. ElectraNet submitted that transformer refurbishment was simply an operating cost, because it extends the period for which the asset is considered reliable, rather than its economic life. SKM concluded that this is akin to a definition of economic life.

ElectraNet's capitalisation policy sets out that transformers are considered capital assets. Thus, SKM considered that expenditure aimed at life extension ought to be capitalised. SKM recommended that capitalisation would result in transferring \$6.8 million from opex to capex.<sup>313</sup>

SKM also recommended capitalising substation auxiliary supplies and secondary systems projects. Both auxiliary supplies and secondary systems are considered capital assets.

With respect to substation auxiliary supplies, ElectraNet proposed expenditure of \$200 000 per site to increase the security of low voltage supply, improve redundancy and AC changeover facilities, to bring auxiliary supplies to current standards. This involves substantial components of the systems, including upgraded wiring and

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<sup>312</sup> SKM report, p. 115.

<sup>313</sup> *ibid.*, p. 118.

installation of substation transformers or generating sets. Such work will increase the functionality and life of the system. As a result, SKM recommended capitalisation of these projects and a transfer of \$5.1 million from opex to capex.<sup>314</sup>

SKM viewed ElectraNet’s proposed expenditure on control and protection systems as capex rather than opex. ElectraNet proposed an expenditure of \$200 000 per site to replace a number of electro-mechanical relays with digital relays. Further information from ElectraNet revealed that the relays to be replaced would be expected to fail within the next regulatory control period. SKM considered these relays to be significant components of secondary systems, and was of the view that electronic relays provide added functionality. Thus, by replacing components likely to fail, these projects extend the useful life of the secondary system. It is expected that the life extension is expected for all 19 sites, where projects are planned. As a result, SKM recommended that these projects be capitalised, transferring \$4.0 million from opex to capex.<sup>315</sup>

As shown in table 6.8, the capitalisation of maintenance projects will result in a total transfer of \$15.9 million from opex to capex.

**Table 6.8: SKM’s recommended capitalisation of maintenance projects (\$m, 2007–08)**

	2008–13
Transformers refurbishment	6.8
Substation auxiliary supplies and secondary systems	5.1
Control and protection systems	4.0
<b>Total</b>	<b>15.9</b>

Source: SKM report, p. 118.

#### *AER considerations*

Under ElectraNet’s capitalisation policy transformers and substation auxiliary supplies and secondary systems are considered assets. Further, where replacement increases the useful life of an asset or increases its functionality, the replacement cost is recognised as capital expenditure.

Based on this policy and SKM’s findings that transformer refurbishment occurs only where there is a life extension, the AER considers that transformer refurbishment, where it occurs, should be transferred to capex.

Further, ElectraNet’s proposed work on substation auxiliary supplies and secondary systems involves upgraded wiring, installing substation transformers or generating sets. SKM considered that such work will increase the functionality and life of the

<sup>314</sup> *ibid.*, p. 118.

<sup>315</sup> *ibid.*, p. 118.

system as a whole. Thus, under ElectraNet’s capitalisation policy, the replacement cost of these assets would be considered a capital expenditure, and thus, forecast costs should be transferred to capex.

While ElectraNet’s capitalisation policy specifically states that the replacement of individual control and protection relays will be expensed, because they do not extend the useful life of an asset, the specific circumstances in which replacement is to occur suggests that this expenditure ought to be capitalised. The relays which are earmarked for replacement with digital relays are expected to fail within the next regulatory control period. Further, a movement from electro-mechanical relays to digital relays is considered to provide increased functionality to secondary systems. On the basis that expenditure is to be capitalised where replacement increases the functionality of an asset, the cost of replacing electro-mechanical relays with digital relays ought to be shifted.

The transfer of these opex projects to capex is reflected in the AER’s opex maintenance projects forecasts and in the AER’s capex forecasts.

***Recommended changes to maintenance project forecast expenditure***

*Consultant review*

The combined impact of the reduction in maintenance project forecast expenditure is set out in table 6.9.

**Table 6.9: SKM’s recommended changes to maintenance project forecast expenditure (\$m, 2007–08)**

	2008–13
SKM recommended adjustments	
Errors	–4.4
Uncertainty	–2.8
Estimation	–1.2
Transformer refurbishment	–2.7
Capitalisation	–15.9
Total	–27.0

Source: SKM report, pp. 111–119.

SKM incorporated the adjustments outlined in table 6.9 into ElectraNet’s forecast opex model, to arrive at its recommended forecast expenditure of \$27 million.<sup>316</sup> SKM’s recommended forecast expenditure reflects the consolidated impact of all relevant adjustments and does not equal the sum of individual adjustments.

<sup>316</sup> SKM report, p. 119.



### *AER considerations*

For the reasons set out above, the AER does not accept ElectraNet’s proposals with respect to maintenance projects. The AER considers an estimate that reasonably reflects the costs a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$27 million (\$2007–08) for maintenance projects over the next regulatory control period. The total opex maintenance projects forecast reflects the consolidated impact of all recommended adjustments and does not equal the sum of individual adjustments.

## **6.6.5 Field support**

### **ElectraNet proposal**

ElectraNet stated that field support costs include the costs of managing maintenance contracts, running business processes and systems that support field maintenance.<sup>317</sup> Field support costs also include direct charges such as rates and land tax. ElectraNet’s forecast was developed by extrapolating base year costs estimates, for all components of field support, except land tax which is a zero based estimate. ElectraNet’s proposed opex allowance for field support is shown in table 6.10.

**Table 6.10: ElectraNet’s proposed field support costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Field support	8.1	8.6	8.9	9.5	10.0	45.1

Source: ElectraNet opex model.

### **Consultant review**

SKM considered the methodology and resulting forecasts for field support components extrapolated from the base year estimate were reasonable. It recommended a \$1.8 million (\$2007–08) reduction to the land tax estimate for the next regulatory control period (see section 6.6.3).

### **AER considerations**

The AER notes that ElectraNet’s base year expenditure is only slightly above the average expenditure incurred in field support in the current regulatory period. The AER also considers ElectraNet’s methodology to be appropriate—it forecasts these costs from a base year amount escalating them using asset growth, labour costs growth and non-labour cost growth (see section 6.6.9 for a discussion on escalators).

The AER does not accept ElectraNet’s proposed estimate for field support. This is due to the reduction in the estimate of land tax payable (as discussed in section 6.6.3). The AER considers an estimate that reasonably reflects the field support costs a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$43 million (\$2007–08) over the next regulatory control period.

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<sup>317</sup> ElectraNet revenue proposal, p. 78.

## 6.6.6 Operations

### ElectraNet proposal

ElectraNet stated that operations opex is predominantly labour based and involves functions such as operation of the control room, system security support, and technical support for network systems and asset monitoring.<sup>318</sup> It has forecast these costs by extrapolating base year expenditures by asset growth, labour cost growth and non-labour cost growth.

ElectraNet's proposed operations opex is shown in table 6.11.

**Table 6.11: ElectraNet's proposed operations costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Operations	2.0	2.0	2.1	2.2	2.3	10.6

Source: ElectraNet revenue proposal, p. 91.

### Consultant review

SKM considered the methodology and resulting forecast to be reasonable.

### AER considerations

The AER notes that ElectraNet's base year expenditure is slightly below the average expenditure incurred in operations in the current regulatory period. The AER also considers ElectraNet's methodology to be appropriate: it forecasts these costs from a base year amount escalating them using asset growth, labour costs growth and non-labour cost growth.

The AER considers an estimate that reasonably reflects the operations costs a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$11 million (\$2007–08) over the next regulatory control period.

## 6.6.7 Asset manager support

### ElectraNet proposal

ElectraNet's opex modelling shows that asset manager support costs refer to costs incurred in providing grid planning, IT support functions, project support and customer and regulatory support.<sup>319</sup> Grid planning includes the new generator testing function, as discussed in section 6.6.3. All other elements of asset manager support costs have been estimated by extrapolating the base year amount to reflect network growth and changes in labour and non-labour costs.

ElectraNet's forecast requirement for asset manager support is shown in table 6.12.

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<sup>318</sup> ElectraNet revenue proposal, p. 79.

<sup>319</sup> ElectraNet revenue proposal, p. 79.

**Table 6.12: ElectraNet’s proposed asset manager support costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Asset manager support	6.4	6.5	6.6	6.8	6.9	33.1

Source: ElectraNet revenue proposal, p. 91.

### Consultant review

SKM considered the forecast methodology and resultant estimates reasonable, except for the generator testing component, as discussed in section 6.6.3.

### AER considerations

The AER notes that ElectraNet’s base year expenditure is slightly below the average expenditure incurred in asset manager support in the current regulatory period. The AER considers ElectraNet’s forecasting methodology is appropriate with the exception of the new generator testing costs. Other asset manager support costs are forecast from a base year amount escalating them using asset growth, labour cost growth and non-labour cost growth.

As discussed in section 6.6.3 the AER considers that the generator testing costs proposed by ElectraNet are overstated. This correction is taken into account when determining appropriate opex for asset manager support. Therefore the AER does not accept ElectraNet’s proposal with respect to asset manager support. It considers an estimate that reasonably reflects the asset manager support costs a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$32 million (\$2007–08) for the next regulatory control period.

## 6.6.8 Corporate support

Corporate support costs include general corporate support, insurance and self insurance.

### General corporate support

#### *ElectraNet proposal*

ElectraNet’s corporate support costs include revenue reset costs which are removed from the base year estimate and directly included only in those years in which they will be incurred (see section 6.6.3). A one-off superannuation top-up amount is also removed from corporate support costs in the base year. Skills development costs are included in corporate support, but are derived using a zero based approach (see section 6.6.3). The remaining corporate support costs are forecast by extrapolating the base year amount to reflect network growth and changes in labour and non-labour costs.

ElectraNet’s proposed total corporate support costs are shown in table 6.13.

**Table 6.13: ElectraNet’s proposed corporate support costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Corporate support	10.1	10.3	10.9	11.6	11.8	54.6

Source: ElectraNet opex model.

### ***Consultant review***

SKM recommended a reduction to skills development costs, as discussed in section 6.6.3. SKM supported ElectraNet's forecast methodology for revenue reset costs and insurance costs. SKM did not identify any further issues with ElectraNet's corporate support cost estimates.

### ***AER considerations***

The AER considers the corporate support forecast methodology appropriately takes into account one-off costs and changes to expenditures in the current regulatory period. The removal of revenue reset costs and a one-off superannuation top-up ensure base year estimates are representative of likely future expenditure. ElectraNet's adjusted base year expenditure (excluding insurance) is only marginally greater than the average expenditure over the current regulatory period.

As discussed in section 6.6.3 the AER considers that an adjustment is required to remove elements of salaries from the skills development proposal, where these salaries have been incorporated into other opex forecasts. This adjustment is taken into account when determining appropriate opex for corporate support. Accordingly the AER does not accept ElectraNet's proposal for corporate support.

The AER considers an estimate that reasonably reflects the corporate support costs (excluding insurance and self insurance) that a prudent operator in the circumstances of ElectraNet would require to achieve the opex objectives to be \$53 million (\$2007–08) for the next regulatory control period.

## **Insurance**

### ***ElectraNet proposal***

ElectraNet's corporate support forecast includes an insurance estimate of \$14 million (\$2007–08).<sup>320</sup> This estimate was based on information provided by an insurance broker, taking into account ElectraNet's claim history, risk profile and business growth.

### ***Submissions***

The ECCSA submitted that ElectraNet's insurance requirements have not changed, and so, there is no step change.<sup>321</sup>

### ***Consultant review***

SKM noted that the insurance cost forecast is developed by an insurance actuary and is consistent with costs in the current regulatory period and results in a lower forecast than using base year escalation.

### ***AER considerations***

The AER notes that it has previously accepted insurance cost forecasts on the basis of actuarial advice prepared for specific TNSPs, rather than extrapolating base year data.

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<sup>320</sup> ElectraNet revenue proposal, p. 88.

<sup>321</sup> ECCSA, op. cit., p. 39.

Using actuarial advice to prepare insurance cost forecasts recognises that the insurance market will be impacted by a number of factors, and TNSPs are essentially price takers in a global market.

The AER considers ElectraNet's proposed insurance forecasts represent the costs a prudent operator in ElectraNet's circumstances would reasonably require to meet the opex objectives in the next regulatory control period.

### **Self-insurance**

#### ***ElectraNet proposal***

ElectraNet's corporate support forecast also includes self-insurance costs of \$8.7 million (\$2007–08) for the next regulatory control period.<sup>322</sup> It provided a board resolution to self-insure for the following events:

- network related events over \$20 000 for:
  - losses where insurance is commercially unavailable or excluded
  - loss events where insured risks are less than existing property insurance deductibles
  - costs incurred through emergency actions to mitigate loss.
- non-network property risks (vandalism, theft etc.) where loss events for insured risks are less than existing property insurance deductibles
- workers' compensation costs.<sup>323</sup>

#### ***Submissions***

The ECCSA submitted that self-insurance did not change ElectraNet's insurance requirements, and thus should not be excised from base year costs.

#### ***Consultant review***

SKM noted that the self-insurance cost forecast is developed by an insurance actuary and it is consistent with costs in the current regulatory period and results in a lower forecast than using base year escalation.

#### ***AER considerations***

Similar to the estimation of insurance costs, the AER considers it appropriate to forecast self-insurance costs on the basis of actuarial advice. It notes the actuarial advice provided is based on ElectraNet's actual claims history, forecast network growth and an assessment of ElectraNet's risks. Further the AER notes that SKM did not raise any specific issues with the methodology used in the actuarial advice and supported the resulting cost estimate as reasonable.

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<sup>322</sup> *ibid.*, p. 89.

<sup>323</sup> ElectraNet revenue proposal, appendix M.

The AER notes that ElectraNet has provided the required board resolution to self-insure—specifying the categories for which self-insurance costs are forecast. The AER is also satisfied that the self-insurance component of ElectraNet’s insurance package does not cover any items for which insurance has also been sought.

The AER considers a self-insurance forecast that represents the reasonable costs a prudent operator in ElectraNet’s circumstances would require is \$8.5 million (\$2007–08) to meet the opex objectives in the next regulatory control period. This varies from ElectraNet’s proposed self insurance forecast due to changes in the asset growth escalator, reflecting revised capex forecasts.

### 6.6.9 Escalators

#### Labour costs

##### *ElectraNet proposal*

ElectraNet engaged BIS Shrapnel to provide expert opinion on the outlook for labour costs.<sup>324</sup> It forecast wages growth in the South Australian utilities sector to average 5.9 per cent per annum over the next regulatory control period.<sup>325</sup>

ElectraNet used three different labour escalators, for different elements of its opex forecasts. BIS Shrapnel labour escalators are used for general opex labour components, and specific labour escalators reflecting commercial contracts are used for maintenance costs (routine and corrective, done under contract by ETSA) and vegetation management.

Table 6.14 shows the wages growth escalation factors applied to labour components of the forecast opex.

**Table 6.14: Wages forecast growth for SA utilities sector (per cent)**

	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
General	6.2	5.6	5.6	6.0	6.3	5.9	5.6
Routine and corrective maintenance	6.7	6.7	4.5	4.5	4.5	4.5	4.5
Vegetation management	5.1	4.5	4.5	4.9	5.2	4.8	4.5

Source: ElectraNet revenue proposal, p. 86.

<sup>324</sup> ElectraNet revenue proposal, p. 86.

<sup>325</sup> ElectraNet revenue proposal, appendix D—BIS Shrapnel, *Outlook for labour markets and costs to 2016–17: Electricity, gas and water sector, Australia and South Australia*, April 2007, p. 2.

### *Consultant review*

#### *SKM*

SKM compared the BIS Shrapnel escalators with earlier work by Access Economics and more recent Econtech estimates.<sup>326</sup> SKM supported the use of the BIS escalator for general opex labour costs.

SKM also reviewed the labour costs within the maintenance contracts. It noted that the labour escalator used in the ETSA contract is high but offset by a guaranteed productivity dividend over the next regulatory control period. SKM noted an error in the application of the efficiency factor to the ETSA labour rates in 2006–07, and proposed a correction to deal with this error.

The labour escalator used in the vegetation contract is lower than that proposed by BIS Shrapnel. SKM stated that it reflects the commercial contract and is appropriate.

#### *Econtech*

The AER engaged Econtech to provide labour cost growth rates in South Australia from 1995–96 to 2015–16. These forecasts are consistent with Econtech’s national forecasts. Econtech has provided these forecasts using the same model and assumptions it developed for its report to the AER in August 2007.<sup>327</sup> Econtech has provided a letter setting out the South Australian data derived from its model.<sup>328</sup>

Table 6.15 provides annual labour cost growth rates in South Australia for the electricity, gas and water sector specifically, and for South Australia as a whole.

**Table 6.15: Econtech’s labour cost forecasts for South Australia (per cent)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Average
Electricity gas and water	5.4	7.4	6.9	6.1	5.8	6.3
South Australia	4.5	5.2	5.1	5.0	4.9	4.9

Source: Econtech, *Forecast of labour costs growth for South Australia*, 16 November 2007, p. 3.

Econtech makes the following observations on the electricity industry, generally, and in South Australia.<sup>329</sup>

- The electricity, gas and water industry has exhibited above average wage growth over the last 20 years when compared to wage growth over the economy as a whole.

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<sup>326</sup> Access Economics, *Labour cost indices for the energy sector*, 12 April 2007  
Econtech, *Labour costs growth forecasts*, 13 August 2007

<sup>327</sup> Econtech, *Labour costs growth forecasts*, 13 August 2007.

<sup>328</sup> Econtech, *Forecast of labour costs growth for South Australia*, 16 November 2007.

<sup>329</sup> Econtech, *Forecast of labour costs growth for South Australia*, 16 November 2007 and  
Econtech, *Labour costs growth forecasts*, 13 August 2007

- Demand for labour in South Australia is strong, but population and labour supply growth is slow relative to other states—putting pressure on employers to offer higher wages to attract and retain workers.
- The utilities sector has been particularly hard hit by the skills shortage, given the demand for its output and competition for labour with the mining and construction industries. This has had an inflationary effect on wages as employers are forced to offer higher wages in order to retain staff.
- While skilled migration has been used to ease the supply shortage of engineers, the increase in skilled migrants has been insufficient to meet rising demand.
- The fact that electricity, gas and water are essential services means that businesses have a greater imperative to attract and maintain skilled workers, and are more likely to absorb wage increases in order to maintain labour supply.

Over the next regulatory control period, Econtech has forecast an average growth rate of 6.3 per cent (nominal) for the South Australian utilities sector.

#### *AER considerations*

The AER has examined the forecasts of nominal wage growth put forward by BIS Shrapnel and Econtech. The forecasts are specific to the electricity, gas and water industry, and provide an appropriate benchmark for comparing the expenditure likely to be incurred by an efficient TNSP in the next regulatory control period. Table 6.16 shows the forecast labour cost growth rates provided by Econtech and BIS Shrapnel.

**Table 6.16: Labour cost growth for South Australia—electricity, gas and water industry (per cent)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Average
BIS Shrapnel	5.6	6.0	6.3	5.9	5.6	5.9
Econtech	5.4	7.4	6.9	6.1	5.8	6.3

Source: BIS Shrapnel, *Outlook for labour markets and costs to 2016–17: Electricity, gas and water sector, Australia and South Australia*, April 2007.  
Econtech, *Forecast of labour costs growth for South Australia*, 16 November 2007, p. 3.

The AER considers that the average wage growth forecasts provided by BIS Shrapnel and Econtech are not significantly different. Noting that three of the main drivers of wage growth are inflation, productivity growth and the tightness of the labour market, a closer examination of the assumptions supporting the forecasts adds further weight to this observation:

- BIS Shrapnel and Econtech both expect inflation to be higher on average in the future, and generally in the upper half of the RBA’s target inflation zone of 2 to 3 per cent over the next regulatory control period
- BIS Shrapnel and Econtech are forecasting comparable levels of productivity (1.5 per cent and 1.9 per cent respectively) over the period 2008–14. High productivity forecasts across the economy reduce real wage inflation as businesses are able to absorb the above-inflation growth in wages.



BIS Shrapnel and Econtech both forecast wage growth in the utilities sector above the national average across all industries. This is consistent with historical experience which shows that, on average, wages in the utilities sector grow faster than the national average. The higher wage growth forecasts are also consistent with the current skills shortage being experienced in the utilities industry and across Australia more generally.

While there is some difference between the two, the independent forecasts provided by Econtech suggest that the forecasts provided by BIS Shrapnel, and relied on by ElectraNet, are not excessive.

Overall the AER does not consider there to be a significant difference between the forecasts for labour cost growth rates provided by BIS Shrapnel and Econtech for the next regulatory control period.

On the basis of independent advice provided by Econtech and the BIS Shrapnel report provided by ElectraNet, the AER accepts ElectraNet's proposed real labour growth escalator of 2.9 per cent, based on the average nominal rate of 5.9 per cent. The AER considers this shows a realistic expectation of increases in the cost of labour in ElectraNet's next regulatory control period.

As noted above, ElectraNet has proposed a different labour escalator for the purposes of its maintenance and vegetation forecasts.

The labour costs for maintenance are derived from the existing contract with ETSA. This contract was negotiated under a competitive tendering arrangement and ensures that ElectraNet gets the benefit of productivity improvements. The net effect on labour costs of the contract rates and productivity improvement is below that implied by the BIS Shrapnel forecast. The AER considers it is a reasonable forecast given that it is based on a negotiated outcome and that it does not exceed the general labour cost growth estimate.

The AER will also incorporate the error correction recommended by SKM, applying the 2005–06 efficiency factor to ETSA labour costs into the modelling. This correction will reduce field maintenance opex.

Similarly the vegetation management contract reflects the rates negotiated in a commercial tender process, and these rates sit well below those recommended by BIS Shrapnel.

The AER considers that the corrected labour escalation factors provided by ElectraNet are reasonable for a prudent TNSP operating under the circumstances of ElectraNet.

## **Non-labour costs**

### ***ElectraNet proposal***

ElectraNet has proposed the use of CPI to escalate the non-labour component of its opex forecasts.<sup>330</sup>

### ***Consultant review***

SKM endorsed the use of CPI in the context of the opex non-labour escalator. It noted that much of the non-labour element refers to consultancies or consumable inventory items rather than specialised capital equipment.<sup>331</sup>

### ***AER considerations***

The AER notes that ElectraNet has proposed different non-labour escalators for capex and opex. The issue of differences between the capex and opex non-labour escalators was considered in the AER's recent Powerlink revenue determination. Powerlink proposed using a CPI escalator for capex materials and a higher escalator for opex materials. The AER did not consider that the differences identified by Powerlink justified a higher materials escalator for opex than capex though it indicated applying more specific materials escalators for capex could be appropriate.

In this case a more complex, higher escalator for capex non-labour is being proposed by ElectraNet. The bulk of ElectraNet's opex materials are sourced by ETSA as part of its maintenance contract. Other elements include consultancies and consumables. The AER considers that ElectraNet's proposed non-labour escalator of CPI provides a reasonable escalation factor, consistent with being at the low end of the range of what could be used. The AER also notes that given the underlying differences in non-labour components between capex and opex, in this instance, there is no reason to require opex and capex non-labour escalators to be the same.

## **Asset growth**

### ***ElectraNet proposal***

ElectraNet stated that asset growth is a key cost driver that influences a number of asset dependent cost drivers in the opex forecasts:

- the number and age of assets to be maintained
- asset condition
- technology
- asset location.<sup>332</sup>

ElectraNet used asset growth to escalate its base year expenditure. It forecast that its replacement asset value will increase by approximately 15 per cent in the next

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<sup>330</sup> ElectraNet opex model, inputs tab, version provided on 21 August 2007.

<sup>331</sup> SKM report, p. 102.

<sup>332</sup> ElectraNet revenue proposal, pp. 84–85.

regulatory control period but stated economies of scale mean the increase in its opex requirement will not increase at the same rate. ElectraNet adjusted the asset growth escalator for different elements of controllable opex by scale factors. The scale factors are set out in table 6.17. The scale factors are based on those applied by Powerlink in its recent revenue cap application but reflect ElectraNet’s experience and judgment.

**Table 6.17: ElectraNet’s proposed asset growth scale factors (per cent)**

	Scale factor
Field maintenance	95
Field support	25
Direct charges	100
Operations	25
Grid planning	25
Asset management support	10
Corporate support	10

Source: ElectraNet revenue proposal, p. 85.

***Submissions***

The EUAA submitted that the AER should consider economies of scale factors carefully. It cited recent SKM studies which indicate that opex should increase by no more than 75 per cent of the relative increase in the size of the network in support of its submission.<sup>333</sup>

***Consultant review***

SKM noted that the quantity and types of assets in service is a cost driver for opex, with opex expected to increase as assets in service increase. It reviewed the application of the asset growth escalator and confirmed that only additional assets are used to derive it, not replacement assets. SKM supported the use of the asset growth escalator and the economies of scale factors proposed by ElectraNet.<sup>334</sup>

***AER considerations***

The AER recognises that the quantity of the assets in service will impact on opex requirements. However it has also previously recognised the impact of economies of scale when estimating the increase in opex required to account for increases to the asset base.

ElectraNet has based its asset growth economies of scale on those proposed by Powerlink, but taking into account factors specific to its circumstances. The only difference between the two sets of scale factors is the scale factor applied to grid

<sup>333</sup> EUAA, op. cit., p. 24.

<sup>334</sup> SKM report, p. 103.

planning, which is 25 per cent for ElectraNet rather than the 10 per cent used by Powerlink.

ElectraNet has justified this difference by noting the increase in grid planning activity arising from changes in NEM obligations and managing NEMMCO operational oversight. It also states that grid planning costs are expected to increase in the future due to the increasing complexity of network models to account for changing generation patterns, the use of real time rated transmission lines and the change in the overall asset management and maintenance regime.

On balance, the AER considers that the asset growth escalation factors provided by ElectraNet are reasonable for a prudent TNSP operating under the circumstances of ElectraNet.

The scale factors proposed by ElectraNet have been applied to the asset growth escalators. The asset growth escalators are based on forecast asset growth for each category of asset in the next regulatory control period. The forecast of asset growth used will reflect the changes incorporated in the capex forecasts by the AER. The revised asset growth values are shown in table 6.18, and are applied in the opex model to derive controllable opex forecasts. These values will be subject to revision to reflect the final capex estimates in the AER's final transmission determination, and will also be adjusted to reflect variation between forecast and actual inflation.

**Table 6.18: Asset growth (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Transmission lines	0.91	4.24	6.32	3.79	8.35
Substations	6.16	40.47	60.89	35.72	82.76
Secondary systems	3.75	17.48	26.06	15.62	34.45
Communications assets	1.97	9.15	13.64	8.18	18.03
Total	12.79	71.35	107.91	63.31	143.59

Source: ElectraNet opex model.

## 6.6.10 Non-controllable opex

### Network support

#### *ElectraNet proposal*

ElectraNet stated that its network support costs are based on an estimate of costs to procure network support services to be provided at Port Lincoln on the Eyre Peninsula.<sup>335</sup> ElectraNet forecast its network support costs based on an existing service provider contract, that includes fixed and variable cost components.

<sup>335</sup> ElectraNet revenue proposal, pp. 89–90.

ElectraNet also noted that network support costs are subject to a pass through arrangement. It provided the AER with updated network support forecasts to reflect a new network support contract negotiated subsequent to submitting its revenue proposal. Its revised forecast of \$26 million (\$2007–08) is a four per cent reduction from the original proposal of \$27 million.<sup>336</sup>

#### ***Consultant review***

SKM noted that the network support contract is based on a competitive tender process and that it allows the deferral of the construction of a second transmission line to Port Lincoln.<sup>337</sup>

#### ***AER considerations***

The AER notes that network support costs are subject to a pass through arrangement under the NER, and considers that using the revised forecasts provided by ElectraNet will provide for a more accurate cost estimate. The network support costs are based on a new contract, arising from a competitive tender process. The revised costs are \$1.1 million (\$2007–08) less than the original cost estimate.

It also notes that the network support arrangement is deferring a transmission upgrade of \$150 million on the Eyre Peninsula.

The AER considers ElectraNet's revised network support forecast represents the reasonable costs a prudent operator in ElectraNet's circumstances would require to meet the opex objectives in the next regulatory control period.

#### ***Debt raising costs***

To raise debt, a company has to pay debt financing costs or transaction costs over and above the debt margin. Such costs are likely to vary between each debt issue and depend on market conditions.

According to the Allen Consulting Group (ACG) the debt raising cost being considered should be the transaction cost of re-financing fixed rate bonds to the value of the notional gearing component of the regulated firm's RAB. The allowed debt benchmark does not relate to:

- acquisitions by the regulated firm
- non-core construction or investment activities that are being undertaken.

Therefore, the transaction costs associated with the benchmark cost of debt should not relate to activities outside of the re-financing of bonds for the regulated firm's core activities.<sup>338</sup>

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<sup>336</sup> ElectraNet response to information request no. 186, confidential, submitted 13 September 2007.

<sup>337</sup> SKM report, p. 126.

<sup>338</sup> Allen Consulting Group, *Debt and equity raising transaction costs: final report to the ACCC*, December 2004, p. 5.

### *ElectraNet proposal*

ElectraNet has proposed an allowance for benchmark debt raising costs based on the methodology developed by the ACG and accepted in previous AER decisions. The allowance was applied to the notional debt component of the opening RAB using the post-tax revenue model (PTRM). Table 6.19 shows the resulting debt raising cost allowance proposed by ElectraNet for the next regulatory control period.

**Table 6.19: ElectraNet’s proposed debt raising cost allowance (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Debt raising cost	0.6	0.7	0.8	0.8	0.8	3.7

Source: ElectraNet revenue proposal, p. 88.

### *AER considerations*

The AER accepts ElectraNet’s proposal to calculate an allowance for benchmark debt raising costs based on the ACG methodology. This is consistent with previous AER and ACCC regulatory decisions.

The 2004 ACG report concluded that debt raising costs are a legitimate expense that should be recovered through the revenues of the regulated entity. The ACG based its benchmark on debt raising costs applicable to Australian international bond issues and joint Australian market/international issues and found that the benchmark decreases as the number of bond issues increase.

In developing the benchmark, the ACG calculated a gross underwriting fee benchmark of 5.5 basis points per annum (bppa) based on a 5-year term. To this, it added allowances for legal and roadshow expenses; credit rating fees for the firm and for each issue of bonds; and registry and paying charges. The median bond issue size was determined to be \$175 million.

In accordance with the ACG methodology, the AER updated the gross underwriting fee and bond issue size benchmarks using recent publicly available data. This resulted in the gross underwriting fee increasing from 5.5 bppa to 6.0 bppa and the median bond issue size increasing from \$175 million to \$200 million. Table 6.20 shows the updated build up of debt raising costs and the total benchmark for various bond issues, based on the ACG’s methodology.

**Table 6.20: 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 <sup>a</sup>	\$1/\$1m quarterly: Osborne Associates	0.0	0.0	0.0	0.0
<b>Total</b>	<b>Basis points per annum</b>	<b>10.4</b>	<b>9.2</b>	<b>8.7</b>	<b>8.5</b>

(a) Rounded to one decimal place.

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

ElectraNet has an opening regulated asset base (RAB) of around \$1220 million and the assumed benchmark gearing ratio is 60:40. The notional debt component of ElectraNet's RAB is therefore around \$732 million. Based on the ACG methodology, this debt size would require around four bond issues. As such, the AER considers that an allowance of 8.5 bppa for debt raising costs is a reasonable benchmark for ElectraNet. Using the 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 6.21 shows the AER's conclusion on the debt raising costs allowance for ElectraNet.

**Table 6.21: AER's conclusion on debt raising costs (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Debt raising allowance	0.60	0.64	0.70	0.74	0.77	3.46

Note: This allowance is slightly lower than ElectraNet's proposal due to the amended level of capex being rolled into the RAB.

The AER considers ElectraNet's debt raising forecast 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.

#### Equity raising costs—forecast capital expenditure

An entity incurs equity raising costs when it raises new equity capital. These costs may include legal and brokerage fees, and marketing costs. For initial equity raising costs, the fundamental question is whether the RAB has already been determined. For utilities, costs for raising subsequent equity capital have generally been for acquisition activities outside the regulated business. The need for access to external equity funds

would generally not be expected if the entity were financed in a manner consistent with regulatory benchmark assumptions.

According to the 2004 ACG report, firms finance subsequent capex in the least-cost manner.<sup>339</sup> That is, financing is sourced from retained earnings when possible and that debt financing is preferred to equity financing (this relates to the ‘pecking order theory’ of capital structure). External equity financing for subsequent capex should be considered only when a case is made that the retained earnings and additional borrowings are insufficient provided that the gearing ratio and other assumptions about financing decisions are consistent with regulatory benchmarks.

### *ElectraNet proposal*

ElectraNet engaged the ACG to estimate the amount of new (benchmark) equity it would require to finance its capex for the next regulatory control period (based on benchmark financing arrangements) and the transaction costs that would be incurred in raising that equity.<sup>340</sup> The ACG noted that ElectraNet’s capex over the next regulatory control period is expected to range between 4 per cent and 17 per cent of its opening RAB, resulting in an average capex growth rate of 11 per cent. Given this proportion of capex relative to the RAB, the ACG considered that it was not obvious that a firm with benchmark financing arrangements could raise the required capital without new equity issues.

The ACG developed a cash flow analysis model and established that ElectraNet would require benchmark equity funding of \$217 million during the next regulatory control period. The total amount of equity raising costs for the next regulatory control period was estimated to be \$6.5 million, based on a benchmark allowance of 3 per cent for subsequent equity issues. Using this total amount of equity raising costs, ElectraNet converted these costs into an annuity stream for the next regulatory control period. Table 6.22 shows the annual benchmark equity raising cost proposed by ElectraNet for inclusion in its opex forecast.

**Table 6.22: ElectraNet’s proposed equity raising cost allowance (\$m, 2007–08)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Equity raising allowance	0.2	0.2	0.2	0.2	0.2	0.8

Source: ElectraNet revenue proposal, p. 89.

### *AER consideration*

The AER has reviewed the ACG’s analysis of ElectraNet’s benchmark cash flows to establish the requirement for equity raising costs associated with the equity component of its forecast capex over the next regulatory control period.

<sup>339</sup> Allen Consulting Group, *Debt and equity raising transaction costs: final report to the ACCC*, December 2004, pp. ix–xii.

<sup>340</sup> ElectraNet revenue proposal—appendix N, Allen Consulting Group, *Estimation of ElectraNet’s equity raising transaction cost allowance*, 29 May 2007.



The methodology applied to determine benchmark equity raising costs is summarised by the following steps:

- revenues less expenses (including opex, interest payments and tax) provides the internal cash flow
- internal cash flow less dividends to shareholders provides the retained cash flow
- retained cash flow is used to fund the equity component of capex
- unused retained cash flow, consistent with the pecking order theory, is carried over to the following year to fund the equity component of capex
- equity component of capex less retained earnings (where it is insufficient) indicates the additional equity required
- equity raising cost is calculated by multiplying the additional equity required with the assumed benchmark transaction cost of 3 per cent for subsequent equity issues.

This cash flow approach to determining an allowance for equity raising costs was considered by the AER in its recent Powerlink determination to be reasonable and consistent with the principles of benchmark financing arrangements, subject to some adjustments.<sup>341</sup>

Based on the capex allowance in this draft transmission determination 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 not require additional equity finance, as shown in table 6.23.

**Table 6.23: Benchmark capex funding requirement (\$m, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
Capital expenditure funding	134.03	193.59	146.74	134.35	68.33	677.04
Debt funding component	80.42	116.15	88.05	80.61	41.00	406.23
Equity funding component	53.61	77.43	58.70	53.74	27.33	270.82
Less: retained cash flows	57.34	59.29	60.13	65.73	73.28	315.77
Additional equity requirement	-3.73	18.15	-1.43	-11.99	-45.95	-44.95

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

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 the next regulatory control period. Accordingly, the

<sup>341</sup> AER, *Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12: Decision*, 14 June 2007, pp. 99–102.

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

## **6.7 AER conclusion**

The AER has considered ElectraNet's forecast total opex of \$324 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 ElectraNet would require to achieve the opex objectives
- a realistic expectation of the demand forecast and cost inputs required to achieve the opex objectives.

In drawing 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), the AER must not accept the forecast opex in ElectraNet's revenue proposal. Therefore, the AER is 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 \$33 million to ElectraNet's proposed opex. This represents a reduction of around 11 per cent of ElectraNet's proposed opex of \$324 million and results in a revised forecast opex allowance of \$291 million.

This revised estimate 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 revised total forecast opex of \$291 million over the next regulatory control period, reasonably reflects the opex criteria, taking into account the opex factors. This is shown by opex category in table 6.24.

The AER also agrees with SKM's recommendation to transfer \$16 million of opex refurbishment projects to capex, which increases the total ex ante capex allowance for the next regulatory control period. The AER's revised ex ante capex allowance is set out in table 4.19.

**Table 6.24: 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

Note: Total may not add up due to rounding.  
The AER will update the opex model with the latest CPI data at the time of its final transmission determination.

Table 6.24 sets out the AER’s adjustments to ElectraNet’s forecast controllable opex allowance. These adjustments are derived from the opex model, and represent the consolidated impact of all the modelling corrections agreed by ElectraNet and further adjustments reflecting the AER’s conclusion on an efficient opex allowance.

**Table 6.24: AER’s adjustment to ElectraNet’s controllable opex (\$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
Adjustment to field maintenance	–4.26	–4.55	–4.79	–5.43	–6.34	–25.37
Adjustment to field support	–0.14	–0.27	–0.34	–0.55	–0.70	–2.00
Adjustment to operations	–0.00	–0.01	–0.01	–0.03	–0.04	–0.09
Adjustment to asset manager support	–0.23	–0.24	–0.24	–0.26	–0.27	–1.24
Adjustment to corporate support	–0.29	–0.35	–0.37	–0.45	–0.51	–1.97
AER’s adjusted controllable opex	49.24	50.42	52.61	54.55	54.60	261.42

Note: Total may not add up due to rounding.

## **7 Service target performance incentive**

### **7.1 Introduction**

The AER's service target performance incentive scheme (the scheme) aims to encourage transmission network service providers (TNSPs) to maintain or improve the quality of service provided to customers. This chapter sets out ElectraNet's proposal, SKM's review and the AER's considerations on the service target performance regime and values to be applied to ElectraNet for the next regulatory control period.

Under a revenue cap regime, TNSPs can increase their profits for regulated activities by reducing their operating costs. Such cost reductions could result from efficiency gains or by allowing service levels to decline. The latter imposes costs on other market participants.

The scheme provides an incentive to TNSPs not to lower service levels when seeking to reduce operating costs and also to consider the interests of users when making operational management decisions. However, the AER acknowledges that the scheme should not encourage TNSPs to seek ongoing performance improvements where the costs of these improvements exceeds the benefits to users.

### **7.2 Regulatory requirements**

#### **7.2.1 NER requirements**

Clause 6A.7.4 of the NER required the AER to publish a scheme by 28 September 2007 that complies with the principles in clause 6A.7.4(b) of the NER.

At the time ElectraNet submitted its revenue proposal, the AER had not published its final scheme. The transitional provisions in clause 11.6.18 of the NER provide that the first proposed scheme published by the AER on 31 January will apply to ElectraNet during its next regulatory control period. References to the scheme in this chapter should be read as a reference to the first proposed scheme.

#### **7.2.2 The first proposed scheme**

The scheme sets out the parameters that apply to ElectraNet as well as the requirements for performance targets, caps, collars and other elements of the parameter definitions. The AER is required to assess ElectraNet's proposed performance targets, caps, collars and other elements against the requirements of the scheme and the NER.

Under clause 1.4 the AER's objectives for the scheme are that it:

- contributes to the achievement of the national electricity market objective
- is consistent with the principles in clause 6A.7.4(b) of the NER
- promotes transparency in the information provided by a TNSP to the AER and the decisions made by the AER

- assists in the setting of efficient capital and operating expenditure allowances by balancing the incentive to reduce actual expenditure with the need to maintain and improve reliability for customers.

### 7.3 ElectraNet proposal

ElectraNet’s proposed performance targets, caps, collars and weightings for each of the parameters that apply to it under the scheme are set out in table 7.1.

**Table 7.1: ElectraNet’s proposed values and weightings**

Parameter	Proposed values			
	Collar	Target	Cap	Weighting
<i>Circuit availability (%)</i>				<i>MAR (%)</i>
Total transmission	98.56	99.47	99.75	0.3
Critical circuit peak	99.53	99.75	99.80	0.2
Critical circuit non-peak	99.90	99.94	99.97	0
<i>Loss of supply event frequency (no.)</i>				<i>MAR (%)</i>
> 0.2 (x) system minutes	6	5	3	0.1
> 1.0 (y) system minutes	2	1	0	0.2
<i>Average outage duration (minutes)</i>				<i>MAR (%)</i>
Total	147	84	39	0.2

Source: ElectraNet revenue proposal, p. 117.

ElectraNet also proposed certain aspects of the parameter definitions including critical circuits, peak and non-peak periods for the availability parameters and the ‘x’ and ‘y’ thresholds for the loss of supply event frequency parameters.<sup>342</sup>

### 7.4 Submissions

Four submissions commented on ElectraNet’s proposed service target performance regime. Flinders Power suggested that the AER explore opportunities to incorporate market impact parameters into ElectraNet’s current transmission determination process.<sup>343</sup> The Energy Users Association of Australia (EUAA) commented on the AER’s recent issues paper<sup>344</sup> on the development of market impact parameters, the

<sup>342</sup> ElectraNet revenue proposal, 31 May 2007, p. 117.

<sup>343</sup> Flinders Power, *ElectraNet transmission network revenue proposal—2008/09 to 2012/13 submission*, 17 August 2007, p. 4.

<sup>344</sup> AER, *Service target performance incentive scheme—Developing incentives based on the market impact of transmission congestion: Issues paper*, June 2007.

level of revenue at risk, the benefits of uniform performance incentives and the need for the alignment of regulatory reviews.<sup>345</sup>

The Government of South Australia requested that the AER consider the need to maintain strong penalties where ElectraNet does not meet its mandated standards.<sup>346</sup> The Energy Consumers Coalition of South Australia (ECCSA) considered that caps and collars applying to ElectraNet's parameters should not be asymmetrical.<sup>347</sup>

## 7.5 Consultant review

The AER engaged SKM to provide expert opinion on ElectraNet's proposed performance targets, caps, collars, weightings and certain elements of ElectraNet's parameter definitions.

SKM recommended that the AER:<sup>348</sup>

- reject certain elements of ElectraNet's proposed parameter definitions including the x and y thresholds for the loss of supply event frequency parameters and the list of critical circuits for the availability parameters
- make changes to ElectraNet's proposed performance targets, caps and collars
- accept the weightings proposed by ElectraNet.

Table 7.2 lists SKM's recommended performance targets, caps, collars and weightings.

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<sup>345</sup> Energy Users Association of Australia, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007.

<sup>346</sup> Government of South Australia, *ElectraNet revenue proposal submission*, 20 September 2007.

<sup>347</sup> Energy Consumers Coalition of South Australia, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, pp. 57–58.

<sup>348</sup> SKM report, p. 168.

**Table 7.2: SKM’s recommended performance targets, caps, collars and weightings**

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.)<sup>a</sup></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: SKM report, p. 169.

(a) SKM recommended rejecting ElectraNet’s proposed x and y thresholds for the loss of supply event frequency parameters and the list of critical circuits for the availability parameters.

## 7.6 Issues and AER considerations

### 7.6.1 Parameter definitions

ElectraNet’s parameter definitions are set out in part 2 of appendix B of the scheme. The scheme provides that certain elements of these definitions must be established by the AER in ElectraNet’s transmission determination.

#### ElectraNet proposal

For the circuit availability parameters, ElectraNet proposed defining:<sup>349</sup>

- the peak period as 8:00 am to 8:00 pm weekdays and non peak at all other times
- critical circuits as the 275 kV transmission lines comprising the Heywood interconnector between South Australia and Victoria (in particular the Para to Tailem Bend, Tailem Bend to South East and South East to Heywood 275 kV double circuit transmission lines).

<sup>349</sup> ElectraNet revenue proposal, p. 115.

ElectraNet proposed x and y thresholds of 0.2 and 1.0 system minutes for the loss of supply event frequency parameters.<sup>350</sup> These are the same thresholds that apply to ElectraNet in the current regulatory period.

### **Submissions**

The EUAA noted that outages on the transmission system can have significant impacts on the price of energy in the wholesale electricity market and commented on the AER's development of market impact parameters.<sup>351</sup> Flinders Power requested that the AER explore opportunities to incorporate market impact parameters into ElectraNet's current transmission determination process.<sup>352</sup>

### **Consultant review**

SKM reviewed the other elements of the parameter definitions proposed by ElectraNet and recommended accepting ElectraNet's proposed peak period for the critical circuit availability parameters. SKM noted that there is comparatively little variation in demand throughout a typical day in South Australia and it is difficult to determine a peak period on this basis.<sup>353</sup>

SKM considered that the 8:00 am to 8:00 pm period proposed by ElectraNet appeared to be reasonable as the highest South Australian system marginal prices fell within this window over the past 12 months. SKM also accepted ElectraNet's explanation<sup>354</sup> that the proposed peak period allowed it to conduct works during daylight hours (6:00 am to 8:00 am) without significantly affecting spot prices.<sup>355</sup>

SKM recommended rejecting ElectraNet's proposed list of critical circuits. SKM reviewed ElectraNet's core network transfer corridors and considered that additional circuits should be defined as critical as these circuits are also likely to affect spot prices, reliability and the integrity of the network. SKM also considered that their inclusion would remove some of the potential for volatile annual results in the parameter.<sup>356</sup> Table 7.3 lists SKM's recommended list of critical circuits.

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<sup>350</sup> *ibid.* p. 116.

<sup>351</sup> EUAA, *op. cit.*, p. 32.

<sup>352</sup> Flinders Power, *op. cit.*, p. 4.

<sup>353</sup> SKM report, pp. 145–147.

<sup>354</sup> ElectraNet response to information request no. 99, confidential, submitted 18 August 2007.

<sup>355</sup> SKM report, p 148.

<sup>356</sup> *ibid.*, pp. 142–144.



**Table 7.3: SKM’s recommended critical circuits**

Line no. <sup>a</sup>	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

Source: SKM report, p. 145.

(\*) These circuits were not included in the list proposed by ElectraNet.

(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.

SKM also reviewed ElectraNet’s proposed x and y thresholds for the loss of supply event frequency parameters. SKM considered that the threshold value of 1.0 system minutes was no longer appropriate to apply to ElectraNet, as it had demonstrated a solid improvement in the frequency of these events and had not experienced any events of this magnitude for the previous three years.<sup>357</sup>

SKM analysed ElectraNet’s recent performance to determine a threshold that would increase the likelihood of an event occurring and would allow for a suitable performance target, cap and collar value to be determined. SKM recommended changing the x and y thresholds to 0.05 and 0.2 system minutes as its analysis revealed that there is greater opportunity for ElectraNet to improve its performance against the loss of supply event frequency parameters with these thresholds.<sup>358</sup>

<sup>357</sup> *ibid.*, pp. 161–162.

<sup>358</sup> *ibid.*, p. 162.

### **AER considerations**

Under clause 2.2(b) of the scheme, the parameters that apply to ElectraNet are set out in part 2 of appendix B of the scheme. The parameters that apply for the next regulatory control period are:

- transmission circuit availability
- critical circuit availability peak
- critical circuit availability non peak
- loss of supply event frequency > x system minutes
- loss of supply event frequency > y system minutes
- average outage duration.

In relation to the comments made by Flinders Power and the EUAA, the market impact parameters were still being developed by the AER and were not included in the first proposed scheme. Under clause 11.6.18 of the NER the AER's first proposed scheme applies to ElectraNet for its next regulatory control period. The AER is therefore unable to apply market impact parameters to ElectraNet for its next regulatory control period. However, the AER expects that ElectraNet will follow developments in market impact parameters and, as requested, provide commentary on the market impact data collected by the AER. The AER will endeavour to use this data to apply market impact parameters to ElectraNet in the regulatory control period commencing in July 2013.

Under clause 2.3 of the scheme certain elements of some TNSP's parameter definitions are to be established in the transmission determination. These elements are identified in appendix B of the scheme for each TNSP. For ElectraNet, the transmission determination must establish:

- critical circuits, peak and non-peak periods for the circuit availability parameters
- the magnitude of the x and y thresholds for the loss of supply event frequency parameters.

Clause 2.3 of the scheme provides that the AER will assess ElectraNet's proposals for these elements of the definitions against the objectives in clause 1.4 of the scheme.

#### ***Circuit availability***

The AER rejects the list of critical circuits proposed by ElectraNet as it does not meet the objectives in clause 1.4 of the scheme. Clause 6A.7.4(b) of the NER provides that the scheme must provide incentives for TNSPs to improve and maintain reliability of those elements of the transmission system that are most important to determining spot prices. ElectraNet's proposed list of critical circuits does not include many of the circuits that are likely to affect spot prices in South Australia and therefore does not meet the objectives of the scheme.

In particular, the AER accepts SKM's advice that circuits connecting the bulk of the South Australian generation capacity to the bulk of load, should be considered critical as it is likely that outages on these lines are likely to affect spot prices.<sup>359</sup> The AER considers that the list in table 7.3 proposed by SKM meets the requirements of the scheme and substitutes this list to apply to ElectraNet for its next regulatory control period.

The AER accepts the peak period proposed by ElectraNet. Given there is typically very little variation in demand throughout the day within the South Australian network, the AER accepts that ElectraNet's methodology for determining peak periods is appropriate.<sup>360</sup> The proposed period complies with clause 2.3 of the scheme and the AER accepts that outages outside this period are less likely to affect South Australian spot prices. The proposed peak period also allows ElectraNet to carry out some works in daylight hours (6:00 am to 8:00 am).

### *Loss of supply*

The AER rejects ElectraNet's proposed x and y thresholds for the loss of supply event frequency parameters as the proposed 1.0 system minutes threshold does not meet the requirements of the scheme. The objectives in clause 1.4 of the scheme and the principles in clause 6A.7.4(b) of the NER state that the scheme should provide incentives for TNSPs to improve and maintain reliability of the transmission system. ElectraNet's proposed 1.0 system minutes threshold does not meet this objective.

ElectraNet has consistently reported zero 1.0 system minute events and its average performance against a loss of supply event frequency parameter with this threshold over the previous five years is zero (when rounded to the nearest integer number).<sup>361</sup>

Due to this recent performance, it is not possible to set a meaningful performance target and cap value for a loss of supply event frequency parameter with a 1.0 system minutes threshold. ElectraNet's performance target is zero events when calculated by averaging its historical performance over the previous five years. The AER considers that a performance target of zero is not appropriate under the scheme, as it is impossible to set a cap value.

The alternative of using performance data over a longer period is also not appropriate in this case, as the target would not take into account the considerable improvement ElectraNet experienced during 2002–2006 and would allow ElectraNet to experience a decline in performance from its current levels without experiencing a penalty under the scheme. This would not be consistent with the objectives in clause 1.4 of the scheme. This is discussed further in section 7.6.2.

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<sup>359</sup> *ibid.*, p. 143–145.

<sup>360</sup> ElectraNet response to information request no. 99, confidential, submitted 18 August 2007.

<sup>361</sup> SKM report, p. 161–162. ElectraNet experienced one event greater than 1.0 system minute in both 2002 and 2003 (using system minute calculations, which are adjusted for expected increases in connection point demand).

The AER considers that the alternative x and y thresholds of 0.05 and 0.2 system minutes recommended by SKM meet the requirements of the scheme. These thresholds were determined by analysing ElectraNet's previous performance against a number of different thresholds. The 0.05 and 0.2 thresholds were selected as they provide ElectraNet with an opportunity to improve its performance and allow suitable cap and performance target values to be determined.<sup>362</sup> The AER substitutes 0.05 and 0.2 system minute thresholds for the loss of supply event frequency parameters for the next regulatory control period.

The definitions for each parameter that applies to ElectraNet for the forthcoming regulatory control period are set out in appendix E of this draft transmission determination.

### **7.6.2 Performance targets**

Performance targets define a level of performance for each parameter at which ElectraNet will not receive a financial reward or penalty.

#### **ElectraNet proposal**

ElectraNet's proposed performance targets are listed in table 7.1. The proposed performance targets for the availability parameters are equal to its average historical performance over the previous five years.<sup>363</sup>

For the loss of supply event frequency parameters, ElectraNet proposed calculating performance targets by averaging its historical performance over 11 years. ElectraNet considered that increasing the period for the average was necessary to ensure that the data used to calculate performance targets is statistically significant and captures the risk of long return periods for extended outages on long radial lines to remote parts of South Australia.<sup>364</sup>

ElectraNet also proposed adjusting system minute calculations for the loss of supply event frequency parameters to account for expected increases in demand at certain connection points. ElectraNet considered that this adjustment was necessary, as anticipated step changes in load would have the potential to overstate expected future performance. ElectraNet also proposed excluding the portion of any outage associated with increased demand at Olympic Dam from the calculation of system minutes.<sup>365</sup>

For the average outage duration parameter, the proposed performance target was calculated by averaging the duration of each outage over the previous nine years (rather than averaging ElectraNet's performance in each calendar year of this nine-year period). ElectraNet considered a period longer than five years for

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<sup>362</sup> *ibid.*, p. 162.

<sup>363</sup> ElectraNet revenue proposal, p. 115.

<sup>364</sup> *ibid.*, p. 116.

<sup>365</sup> *ibid.*, pp. 115–116

calculating the performance target was also necessary for this parameter to ensure that the data captures the risk of long return periods<sup>366</sup> for extended outages.<sup>367</sup>

### **Submissions**

The ECCSA stated that the AER should assess whether ElectraNet would have received a bonus during the current regulatory period applying the proposed performance targets, and if so consider that the proposed targets are too low.<sup>368</sup> The EUAA stated performance improvements resulting from increased capital expenditure (capex) and operating expenditure (opex) should not be rewarded by the incentive scheme as consumers have already paid for these improvements through capex and opex funding. It suggested that ‘stretch factors’ should be applied to ensure that TNSPs do not benefit from these improvements.<sup>369</sup>

### **Consultant review**

SKM examined the performance targets proposed by ElectraNet and recommended the performance targets listed in table 7.2.

### ***Circuit availability***

SKM was satisfied that the proposed performance target for the transmission circuit availability parameter met the requirements of the scheme. However, it provided revised performance targets for the critical circuit availability peak and non-peak parameters. These revised targets took account of the recommended increase in the number of lines included in the definition of critical circuits. SKM calculated this target by averaging ElectraNet’s performance over the previous five years and then applying a 14 day cap to several outages on line 1918 during 2003 and 2004 (to take account of a major capital work on this line).<sup>370</sup>

### ***Loss of supply***

SKM also provided revised performance targets for the loss of supply event frequency parameters. These revised performance targets:

- were calculated by reviewing ElectraNet’s performance against these parameters with the revised x and y thresholds
- are equal to ElectraNet’s average performance against these parameters over the previous five years (rather than 1996–2006 proposed by ElectraNet)
- include adjustments to the system minute calculations (to account for expected increases in connection point demand).

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<sup>366</sup> A return period is the average length of time it would be expected that an event of a particular size would occur.

<sup>367</sup> ElectraNet revenue proposal, p. 116.

<sup>368</sup> ECCSA, op. cit., p. 58.

<sup>369</sup> EUAA, op. cit., p. 34.

<sup>370</sup> SKM report, p. 153.

SKM considered that the loss of supply event frequency performance targets should be calculated by reference to ElectraNet's performance over the previous five years because using 1996–2006 performance data does not consider the reliability improvements that occurred during 2002–2006 and inflates the performance target.<sup>371</sup>

SKM also provided alternative system minute calculations for the expected increases in connection point demand. While SKM agreed in principle that these adjustments were appropriate and permitted under the scheme, it was concerned that the methodology applied by ElectraNet to make this adjustment slightly inflated ElectraNet's proposed performance target. ElectraNet's methodology did not adjust both the numerator and the denominator of the system minutes formula. SKM's changes to the adjustment calculations resulted in one historical event no longer breaking the 0.2 system minutes threshold.<sup>372</sup>

SKM did not consider that the portion of any outage associated with the Olympic Dam project should be excluded from the calculation of system minutes. SKM instead considered that the outage should be treated as an exclusion and be agreed as part of the contingent project application. The agreed exclusion should be based on a best practice works program.<sup>373</sup>

SKM also considered whether any adjustments should be made to the loss of supply event frequency targets to take account of the expected improvements in performance from capital works being undertaken to meet new reliability requirements in the South Australian Electricity Transmission Code (ETC).<sup>374</sup> SKM concluded that while these works may improve the security and reliability of the network and could exert downward pressure on the frequency of loss of supply events, there is insufficient historical data available to make an accurate assessment of the effect of these works and calculate an appropriate adjustment.<sup>375</sup>

#### ***Average outage duration***

SKM also recommended a performance target for the average outage duration parameter based on ElectraNet's average performance over the previous five years rather than 1998–2006. SKM considered that including the 1998–2001 data inflates the performance target as it does not consider the performance improvements that occurred over the current regulatory period.<sup>376</sup>

#### **AER considerations**

Under clause 2.5 of the scheme, performance targets must be equal to the TNSP's average performance history over the most recent five years. However, the AER may

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<sup>371</sup> *ibid.*, pp. 149–151.

<sup>372</sup> *ibid.*, pp. 155–157. Further explanation and an example of SKM's alternative adjustment calculation can be found on page 157 of its report.

<sup>373</sup> *ibid.*, pp. 158–159.

<sup>374</sup> Essential Services Commission of South Australia, *Electricity Transmission Code ET/05 1 July 2008*, September 2006.

<sup>375</sup> SKM report, pp. 153–154.

<sup>376</sup> *ibid.*, p. 164–165.

approve a performance target based on an alternative period if it is satisfied that the period is consistent with the objectives of the scheme.

Table 7.4 lists ElectraNet’s proposed values and its average historical performance over the three periods that it proposed to use as a basis for setting performance targets.

**Table 7.4: ElectraNet’s historical performance, proposed values and weightings**

Parameter	Average			Proposed values			
	1996–06	1998–06	2002–06	Collar	Target	Cap	Weighting
<i>Circuit availability (%)</i>							<i>MAR (%)</i>
Total transmission	99.32	99.34	99.47	98.56	99.47	99.75	0.3
Critical circuit peak	n/a	n/a	99.75	99.53	99.75	99.80	0.2
Critical circuit non-peak	n/a	n/a	99.94	99.90	99.94	99.97	0
<i>Loss of supply event frequency (no.)<sup>a</sup></i>							<i>MAR (%)</i>
> 0.2 system minutes	4.55	4.67	4.40	6	5	3	0.1
> 1.0 system minutes	1.27	1.00	0.40	2	1	0	0.2
<i>Average outage duration (minutes)<sup>b</sup></i>							<i>MAR (%)</i>
Total	102.55	83.52 <sup>c</sup>	72.63	147	84	39	0.2

Source: ElectraNet revenue proposal, p. 117 and SAHA International, *ElectraNet service target performance incentive scheme review final report*, May 2007 p. 26.

- (a) The averages for the loss of supply event frequency parameters include ElectraNet’s adjustments to system minute calculations to account for expected increases in connection point demand.
- (b) These averages were calculated by averaging the duration of each outage over this period (rather than averaging ElectraNet’s performance against this parameter in each calendar year of the period).
- (c) ElectraNet clarified that the 1998–06 average for the average outage duration parameter in the SAHA International report on p. 26 was incorrect. The correct number was provided to the AER by ElectraNet (Response to information request no. 202, confidential, submitted 3 October 2007).

### ***Circuit availability***

The AER considers that ElectraNet’s proposed performance target for the total transmission circuit availability parameter meets the requirements of the scheme. The performance target has been calculated by averaging ElectraNet’s performance over the previous five years and has been consistently recorded based on the parameter definitions that apply to ElectraNet under the scheme.

The AER accepts the method used by ElectraNet to calculate the performance targets for the critical circuit availability peak and non-peak parameters. However, due to the revisions to the definitions of critical circuits for these parameters, the AER rejects the actual performance targets proposed by ElectraNet as these are not based on the definitions that apply to ElectraNet under the scheme.

The AER considers that the revised performance targets recommended by SKM for the critical circuit availability peak and non-peak parameters meet the requirements of the scheme. SKM calculated these performance targets by averaging ElectraNet's historical performance over the previous five years and applying a 14 day cap to several outages on line 1918 during 2003 and 2004 (to take account of a major capital work on this line).<sup>377</sup> This is consistent with clause 2.5(g) and the parameter definitions applying to ElectraNet under the scheme. The AER substitutes these performance targets for ElectraNet's next regulatory control period.

### *Loss of supply*

The AER rejects ElectraNet's proposed performance targets for the loss of supply event frequency parameters as the use of performance data from a period longer than five years does not meet the requirements in clause 2.5(h) as it is not consistent with the objectives of the scheme. The objectives of the scheme in clause 1.4 and the principles in clause 6A.7.4(b) of the NER provide that the scheme should provide incentives for TNSPs to improve and maintain reliability of the transmission system.

ElectraNet's proposed performance target for these parameters does not meet this requirement as the period used to calculate performance targets does not consider the substantial performance improvements ElectraNet experienced over 2002–2006. The performance target proposed by ElectraNet permits it to experience a decline from its current performance levels and not receive a penalty under the scheme. The AER does not consider that this outcome is acceptable or permitted under clause 2.5(k) of the scheme.

In addition, due to the revisions to the x and y thresholds for the loss of supply event frequency parameters, ElectraNet's proposed performance targets are no longer based on the parameter definitions that apply to ElectraNet under the scheme.

The AER accepts in principle that ElectraNet's proposed adjustments to the system minute calculations for the expected increases in connection point demand are appropriate. These adjustments are necessary to ensure that historical data used to calculate performance targets adequately captures the network conditions that will exist during the next regulatory control period. In particular the adjustments ensure that the historical outages have the same system minutes effect on the network in the current regulatory period as it would have if it occurred in the next regulatory control period.

The AER accepts SKM's advice that these adjustments are permitted under clause 2.5(j) of the scheme.<sup>378</sup> However the AER does not accept the actual methodology proposed by ElectraNet to calculate these adjustments as the calculation does not include adjustments to the denominator of the system minutes formula.<sup>379</sup> The AER accepts the alternative methodology recommended by SKM as it includes adjustments

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<sup>377</sup> *ibid.*, p. 153.

<sup>378</sup> *ibid.*, p. 158.

<sup>379</sup> SKM explains this concept further and provides an example on pp. 157–165.



to both the numerator and denominator of the system minutes formula to take account of the effect of an expected increase in connection point demand.<sup>380</sup>

The AER also rejects ElectraNet's proposal to exclude any portion of an outage associated with the Olympic Dam project from the calculation of system minutes. ElectraNet has not demonstrated that this adjustment is permitted under the scheme and it is not clear whether the expected outages from the Olympic Dam project will have a material impact on ElectraNet's performance against this parameter and are sufficient enough to warrant exclusion. The AER also considers that SKM's suggested approach to assess the exclusion as part of any contingent project application, is not permitted under the contingent project provisions in the NER. The AER will further consider this issue if ElectraNet submits additional information on the reasons for this exclusion.

The AER considers that the performance targets recommended by SKM meet the requirements of the scheme and substitutes the performance targets listed in table 7.5 for ElectraNet's next regulatory control period.

#### *Average outage duration*

The AER rejects ElectraNet's proposed performance target for the average outage duration parameter as it does not meet the requirements of the scheme. For the same reasons discussed above, the AER is not satisfied that ElectraNet's use of performance data from a period longer than five years meets the requirements in clause 2.5(h) or 2.5(k) as it is not consistent with the objectives of the scheme.

The AER considers that the performance target recommended by SKM meets the requirements of the scheme and substitutes the performance target in table 7.5 for ElectraNet's next regulatory control period.

In relation to the EUAA's request to apply 'stretch factors', the AER agrees that the scheme should not reward improvements in service resulting from increased capex. The AER notes that SKM explored this issue in relation to capital works that are required to meet new ETC requirements. Given that SKM found that there was insufficient data available to make a fair and accurate assessment of this effect on service target performance, it is not appropriate for the AER to make such an adjustment for ElectraNet's next regulatory control period.<sup>381</sup> However the AER may consider that such an adjustment is warranted in future transmission determinations depending on the circumstances and available data.

Regarding the Government of South Australia's comment that ElectraNet should receive strong penalties for not meeting its mandated standards, the AER notes that ElectraNet will receive a penalty under the scheme if its performance against its parameters declines in the next regulatory control period. However, the scheme is not designed to ensure that ElectraNet meets technical performance standards in South Australia.

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<sup>380</sup> SKM report, p. 156

<sup>381</sup> *ibid.*, p. 163.

### 7.6.3 Caps and collars

The cap and collar for each parameter define the range of performance within which ElectraNet will receive a financial reward or penalty. The cap and collar also determine the rate at which ElectraNet will receive a bonus or penalty based on its annual performance. The cap is the performance value that results in the maximum positive financial reward for any one parameter and the collar is the performance value that results in the maximum negative financial penalty.

#### ElectraNet proposal

ElectraNet considered the scheme should reflect the asymmetry between the higher potential for deteriorations in service performance compared to the potential for further improvements.<sup>382</sup> ElectraNet engaged statistical consultants SAHA International (SAHA) to develop a methodology for calculating the caps and collars for each of the parameters that apply to it under the scheme. ElectraNet considered that SAHA's methodology results in the probability of a TNSP being rewarded equal to the probability of it being penalised.<sup>383</sup>

For the circuit availability and average outage duration parameter, SAHA determined a cap and collar value by determining the percentile that the mean occurs at and then developing a cap and collar around the mean percentile. SAHA considered that this approach was preferable to using a standard deviation approach as its analysis revealed that there was considerable skewness and kurtosis<sup>384</sup> in the circuit availability and average outage duration data.<sup>385</sup>

For the loss of supply event frequency parameter, SAHA considered that, as the number of events would be random, it is expected that they would follow a Poisson distribution. The cap and collar values are determined by taking a 50 per cent band around the mean based on the Poisson distribution probabilities for that mean.<sup>386</sup>

ElectraNet's proposed caps and collars for each parameter are listed in table 7.1.

#### Submissions

The ECCSA considered that the caps and collars for ElectraNet's parameters should not be asymmetrical as it is more likely than not that ElectraNet will achieve its proposed performance targets and the scheme is designed to both encourage out performance and penalise poor performance.<sup>387</sup>

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<sup>382</sup> ElectraNet revenue proposal, p. 115.

<sup>383</sup> *ibid.*, p.115.

<sup>384</sup> Kurtosis refers to the degree of peakedness of a distribution

<sup>385</sup> SAHA International, *ElectraNet service target performance incentive scheme review final report*, May 2007 pp. 7–9 and 22–24.

<sup>386</sup> *ibid.*, p. 15.

<sup>387</sup> ECSSA, *op. cit.*, p. 58.

### **Consultant review**

SKM reviewed ElectraNet's proposed caps and collars and SAHA's methodology for determining these values. SKM considered that SAHA used a robust methodology that attempted to identify the intrinsic nature of the distribution of the available historical data.<sup>388</sup> However, SKM had concerns about the data used to calculate the performance targets and as a result the percentile approach adopted by SAHA.

For the circuit availability parameters, SAHA used availability results for each individual circuit in ElectraNet's network (537 data points for the total circuit availability parameter).<sup>389</sup> SKM considered that this was inappropriate as the availability parameters measure performance by averaging the availability of all feeders across ElectraNet's network. SKM considered that using the availability data for each individual circuit overstated the variance in the performance outcomes experienced under the scheme and would only be appropriate if the scheme measured performance against one individual circuit selected at random.<sup>390</sup>

SKM proposed plotting curves of best fit and selecting the probability distribution that best fits the data set. SKM then chose the 5 per cent and 95 per cent values from the probability distributions to determine the cap and collar values. SKM considered that its approach reflected the need identified by SAHA to use probability distributions that best fit the data set and considered the inherent skewness and kurtosis in the range of historical results.<sup>391</sup>

To ensure consistency SKM also recommended adopting a similar approach for the loss of supply event frequency and average outage duration parameters. SKM selected a Weibull distribution as a curve of best fit for the circuit availability<sup>392</sup> and average outage duration parameters<sup>393</sup> and a chi-squared distribution for the loss of supply event frequency parameters.<sup>394</sup> However, SKM noted that the chi-squared distribution generated similar results to SAHA's approach of taking a 50 per cent probability around the mean in a Poisson distribution.<sup>395</sup>

SKM recommended the alternative cap and collar values listed in table 7.2.

### **AER considerations**

Under clause 2.5(f) of the scheme a proposed cap and collar may result in symmetric or asymmetric incentives for a TNSP. The AER accepts that asymmetric incentives may be appropriate where TNSPs are operating at a high level of performance and further improvements may be extremely difficult to achieve. The AER notes that this

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<sup>388</sup> SKM report, p. 137.

<sup>389</sup> SAHA, op. cit., pp. 10–12.

<sup>390</sup> SKM report, p 138.

<sup>391</sup> *ibid.* p 139.

<sup>392</sup> *ibid.* pp 152–154.

<sup>393</sup> *ibid.* p 165.

<sup>394</sup> *ibid.* pp 162–163.

<sup>395</sup> *ibid.* p 163.

approach was also previously permitted under the ACCC's service standards guidelines.<sup>396</sup>

The AER acknowledges the thorough manner in which SAHA has developed a methodology for determining cap and collar values. However, the AER does not consider that using availability results for each individual circuit or individual outage data to calculate cap and collar values is sound, as it is not consistent with the actual data measured by the parameters and used to calculate performance targets. SAHA's approach overstated the variance in the performance outcomes measured under the scheme and as a result the incorrect methodology was selected to calculate cap and collar values.

The AER therefore rejects the cap and collar values calculated by SAHA and proposed by ElectraNet as they are not consistent with clause 2.5(e) of the scheme, which provides that caps and collars must be calculated by reference to the proposed performance target using a sound methodology.

The AER considers that the alternative cap and collar values recommended by SKM meet the requirements of the scheme. SKM calculated these cap and collar values using a sound methodology, which took into account the inherent kurtosis and skewness in the data by selecting the probability distribution that best fit the data set. SKM used the actual historical performance data that was calculated using the parameter definitions that apply to ElectraNet under the scheme.

The AER substitutes the cap and collar values in table 7.5 for ElectraNet's next regulatory control period. These values were calculated using the methodology outlined in the SKM report.

#### **7.6.4 Weightings**

Weightings are the proportion that each parameter contributes to ElectraNet's maximum financial reward or penalty under the scheme.

##### **ElectraNet proposal**

ElectraNet's proposed weightings are listed in table 7.1. A feature of ElectraNet's weightings was a zero weighting for the critical circuit availability non-peak parameter. ElectraNet considered that this was appropriate as the historical data does not include a significant amount of interconnector related work programmed during non-peak hours.<sup>397</sup>

##### **Consultant review**

SKM reviewed the weightings proposed by ElectraNet and was satisfied that they met the requirements of the scheme. SKM noted that the weightings were based on those

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<sup>396</sup> ACCC, *Statement of principles for the regulation of transmission revenues: Service standards guidelines* November 2003.

<sup>397</sup> ElectraNet revenue proposal, p. 115.

that applied during the current regulatory period with some variation to incorporate the additional parameter.<sup>398</sup>

### **AER considerations**

The AER accepts the weightings proposed by ElectraNet. The AER considers that the proposed weightings are consistent with the requirements in clause 2.7 of the scheme as they add up to the level of revenue at risk prescribed in the scheme and are consistent with the objectives in clause 1.4 of the scheme.

ElectraNet proposed a relatively high weighting for the critical circuit availability peak parameter. This is appropriate as it reflects the principle that the scheme should provide incentives for TNSPs to provide greater reliability at times most valued by transmission network users.

## **7.6.5 Data collection and reporting**

### **Consultant review**

SKM has conducted annual reviews of ElectraNet's performance reporting since the introduction of the service standards regime. SKM considered that ElectraNet had continued to improve its data reporting systems over this time and random sample testing indicated that ElectraNet has accurately recorded each event. SKM was satisfied that performance data used to develop performance targets, caps and collars is both accurate and reliable.

### **AER considerations**

The AER considers that ElectraNet's data recording and reporting systems for service target performance reporting are appropriate. ElectraNet has been subject to the AER's annual review of service standards data collection and reporting systems for the last four years. This review has consistently found that ElectraNet's data collection and reporting systems are accurate and reliable.<sup>399</sup>

ElectraNet will be required to report information on its service target performance in accordance with the scheme and the AER's information guidelines. The AER also expects that ElectraNet will follow developments in market impact parameters and, as requested, provide commentary on the market impact data collected by the AER. This will assist the development of market impact parameters (to be applied to ElectraNet during the regulatory control period commencing in July 2013).

## **7.6.6 Revenue at risk**

### **Submissions**

The EUAA considered 1 per cent of revenue at risk does not provide a strong enough incentive for service performance improvements.

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<sup>398</sup> SKM report, pp. 186–187.

<sup>399</sup> The outcomes of each annual service standards compliance review are published on the AER website ([www.aer.gov.au](http://www.aer.gov.au)).

## AER considerations

Under clause 2.6 of the scheme the level of revenue at risk attached to ElectraNet's performance against its parameters and values is 1 per cent of the maximum allowed revenue for each calendar year of the next regulatory control period.

The AER is currently considering placing additional revenue at risk on any market impact parameters incorporated into the scheme. This would not apply to ElectraNet until the regulatory control period commencing in July 2013.

## 7.7 AER conclusion

The definitions that apply to ElectraNet for the next regulatory control period are set out in appendix E of this draft transmission determination. Peak periods for the circuit availability parameters are 8:00 am to 8:00 pm weekdays and non-peak periods are all other times. Critical circuits are those listed in table 7.3. The x and y thresholds for the loss of supply event frequency parameters are 0.05 and 0.2 system minutes. The performance incentive curves for each parameter are set out in appendix F.

The caps, collars, performance targets and weightings to be applied to ElectraNet during the next regulatory control period are set out in table 7.5.

**Table 7.5: 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

## 8 Maximum allowed revenue

### 8.1 Introduction

This chapter sets out the AER's calculation of ElectraNet's maximum allowed revenue (MAR) for the provision of prescribed transmission services for each year of the next regulatory control period, using the building block approach. The chapter also discusses the AER's consideration of ElectraNet's proposed changes to some of the standard asset lives used to determine the regulatory depreciation allowance.

### 8.2 Regulatory requirements

Clause 6A.2 of the NER requires the AER to make transmission determinations for transmission network service providers (TNSPs), in accordance with chapter 6A in respect of prescribed transmission services and negotiated transmission services. A revenue determination forms part of the AER's transmission determination.

Clause 6A.4.2(a) of the NER requires a revenue determination to specify, amongst other things:

- (1) the amount of the estimated total revenue cap for the regulatory control period or the method of calculating that amount;
- (2) the annual building block revenue requirement for each regulatory year of the regulatory control period;
- (3) the amount of the maximum allowed revenue for each regulatory year of the regulatory control period or the method of calculating that amount.

#### 8.2.1 Annual building block revenue requirement

Clause 6A.5.4 outlines the calculation of the annual building block revenue requirement for each year of the regulatory control period, which comprises 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 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.

### 8.2.2 Post-tax revenue model

Clause 6A.5.2 requires the AER to develop a post-tax revenue model (PTRM) to calculate the annual building block revenue requirement for each year of the regulatory control period using the approach described in clause 6A.5.4. A TNSP's revenue proposal must be prepared using the PTRM. For the purposes of this draft transmission determination, the transitional provision in clause 11.6.18 of the NER provides that ElectraNet must use the AER's first proposed PTRM, which was published in January 2007.

The first proposed PTRM estimates the MAR for each year of the regulatory control period by escalating the previous year's MAR using a CPI – X framework, based on the MAR that applies to the TNSP in the first year of the regulatory control period. The PTRM incorporates a forecast inflation rate to calculate the expected MAR, whereas the actual MAR is adjusted for actual inflation. Section 8.3 sets out this adjustment process.

Clause 6A.6.8(c) requires the X factor for each year of the regulatory control period to be determined such that:

1. the net present value (NPV) of the expected MAR for each year of the regulatory control period is equal to the NPV of the annual building block revenue requirement for each year of the regulatory control period and
2. the expected MAR for the last year of the regulatory control period is as close as reasonably possible to the annual building block revenue requirement for that year.

The X factor for each year must be that nominated in the TNSP's revenue proposal, providing it complies with the above requirements. However, to the extent that the X factors nominated by the TNSP do not so comply, the X factor for each year will be those determined by the AER in its final transmission determination.<sup>400</sup>

### 8.2.3 Adjustments to the revenue cap

The MAR is the revenue that a TNSP may earn in any year of the regulatory control period from the provision of prescribed transmission services. The MAR must be determined in accordance with part C of chapter 6A of the NER and the methodology set out in the revenue determination.

The AER may adjust the MAR for the following:

1. In accordance with clause 6A.7, adjust the revenue cap after making a revenue determination for:
  - reopening of the revenue determination for capital expenditure (capex) to respond to unforeseen circumstances

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<sup>400</sup> National Electricity Rules, clause 6A.6.8(b).



- network support pass through
  - cost pass through
  - the service target performance incentive scheme applied to the TNSP.
2. In accordance with clause 6A.8, the inclusion of a contingent project.
  3. In accordance with clause 6A.15, the revocation of a revenue determination or the amendment of a pricing methodology for wrong information or error.

### 8.3 Determining the MAR by adjusting for performance incentive and pass through amounts

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 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:

$\text{MAR}_1$  = the maximum allowed revenue for year 1

$\text{AR}_1$  = the allowed revenue for year 1.

The MAR for the subsequent year 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:

$$\text{AR}_t = \text{AR}_{t-1} \times (1 + \Delta\text{CPI}) \times (1 - X_t)$$

where:

AR = the allowed revenue

$t$  = time period/financial year (for  $t = 2, 3, 4, 5$ )

$\Delta\text{CPI}$  = 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 8.1 for the timing of calculating the AR and performance incentive):

$$\begin{aligned} \text{MAR}_t &= (\text{allowed revenue}) + (\text{performance incentive}) + (\text{pass through}) \\ &= \text{AR}_t + \left( \frac{(\text{AR}_{t-1} + \text{AR}_{t-2})}{2} \times S_{ct} \right) + P_t \end{aligned}$$

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 8.1: 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

## 8.4 ElectraNet proposal

ElectraNet stated in its revenue proposal that it has applied the post-tax building block approach to calculate its proposed revenues. It proposed that the calculation of the revenues be determined for a five-year regulatory control period.<sup>401</sup> ElectraNet's proposed revenues were determined on the basis of a nominal opening RAB of \$1276 million. It requested nominal unsmoothed revenues of \$207 million in

<sup>401</sup> ElectraNet revenue proposal, p. 10.

2008–09, increasing to \$288 million in 2012–13.<sup>402</sup> ElectraNet’s MAR for the final year of its current regulatory period (2007–08) is \$187 million. Table 8.2 summarises ElectraNet’s total proposed annual building block revenue requirement (unsmoothed) and the expected MAR for each year of the next regulatory control period.<sup>403</sup>

**Table 8.2: 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	112.26	129.10	148.44	163.55	175.75	729.10
Return of capital	20.43	17.72	12.90	10.83	19.13	81.00
Operating expenditure	61.35	65.24	70.29	76.19	81.60	354.67
Opex efficiency payment	3.25	2.68	2.07	1.42	0.73	10.14
Net taxes payable	9.22	10.09	9.52	9.51	10.29	48.64
Annual building block revenue requirement (unsmoothed)	206.50	224.83	243.21	261.49	287.51	1223.55
Maximum allowed revenue (smoothed)	208.52	225.14	243.09	262.46	283.39	1223.60

Source: ElectraNet PTRM.

ElectraNet has proposed to annually escalate its expected MAR over the next regulatory control period by applying X factors corresponding to –8.40 per cent in the first year and –4.86 per cent for each of the four remaining years.<sup>404</sup>

The implied energy delivered unit cost of this MAR (average transmission charges) is \$14.2 per MWh in 2008–09 increasing at a nominal average annual rate of 6.8 per cent to \$18.5 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 \$7.50 per year, or 0.7 per cent.<sup>405</sup>

## 8.5 Standard asset lives

### 8.5.1 Regulatory requirements

Clause 6A.6.3 of the NER requires that the depreciation schedules must use a profile that reflects the nature of the category of assets over the economic life of that category of assets. ElectraNet has depreciated each asset class category in the RAB on a straight-line basis over the proposed economic life. ElectraNet has followed standard

<sup>402</sup> *ibid.*, p. 125.

<sup>403</sup> While the total value of the annual building block revenue requirement is different to the total value of the expected MAR (smoothed), the two are equivalent in NPV terms.

<sup>404</sup> ElectraNet revenue proposal, p. 125.

<sup>405</sup> ElectraNet revenue proposal, pp. 126–27.

practice by assigning a regulatory life to each category of assets that equates to its expected economic or technical life. Generally, the regulatory, economic and technical lives of an asset coincide.

### **8.5.2 ElectraNet proposal**

ElectraNet engaged Maunsell to carry out a review of its transmission equipment standard asset lives that are used to determine the regulatory depreciation allowance over the next regulatory control period.<sup>406</sup> Maunsell was required to assess ElectraNet's standard (economic) asset lives against asset lives used by other Australian transmission utilities as well as other international standards.

ElectraNet stated that Maunsell made a number of recommendations for shorter standard asset lives taking into account technology factors, substation design standards and industry practice. Based on Maunsell's recommendations, ElectraNet has proposed to adopt new standard asset lives for substation secondary systems (electronic), substation demountable buildings and substation fences.<sup>407</sup>

In addition to Maunsell's recommendations, ElectraNet has proposed to adopt new standard lives for computers, software and office machines, and network switching centres based on an assessment of revised technological life.

These new standard asset lives are reflected in ElectraNet's depreciation policy and will be effective from the commencement of the next regulatory control period on 1 July 2008.

#### **Substation secondary systems—electronic**

ElectraNet stated that modern digital electronic protection and control devices have a shorter economic life than their electromechanical predecessors. ElectraNet has, therefore, separated its substation secondary systems asset category to recognise both older electromechanical equipment and modern digital electronic equipment with asset lives of 27 and 15 years respectively.<sup>408</sup>

#### **Substation demountable buildings**

ElectraNet stated that its current substation build standard utilises where possible demountable buildings (particularly for containment of protection and control schemes) where they can be outfitted and commissioned off site. Accordingly, it has assigned them as a new asset class for the next regulatory control period.

ElectraNet has assigned substation demountable buildings with an asset life of 15 years. This reflects the fact that these buildings will be replaced at the same time as the digital electronic devices which they house (i.e. every 15 years).<sup>409</sup>

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<sup>406</sup> Maunsell, *ElectraNet consultancy services: assessment of asset lives*, May 2007 (appendix U of ElectraNet revenue proposal).

<sup>407</sup> ElectraNet revenue proposal, p. 103.

<sup>408</sup> *ibid*, p. 104.

<sup>409</sup> *ibid*, p. 104.

### **Substation fences**

Substation fences are currently assigned an asset life of 55 years as part of the substation establishment asset category. Based on Maunsell's recommendations, ElectraNet has proposed to separate fences out from this asset category and recognise them in a new asset class called 'substation fences' with an asset life of 35 years.<sup>410</sup>

### **Computers, software and office machines**

ElectraNet has proposed to adjust the asset life of these assets from five years to three years to reflect their higher turnover due to technical obsolescence.<sup>411</sup>

### **Network switching centres**

ElectraNet stated that its network switching centres have historically had specialised computer equipment with longer than usual asset life compared to modern-day computers. With the transition to modern day computer technologies, these assets are now required to be updated in line with other computer-related equipment. ElectraNet has proposed to reduce the asset life from 10 years to three years in line with other computer-related equipment.<sup>412</sup>

### **8.5.3 Submissions**

The Energy Consumers Coalition of South Australia (ECCSA) noted that ElectraNet has reduced the asset lives of a number of its assets. It stated that the AER must assess the materiality of the changed depreciation schedule as part of its assessment of ElectraNet's revenue proposal.<sup>413</sup>

### **8.5.4 Consultant review**

SKM noted that ElectraNet has commissioned a review of its asset lives, which it has proposed to incorporate into its depreciation schedules. SKM stated that it has concerns with the three-year life ascribed to the network switching centre asset class. It would generally regard a 10- to 15-year life to be appropriate for such assets. It questioned the economic justification for such assets that were procured with the expectation of a three-year life.<sup>414</sup>

SKM recommended that opex refurbishment projects being reclassified as capex should be assigned a life of 12.5 years for depreciation (revenue modelling) purposes.

### **8.5.5 AER considerations**

Maunsell's report indicated that the consultant was required to look at a number of references, including Australian transmission utilities and previous ACCC/AER revenue cap decisions. However, the AER notes that reliance seems to have been

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<sup>410</sup> *ibid*, p. 104.

<sup>411</sup> *ibid*, p. 104.

<sup>412</sup> *ibid*, p. 104.

<sup>413</sup> Energy Consumers Coalition of South Australia, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, pp. 32–33.

<sup>414</sup> SKM report, p. 173.

placed on several reports by the International Council on Large Electric Systems (CIGRE) and New Zealand references, and there is no reference to Australian practice. Further, although Maunsell made a number of recommendations on standard asset lives, ElectraNet has chosen not to follow all of these and it has made some other changes on its own account.

The AER notes that some of Maunsell's recommendations would have required changing the accounting units used to value substations, such as separately considering the value of circuit breakers, current transformers and capacitor voltage transformers, as well as all the other components of the substation switch yard. Relatively minor adjustments were proposed for the identified items and therefore it is understandable that this recommendation was not accepted by ElectraNet.

Maunsell's recommendations that were largely accepted by ElectraNet are for:

- modern control and protection equipment
- demountable buildings with all of the above equipment already installed
- new fencing designs reflecting current industry standards.

In respect of the first items, ElectraNet has proposed to use an asset life of 15 years for both control and protection equipment, whereas Maunsell had recommended a 10-year life for control and a 15-year life for protection. The AER considers that this appears to be a responsible decision by ElectraNet, as control and protection technologies are converging and both are included in the disposable building asset class, which will have a 15-year life.

ElectraNet's proposed asset life for the new types of fencing also appears appropriate. The AER considers that the new types of fencing are likely to be more robust than the previous types; accordingly, they are most likely not so readily repairable and therefore eventual replacement is more plausible.

The AER notes that, without advice from Maunsell, ElectraNet has proposed to reduce the standard life of the computers, software and office machines asset class from five years to three years. ElectraNet has also proposed to reduce the life of the network switching centres asset class to reflect the computer asset life.

Network switching computers have previously been allocated a life of 10 years on the basis that network switching centres have used specialised computer equipment with longer than usual asset life compared to modern day computers. ElectraNet claimed that with the transition to modern computer technologies, these assets are required to be updated in line with other computer-related equipment. It has therefore proposed to reduce the asset life from 10 years to three years in line with other computer-related equipment. The AER considers that this approach is appropriate only if the technology used by ElectraNet has actually changed to 'PC type equipment' in the manner indicated.

The AER sought additional information from ElectraNet in relation to the above. ElectraNet advised that it undertook a complete changeover of its network switching centre technology from the Decalpa system to Intel-based systems in 2005–06.<sup>415</sup> The new network switching centre technology is now micro-computer based and consists of Intel-based PCs and servers in computer rooms and control rooms. The AER considers that this provides a reasonable basis to align the network switching centre asset life to other computer-related equipment.

While the AER accepts ElectraNet's proposal to assign an asset life for the network switching centre systems with the same asset class as computers, software and office machines, it does not consider that three years is an appropriate asset life for this category of equipment as it does not depreciate this class of assets over their economic life. The AER notes that in its recent determinations for Powerlink and SP AusNet, the relevant computer equipment or IT asset class for these TNSPs was assigned an asset life of five years. The AER is not satisfied that ElectraNet's proposed asset life of three years for computer equipment is consistent with Australian industry standards. Instead the AER determines that the asset life for ElectraNet's computer asset class should remain at five years.

As part of its review of the asset lives schedule in the PTRM, the AER identified that the tax asset life of 33 years for the commercial buildings asset class was not consistent with ElectraNet's depreciation policy, which stated that buildings have a tax standard life of 40 years. This matter was raised with ElectraNet. ElectraNet advised that buildings are depreciated for tax purposes over 40 years and that the value in the PTRM was an inadvertent error.<sup>416</sup> The AER will adopt a tax asset life of 40 years for this class of assets and correct this input error in the PTRM.

As discussed in section 6.6.4, the AER has accepted SKM's recommendation that a number of opex refurbishment projects are more appropriately classified as capex and therefore have been transferred to the ex ante capex allowance. The AER accepts SKM's recommendation to assign an asset life of 12.5 years for these projects.<sup>417</sup>

## Conclusion

Based on its review of ElectraNet's proposed standard asset lives and subject to the exceptions described below, the AER approves the asset lives proposed by ElectraNet in its revenue proposal. The exceptions are the proposed standard asset lives for computers, software and office machines and network switching centres, and the tax standard asset life for commercial buildings. The AER has determined that the asset lives proposed by ElectraNet for these asset classes do not provide them to be depreciated over their economic and/or tax life. The AER has instead determined that computers and computer-related equipment (network switching centres) should be depreciated over five years, and commercial buildings should be depreciated over 40

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<sup>415</sup> ElectraNet response to information request no. 238, confidential, submitted 22 October 2007.

<sup>416</sup> ElectraNet response to information request no. 219, confidential, submitted 5 October 2007.

<sup>417</sup> A tax standard life of 40 years (same as for the substation asset class) has been assumed for tax depreciation modelling purposes in the PTRM.

years for tax purposes. Table 8.3 sets out the AER's conclusion on ElectraNet's standard asset lives associated with different asset classes.

**Table 8.3: AER's conclusion on standard lives and asset classes**

<b>Asset class</b>	<b>Standard asset life (years)</b>
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	5
Office furniture, movable plant and miscellaneous	10
Easements	n/a
Land	n/a
Refurbishment projects (2008–13)	12.5

## **8.6 AER assessment of building blocks**

### **8.6.1 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, is to 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 3, the AER has determined the opening value of ElectraNet's RAB to be \$1220 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 8.4.



**Table 8.4: AER’s roll forward of ElectraNet’s regulated asset base (\$m, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	1220.36	1331.95	1503.28	1633.58	1750.35
Net capital expenditure	134.03	193.59	146.74	134.35	68.33
Inflation adjustment on opening RAB	36.24	39.56	44.65	48.52	51.99
Straight-line depreciation	–58.69	–61.82	–61.08	–66.10	–73.63
Closing RAB	1331.95	1503.28	1633.58	1750.35	1797.04

Note: The straight-line depreciation less the inflation adjustment on the opening RAB provides the regulatory depreciation building block allowance.

### 8.6.2 Forecast capital expenditure

As discussed in chapter 4, the AER has determined a forecast capex allowance for ElectraNet of \$606 million (\$2007–08) during the next regulatory control period. The annual nominal allowance is shown in table 8.4 and is used to calculate the roll forward value of ElectraNet’s RAB.<sup>418</sup>

### 8.6.3 Depreciation

The AER has assessed ElectraNet’s depreciation schedules and considers that methods and rates used are in accordance with clause 6A.6.3(b) of the NER, subject to some adjustments to the standard asset lives. 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 8.4 shows the resulting figures.

In modelling the applicable straight-line depreciation in the PTRM, the AER has based its calculations on the average remaining lives for existing assets (by asset class) as provided by ElectraNet and the standard lives for new assets (by asset class) as set out in table 8.3.

### 8.6.4 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 regulatory control period.

The nominal vanilla WACC of 9.66 per cent is based on a post-tax nominal return on equity of 12.25 per cent and a pre-tax nominal return on debt of 7.93 per cent.

<sup>418</sup> 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.

Table 8.8 shows the AER's return on capital allowance for this draft transmission determination.

### **8.6.5 Operating and maintenance expenditure**

As discussed in chapter 6, the AER has determined a forecast opex allowance for ElectraNet of \$291 million (\$2007–08) during the next regulatory control period. Table 8.8 shows the annual opex allowance, which equates to an average amount of \$64 million per annum in nominal terms.

### **8.6.6 Operating and maintenance expenditure efficiency allowance**

ElectraNet has proposed a total opex efficiency amount of \$9.5 million (\$2007–08) to be recovered using a glide path approach over the next regulatory control period.<sup>419</sup>

Clause 11.6.10 of the transitional provisions 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 operating and maintenance expenditure efficiency glide path mechanism provided for in the 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. The total opex savings is divided 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.

Based on this methodology, the AER has calculated the opex savings realised during the current regulatory period and has determined an opex efficiency allowance of

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<sup>419</sup> ElectraNet revenue proposal, p. 121.

\$8.1 million (\$2007–08) for ElectraNet over the next regulatory control period as shown in tables 8.5 and 8.6.<sup>420</sup>

**Table 8.5: Calculation of annual opex efficiency savings (\$m, 2007–08)**

	2003 (Jan to Jun)	2003–04	2004–05	2005–06	2006–07 <sup>a</sup>	2007–08	Total
Opex allowance	26.51	53.13	53.02	53.58	54.15	54.48	294.87
Less: network support	2.26	4.51	4.51	4.51	4.51	4.51	24.82
Less: Equity/debt raising costs	0.34	0.79	0.79	0.90	0.90	0.90	4.62
Adjusted allowance	23.91	47.83	47.72	48.17	48.73	49.07	265.42
Less: controllable opex	27.05	39.39	37.63	46.36	49.32	50.83 <sup>b</sup>	250.59
Total efficiency	-3.14	8.44	10.08	1.81	-0.59	-1.76	14.84
Average annual opex efficiency savings							2.70

- (a) The AER has used updated actual controllable opex for 2006–07 as advised by ElectraNet and actual 2006–07 CPI. ElectraNet response to information request no. 220, confidential, submitted 22 October 2007.
- (b) Forecast figure. The AER will 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 transmission determination.

**Table 8.6: 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	2.70	2.16	1.62	1.08	0.55	8.09

As noted by ElectraNet, the AER’s first proposed efficiency benefit sharing scheme will apply to ElectraNet in the next regulatory control period<sup>421</sup> as required under clause 11.6.18 of the NER.<sup>422</sup>

### 8.6.7 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 draft transmission determination. The amount of tax payable is estimated using 60 per cent benchmark gearing, rather than ElectraNet’s

<sup>420</sup> Table 8.8 shows this allowance in nominal dollar terms—\$8.7 million—over the next regulatory control period.

<sup>421</sup> ElectraNet revenue proposal, pp. 121–22.

<sup>422</sup> AER, *First proposed electricity transmission network service provider efficiency benefit sharing scheme, version 01*, January 2007.

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 (gamma) of 0.5 has been applied in 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 24.54 per cent for this draft transmission determination. Table 8.7 shows the AER's estimate of ElectraNet's tax payments.

**Table 8.7: 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	19.03	18.44	19.95	97.09
Value of imputation credits	–9.58	–10.26	–9.52	–9.22	–9.97	–48.55
Net tax allowance	9.58	10.26	9.52	9.22	9.97	48.55

## 8.7 AER determination—maximum allowed revenue

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 \$209 million in 2008–09 to \$273 million in 2012–13 (\$nominal). Table 8.8 shows the annual building block calculations.

**Table 8.8: AER's draft decision on annual building block revenue requirement (\$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 <sup>a</sup>	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

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

The NPV of the annual building block revenue requirement for the next regulatory control period has been calculated to be \$903 million. Based on this NPV amount, the AER has determined a nominal expected MAR (smoothed) for ElectraNet that

increases from \$209 million in 2008–09 to \$271 million in 2012–13, as shown in table 8.9. The total MAR for ElectraNet over the next regulatory control period is \$1195 million. ElectraNet’s MAR for the next regulatory control period is to be calculated using the formula described in section 8.3.

To determine the expected MAR (smoothed) over the next regulatory control period the AER has applied an X factor of –8.56 per cent in the first year (based on setting the first year MAR equal to the annual building block revenue requirement for that year) and –3.66 per cent in subsequent years, as shown in table 8.9. The AER considers that this profile of X factors results in an expected MAR in the final year of the regulatory control period that is not unreasonably different to the annual building block revenue requirement for that year, and is therefore in accordance with clause 6A.6.8(c)(2) of the NER.

**Table 8.9: AER’s draft decision on the maximum allowed revenue (\$m, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13	Total
MAR (smoothed)	208.81	222.88	237.89	253.91	271.02	1194.52
X factor <sup>a</sup>	–8.56 %	–3.66 %	–3.66 %	–3.66 %	–3.66 %	–

(a) The X factor of –8.56 per cent in 2008–09 is not required to be applied by ElectraNet. It provides an indication of the  $P_0$  adjustment between the MAR in the final year of the current regulatory period (2007–08) and the MAR in the first year of the next regulatory control period (2008–09).

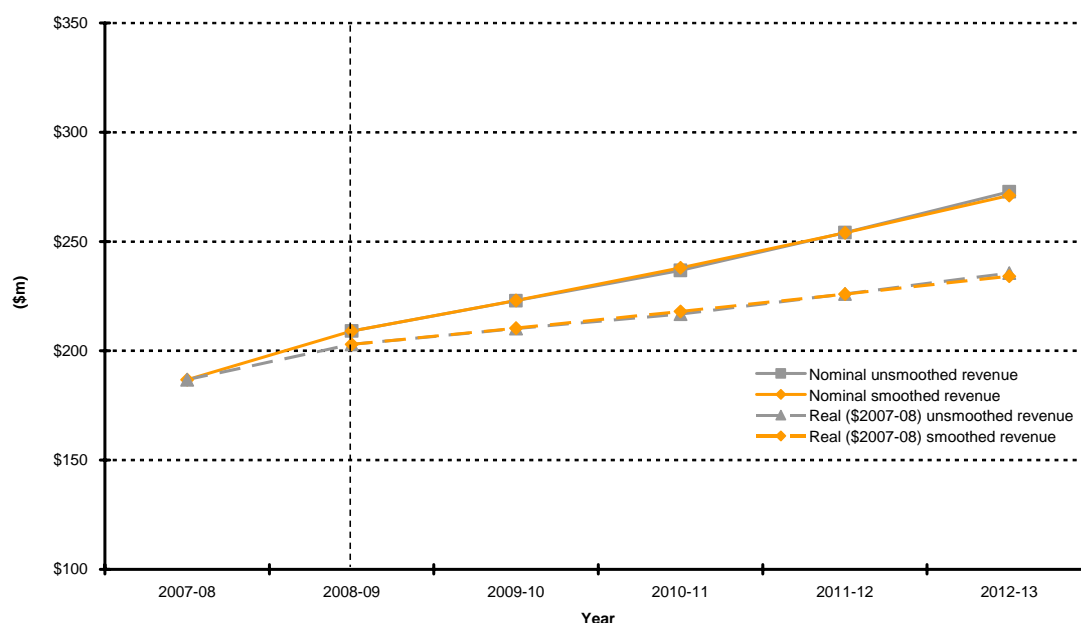
The average revenue increase of 7.7 per cent per annum (nominal) over the next regulatory control period consists of:

- an initial increase of 11.8 per cent from 2007–08 to 2008–09
- a subsequent average annual increase of 6.7 per cent (nominal) during the remainder of the next regulatory control period.

In real terms (\$2007–08), the average revenue increase of 4.6 per cent per annum over the next regulatory control period consists of an initial increase of 8.6 per cent from 2007–08 to 2008–09 and a subsequent average annual increase of 3.7 per cent during the remainder of the next regulatory control period.

Figure 8.1 shows the revenue path allowed by this draft transmission determination (both smoothed and unsmoothed) in nominal and real terms.

**Figure 8.1: Revenue path from 2008–09 to 2012–13 (\$m)**



## 8.8 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 draft transmission determination on average transmission charges can be estimated by taking the annual MAR and dividing it by forecast annual energy delivered in South Australia.<sup>423</sup> Based on this approach, the AER estimates that this draft transmission determination will result in a 5.9 per cent per annum (nominal) increase in average transmission charges over the next regulatory control period or an increase of 2.9 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.<sup>424</sup> The increase in average transmission charges is primarily because of:

- the need for increased capex associated with the new reliability standards specified in the South Australian Electricity Transmission Code (ETC). The ETC

<sup>423</sup> The forecast energy delivered (customer sales) figures were obtained from ESIPC’s *Annual Planning Report*, June 2007.

<sup>424</sup> ESIPC, *Annual planning report*, June 2007, p. xi.

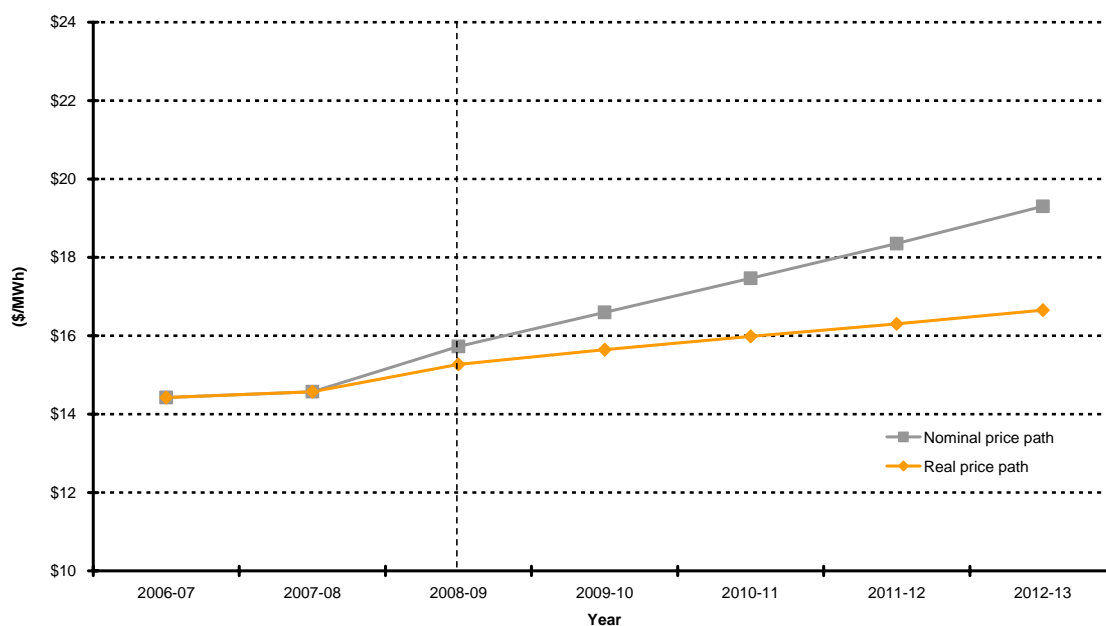
is determined by the Essential Services Commission of South Australia under the *Essential Services Commission Act 2002 (SA)*

- the urgent need to replace and maintain ageing assets
- 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 increase in average transmission charges under this draft transmission determination will add approximately \$6.40 to the average residential customer’s annual bill of \$1058 (0.6 per cent).<sup>425</sup>

Figure 8.2 shows the resulting average price path of this draft transmission determination 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 charges in 2007–08 is \$14.6 per MWh. Nominal average transmission charges are forecast to increase from around \$15.8 per MWh in 2008–09 to \$19.4 per MWh in 2012–13. Real average transmission charges are forecast to increase from around \$15.3 per MWh in 2008–09 to \$16.8 per MWh in 2012–13.

**Figure 8.2: Price path from 2008–09 to 2012–13 (\$/MWh)**



<sup>425</sup> The customer billing data is from the Essential Services Commission of South Australian. ESCOSA, *2005–06 annual performance report—SA energy retail market*, November 2006, pp. 71–73

## 9 Negotiating framework for negotiated transmission services

### 9.1 Introduction

The AER is required to make a determination on ElectraNet's proposed negotiating framework for the relevant regulatory control period, after assessing it in accordance with clause 6A.9 of the NER.

The negotiating framework should stipulate the procedure to be followed by the transmission network service provider (TNSP) and the service applicant when negotiating the terms and conditions of access for negotiated transmission services. In accordance with chapter 6A part K, in the event of an access dispute a commercial arbitrator must have regard to the negotiating framework.

Service applicants can make an application and negotiate terms and conditions of access for three types of negotiated transmission services with a TNSP. These services include:

- connection services (which might include entry, exit and TNSP to MNSP connection services)
- use of system services supplied by the shared transmission network that exceed or are below the networks specified performance standard under any legislation of a participating jurisdiction
- use of system services relating to augmentation or extension for loads of the transmission network.<sup>426</sup>

The negotiating framework only relates to negotiated transmission services, as the pricing of prescribed transmission services is covered by the pricing methodology that applies to a TNSP. ElectraNet's pricing methodology is discussed in chapter 11 of this draft transmission determination.

### 9.2 Regulatory requirements

Clause 6A.2.2(2) of the NER states that a transmission determination made by the AER pursuant to clause 6A.2.1 must include a determination relating to the TNSP's negotiating framework.

#### 9.2.1 TNSP proposal

In accordance with clause 6A.9.5(a) of the NER, a TNSP must prepare a negotiating framework setting out the procedure to be followed when negotiating terms and conditions of access for a negotiated transmission service. Consistent with clause

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<sup>426</sup> Definition of 'Negotiated Transmission Service', chapter 10, National Electricity Rules, p. 827.



6A.10.1(b), the TNSP must submit its proposed negotiating framework to the AER when it submits its revenue proposal.

Clause 6A.9.5(b) of the NER requires that the TNSP's negotiating framework must comply with the applicable requirements of its transmission determination and the minimum requirements for a negotiating framework set out in clause 6A.9.5(c) of the NER.

Under clause 6A.10.1(c) of the NER, the proposed negotiating framework must comply with the requirements of, and must contain or be accompanied by such information as required by the submission guidelines made for that purpose under clause 6A.10.

### **9.2.2 AER negotiating framework determination**

The AER will assess the TNSP's proposed negotiating framework under clause 6A.9.5(c) of the NER, which states that a TNSP's negotiating framework must specify:

- The requirement that a TNSP and service applicant negotiate the terms and conditions of a negotiated transmission service in good faith.
- A requirement for the TNSP to provide all commercial information that will allow effective negotiation.
- A requirement for the TNSP to provide a reasonable estimate of the costs of providing the negotiated transmission service and demonstrate that the charges reflect those costs.
- A requirement for the service applicant to provide all commercial information so that the TNSP may engage in effective negotiation.
- A reasonable time period for negotiation and a requirement for each party to use reasonable endeavours to adhere to the time period.
- A process for dispute resolution that allows for all disputes in relation to terms and conditions of access to be dealt with in accordance with part K of chapter 6A of the NER.
- Arrangements for the payment of a TNSP's reasonable direct expenses incurred in processing the application.
- A requirement that a TNSP determine the potential impact of the negotiated transmission service on other network users.
- A requirement that the TNSP must notify and consult with any affected network user and ensure that the provision of the negotiated transmission service does not result in other network users non compliance with their obligations under the NER.

The AER must make a decision to approve, or refuse to approve, the TNSP's proposed negotiating framework and set out the reasons for the decision.<sup>427</sup>

The AER's determination relating to the TNSP's negotiating framework must set out any requirements that are to be complied with in respect of the preparation, replacement, application or operation of the TNSP's negotiating framework.<sup>428</sup> If the AER's decision is to refuse to approve the TNSP's proposed negotiating framework in its final decision, it must include an amended negotiating framework in its final transmission determination. Any amendments made by the AER must be based on the TNSP's proposed negotiating framework and amended only to the extent necessary to enable it to be approved in accordance with the NER.<sup>429</sup>

### 9.3 ElectraNet proposal

ElectraNet's negotiating framework states that it applies to ElectraNet and any service applicant who has made an application in writing for a negotiated transmission service.<sup>430</sup> Any service applicant should apply and comply with the requirements of the negotiating framework. The requirements of the negotiating framework are additional to any requirements in chapters 4, 5 and 6A of the NER and if any inconsistencies exist, the requirements of the NER prevail.<sup>431</sup> The negotiating framework also requires that both parties involved in the negotiating process should negotiate, in good faith the terms and conditions of access for the negotiated transmission service.<sup>432</sup>

Where a negotiated transmission service is sought, the timeframes for commencing, progressing and finalising the negotiation and the commercial information required from ElectraNet and the service applicant are set out in the negotiating framework.<sup>433</sup> The proposed timeframes can be modified with the agreement of both parties.<sup>434</sup> The negotiating framework states that once an application is received from a service applicant both parties must use their reasonable endeavours to adhere to the proposed timeframes.<sup>435</sup>

The stated timeframes do not commence until the service applicant has paid the application fee. In addition, the timeframes can recommence if there is a material change in the negotiated transmission service sought.<sup>436</sup>

The negotiating framework states that both ElectraNet and the service applicant, upon commencing negotiations for a negotiated transmission service, are obliged to provide

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<sup>427</sup> National Electricity Rules, clause 6A.14.1(6).

<sup>428</sup> National Electricity Rules, clause 6A.9.3.

<sup>429</sup> National Electricity Rules, clause 6A.13.2(c).

<sup>430</sup> ElectraNet, *Proposed negotiating framework for the provision of a negotiated transmission service 1 July 2008 to 30 June 2013*, 31 May 2007, at para. 1.1, p. 5.

<sup>431</sup> *ibid.*, at para. 1.3, p. 5.

<sup>432</sup> *ibid.*, at para. 2.1, p. 5.

<sup>433</sup> *ibid.*, at para. 3, pp. 5–7.

<sup>434</sup> *ibid.*, at para. 3.4.3, p. 6.

<sup>435</sup> *ibid.*, at para. 3.3.2, p. 6.

<sup>436</sup> *ibid.*, at para. 3.6, p. 7.

all relevant commercial information to enable both parties to engage in effective negotiations.<sup>437</sup> However, the commercial information that ElectraNet and the service applicant receive from each other may be subject to certain conditions, including the condition that each party must treat the commercial information received from the other party as confidential unless both parties agree in writing to the disclosure.<sup>438</sup>

Further, the consent may be subject to a further condition that the person to whom the information is disclosed may enter into a separate confidentiality agreement with either party.<sup>439</sup> The negotiating framework states that ElectraNet may issue a notice requesting that the service applicant provide additional commercial information. The service applicant must use reasonable endeavours to provide the information requested, which is subject to confidentiality requirements.<sup>440</sup>

The negotiating framework sets out the process for the payment of the costs ElectraNet incurs as a result of processing the application for a negotiated transmission service.<sup>441</sup> The service applicant must pay an application fee prior to commencing negotiations.<sup>442</sup> This fee is not specified in the negotiating framework. The application fee will be deducted from the reasonable costs incurred by ElectraNet in processing the application for the negotiated transmission service.<sup>443</sup> ElectraNet may issue the service applicant with a notice setting out the reasonable costs incurred and requesting payment of amounts above the application fee.<sup>444</sup> Within 20 business days, the service applicant is required to pay ElectraNet any amount requested in the notice.<sup>445</sup> Further, ElectraNet may require the service applicant to enter into a binding agreement regarding the payment of ongoing costs.<sup>446</sup>

The negotiating framework provides for negotiating timeframes to be suspended as agreed by the parties or in certain circumstances.<sup>447</sup> It also states that either party can terminate the negotiations. Where the service applicant terminates a negotiation, it must do so in writing. If ElectraNet terminates a negotiation, it must provide written notice only in certain circumstances.<sup>448</sup>

The negotiating framework states that ElectraNet should determine the potential impact of the negotiated transmission service on transmission network users. As a part of this process, ElectraNet will notify and consult with any affected transmission network users and ensure that the negotiated transmission service does not result in

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<sup>437</sup> *ibid.*, at para. 4.1 and 6.1, pp. 7, 9.

<sup>438</sup> *ibid.*, at para. 4.5 and 6.3, pp. 8, 10.

<sup>439</sup> *ibid.*, at para. 4.6 and 6.4, pp. 8, 10.

<sup>440</sup> *ibid.*, at para. 5, p. 8.

<sup>441</sup> *ibid.*, at para. 10, p. 12.

<sup>442</sup> *ibid.*, at para. 10.1, p. 12.

<sup>443</sup> *ibid.*, at para. 10.2, p. 12.

<sup>444</sup> *ibid.*, at para. 10.3, p. 12.

<sup>445</sup> *ibid.*, at para. 10.4, p. 12.

<sup>446</sup> *ibid.*, at para. 10.5, p. 12.

<sup>447</sup> *ibid.*, at para. 8, p. 10.

<sup>448</sup> *ibid.*, at para. 11, p. 12.

non-compliance with obligations relating to other transmission network users under the NER.<sup>449</sup>

The negotiating framework states that all disputes arising between parties, regarding terms and conditions of access for the negotiated transmission service are subject to part K of chapter 6A of the NER.<sup>450</sup>

## 9.4 Submissions

Flinders Power submitted that ElectraNet's negotiating framework should include specific requirements particularly in relation to terms and conditions of access which should also be reflected in ElectraNet's negotiated transmission service criteria. Specifically, Flinders Power submitted that requirements in relation to terms and conditions of access, references to efficient costs, and performance characteristics of negotiated transmission services that ElectraNet intends to provide to network users should be detailed in the negotiating framework.

Further, Flinders Power submitted that the negotiating framework should only permit the negotiation of services requested or agreed to by the network user and the applicable charges for these services by agreement. It also stated that if costs allocated to prescribed transmission services are reallocated to negotiated transmission services (and vice versa) then the terms and conditions should reflect that prices will only increase or decrease if it is agreed to by the network user.

Flinders Power also provided more detailed comments regarding ElectraNet's negotiating framework. It stated that there was scope to include further guidance on the process for the negotiation of generator access arrangements and include a requirement that any ongoing costs between the parties should be on reasonable terms. Further, Flinders Power submitted that the negotiating framework should include requirements for ElectraNet to publish information (including fee structures and its standard terms and conditions) and provide network users with further information once the service application is received (including a copy of the negotiating framework and a preliminary offer).

## 9.5 Issues and AER considerations

The AER notes clause 6A.2.2 requires that a transmission determination consists of (among other things):

- a determination relating to a TNSP's negotiating framework
- a determination that specifies the negotiated transmission service criteria that shall apply to a TNSP.

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<sup>449</sup> *ibid.*, at para. 7, p. 10.

<sup>450</sup> *ibid.*, at para. 9, p. 11.

The AEMC's policy intent advocates a less intrusive form of regulation for negotiated transmission services at this time.<sup>451</sup> Hence the AER does not consider it appropriate to require ElectraNet to set out the specific and detailed requirements in the negotiating framework advocated by Flinders Power. Instead, the AER considers that service applicants should negotiate the terms and conditions of access and information requirements surrounding the negotiated transmission service with ElectraNet on a case-by-case basis. Should a dispute regarding compliance with the negotiating framework arise, part K of chapter 6A of the NER sets out a process for dealing with such disputes.

Clause 6A.9.3 requires the AER's determination relating to the negotiating framework to specify requirements that are to be complied with in respect of the preparation, replacement, application or operation of the TNSP's negotiating framework.

The AER considers that ElectraNet has prepared its proposed negotiating framework in accordance with the requirements of clause 6A.9.5, and that the application or operation of the framework is also specified in accordance with clause 6A.9.5.

However the NER does not explicitly address how or when a TNSP should replace its negotiating framework. In the absence of a specific rule, the AER considers that a TNSP's negotiating framework will apply for the duration of the regulatory control period to which the transmission determination relates.

The AER considers that a crucial requirement of a negotiating framework is that its operation results in effective negotiation. Should the AER become aware that a TNSP's negotiating framework does not provide for effective negotiation of negotiated transmission services the AER may require the TNSP to resubmit a revised negotiating framework. The AER notes that if any issues arise, service applicants are able to contact the AER and provide evidence of any claims for review.

While the AER considers ElectraNet's negotiating framework as submitted is compliant with clause 6A.9.5(c) of the NER, the AER has proposed minor drafting amendments relating to the definition of costs, which have been agreed to by ElectraNet, to provide clarity in the interpretation of the definitions.

## **9.6 AER determination**

As required by clause 6A.14.3(f) of the NER, the AER approves ElectraNet's negotiating framework (as amended) for the next regulatory control period 1 July 2008 to 30 June 2013.

The AER has assessed ElectraNet's negotiating framework and, subject to the minor drafting amendments agreed between the AER and ElectraNet, considers that the negotiating framework in appendix G is compliant with clause 6A.9.5(c) of the NER.

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<sup>451</sup> AEMC, *National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006, No. 18*, p. xvii.

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.

# 10 Negotiated transmission service criteria

## 10.1 Introduction

The NER requires that the AER include negotiated transmission service criteria (criteria) as a part of a transmission network service provider's (TNSP) transmission determination. Section 9.1 of this draft transmission determination describes negotiated transmission services. Unlike the other components of a transmission determination, TNSPs are not required to submit criteria to the AER.

The criteria must be applied by the TNSP in negotiating the terms and conditions of access, including the price and access charges for negotiated transmission services. The criteria must also be applied by a commercial arbitrator in resolving disputes relating to the terms and conditions of access and access charges for negotiated transmission services.

## 10.2 Regulatory requirements

Under clause 6A.2.2 of the NER, the AER is required to make a determination specifying the criteria that apply to a TNSP as part of its transmission determination for that TNSP. The AER's determination must set out the criteria to apply to a TNSP in negotiating the provision of negotiated transmission services, specifically:

- the terms and conditions of access for negotiated transmission services, including the prices that are to be charged
- access charges that are negotiated by the provider during that regulatory control period.<sup>452</sup>

The criteria must also be applied by a commercial arbitrator to resolve disputes about negotiated transmission services, specifically:

- the terms and conditions of access for the negotiated transmission service, including the price that is to be charged for the provision of that service by the TNSP
- access charges that are to be paid to, or by the TNSP.<sup>453</sup>

Clause 6A.9.4(b) of the NER requires that the criteria must give effect to, and be consistent with, the negotiated transmission service principles specified in clause 6A.9.1.

In accordance with clause 6A.11.3 of the NER, the AER published its proposed criteria for ElectraNet, and ElectraNet's revenue proposal, proposed negotiating

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<sup>452</sup> National Electricity Rules, clause 6A.9.4 (a)(1).

<sup>453</sup> National Electricity Rules, clause 6A.9.4(a)(2).

framework, proposed pricing methodology and supplementary information in July 2007.

### 10.3 Submissions

The AER received a submission from Southern Generators on the proposed criteria for ElectraNet.<sup>454</sup> The Southern Generators' submission provided three key comments on the criteria and submitted changes on each criterion to address its concerns.

Southern Generators' first comment stated that it does not consider that the criteria should be limited to a restatement of the negotiated transmission service principles. Southern Generators considered that the criteria should inform both TNSPs and their customers of the prices and terms and conditions that should or should not be included in their agreements.<sup>455</sup>

Second, Southern Generators stated that a number of the criteria (specifically nos 5, 6, 7, 8 and 9) should mirror the corresponding negotiated transmission service principles by requiring that prices for negotiated transmission services be based on, or reflect, the cost of providing that service. Southern Generators submitted that these criteria should require that prices be based on the efficient cost only of providing the service. It argued that this principle is consistent with the Australian Energy Market Commission (AEMC) rule determination in support of the *National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006, No. 18*.<sup>456</sup>

Third, Southern Generators stated that the wording of the criteria should, where possible, match the wording of the negotiated transmission service principles to prevent uncertainty or doubt in interpreting the criteria.<sup>457</sup>

### 10.4 Issues and AER considerations

The AER notes that the provisions of chapter 6A create a regime for the regulation of negotiated transmission services that is intended to be less intrusive than that applying to prescribed transmission services. In deciding on the negotiate/arbitrate framework the AEMC considered that there are fewer market failure concerns surrounding negotiated transmission services and that users of these services are likely to be large and well resourced, possessing countervailing market power enabling them to negotiate effectively.

As such, these services are not subject to the direct revenue control applied to prescribed transmission services in revenue determinations. Instead, prices and conditions for negotiated transmission services are intended to be agreed through

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<sup>454</sup> Southern Generators include AGL, Flinders Power, International Power Australia, Loy Yang Power Marketing Management Company and TRUenergy. The AER also received a separate submission from Flinders Power, which mirrored the content of the Southern Generators submission. For simplicity, the AER has only discussed the Southern Generators' submission.

<sup>455</sup> Southern Generators, *Negotiated transmission service criteria submission*, 8 August 2007, p. 1.

<sup>456</sup> *ibid.*, p. 1.

<sup>457</sup> *ibid.*, p. 2.



commercial negotiation or, failing agreement, determined through commercial arbitration.

The AER notes Southern Generators' first comment that the criteria should include other information about the prices and terms and conditions of access that should be included in negotiated transmission service agreements. The AER considers the detail sought by Southern Generators represents an unnecessary level of prescription. The AER's view is consistent with the AEMC's decision that negotiated transmission services should be subject to a less intrusive form of regulation than prescribed transmission services as there are fewer market failure concerns. Therefore, the AER does not consider it appropriate to set out specific prices and terms and conditions in the criteria. Instead, service applicants and TNSPs should negotiate the price and terms of the agreement on a case-by-case basis and include these in negotiated transmission service agreements.

Southern Generators stated that the criteria should include an efficient cost requirement for criteria nos 5, 6, 7, 8 and 9 to ensure ElectraNet imposes only the efficient costs it incurs on a service applicant. Southern Generators argued that this approach is consistent with the AEMC's statement made in its rule determination: *National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006, No. 18*.<sup>458</sup> The AER notes that only part of the sentence was quoted in the submission (the remainder of the sentence is inserted in italics).

Moreover, requiring generators and large end-users to negotiate with TNSPs about the recovery of costs directly incurred by the TNSP as a consequence of their connection will ensure that the efficiency of those costs is subject to increased scrutiny *by a well informed and commercially interested counterparty*.

The AEMC's decision puts the onus on the service applicant to scrutinise the efficient costs incurred by the TNSP in providing the negotiated transmission service. Further, the AEMC stated that end users of negotiated transmission services are likely to be larger and better resourced, providing a counterweight to the market power possessed by the TNSP.<sup>459</sup> The AER notes the AEMC's view that commercial negotiation is feasible for service applicants applying for negotiated transmission services. It therefore does not consider it necessary to insert an efficiency requirement into the criteria.

Southern Generators also commented that the criteria should mirror the negotiated transmission service principles with no amendment to the wording to avoid uncertainty in interpretation. The AER considers that the rewording is necessary to make the criteria enforceable requirements rather than guiding principles.

The AER therefore considers that the draft negotiated transmission service criteria released for consultation on 29 June 2007 should remain unamended.

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<sup>458</sup> AEMC, *National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006, No. 18*, p. xvii.

<sup>459</sup> *ibid.*, p. xvii.

## **10.5 AER determination**

As required by clause 6A.9.4 of the NER, the determination by the AER at appendix H specifies the negotiated transmission service criteria for ElectraNet for the regulatory control period 1 July 2008 to 30 June 2013.

# 11 Pricing methodology

## 11.1 Introduction

This chapter sets out the AER's consideration of ElectraNet's proposed pricing methodology for the next regulatory control period. ElectraNet's proposed pricing methodology relates to the provision of prescribed transmission services provided by ElectraNet and Murraylink.

## 11.2 Regulatory requirements

### 11.2.1 NER requirements

Clause 6A.24.1(b) of the NER defines a pricing methodology in terms of the pricing principles as 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 in its draft transmission determination 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.

Clause 11.8 of the NER requires the AER to develop transitional arrangements (referred to as 'agreed interim requirements') for those TNSPs that will submit a

proposed pricing methodology prior to the AER publishing its pricing methodology guidelines.<sup>460</sup>

Clause 11.8.4 of the NER specifies that the agreed interim requirements are to apply to ElectraNet (as well as SP AusNet and VENCORP) in place of the pricing methodology guidelines for the next regulatory control period:

For the purposes of making a 2008 pricing methodology, anything that must be done in accordance with the pricing methodology guidelines must instead be done in accordance with the agreed interim requirements.

### **11.2.2 Agreed interim requirements**

After consulting with the relevant TNSPs, the AER released the agreed interim requirements on 16 February 2007. Clause 2.3(a) of the agreed interim requirements states:

Within 10 business days of the AER publishing its pricing methodology guidelines under rule 6A.25 of the National Electricity Rules, the relevant provider may, by notice in writing to the AER, elect to have its proposed pricing methodology assessed against the pricing methodology guidelines instead of these agreed interim requirements.

Under the agreed interim requirements, if ElectraNet elects to have its proposed pricing methodology assessed against the pricing methodology guidelines and as a result of that assessment the AER refuses to approve ElectraNet's proposed pricing methodology, ElectraNet must submit to the AER a revised proposed pricing methodology. A revised proposed pricing methodology must be submitted to the AER within 10 business days of the AER publishing its draft transmission determination for ElectraNet. It must demonstrate consistency with the pricing principles in clause 6A.23 of the NER and the AER's pricing methodology guidelines.

Clause 2.3(d) of the agreed interim requirements states that if ElectraNet makes an election in accordance with clause 2.3(a) of the agreed interim requirements, it will then be subject to clauses 2.3 and 2.4 of the agreed interim requirements only. Under these circumstances, the other provisions of the agreed interim requirements will cease to apply to ElectraNet.

### **11.3 ElectraNet proposal**

On 31 May 2007 ElectraNet submitted its proposed pricing methodology to the AER. ElectraNet stated that its existing pricing methodology, used in the current regulatory period, had been developed in accordance with part C of chapter 6 of the old NER.<sup>461</sup> ElectraNet stated that its proposed pricing methodology, for use in its next regulatory control period, had been developed to be consistent with the pricing principles in

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<sup>460</sup> Under clause 6A.25, the AER must publish the pricing methodology guidelines by 31 October 2007.

<sup>461</sup> The old NER means version 9 of the NER.

clause 6A.23 of the NER. It stated that the provisions of part C of the old NER have been applied where they supplement the pricing principles.<sup>462</sup>

ElectraNet's proposed pricing methodology outlines:

- the calculation of the aggregate annual revenue requirement (AARR)
- allocation of assets to categories of prescribed transmission service to derive the annual service revenue requirement (ASRR) for each category of 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 the key differences between the proposed pricing methodology and the pricing methodology applied in the current regulatory period.

## 11.4 Submissions

The AER received two submissions on ElectraNet's proposed pricing methodology.

Flinders Power noted that in accordance with 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.<sup>463</sup>

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. Flinders Power noted that the use of equipment rating adjustments in the calculation methodology can create further distortions.<sup>464</sup>

The ECCSA highlighted the importance of transmission pricing to consumers and the need to ensure prices provide nationally efficient outcomes.<sup>465</sup>

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<sup>462</sup> ElectraNet, *Proposed pricing methodology 1 July 2008 to 20 June 2013*, 31 May 2007, pp. 3–4

<sup>463</sup> Flinders Power, *ElectraNet transmission network revenue proposal—2008/09 to 2012/13 submission*, 17 August 2007, p. 7.

<sup>464</sup> *ibid.*, p. 7.

<sup>465</sup> Energy Consumers Coalition of South Australia, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, pp. 59–60.

The ECCSA stated that ElectraNet's proposed pricing methodology is a restatement of current practices and does not reflect the requirements under chapter 6A of the NER. The ECCSA did not comment further on ElectraNet's proposed pricing methodology noting that ElectraNet may elect to have its proposed pricing methodology assessed against the final pricing methodology guidelines when published. The ECCSA stated that it will provide comment when the AER's pricing methodology guidelines are released.<sup>466</sup>

## **11.5 Issues and AER considerations**

### **11.5.1 Assessment of ElectraNet's proposed pricing methodology against the final pricing methodology guidelines**

#### **ElectraNet proposal**

On 29 October 2007 the AER published its final pricing methodology guidelines. On 7 November 2007 ElectraNet notified the AER that it wished to have its proposed pricing methodology assessed against the final pricing methodology guidelines. In making its election, ElectraNet noted that it understood that its proposed pricing methodology would not be approved by the AER in its draft decision.<sup>467</sup> ElectraNet's election is permitted under clause 2.3(a) of the agreed interim requirements.

#### **Submissions**

As noted above, the AER received two submissions on ElectraNet's proposed pricing methodology. In light of ElectraNet's election to have its proposed pricing methodology assessed against the final pricing methodology guidelines and the discussion immediately below, the AER considers these submissions are no longer directly relevant to its assessment of ElectraNet's proposed pricing methodology. However, Flinders Power and ECCSA are welcome to provide a submission on any revised proposed pricing methodology submitted by ElectraNet.

#### **AER consideration**

In accordance with the agreed interim requirements, ElectraNet was required to ensure its proposed pricing methodology was consistent with the pricing principles in clause 6A.23 of the NER. Additionally, its proposed pricing methodology was required to demonstrate consistency with part C of the old NER to the extent the provisions of part C were not inconsistent with the pricing principles in part J of the NER.

The final pricing methodology guidelines supplement and elaborate on the pricing principles in so far as they specify or clarify:

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<sup>466</sup> *ibid.*, p. 60.

<sup>467</sup> ElectraNet, *Notice of election of proposed pricing methodology assessment*, 7 November 2007, p. 2.

- the information that is to accompany a TNSP's proposed pricing methodology
- pricing structures for the recovery of the locational component of prescribed transmission use of system services (TUOS)
- permissible postage stamp pricing structures for the recovery of the non-locational component of prescribed TUOS services and prescribed common transmission services
- the types of transmission assets that are directly attributable to each category of prescribed transmission service
- the parts of a proposed pricing methodology, or the information accompanying it, which will not be publicly disclosed without the consent of the TNSP.

ElectraNet's proposed pricing methodology was developed under the agreed interim requirements and submitted to the AER prior to the release of both the draft and final pricing methodology guidelines.

The AER has assessed ElectraNet's proposed pricing methodology against the final pricing methodology guidelines. While some sections of the proposed pricing methodology, such as the pricing structures for the locational component of prescribed TUOS services and postage stamped prices, comply with the requirements of the final pricing methodology guidelines, a large proportion of ElectraNet's proposed pricing methodology does not.

In submitting a proposed pricing methodology against the agreed interim requirements, ElectraNet's proposed pricing methodology references part C of the old NER. These references are not appropriate for a methodology assessed against the pricing principles for prescribed transmission services (in part J of the NER) and the final pricing methodology guidelines.

The final pricing methodology guidelines specify the information that must accompany a proposed pricing methodology. The information requirements section of the final pricing methodology guidelines provides a comprehensive list of information to be included in a TNSP's proposed pricing methodology. It requires a TNSP to provide details of how it intends to allocate costs to categories of prescribed transmission services, the derivation of transmission prices and charges and requests details of other requirements under part J of the NER. ElectraNet's proposed pricing methodology does not include all the information required in the pricing methodology guidelines.

The AER has considered ElectraNet's proposed pricing methodology against both the pricing principles for prescribed transmission services and the final pricing methodology guidelines. ElectraNet's proposed pricing methodology does not comply with the requirements of the final pricing methodology guidelines. Further, references to the old NER (as required under the agreed interim requirements) are not appropriate for a proposed pricing methodology which must be consistent with the pricing principles for prescribed transmission services in part J of the NER.

ElectraNet has made the election referred to in clause 2.3(a) of the agreed interim requirements and, based on the discussion above, the AER refuses to approve its proposed pricing methodology. ElectraNet must provide a revised proposed pricing

methodology within 10 business days of the AER publishing its draft transmission determination.

The AER will publish ElectraNet's revised proposed pricing methodology on its website and allow 30 business days for interested parties to make submissions. Flinders Power and the ECCSA are also invited to resubmit their submissions if relevant.

## **11.6 AER determination**

As requested by ElectraNet, the AER has assessed its proposed pricing methodology against part J of the NER and the pricing methodology guidelines. Based on that assessment, the AER has decided not to approve ElectraNet's proposed pricing methodology.

Under the agreed interim requirements, ElectraNet must submit to the AER a revised pricing methodology within 10 business days of the AER publishing its draft transmission determination. Therefore, ElectraNet must submit its revised pricing methodology to the AER by 14 December 2007.



## Appendix A: Transitional arrangements

The Australian Energy Market Commission (AEMC) commenced a review of the rules for economic regulation of electricity transmission networks in the National Electricity Market (NEM) in mid 2005. The new chapter 6A of the National Electricity Rules (NER) was released in November 2006. The NER requires the AER to publish several transmission guidelines in September and October 2007.

As ElectraNet was required under the NER to lodge its proposal on 31 May 2007, before the AER's final guidelines were developed, transitional provisions were included in chapter 11 of the NER. For the purposes of making a 2008 determination for the regulatory control period to be covered by that determination, these provisions require anything that must be done in accordance with a guideline to be done in accordance with the corresponding proposed guideline.<sup>468</sup> In particular:

- the post-tax revenue model (PTRM) that applies to ElectraNet is the first proposed PTRM released by the AER on 31 January 2007
- the roll forward model (RFM) that applies to ElectraNet is the RFM developed by the AER in accordance with clause 11.6.9 of the NER
- the efficiency benefit sharing scheme (EBSS) that applies to ElectraNet is the first proposed EBSS released by the AER on 31 January 2007
- the service target performance incentive scheme (scheme) that applies to ElectraNet is the first proposed scheme released by the AER on 31 January 2007
- the submission guidelines that apply to ElectraNet are the first proposed submission guidelines released by the AER on 31 January 2007
- the cost allocation guidelines that apply to ElectraNet are the first proposed cost allocation guidelines released by the AER on 31 January 2007<sup>469</sup>
- ElectraNet's proposed pricing methodology is to be assessed against the AER's agreed interim requirements, released on 16 February 2007.

The proposed guidelines will apply to ElectraNet until the end of the 2008–2013 regulatory control period covered by the AER's 2008 transmission determination.

In determining an opening regulated asset base (RAB) for a transmission determination, the AER is bound by the relevant provisions of the NER. Clause 6A.6.1 and schedule 6A.2 of the NER outline the approach that is used to determine

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<sup>468</sup> National Electricity Rules, clause 11.6.18.

<sup>469</sup> For the purposes of making a 2008 determination for the regulatory control period to be covered by that determination, a relevant TNSP is taken to have complied with a requirement to comply with a cost allocation methodology under chapter 6A if the AER is satisfied that the relevant TNSP has complied with the relevant proposed guideline for cost allocation referred to in clause 11.6.17(a)(6), but only until the AER has approved a cost allocation methodology for that TNSP under clause 6A.19.4.

the opening RAB. The AER also uses its roll forward model RFM to determine the roll forward of the RAB.

Schedule 6A.2.1(c) of the NER provides that the RAB for the first regulatory year must be determined by rolling forward the RAB value set out in the schedule. For ElectraNet this value is \$824 million (as at 1 January 2003). This value is then adjusted to allow for the difference between estimated capital expenditure (capex) and actual capex in the previous regulatory period. Schedule 6A.2.1(f) of the NER outlines how this value is further adjusted to roll forward and calculate the value of the RAB at the beginning of the first year of the regulatory control period.

### **Past capital expenditure and roll forward of the RAB**

Clause 11.6.9 of the transitional provisions provides that the value of the RAB for the first regulatory control period under the revised NER may also be adjusted to have regard for an existing revenue determination and any other arrangements agreed between the AER and the transmission network service provider. In accordance with this provision the AER has undertaken an ex post prudence assessment of the capex commissioned in the current regulatory period as this is foreshadowed in the ACCC's 2002 revenue cap decision for ElectraNet.<sup>470</sup>

The 2002 ElectraNet revenue cap decision was made by the ACCC based on the framework contained in its *Draft statement of regulatory principles for the regulation of transmission revenues* (DRP).<sup>471</sup> Accordingly, the AER has rolled forward ElectraNet's RAB consistent with the DRP rather than the methodology outlined in schedule 6A.2.1(f) of the NER. The AER has developed an RFM based on the incentive framework of the DRP.

### **Easement value adjustment**

Clause 11.6.13(b) of the transitional provisions allows the AER to consider adjustments to the RAB that relate to easements. It states that in establishing the opening RAB for ElectraNet, the AER may also consider adjustments to the RAB that related to easements, as agreed by letter dated 3 August 2004 between the ACCC and ElectraNet.

### **Other mechanism adjustment**

Clause 11.6.10 of the transitional provisions 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 transmission network service provider. This includes the operating and maintenance expenditure efficiency glide path mechanism provided for in the ACCC's 2002 revenue cap decision for ElectraNet.

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<sup>470</sup> ACCC, *South Australian transmission network revenue cap 2003–2007/08: Decision*, 11 December 2002.

<sup>471</sup> ACCC, *Draft statement of principles for the regulation of transmission revenues*, 27 May 1999.

## Appendix B: Summary of reliability standards in Electricity Transmission Code

The Essential Services Commission of South Australia (ESCOSA) administers ElectraNet's licence for operating the South Australian electricity transmission network. As a condition of this licence, ElectraNet must comply with the South Australian Electricity Transmission Code (ETC). The NER also requires ElectraNet to comply with all relevant regulatory obligations, which includes the ETC. Table B.1 shows the existing reliability standards set out in clause 2.2.2 of the ETC.

**Table B.1: Existing reliability categories in clause 2.2.2 of the ETC**

Category	Reliability	Time to restore line after failure	Time to restore transformer after failure	Grace period to restore reliability standard
1	N	2 days	4 days	n/a
2	N-1 (2/3 AMD)	2 days	4 days	Target 1 year, max 3 years
3	N-1	2 days	4 days	Target 1 year, max 3 years
4	N-1 continuous	12 hours	4 days	Target 1 year, max 3 years
5	N-1 continuous N-2 partial	4 hours	2 days	Target 1 year, max 3 years

Source: ESCOSA, *Review of the reliability standards specified in clause 2.2.2 of the Electricity Transmission Code: Final decision*, September 2006, p. 3.

Note: 2/3 AMD refers to two thirds of the agreed maximum demand between ElectraNet and the connection point customer.

In August 2004 the ESCOSA commenced a review of the ETC when it requested the Electricity Supply Industry Planning Council to evaluate the transmission connection point reliability standards. The ESCOSA's final decision on the review and the amended ETC was published in September 2006. The amended ETC commences operation on 1 July 2008, the start of ElectraNet's next regulatory control period. The major amendments to the ETC were:<sup>472</sup>

1. The reliability standards applicable to category 2, 3 and 4 loads were reallocated as follows:
  - new reliability standards were assigned to category 2
  - some existing category 1 loads were moved into the new category 2 load
  - the existing category 2 loads standards were redefined and transferred into the new category 3 load

<sup>472</sup> ESCOSA, *Review of the reliability standards specified in clause 2.2.2 of the Electricity Transmission Code: Final decision*, September 2006. pp. 7–23.

- consolidation of the existing category 3 and 4 loads into a new category 4 load with N–1 continuous reliability.
2. The reclassification of a number of connection points to different load categories:
- the Kadina East, Ardrossan West, Yadnarie and Wudinna connection points were established as new category 2 loads
  - the Port Lincoln and Snuggery Rural connection points were established as new category 3 loads
  - the Templers/Dorrien connection point was separated into two new category 4 connection points
  - Waterloo connection point was established as a new category 4 load from 2010
  - following the Bungama reinforcement project, the Bungama Rural and the Bungama Industrial connection points are no longer separated. The Bungama Rural connection point was removed and the Bungama Industrial connection point was renamed the Bungama connection point and established as a category 4 load.
3. The addition of a category 6 load, specific to the Adelaide CBD, which requires ElectraNet to provide N–1 transmission line and transformer capacity via the establishment of an independent transmission substation located west of King William Street.

Table B.2 sets out the amended reliability standards

**Table B.2: Amended reliability categories in ETC**

Category	Reliability	Time to restore line after failure	Time to restore transformer after failure	Grace period to restore reliability standard
1	N	2 days	8 days	n/a
2	N–1	2 days	As soon as possible using best endeavours	Target 1 year, max 3 years
3	N–1	2 days	As soon as possible using best endeavours	Target 1 year, max 3 years
4	N–1 continuous	12 hours	As soon as possible using best endeavours	Target 1 year, max 3 years
5	N–1 line and transformer capacity	4 hours	As soon as possible using best endeavours	Target 1 year, max 3 years
6	N–1 transmission line and transformer capacity	4 hours	As soon as possible using best endeavours	Target 1 year, max 3 years

Source: ESCOSA, *Review of the reliability standards specified in clause 2.2.2 of the Electricity Transmission Code: Final decision*, September 2006, pp. 7–40.

## Appendix C: Review of ex ante capital expenditure

This appendix sets out the AER's consideration of ElectraNet's forecast capex program, including SKM's recommendations based on its detailed review of a sample of projects.

SKM's discussion of its detailed project review can be found in appendix B of its report.

### Project 10161—Adelaide CBD

ElectraNet's cost information templates indicate that this project has an estimated cost of \$138 million (\$2007–08). This is the single largest project identified in ElectraNet's capital works program and it amounts to about 18 per cent of ElectraNet's proposed capex allowance.

ElectraNet stated that this project is required to meet the new South Australian Electricity Transmission Code (ETC) reliability standards. The ETC classifies the Adelaide central business district (CBD) as a category 6 connection point. Clause 2.10 of the ETC specifies that the transmission line and transformer capacity into the Adelaide CBD must be N–1 for at least 100 per cent of agreed maximum demand and the additional capacity must be located west of King William Street.

This project includes a substation in the west of the city and the construction of transmission lines to connect the substation, and the Southern Suburbs project which comprises an additional transformer at the new location.<sup>473</sup> ElectraNet has stated that, in conjunction with ETSA Utilities, it is currently applying the regulatory test and an application notice is due by the end of 2007.

ElectraNet's forecast capex proposal provided the estimated cost of the Adelaide CBD project into two components—lines and substation assets. The new substation cost estimate is \$33 million and the line works cost estimate is \$105 million (\$2007–08).

SKM stated that:

- It was satisfied that the project including the Southern Suburbs project is required to meet the NER capex objectives.
- It was reasonable for ElectraNet to propose that a significant proportion of the new line into the CBD would be underground cable because of uncertainty associated with obtaining approval for construction of high voltage overhead lines in densely populated areas.
- After conducting a cost benchmarking exercise of the project scope as proposed by ElectraNet, SKM noted the uncertainty regarding the line route and the

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<sup>473</sup> Project 10336 Southern Suburbs (SIMS stage 2) has an estimated cost of \$15 million and has not been included in the Adelaide CBD cost estimate.

substantial amount of capex potentially at risk and recommended that the AER consider making the line works portion of the Adelaide CBD project contingent on a route being finalised. The line works component to be included as a contingent project was estimated to be \$104 million.

The Electricity Supply Industry Planning Council (ESIPC) submitted that the need for the Adelaide CBD project was unambiguously driven by a specific ETC requirement. However, it noted that the actual design and investment required was the responsibility of ElectraNet and that a key determinant of the cost of the project is the length of the underground cable required to obtain planning approval.<sup>474</sup>

The AER accepts SKM's conclusion that the Adelaide CBD project meets the capex objectives, as it is required to meet the new ETC reliability standards.<sup>475</sup> The new standards also require ElectraNet to commission this project by 2011.

The ETC specifies that the substation must be located west of King William Street. ElectraNet has identified a proposed site for the substation. It provided the AER and SKM a report prepared by PB Associates (PB), that provides an independent evaluation of the reasonableness of the proposed substation site.<sup>476</sup> PB recommended that ElectraNet proceed with the purchase of the identified site for the City West substation as it satisfies the requirements of the ETC. The PB report noted that ElectraNet had accepted PB's recommendation and had taken an option on the identified land.

ElectraNet confirmed with the AER that the substation site was certain and that it had taken steps to secure the property. Therefore, the AER is satisfied that the scope of the substation works is reasonably certain and therefore accepts SKM's conclusion that ElectraNet's proposed cost estimate of the substation component of the Adelaide CBD project reflects efficient costs of a prudent operator and should be included in the ex ante capex allowance.

Having identified that the line route (associated with overhead lines and underground cables) included in the scope and estimate (SAE) for the Adelaide CBD project was dependent on the outcome of the regulatory test and development approval by the government, the AER sought further information from ElectraNet regarding the route used to develop the project scope. ElectraNet confirmed that it was still considering a number of line routes. It further noted that the final line route and the line costs component of the project were still uncertain and that further investigations had indicated that the proposed cost based on the route assumed for the SAE would be understated when compared with other options still being examined.<sup>477</sup>

The AER agrees with SKM and the ESIPC that this project will require a significant proportion of underground cable and that this will have a substantial impact on the

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<sup>474</sup> ESIPC, ElectraNet transmission network revenue proposal submission, August 2007, p. 18.

<sup>475</sup> SKM report, p. 65.

<sup>476</sup> PB Associates, *Adelaide central reinforcement project: substation selection report*, March 2007.

<sup>477</sup> ElectraNet response to information request no. 217, confidential, submitted 5 October 2007.

project cost. ElectraNet's SAE for this project indicates that the cost variation between underground cable and overhead line is in the ratio of 10:1. Given this cost variation, ElectraNet was requested to provide further details on the length of underground cable required for the different route options under consideration. ElectraNet indicated that the options currently under consideration result in a potential cost difference in the region of \$26 million depending on the line route (based on current costs). This variation is solely due to the difference in the underground cabling requirement. The AER is concerned that this uncertainty associated with the project scope could lead to a potential windfall gain or loss to ElectraNet. This potential windfall is significant given the high level of cost difference between overhead line and underground cable.

The AER agrees with SKM that a substantial amount of capex is in doubt due to the uncertainty of the line route for this project. It also notes that according to ElectraNet's cost information templates, the cost of the lines component make up approximately 14 per cent of the proposed ex ante capex allowance. Given the level of uncertainty, the AER considers that it is not possible to establish an efficient estimate for the line works component of the Adelaide CBD project as required by clause 6A.6.7(c)(1).

Clause 6A.6.7(e)(10) allows the AER to consider whether any forecast capex includes amounts relating to projects that are more appropriately treated as contingent projects. Given the level of ambiguity with the line route resulting in the project scope being uncertain, the AER considers that the line works component should be treated as a contingent project under clause 6A.8.1. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$105 million to the proposed ex ante capex allowance. This amount is transferred to the contingent projects allowance.

The AER considers that the proposed trigger for this contingent project is the successful completion of the regulatory test and the receipt of development approval. This trigger addresses the two key factors that drive the uncertainty and removes the potential for windfall loss or gain. Once the trigger event occurs, ElectraNet would make an application to the AER under clause 6A.8.2 to amend the AER revenue determination.

The AER recognises that stakeholders may be concerned about potential delays in project implementation. However, it notes that clause 6A.8.2(d) requires the AER to make a decision to amend a revenue determination within 30 business days of receipt of an application relating to a contingent project. As such, the AER considers that this process would facilitate timely project implementation.

Overall, the AER considers that treating the line works component as a contingent project will allow the AER to be satisfied that the ex ante capex allowance proposed for the next regulatory control period reasonably reflects the efficient costs of achieving the capex objectives by a prudent TNSP (clause 6A.6.7(c)).

The AER notes that the Energy Consumers Coalition of South Australia (ECCSA) stated that the users benefiting from the increased supply to the Adelaide CBD should be the only users to pay for this increase in reliability.<sup>478</sup> The AER also notes that clause 2.10.1(c) of the ETC obligates ElectraNet to construct a new independent transmission line and substation to provide the Adelaide CBD with N–1 reliability. The determination of which transmission network users should pay for network augmentation is not within the scope of the AER’s assessment of ElectraNet’s revenue proposal in accordance with the capex objectives. The Adelaide CBD project will result in an increase in ElectraNet’s maximum allowed revenues that will be recovered via prescribed transmission prices and charges. Prescribed transmission prices and charges are determined in accordance with the pricing principles set out in chapter 6A of the NER, the AER’s pricing methodology guidelines and the AER’s approved pricing methodology for ElectraNet.

### **Project 11320—Weather stations**

ElectraNet’s cost information templates indicate that this project has an estimated cost of \$4.1 million (\$2007–08). This project has a 100 per cent probability of proceeding during the next regulatory control period.

The project involves the installation of measuring devices on the transmission lines to obtain real-time data to calculate accurate line ratings reflective of the environmental conditions at the relevant time. It includes a number of individual sub-projects. The real-time ratings information benefits the overall network and is aimed at alleviating potential constraints on the capacity of the transmission network, which could otherwise require additional transmission line infrastructure.

SKM stated that:

- It is satisfied that the project is required to meet the expected demand for the prescribed transmission services and maintain the quality, reliability and security of supply over the next regulatory control period.
- The economic benefits calculated in ElectraNet’s Taillem Bend to Keith No 1 and Keith to Snuggery 132 kV line weather stations project suggest a market benefit of approximately 10 times the project cost.<sup>479</sup>
- The proposed project costs were excessive and that the scope and cost of remote weather stations could be significantly reduced. Based on its experience with other TNSPs, SKM noted that \$300 000 for a remote weather station was excessive and recommended that this be costed at \$150 000.
- Adopting different types of power supplies and communication systems could reduce the costs. It noted that the projects are market benefit- rather than reliability- or capacity-driven, and hence the real time ratings are not critical given that default line ratings are always available.

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<sup>478</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 14.

<sup>479</sup> ElectraNet response to information request no. 166, confidential, submitted 29 August 2007.



- The estimate for this project should be reduced to \$2.2 million.

Given SKM's advice, the AER is not satisfied that ElectraNet has estimated the project based on the most efficient costs that a prudent TNSP is likely to incur (clause 6A.6.7(c)). The AER accepts SKM's recommendation to reduce ElectraNet's proposed allowance for the Weather stations project. Following a request from the AER, ElectraNet advised that the application of this adjustment in its capex model results in a reduction of \$1.9 million to the proposed ex ante capex allowance.

### **Project 85007—Playford 132 kV replacement**

ElectraNet's cost information templates indicate that this project has an estimated cost of \$50 million (\$2007–08). This project involves both connection and replacement capex. It requires:

- the extension of the Davenport 275 kV substation for relocation of the Playford substation
- installation of two 160 MVA transformers and two 60 MVA transformers
- construction of a new 132 kV substation adjacent to the new extension
- making changes to the 132 kV transmission line from Playford A to the Davenport new 132 kV switchyard.

The two 60 MVA transformers are the connection capex components.

SKM stated that:

- The project was included in the ACCC's 2002 revenue cap decision. However, ElectraNet had given a higher priority to the Cherry Gardens replacement project due to the nature of the load at risk and to co-ordinate works with the Tungkillio project and therefore this project was not progressed. SKM noted that ElectraNet has now commenced work on the Playford project.
- Based on ElectraNet's condition assessment report and demand forecast, SKM is satisfied that the need for this project has been established and that it is required to meet the capex objectives.
- The current scope and estimate of this project is significantly higher than the previous SAE. It considered that the main reason for this is that it was previously scoped inappropriately. SKM is satisfied that the proposed scope for this project is reasonable and that ElectraNet had considered alternative options prior to selecting the proposed option.
- SKM found an error in the SAE due to double counting for escalation—the result was an estimated \$4.2 million overstatement of the proposed capex allowance. Subject to the correction of this error, it recommended that this project be included in the ex ante capex allowance as it was the most efficient option and the cost estimate reflects the efficient cost of a prudent TNSP.

The AER accepts SKM's recommendation that ElectraNet's replacement capex should be adjusted to take account of the double counting. Following a request from the AER, ElectraNet advised that the correction of the transposition error in its capex

model results in a reduction of \$3.9 million to the proposed ex ante capex allowance. ElectraNet has acknowledged that this was an error.<sup>480</sup> The AER sought and accepts ElectraNet's confirmation that it has reviewed all of its other projects in this category and found no similar errors.

### **Project 11109—Torrens Island power station 66 kV secondary systems**

ElectraNet's cost information templates indicate that this project has an estimated cost of \$11 million (\$2007–08). This project involves the replacement of the substations secondary systems and reinforcement of the bus structures in the 66 kV switchyard.

SKM recommended that the AER accept the inclusion of this project in the ex ante capex allowance subject to an adjustment to account for an error that it had identified regarding the transposition of the SAE cost estimate to the capex model. The AER notes that ElectraNet has agreed to the need for correcting this error.<sup>481</sup>

Therefore, the AER accepts SKM's recommendation to reduce ElectraNet's proposed allowance for this project. Following a request from the AER, ElectraNet advised that the correction of the transposition error in its capex model results in a reduction of \$2.9 million to the proposed ex ante capex allowance.

### **Project 11350—Unit asset replacements**

As part of reviewing ElectraNet's cost information templates, the AER requested further information from ElectraNet on its replacement project—Unit asset replacements—that had a uniform expenditure profile. In response, ElectraNet noted that these are assets below the general unit of property as defined in its capitalisation policy. It also noted that these individual items are identified in its *Asset management plan 2007 to 2012* (AMP).

The AER has reviewed the AMP tables that list these items and notes that the total of \$4.5 million for circuit breakers has been incorrectly entered into ElectraNet's capex model instead of the correct value of \$3.8 million (\$2006–07).<sup>482</sup> The AER considers that the Unit asset replacement project should be adjusted for this error. Following a request from the AER, ElectraNet advised that the correction of the transposition error in its capex model results in a reduction of \$0.8 million (\$2007–08) to the proposed ex ante capex allowance.

### **Project 10809—Transformer ballistic proofing**

ElectraNet's cost information templates indicated that this project has an estimated cost of \$18 million (\$2007–08). It involves the construction of concrete-based ballistic enclosures at critical transformer sites and vehicle barriers to protect them against malicious damage.

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<sup>480</sup> ElectraNet response to information request no. 73, confidential, submitted 7 August 2007.

<sup>481</sup> ElectraNet response to information request from SKM, confidential, received by AER 29 October 2007.

<sup>482</sup> ElectraNet, *Asset management plan 2007 to 2013*, tables 10.9 and 9.1.

ElectraNet stated that the need for this project was identified as part of its security and safety risk review. Generally, ElectraNet considered that all its security and compliance projects represent practical response measures to counter what it believes to be credible threats.<sup>483</sup>

SKM stated that:

- In this instance, ElectraNet's process of establishing the risk management response prior to the threat and risk assessment process was not consistent with Australian Standard AS4360, which provides a generic guide for managing risk across a wide range of activities.
- ElectraNet's determined threat scenarios were plausible but were unlikely to be regarded as credible threats because the relevant authority on threat assessments—South Australia Police—although consulted, had not provided sufficient input to justify the credibility of the threat.
- While supporting the objective of protecting critical infrastructure, SKM considered that until the credibility of the threat level is sufficiently assessed, it cannot reasonably determine the necessary scope of the project to mitigate the threat and therefore this project should be treated as a contingent project.
- The proposed measures are beyond those being implemented by other network operators in Australia. The proposed scope is based on an 'off the shelf' solution to a different issue (transformer noise) and may be considered excessive when compared with what is required to protect against credible threats.
- The trigger event for this project should be an instruction from South Australia Police notifying the need for this project and a description of the credible threat.

The Energy Users Association of Australia (EUAA) noted the significant increase in the proposed security and compliance capex and questioned the reasons for the increase.<sup>484</sup> The AER notes that SKM's detailed review has found that although the key driver for this project is the objective of protecting critical infrastructure, the scope of the proposed project cannot be assessed due to the underlying threat assessment being ambiguous.

The AER recognises the need for protecting critical infrastructure and notes that this project is likely to meet the capex objectives after an appropriate assessment of the threat level.

Clause 6A.6.7(e)(10) allows the AER to consider whether any forecast capex includes amounts relating to projects that are more appropriately treated as contingent projects. Based on SKM's advice, the AER considers that treating the Transformer ballistic proofing project as a contingent project will allow it to be reasonably satisfied that the forecast capex allowance reflects the efficient costs of achieving the capex objectives

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<sup>483</sup> ElectraNet response to information request no. 170, confidential, submitted 28 July 2007.

<sup>484</sup> EUAA, *Australian Energy Regulator review of ElectraNet revenue reset proposal 2008/09 to 2012/13 submission*, 20 September 2007, p. 4.

by a prudent TNSP (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 \$16.5 million to the proposed ex ante capex allowance. This amount is transferred to the contingent projects allowance.

SKM recommended that the trigger event for this project should be an instruction from South Australia Police notifying ElectraNet of the need for this project and a description of the credible threat. The AER notes the importance of properly identifying the threat levels that drive the scope of this project and also recognises that a cost-benefit analysis of the proposed solution is an integral part of scoping the appropriate project. The threat levels and the costs of protecting against them should be considered prior to the trigger so that the occurrence of the trigger is all that is required for amending a revenue determination. The principles of critical infrastructure protection as stated in the *Critical infrastructure protection national strategy* also recognise that the threat levels determine the appropriate response and the need to set priorities for the allocation of resources.<sup>485</sup>

The AER considers that the appropriate trigger event for this contingent 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. This trigger event is reasonably specific and capable of objective verification (clause 6.8.1(c)(1)) and is described in such terms that its occurrence is all that is required for amending a revenue determination.

### **ElectraNet's replacement capex program**

ElectraNet stated that its proposed increased expenditure on asset replacement is required to address the increasing number of assets nearing the end of their economic lives and that replacement projects have been limited to high priority substation projects, which service significant loads and are generally limited in scope.<sup>486</sup> ElectraNet also stated that its AMP sets out the methodology for determining asset replacement requirements.<sup>487</sup>

The AER notes the following features of ElectraNet's replacement project strategy as set out in its AMP:

- As a policy, ElectraNet recognises the need for a condition assessment within five years of when a substation reaches 80 per cent of its economic life. Substation and transmission line assets were subject to detailed condition assessments in 2005–06. Although asset age is a factor in replacement decisions, it is not by itself the key driver.
- ElectraNet has modelled the amount of maintenance effort required due to the age profile of its assets. This effort has been measured based on the number of times

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<sup>485</sup> Trusted Information Sharing Network for Critical Infrastructure Protection, *Critical infrastructure protection national strategy, version 2.1*, 12 March 2004, section 7.3 ([www.tisn.gov.au](http://www.tisn.gov.au)).

<sup>486</sup> ElectraNet revenue proposal, p. 61.

<sup>487</sup> *ibid.*, p. 53.

that asset problems are responded to outside the scheduled maintenance program of a modern equivalent asset. Functionality risk associated with secondary systems are viewed in the context of achieving improved network performance using smart technology as envisaged in the *ElectraNet Network 2025 vision*.

- Detailed assessments are summarised and the assets ranked at a substation level. Individual substations are ranked taking into consideration the risk of additional maintenance effort and the risk of limited secondary system functionality. The factors considered in developing the initial risk ranking are connection criticality, connection type, plant serviceability, physical response capability, standards compliance and asset age.
- Based on this overall risk profile of the transmission network, ElectraNet has assessed the effective cut-off point on the risk stack and determined the timing of the replacement. In determining the cut off point, the need to avoid increased risks that ElectraNet believes will result in long-run costs and the possibility of aggregated decreasing asset reliability affecting network reliability are taken into consideration. The replacement timing decision is coordinated with opex plans and augmentation projects to maximise efficiencies.

Once the target substation and the timing are established, ElectraNet stated that it will develop the individual replacement project scopes. It stated that alternative options—which include refurbishment, do nothing, deferral, replace by asset class and planned condition-based replacement—are evaluated.<sup>488</sup>

The AER notes that ElectraNet has provided examples of where different options have been considered. The AER also notes that SKM stated that ElectraNet’s asset replacement recommendation reports had resulted in a number instances where ElectraNet had decided not to replace some assets during the next regulatory control period. One such example is the Happy Valley substation secondary systems replacement project where the asset replacement recommendation was the ‘do nothing’ option.<sup>489</sup>

SKM found that ElectraNet has assessed its management and replacement of ageing assets using a risk assessment methodology that is consistent with good industry practice.<sup>490</sup>

The AER accepts SKM’s view that ElectraNet’s risk assessment methodology is consistent with good industry practice. Further, the AER sought information from ElectraNet that it was only replacing assets over the next regulatory control period that were ranked as appropriate for replacement in accordance with its risk assessment methodology.

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<sup>488</sup> ElectraNet response to information request no. 127 and 169, confidential, submitted 28 August 2007.

<sup>489</sup> SKM report, p. 85.

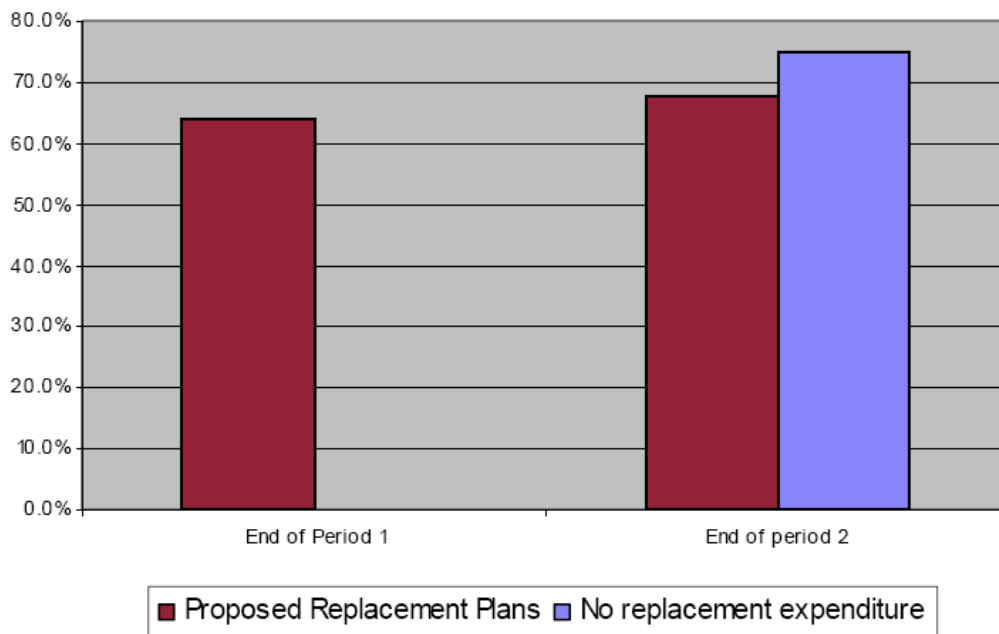
<sup>490</sup> *ibid.*, pp. 84–85.

ElectraNet provided a list of all substations showing the initial risk ranking and the final replacement plan that was used to develop its replacement capex program for the next regulatory control period.<sup>491</sup> After reviewing this information, and subject to the discussion below, the AER is satisfied that the replacement capex program does not include projects more suitable for deferral.

**Impact of replacement capex on ElectraNet’s network**

The ECCSA stated that the AER should consider the effect that the replacement capex program has on ElectraNet’s average asset life.<sup>492</sup> The AER requested ElectraNet to provide information showing the effect of the replacement capex on its average asset age. Figure C.1 shows that ElectraNet’s average asset age is not reducing due to the proposed replacement program. Period 1 denotes the current regulatory period and period 2 is the next regulatory control period.

**Figure C.1: ElectraNet’s average asset lives as a percentage of asset life**



Source: ElectraNet response to information request no. 213, confidential, submitted 12 October 2007.

Noting that ElectraNet has stated that its proposed level of replacement capex is aimed at meeting the objective of maintaining a stable or steady network risk profile and overall maintenance effort, the AER sought information from ElectraNet to demonstrate that the proposed replacement capex will maintain the reliability of the network.

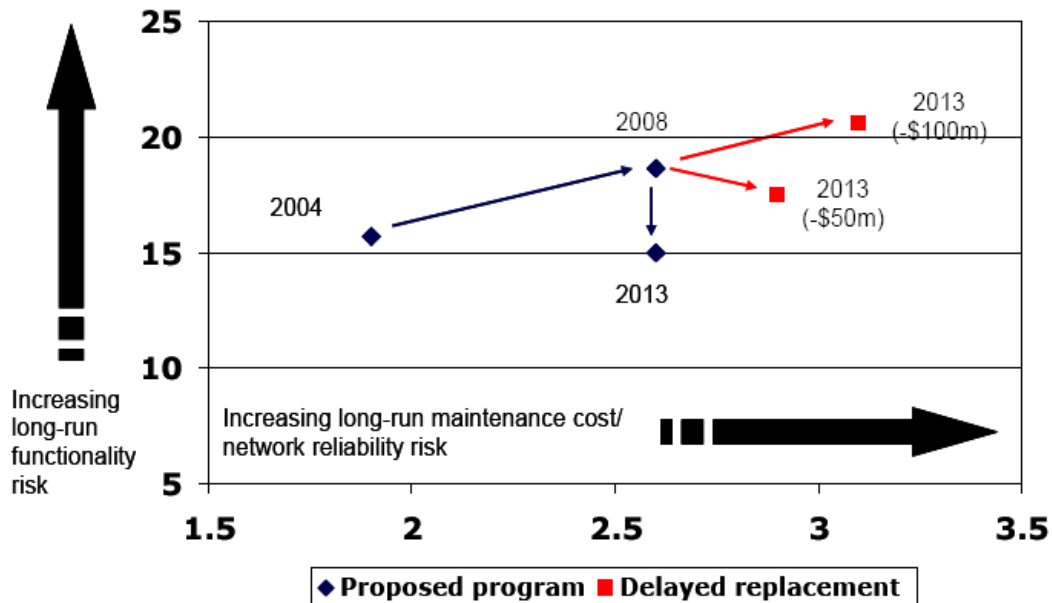
ElectraNet provided the following diagram as shown in figure C.2, which demonstrates that the proposed replacement program maintains a steady risk profile

<sup>491</sup> ElectraNet response to information request no.s 212–215, confidential, submitted 12 October 2007.

<sup>492</sup> ECCSA, *Australian Energy Regulator SA electricity transmission revenue reset, ElectraNet SA application, a response*, August 2007, p. 51.

during the next regulatory control period with incidental improvement in functionality.

**Figure C.2: ElectraNet’s network functionality and reliability risk profile**



Source: ElectraNet response to information request no. 214, confidential, submitted 12 October 2007.

**10615—Ardrossan West substation**

ElectraNet’s cost information templates indicate that this project has an estimated cost of \$11 million (\$2007–08). This project involves capital works related to meshing of the 132 kV bus and the replacement of the secondary systems.

The AER was initially concerned about the inclusion of the Ardrossan West substation in ElectraNet’s proposed replacement program for the next regulatory control period because the initial risk assessment of the substation indicated a replacement period significantly beyond 2013. In addition, no asset replacement recommendation report had been prepared for this project. The reason for the inclusion of this project appears to relate to the benefit of aligning it with the augmentation need. Therefore, the AER requested ElectraNet to provide its economic assessment that would justify bringing forward the replacement.

ElectraNet’s response indicated that this project is more appropriately classified as a network augmentation rather than a replacement.<sup>493</sup> The AER requested CHC to consider this response—in particular, whether the reclassification was reasonable. CHC advised that it was satisfied with the explanation and agreed that the reclassification as an augmentation project is more appropriate given that none of the components were ‘like for like’. It also noted that the replacement component

<sup>493</sup> ElectraNet response to information request no. 229, confidential, submitted 16 October 2007.

included only a small amount of existing secondary systems and if reclassified, the project should be subject to a regulatory test assessment.<sup>494</sup>

ElectraNet also provided its economic analysis justifying this project. Based on this analysis, the AER is satisfied that the least-cost option has been adopted for the proposed augmentation.

Taking CHC's view and the economic analysis into account, the AER accepts ElectraNet's explanation for the inclusion of this project in its ex ante capex allowance. However, it considers that this project should be reclassified as a large network augmentation and ElectraNet would be required to apply the regulatory test prior to implementation.<sup>495</sup>

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<sup>494</sup> CHC advice by email, 17 October 2007.

<sup>495</sup> The proposed cost of the Ardrossan West substation rebuild project is \$11 million (\$2007–08).



## Appendix D: 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 has released its *Process guideline for contingent project applications under the National Electricity Rules – September 2007*<sup>496</sup> (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. Generally, the AER expects ElectraNet to provide supporting information with its contingent project application that includes:

- 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.

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<sup>496</sup> [www.aer.gov.au](http://www.aer.gov.au)

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 demand in the lower Eyre Peninsula region exceeding the published 2013–14 aggregated demand forecast for the region by 15 MW.<sup>497</sup>

### **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 meet its reliability standards. ElectraNet is required to provide continuous N–1 equivalent transmission line and transformer capacity under new ETC reliability standards, as 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 demand in the Riverland region exceeding the 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.<sup>498</sup>

### **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 demand in the Yorke Peninsula region exceeding the published 2013–14 aggregated demand forecast for the region by 25 MW.<sup>499</sup>

### **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

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<sup>497</sup> Aggregate of connection point demand forecasts for the region published by the Electricity Supply Industry Planning Council in its annual planning report for 2007.

<sup>498</sup> *ibid.*

<sup>499</sup> *ibid.*

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 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 demand in the South East region exceeding the published 2013–14 aggregated demand forecast for the region by 15 MW.<sup>500</sup>

### **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 demand in the Port Pirie area exceeding the published 2013–14 aggregated demand forecast for the area by 20 MW.<sup>501</sup>

### **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 demand in the Southern Suburbs of Adelaide exceeding the published 2013–14 demand forecast for the Southern Suburbs by 35 MW.<sup>502</sup>

### **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

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<sup>500</sup> *ibid.*

<sup>501</sup> *ibid.*

<sup>502</sup> *ibid.*

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 upgrading practical given existing transmission line structures. The indicative cost of this project is \$11 million.

The trigger for this project is an increase in demand on the Playford (Davenport) to Leigh Creek 132 kV transmission line more than 25 km from the Playford (Davenport) end exceeding the published 2013–14 aggregated demand forecasts for the existing loads connected to this line by 10 MW.<sup>503</sup>

### **Fleurieu Peninsula reinforcement**

The driver of this project is that ETSA has advised that, due to growth in net demand, 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 Tungkillio 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 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 has advised that 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

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<sup>503</sup> *ibid.*

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.

### **Lucindale West reinforcement**

The driver of this project is that ETSA has advised that it will need to make an application for a new connection point, as 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 is dependent 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 has advised that it will need to make an application to connect to the transmission network between 2015 and 2017 as 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 resulting from the removal of Heywood interconnector flow constraints that 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 resulting 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 a new circuit connecting a substation in the Southern 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.

## Appendix E: Parameter definitions

The following parameter definitions apply to ElectraNet during its next regulatory control period.

<b>Parameter 1</b>	<b>Transmission circuit availability</b>
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:

<b>Line no <sup>a</sup></b>	<b>Voltage (kV)</b>	<b>Circuit name</b>	<b>Length (km)</b>
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>non-regulated 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>

<b>Parameter 2</b>	<b>Loss of supply event frequency</b>
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 &gt;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).

non-regulated 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

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### Parameter 3 Average outage duration

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Unit of measure	minutes
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Definition/formula 
$$\frac{\text{Aggregate minutes duration of all unplanned outages}}{\text{Number of connection point events}}$$

the cumulative summation of the outage duration time for the period, divided by the number of connection point outage events during the period

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

the performance parameter applies to exit points only

outage duration extends to the point at which supply restoration is offered to the customer

---

Inclusions	subject to the exclusions specified below, customers supply 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)
------------	---

non-regulated transmission assets

any outages shown to be caused by a ‘third party system’—eg intertrip signals, generator outage, customer installation, customer request or NEMMCO direction

planned outages

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)

force majeure events

where ElectraNet protection operates correctly due to a fault on a third party system no outage duration is recorded

## Appendix F: 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 F.1 to F.5 show the set of linear equations represented in figures F.1 to F.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

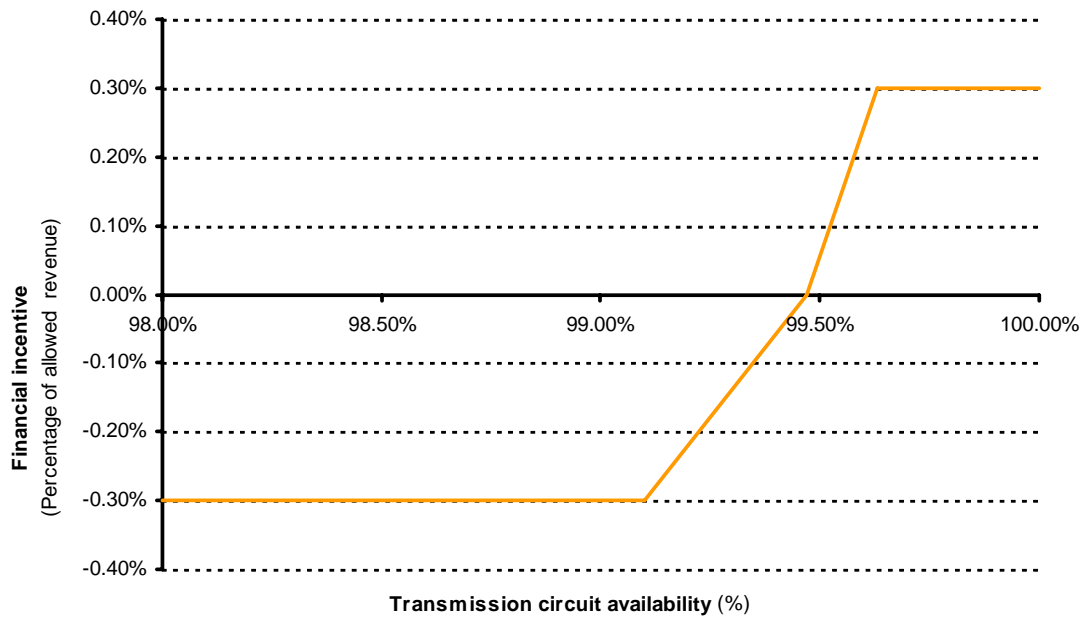
$S_3$  = loss of supply event frequency > 0.05 system minutes

$S_4$  = 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.

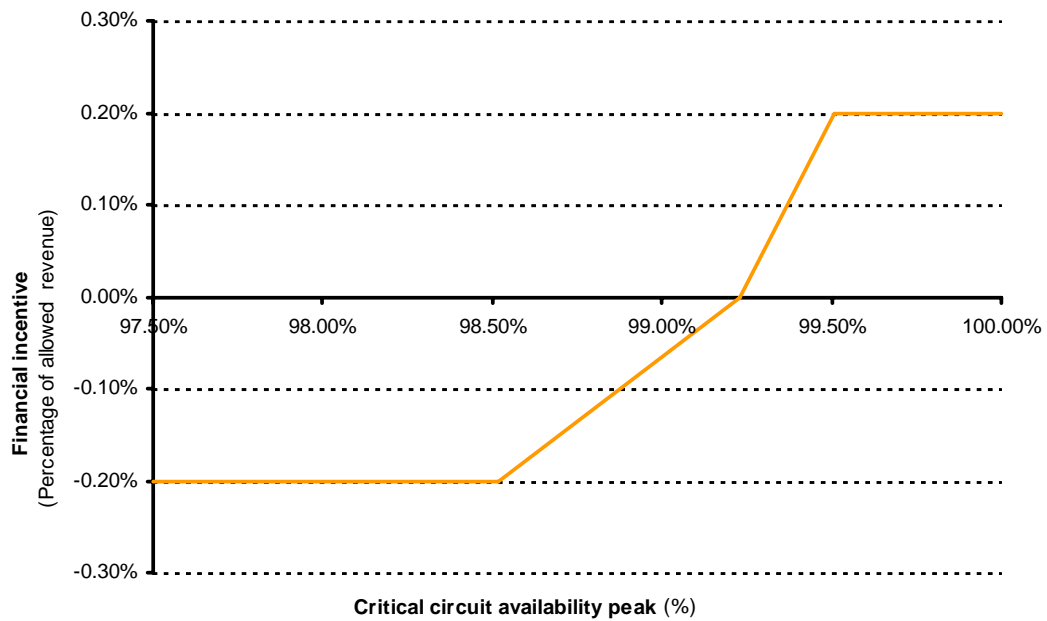
**Figure F.1: Transmission circuit availability**



**Table F.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	

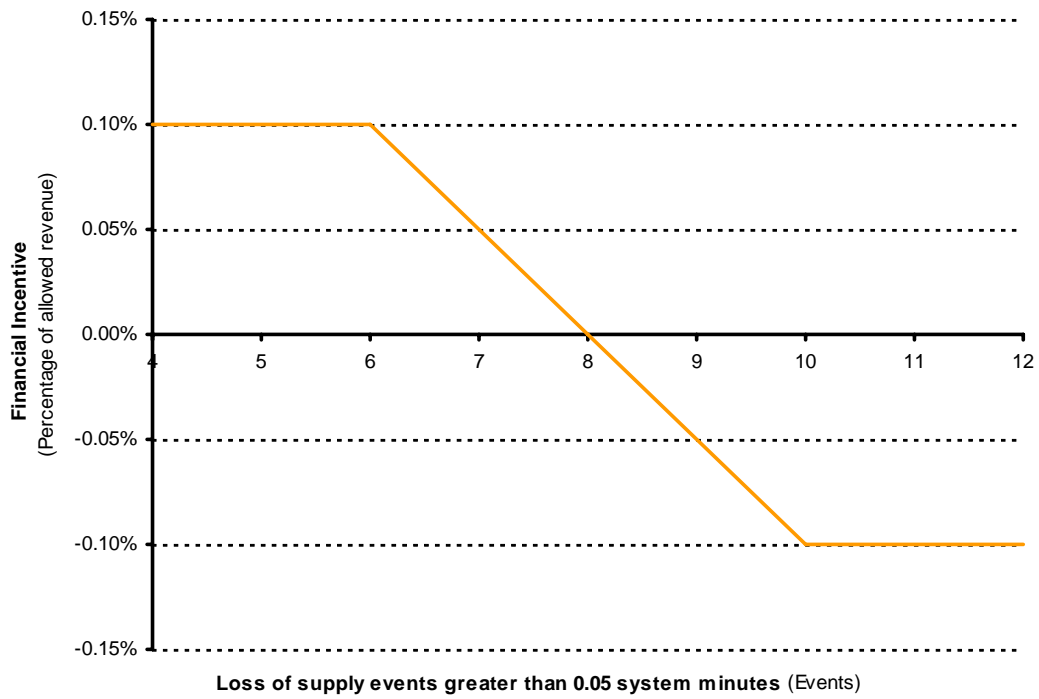
**Figure F.2: Critical circuit availability peak**



**Table F.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 F.3: Loss of supply event frequency > 0.05 system minutes**

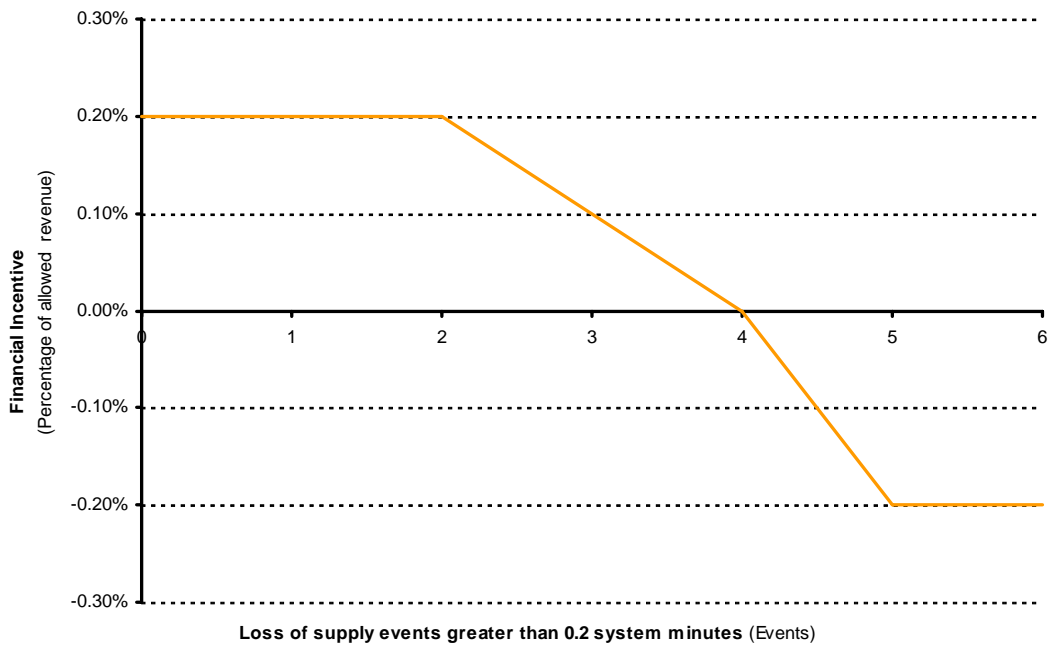


**Table F.3: Loss of supply event frequency > 0.05 system minutes**

		Where:	
S3	= -0.001000	10	< No. of events
S3	= -0.000500 x No. of events + 0.004000	8	≤ No. of events ≤ 10
S3	= -0.000500 x No. of events + 0.004000	6	≤ No. of events ≤ 8
S3	= 0.000000		No. of events < 6



**Figure F.4: Loss of supply event frequency > 0.2 system minutes**



**Table F.4: Loss of supply event frequency > 0.2 system minutes**

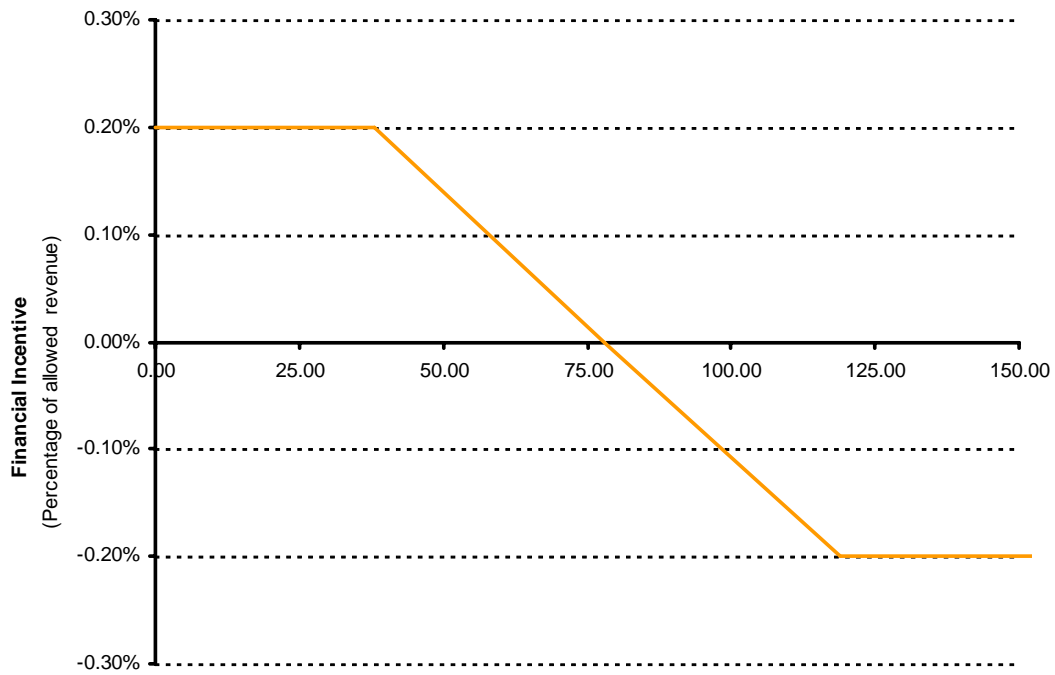
---

Where:

S4 = -0.002000					5			<	No. of events
S4 = -0.002000	x	No. of events	+	0.008000	4		≤	No. of events	≤ 5
S4 = -0.001000	x	No. of events	+	0.004000	2		≤	No. of events	≤ 4
S4 = 0.002000								No. of events	< 2

---

**Figure F.5: Average outage duration**



**Table F.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

# **Appendix G: Amended ElectraNet negotiating framework for negotiated transmission services**



## **Proposed Negotiating Framework for Provision of a Negotiated Transmission Service**

**1 July 2008 to 30 June 2013**

**24 October 2007**

## Table of contents

<b>BACKGROUND .....</b>	<b>3</b>
<b>ELECTRANET’S NEGOTIATING FRAMEWORK .....</b>	<b>5</b>
<b>1. Application of negotiating framework.....</b>	<b>5</b>
<b>2. Obligation to negotiate in good faith.....</b>	<b>5</b>
<b>3. Timeframe for commencing, progressing and finalising negotiations .....</b>	<b>5</b>
<b>4. Provision of Initial Commercial Information by Service Applicant .....</b>	<b>7</b>
Obligation to provide Initial Commercial Information.....	7
Confidentiality Requirements – Commercial Information .....	8
<b>5. Provision of additional Commercial Information by the Service Applicant.....</b>	<b>8</b>
Obligation to provide additional Commercial Information.....	8
Confidentiality requirements .....	9
<b>6. Provision of Commercial Information by ElectraNet .....</b>	<b>9</b>
Obligation to provide Commercial Information .....	9
Confidentiality requirements .....	10
<b>7. Determination of impact on other Transmission Network Users and consultation with affected Transmission Network Users.....</b>	<b>10</b>
<b>8. Suspension of Timeframe for Provision of a Negotiated Transmission Service .....</b>	<b>10</b>
<b>9. Dispute Resolution.....</b>	<b>11</b>
<b>10. Payment of ElectraNet’s Costs .....</b>	<b>12</b>
<b>11. Termination of Negotiations.....</b>	<b>12</b>
<b>12. Giving notices.....</b>	<b>13</b>
Time notice is given .....	13
<b>13. Definitions and interpretation .....</b>	<b>13</b>
Definitions .....	13
Interpretation .....	15

## Background

- A. Clause 6A.9.5 of the National Electricity Rules (“NER”) provides that:
- (a) Transmission Network Service Providers must prepare a document setting out the procedure to be followed during negotiations between that provider and any person who wishes to receive a Negotiated Transmission Service as to the terms and conditions of access for the provision of the service;
  - (b) the negotiating framework must comply with and be consistent with the applicable requirements of a transmission determination applying to the provider; and
  - (c) the negotiating framework must comply with and be consistent with the applicable requirements of clause 6A.9.5(c) which sets out the minimum requirements for a negotiating framework.
- B. ElectraNet is registered with NEMMCO as a Transmission Network Service Provider.
- C. This document has been prepared in fulfilment of ElectraNet’s obligations under clause 6A.9.5 of the NER to establish a negotiating framework.
- D. This document applies to ElectraNet and any Service Applicant who applies to receive a Negotiated Transmission Service.
- E. As at 15 March 2007, a Negotiated Transmission Service is any of the following services:
- (a) a shared transmission service that:
    - (1) exceeds the network performance requirements (whether as to quality or quantity) (if any) as that shared transmission service is required to meet under any jurisdictional electricity legislation; or
    - (2) except to the extent that the network performance requirements which that shared transmission service is required to meet are prescribed under any jurisdictional electricity legislation, exceeds or does not meet the network performance requirements (whether as to quality or quantity) as are set out in schedule 5.1a or 5.1;
  - (b) connection services that are provided to serve a Transmission Network User or group of Transmission Network Users, at a single transmission network connection point, other than connection services that are provided by one Network Service Provider to another Network Service

Provider to connect their networks where neither of the Network Service Providers is a Market Network Service Provider; or

- (c) use of system services provided to a Transmission Network User and referred to in rule 5.4A(f)(3) in relation to augmentations or extensions required to be undertaken on a transmission network as described in rule 5.4A;

but does not include an above-standard system shared transmission service or a market network service.

## **ElectraNet's Negotiating Framework**

### **1. Application of negotiating framework**

- 1.1 This negotiating framework applies to ElectraNet and each Service Applicant who has made an application in writing to ElectraNet for the provision of a Negotiated Transmission Service.
- 1.2 ElectraNet and any Service Applicant who wishes to receive a Negotiated Transmission Service from ElectraNet should comply with the requirements of this negotiating framework.
- 1.3 The requirements set out in this negotiating framework are additional to any requirements or obligations contained in Chapters 4, 5 and 6A of the NER. In the event of any inconsistency between this negotiating framework and any other requirements in the NER, the requirements of the NER will prevail.
- 1.4 Nothing in this negotiating framework or in the NER will be taken as imposing an obligation on ElectraNet to provide any service to the Service Applicant.

### **2. Obligation to negotiate in good faith**

- 2.1 ElectraNet and the Service Applicant should negotiate in good faith the terms and conditions of access for the provision by ElectraNet of the Negotiated Transmission Service sought by the Service Applicant.

### **3. Timeframe for commencing, progressing and finalising negotiations**

- 3.1 Paragraphs 3.3 and 3.4 set out the timeframe for commencing, progressing and finalising negotiations in relation to applications for Negotiated Transmission Services under Chapter 5 of the NER, and for applications for Negotiated Transmission Services other than under Chapter 5 of the NER respectively.
- 3.2 The timeframes set out in paragraphs 3.3 and 3.4 may be suspended in accordance with paragraph 8.
- 3.3 Applications for Negotiated Transmission Services under Chapter 5 of the NER

- 3.3.1 Where the Negotiated Transmission Service is a service sought under Chapter 5, the specified time for commencing, progressing and finalising negotiations with a Service Applicant for the purposes of clause 6A.9.5 of the Rules is as set out in Chapter 5 of the NER.
- 3.3.2 ElectraNet and the Service Applicant shall use reasonable endeavours to adhere to the time periods specified in paragraph 3.3.1 during the negotiation for the supply of the Negotiated Transmission Service.
- 3.4 Applications for Negotiated Transmission Services other than under Chapter 5 of the NER
- 3.4.1 Where the application is in respect of a Negotiated Transmission Service other than a service sought under Chapter 5, the specified time for commencing progressing and finalising negotiations with a Service Applicant for the purposes of clause 6A.9.5 of the Rules is as set out in Table 1.
- 3.4.2 ElectraNet and the Service Applicant shall use reasonable endeavours to adhere to the time periods specified in Table 1.
- 3.4.3 The preliminary program finalised under C in Table 1 may be modified from time to time by agreement of the parties, where such agreement must not be unreasonably withheld. Any such amendment to the preliminary program shall be taken to be a reasonable period of time for commencing, progressing and finalising negotiations with a Service Applicant for the provision of the Negotiated Transmission Service for the purposes of 6A.9.5(5) of the NER. The requirement in paragraph 3.4.2 applies to the last amended preliminary program.

**Table 1**

	Event	Indicative timeframe
A.	Receipt of written application for a Negotiated Transmission Service	X
B.	Parties meet to discuss a preliminary program with milestones for supply of the Negotiated Transmission Service that represent a reasonable period of time for commencing, progressing and finalising negotiations for the provision of the Negotiated Transmission Service	X + 20 business days
C.	Parties finalise preliminary program, which may include, without limitation, milestones relating to: <ul style="list-style-type: none"> <li>▪ the request and provision of commercial information; and</li> <li>▪ notification and consultation with NEMMCO and / or any affected Transmission Network Users.</li> </ul>	X + 30 business days
D.	ElectraNet provides Service Applicant with an offer for the Negotiated Transmission Service;	X + 120 business days
E.	Parties finalise negotiations	X + 160 business days



- 3.5 Subject to paragraph 3.3 and 3.4, ElectraNet and the Service Applicant must, following a request by the Service Applicant, use their reasonable endeavours to:
- 3.5.1 hold a meeting within 20 Business Days of receipt of the application by the Service Applicant, or such other period as agreed by the parties, in order to agree a timetable for the conduct of negotiations and to commence discussion regarding other relevant issues;
  - 3.5.2 progress the negotiations for the provision of a Negotiated Transmission Service by ElectraNet such that the negotiations may be finalised in accordance with paragraph 3.5.1;
  - 3.5.3 adhere to any timetable established for the negotiation and to progress the negotiation in an expeditious manner; and
  - 3.5.4 finalise the negotiations for the provision of a Negotiated Transmission Service by ElectraNet within a time period agreed by the parties.
- 3.6 Notwithstanding paragraph 3.1, or any other provision of this negotiating framework, the timeframes set out in paragraphs 3.3 and 3.4 :
- 3.6.1 do not commence until payment of the amount to ElectraNet pursuant to paragraph 10;
  - 3.6.2 recommence if there is a material change in the Negotiated Transmission Network service sought by the Service Applicant, unless ElectraNet agrees otherwise.

## **4. Provision of Initial Commercial Information by Service Applicant**

### **Obligation to provide Initial Commercial Information**

- 4.1 Within a time agreed by the parties ElectraNet must use its reasonable endeavours to give notice to the Service Applicant requesting Commercial Information held by the Service Applicant that is reasonably required by ElectraNet to enable it to engage in effective negotiations with the Service Applicant in relation to the application and to enable ElectraNet to submit Commercial Information to the Service Applicant.
- 4.2 Subject to paragraphs 4.3 and 4.4, the Service Applicant must use its reasonable endeavours to provide ElectraNet with the Commercial Information requested by ElectraNet in accordance with paragraph 4.1 within 10 Business Days of that request, or within a time period as agreed by the parties.

- 4.3 Notwithstanding paragraph 4.1, the obligation under paragraph 4.1 is suspended as at the date of notification of a dispute if a dispute under this negotiating framework arises until conclusion of the dispute in accordance with paragraph 9.

#### **Confidentiality Requirements – Commercial Information**

- 4.4 For the purposes of this paragraph 4, Commercial Information does not include:
- 4.4.1 confidential information provided to the Service Applicant by another person; or
  - 4.4.2 information that the Service Applicant is prohibited, by law, from disclosing to ElectraNet.
- 4.5 Commercial Information may be provided by the Service Applicant subject to conditions including the condition that ElectraNet must not disclose the Commercial Information to any other person unless the Service Applicant consents in writing to the disclosure. The Service Applicant may require ElectraNet to enter into a confidentiality agreement, on terms reasonably acceptable to both parties, with the Service Applicant in respect of any Commercial Information provided to ElectraNet.
- 4.6 A consent provided by the Service Applicant in accordance with paragraph 4.5 may be subject to the condition that the person to whom ElectraNet discloses the Commercial Information must enter into a separate confidentiality agreement with the Service Applicant.

### **5. Provision of additional Commercial Information by the Service Applicant**

#### **Obligation to provide additional Commercial Information**

- 5.1 ElectraNet may give a notice to the Service Applicant requesting the Service Applicant to provide ElectraNet with any additional Commercial Information that is reasonably required by ElectraNet to enable it to engage in effective negotiations with the Service Applicant in relation to the provision of a Negotiated Transmission Service or to clarify any Commercial Information provided pursuant to paragraph 4.
- 5.2 The Service Applicant must use its reasonable endeavours to provide ElectraNet with the Commercial Information requested by ElectraNet in accordance with paragraph 5.1 within 10 Business Days of the date of the request under paragraph 5.1, or such other period as agreed by the parties.

### **Confidentiality requirements**

- 5.3 For the purposes of this paragraph 5, Commercial Information does not include:
- 5.3.1 confidential information provided to the Service Applicant by another person; or
  - 5.3.2 information that the Service Applicant is prohibited, by law, from disclosing to ElectraNet; and
- 5.4 Commercial Information may be provided by the Service Applicant subject to conditions including the condition that ElectraNet must not disclose the Commercial Information to any other person unless the Service Applicant consents in writing to the disclosure. The Service Applicant may require ElectraNet to enter into a confidentiality agreement, on terms reasonably acceptable to both parties, with the Service Applicant in respect of any Commercial Information provided to ElectraNet.
- 5.5 A consent provided by the Service Applicant in accordance with paragraph 5.4 may be subject to the condition that the person to whom ElectraNet discloses the Commercial Information must enter into a separate confidentiality agreement with the Service Applicant.

## **6. Provision of Commercial Information by ElectraNet**

### **Obligation to provide Commercial Information**

- 6.1 ElectraNet shall provide the Service Applicant with all Commercial Information held by ElectraNet that is reasonably required by a Service Applicant to enable it to engage in effective negotiations with ElectraNet for the provision of a Negotiated Transmission Service within a timeframe agreed by the parties, including the following information:
- 6.1.1 a description of the nature of the Negotiated Transmission Service including what ElectraNet would provide to the Service Applicant as part of that service;
  - 6.1.2 the terms and conditions on which ElectraNet would provide the Negotiated Transmission Service to the Service Applicant;
  - 6.1.3 the reasonable costs and/or the increase or decrease in costs (as appropriate) of providing the Negotiated Transmission Service to the Service Applicant which demonstrate to the Service Applicant that the charges for providing the Negotiated Transmission Service reflect those costs and/or the cost increment or decrement (as appropriate).

### **Confidentiality requirements**

- 6.2 For the purposes of paragraph 6.1, Commercial Information does not include:
- 6.2.1 confidential information provided to ElectraNet by another person; or
  - 6.2.2 information that ElectraNet is prohibited, by law, from disclosing to the Service Applicant.
- 6.3 ElectraNet may provide the Commercial Information in accordance with paragraph 6.1 subject to relevant conditions including the condition that the Service Applicant must not disclose the Commercial Information to any other person unless ElectraNet consents in writing to the disclosure. ElectraNet may require the Service Applicant to enter into a confidentiality agreement with ElectraNet, on terms reasonably acceptable to both parties, in respect of Commercial Information provided to the Service Applicant.
- 6.4 A consent provided by a Service Applicant in accordance with paragraph 6.3 may be subject to the condition that the person to whom the Service Applicant discloses the Commercial Information must enter into a separate confidentiality agreement with ElectraNet.

## **7. Determination of impact on other Transmission Network Users and consultation with affected Transmission Network Users**

- 7.1 ElectraNet should determine the potential impact on Transmission Network Users, other than the Service Applicant, of the provision of the Negotiated Transmission Service.
- 7.2 ElectraNet should notify and consult with any affected Transmission Network Users and ensure that the provision of the Negotiated Transmission Service does not result in non-compliance with obligations in relation to other Transmission Network Users under the NER.

## **8. Suspension of Timeframe for Provision of a Negotiated Transmission Service**

- 8.1 The timeframes for negotiation of provision of a Negotiated Transmission Service as contained within this negotiating framework, or as otherwise agreed between the parties, are suspended if:
- 8.1.1 within 15 Business Days of ElectraNet providing the Commercial Information to the Service Applicant pursuant to paragraph 6.1, the

Service Applicant does not formally accept that Commercial Information and the parties have agreed a date for the undertaking and conclusion of commercial negotiations;

- 8.1.2 a dispute in relation to the Negotiated Transmission Service has been notified to the AER under clause 6A.30.1, from the date of notification of that dispute to the AER until:
- (a) the withdrawal of the dispute under clause 6A.30.1(c) of the NER;
  - (b) the termination of the dispute by the commercial arbitrator in accordance with clause 6A.30.5(d) or (e) of the NER; or
  - (c) determination of the dispute by the commercial arbitrator under clause 6A.30.6(b) of the NER;
- 8.1.3 within 10 Business Days of ElectraNet requesting additional Commercial Information from the Service Applicant pursuant to paragraph 5, the Service Applicant has not supplied that Commercial Information;
- 8.1.4 without limiting paragraphs 8.1.1 to 8.1.3, either of the parties does not promptly conform with any of its obligations as required by this negotiating framework or as otherwise agreed by the parties;
- 8.1.5 ElectraNet has been required to notify and consult with any affected Transmission Network Users under paragraph 7.2 or NEMMCO at any time, from the date of notification to the affected Transmission Network Users or NEMMCO until the end of the time limit specified by ElectraNet for any affected Transmission Network Users or NEMMCO, or the receipt of such information from the affected Transmission Network Users or NEMMCO whichever is the later regarding the provision of the Negotiated Transmission Service.

## **9. Dispute Resolution**

- 9.1 All disputes between the parties as to the terms and conditions of access for the provision of a Negotiated Transmission Service are to be dealt with in accordance with Part K of Chapter 6A of the NER.

## **10. Payment of ElectraNet's Costs**

- 10.1 Prior to commencing negotiations, the Service Applicant shall pay an application fee to ElectraNet. Where the application is for a Negotiated Transmission Service under Chapter 5 of the NER, this payment is made in accordance with clause 5.3.3(c)(5).
- 10.2 The application fee lodged pursuant to paragraph 10.1 will be deducted from the reasonable Costs incurred in processing the Service Applicant's application to ElectraNet for the provision of a Negotiated Transmission Service.
- 10.3 From time to time, ElectraNet may give the Relevant Service Applicant a notice setting out the reasonable Costs incurred by ElectraNet and the off-set of any amount applicable under paragraph 10.1.
- 10.4 If the aggregate of the Costs exceed the amount paid by the Service Applicant pursuant to paragraph 10.1, the Service Applicant must, within 20 Business Days of the receipt of a notice in accordance with paragraph 10.3, pay ElectraNet the amount stated in the notice.
- 10.5 ElectraNet may require the Service Applicant to enter into a binding agreement addressing conditions, guarantees and other matters in relation to the payment of on-going Costs.

## **11. Termination of Negotiations**

- 11.1 The Service Applicant may elect not to continue with its application for a Negotiated Transmission Service and may terminate the negotiations by giving ElectraNet written notice of its decision to do so.
- 11.2 ElectraNet may terminate a negotiation under this framework by giving the Service Applicant written notice of its decision to do so where:
  - 11.2.1 ElectraNet believes on reasonable grounds that the Service Applicant is not conducting the negotiation under this negotiating framework in good faith;
  - 11.2.2 the Service Applicant consistently fails to comply with the requirements of the negotiating framework;
  - 11.2.3 the Service Applicant fails to comply with an obligation in this negotiating framework to undertake or complete an action within a specified or agreed timeframe, and does not complete the relevant action within 20 Business Days of a written request from ElectraNet;
  - 11.2.4 An act of Solvency Default occurs in relation to the Service Applicant.

## 12. Giving notices

- 12.1 A notice, consent, information, application or request that must or may be given or made to a party under this document is only given or made if it is in writing and delivered or posted to that party at its address set out below.

If a party gives the other party 5 Business Days' notice of a change of its address, a notice, consent, information, application or request is only given or made by that other party if it is delivered or posted to the latest address.

### **ElectraNet**

Name: ElectraNet Pty Limited  
Address: 52-55 East Terrace, Adelaide, SA, 5000

### **Service Applicant**

Name: Service Applicant  
Address: The nominated address of the Service Applicant provided in writing to ElectraNet as part of the application

### **Time notice is given**

- 12.2 A notice, consent, information, application or request is to be treated as given or made at the following time:
- 12.2.1 if it is delivered, when it is left at the relevant address;
  - 12.2.2 if it is sent by post, 2 Business Days after it is posted;
  - 12.2.3 if sent by facsimile transmission, on the day the transmission is sent (but only if the sender has a confirmation report specifying a facsimile number of the recipient, the number of pages sent and the date of transmission); or
  - 12.2.4 if sent by email once acknowledged as received by the addressee.
- 12.3 If a notice, consent, information, application or request is delivered after the normal business hours of the party to whom it is sent, it is to be treated as having been given or made at the beginning of the next Business Day.

## 13. Definitions and interpretation

### **Definitions**

- 13.1 In this document the following definitions apply:

**Business Day** means a day on which all banks are open for business generally in Adelaide, South Australia.

**Commercial Information** shall include at a minimum, the following classes of information:

- details of corporate structure;
- financial details relevant to creditworthiness and commercial risk;
- ownership of assets;
- technical information relevant to the application for a Negotiated Transmission Service;
- financial information relevant to the application for a Negotiated Transmission Service;
- details of an application's compliance with any law, standard, NER or guideline.

**Costs** means any costs or expenses incurred by ElectraNet in complying with this negotiating framework or otherwise advancing the Service Applicant's request for the provision of a Negotiated Transmission Service.

**ElectraNet** means ElectraNet Pty Limited, ABN 41 094 482 416.

**Solvency Default** means the occurrence of any of the following events in relation to the Service Applicant:

- (a) An originating process or application for the winding up of the Service Applicant (other than a frivolous or vexatious application) is filed in a court or a special resolution is passed to wind up the Service Applicant, and is not dismissed before the expiration of 60 days from service on the Service Applicant;
- (b) A receiver, receiver and manager or administrator is appointed in respect of all or any part of the assets of the Service Applicant, or a provisional liquidator is appointed to the Service Applicant;
- (c) A mortgagee, chargee or other holder of security, by itself or by or through an agent, enters into possession of all or any part of the assets of the Service Applicant;
- (d) A mortgage, charge or other security is enforced by its holder or becomes enforceable or can become enforceable with the giving of notice, lapse of time or fulfilment of a condition;
- (e) The Service Applicant stops payment of, or admits in writing its inability to pay, its debts as they fall due;



- (f) The Service Applicant applies for, consents to, or acquiesces in the appointment of a trustee or receiver of the Service Applicant or any of its property;
- (g) A court appoints a liquidator, provisional liquidator, receiver or trustee, whether permanent or temporary, of all or any part of the Service Applicant's property;
- (h) The Service Applicant takes any step to obtain protection or is granted protection from its creditors under any applicable legislation or a meeting is convened or a resolution is passed to appoint an administrator or controller (as defined in the *Corporations Act 2001*), in respect of the Service Applicant;
- (i) A controller (as defined in the *Corporations Act 2001*) is appointed in respect of any part of the property of the Service Applicant;
- (j) Except to reconstruct or amalgamate while solvent, the Service Applicant enters into or resolves to enter into a scheme of arrangement, compromise or reconstruction proposed with its creditors (or any class of them) or with its members (or any class of them) or proposes re-organisation, re-arrangement moratorium or other administration of the Service Applicant's affairs;
- (k) The Service Applicant is the subject of an event described in section 459C(2)(b) of the *Corporations Act 2001*; or
- (l) Anything analogous or having a substantially similar effect to any of the events specified above happens in relation to the Service Applicant.

### **Interpretation**

- 13.2 In this document, unless the context otherwise requires:
- 13.2.1 terms defined in the NER have the same meaning in this negotiating framework;
  - 13.2.2 a reference to any law or legislation or legislative provision includes any statutory modification, amendment or re-enactment, and any subordinate legislation or regulations issued under that legislation or legislative provision;
  - 13.2.3 a reference to any agreement or document is to that agreement or document as amended, novated, supplemented or replaced from time to time;

- 13.2.4 a reference to a paragraph, part, schedule or attachment is a reference to a paragraph, part, schedule or attachment of or to this document unless otherwise stated;
- 13.2.5 an expression importing a natural person includes any company, trust, partnership, joint venture, association, corporation, body corporate or governmental agency; and
- 13.2.6 a covenant or agreement on the part of two or more persons binds them jointly and severally.

# Appendix H: Determination specifying the negotiated transmission service criteria that apply to ElectraNet

## National Electricity Market objective

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

## Criteria for terms and conditions of access

### Terms and conditions of access

2. The *terms and conditions of access for a negotiated transmission service* must be fair and reasonable and consistent with the safe and reliable operation of the power system in accordance with the NER.
3. The *terms and conditions of access for a negotiated transmission service* (including, in particular, any exclusions and limitations of liability and indemnities) must not be unreasonably onerous taking into account the allocation of risk between the TNSP and the other party, the price for the *negotiated transmission service* and the costs to the TNSP of providing the *negotiated transmission service*.
4. The *terms and conditions of access for a negotiated transmission service* must take into account the need for the service to be provided in a manner that does not adversely affect the safe and reliable operation of the power system in accordance with the NER.

### Price of services

5. The price for a *negotiated transmission service* must reflect the costs that the TNSP has incurred, or incurs, in providing that service, and must be determined in accordance with the principles and policies set out in the *Cost Allocation Methodology*.
6. Subject to criteria 7 and 8, the price for a *negotiated transmission service* must be at least equal to the avoided cost of providing that service but no more than the cost of providing it on a stand alone basis.
7. If the *negotiated transmission service* is a *shared transmission service* that:
  - (i) exceeds any network performance requirements which it is required to meet under any relevant electricity legislation; or
  - (ii) exceeds the network performance requirements set out in schedule 5.1a and 5.1 of the NER,

then the difference between the price for that service and the price for the *shared transmission service* which meets network performance requirements must reflect the TNSP's incremental cost of providing that service.

8. If the *negotiated transmission service* is the provision of a *shared transmission service* that does not meet or exceed the network performance requirements, the difference between the price for that service and the price for the *shared transmission service* which meets, but does not exceed, the network performance requirements should reflect the amount of the TNSP's avoided cost of providing that service.
9. The price for a *negotiated transmission service* must be the same for all *Transmission Network Users* unless there is a material difference in the costs of providing the negotiated transmission service to different *Transmission Network Users* or classes of *Transmission Network Users*.
10. The price for a *negotiated transmission service* must be subject to adjustment over time to the extent that the assets used to provide that service are subsequently used to provide services to another person, in which case such adjustment must reflect the extent to which the costs of that asset is being recovered through charges to that other person.
11. The price for a *negotiated transmission service* must be such as to enable the TNSP to recover the efficient costs of complying with all regulatory obligations associated with the provision of the *negotiated transmission service*.

## Criteria for access charges

### Access charges

12. Any access charges must be based on costs reasonably incurred by the TNSP in providing *Transmission Network User* access and (in the case of compensation referred to in clauses 5.4A(h) to (j)) on the revenue that is likely to be foregone and the costs that are likely to be incurred by a person referred to in rule 5.4A(h)–(j) where an event referred to in those paragraphs occurs.

Italicised terms used in the criteria have the same meaning as in the NER.