

Final decision

Powerlink Transmission determination 2012–13 to 2016–17

April 2012



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Shortened forms

Shortened form	Full title
AER	Australian Energy Regulator
APR	annual planning report
сарех	capital expenditure
СРІ	consumer price index
2007–08 to 2011–12 regulatory control period	1 July 2007 to 30 June 2012
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
EMCa	Energy Market Consulting associates
MAR	maximum allowed revenue
NEL	National Electricity Law
NEM	National Electricity Market
NEO	national electricity objective
NER	National Electricity Rules
2012–13 to 2016–17 regulatory control period	1 July 2012 to 30 June 2017
NTSC	negotiating transmission service criteria
орех	operating expenditure
PoE	probability of exceedance
Powerlink	Queensland Electricity Transmission Corporation Limited
PTRM	post tax revenue model
QNI	Queensland–NSW Interconnector
RAB	regulatory asset base
STPIS	service target performance incentive scheme
ТАВ	tax asset base
TNSP	transmission network service provider
TUOS	transmission use of system
WACC	weighted average cost of capital

Background

The Australian Energy Regulator (AER) is responsible for regulating the revenues of transmission network service providers (TNSPs) operating in the National Electricity Market (NEM). Powerlink is a TNSP operating in the NEM. It is both the owner and operator of a network covering more than 1700 kilometres from north of Cairns in Queensland to the New South Wales border. The Powerlink network comprises more than 13 000 circuit kilometres of transmission lines and 112 substations.¹ It is used to connect generators, distributors and large directly connected mining and industrial customers in Queensland. The Queensland–NSW Interconnector (QNI) connects Queensland to the NEM.²

The AER is required to make a transmission determination for Powerlink's prescribed and negotiated transmission services.³ In relation to the AER's transmission determination for Powerlink,⁴ the AER is required to make a final decision.⁵ The National Electricity Rules (NER) stipulate that the AER is to provide reasons for its decision which are to include the basis and rationale of the AER's decision.⁶ This document including the attachments constitutes the AER's final decision and reasons as required by the NER.⁷ Except as specified in this final decision, the AER maintains its conclusions set out in the draft decision. The AER's transmission determination for Powerlink is published as a separate document.⁸

The National Electricity Law (NEL) requires the AER to make decisions in a manner that will, or is likely to, contribute to the achievement of the national electricity objective (NEO).⁹ The NEO promotes efficient investment in, and the efficient operation and use of, electricity services for the long term benefit of consumers.¹⁰ The AER must also have regard to the revenue and pricing principles (RPP) set out in the NEL.¹¹ The RPP promotes efficient provision of, and recovery of costs for providing, transmission services.¹²

Chapter 6A of the NER sets out the framework for the economic regulation of transmission services. The AER's final decision for Powerlink must include decisions on Powerlink's revised revenue proposal, including:¹³

- the total revenue cap, the maximum allowed revenue (MAR) and forecast expenditure including contingent projects
- how the AER will apply the incentive schemes

¹ Powerlink, 2013–2017 Powerlink Queensland Revenue Proposal, p. 27 (Powerlink, Revenue Proposal).

² Powerlink, *Revenue Proposal*, p. 22.

³ NER, clause 6A.2.1

⁴ Section 15 and the Glossary of the NEL require the AER to make a transmission determination for TNSPs.

⁵ NER, clause 6A.13.1.

⁶ NER, clause 6A.14.2.

⁷ This document satisfies the AER's obligations to produce a final decision and reasons for decision under the NER.

⁸ NER, clause 6A.13.4.

⁹ National Electricity Law, section 16.

¹⁰ National Electricity Law, section 7.

¹¹ National Electricity Law, section 16(2)(a)(i).

¹² National Electricity Law, section 7A.

¹³ NER, clause 6A.14.1.

- a negotiating framework setting out requirements for the preparation, replacement, application or operation of Powerlink's negotiating framework
- negotiated transmission service criteria to be applied in relation to disputes about access to negotiated transmission services
- a pricing methodology setting out Powerlink's approach to determining charges for prescribed transmission services.

The AER has made this final decision in accordance with the process outlined in part E of Chapter 6A of the NER. This process involved:

- Powerlink's revenue proposal—Powerlink lodged its revenue proposal for the 2012–13 to 2016–17 regulatory control period on 31 May 2011.
- The AER's draft decision—the AER published its draft decision on Powerlink's revenue proposal in November 2011.
- Specialist advice—the AER engaged expert technical and engineering consultants and financial and economic experts to advise on key aspects of the revised revenue proposal. The AER has considered this advice in making its final decision.
- Public consultation—
 - The AER invited submissions on its draft decision and Powerlink's revised revenue proposal. All were considered in making the final decision. A list of submissions that the AER received are set out at the end of this final decision (all are available on the AER's website, www.aer.gov.au.)
 - The AER held a public forum on its draft decision on 14 December 2011 in Brisbane.
- Powerlink's revised revenue proposal—Powerlink lodged its revised revenue proposal for the 2012–13 to 2016–17 regulatory control period on 16 January 2012.
- The AER's final transmission determination—the AER has published the Powerlink transmission determination for the 2012–13 to 2016–17 regulatory control period to which this final decision relates.

Summary

The NER requires the AER to make a transmission determination on Powerlink's revenue proposal.¹⁴ The AER's determination sets the transmission component of electricity prices in Queensland from 1 July 2012. The NEL requires the AER to make decisions in a manner that will, or is likely to, contribute to the achievement of the NEO. The NEO promotes efficient investment in, and operation and use of, electricity services for the long term benefit of consumers.¹⁵

The AER's final decision and indicative price impacts

Powerlink's revised revenue proposal sets out total revenue (smoothed) for the regulatory control period 1 July 2012 to 30 June 2017 of \$4994.5 million (\$nominal), an increase of about 49 per cent from its current allowance.¹⁶

This increase is based on Powerlink's expectations of the costs required to achieve its obligations under NER. These obligations include:

- meeting and managing expected demand
- complying with regulatory obligations or requirements
- maintaining the quality, reliability and security of supply
- maintaining the reliability, safety and security of the transmission system.

The AER has not accepted all elements of Powerlink's revised revenue proposal. The AER's final decision is for total (smoothed) MAR of \$4679.1 million (\$ nominal) for the 2012–13 to 2016–17 regulatory control period. This is 6.3 per cent below that set out in Powerlink's revised revenue proposal.

The AER's final decision is expected to have a minimal impact on the transmission component of a typical residential customer's electricity bill.

Revised revenue proposal

Powerlink submitted a revised revenue proposal in January 2012 which included several matters where it disputed the draft decision. The areas of significant disagreement between Powerlink's revised revenue proposal and the AER's draft decision were:

- revenues
- demand forecasts
- regulatory depreciation
- capital expenditure (capex)

¹⁴ NER, clause 6A.2.1.

¹⁵ NEL, section 7.

¹⁶ The current total revenue allowance (smoothed) for 1 July 2007 to 30 June 2012 is \$3343 million (\$nominal).

- contingent projects
- operating expenditure (opex)
- schemes
- corporate income tax.

Differences between the AER's final decision and Powerlink's revised revenue proposal

The AER's final decision responds to the matters raised by Powerlink in its revised revenue proposal and to submissions raised by interested parties. The main differences between the AER's final decision on the MAR and Powerlink's revised revenue proposal are capex, demand forecast and opex.

Demand forecasts

The AER considers that Powerlink's demand forecasts exceed a realistic expectation of demand. Therefore, the AER has substituted its own demand forecast which is lower than that proposed by Powerlink. The lower demand forecasts have the effect of reducing capex by \$451 million.

Capital expenditure

The AER considers Powerlink's revised proposed total forecast capex does not meet the NER capex objectives. To make it compliant with the NER, the AER substituted its own forecast capex for that proposed by Powerlink, which takes into account:

- the AER's decision not to accept the incremental cost for the Halys-Blackwall 500kV transmission line (\$148.9 million) in forecast capex. (This project and its costs have been included as a contingent project). The remaining 500kV projects were deferred by the AER's revised demand forecast.
- inclusion of an efficiency adjustment across the total capex forecast. This reduces the capex forecast by \$34 million.
- the AER's decision not to accept Powerlink's carbon price trajectory targets, and substituting with targets that more closely align with the Australian Government's stated commitment and international agreements to date on reducing carbon emissions.

If the AER was to accept Powerlink's capex forecast, the final decision would have resulted in total (unsmoothed) revenue increasing by a further \$134.5 million (\$nominal) (or 2.9 per cent) over the 2012–13 to 2016–17 regulatory control period.

Operating expenditure

The AER considers Powerlink's proposed total forecast opex does not meet the NER opex objectives. To make it compliant with the NER, the AER substituted its own forecast opex for that proposed by Powerlink. The key reason for this is a lower expected labour cost escalation.

If the AER was to accept Powerlink's opex forecast, the final decision would have resulted in total (unsmoothed) revenue increasing by a further \$81.5 million (\$nominal) (or 1.7 per cent) over the 2012–13 to 2016–17 regulatory control period.

Negotiated transmission services

The final decision sets out Powerlink's negotiating service criteria which give effect to the negotiated transmission services principles set out in the NER.

Outputs

Accountability for delivering prescribed transmission services lies with Powerlink. Nevertheless, the AER, through its service target performance incentive scheme (STPIS) and efficiency benefit sharing scheme (EBSS) has strengthened the incentives on Powerlink to improve transmission system reliability to all customers. This ensures that any cost savings achieved by Powerlink during the 2012–13 to 2016–17 regulatory control period do not come at the expense of service standards.

Overview

1 Revenue

Powerlink lodged its revised revenue proposal for the 2012–13 to 2016–17 regulatory control period on 16 January 2012, proposing a total (smoothed) MAR as set out in table 1.1.

Table 1.1Powerlink's revised proposed smoothed revenue requirement
(\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Powerlink's revised revenue requirement (smoothed)	840.0	912.9	992.0	1078.1	1171.6	4994.5

Source: Powerlink, Revised Revenue Proposal 2013–2017, January 2012, p. 168.

The AER has accepted much, but not all, of Powerlink's revised revenue proposal as being consistent with requirement of the NER. The AER's final decision approves a total smoothed MAR of \$4679.1 million (\$nominal); that is, 6.3 per cent less than Powerlink's revised revenue proposal. This is demonstrated at figure 1.1.



Figure 1.1 AER's final decision on Powerlink's revenue allowance (\$million, nominal)

Source: AER analysis.

The AER's final decision on Powerlink's total revenue allowance is calculated by summing a set of 'building blocks'. These building blocks are displayed in table 1.2 and are discussed throughout this document.

Table 1.2AER final decision on Powerlink's revenue cap for prescribed
transmission services (\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Return on capital	553.3	610.8	657.7	688.8	723.6	3234.1
Regulatory depreciation	41.0	53.6	77.3	95.2	104.7	371.8
Operating expenditure	181.8	193.7	203.7	216.9	229.0	1025.1
Efficiency benefit sharing scheme (carryover amounts)	-2.7	-0.7	-3.0	2.3	-	-4.0
Net tax allowance	11.5	12.5	13.4	15.4	17.0	69.7
Annual building block revenue requirement (unsmoothed)	784.9	869.8	949.2	1,018.6	1074.2	4696.7
Annual expected MAR (smoothed)	835.0	882.6	933.0	986.2	1042.4	4679.1
X factor (per cent)	n/a	-3.02	-3.02	-3.02	-3.02	n/a

Source: AER analysis.

The AER has made adjustments to Powerlink's revised proposed capex and opex forecasts. The AER has also made adjustments to Powerlink's proposed regulatory depreciation allowance and corporate income tax allowance. While the AER accepts Powerlink's methodology for determining the weighted average cost of capital (WACC), the AER's final WACC is marginally lower than that in Powerlink's revised revenue proposal. This reflects the WACC parameters for the risk free rate and debt risk premium being established using the averaging period, which was proposed by Powerlink and agreed to by the AER. The AER does not accept some of the proposed elements of the EBSS. The effect of the AER's adjustments on Powerlink's revised proposed (unsmoothed) annual building block revenue requirement is displayed in figure 1.2.

Figure 1.2 AER adjustments to Powerlink's revised proposed annual building block revenue requirement (\$million, nominal)



Source: AER analysis.

The AER has conducted sensitivity analysis of the key adjustments contained in this final decision. In particular, the AER has calculated the effect of applying Powerlink's revised proposed capex and opex forecasts. Table 1.3 outlines this analysis.

Table 1.3Changes to AER final decision in total over 5 years, if Powerlink's revised
capex and opex forecasts were adopted

	Increased revenues (\$million, nominal)	Increased revenues (per cent)
Сарех	134.5	2.9
Орех	81.5	1.7

Source: AER analysis.

The AER has smoothed the annual building block revenue requirement to determine the annual expected MAR to provide a smoother profile of revenues over the 2012–13 to 2016–17 regulatory control period. The AER's total adjustment to Powerlink's revised proposed expected MAR for each year of the 2012–13 to 2016–17 regulatory control period are displayed in table 1.4.

Table 1.4Comparison of Powerlink's revised proposed expected MAR and the AER
final decision (\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Powerlink's revised proposed expected MAR	840.0	912.9	992.0	1078.1	1171.6	4994.5
Adjustment	-5.0	-30.2	-59.1	-91.9	-129.2	-315.4
AER's final decision expected MAR	835.0	882.6	933.0	986.2	1042.4	4679.1
Percentage change (per cent)	-0.6	-3.3	-5.9	-8.5	-11.0	-6.3

Source: AER analysis; Powerlink, Revised Revenue Proposal, January 2012, p. 168.

The NER does not require the AER to estimate transmission price changes for a TNSP revenue determination. However, the AER typically provides some indicative transmission price impacts flowing from its decisions.

Several stakeholders commented about the expected impact of transmission price changes on final customer bills. Many suggested the price impacts in the draft decision were understated due to the use of unreliable forecast energy delivered. The AER agrees that the pricing impact will vary, depending on customer usage and whether customers connect direct to the transmission network, or (as is normal for small businesses and consumers) through the distribution network. The AER also acknowledges stakeholders' concerns about the sensitivity of forecast energy and the resulting average price impact. Nevertheless, the AER has sought to provide an indicative average price impact. The AER estimates the effect of the final decision on forecast average transmission charges by taking the annual expected MAR and dividing it by the forecast annual energy delivered in Queensland. For the final decision and taking account of stakeholder comments on the use of forecast energy, the AER has estimated the indicative average transmission price path over the 2012–13 to 2016–17 regulatory control period under the following scenarios for forecast energy delivered:

- Powerlink's revised forecast energy as shown in its updated 2011 Annual Planning Report¹⁷
- adjusted Powerlink revised forecast energy based on the same proportion of the AER's adjustment to Powerlink's revised peak demand forecast (see attachment 2)¹⁸
- adjusted Powerlink revised forecast energy based on historical electricity consumption trends in Queensland.¹⁹

¹⁷ Powerlink, Annual Planning Report 2011 Update, January 2012, p. 8.

¹⁸ The adjustment to Powerlink's revised forecast energy delivered is necessary because of the reduced demand forecasts. However, the AER notes that its approach to adjust the energy delivered forecasts is only a high level approximation. For simplicity, it has not taken into account other matters that may also affect forecast energy delivered such as load factors when making this adjustment.

¹⁹ BREE, Australian Energy Statistics - Energy Update 2011, Table I. Website: http://bree.gov.au/data/energy/AES-2011.html

Figure 1.3 shows the indicative average transmission charges resulting from this final decision compared with the average transmission charge for the last year of the 2007–08 to 2011–12 regulatory control period for the above forecast energy delivered scenarios.





Transmission charges represent approximately 10 per cent on average of end user electricity charges in Queensland.²⁰ Table 1.5 sets out the estimated impact of the AER's final decision on the indicative average transmission charges and the average residential customer's annual electricity bill of \$1655 during the 2012–13 to 2016–17 regulatory control period under the three different forecast energy delivered scenarios.²¹

Source: AER analysis.

²⁰ Queensland Competition Authority, *Final decision – Benchmark retail cost index for electricity 2011-12*, May 2011, p. 44.

²¹ The average customer annual electricity bill was calculated based on average household electricity consumption of 8000 kWh per year and QCA determined domestic tariff of 20.69 c/kWh (excluding GST) for 2011-12. See Queensland Competition Authority, *Queensland Government gazette No.35: Retail electricity prices for non-market customers*, May 2011.

Table 1.5Estimated impact of the AER final decision on the average transmission
charges and the average residential customer's electricity bill (\$nominal)

Forecast energy delivered scenarios	Increase in the nominal average transmission charges from 2011–12 to 2016–17	Increase in the average residential customer's annual electricity bill of \$1655
Powerlink's forecast energy	\$0 per MWh	\$0 per annum
Adjusted forecast energy based on demand reduction	\$0 per MWh	\$0 per annum
Adjusted forecast energy based on historical trend	\$3.20 per MWh (or 3.4 per cent)	\$6 per annum (or 0.4 per cent)

Source: AER analysis.

2 Powerlink's outputs

2.1 Powerlink's transmission services

Powerlink's services relate to developing, operating and maintaining the Queensland electricity transmission network.



Figure 2.1 Powerlink's electricity transmission network

The majority of the AER's final decision concerns prescribed transmission services that are recovered through network tariffs (figure 2.2). Prescribed transmission services are those that the NER requires a TNSP to provide, or that relate to jurisdictional electricity legislation. Negotiated transmission services are subject to negotiation, arbitration and dispute resolution.

Source: Powerlink, *Revenue Proposal*, p. 22.



Figure 2.2 Powerlink's categories of services by revenue (\$2010–11)²²

Source: Powerlink, Regulatory Financial Statements 2010–11.

The MAR enables Powerlink to recover the costs associated with providing prescribed transmission services to customers, which comprise:²³

- shared transmission services provided to directly connected customers and distribution networks (prescribed transmission use of system (TUOS) services)
- connection services for Queensland DNSPs' networks connected to the transmission network (prescribed exit services)²⁴
- grandfathered connection services provided to directly connected generators and customers that were in place on 9 February 2006 (prescribed entry and exit services)
- services required under the NER or in accordance with jurisdictional electricity legislation that are necessary to ensure the integrity of the transmission network, including the maintenance of power system security and quality (prescribed common transmission services).

Powerlink's negotiated transmission services include:²⁵

- a shared transmission service that:
 - exceeds the network performance requirements (whether as to quality or quantity—if any) that the shared transmission service is required to meet under any jurisdictional electricity legislation; or

²² This chart represents total revenues that Powerlink derives from all its business functions. Only the revenues associated with the provision of prescribed transmission services are included in the revenue cap which is the subject of this draft decision.

²³ Powerlink, *Revenue Proposal*, p. 16.

²⁴ The Queensland DNSPs are Energex and Ergon Energy.

²⁵ NER, Glossary.

- except to the extent that the network performance requirements that the 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
- 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
- use of system services provided to a Transmission Network User and referred to in clause 5.4A(f)(3) in relation to augmentations or extensions required to be undertaken on a transmission network (as described in clause 5.4A)
- but does not include an above-standard system shared transmission service or a market network service.

The AER's detailed reasons for its determination on the negotiated transmission services are set out in attachment 13. Unregulated services sit outside the jurisdiction of the AER and are not part of the AER's determination.

2.2 NER objectives

The AER regulates Powerlink's prescribed transmission services under a revenue cap. This means that the amount of revenue Powerlink can earn in each year of the 2012–13 to 2016–17 regulatory control period is limited to the amount that the AER determines. The NER sets out the following objectives that Powerlink's forecasts of total capex and opex (which are used in determining the revenue cap) are intended to achieve:²⁶

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

The AER must determine whether Powerlink's proposed forecast capex and opex are required to meet these objectives. Further, the AER must determine whether this expenditure reasonably reflects the efficient costs that a prudent operator in Powerlink's circumstances would need to incur based on a realistic expectation of the demand forecast and cost inputs required to achieve these objectives.²⁷

2.2.1 Meeting and managing expected demand

Powerlink must be able to deliver electricity to its customers and build, operate and maintain its network to manage expected changes in the demand for electricity. Powerlink invests in its

²⁶ NER, clauses 6A.6.6(a) and 6A.6.7(a).

²⁷ NER, clauses 6A.6.6(c) and 6A.6.7(c).

network to meet peak demand and increases in electricity consumption. Powerlink also incurs opex to maintain its network appropriately to meet and manage expected demand. Therefore, the amount of capex and opex needed by Powerlink depends in part on the expected level of demand in the regulatory control period. The AER's detailed reasons for its final decision on Powerlink's demand forecasts are provided in attachment 2.

Powerlink's demand forecast for its prescribed transmission services in the 2012–13 to 2016–17 regulatory control period is set out at table 2.1. The AER considers that Powerlink's demand forecast exceeds a realistic expectation of demand. Specifically:

- The coefficients used to develop the model are not appropriate—especially for price—and are not consistent with evidence Powerlink itself provided in the revised revenue proposal.
- The demand forecast does not incorporate temperature directly. Temperature is an important driver of peak demand.
- Powerlink used an inappropriate electricity price series and has concerns Powerlink's forecasts Gross State Product (GSP) series inflates the demand forecast
- Powerlink did not use an assessable analytical basis to derive the forecast load factors. This is problematic given the significant impact load factors have when converting energy consumption forecasts to demand forecasts.
- Powerlink's temperature correction method has an upward bias.

Therefore, the AER, in accordance with the NER, did not accept Powerlink's demand forecasts and engaged EMCa to develop an alternative demand forecast which is also set out at table 2.1.²⁸ The AER considers Powerlink's demand forecast is materially different to the AER's demand forecast and is not a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period. The AER considers EMCa's alternative demand forecast reasonably reflects a realistic expectation of demand because:

- EMCa's demand forecasting model is robust, using variables and producing coefficients that are appropriate.
- The input sources EMCa used in its model reflect a reasonable expectation of conditions relevant to demand, such as GSP, for the 2012–13 to 2016–17 regulatory control period.

The AER and EMCa performed a large number of sensitivity tests using a range of sources for input variables. These included sources Powerlink referenced in its revised revenue proposal. This sensitivity revealed Powerlink's demand forecast was materially higher than the range of demand forecasts derived from these sensitivity tests.

Table 2.1 and figure 2.3 demonstrate the difference between the AER's alternative demand forecast and Powerlink demand forecast. The lower demand forecast results in deferring capex projects to the later years of the 2012–13 to 2016–17 regulatory control period, or beyond. As a result, the capex forecast that the AER will accept as meeting the NER capex criteria is also impacted.

²⁸ NER, clauses 6A.6.7(d) and 6A.12.1(c).

Table 2.1 Expected peak summer demand for Powerlink's transmission services medium scenario 10 per cent PoE (MW)

	2012–13	2013–14	2014–15	2015–16	2016–17
Powerlink	9795	10 443	10 931	11 603	11 999
AER	9306	9 871	10 326	10 905	11 262
Powerlink minus AER	489	572	605	698	737

 Source: Powerlink, Annual Planning Report 2011 Update, p. 7; EMCa, Review of revised demand forecast, 18 April 2012, p. 39.
 Note: PoE (probability of exceedance) describes a probability that the temperature adjusted demand will be

PoE (probability of exceedance) describes a probability that the temperature adjusted demand will be exceeded one in every two years (50 per cent PoE), one in ten years (10 per cent PoE) and nine in ten years (90 per cent PoE). Powerlink uses 50 per cent PoE summer peak demand for presentation purposes in its revised revenue proposal and Annual Planning Reports (APRs). For planning purposes, Powerlink uses peak summer demand at 10 per cent PoE.

Figure 2.3 Powerlink's and the AER's demand forecast (50 per cent PoE) with past actual and corrected native demand



Source: Powerlink, Revised revenue proposal, 16 January 2012, p. 80; Powerlink, Annual Planning Report 2010, p. 28; EMCa, Review of revised demand forecast, 18 April 2012, p. 39; EMCa, Powerlink revenue determination 2013–17, Demand forecast review, Report to Australian Energy Regulator, 6 September 2011, p. 51.

2.2.2 Complying with regulatory obligations

As a Queensland based TNSP operating in the NEM, Powerlink is required to meet state and national statutory obligations. The most significant of these obligations are:

the provision of safe, reliable and cost effective transmission services to users of the grid in accordance with the NER and its Transmission Authority

- the requirements of the NEL and the NER
- compliance with all relevant state and federal environmental, planning and cultural heritage legislation
- compliance with all statutory workplace health and safety requirements including the Electricity Safety Act 2002 and the Workplace Health and Safety Act 1995 and Regulations
- acting in the role of Jurisdictional Planning Body for Queensland.

The AER considered Powerlink's obligations when developing a substitute total capex and opex forecast to enable Powerlink to meet these obligations. Where appropriate, the AER will consider new obligations arising from legislative changes during the 2012–13 to 2016–17 regulatory control period as cost pass throughs, upon separate application by Powerlink.

2.2.3 Maintaining quality, reliability and security of supply

The NER, Powerlink's Transmission Authority (and other jurisdictional legislation and instruments) and customer connection agreements establish the required quality, reliability and security of supply of prescribed transmission services to be provided by Powerlink. Powerlink operates and develops the high voltage transmission network such that it can meet these service levels. Powerlink is required to consider the following in complying with its obligations:

- network investment
- network operation and maintenance
- market participants and customers
- the environment
- safety.

The AER has determined a MAR in this final decision that will enable Powerlink to meet its requirements under the NER.

Service target performance incentive scheme

The AER will apply its STPIS—consisting of the service component and the market impact component—to Powerlink in the 2012–13 to 2016–17 regulatory control period to assist with maintaining quality, reliability and security of supply. The STPIS provides incentives for TNSPs to make efficient operating decisions to maintain and improve network reliability. The AER makes annual adjustments to allowed revenues that reward or penalise Powerlink for its service performance. These adjustments are made in accordance with Powerlink's performance against target parameters and associated financial incentives defined in the STPIS. The AER's detailed reasons for its final decision on Powerlink's STPIS are set out at attachment 10.

The AER accepts Powerlink's following revised parameter values because it is satisfied these values comply with the requirements in clause 3.3 and clause 4.2 of the STPIS:

- the performance target, cap and collar for the reactive plant availability subparameter
- the performance target, cap and collar for the peak circuit availability subparameter
- the performance target for the moderate (>0.10 system minutes) LOS event frequency subparameter
- the performance target, cap and collar for the large (>0.75 system minutes) LOS event frequency subparameter
- the performance target, cap and collar for the average outage duration parameter
- the cap for the market impact component parameter.

The AER also accepts Powerlink's revised weightings for all its parameters because it is satisfied the revised weightings comply with the requirements in clause 3.5 and clause 4.3 of the STPIS.

However, the AER is not satisfied the following revised parameter values proposed by Powerlink comply with the requirements in clauses 3.3 and 4.2 of the STPIS:

- the performance targets, caps and collars for the transmission line availability and transformer availability subparameters. Powerlink's proposed offsets on the performance targets for the increased volume of operational refurbishment works are inconsistent with under clause 3.3(k) of the STPIS. The AER has recalculated the caps and collars for these subparameters in its final decision.
- the collar and cap for the moderate LOS event frequency sub-parameter. The revised collar and cap for this subparameter do not comply with clause 3.3(e) because they are not calculated by reference to Powerlink's proposed performance target. Powerlink used 2001–10 performance data to calculate the collar and cap, whereas the performance target is based on 2006–10 performance data.
- the performance target for the market impact component parameter. The proposed offset is inconsistent with clause 4.2(f)(2) of the STPIS.

Table 2.2 sets out the STPIS parameter values and weightings that will apply to Powerlink in the 2012–13 to 2016–17 regulatory control period.

Table 2.2 AER final decision on STPIS parameter values and weightings for Powerlink

Parameters	Parameter values and weightings				
Service component	Collar	Target	Cap	Weightings	
				(per cent of MAR)	
Transmission circuit availability parameter					
Peak transmission circuit availability (per cent)	98.31	98.76	99.20	0.10	
Transmission line availability (per cent)	97.60	98.76	99.92	0.10	
Transformer availability (per cent)	98.27	98.76	99.24	0.10	
Reactive plant availability (per cent)	94.45	97.15	99.84	0.15	
Loss of supply event frequency parameter					
>0.10 system minutes (number of events per annum)	6	4	2	0.15	
>0.75 system minutes (number of events per annum)	2	1	0	0.30	
Average outage duration parameter					
Average outage duration (minutes)	1306	859	412	0.10	
Total service component weighting				1.00	

Market impact component	Collar	Target	Сар	Weighting
				(per cent of MAR)
Market impact parameter (number of dispatch intervals)	n/a	1420	0	2.00

n/a Not applicable.

Source: AER analysis.

Figure 2.4 shows Powerlink's transmission availability performance has generally improved between 2006 and 2010. The availability of its transmission lines is the only measured indicator that did not improve across this period. Figure 2.4 also indicates the performance targets in the 2012–13 to 2016–17 regulatory control period.



Figure 2.4 Powerlink's transmission circuit availability performance (2006 to 2010)

Source: AER analysis.

Figure 2.5 shows Powerlink's loss of supply performance and average outage duration generally improved between 2006 and 2010. Figure 2.5 also indicates the performance targets for these parameters in the 2012–13 to 2016–17 regulatory control period.

Figure 2.5 Powerlink's loss of supply (LOS) event frequency and average outage duration (AOD) performance (2006 to 2010)



Source: AER analysis.

Figure 2.6 sets out Powerlink's historical performance on the market impact parameter and the AER decision on the market impact parameter target that will apply to Powerlink in the 2012–13 to 2016–17 regulatory control period.

Figure 2.6 Powerlink's market impact parameter historical performance and the final decision on market impact parameter performance target



Source: AER analysis.

2.2.4 Maintaining reliability, safety and security of the system

Powerlink's transmission system must also be reliable, safe and secure. Although this objective overlaps with the previous objective, safety and security are particularly important. Powerlink must ensure its network does not pose safety risks to either its personnel or the public. Many of the requirements in this objective therefore overlap with regulatory obligations.

Among other things, network reliability, safety and security may be affected by:

- old or degraded assets
- unsafe assets
- environmental factors.

Powerlink's revised revenue proposal identified many reliability, safety and security issues with its network. Accordingly, it proposed capex and opex allowances to enable it to address these issues. The AER considers Powerlink's transmission network faces a number of safety and security issues and has accounted for this in coming to its final decision on total capex and opex allowances.

3 Regulatory asset base

Powerlink's past investment in assets forms its regulatory asset base (RAB) which is used to calculate the return on and return of capital.²⁹ Powerlink recovers the cost of this investment over the expected lives of the assets. The AER must therefore make a decision on Powerlink's proposed opening RAB as at the start of the 2012–13 to 2016–17 regulatory control period. The AER is also required to make a decision on the depreciation schedules for the commencement of the 2012–13 to 2016–17 regulatory control period.³⁰ Depreciation is discussed at attachment 7.

The AER determines an appropriate value for Powerlink's opening RAB by assessing Powerlink's RAB at the start of the previous regulatory control period and rolling it forward. The AER adds consumer price index (CPI) and capex to, and subtracts depreciation from, the RAB to complete the roll forward.

The AER's detailed reasons for its final decision on Powerlink's regulatory asset base are provided in attachment 6.

3.1 Final decision

Powerlink's revised revenue proposal sought an opening RAB as at 1 July 2012 of \$6485.5 million and a closing RAB as at 30 June 2017 of \$9841.2 million.³¹ The AER's final decision is to determine an opening RAB as at 1 July 2012 of \$6428.8 million. The AER forecasts Powerlink's closing RAB to be \$8882.5 million as at 30 June 2017, which represents a 38 per cent increase in the value of the RAB during the 2012–13 to 2016–17 regulatory control period. Figure 3.1 shows the increase in the value of the RAB until 2016–17.

The AER's roll forward of the RAB during the 2007–08 to 2011–12 regulatory control period to establish the opening RAB value for the start of the 2012–13 to 2016–17 regulatory control period is shown in table 3.1. The AER's roll forward of the forecast RAB during the 2012–13 to 2016–17 regulatory control period is shown in table 3.2.

²⁹ The return on capital is Powerlink's opening RAB multiplied by the rate of return, and the return of capital is the depreciation of the RAB.

³⁰ NER, clause 6A.6.3(a)(2)(ii).

³¹ Powerlink, *Revised revenue proposal*, pp. 19, 166.



Figure 3.1 Powerlink's past opening RAB values and the AER final decision

Source: AER analysis, Powerlink's revised roll forward model.

3.2 Summary of analysis and reasons

3.2.1 Opening RAB

Powerlink's revised revenue proposal accepted the draft decision on the opening RAB as at 1 July 2012 and provided updated capex amounts for 2010–11 and 2011–12. The AER accepts Powerlink's actual capex for 2010–11. The AER also accepts Powerlink's revision of forecast capex for 2011–12.³² The difference between the amount in the AER's final decision and Powerlink's revised revenue proposal is due to indexation for 2011–12 in the opening RAB roll forward. As outlined in its draft decision, the AER's intention was to update the forecast inflation for 2011–12 with actual inflation using the March 2012 CPI for the final decision. The March 2012 CPI was not available at the time Powerlink submitted its revised revenue proposal.

³² Similarly, the AER accepts the revised actual disposals for 2010–11. Forecast disposals for 2011–12 were also revised and were reasonable.

Table 3.1AER final decision on Powerlink's RAB for the 2007–08 to 2011–12regulatory control period (\$million, nominal)

	2007–08	2008–09	2009–10	2010–11	2011–12
Opening RAB	3752.8	4448.1	5016.0	5429.6	5840.4
Capital expenditure ^b	693.1	640.8	460.6	439.8	707.8 ^a
CPI indexation on opening RAB	159.2	109.7	144.9	181.0	92.5
Straight-line depreciation ^c	-157.0	-182.6	-192.0	-209.9	-225.0
Closing RAB as at 30 June	4448.1	5016.0	5429.6	5840.4	6415.8
Difference between forecast and actual capex (1 July 2006 to 30 June 2007)					-33.7
Return on difference for 2006–07 capex					-17.0
Difference between forecast and actual assets under construction (2006–2007)					42.3
Return on difference (assets under construction)					21.3
Closing RAB as at 30 June 2012					6428.8
Source: AER analysis. (a) Based on estimated capex. An u	pdate for actua	l capex will be	made at the ne	ext reset.	

b) As incurred, net of disposals, and adjusted for actual CPI and WACC.

(b) As incurred, net of dispo(c) Adjusted for actual CPI.

3.2.2 Forecast closing RAB as at 30 June 2017

The forecast of Powerlink's closing RAB as at 30 June 2017 is impacted by input changes for the 2012–13 to 2016–17 regulatory control period made by the AER to the post tax revenue model (PTRM). These changes are:

- the opening RAB as at 1 July 2012, as discussed in attachment 6
- the inflation forecast for the 2012–13 to 2016–17 regulatory control period, as discussed in attachment 5
- forecast capex, as discussed in attachment 3
- forecast depreciation, as discussed in attachment 7.

Table 3.2 AER final decision on Powerlink's RAB for the 2012-13 to 2016-17 regulatory control period (\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17
Opening RAB as at 1 July 2012	6428.8	7096.1	7642.0	8002.5	8406.9
Capital expenditure ^a	708.3	599.4	437.8	499.6	580.4
Inflation indexation on opening RAB	167.1	184.5	198.7	208.1	218.6
Straight-line depreciation	-208.1	-238.1	-276.0	-303.3	-323.3
Closing RAB as at 30 June 2017	7096.1	7642.0	8002.5	8406.9	8882.5

Source: (a)

AER analysis. As incurred, and net of disposals. In accordance with the timing assumptions of the PTRM, the capex includes a half-WACC allowance to compensate for the average six-month period before capex is added to the RAB for revenue modelling purposes.

4 Regulatory depreciation

Regulatory depreciation is a component of Powerlink's annual building block revenue requirement. It is also used to model the change in Powerlink's RAB over the 2012–13 to 2016–17 regulatory control period. Regulatory depreciation is the difference between Powerlink's straight-line depreciation on its assets and the annual inflation indexation on its RAB. The AER is required to make a determination on Powerlink's depreciation allowance (or return of capital) for the 2012–13 to 2016–17 regulatory control period.³³

The AER's detailed reasons for its final decision on Powerlink's regulatory depreciation allowance are provided in attachment 7.

4.1 Final decision

The AER does not accept Powerlink's proposed regulatory depreciation allowance of \$386.0 million (\$nominal) as set out in its revised revenue proposal.³⁴ The AER's final decision on Powerlink's regulatory depreciation allowance is \$371.8 million (\$nominal) as shown in table 4.1. This represents a reduction of \$14.2 million (\$nominal) or 3.7 per cent of Powerlink's revised proposal.

Table 4.1	AER	final	decision	on	Powerlink's	depreciation	allowance
	(\$milli						

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Straight-line depreciation	208.1	238.1	276.0	303.3	323.3	1348.8
Less: indexation on opening RAB	167.1	184.5	198.7	208.1	218.6	977.0
Regulatory depreciation	41.0	53.6	77.3	95.2	104.7	371.8

Source: AER analysis.

4.2 Summary of analysis and reasons

The AER's determinations regarding other components of Powerlink's revised revenue proposal impact the regulatory depreciation allowance over the 2012–13 to 2016–17 regulatory control period. These are discussed in other attachments and include:

- the opening RAB (attachment 6)
- forecast capex (attachment 3)
- forecast inflation (attachment 5).

³³ NER, clause 6A.5.4(a)(3).

³⁴ Powerlink, *Revised revenue proposal*, p. 161.

The AER's final decision on the standard asset life for the purposes of depreciating forecast capex associated with transmission lines refit works and adjustment to the remaining asset lives, as discussed below, also impact on the estimate of regulatory depreciation.

4.2.1 Standard asset life—Transmission lines-refit

The AER does not accept Powerlink's revised revenue proposal to assign a standard asset life of 15 years to its proposed new asset class of 'Transmission lines-refit'. The AER has assigned a standard asset life of 30 years for this asset class.

Powerlink's revised revenue proposal did not accept the draft decision to apportion refit capex across the 'Transmission lines-refit' and 'Transmission lines-overhead' asset classes. Powerlink suggested there are accounting/asset tracking benefits in allocating capex associated with all refit works in one asset class. Powerlink reiterated its proposed standard asset life of 15 years for all refit works.

The AER accepts that there could be benefits in including all refit works in the one asset class. Accordingly, the AER has considered what an appropriate standard asset life should be for a refit asset class that includes all refit work, rather than apportioning the forecast refit capex across two asset classes.

The NER requires the depreciation schedule to reflect the nature of the assets over the economic life of the assets.³⁵ In the draft decision, the AER determined that paint and surface preparation works had a standard asset life of approximately 15 years and made up about 20 per cent of refit costs. The AER allocated these costs to the refit class for which the AER allowed a standard asset life of 15 years.³⁶ The remainder of the forecast refit costs were allocated to the existing 'Transmission lines–overhead' asset class which applies a standard asset life of 50 years.

In its final decision the AER accepts that 'common costs' which make up a significant amount of refit capex also have a useful life of approximately 15 years (in addition to paint and surface preparation). Based on this, the AER considers that approximately 60 per cent of the forecast expenditure associated with refit works allocated to the 'Transmission lines-refit' asset class may contain assets with a life of approximately 15 years, while the remainder would have lives on average similar to the 50 years previously adopted for such works. Therefore, the AER concludes that a standard asset life of 30 years for the 'Transmission lines-refit' asset class would provide an appropriate economic life, consistent with the NER.³⁷

4.2.2 Remaining asset lives

The AER does not accept Powerlink's revised proposed remaining asset lives due to an error in the way the remaining asset lives were rolled forward from its financial asset register. However, the AER accepts the revised remaining asset lives as subsequently provided by Powerlink.

³⁵ Clause 6A.6.3(b)(1) of the NER.

³⁶ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p, 258.

³⁷ Clause 6A.6.3(b)(1) of the NER.

Powerlink's revised revenue proposal did not accept the draft decision to apply a weighted average approach to determine the remaining asset lives as at 1 July 2012. Powerlink stated that its financial asset register provides an appropriate representation of the economic life of the assets as at 30 June 2011.³⁸

The AER was concerned by the differences in the values of the assets in Powerlink's financial asset register and RAB, and how these differences affected Powerlink's proposed remaining asset lives. The asset values do differ across the financial asset register and RAB. However, the AER considers that Powerlink's revised approach to determining remaining asset lives achieves reasonably consistent rates of depreciation across both accounts. There is no systematic understating of remaining asset lives. The AER's review identified an error in the way Powerlink rolled forward the revised remaining asset lives from its financial accounts as at 30 June 2011 to 30 June 2012. Powerlink acknowledged this error and provided corrected figures.³⁹ The AER accepts these corrected figures and is satisfied that they result in a depreciation profile that reflects the nature of assets within the asset classes over the economic life of the asset classes under the NER.

³⁸ Powerlink, *Revised revenue proposal*, p. 156.

³⁹ Powerlink, *E-mail, Response - Request AER/054 - Powerlink's remaining asset lives*, 20 February 2012.

5 Capital expenditure

Capex includes load driven network augmentation, easements and connections, non-load driven augmentation (such as asset replacements and security) and non-network capital expenditure (such as IT, moveable plant, motor vehicles and commercial buildings). Powerlink is required to submit a building block proposal to the AER that forecasts capex for the 2012–13 to 2016–17 regulatory control period.⁴⁰

Powerlink proposed a revised total forecast capex of \$3312 million (\$2011–12).⁴¹ The AER must accept this proposed total forecast capex if satisfied it reasonably reflects the capex criteria.⁴² If not satisfied, the AER must give reasons for not accepting Powerlink's proposal, and estimate the total required capex that reasonably reflects the capex criteria. In doing so, the AER must have regard to the capex factors.⁴³

The AER's detailed reasons for its final decision on Powerlink's forecast capex are provided in attachment 3.

5.1 Final decision

The AER is not satisfied Powerlink's revised total forecast capex reasonably reflects the capex criteria and has accordingly substituted a capex forecast. The AER's determination of Powerlink's total capex allowance for the 2012-13 to 2016-17 regulatory control period is \$2519 million (\$2011–12). The AER's substitute capex forecast is a \$788 million reduction (23.8 per cent) on Powerlink's proposed capex forecast of \$3312 million. The AER's final decision on Powerlink's capital expenditure allowance is set out in table 5.1.

Table 5.1	AER final decision on	capex allowance	(\$million,	2011-12)
			(¥	/

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Powerlink forecast	757	710	670	540	634	3312
Adjustment	-95	-163	-280	-107	-144	-788
Substitute capex allowance ⁴⁴	662	547	390	433	491	2519

Source: EMCa/AER analysis

Figure 5.1 presents the information in table 5.1 graphically; it shows Powerlink's revised proposed forecast capex and the AER's substitute forecast capex.

⁴⁰ NER, clause 6A.10.1.

⁴¹ Where figures in this document are presented in \$2011–12 values, they refer to mid year values.

⁴² NER, clause 6A.6.7(c).

⁴³ NER, clause 6A.6.7(e).

⁴⁴ \$2524 million less \$4 million disposals.



Figure 5.1 AER final decision and Powerlink's proposed capex allowance (\$million, 2011–12)

Source: AER analysis; Powerlink, Revised revenue proposal, 16 January 2012, p. 106

The AER considers that much of the capex proposed by Powerlink is consistent with the requirements of the NER and is therefore appropriate. The AER has made no adjustments to Powerlink's revised proposed capex allowances for:

- Replacement capex
- Non-load driven and non-network capex
- Cost estimation risk factor.

However, the AER has made adjustments based on the following:

- Demand forecast reduction
- 500kV capable network development projects
- Carbon price trajectory
- Efficiency adjustment
- Equity raising costs.

5.2 Summary of analysis and reasons

5.2.1 Demand forecast reduction

The AER considers Powerlink's demand forecast is not a realistic expectation of demand (see section 2.2.1 for the AER's consideration of Powerlink's demand forecast). The AER thus substituted a demand forecast it considers is a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period (the AER's final decision demand forecast).
The AER's final decision demand forecast results in a consequential reduction in Powerlink's capex requirement from that set out in the revised revenue proposal of \$451 million.⁴⁵

5.2.2 500kV capable network development projects

Powerlink proposed four augmentation projects for the existing 275kV network. It proposed to build this infrastructure as capable of running at 500kV (that is, built with 500kV towers and insulators) but intends to operate the assets at 275kV until a 500kV upgrade is required. Powerlink expects it will need to operate the infrastructure at 500kV in 2021–22 at the earliest. A large component of the project costs relates to the incremental ('strategic') cost of building the network to be capable of operating at 500kV.

The AER identified considerable uncertainty in the timing of, and need for, the 500kV network upgrade. The AER does not accept that Powerlink's proposed capex of \$559.5 million⁴⁶ for the establishment of a 500kV network (but operated at 275kV) meets the capex criteria. The AER has made the following reductions to the capex allowance:

- \$148.9 million (\$2011–12) for the 500kV increment (that is, the extra cost of the build to 500kV capable over and above the cost of the build to 275kV) for the Halys–Blackwall project. The AER classified the incremental costs as a contingent project, and a trigger event has been developed.
 - Powerlink conducted a regulatory test for this project in 2009 but since then the assumptions about demand changes and potential generation planting have materially changed. The AER considers that this project should be subject to regulatory investment test for transmission (RIT-T) and this is reflected in the trigger event definition.
- \$261.4 million (\$2011–12) for the Halys–Western Downs project, 3rd and 4th circuit. The AER does not accept that this project is required in the 2012–13 to 2016–17 regulatory control period to meet the capex criteria and the AER classified this project as a contingent project with a relevant trigger event.
- \$149.2 million (\$2011–12) for the Halys–Greenbank project. The AER does not accept that this project is required in the 2012–13 to 2016–17 regulatory control period to meet the capex criteria and the AER classified this project as a contingent project with a relevant trigger event.

The AER upholds its draft decision to accept the 500kV related easement costs of \$49.4 million. However, the AER does not accept Powerlink's proposed capex of \$131.3 million (\$2011–12) of additional easement costs.⁴⁷ These costs are not included in Powerlink's revised revenue proposal, and no adjustment is necessary.

⁴⁵ This is EMCa's estimate of the demand adjustment to capex. Attachment 3 discusses this adjustment in more detail.

⁴⁶ This is the 'stand alone' cost and does not reflect the impact of the adjustments due to demand and carbon price trajectory.

⁴⁷ This was a claim by Powerlink in its revised revenue proposal that it would need to fund the 18 new corridors / 810 easements at a cost of \$131.3 million. However the AER found a 275kV build option that doesn't require a single new easement to be purchased. The revised revenue proposal's forecast capex did not include

5.2.3 Carbon price trajectory

The final decision is to reject Powerlink's revised probabilities for the carbon price trajectory. The AER is not satisfied the capex forecast reasonably reflects the efficient cost of a prudent TNSP in Powerlink's circumstances. This reduces Powerlink's forecast capex (as set out in the revised revenue proposal) for the 2012–13 to 2016–17 regulatory control period by \$17 million (\$2011–12). The AER considers:

- Powerlink has not provided evidence of other countries actions that would result in Australia adopting greenhouse gas reduction targets of 15 per cent or 25 per cent from 2000 levels by 2020 (the higher targets).
- actions by several major greenhouse gas-emitting countries at the recent United Nations Framework Convention on Climate Change (UNFCCC) Durban conference appear to reduce the likelihood Australia would adopt the higher targets.
- the uncertainty associated with the carbon targets is extremely large and the assignment of probabilities to the higher carbon targets is arbitrary and not justified.

The AER considers assigning a 100 per cent probability to the 5 per cent carbon target reasonably reflects a realistic expectation of cost inputs required to achieve the capex objectives.⁴⁸ This probability assignment reflects the Australian Government's formal carbon reduction commitments.

The Australian Government committed unconditionally only to the 5 per cent target in its Copenhagen Accord pledge and has not changed this position for several years. Other countries have also not changed their Copenhagen Accord pledges. The AER understands the establishment of the Ad Hoc Working Group means any changes other countries make to their Copenhagen Accord pledge will likely occur after 2020. This is well past the 2012–13 to 2016–17 regulatory control period. Other developments do not appear to have changed the Australian Government's approach.

5.2.4 Efficiency adjustment

The AER is not satisfied that Powerlink's proposed forecast capex meets the capex criteria. Specifically, the AER found that Powerlink's forecast capex:

- exceeded the efficient costs of achieving the capital expenditure objectives and
- did not reflect the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the capital expenditure objectives.

To make Powerlink's capex forecast consistent with the NER, the final decision applied a capex efficiency adjustment that had the effect of reducing Powerlink's forecast capex by

additional easement costs, so no adjustment is necessary. Powerlink proposed these additional easement costs in the event that the AER does not accept the 500kV project.

⁴⁸ NER, clause 6A.6.7(c)(3).

\$34 million (\$2011–12). The AER applied this efficiency adjustment as described in the AER's draft decision.⁴⁹

The reasons for these findings include:

- Powerlink's current capex program was not efficient because it did not include a formal performance improvement program. Implementing such a program is likely to improve the efficiency which Powerlink undertakes its investment program.
- Other TNSPs have achieved measurable capex efficiencies by implementing performance improvement programs. EMCa provided several examples of efficiency savings by other TNSPs. Such programs could equally be applied by all Australian TNSPs, including Powerlink in its current circumstances.
- Based on the efficiency programs utilised by other TNSPs, EMCa's expert industry experience and its own top-down analysis, the AER considers Powerlink's proposed capex should be reduced by \$34 million (\$2011–12) to make it compliant with the capex criteria.

5.2.5 Capital expenditure accepted by the AER

The AER is satisfied the proposed capex allowances discussed below reasonably reflect the capex criteria.

Replacement capital expenditure

The AER's final decision is to accept the proposed replacement capex allowance of \$1282.7 million (\$2011–12) for the 2012–13 to 2016–17 regulatory control period. The AER's draft decision largely accepted Powerlink's proposed replacement capex. Accordingly, Powerlink's revised revenue proposal accepted the AER's draft decision, however updated the forecast based on the profile of capital spend.

Non-load driven and non-network capital expenditure

The AER's final decision is to accept the proposed non-load capex allowance of \$1460.2 million (\$2011–12) and non-network capex allowance of \$121.1 million (\$2011–12) for the 2012–13 to 2016–17 regulatory control period. The AER's draft decision largely accepted these proposed capex allowances. Powerlink's revised revenue proposal has replaced estimates for 2010–11 and 2011–12 with actual expenditure and shifted some expenditure into the 2012–13 to 2016–17 regulatory control period. The AER reviewed Powerlink's updates and accepts them as a normal part of business operations which can result in updated estimates being provided to the AER between the original revenue proposal and the revised revenue proposal.

Cost estimation risk factor

The final decision accepts Powerlink's three per cent cost estimation risk factor. The draft decision did not allow a cost estimation risk factor to be applied, which Powerlink did not agree with.

⁴⁹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp.106-107.

The AER was previously concerned that network service providers should not shift manageable risk onto customers. Further, the AER considered that Powerlink's Base Planning Objects (BPO) accounts for risk faced in the past and project management planning should minimise risks and cost overruns.

Powerlink has demonstrated that it is subject to asymmetric risk which is not accounted for elsewhere. In particular, Powerlink's BPO update process specifically excludes the 3 per cent cost estimation risk factor and the risk therefore is not 'double counted'. Powerlink has taken reasonable steps to minimise risk from cost overruns and the cost estimation risk factor represents risks that Powerlink cannot completely mitigate or avoid.

5.2.6 Equity raising costs

The AER does not accept Powerlink's revised proposed allowance for equity raising costs associated with its forecast capex. The AER considers that Powerlink's proposed allowance does not reflect the benchmark efficient equity raising costs that a prudent operator in Powerlink's position would incur to achieve the capex objectives. The AER's final decision is to provide an allowance for equity raising costs of \$0.7 million (\$2011–12). This is a reduction of \$23.1 million or 97.1 per cent compared to Powerlink's revised revenue proposal.

Powerlink's revised revenue proposal is largely consistent with the AER's approach to employ a cash flow analysis. However, Powerlink adopted a dividend yield approach, as opposed to the payout ratio, to estimate the value of dividends in the cash flow analysis. This approach produced higher forecast dividends, requiring greater seasoned equity offerings and associated equity raising costs.

The AER does not consider that the use of a dividend yield approach is appropriate. The AER considers that to calculate Powerlink's required equity raising costs, it should forecast dividends using a payout ratio that is just sufficient to distribute the imputation credits assumed in the building block cash flows. This approach to estimating dividends in the cash flow analysis is consistent with the AER's draft decision, and with other recent AER decisions.

6 Rate of return

The AER is required to make a decision on the rate of return on Powerlink's capital investment.⁵⁰ The NER states that the AER is to apply a rate of return based on the nominal vanilla WACC formulation.⁵¹ Powerlink's return on capital building block is calculated by multiplying the rate of return with the value of Powerlink's opening RAB. The NER requires the AER to apply the capital asset pricing model (CAPM)⁵² to calculate the return on equity for TNSPs.

The AER's detailed reasons for its final decision on an appropriate rate of return for Powerlink are provided in attachment 5.

6.1 Final decision

The AER has not accepted Powerlink's revised proposed WACC of 8.68 per cent. This is because the WACC in Powerlink's revised revenue proposal is based on bond rates using an indicative, rather than final, averaging period. The AER has determined a WACC of 8.61 per cent for Powerlink as set out in table 6.1. The WACC reflects parameters—the nominal risk free rate, the debt risk premium (DRP)—estimated over the 40 business day averaging period of 6 February 2012 to 30 March 2012.

In the draft decision, the AER accepted Powerlink's proposed values for the equity beta, market risk premium MRP, gearing and assumed utilisation of imputation credits (gamma).⁵³ As required under the NER,⁵⁴ the AER must adopt those values, which were determined in the 2009 review of the WACC parameters to calculate Powerlink's WACC.⁵⁵ The AER also agreed to Powerlink's proposed averaging period to calculate the nominal risk free rate (and DRP). However, the AER did not accept Powerlink's proposed value for the DRP.

The AER's assessment approach for the WACC parameters has not changed from that outlined in the draft decision, with the exception of the DRP. For this final decision, the AER accepts Powerlink's revised revenue proposal to estimate the DRP using the extrapolated Bloomberg BBB rated fair value curve (FVC). Based on Powerlink's revised revenue proposal, the AER has determined a benchmark DRP of 3.93 per cent (effective annual compounding rate).

In addition to bottom-up analysis on the parameter inputs, the AER has also assessed the overall rate of return against market data to ensure that the WACC is appropriate for this final decision.⁵⁶

⁵⁰ NER, clause 6A.5(4).

⁵¹ NER, clause 6A.6.2(b).

⁵² The CAPM is a well known and widely used model. It specifies a relationship between the expected return of a risky (in terms of uncertainty over future outcomes) asset and the level of systematic (non-diversifiable) risk.

⁵³ The gamma parameter affects the corporate income tax building block, which is discussed in attachment 8.

⁵⁴ NER, clause 6A.6.2(h).

⁵⁵ AER, *Electricity transmission and distribution network service providers Statement of the revised WACC parameters (transmission)*, May 2009, p. 6.

⁵⁶ NER, clause 6A.6.2(b).

Table 6.1	AER final decision on Powerlink's WACC parameters
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Parameter	AER draft decision	Powerlink revised proposal	AER final decision
Nominal risk free rate	4.32% ^a	4.25% ^a	4.17%
Equity beta	0.80	0.80	0.80
Market risk premium	6.50%	6.50%	6.50%
Gearing level (debt/debt plus equity)	60%	60%	60%
Debt risk premium	3.19% ^b	3.91% ^a	3.93%
Assumed utilisation of imputation credits (gamma)c	0.65	0.65	0.65
Inflation forecast	2.62%	2.62%	2.60%
Cost of equity	9.52% ^a	9.45% ^a	9.37%
Cost of debt	7.51% ^a	8.16% ^a	8.10%
Nominal vanilla WACC	8.31% ^ª	8.68% ^a	8.61%

Source: AER, Draft decision: Powerlink determination 2012–13 to 2016–17, November 2011 p. 213; Powerlink, Revised revenue proposal, p. 27.

(a) Based on different indicative averaging periods.

(b) Based on indicative averaging period and different estimation method.

(c) The gamma parameter affects the corporate income tax allowance. This allowance is discussed at attachment 8.

6.2 Summary of analysis and reasons

The AER's final decision on WACC differs from Powerlink's revised revenue proposal due to the use of different averaging periods for estimating the risk free rate and DRP. Powerlink's revised revenue proposal WACC was based on an up-to-date averaging period for estimating WACC parameters at the time. For this final decision, the AER has updated the WACC parameters using the averaging period, proposed by Powerlink and agreed to by the AER.

6.2.1 Nominal risk free rate

The AER determines the nominal risk free rate on a moving average basis from the annualised yield on Commonwealth Government bond rates over an averaging period. For this final decision, the AER has used Powerlink's proposed averaging period. Based on a moving average of 40 business days for Commonwealth Government bond yields with a 10 year maturity for the period ending 30 March 2012, the AER has determined a nominal risk free rate of 4.17 per cent (effective annual compounding rate). The AER notes Powerlink's statement about having an opportunity to recover at least efficient costs. To satisfy itself in this regard, the AER has undertaken reasonableness checks of the overall cost of capital based on a broad range of estimates inferred from market sources.

6.2.2 Debt risk premium

The AER has changed its position on the DRP set out in the draft decision and accepts the methodology in Powerlink's revised revenue proposal. Following publication of the draft decision, the Australian Competition Tribunal (Tribunal) released its decisions relating to the APT Allgas and Envestra gas access arrangements and the Victorian electricity DNSPs' distribution determinations. Amongst other issues, the Tribunal considered the AER's approach to estimating the DRP. The Tribunal found error in the AER's approach to DRP. It decided that for those regulatory decisions currently in progress, 100 per cent weight would be placed on the extrapolated Bloomberg BBB rated FVC to estimate the DRP.⁵⁷ The Tribunal stated that if the AER wishes to adopt an alternative methodology to the extrapolated Bloomberg BBB rated FVC, it should develop the alternative approach through an industry wide consultation process.

The AER considers that there may be other preferable methodologies to estimate the DRP. Notwithstanding this, the AER acknowledges the Tribunal's views and agrees that it is desirable to consult widely on a new approach to estimate the DRP before it is used. The AER will begin an internal review of alternative methods to estimate the DRP and conduct a public consultation process. For this final decision the AER has adopted the extrapolated Bloomberg BBB rated FVC to estimate the DRP, consistent with Powerlink's revised revenue proposal. Based on the same averaging period used to estimate the risk free rate, the AER has determined a benchmark DRP of 3.93 per cent (effective annual compounding rate).

6.2.3 Reasonableness checks on overall rate of return

The AER has evaluated the overall rate of return that results from the individual WACC parameter values being combined in accordance with the WACC and CAPM formulae. The AER examined asset sales, trading multiples and broker WACCs for listed regulated business in Australia, as well as recent decisions by other Australian regulators and the historical range of WACC values provided by the AER for other electricity and gas service providers. The AER considers that the overall rate of return is commensurate with the return required by investors in a commercial enterprise with a similar nature and degree of non-diversifiable risk as that faced by Powerlink. In turn, the AER considers that the overall rate of return provides a reasonable opportunity for Powerlink to recover at least its efficient costs.

The AER's final decision on Powerlink's WACC results in the return on capital for each year of the 2012–13 to 2016–17 regulatory control period as set out in table 6.2. The reduction in the return on capital is largely due to the AER's lower capex allowance as discussed at attachment 3.

⁵⁷ Australian Competition Tribunal, *Application by Envestra Ltd* (*No 2*) [2012] ACompT 3, 11 January 2012, paragraph 120; Australian Competition Tribunal, *Application by APT Allgas Energy Ltd* [2012] ACompT 5, 11 January 2012, paragraph 117; and Australian Competition Tribunal, *Application by United Energy Distribution Pty Ltd* (*No 2*) [2012] ACompT 1, 6 January 2012, paragraph 462.

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Powerlink's revised proposal	562.7	631.0	693.6	752.3	798.2	3437.8
Adjustment	-9.4	-20.2	- 35.9	-63.5	-74.6	-203.7
AER's final decision	553.3	610.8	657.7	688.8	723.6	3234.1

Table 6.2 AER final decision on Powerlink's return on capital (\$million, nominal)

Source: Powerlink, *Revised revenue proposal*, p. 167; AER analysis.

7 Operating expenditure

Opex refers to the operating, maintenance and other non-capital costs that a TNSP incurs in providing prescribed transmission services. The AER must accept Powerlink's proposed total forecast opex if satisfied it reasonably reflects the opex criteria. If not satisfied, the AER must give reasons for not accepting Powerlink's proposal, and estimate the total required opex that reasonably reflects the opex criteria. In doing so, the AER must have regard to the opex factors.

Powerlink proposed total opex of \$1010.3 million (\$2011–12) over the 2012–13 to 2016–17 regulatory control period representing a real increase of 27 per cent on actual expenditure in the 2007–08 to 2011–12 regulatory control period.

The AER's detailed reasons for its final decision on Powerlink's forecast opex are set out at attachment 4.

7.1 Final decision

The AER is not satisfied Powerlink's revised total forecast opex reasonably reflects the opex criteria. As set out at table 7.1 the AER's final decision on Powerlink's total opex allowance for the 2012–13 to 2016–17 regulatory control period is \$933.5 million (\$2011–12).

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Field maintenance	55.5	58.3	60.5	62.4	63.9	300.6
Operational refurbishment	34.0	34.9	33.4	35.0	39.4	176.6
Maintenance support	12.5	13.0	13.2	13.4	13.6	65.7
Network operations	13.8	14.2	14.5	14.7	14.9	72.2
Asset management support	32.8	33.4	34.0	34.3	34.7	169.2
Corporate support	14.2	14.8	16.7	18.9	16.9	81.5
Total controllable opex	162.7	168.6	172.3	178.7	183.4	865.8
Insurances	8.5	9.1	9.8	10.3	11.0	48.7
Network support	-	_	_	_	_	-
Debt raising costs	3.4	3.7	3.9	4.0	4.1	19.1
Total opex	174.7	181.4	186.0	192.9	198.5	933.5

Table 7.1	AER	final	decision	on	Powerlink's	operating	and	maintenance
	exper	nditure	(\$million, 2	2011-	-12)			

Source: AER analysis.

Figure 7.1 compares Powerlink's past and forecast total opex with proposed and approved opex. The AER's allowance for the 2012–13 to 2016–17 regulatory control period equates to a reduction of approximately 6.1 per cent by comparison to that proposed by Powerlink in its revised revenue proposal.

Figure 7.1 Comparison of past and future total opex



Source: AER analysis

7.2 Summary of analysis and reasons

The AER's determination of forecast opex includes changes to the controllable opex and other opex sub categories set out below:

- opex provisions in the base year expenditure
- real cost escalation
- network growth
- step changes
- insurances
- network support
- debt raising costs.

7.2.1 Controllable operating expenditure

The AER is not satisfied Powerlink's revised forecast controllable opex reasonably reflects the opex criteria. As set out at table 7.1 the AER's final decision on Powerlink's controllable opex for 2012–13 to 2016–17 is \$865.8 million (\$2011–12).

Selection of base year

The AER considers 2009–10 is an appropriate base year for forecasting Powerlink's total opex for the 2012–13 to 2016–17 regulatory control period because:

- there is no significant difference in total forecast opex when using either 2009–10 (as proposed by Powerlink) or 2010–11 (as per the draft decision) as the base.
- the EBSS incentives are not ultimately weakened by using 2009–10 as the base year (the third year of the 2006–07 to 2011–12 regulatory control period).

Application of real cost escalators

The AER is not satisfied Powerlink's proposed real labour and materials cost escalators reasonably reflect a realistic expectation of the cost inputs required to achieve the opex objectives.⁵⁸ Powerlink's proposed total forecast opex included \$85.5 million (\$2011–12) for forecast real cost increases in labour, materials and land costs. The AER's final decision for forecast real cost increases is \$38.4 million (\$2011–12).

Accounting for network growth

The AER is not satisfied Powerlink's revised proposed network growth factors reasonably reflect the opex criteria.⁵⁹ The AER accepts the method used by Powerlink to calculate the network growth factors in the revised opex model. However, the AER adjusted Powerlink's revised network growth factors to reflect the AER's final decision on Powerlink's forecast capex (see attachment 3). The AER's final decision on Powerlink's network growth factors results in a reduction of Powerlink's proposed total opex of 0.3 per cent, or \$2.5 million (\$2011–12) during the 2012–13 to 2016–17 regulatory control period.

Step changes

The AER is not satisfied the step changes in Powerlink's revised revenue proposal reasonably reflect the opex criteria. Powerlink may be subject to changes in regulatory obligations or its external operating environment that are not reflected in its base year expenditure. The base year opex should be adjusted to account for these 'step changes'. The AER accepts Powerlink's revised proposed step changes relating to:

- Iand tax
- tower painting refurbishment

⁵⁸ NER, clauses 6A.6.6(c)(3).

⁵⁹ NER, clause 6A.6.6(c).

 once-off painting and carpet replacement costs (part of the proposed additional building maintenance step change)

However, the AER does not accept Powerlink's revised proposed step changes relating to:

- maintenance and outgoings costs for the new office accommodation
- climate change investigations
- maintenance and outgoings costs for the disaster recovery site (part of the proposed additional building maintenance step change)
- increased helicopter support costs for south west Queensland maintenance.

7.2.2 Other operating expenditure

In addition to controllable opex, Powerlink proposed opex for insurances, network support cost and debt raising costs, collectively called 'other opex'. The AER is not satisfied Powerlink's revised forecast for network support costs and debt raising costs reasonably reflects the opex criteria. Powerlink accepted the AER's draft decision on insurances. As set out at table 7.2 the AER's determination of Powerlink's other opex for 2012–13 to 2016–17 is \$67.8 million (\$2011–12).

Table 7.2	AER final decision of	on Powerlink's other	opex (\$million	, 2011–12)
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	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Insurances	8.5	9.1	9.8	10.3	11.0	48.7
Debt raising costs	3.4	3.7	3.9	4.0	4.1	19.1
Network support	-	-	-	-	-	-

Source: AER analysis.

Network support costs

The AER is not satisfied that Powerlink's revised network support proposal of \$19.3 million (\$2011–12) reasonably reflects the opex criteria. The reasons for this decision are:

the AER is not satisfied the proposed network support for the North Queensland projects reasonably reflect the opex criteria as discussed in the draft decision.⁶⁰ In making its draft decision, the AER reviewed all the information that Powerlink provided in its 31 May 2011 revenue proposal in support of the proposed North Queensland network support projects. At the time, the AER was not satisfied the proposed network support reasonably reflected the opex criteria.⁶¹ Powerlink did not provide new information to support its revised network support for North Queensland in its revised revenue proposal. Accordingly, and for the reasons set out in the draft decision, the AER's final decision is to not accept the revised network support for North Queensland projects.

⁶⁰ NER, clause 6A.6.6(c).

⁶¹ The reasons for the AER's decision are outlined in AER, *Draft decision, Powerlink transmission determination* 2012–2013 to 2016–2017, November 2011, pp. 200-207

the NER sets out that a TNSP may only make the revisions referred to in its revised revenue proposal so as to incorporate the substance of any changes required by, or to address matters raised in, the draft decision. Powerlink's proposed network support for the Kogan Creek power station (PS) fault level management project was not raised as an issue in the draft decision, or in Powerlink's initial revenue proposal. It is therefore not a matter that can be subsequently proposed by Powerlink. Consequently, the AER has not assessed these costs for the final decision.

Debt raising costs

The AER has determined a benchmark debt raising cost allowance of \$19.1 million (\$2011–12) for Powerlink. Table 7.2 shows the annual allowance. This is based on the AER's final decision that the benchmark debt raising unit cost of 9.3 basis points per year reflects efficient and prudent costs for current market conditions.

Powerlink accepted the AER's draft decision approach to forecasting debt raising costs.⁶² The AER's draft decision applied updated unit cost inputs to its method for determining benchmark debt raising costs and determined the total debt raising cost allowance for Powerlink based on the debt component of the RAB. Some of the unit costs depend on the WACC. The AER updated those unit costs to reflect the WACC for this final decision. It also changed Powerlink's RAB value from the draft decision. As a result, while the debt component of the RAB has changed, Powerlink is still required to raise sixteen standard sized bond issues.

7.2.3 Efficiency benefit sharing scheme

The EBSS provides TNSPs with a continuous incentive to reduce opex. It does this by allowing the TNSP to retain efficiency gains for five years before passing them to consumers. It also reduces the incentive for a TNSP to overspend in the opex base year to receive a higher opex allowance in the following regulatory control period.

Final decision

The AER is not satisfied Powerlink's proposed EBSS carryovers comply with the scheme. Table 7.3 outlines the increments and decrements included as building blocks in the determination of Powerlink's annual revenue requirement.⁶³

⁶² Powerlink, Revised revenue proposal 2012–13 to 2016–17, January 2012, p. 148.

⁶³ NER, clauses 6A.5.4(a)(5) and 6A.5.4(b)(5).

Table 7.3AER final decision on EBSS carryover amounts for 2007–08 to 2011–12regulatory control period (\$million, 2011–12)

	2012–12	2013–14	2014–15	2015–16	2015–17	Total
Powerlink revised proposal	-1.2	-0.7	-3.4	0.5	_	-4.7
AER conclusion	-2.6	-0.7	-2.8	2.1	-	-3.9

Source: Powerlink, Revised revenue proposal, p. 172; AER analysis.

Table 7.4 shows the total controllable opex forecasts that the AER will use to calculate efficiency gains and losses for the 2012–13 to 2016–17 regulatory control period, subject to adjustments required by the EBSS.

Table 7.4 AER final decision on Powerlink's forecast controllable opex for EBSS purposes (\$million, 2011–12)

	2012–12	2013–14	2014–15	2015–16	2015–17	Total
Forecast opex for EBSS purposes	162.7	168.6	172.3	178.7	183.4	865.8

Source: AER analysis.

Exclusion of movements in provisions

The AER removed movements in provisions from Powerlink's base year expenditure to determine forecast opex. Therefore, in addition to the cost categories set out in its draft decision, the AER decided that any movements in provisions during the 2012–13 to 2016–17 regulatory control period should also be excluded from the calculation of EBSS carryovers. These costs will be excluded in addition to the adjustments set out in the EBSS.

The transitional rules required the EBSS to be applied to Powerlink in the 2007–08 to 2011–12 regulatory control period. In developing and implementing the EBSS, the AER must have regard to the desirability of both rewarding TNSPs for efficiency gains and penalising them for efficiency losses.⁶⁴ To achieve this, costs that have been excluded from the base opex used to forecast opex for the 2012–13 to 2016–17 regulatory control period should also be excluded from the actual opex values used to determine carryover amounts accrued in the 2007–08 to 2011–12 regulatory control period. Consequently the AER excluded movements in provisions from the scheme for the 2007–08 to 2011–2012 regulatory control period.

Demand growth adjustment

To calculate carryover amounts, the EBSS requires adjustment of Powerlink's forecast opex for the cost consequences of any differences between forecast and actual demand growth over the regulatory control period. Powerlink proposed that the upper threshold for adjustment should be its high demand growth scenario, not the medium demand growth scenario.⁶⁵ The AER considers that Powerlink's method for adjusting the EBSS for actual demand growth may be appropriate. However, it could result in a perverse outcome where actual demand is

⁶⁴ NER, clause 6A.6.5(b)(2).

⁶⁵ Powerlink, *Revised revenue proposal*, p. 173.

less than forecast yet forecast opex is adjusted up. Consequently the AER considers that Powerlink's method should only be applied if:

- actual demand growth is less than the summer low economic growth 50 per cent probability of exceedance demand forecasts from its Annual Planning Report 2011 Update and actual capitalisations are less than forecast, or
- actual demand growth is greater that the summer high economic growth 50 per cent probability of exceedance demand forecasts from its Annual Planning Report 2011 Update and actual capitalisations are greater than forecast.

8 **Corporate income tax**

Corporate income tax is levied on Powerlink's taxable income. The estimated cost of corporate income tax forms one of the building blocks for Powerlink's revenue cap for the 2012–13 to 2016–17 regulatory control period.⁶⁶

The AER's detailed reasons for its final decision on Powerlink's corporate income tax allowance are set out in attachment 8.

8.1 Final decision

The AER does not accept Powerlink's revised proposed estimated cost of net corporate income tax allowance of \$76.4 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period. The AER's adjustments result in a net corporate income tax allowance of \$69.7 million (\$nominal). Based on the approach to modelling the cash flows in the PTRM, the AER has derived an effective tax rate of 19.84 per cent for this final decision. The AER's decision on Powerlink's corporate income tax allowance is shown in table 8.1.

Table 8.1	AER	final	decision	on	Powerlink's	corporate	income	tax
	(\$milli	ion, non	ninal)					

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Corporate income tax	32.8	35.6	38.3	44.0	48.5	199.3
Less: value of imputation credits	21.3	23.1	24.9	28.6	31.5	129.5
Net tax allowance	11.5	12.5	13.4	15.4	17.0	69.7

8.2 Summary of analysis and reasons

The AER's decisions on other components of Powerlink's revised revenue proposal have had a consequential effect on the corporate income tax allowance estimate under clause 6A.6.4 of the NER. These are discussed in other attachments and include:

- the opening RAB (attachment 6)
- forecast capex (attachment 3)
- forecast opex (attachment 4)
- cost of capital (attachment 5).

The AER's final decision on the corporate income tax allowance for Powerlink also reflects the AER's decision on other components of the allowance as discussed below.

⁶⁶ NER, clause 6A.5.4.

The AER accepts Powerlink's revised proposal and determines an opening tax asset base (TAB) as at 1 July 2012 of \$4493.5 million. In the draft decision, the AER required Powerlink to provide updated capex amounts in its revised revenue proposal. Powerlink updated the forecast capex for 2010–11 with actual capex for that year in the revised revenue proposal RFM used to establish the opening TAB. Powerlink also updated its forecast capex for 2011–12 in the RFM. For the reasons as outlined in attachment 6.3.1 regarding the opening RAB, the AER accepts Powerlink's updated capex amounts.

For the same reasons as discussed at section 4.2.1 of the overview, the AER determines a standard tax asset life of 30 years is appropriate for the 'Transmission lines-refit' asset class. Powerlink proposed a standard tax asset life of 15 years in relation to this asset class for tax depreciation purposes, consistent with the standard asset life assigned for regulatory depreciation purposes. The AER considers the standard tax asset life of 30 years reflects the mix of assets and asset lives that are likely to be used in refit works. This standard tax asset life forms an estimate of depreciation for tax purposes for a benchmark efficient TNSP, which is used to determine the cost of corporate income tax under clause 6A.6.4(a) of the NER.

For the same reasons as discussed at section 4.2.2, the AER accepts Powerlink's remaining tax asset lives as at 1 July 2012. The AER considers Powerlink's method for calculating the remaining tax asset lives as at 1 July 2012 results in an estimate of depreciation for tax purposes for a benchmark efficient TNSP, which is used to determine the cost of corporate income tax under clause 6A.6.4(a) of the NER.

9 Contingent projects

Contingent projects are network augmentation projects that may arise in a regulatory control period but are not yet committed and are not provided for in the capex forecast. Therefore they provide a balance between the incentives for investment and cost efficiency. They are linked to unique investment drivers and are triggered by a defined 'trigger event'. If the trigger event occurs during the regulatory control period then the AER will separately assess the contingent project's costs, upon application by Powerlink. It is important that the trigger event be adequately defined and that the proposed contingent capex reasonably reflects the capex criteria. The AER's detailed reasons for its final decision on Powerlink's contingent projects are provided in attachment 12.

9.1 Final decision

9.1.1 Contingent projects accepted

The AER upholds its draft decision which accepted the scope and indicative cost of seven proposed contingent projects, but revised the project trigger event definition. These projects and indicative costs (\$million, 2011–12) are:

- Galilee Basin connection shared network works, \$88.4 million
- Moranbah area \$54.9 million
- Bowen industrial estate \$80.7 million
- Callide to Moura transmission line and Calvale transformer \$50.8 million
- Gladstone state development area \$115.7 million
- Ebenezer establishment \$62.7 million
- QNI upgrade, \$60.6 million.

The AER accepts two projects (proposed by Powerlink as contingent projects) that were previously rejected in the draft decision. These projects and indicative costs (\$million 2011–12) are:

- Western Downs to Columboola 275kV 3rd circuit, \$59.5 million
- Columboola to Wandoan South 275kV 3rd circuit \$63.3 million.

The AER finds that three projects (proposed by Powerlink for inclusion in its ex ante allowance in its revised revenue proposal) be included as contingent projects. These projects and indicative costs (\$million 2011–12) are:

- Halys to Blackwall 500kV operating at 275kV, increment \$148.9 million
- Halys to Western Downs, 3rd and 4th circuits, 500kV operating at 275kV, \$261.4 million
- Halys to Greenbank, 3rd and 4th circuits, 500kV operating at 275kV, \$149.2 million.

9.1.2 Contingent projects not accepted

The AER upholds its draft decision which did not accept the scope and indicative cost of four proposed contingent projects nor the project trigger event definition. These projects, the reason the project was not accepted and indicative costs (\$million, 2011–12) are set out at table 9.1. The AER does not accept the contingent projects that Powerlink submitted in its revised revenue proposal but did not propose in its initial revenue proposal. They are set out at table 9.1.

Project	Reason the project was not accepted	Indicative cost (\$million, 2011–12)
NEMLink	The project was rejected in the draft decision because the AER considers that the occurrence of the relevant trigger event is not probable in the 2012–13 to 2016–17 regulatory control period Powerlink agreed in its revised proposal	788.0
Mt Isa shared network works	The project was rejected in the draft decision because the AER considers that the occurrence of the relevant trigger event is not probable in the 2012–13 to 2016–17 regulatory control period Powerlink agreed in its revised proposal	74.4
FNQ energisatio n	This project does not reasonably reflect the capital expenditure objectives 6A.6.7.(a) (3) and (4).	87.9
N–2 security to essential loads	This project does not reasonably reflect the capital expenditure objectives 6A.6.7.(a) (3) and (4) .	114.9
Confidential contingent project	Powerlink's first raised the project in its revised revenue proposal. Clause 6A.12.3 (b) prevents Powerlink from raising this project as part of its revised revenue proposal.	42.2
Moranbah north/south	The AERs draft decision was to accept the project indicative costs and scope of the Moranbah project (\$54.9 million) as submitted by Powerlink but with an amended trigger event.	North 43.6 + South 51.1
	Powerlink subsequently (in its revised revenue proposal) proposed the project be split into two distinct projects. Clause 6A.12.3 (b) prevents Powerlink from proposing to split the project as part of its revised revenue proposal.	(note: Moranbah area \$54.9)

 Table 9.1
 Contingent projects not accepted by the AER

10 Negotiated services and pricing methodology

The AER's transmission decision imposes controls over the revenues that a TNSP can recover from the provision of prescribed transmission services. The AER does not determine terms and conditions for negotiated transmission services. Under the NER, these services are subject to negotiation between parties, or alternatively arbitration and dispute resolution by a commercial arbitrator. These processes are facilitated through two instruments—a negotiating framework and the negotiating transmission service criteria (NTSC).

10.1 Final decision

The AER is satisfied that Powerlink's revised proposed negotiating framework meets the requirements set out in clause 6A.9.5(c) of the NER and is therefore accepted (see attachment 13). This is because Powerlink amended clause 6.1^{67} and clause 6.1.3 of its negotiating framework as set out in the draft decision.⁶⁸

Powerlink agreed with the NTSC specified in section 14.6 of the draft decision. The AER did not receive any stakeholder submissions on the NTSC. Therefore, the AER affirms that the NTSC specified in section 14.6 of the draft decision is the final decision for the 2012–13 to 2016–17 regulatory control period.

The AER is satisfied that Powerlink's proposed pricing methodology meets the requirements set out in the NER and is therefore accepted (see attachment 13). This is because it was accepted in the draft decision and unchanged by Powerlink in its revised revenue proposal.⁶⁹

⁶⁷ NER, clause 6A.9.5(c).

⁶⁸ Powerlink, *Revised revenue proposal*, January 2012, p. 188.

⁶⁹ Powerlink, *Revised revenue proposal*, January 2012, p. 187.

Attachments

1 Real cost escalation

This attachment sets out the AER's decision on Powerlink's proposed labour, materials and land cost escalators. Movements in these costs will impact Powerlink's opex and capex over the 2012–13 to 2016–17 regulatory control period. Due to market forces, these costs may not increase at the same rate as inflation. Powerlink included an allowance for forecast real labour cost increases—that is, cost increases greater than the forecast inflation rate—in both its opex and capex forecasts. It also included an allowance for forecast movements in materials and land costs in its forecast capex.⁷⁰

1.1 Decision

The AER is not satisfied Powerlink's proposed real labour and materials cost escalators reasonably reflect a realistic expectation of the cost inputs required to achieve the opex and capex objectives.⁷¹ It determined the substitute escalators in table 1.1, which reflect the AER's considerations that:

- Powerlink's 2011 union collective agreement provides the best estimate of its labour costs through to the end of that agreement
- beyond the end of the 2011 collective agreement, the labour price index (LPI) provides a better measure of labour cost increases than average weekly ordinary time earnings (AWOTE) because the LPI excludes compositional productivity effects
- foreign exchange rate forecasts should reflect the same timing assumptions as the US dollar denominated materials cost forecasts.

	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17
Internal labour—specialist	1.1	2.4	0.9	0.9	1.1	0.6	0.7
Internal labour-general	1.1	2.4	0.9	0.9	1.1	0.6	0.7
External labour	0.4	2.9	2.4	2.3	1.5	1.0	1.2
Aluminium	2.4	-12.7	6.6	7.2	7.0	1.7	1.9
Copper	12.4	-10.6	4.2	1.5	-4.9	-3.7	-2.7
Steel	6.6	-5.3	6.4	3.8	3.6	-2.6	1.2
Plant and equipment	-11.5	-4.3	3.6	3.5	3.2	2.7	3.5
Land—urban	-8.0	4.0	10.0	11.0	11.0	11.0	8.0
Land—rural	3.0	3.0	7.0	10.0	10.0	9.0	7.0

Table 1.1 AER final decision on real cost escalators (per cent)

Source: AER analysis; Deloitte Access Economics, Powerlink

⁷⁰ Powerlink, *Revised revenue proposal*, pp.28–49.

⁷¹ NER, clauses 6A.6.6(c)(3) and 6A.6.7(c)(3).

1.2 Assessment approach

The AER has assessed Powerlink's revised revenue proposal using the same approach as used for its initial proposal, which is outlined in the AER's draft decision.⁷² In undertaking this assessment the AER has considered information not available to it when it made it draft decision including:

- Powerlink's 2011 collective agreement
- revised labour cost forecasts from BIS Shrapnel and Deloitte Access Economics reflecting updated economic data
- updated market data on materials prices and exchange rates.

1.3 Reasons

The AER is not satisfied Powerlink's proposed labour cost escalators reasonably reflect a realistic expectation of labour costs. Since Powerlink submitted its revised revenue proposal Powerlink staff voted in favour of a new union collective agreement, which applies until November 2014. The AER considers that the annual wage increases included in this agreement most reasonably reflect Powerlink's labour costs through to the end of that agreement.

Beyond the end of the collective agreement, the AER considers the Deloitte Access Economics' LPI forecasts, unadjusted for productivity, reasonably reflect a realistic expectation of labour costs.

This is because:

- Deloitte Access Economics' LPI forecasts align closest to the wage increases in Powerlink's 2011 collective agreement
- adjusting the LPI forecasts for labour productivity would understate Powerlink's labour costs for the reasons discussed in section 1.3.3.

For the reasons discussed in section 1.3.8, the AER is satisfied the revised materials cost escalators, forecast by SKM and provided to the AER on 9 March 2012, reasonably reflect a realistic expectation of materials costs in US dollar terms. However, the AER is not satisfied the timing of the foreign exchange rate forecasts proposed by Powerlink, including the revised forecasts provided on 9 March 2012, are consistent with SKM's materials costs forecasts. Accordingly, the AER adjusted the exchange rates provided by Powerlink on 9 March 2012 to average annual terms.

The AER is satisfied the land value escalators proposed by Powerlink, and forecast by Urbis, reasonably reflect Powerlink's land costs over the 2012–13 to 2016–17 regulatory control period. These revised forecasts adequately address the concerns raised by the AER in its draft decision.

⁷² AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, p. 54.

The following sections outline these reasons in greater detail.

1.3.1 The use of negotiated wage rate agreements

Since Powerlink submitted its revised revenue proposal it negotiated a new collective agreement with its staff. The new *Working at Powerlink 2011* agreement was approved by Fair Work Australia on 23 March 2012 and replaces the previous *Working at Powerlink 2008* agreement. The new collective agreement provides for annual 3.5 per cent increases in base wages in addition to an annual 0.5 per cent productivity cash payment.⁷³ This is a reduction in annual wage increases from the 4.5 per cent annual increases in the replaced 2008 agreement (table 1.2).

Table 1.2 Powerlink collective agreement wage increases

Agreement	Annual wage increase (per cent)
Working at Powerlink 1998	3.8
Working at Powerlink 2001	4.0
Working at Powerlink 2005	4.5
Working at Powerlink 2008	4.5
Working at Powerlink 2011	3.5

Note: The 2011 union collective agreement includes an annual 0.5 per cent lump sum payment in addition to the annual wage increase of 3.5 per cent.

Powerlink proposed the use of annual wage increases, including productivity payments, in its 2008 collective agreement to escalate labour costs to the end of the agreement in November 2011 consistent with its initial revenue proposal.⁷⁴

As stated in its draft decision, the AER considers wage rates, negotiated between a Network Service Provider (NSP) and its employees might reasonably reflect a realistic expectation of the labour costs required to achieve the opex and capex objectives. However, it noted two issues must be considered:⁷⁵

- 1. the incentives the NSP faces when negotiating agreements
- 2. the productivity effects included in the negotiated labour rate increases.

If an NSP considers its negotiated agreement wage increases will be used to set its opex and capex forecasts in the 2012–13 to 2016–17 regulatory control period its incentive to minimise wage rate increases in that period will be reduced. For this reason, the AER must investigate the circumstances of a wage agreement covering a future regulatory control period before it can be satisfied the agreement reasonably reflects the efficient costs of a prudent NSP.⁷⁶

⁷³ The lump sum payments are not included in the base wage. Thus the new agreement is equivalent to a 4.0 per cent wage increase in the first year followed by 3.5 per cent increases in the last two years.

⁷⁴ Powerlink, *Revised revenue proposal*, pp. 42–43.

⁷⁵ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 63.

⁷⁶ Australian Competition Tribunal, Application by Ergon Energy Corporation Limited (Labour Cost Escalators) (No 3) [2010] ACompT 11 (24 December 2010), paragraph 58.

Thus, while negotiated wage rate increases may not reasonably reflect a realistic expectation of labour costs, the negotiated increases do provide an upper limit for efficient labour costs.

The AER accepts that Powerlink must compete with the mining and construction industries for labour. Despite this, Powerlink has negotiated lower annual wage increases in its 2011 collective agreement than were in the replaced 2008 agreement. Further, the annual wage increases negotiated by Powerlink are equal to or less than the increases in the LPI for the Queensland EGWWS sector forecast by both Deloitte Access Economics and BIS Shrapnel (figure 1.1). This suggests Powerlink has made a genuine effort to contain wage increase and the AER is satisfied the negotiated wage rates reasonably reflect a realistic expectation of labour cost inputs required to achieve the opex and capex objectives.⁷⁷ Further, adopting the negotiated wage rates in Powerlink's 2008 and 2011 collective agreement ensures labour cost forecasts take account of the specific labour market conditions facing Powerlink. Consequently, the AER considers the wage rate increases in Powerlink's 2008 and 2011 collective agreements reasonably reflect its labour costs.

The draft decision was not satisfied the annual 0.5 per cent productivity allowance included in the 2008 collective agreement reasonably reflected the labour costs required to meet the opex and capex objectives.⁷⁸ This was because wage increases associated with increased productivity do not increase labour costs.⁷⁹ For the reasons discussed in section 1.3.3, excluding productivity effects from labour cost increases may understate Powerlink's efficient labour costs due to double counting of economies of scale. However, economies of scale are only one driver of labour productivity. The AER considers the productivity initiatives listed in schedule 1 of the agreement. Despite this, in order to provide Powerlink at least its efficient labour costs, labour cost escalators derived from Powerlink's collective agreements should include the productivity payments in those agreements.

1.3.2 Comparison of labour cost forecasts

Consistent with its draft decision, the AER is not satisfied BIS Shrapnel's forecast changes in the LPI reasonably reflect a realistic expectation of labour costs during the 2012–13 to 2016–17 regulatory control period.

The AER compared Powerlink's collective agreements since 1998 against the annual labour cost increases forecast by both BIS Shrapnel and Deloitte Access Economics. This included the new *Working at Powerlink 2011* agreement that will operate through to November 2014. Figure 1.1 compares the labour cost increases forecast by BIS Shrapnel and Deloitte Access Economics with the actual annual wage increases that will be incurred by Powerlink.

Both forecasters predict a step up in labour costs from 2012–13. However, wage increases in the negotiated collective agreement reduced through to the end of the agreement. The step up forecast by BIS Shrapnel is larger than that forecast by Deloitte Access Economics and does not align with the wage increases that have been negotiated by Powerlink. Given the divergence between BIS Shrapnel's forecasts and the wage increases that have been

⁷⁷ NER clauses 6A.6.6(c)(3) and 6A.6.7(c)(3).

⁷⁸ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, pp. 63–64.

⁷⁹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, pp. 55–56.

negotiated by Powerlink, the AER cannot be satisfied BIS Shrapnel's forecasts reasonably reflect a realistic expectation of labour costs during the 2012–13 to 2016–17 regulatory control period. By comparison, Deloitte Access Economics LPI forecasts for the Queensland EGW sector align more closely with the wage increases negotiated by Powerlink.



Figure 1.1 Powerlink collective agreements and Queensland utilities sector wage growth forecasts, year on year



Synergies Economic Consulting (Synergies), however, compared Deloitte Access Economics' 2007 LPI forecasts against actual changes in the LPI for a number of industry sectors over the period 2006–07 to 2010–11. Synergies concluded Deloitte Access Economics 'systematically under-forecast growth in the LPI series over the forecast period'.⁸⁰ But, as noted by Deloitte Access Economics, the analysis undertaken by Synergies was incorrect for two reasons. First, Synergies compared Access Economics' forecasts for nominal LPI *excluding productivity growth* against the nominal LPI published by the ABS.⁸¹ Second, Synergies compared the 'ordinary hourly rates of pay excluding bonuses' LPI produced by the ABS against Deloitte Access Economics' forecasts of the 'total hourly rates of pay excluding bonuses' LPI.⁸² Correcting for these two errors, Deloitte Access Economics found its 2007 forecasts were, in general, too optimistic. Over the five year forecast horizon, forecast

⁸⁰ Synergies Economic Consulting, *Review of labour cost escalation issues under National Electricity Rules*, Powerlink Queensland 2013–2017 revised revenue proposal Appendix E, January 2012, p. 25.

⁸¹ Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, p. 29.

⁸² Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, p. 29.

nominal LPI growth in the utilities industry was 0.4 per cent per annum higher, on average, than actual LPI growth.⁸³

Similarly, BIS Shrapnel compared its LPI forecasts against Deloitte Access Economics' and concluded that its were closer to the actual LPI.⁸⁴ Deloitte Access Economics reviewed the analysis and concluded that while its forecasts were too pessimistic, BIS Shrapnel's were too optimistic, and by a greater margin.⁸⁵

The AER undertook its own analysis and compared both BIS Shrapnel's and Deloitte Access Economics' forecasts for the Powerlink 2007 final decision and the draft and final decisions for the Queensland DNSPs. These were the decisions for which forecasts were available from both BIS Shrapnel and Deloitte Access Economics. The AER also considered the average of the two forecasts. Consistent with the analyses done by BIS Shrapnel and Deloitte Access Economics, the AER included forecasts of both the utilities and all industries sectors in its analysis. The results of this analysis are summarised in table 1.3.

The AER found that for the six forecast series included in the analysis the average forecast had the lowest mean absolute error on three occasions, Deloitte Access Economics' forecasts on two and BIS Shrapnel's once. This result is consistent with a significant body of literature concluding forecast accuracy can be substantially improved by combining multiple individual forecasts.⁸⁶ It is also consistent with Deloitte Access Economics' finding that its forecasts were too pessimistic but BIS Shrapnel's were too optimistic. The AER notes, however, that this analysis is for LPI forecasts at the national level not for Queensland. The same analysis could not be done of the forecasters' Queensland forecasts since the ABS does not publish Queensland LPI data for the EGWWS sector.

⁸³ Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, p. 30.

⁸⁴ Powerlink, *Revised revenue proposal*, January 2012, Appendix F, p. 51.

⁸⁵ Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, p. 26.

⁸⁶ Robert T. Clemen, 'Combining forecasts: A review and annotated bibliography', *International Journal of Forecasting*, volume 5, issue 4, 1989, pp. 559–583.

Allan Timmermann, 'Forecast Combinations', *Handbook of economic forecasting*, Volume 1, 2006, pp. 135–196.

AER decision	Forecast	2006–07	2007–08	2008–09	2009–10	2010–11	Mean absolute error
Utilities	Actual	5.0	4.1	4.5	4.3	4.2	
Powerlink FD (June 2007)	BIS Shrapnel (March 2007)	5.8	5.8	5.2	4.5	4.7	0.78
	DAE (April 2007)	5.6	5.7	5.1	3.6	3.9	0.76
	Average	5.7	5.75	5.15	4.05	4.3	0.67
Queensland & SA DD (November 2009)	BIS Shrapnel (April 2009)			4.8	4.7	4.4	0.3
	DAE (September 2009)			4.5	3.5	3.4	0.53
	Average			4.7	4.1	3.9	0.22
Queensland & SA FD (May 2010)	BIS Shrapnel (December 2009)				4.3	4.2	0.00
	DAE (March 2010)				4.0	3.9	0.30
	Average				4.2	4.05	0.15
All industries	Actual	3.9	4.1	4.1	3.1	3.8	
Powerlink FD (June 2007)	BIS Shrapnel (March 2007)	4.2	4.5	3.8	3.7	4.2	0.40
	DAE (April 2007)	4.1	4.6	4.4	4.0	4.3	0.48
	Average	4.2	4.6	4.1	3.9	4.3	0.38
Queensland & SA DD (November 2009)	BIS Shrapnel (April 2009)			4.1	3.3	3.1	0.30
	DAE (September 2009)			4.1	3.5	3.9	0.17
	Average			4.1	3.4	3.5	0.20
Queensland & SA FD (May 2010)	BIS Shrapnel (December 2009)				3.1	3.3	0.25
	DAE (March 2010)				3.2	3.7	0.10
	Average				3.2	3.5	0.18

Table 1.3 Comparison of past LPI forecasts

Source: AER analysis, BIS Shrapnel

The AER also notes the Australian Competition Tribunal has raised concerns with averaging forecasts in certain circumstances. The Tribunal stated, in the context of using fair yield curves to determine the debt risk premium⁸⁷:

An average is a blunt instrument unless careful thought is given to the individual components and whether each should be given the same consideration, or weight, in the calculation of the average. A simple unweighted average gives each component the same weight. This will not always be appropriate, especially where (as here) the two fair value curves differ considerably over the relevant periods to maturity.

However, in another decision the Tribunal was satisfied that the use of a mid-point between two assessments of EnergyAustralia's maintenance costs was a reasonable approximation because it drew on the outcomes of both models to achieve a reasoned outcome.⁸⁸

Further, Powerlink stated the LPI wage increases forecast by Deloitte Access Economics, and adopted by the AER in its draft decision:⁸⁹

- failed to provide adequate recognition of the specific labour market conditions facing Powerlink as an employer competing for labour resources with the mining and construction industries
- failed to adequately account for institutional labour market factors in deriving labour cost forecasts
- produced real labour cost forecasts (excluding productivity adjustments) that did not appear plausible having regard to the expected labour market conditions in Queensland and, in particular, central Queensland during Powerlink's 2012–13 to 2016–17 regulatory control period.

The AER disagrees with each of these points. Deloitte Access Economics' LPI forecasts are equal to or higher than the wage increases agreed in Powerlink's 2011 collective agreement which reflect the specific labour market conditions facing Powerlink (figure 1.1). When compared with the wage increases in the 2011 collective agreement Deloitte Access Economics' forecasts do look plausible. On the contrary, the AER considers BIS Shrapnel's LPI forecasts look less plausible when considered against Powerlink's new collective agreement.

Deloitte Access Economics also disagreed with the claim its forecasts do not adequately account for institutional labour market factors. It noted growth in the LPI tracks growth in EBAs relatively closely and wage growth for all utilities EBAs has declined in recent quarters. Further, over the past two years, wage growth for new utilities EBAs has been less than wage growth for all EBAs.⁹⁰ This latter point is significant as it indicates the utilities LPI will decline

⁸⁷ Australian Competition Tribunal , *Application by Jemena Gas Networks (NSW) Ltd (No 5) [2011] ACompT 10*, 9 June 2011, paragraph 62.

Australian Competition Tribunal, Application by Envestra Limited (No 2) [2012] ACompT 3, 11 January 2012, paragraph 103.

⁸⁸ Australian Competition Tribunal, *Application by EnergyAustralia and Others (includes corrigendum dated 1 December 2009) [2009] ACompT 8*, 12 November 2009, paragraph 252.

⁸⁹ Powerlink, *Revised revenue proposal*, pp. 41–42.

⁹⁰ Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, pp. 15–16.

and is particularly relevant to Powerlink since its new 2011 collective agreement sees a reduction in annual wage increases.

On the basis of the above considerations, the AER is not satisfied BIS Shrapnel's forecast changes in the LPI reasonably reflect a realistic expectation of labour costs during the 2012–13 to 2016–17 regulatory control period. The AER considered using either Deloitte Access Economics' LPI forecasts, or an average of Deloitte Access Economics and BIS Shrapnel's forecasts. Given the concerns raised by the Australian Competition Tribunal on averaging forecasts, and the analysis supporting the use of an average forecast was based on national forecasts, and was not Queensland specific, the AER is not satisfied that the average forecast is a realistic expectation of labour costs either.

Given Deloitte Access Economics' Queensland utilities LPI forecasts best reflect Powerlink's 2011 collective agreement the AER is satisfied these forecasts reasonably reflect a realistic expectation of labour costs during the 2012–13 to 2016–17 regulatory control period.

1.3.3 Treatment of labour productivity effects

Consistent with its draft decision, the AER considers NSPs should not be compensated for labour price changes driven by labour productivity effects.⁹¹ This is because labour price changes do not equate to labour cost changes. To the extent that labour price increases compensate workers for increased productivity those price increases do not increase labour costs, since fewer workers are required to produce the same output.

Treatment of worker productivity effects

Since labour productivity increases do not increase labour costs the AER considers it reasonable to adjust forecast labour prices for forecast labour productivity, using forecasts for the Queensland electricity, gas, water and waste services (EGWWS) industry. By way of comparison, an efficient firm in a competitive market will only retain labour productivity improvements above those reflected in market labour rates. Queensland EGWWS industry labour market data is the most reflective of the labour market Powerlink operates in. Powerlink, however, stated doing so would have no regard to what Powerlink requires to achieve the capital and operating expenditure objectives under the NER.⁹² The AER disagrees. The AER expressly considers the opex and capex criteria and factors when it assesses the operating and capital requirements to which labour cost escalators are applied. Escalating these opex and capex forecasts by labour cost forecasts unadjusted for productivity would overstate the expenditure required by Powerlink to achieve the capex and opex objectives (assuming labour productivity improvements are positive).

However, the AER notes Powerlink's opex and capex forecasts include some forecast efficiency improvements. In particular, the AER notes the economies of scale applied in the network growth escalation of Powerlink's opex. The AER agrees with Powerlink that applying labour productivity adjusted labour cost forecasts to these opex and capex forecast would

⁹¹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, pp. 55–56.

⁹² Powerlink, *Revised revenue proposal*, p. 31.

double count these efficiency improvements to some extent since economies of scale will contribute to labour productivity.⁹³

The AER also agrees with Powerlink and Electranet that if the LPI series is adjusted using forecast labour productivity increases based on the conventional labour productivity measure, the resulting labour cost series could understate labour cost changes.⁹⁴ This is because the conventional labour productivity measure includes compositional productivity effects but the LPI does not. However, Deloitte Access Economics stated it considers the impact of composition productivity on labour productivity to be small. Further, Deloitte Access Economics stated that, even if this were wrong, it would not affect its productivity adjusted forecasts because of its forecasting approach.⁹⁵

For these two reasons the AER considers labour price increases should not be adjusted for worker productivity effects.⁹⁶ Effectively this assumes quality adjusted labour productivity, net of scale efficiencies, is zero. The AER considers this is a conservative assumption and quality adjusted labour productivity, net of scale efficiencies, will likely be greater than zero. However, the AER must provide Powerlink a reasonable opportunity to recover at least the efficient costs of providing direct control network services.⁹⁷

Treatment of compositional productivity effects

In addition to worker productivity effects compositional productivity effects should also be considered. These effects reflect increases in workforce productivity due to changes in the skill composition of the workforce.

Powerlink stated that, based on analysis undertaken for it by Professor Mangan, compositional shifts raised Powerlink's average wage by around 2.7 per cent from 2008–09 to 2010–11. Powerlink stated these compositional shifts evolved from new technologies and new compliance requirements that necessitated higher skills and increased network performance. But these did not necessarily increase output or lower costs.⁹⁸ However, as noted by the EUAA⁹⁹, Professor Jeff Borland has stated¹⁰⁰:

It is correct that higher skills should mean high labour productivity, and that a higher skilled workforce should be able to produce a higher output.

Further, to the extent higher skilled labour delivers increased network performance Powerlink will be rewarded through the STPIS.

⁹³ Powerlink, *Revised revenue proposal*, pp. 37–38.

 ⁹⁴ Powerlink, Revised revenue proposal, pp. 35–36.
 Electranet, Submission on the Powerlink draft transmission determination 2012–13 to 2016–17, 20 February 2012, p. 2.

⁹⁵ Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, pp. 32–33.

⁹⁶ Worker productivity effects are increases in workforce productivity due to increases in the productivity of individual workers or constant skill. For example, workers may become more productive from working with better capital equipment.

⁹⁷ NEL, clause 7A(2).

⁹⁸ Powerlink, Revised revenue proposal, pp. 33–34.

⁹⁹ EUAA, Submission in Relation to the Australian Energy Regulator's Draft Determination on Powerlink's Revenue Proposal 2012-2017 and Powerlink's Revised Proposal, February 2012, p. 25.

¹⁰⁰ Professor Jeff Borland, Labour Cost Escalation Report for Envestra Limited, 2011, p. 6.

The AER agrees with EUAA and Deloitte Access Economics that compositional change is a business choice.¹⁰¹ As stated by Deloitte Access Economics:¹⁰²

... compositional change in skill mix is a business choice. If the business chooses to pay for a skill mix with a higher (or lower) average wage, then it also gets the associated productivity benefit (loss) of that decision.

If these compositional changes are taking place, then they should be having an impact on the productivity of the firm's workforce. That is, the higher skills should mean higher productivity—meaning that if the firm is choosing to have a higher skilled workforce then, other things equal, that higher skilled workforce should be able to achieve the same output than would otherwise be achieved with more (lesser skilled) workers.

The reason why the preferred wage series for forecasting purposes should exclude the impact of these factors is that the firm already benefits from the shift to a more skilled workforce. Were this to be compensated by the AER, the firm would benefit twice (once through an increase in productivity from the higher skilled workforce, and once through the AER determination).

For these reasons the AER considers the labour cost forecasts should not include compositional productivity effects.

1.3.4 The choice of labour price measure

Consistent with its draft decision, the AER is not satisfied forecast changes in AWOTE, unadjusted for labour productivity, reasonably reflect a realistic expectation of labour costs during the 2012–13 to 2016–17 regulatory control period. This is particularly because AWOTE includes compositional productivity effects (see section 1.3.3). Powerlink stated, however, that it considered the AWOTE series to be better than the LPI series because it:

- is a more comprehensive measure of wages than the LPI series
- is available in a published form for the Queensland EGWWS sector whereas the LPI series is not and must be constructed
- does take into account compositional labour force change.

Both Powerlink and Electranet stated the AWOTE was preferable over the LPI because it was more comprehensive and included the impacts of penalty rates, bonuses and incentive payments.¹⁰³ It should be noted that Deloitte Access Economics uses the LPI series 'total hourly rates of pay excluding bonuses' in its analysis and forecasts. This LPI series incorporates the impacts of overtime on wages.¹⁰⁴

¹⁰¹ EUAA, Submission in Relation to the Australian Energy Regulator's Draft Determination on Powerlink's Revenue Proposal 2012-2017 and Powerlink's Revised Proposal, February 2012, p. 25.

Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, p. 10.

¹⁰² Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, p. 10.

 ¹⁰³ Powerlink, *Revised revenue proposal*, p. 33.
 Electranet, *Submission on the Powerlink draft transmission determination 2012–13 to 2016–17*, 20 February 2012, pp. 1–2.

¹⁰⁴ Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, p. 9.

The AER considers any labour price measure that does not reflect a constant quality of labour will not reasonably reflect a realistic expectation of labour costs.¹⁰⁵ This is because increases (decreases) in the quality of labour require less (more) labour to produce the same level of output (section 1.3.3). Consequently, the labour price measure used should not include the impacts of bonuses and incentive payments. As noted by the ABS:¹⁰⁶

Only those indexes that exclude bonuses and commissions are pure price indexes because bonus and commission payments can reflect changes in the quality of work performed.

It is for this same reason the AER considers the labour price measure used should not include compositional productivity effects (section 1.3.3).

The AER agrees with Powerlink that the availability of AWOTE data for the Queensland EGWWS sector is an advantage of the AWOTE series. The LPI series for the EGWWS sector in Queensland must be constructed. However the AER considers that this advantage does not overcome the fact AWOTE does not reasonably reflect a realistic expectation of labour costs due to its inclusion of compositional productivity effects. These compositional effects lead to greater volatility making AWTOTE more difficult to forecast.¹⁰⁷

1.3.5 Internal labour cost escalation

The AER determined in its draft decision that labour cost forecasts for the EGWWS industry reasonably reflect a realistic expectation of labour costs for all internal Powerlink labour during the 2012–13 to 2016–17 regulatory control period. Powerlink raised concerns in its revised revenue proposal that inclusion of the waste services industry in the EGWWS sector will understate growth in electricity industry labour costs.¹⁰⁸ Similarly, Electranet considered inclusion of waste services would lead to lower wage growth in the EGWWS sector compared to the EGW sector.¹⁰⁹

The AER agrees that EGW sector labour cost forecasts would be preferable to EGWWS forecasts. However, as discussed in the draft decision, the ABS has reported AWOTE and LPI data under the ANZSIC 2006 industry classification since late 2009. Under this new classification waste services has been included with the electricity gas and water industries.¹¹⁰ Thus EGW sector data, excluding waste services, is not available after June 2009.

Powerlink noted in it revised revenue proposal that occupations in the electricity sector are, in general, more highly skilled and in higher demand than occupations in the waste services sector. Thus it considered the inclusion of the waste services industry in the EGWWS sector

¹⁰⁵ This assumes the labour price measure is not adjusted for labour productivity changes using a matching labour productivity measure. If the labour price measure is adjusted for productivity it need not reflect a constant quality of labour since the compositional productivity effects will be removed by the labour productivity adjustment.

¹⁰⁶ ABS, Labour price index, 6345.0, March 2011, p. 17.

¹⁰⁷ Deloitte Access Economics, *Response to issues raised in the Powerlink revenue proposal*, 2 March 2012, pp. 2–4.

¹⁰⁸ Powerlink, *Revised revenue proposal*, p. 40.

¹⁰⁹ Electranet, Submission on the Powerlink draft transmission determination 2012–13 to 2016–17, 20 February 2012, p. 2.

¹¹⁰ BIS Shrapnel, *Labour cost escalation forecasts to 2016–17—Australia and Queensland*, Appendix H to Powerlink's revenue proposal, November 2010, pp. 30–31.

would understate growth in electricity industry labour costs over time compared to the EGW measure.¹¹¹ However, greater skill or demand (relative to supply) only suggests that wages will be greater, not that they will growing more rapidly. Wages for a lower skilled occupation could grow more rapidly than for a higher skilled occupation if, for example, skills are increasing at a greater rate.

Despite this, the available data shows EGW sector wages, as measured by AWOTE, grew faster on average than EGWWS wages between June 1998 and June 2009 (4.8 per cent per annum compared to 4.2 per cent). However, the gap narrowed in more recent years. If this trend has continued wages in the EGWWS industry may now be growing at a greater rate than the EGW sector. Whether this has occurred in not known since the ABS ceased publishing this data after June 2009. The difference between the LPI for EGW and EGWWS was less (4.3 per cent compared to 4.2 per cent).¹¹² The AER notes that this difference is much less than the average 1.6 percentage point difference each year between BIS Shrapnel's Queensland EGW wage increase forecasts the 2012–13 to 2016–17 regulatory control period and Deloitte Access Economics EGWWS forecasts.

Since it is not possible to determine whether the wages increases are greater or less in the EGWWS sector than the EGW sector the AER considers the objective data that is available should be relied on.

1.3.6 Currency of forecasts

Cost forecasts change as they are updated to reflect changing market data. The AER considers that, to the extent market data has changed significantly, forecasts that do not reflect current market data do not reasonably reflect a realistic expectation of cost inputs.

Powerlink stated the rejection of cost escalation forecasts on the grounds of currency was inappropriate. It considered its proposed escalation rates should be assessed solely on the basis of the forecast method and if the AER had concerns with the currency of Powerlink's forecasts it should request Powerlink provide updated forecasts.

The AER advised Powerlink that it would take into consideration revised real cost escalation forecasts derived closer to the AER's final decision, as long as the forecasting methodology was not changed. Powerlink provided revised materials cost forecasts and foreign exchange rate forecasts to the AER on 9 March 2012, which the AER has used in its analysis.

1.3.7 Foreign exchange rate forecasts

Both the AER and SKM forecast movements in aluminium, copper and steel prices from forward prices on the London metal exchange (LME) and Consensus Economics long term price forecasts. Both of these are denominated in US dollars and require forecast exchange rates to convert to Australian dollar terms.

¹¹¹ Powerlink, *Revised revenue proposal*, p. 40.

¹¹² BIS Shrapnel, *Labour cost escalation forecasts to 2016–17—Australia and Queensland: Final report*, Appendix F to Powerlink's revised revenue proposal, January 2012, p. A-5. For the last five years for which data is available (from 2004 to 2009) AWOTE for the EGW sector grew by 3.7 per cent per annum compared to 3.5 per cent for EGWWS.

Further, the majority of plant imported by Powerlink is purchased in US dollars. It proposed KPMG Econotech's US dollar exchange rate forecasts be used to forecast the price of overseas plant and equipment.

The AER is not satisfied the forecast exchange rates proposed by Powerlink reasonably reflect a realistic expectation of costs during the 2012–13 to 2016–17 regulatory control period. It considers KPMG Econtech's forecasts, proposed by Powerlink, should be converted into yearly average terms to be consistent with the materials cost forecasts.

	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17
Powerlink revised revenue proposal	1.07	1.03	0.99	0.96	0.93	0.90	0.85
KPMG Econtech— annual average	1.00	1.04	1.01	0.97	0.94	0.92	0.89
AER forecast	1.00	1.04	1.01	0.97	0.94	0.91	0.89

Table 1.4 AER's final decision on USD/AUD foreign exchange forecasts

Source: AER analysis; Bloomberg; Powerlink, *Revised revenue proposal*, p. 46.

The exchange rates forecast by the AER (based on foreign exchange forward rates) are higher than those proposed by Powerlink, with the exception of 2010–11. The main reason for the difference between the forecasts appears to be the timing assumptions inherent in them. The rates proposed by Powerlink are end of year forecasts whereas the AER's forecasts are yearly averages (based on the assumption expenditure will be evenly distributed over the year). Both SKM and the AER forecast materials cost movements as the change in average prices from one year to the next. For consistency, the exchange rate used should also represent yearly average exchange rates, not end of year rates.

Consequently Powerlink's proposed exchange rates are downwardly biased (yielding higher Australian dollar denominated materials prices) since exchange rates are expected to fall over the 2012–13 to 2016–17 regulatory control period. The AER converted KPMG Econtech's forecasts into yearly average terms by using actual exchange through to January 2012 and interpolated monthly rates thereafter. These forecasts were almost identical to the AER's.

Powerlink considered forward rates were not an appropriate predictor of future exchange rates and that KPMG Econtech's forecast US dollar exchange rates were likely to better reflect the future rates because:¹¹³

- significant empirical evidence demonstrates forward rates are not a reliable predictor of a future exchange rate
- the use of a forecast foreign exchange rate allows a broad range of economic inputs to be considered
- the adoption of forecast foreign exchange rates to establish materials real cost escalators is consistent with the methodology adopted by SKM

¹¹³ Powerlink, *Revised revenue proposal*, p. 46.

KPMG Econtech foreign exchange forecasts have been adopted by the AER in previous decisions.

The empirical evidence cited by Powerlink, however, is based on spot exchange rates and 30 day forward rates prior to 1983.¹¹⁴ More recent evidence finds that:

Although the empirical evidence strongly rejects the unbiasedness hypothesis at prediction horizons of up to one year, the evidence is much more favorable to unbiasedness at horizons of five to twenty years.¹¹⁵

It is widely acknowledged that interest differentials explain only a small proportion of subsequent changes in exchange rates, however:

...this finding has been generally interpreted as implying that observed changes in exchange rates are predominantly the result of unexpected information or "news" about economic developments, policies, or other relevant factors.¹¹⁶

This unexpected information is a key reason why exchange rates are difficult to forecast, particularly in the short term, regardless of the forecast method adopted. Powerlink provided no empirical evidence to support its assertion that KPMG Econtech's US dollar exchange rate forecasts were likely to better reflect future exchange rates. No forecasting approach can capture this unexpected information.

Contrary to the submission of Powerlink, the use of forward currency rates is consistent with SKM's methodology for forecasting future materials prices. This is stated by SKM itself. In addition to providing US dollar denominated price forecasts for Powerlink, SKM concurrently provided Australian dollar denominated forecasts for Aurora Energy. The forecast materials prices included in Aurora Energy's revised revenue proposal were forecast by SKM which 'updated the foreign exchange forecast method to reflect the method already employed to forecasts, SKM used forward market data where available and economic forecasts if it was not.

Further, forward rates do incorporate a broad range of economic inputs that are implicit in the interest rates used to determine the forward rates.

As Powerlink stated, the AER has adopted KPMG Econtech's foreign exchange forecasts in past determinations. However, the AER has used forward currency rates to forecast exchange rates in more recent determinations. For example, the Victorian DNSPs proposed, and the AER accepted, the use of forward rates to determine forecast exchange rates for its AMI determination.¹¹⁸

Given these considerations, the AER maintains its preference for using forward rates to forecast foreign exchange rates. One key advantage of this approach is forward rate data is updated daily allowing forecasts to updated more frequently. This enables the calculation of

¹¹⁴ Fama, 'Forward and spot exchange rates', *Journal of monetary economics*, volume 14(3), 1984, p. 323.

¹¹⁵ Isard, Uncovered interest parity, IMF working paper WP/O6/96, International Monetary Fund, April 2006, p. 7.

¹¹⁶ Isard, Uncovered interest parity, IMF working paper WP/O6/96, International Monetary Fund, April 2006, p. 6.

¹¹⁷ SKM, Annual material cost escalation factors 2013–17: December 2011 update, 10 January 2012, p. 3.

¹¹⁸ AER, *Victorian advanced metering infrastructure review: 2012–15 budget and charges applications*, Final determination, October 2011, pp. 90–94, 125–153, 224–226.
an annual average without the need for interpolation and allows timing assumptions to be aligned with the materials forecasts.

Having compared the exchange rates by Powerlink to the AER on 9 March 2012 to its own forecasts, the AER is satisfied that Powerlink's forecast exchange rates, once converted to yearly average terms, reasonably reflect a realistic expectation of costs during the 2012–13 to 2016–17 regulatory control period.

1.3.8 Materials cost escalation

The AER is satisfied the materials costs escalators provided to it by Powerlink on 9 March 2012, in US dollar terms, reflect a realistic expectation of materials costs for the 2012–13 to 2016–17 regulatory control period.

	2010–11	2011–12	2012–13	2013–14	2014–15	205–16	2016–17
Aluminium—revised revenue proposal	15.7	-7.4	-0.8	1.1	0.0	-0.2	-0.3
Aluminium—9 March 2012	15.7	-8.7	2.9	3.5	3.7	-0.9	-1.5
Aluminium—AER forecast	14.3	-9.7	-0.4	3.2	5.1	-1.9	-2.0
Copper—revised revenue proposal	27.0	-12.3	-6.5	-2.6	-4.2	-4.5	-4.6
Copper—9 March 2012	27.0	-6.5	0.6	-2.0	-7.8	-6.2	-6.0
Copper—AER forecast	25.4	-8.3	-3.5	-2.6	-4.2	-8.1	-6.5
Steel—revised revenue proposal	20.5	5.8	-0.8	-1.5	-2.1	-1.8	-1.8
Steel—9 March 2012	20.5	-1.0	2.7	0.2	0.4	-5.1	-2.2
Steel—AER forecast	16.9	-3.5	2.8	-0.7	-1.3	-4.5	-2.0

 Table 1.5
 Real materials cost escalators (US dollars, per cent)

Source: AER analysis; SKM.

The AER notes that Sinclair Knight Merz's (SKM) forecasts are derived using a similar method as the AER's own forecasts. The draft decision was not satisfied the materials cost escalators forecast by SKM reflected the most current available market data available at the time. Subsequent to submitting its revised revenue proposal, Powerlink provided the AER updated materials cost forecast from SKM on 9 March 2012. These revised forecasts reflected market data up to the same point in time as that used by AER in deriving its own forecasts. Consequently, SKM's and the AER's forecasts are closely aligned and the AER is satisfied the materials costs escalators provided to it by Powerlink on 9 March 2012, in US dollar terms, reflect a realistic expectation of materials costs.

1.3.9 Land value escalation

The AER is satisfied Powerlink's revised land value escalators reflect a realistic expectation of land values for 2010–11 to 2016–17.

Powerlink included revised land value escalators for 2010–11 to 2016–17 in its revised revenue proposal.¹¹⁹ The revised land value escalators, forecast by Urbis, are closer to those determined by the AER in its draft decision which were based on the average of ABS historic land values. Figures 1.2 and 1.3 show the averages of Urbis' revised land value escalators are very close to the ABS's long-term historical average for both urban and rural land values.

The AER raised concerns in its draft decision about the apparent lag between the growth in the economic variables used by Urbis and growth in land values.¹²⁰ Urbis stated its forecasting method implicitly included a lag factor based on its assessment of historic trends for individual regions in Queensland.¹²¹

The AER therefore considers that Urbis' revised land value escalators addressed the AER's concerns from the draft decision. Consequently, the AER is satisfied that Powerlink's revised land value escalators reasonably reflect a realistic expectation of the cost inputs required by Powerlink to achieve the opex and capex objectives.

Figure 1.2 Comparison of Powerlink's revised urban land value and ABS long-term average residential and commercial land value



Source: AER analysis.

¹¹⁹ Powerlink, *Revised revenue proposal*, January 2012, p. 49.

AER, Draft decision: Powerlink revenue proposal 2012–13 to 2016–17, November 2011, p. 68.

¹²¹ Powerlink, *Revised revenue proposal*, Appendix I, January 2012, p. 7.

Figure 1.3 Comparison of Powerlink's revised rural land value and ABS long-term average rural land value





1.4 Revisions

Revision 1.1: The AER used the wage rate increases in Powerlink's 2008 and 2011 collective agreements, including productivity payments, to forecast changes in labour costs through to 2013–14.

Revision 1.2: The AER used forecast movements in the LPI, as forecast by Deloitte Access Economics and unadjusted for labour productivity improvements, to forecast the change in labour costs from 2014–15.

Revision 1.3: The AER adjusted Powerlink's forecast foreign exchange rates to average annual terms to match the timing assumptions in the materials cost forecasts.

2 Demand

Demand is an important input into Powerlink's capex forecast for the 2012–13 to 2016–17 regulatory control period, particularly load driven capex. In this section, demand refers to summer peak demand (MW) unless otherwise indicated. Summer peak demand drives network augmentation projects, which comprise approximately 46 per cent of Powerlink's forecast capex.¹²²

The AER engaged Energy Market Consulting associates (EMCa) to advise on Powerlink's revised demand forecast. The AER also engaged EMCa to assist in developing an alternative demand forecast if the AER was not satisfied that Powerlink's demand forecast complied with the NER's requirements.

2.1 Decision

The AER considers Powerlink's demand forecast is not a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period. The AER thus substituted an alternative demand forecast, which reduces Powerlink's load driven capex forecast by approximately \$451 million ¹²³(see section 3.3.1). It follows that Powerlink's forecast load driven capex does not meet the capex criteria.¹²⁴

Table 2.1 sets out the AER's final decision on Powerlink's demand forecast.

Table 2.1 AER final decision on Powerlink's peak summer demand forecastmedium scenario 10 per cent PoE (MW)¹²⁵

	2012–13	2013–14	2014–15	2015–16	2016–17
Powerlink	9 795	10 443	10 931	11 603	11 999
AER	9 306	9 871	10 326	10 905	11 262
Difference	489	572	605	698	737

Source: Powerlink, Annual Planning Report 2011 Update, p. 7; EMCa, Review of revised demand forecast, 18 April 2012, p. 39.

Note: PoE (probability of exceedance) describes a probability that the temperature adjusted demand will be exceeded one in every two years (50 per cent PoE), one in ten years (10 per cent PoE) and nine in ten years (90 per cent PoE). Powerlink uses 50 per cent PoE summer peak demand for presentation purposes in its revised revenue proposal and Annual Planning Reports (APRs). For planning purposes, Powerlink uses peak summer demand at 10 per cent PoE.

¹²² Powerlink, Response - Request AER/061 - Carbon price trajectory, 2 March 2012, p. 5.

EMCa's estimate based on EMCa's analysis. However the AER accepted Powerlink's forecast capex estimate due to AER's revised demand forecast (received on 23 April 2012).

¹²⁴ NER, clause 6A.6.7(c)(3).

¹²⁵ Table 2.1 sets out the AER's determination on Powerlink's peak summer demand forecast for the medium scenario at 10 per cent PoE. Any other forecasts that Powerlink uses for planning purposes should be similarly adjusted.

2.2 Assessment approach

This section outlines the AER's general approach to assessing whether Powerlink's demand forecast is a realistic expectation of demand (section 2.2.1).¹²⁶

This section also outlines how two issues affect the AER's general approach to assessing demand, being:

- whether other NER chapters, particularly chapter 5, affect the AER's assessment of Powerlink's demand forecast under chapter 6A of the NER (section 2.2.2)
- whether the general form of the demand forecasting model affects the AER's assessment of Powerlink's demand forecast under chapter 6A of the NER (section 2.2.3)

2.2.1 General assessment approach

The AER's approach to assessing Powerlink's demand forecast for the AER's final decision is consistent with the approach in the draft decision.¹²⁷

The draft decision assessed whether Powerlink's demand forecast was a realistic expectation of demand. The AER based its assessment on the information Powerlink provided in its initial revenue proposal, which was limited regarding the forecasting method and assumptions.¹²⁸ The AER and EMCa, however, identified several issues with Powerlink's demand forecast.¹²⁹ Upon further examination of these issues, the AER found that Powerlink's demand forecast did not meet the NER's requirements. The AER thus investigated alternative demand forecasts with the assistance of EMCa. In the absence of a model from Powerlink for assessment, EMCa developed a demand forecast model that used population, price and temperature as its key variables. The AER considered this model to be robust and produced a demand forecast it considered was a realistic expectation of demand.¹³⁰

A major development in the revised revenue proposal was Powerlink providing to the AER its check model (Powerlink did not provide a demand forecast model in its initial revenue proposal).¹³¹ The check model was an important element in the AER's assessment whether Powerlink's demand forecast is a realistic expectation of demand. The following discussion outlines general issues the AER encountered when assessing Powerlink's revised demand forecast.

The AER understands Powerlink largely relies on advice from the National Institute of Economic and Industry Research (NIEIR) to produce demand forecasts for its annual planning reports (APRs) and revenue proposals.¹³² Where there are differences with bottom-

¹²⁶ NER, clause 6A.6.7(c)(3).

¹²⁷ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 75.

¹²⁸ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 75.

¹²⁹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 76–95.

¹³⁰ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 94–95. See also the following report for reasons EMCa adopted population instead of gross state product (GSP) in its 2011 report to the AER: EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 21–22.

¹³¹ Powerlink developed the check model as a reasonableness check on its overall demand forecast. For more detail, see Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 66–69.

¹³² EMCa, *Review of revised demand forecast*, 18 April 2012, p. 12.

up forecasts from the distribution network service providers (DNSPs), Powerlink reconciles NIEIR's top-down forecasts with the bottom-up forecasts.¹³³ However, the methods and assumptions underpinning NIEIR's advice are proprietary. Therefore, they are not transparent to the AER and cannot be independently assessed.

Powerlink did not provide the NIEIR model or the associated input data in either its initial or revised revenue proposals.¹³⁴ The AER and EMCa have had access only to NIEIR reports that outline NIEIR's demand forecasting process. Those reports do not provide significant detail regarding the NIEIR model. The reports contain NIEIR's modelling outputs but no detail regarding their inputs or derivation processes. There has been no visibility of the model form or of the relevant statistical tests that demonstrate its fit to explanatory variables.¹³⁵ While the AER concedes protection of intellectual property is important, this lack of transparency was a hindrance to an open and fair assessment of Powerlink's demand forecast, particularly during the draft decision.

The AER understands NIEIR is a reputable organisation, with expertise in modelling. However, it would be inappropriate for the AER to take NIEIR's forecast "on trust." The AER must consider whether a network service provider's demand forecast is a realistic expectation of demand. The AER cannot do so effectively when it cannot assess the model and the assumptions that underlie that demand forecast.

The AER therefore appreciates Powerlink providing its check model in its revised revenue proposal. The check model included the model and assumptions the AER needed to undertake an assessment under the NER. Powerlink used the check model to test the reasonableness of the demand forecast for the load connected to Powerlink through the DNSPs.¹³⁶ This is consistent with the AER's approach of focussing its assessment on the underlying DNSP load. Consistent with the draft decision, the AER considers Powerlink's major loads forecast are reasonable.¹³⁷ EMCa also considers Powerlink's processes for forecasting major loads is reasonable. It follows EMCa is also satisfied with Powerlink's major loads demand forecast.¹³⁸

The check model enabled the AER to assess the reasonableness of Powerlink's demand forecast assumptions and methods. It also clarified to some extent the variables Powerlink considered important for demand forecasting, particularly Gross State Product (GSP) (see section 2.3.1). These assessments informed the AER's consideration of whether Powerlink's demand forecast is a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period.

The check model did not produce exactly the demand forecast Powerlink used to develop its capex forecast. Powerlink submitted the check model as its own check on whether its demand forecast is a realistic expectation of demand. Powerlink also confirmed the AER and

¹³³ Powerlink, *Demand and energy forecasting description and methodology*, June 2010, pp. 5–13.

¹³⁴ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 12.

¹³⁵ EMCa, *Demand forecast review*, 6 September 2011, p. 10.

¹³⁶ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 66.

¹³⁷ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 94.

¹³⁸ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 14.

EMCa can assess its demand forecast with reference to the check model.¹³⁹ In addition, figure 2.1 shows the demand forecast from the check model aligns closely with NIEIR's forecast for the DNSP component of Powerlink's load.

In the absence of the NIEIR model, the AER considers it reasonable to focus its analysis on the check model with regard to model specification and inputs. The AER assessed NIEIR's inputs and methods where these are visible, particularly in its sensitivity testing of demand forecasts (see section 2.4.3).¹⁴⁰ The AER also utilised other data sources such as the Australian Bureau of Statistics (ABS) and Queensland Treasury to complete its analysis.



Figure 2.1 Demand forecast comparisons (50 per cent PoE, medium growth)

Source: Powerlink, *Revised revenue proposal*, 16 January 2012, p. 69.

The check model and other information in the revised revenue proposal led the AER to change some priorities when assessing demand forecasts, compared to the draft decision. For example, the draft decision considered Powerlink's temperature correction method was a major factor in producing an upward bias to Powerlink's demand forecast. New information suggests Powerlink uses temperature corrected data only to a limited extent in its demand forecasting process (see sections 2.3.4 and 2.3.5).

Similarly, many of the issues Powerlink raised in response to the draft decision have been clarified for the AER's final decision. New information from Powerlink also resolved some of these issues. For example, Powerlink and ACIL Tasman questioned the draft decision

¹³⁹ Meeting between Powerlink, EMCa and AER staff, 15 March 2012; EMCa, *Review of revised demand forecast*, 18 April 2012, p.11.

¹⁴⁰ The NIEIR reports include data series for a large range of variables. However, it is not clear which data NIEIR uses in its demand forecasting model (and how NIEIR uses them). For comparison, the AER has assumed the GSP and electricity price series in the NIEIR reports are inputs to the NIEIR demand forecasting model.

because EMCa's demand forecast model did not include GSP as a variable. Powerlink and ACIL Tasman provided detailed arguments for including GSP in place of population as a variable in demand forecasting.¹⁴¹ The check model has since enabled the AER and EMCa to gain an understanding of the relationship between GSP and Powerlink's demand forecast. The AER and EMCa incorporated this new information into the analysis of Powerlink's demand forecast (see sections 2.3.1 and 2.4 and EMCa's report).

The final decision therefore focuses on the key issues to determine whether Powerlink's demand forecast is a realistic expectation of demand. The AER's final decision does not attempt to address the less important details Powerlink and ACIL Tasman raised in the revised revenue proposal, as these have no substantive bearing on the analysis of demand. EMCa addressed these lesser points in its report.¹⁴²

2.2.2 Transmission determinations under chapter 6A of the NER

The AER must make transmission determinations for Powerlink under chapter 6A of the NER.¹⁴³ Chapter 6A of the NER does not require the AER to have regard to the requirements of chapter 5 of the NER when assessing whether Powerlink's demand forecast is a realistic expectation of demand.

In the revised revenue proposal, Powerlink stated EMCa appeared to apply the requirements of chapter 5 of the NER in assessing Powerlink's demand forecasting methodology. Moreover, Powerlink considered EMCa's alternative demand forecast and methodology do not comply with those requirements.

In its 2011 report to the AER, EMCa expressed concern regarding Powerlink's 'one-size-fitsall' approach to demand forecasting. EMCa noted Powerlink used the demand forecasts from its APRs for a variety of purposes. These purposes may have different modelling requirements in terms of time and spatial dimensions. They may also have different, sometimes conflicting, accuracy requirements.¹⁴⁴ Powerlink responded by noting its obligations to publish APRs under chapter 5 of the NER. Powerlink stated the APRs are prepared using good industry practice and are published on a consistent and transparent basis.¹⁴⁵ Powerlink uses the demand forecasts from its APRs as the basis of its revenue proposals, including capex forecasts.

Chapter 6A of the NER requires a revenue proposal to include forecast capex that a TNSP requires to meet expected demand.¹⁴⁶ The revenue proposal should also include the forecasts of load growth and the methodology used to derive these forecasts.¹⁴⁷ Chapter 6A of the NER also requires the AER to accept Powerlink's forecast capex if it reasonably reflects a realistic expectation of demand.¹⁴⁸

¹⁴¹ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 60–64; Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, pp. 28–31 and 42–45.

¹⁴² EMCa, *Review of revised demand forecast*, 18 April 2012, Annex 3.

¹⁴³ NER, clause 6A.2.1.

EMCa, Demand forecast review, 6 September 2011, pp. 17–18.

¹⁴⁵ Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 51–52.

¹⁴⁶ NER, clause 6A.6.7(a)(1).

¹⁴⁷ NER, schedule 6A.1.1(3).

¹⁴⁸ NER, clause 6A.6.7(c)(3).

However, chapter 6A does not direct Powerlink to use any particular demand forecast, such as those in the APR. It also does not require the AER to have regard to the requirements of chapter 5 when assessing whether Powerlink's demand forecast is a reasonable expectation of demand.¹⁴⁹

Regarding EMCa's 'one size fits all' comment, the AER considers EMCa's reasons for raising its concerns are valid. For example, Powerlink publishes demand forecasts out to ten years in its APRs, but transmission determinations require forecasts for a five-year regulatory control period. It is arguable these purposes and timeframes require different modelling techniques and inputs. They may also require different levels of accuracy, as EMCa pointed out.¹⁵⁰

Nevertheless, the draft decision assessed Powerlink's demand forecast and methodology on its own merits—the AER does so again for the AER's final decision. As Powerlink submitted the 2010 APR demand forecasts as part of its initial revenue proposal, the AER was required to assess whether they are a realistic expectation of demand. Similarly, Powerlink submitted the 2011 APR update demand forecasts as part of its revised revenue proposal. The AER must assess whether they are a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period.¹⁵¹ However, the NER does not limit the AER's discretion to depart from the APR demand forecasts, if it considers it appropriate to do so.

Powerlink also noted it provides demand forecasts from APRs to the Australian Energy Market Operator (AEMO). Powerlink then noted the AER's submission guidelines sets out the expectation that the demand forecast will be in the same form as that provided to AEMO.¹⁵²

The AER's view is this is an expectation of the form a TNSP's demand forecast should take. It does not impose any requirements about the substance of the forecast itself. A demand forecast a TNSP submits to AEMO, via an APR, is not taken by the AER as automatically passing the requirements of chapter 6A of the NER. Therefore, for a revenue determination, a TNSP may submit a demand forecast that is different to the APR demand forecast. The methodology behind the demand forecasts submitted during a revenue determination may also differ from those used to derive the APR demand forecast.

2.2.3 Indirect vs. direct demand forecasting

Figures 2.2 and 2.3 outline two general approaches to demand forecasting: direct and indirect demand forecasting, respectively. Direct demand forecasting models produce demand forecasts (in MW) directly from a given set of inputs. Indirect forecasting models, such as the check model, produce energy consumption forecasts (in GWh) from a given set of inputs. Factors then transform the energy consumption forecasts into demand forecasts.

The AER does not consider either approach is inappropriate, given evidence available at this time. The AER therefore does not reject or accept a demand forecast based on the general approach (direct or indirect demand forecasting) underlying the forecast.

¹⁴⁹ NER, clause 6A.6.7(c)(3).

¹⁵⁰ EMCa, *Demand forecast review*, 6 September 2011, p. 17.

¹⁵¹ NER, clause 6A.6.7(c)(3).

¹⁵² Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 51–52.

EMCa stated models that forecast demand directly from explanatory variables (figure 2.2) should produce a more robust forecast than indirect models like the check model (figure 2.3).¹⁵³

Figure 2.2 Direct demand forecasting



Figure 2.3 Indirect demand forecast



Under the NER, the AER assesses whether a TNSP's forecast capex reasonably reflects a realistic expectation of demand.¹⁵⁴ As part of its assessment, the AER considers whether the models, inputs and assumptions that produce a TNSP's demand forecast forms a reasonable basis to produce a realistic demand forecast. Following from this, it may be true that a direct forecasting approach is more optimal than an indirect approach. At this time however, it is unclear whether an indirect approach, by itself, forms an unreasonable basis to produce a realistic demand forecast.

Conversely, the discussion above does not preclude the AER from adopting the demand forecast resulting from a direct forecasting model that has appropriate specifications, assumptions and inputs. The determining factor is whether the resulting demand forecast meets the NER's requirements.

2.3 Reasons

The AER considers Powerlink's forecast demand is not a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period.¹⁵⁵ This is because:

- The AER and EMCa considered the check model was not sufficiently robust. Specifically:
 - The coefficients to the check model are not appropriate, especially for price, and are not consistent with evidence Powerlink itself provided in the revised revenue proposal (see section 2.3.1).
 - The check model does not incorporate temperature directly. This is inconsistent with Powerlink's own assertion that temperature is an important driver of peak demand (see section 2.3.2).

¹⁵³ EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 16–17.

¹⁵⁴ NER, clause 6A.6.7(c)(3).

¹⁵⁵ NER, clause 6A.6.7(c)(3).

- The check model's inputs are inappropriate. The AER considers Powerlink used an inappropriate electricity price series and has concerns Powerlink's forecast GSP series inflates the demand forecast (see section 2.3.3).
- Powerlink did not use an assessable analytical basis to derive the forecast load factors.¹⁵⁶ This is a concern given the significant impact load factors have when converting energy consumption forecasts to demand forecasts (see section 2.3.4).
- Powerlink's temperature correction method still has an upward bias (see section 2.3.5). This appears to introduce an upward bias in the demand forecasts through the load factor (see section 2.3.4).

The AER thus engaged EMCa to develop an alternative demand forecast. The AER considers EMCa's alternative demand forecast reasonably reflects a realistic expectation of demand because:

- EMCa's demand forecasting model is robust, using variables and producing coefficients that are appropriate (see section 2.4.1).
- The input sources EMCa used in its model reflect a reasonable expectation of conditions relevant to demand, such as GSP, for the 2012–13 to 2016–17 regulatory control period (see section 2.4.2).¹⁵⁷

The AER and EMCa performed a large number of sensitivity tests using a range of sources for input variables. These included sources Powerlink referenced in its revised revenue proposal. This sensitivity revealed Powerlink's demand forecast was materially higher than the range of demand forecasts derived from these sensitivity tests.¹⁵⁸

2.3.1 The check model—Powerlink's variables and coefficients

The AER considers the variables Powerlink incorporated into the check model (GSP and price) are appropriate. However, the AER considers the coefficients in the check model are not reasonable, particularly for price, and go against evidence Powerlink itself provided.

Powerlink developed an econometric check model for the load connected to its network from DNSPs as a reasonableness check on Powerlink's demand forecast.¹⁵⁹ Powerlink regressed the logs of price and GSP to the logs of non–temperature corrected annual energy (GWh) to derive the coefficients for the check model. Powerlink inputted price and GSP forecasts into the check model to derive the energy consumption forecast for the 2012–13 to 2016–17 regulatory control period. Load factors, which are a ratio of energy consumption to demand, then converted the energy consumption forecast to the demand forecast. The check model also makes a small downward adjustment to account for forecast generation from photovoltaic (PV) systems.

¹⁵⁶ Load factors convert the energy consumption forecast of the check model into the demand forecast. See sections 2.3.1 and 2.3.4.

¹⁵⁷ NER, clause 6A.6.7(c)(3).

¹⁵⁸ See section 2.4.3 and EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 29–30 and 40–41.

¹⁵⁹ As with the draft decision, the AER considers Powerlink's forecasts for direct connect customers are reasonable. The main point of assessment is therefore the underlying forecast for loads connected to Powerlink through DNSPs. See also EMCa, *Review of revised demand forecast*, 18 April 2012, p. 13–14.

Powerlink stated the check model:

- produced a demand forecast for the DNSP component that is consistent with NIEIR's forecast.
- back-casts well.¹⁶⁰

The AER considers GSP and electricity prices are reasonable explanatory variables to include in a demand forecasting model. Powerlink and ACIL Tasman provided detailed arguments for including GSP as a variable in demand forecasting, which the AER considers reasonable.¹⁶¹ EMCa considered Powerlink's choice of explanatory variables forms a reasonable basis for forecasting energy consumption. EMCa considered other factors such as population can be suitable explanatory variables in place of GSP. However, EMCa did not find GSP (or price) to be unreasonable variables for use in energy and demand forecasting.¹⁶²

In addition, the AER is cognisant of the increasing activity in the Queensland resources sector. Hancock Coal, Xstrata Coal, Santos GLNG Project and the Queensland Resources Council noted significant new resource projects either in study, committed or under construction. Such projects will have significant impacts on Powerlink's network.¹⁶³ The AER considers Powerlink's major load forecast, which the AER accepts as reasonable, captures a proportion of these resources load. The AER considers the GSP variable captures those resources loads that are part of the load connected to Powerlink through DNSPs. The GSP variable also captures the flow on effect of the resources sector in significant community, commercial and industrial developments away from specific mining sites.¹⁶⁴

However, the AER considers the check model's price coefficient does not realistically represent the effect of price on energy consumption because it is inconsistent with evidence Powerlink itself presented.

ACIL Tasman stated the price coefficient of a double log energy model such as the check model is an estimate of the price elasticity (of energy consumption in this case).¹⁶⁵ Powerlink noted AEMO estimated the price elasticity of energy consumption (energy elasticity) for Queensland is -0.29.¹⁶⁶ The energy elasticity the check model suggests is well over 50 per cent lower than this.¹⁶⁷ EMCa noted many studies quoted a range of -0.2 to -0.4 for energy elasticity.¹⁶⁸ The check model's price coefficient is well outside this range. It is also outside

¹⁶⁰ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 67.

¹⁶¹ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 60–64; Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, pp. 28–31 and 42–45.

¹⁶² EMCa, *Review of revised demand forecast*, 18 April 2012, p. 21.

¹⁶³ Hancock Coal, Submission to the AER in relation to its draft decision on Powerlink's revenue proposal for 2012–13 to 2016–17, 8 March 2012; Xstrata Coal, Submission, 20 February 2012; Santos GLNG Project, Powerlink revenue proposal2012/13 to 2016/17, 6 March 2012; Queensland Resources Council, Submission, 21 February 2012.

¹⁶⁴ Hancock Coal, Submission to the AER in relation to its draft decision on Powerlink's revenue proposal for 2012–13 to 2016–17, 8 March 2012; Xstrata Coal, Submission, 20 February 2012.

¹⁶⁵ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 49.

¹⁶⁶ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 58.

¹⁶⁷ Powerlink, *Revised revenue proposal*, CONFIDENTIAL VERSION, 16 January 2012, p. 67.

¹⁶⁸ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 17.

practically all of the energy elasticity ranges that Powerlink submitted through ACIL Tasman.¹⁶⁹

The check model does not appear to account for the low price coefficient through other mechanisms, such as the load factors that transform energy consumption forecasts to demand forecasts.

EMCa commented the check model's GSP coefficient is also much less than the value of unity that it would expect for an economically active state like Queensland.¹⁷⁰

The impact of this is to make Powerlink's check model less sensitive to changes in price than evidence suggests and less sensitive to GSP than EMCa expected.

2.3.2 The check model—Lack of a temperature explanatory variable

The AER considers it is inappropriate for the check model to not account directly for temperature. This is a serious concern. Powerlink itself emphasised temperature's importance to determining peak demand.¹⁷¹

Temperature only appears to be an indirect input through the load factors that convert the energy consumption forecasts into demand forecasts.¹⁷² This is not consistent with Powerlink's own assertion temperature is an important driver of peak demand, particularly as air-conditioning installations continue to approach saturation levels and temperature sensitivity continues to increase.¹⁷³ Powerlink noted ACIL Tasman's analysis showed regressions of both average daily and maximum temperature to demand exhibited a rising trend over the last 11 years. This demonstrated increasing temperature sensitivity in Queensland and points to the importance of temperature in determining peak demand.¹⁷⁴

EMCa cited a study which expressed concern about a demand forecasting model that also did not include any weather-base covariates. The study further stated '[in] many parts of the world temperature variation is the biggest contributor to variations in demand.'¹⁷⁵

The check model's non-inclusion of a temperature variable is also not consistent with NIEIR, whose model appears to incorporate temperature. The AER understands the NIEIR's demand forecasting method is consistent with the check model in that it forecasts energy consumption as a first step. NIEIR then converts energy consumption forecasts to demand forecasts.¹⁷⁶ NIEIR stated it derived energy consumption forecasts from econometric models that link

¹⁶⁹ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 36.

¹⁷⁰ EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 18 and 37.

A GSP coefficient with a value of unity, in the check model, implies a one per cent increase in GSP results in a one per cent increase in energy consumption.

¹⁷¹ Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 53–56, 64, 66, 73, 77 and 79; Powerlink, *Demand and energy forecasting description and methodology*, June 2010, pp. 4,10 and 12.

¹⁷² EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 16–17.

¹⁷³ Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 53–56, 64, 66, 73, 77 and 79; Powerlink, *Demand and energy forecasting description and methodology*, June 2010, pp. 4,10 and 12.

¹⁷⁴ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 73.

¹⁷⁵ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 16.

¹⁷⁶ Meeting between Powerlink, EMCa and AER staff, 15 March 2012.

electricity sales to weather conditions, among other inputs.¹⁷⁷ NIEIR further stated it uses average temperature in its derivation of non-coincident peak demand, which NIEIR uses to derive coincident peak demand.¹⁷⁸

Powerlink itself considers temperature is a key driver of demand and appears to confirm it is an important component of NIEIR's modelling:

Powerlink's top-down demand forecast developed by NIEIR takes account of the key drivers of demand in Queensland. Temperature is a key driver of demand, with recent mild summers in Queensland in contrast to the "stinking hot and humid" conditions that drive peak demand and are expected to occur in the future.¹⁷⁹

It is not clear therefore why the check model does not directly account for this important variable.

2.3.3 The check model—inputs

The AER considers the inputs Powerlink used for the check model are not appropriate. Powerlink used a high GSP forecast and a low price forecast in the check model compared to other forecasts. Both would introduce an upward bias to the energy consumption and demand forecasts.

Powerlink used a price series based primarily on wholesale prices both to derive the coefficients of the check model, and to derive its demand forecast. As discussed below, the AER considers wholesale prices do not adequately represent the prices customers pay and are not appropriate for demand forecasting. The AER is also concerned the GSP inputs Powerlink chose introduce an upward bias to the demand forecast. The AER considers a modeller should use the most up-to-date inputs it considers represent a realistic expectation of future conditions.

The revised revenue proposal stated the check model did not use NIEIR data to ensure it (the check model) represented an independent view. The check model used the following data sources:

- Price (historical and forecast)—KPMG
- GSP (historical and forecast)—Deloitte Access Economics (Deloitte).¹⁸⁰

Powerlink also provided its own projection of future load factors to convert the energy consumption forecasts to a demand forecast (section 2.3.4 contains the AER's assessment of Powerlink's load factors).

¹⁷⁷ NIEIR, *Long run economic and electricity load forecasts to 2029-30 for the Queensland Electricity Network*, Interim report, CONFIDENTIAL, November 2011, p. 33.

¹⁷⁸ NIEIR, *Long run economic and electricity load forecasts to 2029-30 for the Queensland Electricity Network*, Interim report, CONFIDENTIAL, November 2011, p. 36.

¹⁷⁹ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 77.

¹⁸⁰ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 67.

Electricity price inputs—historical and forecast

The AER considers the KPMG price series is not an appropriate input as it does not represent the real price changes customers have faced. The forecast growth rates are also significantly below other forecasts.

Figure 2.4 shows the KPMG historical price series is approximately half the level of NIEIR's residential price series and the Brisbane retail price series from the ABS. This would introduce an upward bias to the check model's energy consumption and demand forecasts. The KPMG price series appears to represent the prices from the wholesale market with an assumed mark-up for network and retail costs, given its similar pattern to wholesale prices from AEMO. It may also be in nominal, rather than real, terms.¹⁸¹

EMCa expressed concern Powerlink used the KPMG price series to calibrate the check model. Observing the trend in KPMG's price series from 2007 that are not present in other sources, EMCa stated:

The [check] model would be inaccurate to the extent that it would seek to "explain" changes in energy consumption in years 2007 and 2008 by reference to supposed high electricity prices that did not exist as retail prices that consumers pay, and similarly would seek to explain an effect from a supposed decrease in prices in 2009 that did not take place. In short, we would expect the regression model to be materially inaccurate as a predictor because of this.¹⁸²



Figure 2.4 Historical price series

Source: EMCa, Review of revised demand forecast, 18 April 2012, p. 25.

¹⁸¹ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 25.

¹⁸² EMCa, *Review of revised demand forecast*, 18 April 2012, p. 27.

In addition, KPMG's forecast growth rates for electricity prices are not consistent with other sources. Figure 2.5 shows the historical data and forecasts for Queensland electricity prices from various sources, normalised in 2011 to show the differences in underlying growth rates.



Figure 2.5 Queensland electricity prices—historical data and forecasts (normalised)

KPMG forecast prices to grow on average by 3.02 per cent per annum for the 2012–13 to 2016–17 regulatory control period. This may be a realistic expectation of wholesale price growth rates. However, the AER considers this underestimates the electricity prices growth rates customers would face in the 2012–13 to 2016–17 regulatory control period.

The AEMC forecast the Queensland residential standing offer electricity price to increase on average by 10.7 per cent per annum up to 2013–14.¹⁸³

ACIL Tasman noted there are many electricity prices for different types of customers. Residential customers may pay less (or more) than the standing offer electricity price, and many large customers can negotiate their electricity tariffs and prices.¹⁸⁴ The growth rates for standing offer prices may therefore not represent all other electricity price growth rates. Nevertheless, residential electricity prices represent a significant component of temperature sensitive load. The AEMC's forecast is also indicative of the high electricity price growth rates Queensland customers are likely to face in the 2012–13 to 2016–17 regulatory control period. The AER considers the KPMG price series significantly under-estimates this growth rate.

Source: EMCa, Review of revised demand forecast, 18 April 2012, p. 26; AEMC, Final report: Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014, 25 November 2011, p. 5

¹⁸³ AEMC, Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014, Final report, 25 November 2011, p. 5; AEMC, Future Possible Retail Electricity Price Movements: 1 July 2010 to 30 June 2013, Final report, 30 November 2010, p. iv.

¹⁸⁴ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 37.

EMCa forecast retail electricity prices to increase on average by 5.7 per cent per annum.¹⁸⁵ EMCa's electricity price forecast growth rates are slightly above NIEIR's total price forecast growth rates. NIEIR forecasts residential and business electricity prices to rise on average by 4.1 per cent per annum and 5.9 per cent per annum, respectively. NIEIR forecasts total electricity prices, which appears to be some combination of the residential and business series, to rise on average by 5.2 per cent per annum.¹⁸⁶ EMCa stated NIEIR's business price series appears to be the low prices large industry pays.¹⁸⁷ Powerlink did not provide NIEIR's sources for historical prices nor the method and assumptions behind NIEIR's electricity price forecasts. The AER therefore cannot comment on the robustness of NIEIR's historical data or forecasts. Nevertheless, figure 2.5 shows the NIEIR's forecast price growth rates are more broadly consistent with EMCa's forecast. This provides further evidence that the check model used forecast growth rates for electricity prices that appear less likely to represent future price growth. This is not appropriate for the purpose of demand forecasting because it introduces an upward bias to the check model's energy consumption and demand forecasts.

GSP inputs—historical and forecast

The AER considers the check model used forecast growth rates that are significantly above other forecasts. This introduces an upward bias to the demand forecast. The AER is also concerned Powerlink did not use the latest available forecast available to it at the time of drafting the revised revenue proposal.

Figures 2.6 and 2.7 show historical data and forecasts, respectively, for Queensland GSP from various sources, normalised in 2011 to show the differences in underlying growth rates. These include sources Powerlink referenced in its initial and revised revenue proposals. Figure 2.7 shows Powerlink used a relatively high GSP forecast in the check model—Deloitte's GSP forecast from its September 2011 Business Outlook publication.¹⁸⁸

¹⁸⁵ Section 2.4.2 outlines the AER's consideration of EMCa's GSP and price forecast.

¹⁸⁶ NIEIR, Long run economic and electricity load forecasts to 2029-30 for the Queensland Electricity Network, Interim report, CONFIDENTIAL, November 2011, p. 53.

¹⁸⁷ EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 24–25.

¹⁸⁸ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 67.





Source: EMCa, Review of revised demand forecast, 18 April 2012, p. 24.

Figure 2.7 Queensland GSP—forecasts



Source: EMCa, Review of revised demand forecast, 18 April 2012, p. 24.

EMCa noted Deloitte's GSP forecast for the 2012–13 to 2016–17 regulatory control period is much higher than NIEIR's updated forecast, yet the check model produced a demand forecast that is 90MW lower than NIEIR for 2016–17. Substituting NIEIR's GSP and price forecast into the check model produces a demand forecast 319MW below the NIEIR forecast. This demonstrates the check model does not provide a reasonable validation of NIEIR's forecast.¹⁸⁹

Using a high forecast, in itself, is not unreasonable. However, the AER does not consider Powerlink's reason for using non-NIEIR data (that the check model represents an independent view) is a valid one.

The AER considers a modeller should use the most up-to-date forecast that it considers is a realistic expectation of the future. A modeller should not use inputs simply because they are 'independent'. Besides NIEIR's November 2011 GSP forecast, Powerlink also had at its disposal ACIL Tasman's January 2012 GSP forecasts. This included ACIL Tasman's extrapolation of Queensland Treasury's Budget forecasts.¹⁹⁰ Both of these forecasts would have incorporated more recent information than the September 2011 Deloitte forecasts. In January 2012, for example, the Queensland Treasury lowered its GSP growth forecasts from its mid 2011 forecasts because of a 'deterioration in external conditions'.¹⁹¹

EMCa tested the sensitivity of the demand forecast from the check model using different GSP forecasts. Figure 2.8 summarises this sensitivity test for various combinations of GSP and price inputs. The red column chart, which uses Deloitte's GSP forecast and KPMG's price forecast, represents the check model's forecast for 2016–17. Figure 2.8 shows demand from the check model is sensitive to GSP forecasts. Given KPMG's price projection, for example, the demand forecast goes down by 322MW when EMCa used Queensland Treasury's GSP forecast in place of Deloitte's GSP forecast. EMCa also noted the check model is not as sensitive to different price forecasts.¹⁹²

¹⁸⁹ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 27.

¹⁹⁰ Powerlink, ACIL Tasman regression of demand forecast results, January 2012, CONFIDENTIAL.

¹⁹¹ Queensland Government, State budget 2011–12, Mid year fiscal and economic review, January 2012, p. 1.

¹⁹² EMCa, *Review of revised demand forecast*, 18 April 2012, p. 29.



Figure 2.8 EMCa GSP sensitivity analysis using the check model for 2016–17

EMCa's sensitivity analysis also raised questions about possible upward biases in NIEIR's demand forecasting process. EMCa pointed out NIEIR's GSP projection in its 2010 report was lower than in its 2011 update report—noting these reports form the basis of the forecasts Powerlink adopted in the initial revenue proposal and revised revenue proposal, respectively. The higher GSP forecast in its 2011 update report would suggest higher demand forecasts in the revised revenue proposal. This was not the case, and suggests other factors drove the demand forecasts downward.¹⁹³ Due to the lack of transparency regarding NIEIR's model, however, the AER was not able to make this assessment conclusively (see section 2.2.1).

2.3.4 The check model—Non-analytical basis for forecasting load factors

The AER is also concerned about Powerlink's method of forecasting load factors. More precisely, it is unclear to the AER whether Powerlink's methods of forecasting load factors, and hence the load factors themselves, are reasonable. This is because Powerlink has not applied a formal analytical basis for forecasting load factors. It is also unclear to the AER whether there is an intuitive basis for forecasting load factors of the type Powerlink used in its check model.

Section 2.3.1 noted the check model is less sensitive to price than evidence suggests and is less sensitive to GSP than EMCa expected. EMCa commented the load factors that convert

Source: EMCa, *Review of revised demand forecast*, 18 April 2012, p. 29. Note: QT is EMCa's extrapolation of Queensland Treasury's GSP forecast for 2016–17. See section 2.4 for the AER's assessment of EMCa's GSP forecast.

¹⁹³ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 12.

the check model's energy consumption forecast strongly influences the demand forecast (see table 2.2 below).

From EMCa's enquiries, Powerlink does not appear to use a formal analytical basis for projecting the load factor, but estimates a glide path for the future.¹⁹⁴ Figure 2.9 suggests the load factor forecast is the straight line between (approximately) the corrected load factor for 2007–08 and the uncorrected load factor for 2010–11. Powerlink stated the forecast load factors 'take account of' relevant factors such as a levelling of the decline in the load factor over the past ten years.¹⁹⁵

A visual inspection of figure 2.9 suggests the forecast load factors broadly follow the trend of the corrected load factor. However, the AER still has concerns about possible upward bias in Powerlink's temperature correction method, particularly the use of the S curve for south east Queensland (see section 2.3.5). To the extent there is bias in Powerlink's temperature correction method, the corrected load factors should be higher than those in the check model. This would suggest higher forecast load factors and a lower demand forecast. EMCa considered a less aggressive temperature correction and associated correction to load factors could plausibly see future load factors levelling out at or even slightly above 0.60. This change would reduce the end forecast by over 400MW.¹⁹⁶



Figure 2.9 Check model load factors

Source: Powerlink, *Check model*, 16 January 2012.

¹⁹⁴ EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 18–19.

¹⁹⁵ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 19.

¹⁹⁶ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 19.

It is also unclear to the AER whether there is an intuitive method to forecasting load factors of the type Powerlink used in its check model. The check model's load factors are ratios of energy consumption and demand. Forecasting load factors therefore appear to fall under one of the following types of methods:

- 1. forecasting the ratios directly
- 2. forecasting energy consumption and demand independently, thereby deriving the load factors.197

The check model appears to fall under the first method. However, from the information Powerlink has provided, there does not appear to be any obvious techniques applicable to the first method other than observing historical trends and using judgement. This is because load factors, without reference to the energy consumption and demand trends that underpin them, do not have an intuitive relationship with any of the explanatory variables for energy consumption and demand.¹⁹⁸ It is therefore very difficult to assess whether the demand forecasts from such load factors are reasonable. For example, the check model's load factor for 2016–17 is 0.57. From the information Powerlink has provided, there appears to be no clear reason why this figure would not be 0.56, or 0.58, or 0.6 as EMCa suggested. None of the explanatory variables that underpin energy consumption and demand forecasts such as GSP, price and temperature seem to inform this assessment.

Table 2.2 shows increasing the load factor by 0.01 in 2016–17 decreases the demand forecast for that year by approximately 150MW. The AER is concerned the check model utilises a load factor that appears to have little analytical basis, yet has a material impact on the demand forecast even with slight changes in value.

Corrected Load Factor	Demand forecast for 2016–17	Decrease in demand forecast for 2016–17
0.55	9523	
0.56	9350	–173
0.57	9184	–167
0.58	9023	–161
0.59	8868	–155
0.60	8718	–150
0.61	8572	–145

Table 2.2 Load factor sensitivity analysis for 2016–17

Source: AER analysis; Powerlink, *Check model*, 16 January 2012.

¹⁹⁷ Powerlink has clearly not used this approach. The AER has therefore not discussed this approach in the AER's final decision.

¹⁹⁸ The NIEIR reports describe an air-conditioning based approach to forecasting peak demand. The relationship between utilisation of temperature-sensitive equipment and temperature would seem to be potential variables in developing an analytical basis for forecasting load factors. However, the NIEIR reports did not provide enough information regarding this approach for proper assessment.

2.3.5 Temperature correction

The AER still has concerns regarding potential upward bias in using the S curve to temperature correct historical demand in south east Queensland. This appears to bias the load factor values in the check model downward, which in turn bias the demand forecast upward (see section 2.3.4).

The AER accepts Powerlink's use of the relationship between average temperature and demand as reasonable, given new information provided since the draft decision.

In the light of new information, the issues concerning temperature correction do not appear to be as material to the extent discussed in the draft decision.¹⁹⁹ In the revised revenue proposal, Powerlink stated it provides metered data to NIEIR, rather than temperature adjusted data.²⁰⁰ Powerlink also did not use temperature corrected data to calibrate the check model.²⁰¹ The AER is concerned with possible upward bias in Powerlink's temperature correction method only to the extent they introduce bias to the check model's load factors (see section 2.3.4).

However, the AER has concerns regarding Powerlink's and ACIL Tasman's analysis of the draft decision. The following sections discuss the AER's consideration of this analysis.

Powerlink's S curve for south east Queensland

In the revised revenue proposal, Powerlink acknowledged that temperature correction with the S curve is asymmetrical. However, Powerlink considered the S curve is reasonable because it more accurately reflects the sensitivity of demand to temperature in south east Queensland compared to a linear approach. The AER agrees with EMCa that there is no satisfactory evidence to support using an S curve for south east Queensland.²⁰²

Powerlink submitted ACIL Tasman's analysis which found smaller upward adjustments to actual demand when using the S curve compared to using a linear curve. To demonstrate this, ACIL Tasman undertook linear temperature correction for the summers of 2008–09, 2009–10 and 2010–11. ACIL Tasman then compared its results with the temperature correction using the S curve.²⁰³

The AER is concerned with the way in which ACIL Tasman derived its results.

ACIL Tasman's linear temperature corrections used the average temperature regression described in the 'Powerlink's use of average temperatures' section below. That is, ACIL Tasman used the linear regression of daily maximum demand plotted against daily average temperature.²⁰⁴ For each summer, these regressions excluded the weekends and other non-working days, the week before Christmas and two weeks after Christmas, and days with average temperature below 23.5 degrees Celsius.

¹⁹⁹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 78–81

²⁰⁰ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 64.

²⁰¹ Powerlink, *Check model*, 16 January 2012.

²⁰² EMCa, *Review of revised demand forecast*, 18 April 2012, pp. A2–A3 and A-9; EMCa, *Demand forecast review*, 6 September 2011, pp. 27.

²⁰³ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 55.

Average temperature for any day is (max + min)/2.

This dataset is not consistent with the dataset Powerlink uses to derive the S curve. Powerlink's S curve plots daily maximum demands for south east Queensland against a conditionally weighted average temperature. For any summer day, if the previous day is hotter, then the maximum demand for that day is plotted against the conditionally weighted average temperature which uses 'a 25% weighting of the previous day's temperature with a 75% weighting of the current day's temperature.'²⁰⁵

Otherwise, maximum demand is plotted against the average temperature for that day.

In addition, figure 2.10 shows the S curve has its lower bound at 20 degrees Celsius. The linear regression ACIL Tasman used for comparison excluded data points with average temperature of less than 23.5 degrees Celsius. This different lower bound artificially increases the slope of the linear curve and exaggerates the resulting temperature correction.

Figure 2.10 shows the S curve Powerlink derived using data from the 2010–11 summer. 'ACIL Tasman linear' shows the linear curve ACIL Tasman used to compare temperature corrections between the S curve and the linear approach. 'Linear (actual)' shows the linear curve using the same data points as the S curve.

The temperature-corrected peak demand for south east Queensland for 2010–11 using 'Linear (actual)' is 4828 MW—lower than the temperature-corrected peak demand using either the S curve (4,845 MW) or 'ACIL Tasman linear' (4,874 MW).

In summary, ACIL Tasman used a linear curve with an upward bias. This bias occurred because ACIL Tasman's comparison of the temperature correction from the S curve and the linear approach:

- did not use the same dataset
- used different bases for average temperature
- used different lower bounds.

²⁰⁵ Powerlink, *Annual planning report 2011*, p. 88.





Source: Powerlink, Response - Request AER/053, 17 February 2012; Powerlink, Response to information request EMCa/DFR008 requested at meeting 12 July 2011, 13 July 2011; Powerlink, Annual Planning Report 2011, p. 87.

Powerlink's use of average temperatures

In the revised revenue proposal, Powerlink stated average temperatures are more representative of the conditions that drive Queensland summer peak demand days. Thus, average temperatures are more appropriate than maximum temperatures for temperature correction. Powerlink considers overnight temperatures are an important factor; for example, the heat stored in buildings contributes to air conditioning demand the following day.²⁰⁶

Powerlink submitted ACIL Tasman analysis comparing the relationship of peak demand to average temperature, maximum temperature and both maximum and minimum temperature. ACIL Tasman ran linear regressions of the three relationships for each summer between 2000–01 and 2010–11. To reduce bias, ACIL Tasman removed the following from the dataset:

- Cool days with average temperature below 23.5 degrees Celsius
- Weekends and other non-working days
- The week before Christmas and two weeks after Christmas.

²⁰⁶ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 53.

ACIL Tasman found the R^2 from the regression including both maximum and minimum temperature was higher than the R^2 for the maximum temperature regression for each summer. In addition, the R^2 for the average temperature regression was higher than the R^2 for the maximum temperature regression in seven out of eleven summers. This indicated a role for minimum temperatures in temperature correction.²⁰⁷

The AER assessed ACIL Tasman's dataset and is concerned with the way in which ACIL Tasman derived its results.

ACIL Tasman removed cooler days with average temperature less than 23.5 degrees Celsius because peak demand is largely unresponsive to temperature changes below this level.²⁰⁸ This is not consistent with Powerlink's own findings and method, which assumes temperature sensitivity is zero when average temperature is 20 degrees Celsius.²⁰⁹ A visual inspection of the S curve also does not support ACIL Tasman's claim peak demand is largely unresponsive below 23.5 degrees (see figure 2.10).

ACIL Tasman also included the Australia Day holiday in all years (except one) of its dataset, contrary to its own criterion of excluding non-working days. Australia Day was a clear outlier in several years and introduced bias into ACIL Tasman's dataset. For example, figure 2.11 shows Australia Day was a clear outlier in ACIL Tasman's maximum temperature and demand regression for 2007–08.

Figure 2.11 Dataset for ACIL Tasman maximum temperature vs. demand regression for 2007–08



²⁰⁷ Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 53–54.

²⁰⁸ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 18.

²⁰⁹ Powerlink, *Demand and energy forecasting description and methodology*, June 2010, p. 10.

Source: Powerlink, Response - Request EMCa/DFR 017 - Request for further demand forecast data, 5 August 2011.

The AER removed the Australia Day holiday from ACIL Tasman's dataset and reran the regressions for average and maximum temperature. The R² for the maximum temperature regression was higher than the R² for the average temperature regression in five out of eleven summers (compared to four summers in ACIL Tasman's dataset). The R² for both regressions also improved compared to ACIL Tasman's dataset.

The AER also ran a similar regression, but included the following data points:

- Days that were marginally below 23.5 degrees Celsius, but would have been included had ACIL rounded to one decimal point (a total of 6 working days over 5 summers).
 - None of these days were outliers.
- Working days from around 10 January (a total of nine working days over six summers).
 - The AER considers adding these days are reasonable for its sensitivity test because they were all at the end of the two week period after Christmas Day, and none of these data points were outliers.
 - Powerlink itself excludes only the holiday period from Christmas to the first week of January when deriving its S curve for south east Queensland.²¹⁰ ACIL Tasman excluded 10 January for the 2010–11 summer in its regressions.²¹¹ However, Powerlink included it to derive the S curve for 2010–11.²¹²

Table 2.3 shows the R^2 for the maximum temperature regression was higher than the R^2 for the average temperature regression in six out of eleven summers.

²¹⁰ Powerlink, *Annual planning report 2011*, p. 88.

²¹¹ Powerlink, Response - Request AER/053 - RRP - Demand forecast in RRP, 17 February 2012.

²¹² Powerlink, Response - Request EMCa DFR/008 - Additional data requested at meeting on 12 July 2011, 13 July 2011.

Year	Maximum temperature	Average temperature
2000–01	0.45	0.55
2001–02	0.721	0.724
2002–03	0.44	0.41
2003–04	0.65	0.78
2004–05	0.54	0.74
2005–06	0.77	0.71
2006–07	0.66	0.71
2007–08	0.644	0.639
2008–09	0.74	0.72
2009–10	0.77	0.72
2010–11	0.72	0.70

Table 2.3 R² from linear regressions (AER sensitivity test)

Source: Powerlink, *Response - Request AER/053 - RRP - Demand forecast in RRP*, 17 February 2012 (CONFIDENTIAL); AER analysis.

Nevertheless, the AER agrees with Powerlink that the results are mixed and the evidence does not point to a clearly superior fit to either average or maximum temperature. The AER's analysis shows the relative superiority of the average or maximum temperature regressions can change with the substitution of a few points in the dataset.

Further, Powerlink's statement that overnight temperatures have an impact on peak demand appears reasonable.

While not discounting the appropriateness of using maximum temperature in temperature correction, the AER has assessed Powerlink's demand forecast on the basis that the use of average temperature is reasonable.

2.3.6 Past demand forecasting performance

The draft decision noted Powerlink's APRs have consistently followed a pattern where forecasts commence with a step increase in the first year followed by high growth paths. The APRs have over-forecast peak demand since at least 2005.²¹³ Powerlink's demand forecast in the revised revenue proposal appears to follow this same pattern.

The AER recognises demand forecasting is not a precise science and different time periods present different information and circumstances. To avoid doubt, the AER did not reject Powerlink's demand forecast because of its history of over-forecasting demand. Nevertheless,

²¹³ The 2005 APR is the earliest APR available on Powerlink's website.

this section highlights the AER's concerns there are aspects of Powerlink's demand forecasting processes and methods that bias its forecasts upward.



Figure 2.12 Powerlink APR demand forecasts

Source: Powerlink, APRs (2005, 2007 2009, 2010 and 2011 update).

The draft decision observed Powerlink's history of consistently over-forecasting demand and considered this to be systemic in Powerlink's demand forecasting methodology.²¹⁴ The Total Environment Centre (TEC) and Powerlines Action Group Eumundi (PAGE) also noted Powerlink's energy and demand projections have been consistently high.²¹⁵

Powerlink's revised demand forecast is lower than its initial demand forecast. This factored in the low economic growth that occurred since the initial revenue proposal.²¹⁶ However, figure 2.12 shows Powerlink's revised demand forecast still appears to follow the same pattern as previous APRs.

Analysis by an Energy Consumers Group operating in Queensland (the Group) appears to confirm this. The highest actual demand growth rate for the last ten years was 11 per cent between 2002–03 and 2003–04, followed by 7.5 per cent between 2007–08 and 2008–09. The Group, therefore, expressed concern Powerlink forecast demand to grow by nearly 14 per cent to 2012–13.²¹⁷ Similarly, the Energy Users Association of Australia (EUAA) noted peak demand grew on average by 3 per cent per annum between 2000 and 2011. This

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 90–93.

²¹⁵ TEC, Submission to the AER, February 2012, p.5; PAGE, Submission to the AER draft determination & Powerlink revised revenue reset application for 2012 to 2017, 20 February 2012, p. 2.

²¹⁶ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 79.

²¹⁷ The Group, Queensland electricity transmission revenue reset, A response, January 2012, pp. 21–22.

growth was only 1 per cent per annum between 2007 and 2011. The EUAA expressed concern 'Powerlink could be investing in capacity that is not needed'.²¹⁸

Powerlink argued changes to forecast inputs will affect the outputs. For instance, recent GSP forecasts have been optimistic and NIEIR has not been alone in overstating Queensland GSP forecasts. Other forecasters have predicted a return to economic prosperity post GFC sooner than has occurred.²¹⁹

As the draft decision noted, the APRs have over-forecast demand since at least 2005. This was several years before the GFC. ACIL Tasman also said that NIEIR, if anything, has underestimated actual GSP in the last five years.²²⁰ If this is accurate, the cause of the APRs' over-forecast of demand over such a long period becomes less clear.

As stated earlier, the AER recognises demand forecasting is not a precise science. However, the AER considers consistent, often significant, over-forecasting suggests an upward bias in the forecasting methodology.²²¹ The assessment of Powerlink's check model appears to confirm this concern.

Powerlink, based on analysis by ACIL Tasman, also stated back-casting is a more effective measure of analysing past performance. Powerlink considered EMCa's 'within sample' method of back-casting does not guarantee a model is reasonable for forecasting purposes.²²²

The AER agrees with EMCa that the commentary and analysis Powerlink and ACIL Tasman put forward regarding out of sample back casting is not appropriate. EMCa noted there are only 11 years of historical data for peak demand. There is therefore danger out of sample testing would excessively shorten the in-sample calibration range.²²³ This compromises the value of such tests. EMCa sought to replicate the out-of-sample testing Powerlink conducted on its model and the EMCa model from the 2011 report to the AER. EMCa found that Powerlink's application of the technique did not produce statistically meaningful results.²²⁴

EMCa also points out in-sample backcasting is a standard approach to model validation and serves to confirm the fit of the regression.²²⁵

2.4 EMCa alternative demand forecast

The AER considers the forecasting model that underlies EMCa's alternative demand forecast (the EMCa model) forms a reasonable basis to produce a realistic demand forecast. The AER

²¹⁸ EUAA, Submission in relation to the Australian Energy Regulator's draft determination on Powerlink's revenue proposal 2012–2017 and Powerlink's revised proposal, February 2012, p. 5.

²¹⁹ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 65.

²²⁰ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 10 and A1–A9.

See also, AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, p. 91.

Powerlink, *Revised revenue proposal*, 16 January 2012, p. 66.

EMCa, *Review of revised demand forecast*, 18 April 2012, p. 37.

EMCa, *Review of revised demand forecast*, 18 April 2012, p. 38.

²²⁵ EMCa, *Review of revised demand forecast*, 18 April 2012, p. A-12.

therefore considers EMCa's alternative demand forecast is a realistic expectation of demand. $^{\rm 226}$

The AER considers the EMCa model uses the important variables that affect demand and have appropriate coefficients (see section 2.4.1). Further, the input sources EMCa used in its model reflect a reasonable expectation of conditions for the 2012–13 to 2016–17 regulatory control period (see section 2.4.2).

The EMCa model regressed the logs of historical price, GSP, average temperature and a dummy variable for 2008 to the logs of historical non-temperature corrected demand (MW). The dummy variable captures the effect of the Global Financial Crisis (GFC). This process derived the coefficients for the EMCa model. EMCa then inputted price, GSP and average temperature forecasts into the check model to derive the demand forecast for the 2012–13 to 2016–17 regulatory control period.²²⁷

EMCa explored many model forms in the process of deriving an alternative demand forecast.²²⁸ One of EMCa's guiding principles in model development was to use Powerlink's variables and methods where EMCa considered it reasonable.

EMCa used GSP and price as explanatory variables, and the same photovoltaic (PV) forecast as the check model.²²⁹ EMCa also found Powerlink's derivation of the 10 per cent PoE demand forecast is reasonable (which the AER agrees with).²³⁰ Thus, EMCa used the same factor to adjust from the 50 per cent PoE forecast to the 10 per cent PoE forecast.²³¹

As with the check model, the EMCa model is a single state-wide model.²³² EMCa reconciled the EMCa model forecast with the bottom up DNSP forecasts, separate from major loads. This ensured EMCa understood past and future connection point loads and avoided double-counting in EMCa's (and Powerlink's) respective demand forecasts.²³³

EMCa emphasised it did not produce its alternative forecast prior to assessing Powerlink's demand forecast.²³⁴ EMCa first assessed whether Powerlink's demand forecasting processes, (including models, inputs and assumptions) are reasonable. EMCa only derived its alternative forecast after finding substantial deficiencies in Powerlink's demand forecast model and inputs.²³⁵

The AER considers EMCa's approach to deriving its model is appropriate and is consistent with the requirements of the NER. The NER requires that Powerlink's capex forecast reflects a realistic expectation of demand.²³⁶ If the AER considers Powerlink's demand forecasting processes are reasonable, it follows that the AER would consider Powerlink's demand

²²⁶ NER, clause 6A.6.7(c)(3).

EMCa, Review of revised demand forecast, 18 April 2012, pp. 35–37.

EMCa, Review of revised demand forecast, 18 April 2012, pp. 35–36.

²²⁹ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 35.

²³⁰ EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 31–32.

As the draft decision noted, Powerlink uses the 10 per cent PoE demand forecast for planning purposes. See also Powerlink, 2013–2017 Revenue proposal, Appendix F, Powerlink planning criteria, June 2010, p. 7
 ENCe. Device demand forecast for planning demand forecast for planning criteria, June 2010, p. 7

EMCa, *Review of revised demand forecast*, 18 April 2012, p. 36.

EMCa, *Review of revised demand forecast*, 18 April 2012, p. 42.

EMCa, *Review of revised demand forecast*, 18 April 2012, p. 11.
 EMCa, *Review of revised demand forecast*, 18 April 2012, p. 11.

EMCa, *Review of revised demand forecast*, 18 April 2012, chapter 4.
 NER, double 6A 6 7(o)(2)

²³⁶ NER, clause 6A.6.7(c)(3).

forecast is a realistic expectation of demand. In that case, the NER does not require the AER to derive a 'more optimal' or 'better' demand forecast.

Further, in a presentation to the Energy Networks Association (ENA) Working Group, the AER outlined what it considers to be the general features of best practice demand forecasting.²³⁷ EMCa demonstrated that its approach and the EMCa model are consistent with these general features.²³⁸

Figure 2.13 compares EMCa's alternative demand forecast with demand forecasts from the draft decision and the initial and revised revenue proposals.²³⁹ Figure 2.13 shows the revised revenue proposal's demand forecast is significantly higher than EMCa's alternative demand forecast. The AER's and EMCa's sensitivity analysis also suggests the revised revenue proposal's demand forecast falls well outside the reasonable range of EMCa's alternative demand forecast (see section 2.4.3).²⁴⁰



Figure 2.13 Demand forecasts for 2012–13 to 2016–17 (50 per cent PoE, Medium growth)

Source: Powerlink, *Revised revenue proposal*, 16 January 2012, p. 80; Powerlink, *Annual Planning Report 2010*, p. 28; EMCa, *Review of revised demand forecast*, 18 April 2012, p. 39; EMCa, *Demand forecast review*, 6 September 2011, p. 51.

AER, Energy and demand forecasting, Presentation to ENA Working Group, 18 March 2011.

²³⁸ EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 41–42.

²³⁹ For EMCa's full alternative demand forecast at 50 per cent PoE and 10 per cent PoE, see EMCa, *Review of revised demand forecast*, 18 April 2012, p. 39.

²⁴⁰ See also EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 29–30 and 40–41.

2.4.1 EMCa model—coefficients and variables

In sections 2.3.1 and 2.3.2, the AER considered electricity price, GSP and temperature are appropriate explanatory variables in energy consumption and demand forecasting models. The AER also considers the EMCa model's incorporation of a dummy variable for 2008 is appropriate. It captures the effect of a one-off sudden deterioration in economic conditions and ensures it does not unduly bias the model.

The AER considers price has a less straight forward relationship with peak demand than energy consumption. Nevertheless, the AER considers prices have an overall effect on peak demand.

In discussing the price elasticity of demand (demand elasticity), ACIL Tasman stated:

It is the relationship between the price of electricity and the quantity that the customer will demand when their demand is at a maximum. This elasticity also deals with reduced consumption in response to increased price, but the reduction must occur at very specific times. Depending on tariff structures, this elasticity might also deal with the possibility that an increase in electricity price might cause a customer to engage in load shifting from times of high price (and demand) to times of lower price (and demand).²⁴¹

Higher growth rates for prices may cause non-temperature sensitive load such as commercial and industrial customers to find ways to decrease energy consumption at any point in time. Such loads could do this through various means including energy efficiency initiatives. Similarly, temperature-sensitive load could reduce its effect on peak demand through the purchase of more energy-efficient appliances.

The AER considers price is a reasonable explanatory variable in a direct demand forecast model, provided the model appropriately represents price's effect on demand.

ACIL Tasman noted there are fewer studies regarding demand elasticity than energy elasticity. The AER agrees with ACIL Tasman who stated it is reasonable to expect the absolute value of demand elasticity would be lower than the absolute value of energy elasticity. Citing studies by AEMO, ACIL Tasman suggested Queensland's demand elasticity is approximately –0.14 or less.²⁴²

The EMCa model's coefficient for the price variable is -0.14, consistent with evidence from Powerlink and ACIL Tasman. EMCa noted many studies found a likely range for energy elasticity of -0.2 to -0.4.²⁴³ This implies a likely range for demand elasticity of -0.1 to -0.2 using ACIL Tasman's approximation.²⁴⁴ The EMCa model's price coefficient also falls within this range of demand elasticities.

The AER agrees with EMCa that the EMCa model's GSP coefficient of 1.06 is reasonable for an economically active state such as Queensland.²⁴⁵ This implies a 1 per cent increase in GSP would see peak demand increase by 1.06 per cent.

²⁴¹ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 35.

Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 37.

²⁴³ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 17.

²⁴⁴ Powerlink, *Revised revenue proposal*, Appendix J, 16 January 2012, p. 37.

²⁴⁵ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 37.

Unlike energy and demand elasticities, there does not appear to be extensive evidence regarding the effect of GSP on peak demand in per cent terms. However, Powerlink submitted extensive arguments regarding GSP's importance in forecasting demand.²⁴⁶ In this light, and in the absence of evidence to the contrary, the AER considers a GSP effect on demand of near unity is reasonable particularly in an economically active state like Queensland.

EMCa commented GSP has a less straight forward relationship with peak demand than with energy consumption.²⁴⁷ However, the AER considers GSP would have a positive correlation particularly with non-temperature sensitive load such as commercial and industrial customers. GSP is indicative of economic activity. Higher GSP would be associated with higher economic activity for any point in time, and hence higher non-temperature sensitive demand. Further, Powerlink (and EMCa) included only working days in its data sets for determining summer peak demand. This reduces the influence of fluctuations in economic activity on the relationship between GSP and peak demand.

The AER considers the EMCa model's incorporation of a temperature variable is appropriate. Section 2.3.2 includes the AER's reasons for considering temperature is an important explanatory variable in a demand forecast model. Section 2.3.5 includes the AER's reasons for considering average temperatures are appropriate in finding a relationship between peak demand and a weather-based variable.

2.4.2 EMCa model—Inputs

The AER considers the historical data EMCa used to calibrate its models are reasonable. The AER also considers the forecasts EMCa used to derive the alternative demand forecast reflect a reasonable expectation of conditions for the 2012–13 to 2016–17 regulatory control period.

EMCa preferred to source historical data series and forecasts from official primary sources.²⁴⁸ Specifically, EMCa used the following data sources:

- historical price from the ABS Brisbane retail electricity price index
- forecast retail price using ABS Brisbane retail price index and growth rates EMCa developed for its 2011 report to the AER
- historical GSP from the Australian Bureau of Statistics (ABS)
- forecast GSP from the Queensland Treasury (January 2012 budget update).²⁴⁹

Electricity price inputs-historical and forecast

The AER considers EMCa's historical and forecast electricity price inputs are appropriate for use in demand forecasting.

Powerlink, *Revised revenue proposal*, 16 January 2012, p. 60–64.

²⁴⁷ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 22.

²⁴⁸ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 27.

²⁴⁹ EMCa, *Review of revised demand forecast*, 18 April 2012, p. 36.

Figure 2.5 shows the historical prices EMCa used from the ABS is consistent with the growth rates for the historical price series EMCa developed for its 2011 report to the AER. EMCa obtained that price series from data ROAM Consulting presented in its reports.²⁵⁰ These prices do not contain the trends exhibited by the check model's historical price series (KPMG). As section 2.3.3 discussed, the use of the KPMG price series appeared to introduce distortions in the check model.

Similarly, section 2.3.3 notes that the KPMG price series exhibited growth rates that are not appropriate for demand forecasting. On the other hand, the AEMC's forecast growth rates relate to the standing offer retail prices in Queensland. However, Queensland has full retail contestability and large customers are able to negotiate their electricity prices. Therefore, it is reasonable to expect customers would face lower growth rates compared to the standing offer forecasts. Figure 2.5 shows EMCa's forecast growth rates for electricity prices lies approximately in between the two extremes of the AEMC and KPMG forecasts. EMCa's forecast growth rates for electricity prices are also broadly consistent with NIEIR's forecasts.

GSP inputs—historical and forecast

The AER considers EMCa used appropriate historical GSP data sources to calibrate the EMCa model, given the ABS is a primary source of historical GSP data in Australia. The AER also considers EMCa used an appropriate GSP forecast to derive the alternative demand forecast. The Queensland Treasury's GSP growth rate forecast incorporated the latest available information, and appears to be consistent with other up-to-date forecasts.

In addition, EMCa adopted the Queensland Treasury's full GSP forecast. EMCa did not remove the mining (or any other) impact of the GSP forecast. Thus, it captures the flow on effect of the resources sector in significant community, commercial and industrial developments away from specific mining sites.²⁵¹

Figure 2.6 shows historical ABS data was largely consistent with the Queensland Government's historical data series. The AER considers the ABS and Queensland Government are appropriate sources of historical GSP data. The collection and compilation of historical GSP data are a 'core business' of the ABS and Queensland Government. Further, those organisations would appear to be the primary sources of Queensland GSP data in Australia. NIEIR's and Deloitte's historical data are higher than the ABS historical data from 2001. However, they appear to converge with the ABS data between 2007 and 2010.

Figure 2.7 shows the GSP forecast EMCa used for the EMCa model are lower compared to other sources. However, the AER considers this to be reasonable as it is the most up-to-date forecast (incorporating the latest information). Further it exhibits growth rates similar to other up-to-date forecasts.

As section 2.3.3 discussed, the AER considers the Deloitte GSP forecast is not appropriate as it does not appear to account for lower than expected GSP growth. Section 2.3.3 also noted Powerlink had access to more up-to-date forecasts than the Deloitte forecasts. ACIL Tasman used the growth forecast from the Queensland Government's 2011–2012 Budget

²⁵⁰ EMCa, *Review of revised demand forecast*, 18 April 2012, pp. 25–26.

²⁵¹ Hancock Coal, Submission to the AER in relation to its draft decision on Powerlink's revenue proposal for 2012–13 to 2016–17, 8 March 2012; Xstrata Coal, Submission, 20 February 2012.

forecast in its modelling for the revised revenue proposal. The Queensland Government forecast GSP growth rates of 5 per cent and 5.25 per cent for 2011–12 and 2012–13, respectively. It then projected GSP growth rates of 4 per cent out to 2014–15. ACIL Tasman extrapolated the 4 per cent growth rate out to 2016–17.²⁵² NIEIR's GSP growth rate forecast is consistent with ACIL Tasman's forecast until 2015–16, when NIEIR forecasts an increase in growth rates.

EMCa used the latest GSP forecast from Queensland Treasury in the EMCa model. In its mid-year budget update, the Queensland Treasury lowered its GSP growth rate forecasts for 2011–12 and 2012–13 to 4.25 per cent and 5 per cent, respectively. The Queensland Government cited 'a deterioration in external conditions' as the reason.²⁵³ Similar to ACIL Tasman, EMCa projected a 4 per cent GSP growth rate out to 2016–17. The AER considers this to be reasonable as the mid-year budget update did not comment on the GSP growth rate projections out to 2014–15.

2.4.3 Sensitivity analysis

The AER performed sensitivity tests using the EMCa model to determine a reasonable range of demand forecasts that could represent realistic expectations of demand. The sensitivity test showed the check model's demand forecast does not fall within a reasonable range of the alternative demand forecast. Therefore, the AER does not consider Powerlink's demand forecast is a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period.²⁵⁴

On the other hand, inputs to a model influence the outputs. As sections 2.3.3 and 2.4.2 show, forecasts of future conditions may differ between forecasters for various reasons including:

- different times, and prevailing conditions, in which forecasters make their forecasts
- different types of data, as well as their quality and quantity, forecasters have access to
- different model forms and assumptions underpinning the forecasts

The AER therefore tested the sensitivity of demand to different GSP and price forecasts using EMCa's demand forecasting model. The sensitivity test established a range of demand forecasts. This indicated whether the check model demand forecast falls within a reasonable range of EMCa's alternative demand forecast.

The AER considers Powerlink used an inappropriate price series that potentially distorted the check model (see section 2.3.3). The AER therefore did not use the KPMG wholesale price series in its sensitivity analysis of Powerlink's demand forecast.

Figure 2.14 shows the AER's sensitivity analysis. The solid bold charts entitled 'EMCa' and 'Check model' show the DNSP component of EMCa's alternative demand forecast and the check model forecast, respectively. To test whether the check model forecast falls within a reasonable range of EMCa's DNSP forecast, the AER derived the other DNSP component

²⁵² Powerlink, ACIL Tasman regression of demand forecast results, January 2012, CONFIDENTIAL.

²⁵³ Queensland Government, State Budget 2011–12, Mid year fiscal and economic review, January 2012, p. 5.

²⁵⁴ NER, clause 6A.6.7(c)(3).
demand forecasts using the EMCa's model and various input sources. The other charts in figure 2.14 use EMCa's GSP and price inputs unless otherwise indicated. For example, 'ACIL Tasman GSP' used ACIL Tasman's GSP growth forecast and EMCa's price growth forecast. 'NIEIR inputs' use NIEIR's forecasts for GSP and price.

Figure 2.14 shows the check model demand forecast falls well outside the range the sensitivity test suggests.

The chart 'Check model GSP' used EMCa's price forecast and Deloitte's GSP forecast. Figure 2.14 represents this as a dotted line because the AER had concerns about the use of Deloitte's GSP forecast (see section 2.3.3). As the AER expected, it produced a higher demand forecast than the other sensitivity tests. Still, the check model demand forecast falls well outside this upper end of the range.



Figure 2.14 AER demand forecast sensitivity analysis

Source: AER analysis; Powerlink, *Revised revenue proposal*, 16 January, p. 69; EMCa, *Review of revised demand forecast*, 18 April 2012, p. 39.

Table 2.4 shows the demand forecasts from the sensitivity test for the 2016–17 regulatory year. The second column shows the difference between specific sensitivity tests and the check model's demand forecast for that year. For example, the sensitivity test which inputted NIEIR's price and GSP forecasts into the EMCa model produced a demand forecast 261MW lower than the check model.

Similarly, the third column shows the difference between the sensitivity tests and NIEIR's underlying demand forecast (which is also the underlying demand forecast in the revised revenue proposal). Even when using the check model's high GSP forecast, the EMCa model produces a demand forecast 244MW lower than NIEIR. The AER considers this is a significant difference, without even considering the other sensitivity tests.

Table 2.4 Demand forecast sensitivity test for 2016–17 using EMCa model

	Demand forecast	Difference with check model	Difference with NIEIR forecast
NIEIR	9274		
Check model	9184		-90
Check model GSP	9030	-154	-244
NIEIR inputs	8923	-261	-351
NIEIR GSP	8877	-307	-397
ACIL Tasman GSP	8666	-517	-608
NIEIR price	8622	-562	-652
EMCa	8578	-606	-696

Source: AER analysis; Powerlink, *Revised revenue proposal*, 16 January, p. 69; EMCa, *Review of revised demand forecast*, 18 April 2012, p. 39.

2.5 Revisions

Revision 2.1: The AER does not consider Powerlink's demand forecast is a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period.

The AER has substituted an alternative demand forecast as set out in section 2.1.

3 Capital expenditure

Capex refers to capital expenditure and includes load driven network augmentation, easements and connections, non-load driven augmentation (such as asset replacements and security) and non-network capital expenditure (such as IT, moveable plant, motor vehicles and commercial buildings).

Powerlink is required to submit a building block proposal to the AER that forecasts capex for the 2012–13 to 2016–17 regulatory control period.²⁵⁵ The AER must assess this forecast to decide whether it either accepts Powerlink's proposed forecast capital expenditure allowance or, if not, the AER must determine a substitute forecast.²⁵⁶

If not satisfied the AER must give reasons for not accepting a proposal and estimate the total required capex so the substitute forecast is necessary for Powerlink to meet the National Electricity Rules (NER) capex criteria. In doing so the AER must take into account the capex factors.²⁵⁷

This attachment outlines the AER's final decision, its reasoning and its approach to assessing Powerlink's proposed capex forecast and for deriving the substitute forecast.

3.1 Decision

The AER is not satisfied Powerlink's revised total forecast capex reasonably reflects the capex criteria and has accordingly substituted a capex forecast. The AER's determination of Powerlink's total capex allowance for the 2012-13 to 2016-17 regulatory control period is $2519 \text{ million} (2011-12)^{258}$. The AER's substitute capex forecast is a \$788 million reduction (23.8 per cent) on Powerlink's proposed capex forecast of \$3312 million. The AER's adjustments²⁵⁹ are:

The AER does not accept that approximately²⁶⁰ \$451 million of capex meets the capex criteria due to the AER's revised demand forecast.

²⁵⁵ NER, clause 6A.10.1.

²⁵⁶ NER, clause 6A.6.7 (c) and (d).

²⁵⁷ NER, clause 6A.6.7(e).

²⁵⁸ Unless otherwise stated, all amounts in this attachment expressed in 2011-12 dollars are in mid year terms. Because all post tax revenue model inputs are in end of year terms these amounts are escalated by a half year of inflation prior to entering in the post tax revenue model.

²⁵⁹ These adjustments are the approximate "stand alone" cost. These estimated individual costs are independent of other adjustments and the sum total of the individual costs is greater than the impact of the aggregate adjustment (because of the interaction between items). For example, the capex decrease due to the demand forecast, 500kV project deferrals and carbon reduction target result in a total \$660 million adjustment.

²⁶⁰ The AER asked Powerlink to calculate the capex impact of the AER's final decision on demand forecast, the 500kV project and the carbon price trajectory. The AER considers Powerlink's adjustments to forecast capex are reasonable and has adopted them in the AER's final decision. Therefore the individual value is an estimate based on EMCa's analysis, noting that Powerlink's adjustment was adopted. Section 3.1 discusses these adjustments in more detail.

- The AER does not accept that Powerlink's proposed capital expenditure for the establishment of a 500kV network meets the capex criteria. The total adjustment is approximately \$559.5 million and is comprised of:
 - The incremental expenditure (\$148.9 million) for the Halys–Blackwall project does not meet the capex criteria. The AER classified the incremental costs as a contingent project, and a trigger event has been developed.
 - The forecast expenditure of \$261.4 million for the Halys–Western Downs project, 3rd and 4th circuit does not meet the capex criteria. The AER classified this project as a contingent project with a relevant trigger event.
 - The forecast expenditure of \$149.2 million for the Halys–Greenbank project does not meet the capex criteria. The AER classified this project as a contingent project with a relevant trigger event.
- The AER upholds its draft decision to approve the 500kV related easement costs of \$49.4 million– this is included in Powerlink's forecast capex so no adjustment is necessary. But the AER does not accept Powerlink's proposed \$131.3 million of additional easement costs.²⁶¹ These costs are not included in Powerlink's revised revenue proposal, and no adjustment is necessary.
- The AER does not accept Powerlink's revised probabilities for the carbon price trajectory. The AER considers Powerlink's revised probabilities result in a forecast capex that does not reasonably reflect a realistic expectation of cost inputs required to achieve the capex objectives.²⁶² The AER is thus not satisfied the capex forecast reasonably reflects the efficient cost of a prudent TNSP in Powerlink's circumstances.²⁶³ The AER has accordingly reduced Powerlink's proposed forecast by \$17 million.
- The AER upholds its draft decision that Powerlink's forecast capex exceeds efficient costs and should be adjusted downwards by approximately \$34 million²⁶⁴. The AER applied this efficiency adjustment as described in the AER's draft decision.
- The AER does not accept Powerlink's labour and material costs and has reduced Powerlink's forecast capex by \$94 million.
- The AER does not accept Powerlink's equity raising costs associated with its forecast capex. The AER does not consider that the use of a dividend yield approach is appropriate, and has reduced Powerlink's proposed forecast by \$23.3 million.

The AER's final decision on Powerlink's capital expenditure allowance is set out in table 3.1 and figure 3.1 presents the information graphically.

²⁶¹ This was a claim by Powerlink in its revised revenue proposal that it would need to fund the 18 new corridors / 810 easements at a cost of \$131.3m. However the AER found a 275kV build option that doesn't require a single new easement to be purchased. The revised revenue proposal's forecast capex did not include additional easement costs, so no adjustment is necessary. Powerlink proposed these additional easement costs in the event that the AER does not accept the 500kV proposition.

²⁶² NER, clause 6A.6.7(c)(3).

²⁶³ NER, clause 6A.6.7(c)(2).

²⁶⁴ The incremental adjustment is \$34 million.

Table 3.1	AER's final decision on	capex allowance	(\$million, 2011-12	2)
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	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Powerlink forecast	757	710	670	540	634	3312
Adjustment	-95	-163	-280	-107	-144	-788
Substitute capex allowance ²⁶⁵	662	547	390	433	491	2519

Source: AER analysis²⁶⁶. Note these figures are the "as commissioned" \$million real 2011–12 year end. Numbers may not add due to rounding.

Figure 3.1 Proposed and substitute capex allowance (\$million, 2011–12)



Source: EMCa/AER analysis

Table 3.2 presents the incremental adjustments that were made to Powerlink's capital expenditure. The impact of the aggregate calculation of the adjustments is less than the sum of applying the specific adjustments independently. This is because there is a significant interaction between the demand forecast reduction and the exclusion of the uncommitted 500kV projects and also because some of the adjustments (such as efficiency) are proportional to the forecast capex. The cumulative aggregate adjustment is the cumulative effect of applying all of the listed adjustments. Importantly, the total cumulative adjustment is the same, irrespective of which order the incremental adjustments are applied.

²⁶⁵ \$2524 million less \$4 million disposals

²⁶⁶ There were some minor discrepancies between information provided in Powerlink's revised revenue proposal document and some supporting information provided by Powerlink. EMCa requested further information from Powerlink and the Powerlink forecast shown accounts for some minor reconciliation adjustments based on this information.

Table 3.2 Incremental capital expenditure adjustments (\$million, 2011–12)

	Incremental adjustment	Adjusted total capital expenditure (cumulative)
Powerlink forecast capital expenditure		3312
Demand forecast reduction (included below)		
500kV uncommitted project adjustment (included below)		
500kV committed project adjustment (included below)		
Above plus Carbon reduction target 5%	-660	-2652
Efficiency	-34	-2618
Revised escalators	-94	-2524
Adjusted capital expenditure	-788	2524
Disposals		-4
Total substitute forecast capital expenditure net of disposals		2519

Source: EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, p. 6, AER analysis based on its acceptance of Powerlink's response to AER/072 of 23 April 2012.

3.2 Assessment approach

The AER adopted the assessment approach from its draft decision to assess Powerlink's revised capex forecast. This approach is summarised below. For more details see section 3.3 of attachment 3 of the AER's draft decision.²⁶⁷

The AER is required to assess Powerlink's total forecast capex to decide whether it:

- accepts the total forecast capex²⁶⁸, or
- is not satisfied the forecast capex meets the capex criteria and does not accept the proposed capex²⁶⁹. In this case, the AER is required to estimate the total amount of Powerlink's required capex that it considers reasonably reflects the capex criteria, accounting for the capex factors.²⁷⁰

Although the AER has regard to the capex factors when assessing Powerlink's total forecast capex, not all factors are relevant for assessing each capex component.

The AER must accept Powerlink's total forecast capex if satisfied it reasonably reflects the efficient costs that a prudent operator in Powerlink's circumstances would need to incur based

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 100-102.

²⁶⁸ NER, clause 6A.6.7(c).

²⁶⁹ NER, clause 6A.6.7(d) and (e).

²⁷⁰ NER, clause 6A.6.7(f).

on a realistic expectation of the demand forecast and the cost inputs required to achieve the capex objectives.²⁷¹

The AER must form a view on Powerlink's total forecast capex as a whole²⁷², not on individual projects or programs. However, because the total forecast capex can be separated into expenditure components (as Powerlink does), the AER assesses these components to decide on the total forecast capex it will accept.

In making its assessment, the AER has regard to the overarching National Electricity Objective (NEO) as well as the revenue and pricing principles set out in the National Electricity Law (NEL). The AER took the view that a prudent service provider would seek cost efficiencies through continuous improvements, and that customers ultimately share in these benefits. This also provides Powerlink with a reasonable opportunity to recover at least its efficient costs in accordance with the revenue and pricing principles. This is pertinent as no incentive mechanism (or similar) is applied to capex. The issue becomes important when actual capex incurred for a regulatory control period exceeds the benchmark set by the AER (capex overspends). In this case, the TNSP can benefit in subsequent years by earning a return on an increased regulatory asset base.

The AER's assessment of Powerlink's forecast costs is a mix of top down and bottom up approaches. The AER reviewed Powerlink's supporting material including its reasoning and, where relevant, business cases, regulatory test/regulatory investment test analysis, audited regulatory accounts, changed legislative or regulatory obligations, and other drivers. It assessed Powerlink's historic capex and determined the key drivers for forecast capex. By examining key documents, processes and assumptions, and comparing historical expenditure to that proposed, the AER can better understand the key drivers behind Powerlink's need to augment and replace its network.

The AER engaged Energy Market Consulting associates (EMCa) to provide a technical review of Powerlink's revenue proposal, as well as a review of the demand forecast. EMCa was further engaged to respond to issues raised in Powerlink's revised revenue proposal (and by stakeholders) on the matter of the 500kV projects, the efficiency adjustment and the revised capex forecast due to the revised demand forecast.

The AER conducted more detailed analysis of the expenditure for some specific projects in order for the AER to be satisfied that Powerlink's overall approach to forecasting (including its planning and management strategies and policies) reasonably reflected the capex criteria. This included a sampling approach to inform the draft decision and a detailed review of specific issues raised in Powerlink's revised revenue proposal and/or in response to the AER's draft decision. In particular, the AER conducted a very detailed review of the 500kV network projects to inform its final decision. AER staff attended a workshop at Powerlink, and participated in an extensive consultation process with Powerlink in which responses to multiple requests for additional information were considered.

²⁷¹ NER, clause 6A.6.7(a) and (c).

²⁷² NER, clause 6A.6.7(c).

The AER also considered issues raised by stakeholders in submissions to the draft decision or Powerlink's revised revenue proposal. These considerations provided the AER with insight to whether Powerlink's proposed total forecast capex reasonably reflects the capex criteria.

3.2.1 Equity raising costs

The AER's approach to assessing Powerlink's equity raising costs forecast for this final decision is, in principle, consistent with the approach in the draft decision.²⁷³

To determine benchmark equity raising costs the AER relies on a method that was initially discussed in the 2004 Allen Consulting Group (ACG) report commissioned by the ACCC.²⁷⁴ This method was amended in the AER's decisions for the ACT, NSW and Tasmanian electricity service providers.²⁷⁵ The AER has applied this method in subsequent decisions for other electricity and gas service providers, including the draft decision for Powerlink.²⁷⁶ As discussed in greater detail in section 3.3.9, this method has been further refined for Powerlink's final decision.

Broadly, the AER's method applies the cash flow analysis in the post-tax revenue model (PTRM) to determine the required benchmark equity raising cost associated with forecast capex. This involves identifying a hierarchy of three methods for equity raising, with differing equity raising costs and availability for each method:

- First, firms use retained earnings as a source of equity:
 - Annual retained earnings are calculated as the residual of internal cash flows less dividends to shareholders. Retained earnings for each year are converted to real dollar terms (30 June 2012) and totalled to determine retained earnings for the entire regulatory control period.
 - Dividends are set to be just sufficient to match the distribution of imputation credits consistent with the AER's gamma assumptions, as in the WACC review. For TNSPs, this assumes a payout ratio of 100 per cent.
 - The assumed debt component of forecast capex is equal to 60 per cent of the annual change in the RAB.
 - The equity component of forecast capex for each year is calculated as the residual of the total forecast capex and the assumed debt component. Similar to retained earnings, the equity component of forecast capex for each year is converted to real

AER, Draft decision, Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 154–155.

²⁷⁴ ACG, Debt and equity raising transaction costs, final report to the ACCC, December 2004.

²⁷⁵ AER, Final decision, Australian Capital Territory distribution determination 2009–10 to 2013–14, April 2009, appendix H; AER, Final decision, New South Wales distribution determination 2009–10 to 2013–14, April 2009, appendix N; AER, Final decision, TransGrid transmission determination 2009–10 to 2013–14, April 2009, appendix E; AER, Final decision, Transend transmission determination 2009–10 to 2013–14, April 2009, appendix E.

²⁷⁶ AER, Final decision, Victorian electricity distribution network service providers, Distribution determination 2011–2015; AER, Final Decision, Jemena Gas Networks, Access arrangement proposal for the NSW gas networks ,1 July 2010 – 30 June 2015, June 2011.

dollar terms (30 June 2012) and totalled to determine the equity component for the entire regulatory control period.

- Second, firms use dividends reinvestment plans:
 - The amount of equity raised in this manner is capped. It is assumed that a maximum of 30 per cent of dividends paid are returned to the business via a dividend reinvestment plan. The total of reinvested dividends required for the regulatory control period, therefore, is determined as the minimum of the sum of the real reinvested dividends for each year and the shortfall in retained earnings required to fund the equity component of forecast capex.
- Third, firms use seasoned equity offerings encompassing both rights issues and placements

The requirement for external equity funding via seasoned equity offerings is the shortfall, if any, in retained earnings required to fund the equity component of forecast capex and the total of reinvested dividends.

Based on the need for any dividend reinvestment plans and seasoned equity offerings, the AER assigns transaction unit costs for each form of equity funding. These figures are based on the AER's empirical review in assessing the benchmark costs for raising equity finance:

- Retained earnings 0 per cent
- Dividend reinvestment plans 1 per cent of total dividends reinvested
- Seasoned equity offerings 3 per cent of total external equity required.

The AER considers that these unit costs represent the efficient costs required to raise equity in current market conditions.

The total benchmark equity raising costs is then amortised over the weighted average standard asset life of Powerlink's RAB to provide the equity raising cost allowance associated with forecast capex in the 2012–13 to 2016–17 regulatory control period. The AER considers that this method represents the approach that an efficient and prudent operator would apply in raising equity, given its particular capital raising requirements.

3.3 Reasons

The AER is not satisfied Powerlink's revised total forecast capex reasonably reflects the capex criteria, having regard to the capex factors. The AER's adjustments include:

- Lower projected demand (see section 3.3.1)
- Exclusion and de-rating of the proposed 500kV-capable projects (see section 3.3.2)
- Allowance for efficiency (see section 3.3.3)
- Reweighting of uncommitted capex scenarios to include only those based on lower carbon reduction target of 5 per cent (see section 3.3.4)
- Allowance for different cost escalation factors (see section 3.3.8)

Equity raising costs (see section 3.3.9)

The AER's consideration of these issues is set out in this section. Also discussed in this section are the AER's considerations of capex issues where the AER has departed from its draft decision, or where further clarification has been required. These include:

- cost estimation risk factor— upon consideration of additional material provided by Powerlink in its revised revenue proposal and in response to follow-up requests, the AER does not uphold its draft decision. That is, the AER's final decision is to approve the cost estimation risk factor. (see section 3.3.5)
- non-load capex (see section 3.3.6)
- non-network capex (see section 3.3.7)

3.3.1 Demand forecast reduction

The AER must accept a TNSP's capex forecast if it is satisfied it reasonably reflects the capex criteria.²⁷⁷

The AER considers Powerlink's demand forecast is not a realistic expectation of demand (see attachment 2 for the AER's consideration of Powerlink's demand forecast).²⁷⁸ The AER thus substituted a demand forecast it considers is a realistic expectation of demand for the 2012–13 to 2016–17 regulatory control period (the AER's final decision demand forecast).

The AER's final decision demand forecast results in a consequential reduction in Powerlink's capex requirement from that set out in the revised revenue proposal of \$451 million.²⁷⁹

This section sets out the AER's approach to adjusting Powerlink's forecast capex, particularly load driven capex, resulting from the AER's final decision demand forecast. Load driven capex includes augmentation capex, which contributes approximately 46 per cent to Powerlink's total forecast capex for the 2012–13 to 2016–17 regulatory control period.²⁸⁰ Connections and easement expenditure are also part of load driven capex.

The AER also made adjustments to Powerlink's revised revenue proposal capex for the following, each of which is independent of the adjustments due to the demand forecasts:

- 500kV adjustments
- Carbon price trajectory
- Efficiency adjustment.

²⁷⁷ NER, clause 6A.6.7(c).

²⁷⁸ In this section, 'demand' refers to peak summer demand unless otherwise indicated.

²⁷⁹ This is EMCa's estimate of the demand adjustment to capex. The AER also asked Powerlink to calculate the capex impact of the AER's final decision on demand forecast, the 500kV project and the carbon price trajectory. The AER considers Powerlink's adjustments to forecast capex are reasonable and has adopted them in the AER's final decision. Section 3.1 discusses these adjustments in more detail.

²⁸⁰ Powerlink, Response - Request AER/061 - Carbon price trajectory, 2 March 2012, p. 5.

EMCa's demand adjustment to capital expenditure

The AER's consultant, EMCa, estimated an alternative forecast capex by applying the AER's final decision demand forecast to Powerlink's probabilistic planning model. Specifically, EMCa used only those scenarios in the probabilistic planning model that incorporated Powerlink's low demand forecast (low capex forecasts).

The AER considers EMCa's approach to adjusting capex due to the AER's final decision demand forecast is reasonable.²⁸¹ The following sets out the AER's reasons.

EMCa noted the AER's final decision demand forecast is similar to Powerlink's low demand forecast.²⁸² Figure 3.2 shows Powerlink's low demand forecast is 335MW higher than the alternative demand forecast in 2012–13 (at 10 per cent PoE).²⁸³ However, this difference becomes progressively smaller and is not significant (46MW) by 2016–17.

This suggests the low capex forecasts form a reasonable basis to derive an alternative capex forecast (using the probabilistic planning model and the AER's final decision demand forecast). The AER's final decision demand forecast suggests a reduction to the low capex forecasts in the early years of the regulatory control period. However, Powerlink would need to make up for this reduced capex in later years as the AER's final decision demand forecast catches up to Powerlink's low demand forecast. That is, there would only be a deferral of capex within the 2012–13 to 2016–17 regulatory control period.²⁸⁴

As stated earlier, the AER adopted Powerlink's capex adjustments. The AER considers EMCa's adjustments provide a reasonableness test on Powerlink's capex adjustments due to the AER's final decision on demand, the 500kV project and the carbon price trajectory.

²⁸² EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, pp. 7–8.

²⁸³ Powerlink uses the demand forecast at 10 per cent PoE for planning purposes. See Powerlink, 2013–2017 Revenue proposal, Appendix F, Powerlink planning criteria, June 2010, p. 7; EMCa, Powerlink revenue determination: Technical review, Forecast capital expenditure and service targets, Report to Australian Energy Regulator, 6 September 2011, p. 58.

²⁸⁴ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, p. 9.

Figure 3.2 Powerlink low demand forecast and EMCa medium demand forecast (10 per cent PoE)



Source: Powerlink, Annual planning report 2011 update, January 2012, p. 7; EMCa, Review of revised demand forecast, 18 April 2012, p. 39.

EMCa did not use a high and low demand forecast to calculate the alternative forecast capex.²⁸⁵ EMCa adopted this approach for practical reasons. EMCa noted Powerlink assigned 80 per cent probability to its medium demand forecast when calculating the forecast capex for the revised revenue proposal.²⁸⁶ EMCa's analysis showed Powerlink's forecast capex would be 0.6 per cent (or \$12 million) lower if the probabilistic planning model utilised only Powerlink's medium demand scenarios (compared to using all 20 scenarios). Powerlink's forecast capex would be 0.3 per cent (or \$5 million) higher if the probabilistic planning model utilised only the medium demand scenarios and excluded the 500kV projects.²⁸⁷ EMCa thus stated:

...a suitable capex alternative capex forecast can be obtained by focusing on the [final decision] demand forecast by comparison with Powerlink's demand forecasts, and no material accuracy would be gained by attempting to produce low and high demand capex scenarios and weight them.²⁸⁸

For the reasons described above, the AER considers EMCa's approach to calculating the demand adjustments to capex are reasonable.

In addition, EMCa's approach utilises information entirely provided by Powerlink. The detailed analyses Powerlink performed to arrive at its load driven capex proposal are implicit within

²⁸⁵ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, p. 10.

²⁸⁶ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, p. 9.

²⁸⁷ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, pp. 8–9.

²⁸⁸ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, p. 9.

this approach. These include load flow analyses, identification of potential limits to the network and identification of project options to address those limits.

3.3.2 500kV network development projects

Background

Powerlink proposed four augmentation projects for the existing 275kV network. It proposed to build this infrastructure as capable of running at 500kV (that is, built with 500kV towers and insulators) but intends to operate the assets at 275kV until a 500kV upgrade is required. Powerlink expects the need to run the infrastructure at 500kV will occur in 2021–22 at the earliest. Powerlink proposed a total capital expenditure on the 500kV network of \$790.5 million in the 2012–13 to 2016–17 period. A large component of the project costs relates to the incremental cost of building the network to be capable of operating at 500kV. Powerlink estimate the cost to build the network to 275kV capacity is \$464.2 million.

The AER identified considerable uncertainty in the timing of, and need for, the 500kV network upgrade. In its draft decision, it did not accept \$544 million (\$2011-12) of capex for these projects because it was not satisfied the incremental cost of building any of the 500kV capable infrastructure²⁸⁹ reasonably reflects the capex criteria²⁹⁰.

The AER engaged EMCa to advise on key aspects of Powerlink's revenue proposal and revised revenue proposal. In particular, the AER and EMCa conducted a detailed review of Powerlink's 500kV projects. The AER's draft decision found the rationale for accepting the 500kV incremental cost should be underpinned by appropriate cost-benefit planning studies. The AER requested Powerlink to develop a 275kV build option as a counterfactual to the 500kV build, and to test assumptions that it is impossible for Powerlink to acquire additional easements in south east Queensland.

In response (in its revised revenue proposal), Powerlink developed four 275kV build options compared with the original 500kV build proposition and tested the net present value (NPV) of these. But none of the 275kV planning options proposed by Powerlink were feasible, for the following two reasons:

- First, Powerlink developed 275kV build options that required up to 810 new easements and 18 additional corridors. Powerlink provided two expert reports (by Norton Rose and IDM partners) demonstrating the unlikely scenario of Powerlink being able to acquire all 810 new easements and 18 additional corridors in south east Queensland. Most of this advice related only to the required expansion of 260 metres to the initial 120 metre easement corridors, over all assumed route requirements. However, the AER considers it is feasible that only a 50 metre easement expansion is required, and then for only part of a line route and for a limited time. Powerlink's response did not properly address the AER's request to develop a realistic 275kV counterfactual or to demonstrate the inability of acquiring a small number of easements.
- Second, the seven generation scenarios presented in the NPV analysis were a method of offsetting demand to mimic the required reduced demand forecast. Powerlink modelled no generation growth, assuming only 150 MW of output from the existing 850 MW of

²⁸⁹ That is the difference between the cost of constructing a 500kV capable network and a 275kV network.

²⁹⁰ NER, clause 6A.6.7(c).

installed south east Queensland capacity. It assumed strong south east Queensland demand growth that would require an even greater investment in generation in Queensland, but that **all** of this new generation investment would occur beyond the borders of south east Queensland.

Because Powerlink had not provided any feasible 275kV alternatives (as requested), the AER focused on one option (known as 'option 2' in Powerlink's revised revenue proposal) for development and analysis as a 275kV counterfactual. To understand and develop a satisfactory 275kV alternative, the AER requested circuit diagrams, power flow information, circuit configuration and augmentation paths and timings through to 2035.

In February 2012, AER staff and EMCa attended a two day onsite workshop at Powerlink's headquarters, at which this analysis was presented and discussed. During this workshop, AER staff, EMCa and Powerlink staff identified variants on the 275kV build options that met Powerlink's planning criteria and other technical constraints.

Following this meeting, the AER and EMCa developed a feasible alternative 275kV build option (called option 2a, being a variant of option 2). Option 2a does not require additional easements or corridors, but does involve constructing one line and then demolishing it at a later date. The AER and EMCa also developed two further 275kV build options (option 2b and option 2c). Each requires only one additional corridor, rather than the 18 that Powerlink tested. Options 2b and 2c include optional demolition and repatriation of a corridor—that is, the line could be demolished and the easements returned, *or* the line could remain in service at 275kV. The AER requested Powerlink test these scenarios under the following demand assumptions:

- Powerlink's 4 per cent demand projection
- 2.5 per cent demand projection
- 3 per cent demand projection.

Powerlink responded with analysis for options 2a, 2b and 2c, and also provided analysis for two new build scenarios: options 2bU and 2cU, which include undergrounding costs. It contended, however, that options 2b, 2bU, 2c and 2cU are all infeasible because they involve the acquisition of additional easements that Powerlink maintained would not be available in the future or that undergrounding costs would be prohibitive. The AER thus focused on the economic analysis of option 2a because it is the technically feasible 275kV option with no additional easement requirements, compared with Powerlink's 500kV proposition.

The AER also tested Powerlink's assumptions of forecast generation in south east Queensland. Powerlink's analysis assumed only 150 MW of existing capacity in south east Queensland (from Wivenhoe). The AER understands existing generation capacity in south east Queensland is 850 MW (350 MW from Swanbank E and two x 250 MW from Wivenhoe), so it sought clarification on Powerlink's assumed level of generation in south east Queensland.

In addition to the material reviewed in the draft decision, the AER also reviewed other material, including:

 Bureau of Resources and Energy Economics', Major electricity generation projects, November 2011

- Power Industry News , Edition 772, 23 January 2012
- TRUenergy, New power station for Queensland, 25 October 2011
- Australian Energy Market Operator, 2011 Electricity Statement of Opportunities
- Powerlink, 2011 Annual planning report update, January 2012
- 15 submissions on the AER's draft decision / Powerlink's revised proposal.

Easement costs

Powerlink submitted that if the AER allows only the 275kV costs, then such a strategy would require the acquisition of strategic easements to assure its feasibility. The total cost of these *additional* easements would be \$131 million, comprising:

- \$72.9 million for strategic easement widening of the Halys–Springdale and Springdale– Blackwall corridors (beyond the easement costs included in the draft decision for the 500kV build)
- \$52.8 million for strategic easement widening of the Springdale–Greenbank corridors (beyond the easement costs included in the draft decision for the 500kV build)
- \$5.5 million for strategic easement widening of the Halys–Western Downs corridors (beyond the easement costs included in the draft decision for the 500kV build).

Such costs are additional to those easement costs approved in the draft decision, which included easement costs for the 500kV build. However, subsequent to Powerlink's revised revenue proposal, the AER, EMCa and Powerlink developed and tested option 2a, which *does not require the acquisition of easements*. For this reason, the AER did not include the additional strategic easement requirements of \$131.3 million in its final decision. It approves the easement costs of \$49.35 million²⁹¹ from the draft decision, because it considers the strategic acquisition of easements to be a prudent activity.

Halys–Blackwall 500kV

Powerlink proposed to augment its 275kV network from Halys to Blackwall via Springdale in south east Queensland at a total cost of \$379.9 million in the 2011–12 to 2016–17 regulatory control period. The first of the 500kV projects, the Halys–Blackwall project has undergone a regulatory test and has 'committed' status—that is, Powerlink's board and shareholding minister approved the project. However, not all easements in the Springdale–Blackwall corridor had received community infrastructure designation; at the time of Powerlink's revised revenue proposal the application was still pending.

The AER accepts the need for a network augmentation at 275kV to address thermal limitations on the 275kV network (although the timing is uncertain). However, it rejects the 500kV incremental cost because demand over 2012–13 to 2016–17 is insufficient to satisfy the capex criteria.²⁹²

²⁹¹ Powerlink, *Pro-forma information statement*, 16 January 2012.

²⁹² NER, clause 6A.6.7(c)(3).

Powerlink proposed that, if the AER decides the 500kV incremental expenditure does not meet the capex criteria, to make the project and its associated capex (\$148.9 million) a contingent project. The AER accepts Powerlink's proposal to put the incremental expenditure into contingent projects. All contingent projects require a trigger event, and the AER must be satisfied the proposed trigger event for the Halys–Blackwall incremental expenditure is appropriate.²⁹³ Powerlink proposed the following trigger event for the Halys–Blackwall contingent project:

- Forecast requirement for power flow into south east Queensland exceeds the capability of line easements already acquired if these are developed at 275kV, and
- Independent expert advice concludes additional easements for 275kV development options will require lengths of underground cable sections. The length of required undergrounding will make these 275kV options uneconomic, and
- the Regulatory Investment Test for Transmission (RIT-T) public consultation and cost-benefit analysis framework establishes the 500kV build is the credible option (as defined in NER 5.6.5D(a) and (b)) that maximises net economic benefit.

The AER accepts Powerlink's proposed trigger event because it is satisfied the trigger event is appropriate and meets NER 6A.8.1(b) and specifically NER 6A.8.1(b)(4).

To be clear, the AER considers Powerlink should conduct a new RIT-T for the Halys–Blackwall project irrespective of whether Powerlink:

- builds the lines to 275kV capacity (which has not yet been subject to a regulatory test as this option was not included in the 2009 regulatory test) or
- builds the lines to 500kV capacity (in which case the RIT-T is a requirement of the trigger event).

The following discussion explains the AER's reasons for this decision.

2009 regulatory test

In determining the trigger event for the Halys–Blackwall project, the AER recognises Powerlink undertook a regulatory test²⁹⁴ in 2009 that showed the 500kV build (but operation at 275kV) is the lowest cost option to meet future electricity need. In performing the 2009 regulatory test, Powerlink assumed:

- it would be unable to acquire sufficient easements in south east Queensland, so it did not test 275kV options. It did not test or demonstrate the validity of this assumption.
- no generation growth in south east Queensland in the 20–25 year planning horizon
- a demand forecast that has subsequently been found to be unrealistic (because 2008–09 demand forecasts were overinflated compared with actual demand)

²⁹³ NER, clause 6A.8.1(b)(4).

²⁹⁴ In 2010 the regulatory test was replaced with the RIT-T method.

 an unnecessarily stringent requirement for the 'commitment' of non-network alternatives by January 2009 (in excess of the AER's requirements for a project to be 'committed')

The AER considers the need and timing for the Halys–Blackwall project are uncertain. Since Powerlink conducted the 2009 regulatory test, the assumptions about demand changes and potential generation planting have materially changed.

Changes in demand

The actual demand in south east Queensland has been significantly lower than the 2009 regulatory test forecast demand, so Powerlink deferred the investment in the Halys–Blackwall augmentation by at least four years. Figure 3.4 shows the actual demand in south east Queensland, compared with Powerlink's forecast demand from the 2009 regulatory test and its most recent demand forecast.²⁹⁵



Figure 3.3 South east Queensland actual and forecast demand (MW)

Changes in generation

Table 3.3 sets out the estimated generation or demand side management required to address the 2009 regulatory test forecast limitations. It clearly shows 1630 MW of generation located in south east Queensland is sufficient to obviate the need for the Halys–Blackwall project (operating at 275kV).

Source: Powerlink, *Final report: Maintaining a reliable electricity supply to Southern (South West and South East) Queensland*, 5 June 2009; Powerlink 500kV bubble diagrams; Powerlink, *Annual planning report 2011 update*, January 2012.

²⁹⁵ Powerlink provided the latter forecast in its revised revenue proposal as an 'update' to its 2011 annual planning report.

Table 3.3Estimated generation or demand side management required for Bulli to
south west Queensland, and south west Queensland to south east
Queensland

Year	Bulli—south west Queensland (MW)		South west—south east Queensland (MW)
	South west and/or south east Queensland	Component permitted in central and/or northern Queensland	South east Queensland
2011–12	220	230	0
2012–13	600	540	310
2013–14	940	650	590
2014–15	1290	750	900
2015–16	1700	850	1270
2016–17	2090	960	1630

Source: Powerlink, Request for information, 28 October 2008, p. 13.

Since the 2009 regulatory test was conducted, new generation developments have been proposed and are in various stages of planning in the south east Queensland region²⁹⁶. Table 3.4 sets out some of the possible generation developments in south east Queensland according to the Bureau of Resources and Energy Economics.

Generator	Project	Location	Capacity
TRUenergy	Blackstone power station	Ipswich	500–1500MW (gas)
AGL Energy	south east Queensland	Ipswich	360 MW (gas)
Stanwell Corp	Swanbank F	Ipswich	400 MW (gas)
Westlink	Gatton	Gatton	200–300 MW (gas)
Cooper's Gap wind farm	AGL Energy	180 kilometres north west of Brisbane	350 MW (wind)
Crows Nest wind farm	AGL Energy	Toowoomba	150 MW (wind)
Mount Emerald	Ratch Australia	Mount Emerald	220 MW (wind)

Table 3.4 Possible generation developments in south east Queensland

Source: Bureau of Resources and Energy Economics, *Major electricity generation projects*, November 2011, pp. 17–30.

The AER considers some of these projects to be significant developments that the 2009 regulatory test did not assess (partly) because Powerlink required, in its request for

²⁹⁶ Bureau of Resources and Energy Economics, *Major electricity generation projects*, November 2011, pp. 17–30.

information, Proposed solutions must be committed by January 2009 using proven technology and have funding and project management to deliver within the required timeframe.²⁹⁷

Most importantly, TRUenergy has twice publicly announced its plans to operate Blackstone power station in south east Queensland (a project also discussed in the AER's draft decision):

TRUenergy plans to operate Blackstone Power Station in South East Queensland. The site is located within the Swanbank Enterprise Park. The site is situated approximately 7km south east of the Ipswich CBD, and 30km south west of Brisbane's CBD. TRUenergy intends to operate the power station initially as a peak load generator and will be developed over three stages. Stage 1 will be designed as an Open Cycle Gas Turbine system (OCGT) with a nominal generation capacity of 500MW, increasing to 750MW in Stage 2 utilising either an additional open cycle gas turbine, or alternatively, conversion to combined cycle technology. Stage 3 will comprise an additional capacity of 750MW utilising either open cycle or combined cycle technology, resulting in an ultimate capacity of 1500MW. During later project stages, the proposed Blackstone Power Station may be re-configured to a base load generator – achieved through conversion to a gas turbine/steam turbine combined cycle plant. Base load capacity growth is primarily dependent upon population growth and industrial development....

TRUenergy's proposal is targeted at two key growth areas, with new gas fired electricity generators proposed for Ipswich to meet South East Queensland load, and Gladstone to meet growing industrial load. .. The power stations, each initially proposed to be 500 megawatts, and scalable up to 1,500 megawatts each, could represent a total investment of \$3.6 billion...

The permitting process will occur over the next 12 months. Subject to the receipt of all permitting and development approvals, construction could begin as early as 2013.²⁹⁸

Powerlink informed the AER that the proposed timing of the incremental generation of projects is: 500 MW in 2019, 750 MW in 2021, 1500 MW in 2022 and 2500 MW in 2026.²⁹⁹ If this project (or others) proceeds, then it could materially impact the timing of Powerlink's 500kV Halys–Blackwall investment decision.

Need for new economic test for investment (RIT-T)

The AER considers Powerlink must undertake a RIT-T for the Halys–Blackwall 500kV project because it would benefit the investment decision making process. The RIT-T is important because the Halys–Blackwall project is driven by a change in demand or the absence of generation in south east Queensland.³⁰⁰ Powerlink's demand and generation assumptions set out in the 2009 regulatory test were significantly different from actual outcomes.

Further, the results of the additional NPV analysis that the AER requested to test Powerlink's 500kV proposition compared with the 275kV counterfactual (option 2a) demonstrated the ranking of the lowest cost option depends on the economic drivers assumed. In addition, demand side management or generation options may now be realistically available and able to defer or obviate the investment. Under the AER's revised demand forecast of the AER's final decision, this project is deferred by 1 year to 2016–17; this is 7 years since the 2009 regulatory test was performed and there is adequate time for Powerlink to conduct a new test.

²⁹⁷ Powerlink, *Request for information*, 28 October 2008, p. 14.

²⁹⁸ Power Industry News, *Bulletin no.* 772, 23 January 2012, p. 28.

²⁹⁹ Powerlink, *Response to AER/069: revision to request AER/068*, 23 March 2012.

³⁰⁰ NER, clause 6A.8.1(c)(2).

On this basis, the AER considers it prudent for Powerlink to undertake a RIT-T to test new information about demand and generation in south east and south west Queensland. Such a RIT-T would confirm whether the 500kV project remains the economically preferred option, given the material changes in inputs. It would ensure the most up-to-date and appropriate knowledge about key input variables—demand and generation—have been considered. In this way, the RIT-T is a proxy for Powerlink proving the project meets the NER criteria.

Halys – Western Downs 500kV 3rd and 4th circuits (operating at 275kV)

Although the median commissioning date is outside the 2012–13 to 2016–17 regulatory control period, Powerlink submitted capex of \$148.3 million will be required in the period to construct a 275kV network, or \$261.4 million to build a 500kV capable network. The AER does not accept the proposed expenditure within the 2012–13 to 2016–17 regulatory control period, because demand is insufficient to satisfy the capex criteria set out in NER clause 6A.6.7(c)(3) (for either the 275kV or the 500kV build). That is, the AER considers this project does not meet the expected demand for prescribed transmission services over the 2012–13 to 2016–17 period, so the proposed expenditure does not meet the capex objectives.³⁰¹

Further, this is an uncommitted project, and the likelihood of its requirement within the 2012–13 to 2016–17 regulatory control period is linked to the development of sufficient levels of committed new generation in south west Queensland.

The AER reclassified this project (in its entirety) as a contingent project, and accepts the trigger event that Powerlink proposed for it. The project trigger event and indicative costs are set out in appendix 12.

Halys–Greenbank 500kV (operating at 275kV)

Although the median commissioning date is outside the 2012–13 to 2016–17 regulatory control period, Powerlink submitted capex of \$84.9 million will occur in the period for a 275kV capable network, or \$149.2 million for a 500kV capable network.

The AER does not accept the proposed expenditure within the 2012–13 to 2016–17 regulatory control period, because demand is insufficient to satisfy the capex criteria in NER clause 6A.6.7(c)(3) (for either the 275kV or the 500kV build). That is, the AER considers this project does not meet the expected demand for prescribed transmission services over the 2012–13 to 2016–17 regulatory control period so the proposed expenditure does not meet the capex objectives.³⁰²

Further, this is an uncommitted project and will fall considerably outside the 2012–13 to 2016–17 regulatory control period under the revised alternative medium demand scenario, and also outside the period under the revised high demand scenario proposed by EMCa. As such, the AER does not consider this project is likely to be required within the 2012–13 to 2016–17 regulatory control period.

³⁰¹ NER, clause 6A.6.7(a)(1).

³⁰² NER, clause 6A.6.7(a)(1).

The AER reclassified this project (in its entirety) as a contingent project and accepts the trigger events that Powerlink proposed for it. The project trigger event and indicative costs are set out in appendix 12.

Halys – Western Downs 500kV 5th and 6th circuits (operating at 275kV)

Powerlink did not include any expenditure for this project in its revised revenue proposal because the median commissioning date is well outside the 2012–13 to 2016–17 regulatory control period. The costs of this project, therefore, do not require AER consideration.

3.3.3 Efficiency adjustment

The AER took the view that a prudent service provider would seek cost efficiencies through continuous improvements, and that customers ultimately share in these benefits. This also provides Powerlink with a reasonable opportunity to recover at least its efficient costs in accordance with the revenue and pricing principles. This is pertinent as no incentive mechanism (or similar) is applied to capex. The issue becomes important when actual capex incurred for a regulatory control period exceeds the benchmark set by the AER (capex overspends). In this case, the TNSP can benefit in subsequent years by earning a return on an increased regulatory asset base.

The AER reviewed Powerlink's revised revenue proposal against the NER criteria and had regard to submissions that commented on the efficiency adjustment.

Powerlink's capex proposal is developed on a bottom up basis where input assumptions are set into a number of scenarios that in turn are used to generate load driven capex. The AER and its consultant, EMCa, initially conducted a top-down approach to assessing the capital governance structure. The purpose of the AER/EMCa's top down review was to understand the extent to which Powerlink's capital governance structure aligns with good industry practice and asset management standards. The AER and EMCa then conducted a detailed review of a sample of projects to assess the extent to which Powerlink applies its capital governance framework in practice. This process helped the AER assess whether Powerlink's forecast capital expenditure reasonably reflects: the efficient costs, a realistic expectation of input costs, and the costs that a prudent operator in the circumstances of Powerlink would incur in achieving the capital expenditure objectives.

The AER is not satisfied that Powerlink's proposed forecast capex meets the capital expenditure criteria.³⁰³ Specifically, the AER found that Powerlink's forecast capex:

- exceeded the efficient costs of achieving the capital expenditure objectives³⁰⁴ and
- did not reflect the costs that a prudent operator in the circumstances of the relevant TNSP would require to achieve the capital expenditure objectives.³⁰⁵

³⁰³ NER, clause 6A.6.7(c).

³⁰⁴ NER, clause 6A.6.7(c)(1).

³⁰⁵ NER, clause 6A.6.7(c)(2).

The reasons for these findings include:

- Powerlink's current capex program was not efficient because it did not include a formal performance improvement program. Implementing such a program is likely to improve the efficiency which Powerlink undertakes its investment program.³⁰⁶
- Other TNSPs have achieved measurable capex efficiencies by implementing performance improvement programs. EMCa provided several examples of efficiency savings by other TNSPs. Such programs could equally be applied by all Australian TNSPs, including Powerlink in its current circumstances.
- Based on the efficiency programs utilised by other TNSPs, EMCa's expert industry experience and its own top-down analysis the AER considers Powerlink's proposed capex should be reduced by \$34 million³⁰⁷ to make it compliant with the capex criteria.

The AER's final decision is to reduce Powerlink's forecast capex by \$34 million based on a one per cent reduction in the second year of the 2012–13 to 2016–17 regulatory control period and a two per cent annual reduction thereafter. The AER made the adjustment because it considered Powerlink could improve the efficiency of its forecast capex costs by formally instituting a performance improvement program when undertaking capital investment. Table 3.5 describes the basis of the efficiency adjustment — the basis was recommended by EMCa (and adopted by AER) and was founded on the considerable industry experience of the EMCa team.³⁰⁸

³⁰⁶ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, pp. 97, 105-106.

³⁰⁷ This is the incremental adjustment which and accounts for reduced demand forecast, removal of 500kV projects and carbon reduction of 5 per cent. It is based on Powerlink's analysis of the AER's final decision (of 23 April 2012).

³⁰⁸ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, annex C.

Year	Proposed adjustment	Reasoning for the adjustment
Year 1	None	A formal management-driven focus on efficiency and improvement could be commenced in the first year, but gains would be seen in subsequent years.
Year 2	1 per cent of capex for	Gains will be identified and the benefits of project management improvements will begin to be realised.
year	Gains will be identified and the benefits of improved capex performance will begin to be realised.	
		Gains from deferral of capital investment may be seen in this period. However such gains may not be material due to the longer lead time for these initiatives to take effect.
Year 3 2 per cent of capex for the year		Gains from the introduction of a formal improvement program would have been identified and implemented for a number of initiatives.
		Gains from project management improvements will be consolidated and continue at 1% for the remaining years of the regulatory control period. Note that the expected 1% gains are not cumulative but increase in value as capex increases in each year.
		By year three a formal improvement program is likely to have identified and implemented initiatives that would provide the equivalent benefit of a one year deferral of at least 1.5 projects per year out of the 149 capital projects identified in the revenue proposal.
		In years 3, 4 and 5 the deferral of 1.5 x average augmentation and refurbishment projects has a value in dollars equal to 1% of the proposed capex on augmentation and refurbishment for the relevant year.
		Therefore a 1% adjustment from project management and 1% from other efficiency and improvement initiatives is reasonably achievable and likely to occur in the final three years of the regulatory control period.

Table 3.5 Basis for efficiency adjustment

Source: EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal,18 April 2012, p. B-11.

Powerlink, along with Transend, Electranet and TransGrid disagreed with the need for an efficiency adjustment.³⁰⁹ The following discussion addresses the NSPs' concerns and describes the AER's considerations in forming its decision.

Labour productivity adjustment

Powerlink and ElectraNet stated that applying both a labour productivity adjustment to labour costs and the capex efficiency adjustment would overstate achievable productivity gains.³¹⁰ The AER agrees this would double count efficiency gains. However, the AER did not apply a labour productivity adjustment to labour costs in this final decision. Therefore there is no double counting of the amount claimed by the NSPs.

Incentive framework

Electranet and Transend considered the efficiency adjustment weakens the incentive for TNSPs to put forward efficient costs because applying an efficiency adjustment effectively

³⁰⁹ Submissions on draft decision (20 February 2012): Transgrid, Transend, ElectraNet.

³¹⁰ Submissions on draft decision (20 February 2012): Transend, ElectraNet.

returns efficiency savings to customers before they are achieved by service providers.³¹¹ However the AER disagrees because this contention assumes the TNSPs proposed forecast capex is the efficient cost of achieving the capital expenditure objectives.

The AER has established that Powerlink's forecast capex exceeds at least efficient costs. That is, the AER considers the efficiency adjustment necessary to align Powerlink's capital expenditure forecast to at least efficient costs.

In practical terms, if the AER determines that TNSPs can avoid incurring forecast capital costs, then the AER must ensure customers do not pay for such costs. Where this is the case, the NER requires that the AER must not accept the forecast capex³¹² and that it must make a substitute capex forecast.³¹³ The AER applied the efficiency adjustment to adjust Powerlink's forecast capex so that the AER is satisfied that the total forecast capex reasonably reflects the capital expenditure criteria.³¹⁴

Historical gains made by Powerlink

The draft decision observed that Powerlink's actual capex incurred was less than its forecast capital expenditure during the 2007–08 to 2011–12 regulatory control period. Powerlink's revised revenue proposal provided reasons for this expenditure profile. It cited the impact of the global financial crisis in reducing electricity demand, prudent reprioritisation of workloads and unforeseen developments in the Surat Basin.

Powerlink submitted the AER should not consider historical gains against forecast as an indication of previous inefficient capex forecasting processes because:

- while past performance may inform future performance, the extent to which this can occur is dependent upon the circumstances facing the TNSP at the time
- there are inherent uncertainties in forecasting capex (which is probabilistic in nature) and
- the variance in actual expenditure against forecast disregards the nature of the incentive framework which is designed to incentivise TNSPs to out-perform expenditure allowances through prudent and efficient means during the regulatory period.

EMCa considered that during the 2012–13 to 2016–17 regulatory control period opportunities will arise for Powerlink to respond in a similar manner and lock in gains from deferral and/or amendment of projects to realise efficiency gains. However, the AER recognises this is a feature of the incentive regime and not necessarily a function of inefficient capex forecasting. The AER accepts Powerlink may have responded appropriately to the changes in its circumstances by deferring capex and therefore has not used this rationale in determining the capex reduction.

³¹¹ Submissions on draft decision (20 February 2012): Transend, ElectraNet.

³¹² NER, clause 6A.6.7(d).

³¹³ NER, clause 6A.6.7(f).

³¹⁴ NER, clause 6A.6.7(c).

Implementation of continuous improvement programs

The AER and EMCa undertook a top-down assessment of Powerlink's governance and capex program and EMCa identified a number of areas where Powerlink should achieve efficiency gains. EMCa's advice to the AER drew upon its team members' senior utility management, board-level and senior consulting experience.

EMCa provided further advice to the AER supporting its quantification of the efficiency adjustment set out in the draft decision and in EMCa's Final Technical Report (November 2011). It drew upon EMCa's direct experience in order to scope what, in its opinion, is a conservative estimate of the gains a well-managed utility should expect to make over a five-year period.³¹⁵.

EMCa concluded:

- The absence of a formal continuous improvement structure in Powerlink was likely to lead to potential opportunities to identify and secure efficiencies and improvement gains being missed.
- Formal direction and support from senior management for an organisational efficiency and improvement program was likely to yield results.
- In an efficient organisation EMCa would expect to see formal efficiency and improvement programs with widely communicated reporting on the achievement of targeted gains. These initiatives would include clearly defined lines of responsibility to an individual manger/s regarding efficiency and improvements. This is standard practice in efficient organisations³¹⁶.

EMCa provided examples to demonstrate how prudent and efficient transmission companies can—and have—reduced capex by adopting emerging technologies and asset management methodologies. These examples are provided in detail below.

Powerlink's existing programs

EMCa's top down review of Powerlink's capital management found Powerlink does not have a formal continuous improvement structure with formal direction and support from senior management. According to EMCa, an executive-led formal cost reduction program should realise material capex efficiency gains and a formal program with measurable outcomes and lines of reporting is more likely to yield tangible efficiency results. Therefore Powerlink was likely to be missing opportunities to identify and secure efficiencies and improvement gains.

The draft decision listed smoothing resource allocation, proactive facilitation of viable nonnetwork alternatives, smart grid initiatives and identifying synergies between projects as areas where efficiency gains could be achieved if a formal continuous improvement program was implemented. Powerlink disputed this and submitted:

³¹⁵ EMCa, *Forecast capital expenditure advice on Powerlink's revised revenue proposal*, 18 April 2012, annex B.

³¹⁶ EMCa, *Forecast capital expenditure advice on Powerlink's revised revenue proposal*, 18 April 2012, annex B p.8.

- wherever practicable and reasonable, it is committed to increasing the efficiency of its operating and capital works, and undertakes improvements as part of its normal business activities
- many of the items EMCa identified that may provide additional efficiencies are already in place, or have little relevance to a TNSP.³¹⁷

Powerlink therefore submits that cost efficiencies associated with program management have been realised and already included in the capital program in its revenue proposal.³¹⁸

These include:

- Resource smoothing—Powerlink utilises a flexible, competitive outsourcing arrangement with a number of panels with multiple contractors to deliver its capital works.
- Proactive facilitation of viable non-network solutions—Powerlink operates under the RIT-T framework, which requires consideration of non-network solutions.
- Smart grid initiatives—Powerlink considered Smart Grid was a distribution based technology and any expected gains from reduced demand would have been included in the Energex and Ergon's demand forecast.
- Focused identification of synergies between projects—Powerlink enhanced program management during the 2007–08 to 2011–12 regulatory period. This includes the application of program management in the inception and delivery of a program of interrelated projects, allowing certain efficiencies to be gained.³¹⁹

EMCa noted Powerlink is correct that some smart grid components are more relevant to distribution networks, however the benefits that they can provide can be realised along the whole supply chain. For example, Transpower NZ provided information on how it intends to use smart grid technology to defer investment and improve reliability.³²⁰

The examples provided by Powerlink to demonstrate the cost efficiencies realised do not evidence an executive-led formal cost reduction program. Many organisations have introduced quality and cost management programs.³²¹ During EMCa's on-site review, Powerlink management informed EMCa that continuous improvement and cost management are implicit in every managers approach – 'we just do it'.³²² EMCa found evidence to support this view but also found that:

- learnings were not sufficiently shared across the organisation
- Powerlink does not quantify and target potential benefits from improvement initiatives
- improvement initiatives were not driven and monitored at a senior management level.

³¹⁷ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 90.

³¹⁸ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 90.

³¹⁹ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 90.

EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, annex B, p.4

³²¹ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, annex B, p.8.

³²² EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 28 August 2011, p.36

Capital project management and management of contingencies

According to EMCa, a common aspect of continuous improvement methodologies for capital intensive organisations arises from improved project management practices. EMCa note:

IIn an efficient organisation it is normal for this aspect of management to be undertaken through a formal program supported by senior management with reporting on the opportunities identified and the benefits realised.³²³

In EMCa's opinion, Powerlink's practice of adding a generic one line contingency percentage for capital projects is likely to lead to suboptimal project management outcomes:

- the vast majority of capital project costs occur in equipment and materials (which can be estimated reasonable accurately) whereas the major risks and uncertainties are usually associated with onsite works (mainly the civil or establishment works). It is therefore good management practice to encourage tight controls of these areas.
- generic application of contingencies does not take into consideration the relative sizes of projects and differing components of the projects. The application of more specific contingency allowances is likely to tighten project management and improve focus on key cost drivers.

Figure 3.4 shows the profile of the augmentation and replacement capex in the 2007–08 to 2011–12 regulatory control period and shows the wide range of project value. Based on these project estimates, if Powerlink applies its generic contingency allowance (which is a flat percentage) to the augmentation and replacement project estimates, 13 projects (9 per cent of total 149 projects) will account for 50 per cent of the total contingency allowance applied to all projects. That is, a 1 per cent saving in the contingency for the top 13 projects yields between 1 and 2 per cent of overall savings. This demonstrates that relatively small efficiency and improvement gains made on the high cost projects will have a large impact on the overall capex expenditure.

³²³ EMCa, *Forecast capital expenditure advice on Powerlink's revised revenue proposal*, 18 April 2012, annex B, p.8.

Figure 3.4 Total expenditure in 2007–08 to 2011–12 regulatory control period on augmentation and replacement capital projects.



Source: EMCa

EMCa notes that, whilst the basis of establishing the capex component of the revenue allowance is undertaken on a zero contingency basis, the actual expenditure within the regulatory control period will in practice include any project management inefficiencies. Therefore, the project management efficiency gains a well-managed utility can expect to make through ongoing cost reduction and efficiency programs will result in an overall reduction in capex requirement. It is therefore appropriate to take such expected project management efficiency gains into consideration when setting the capex forecast.³²⁴

Powerlink commissioned a report from Evans and Peck³²⁵ which identified a relatively large differential between budget estimates and actual project outcomes. Evans and Peck reported that estimating issues are likely to contribute to a proportion of the overruns. While EMCa agree this may be the case, EMCa also finds that:

given the attention Powerlink has applied to its estimating process and the credibility and integrity that it clearly holds for its base planning object (BPO) database (see section 3.3.5) it is likely that estimation inaccuracy will not be the sole reason for the cost overruns.

³²⁴ EMCa, *Forecast capital expenditure advice on Powerlink's revised revenue proposal*, 18 April 2012, annex B, p.9.

³²⁵ Powerlink, *Revised revenue proposal – Appendix G*, 16 January 2012.

It is more likely that project management efficiency gains could be identified and implemented that would reduce at least a proportion of capital cost over runs and therefore the cost of projects.³²⁶

Examples of other TNSP efficiency programs

Other TNSPs have demonstrated efficiency and improvement gains which have benefited from formal management supported frameworks³²⁷. Although some of these examples may not apply specifically to Powerlink, EMCa provided the following examples (see EMCa's report³²⁸ for a full discussion):

Some networks are using Variable and Dynamic Line Rating (DLR) to release significant additional existing network capacity. EMCa understands between 10 and 20 per cent additional transmission capacity has been gained in Tasmania during specific times since introducing DLR. This is supported by recent information presented by Transpower NZ.

There was significant pressure on Transpower to construct an additional 220kV transmission line into the Bay of Plenty in New Zealand's North Island. The approximate capital cost of this project was \$40m. Transpower's senior management used emerging innovative technologies to identify opportunities for low cost solutions to realise additional transmission capacity. This deferred the need to construct an additional 220kV line for an indefinite period.

Current and emerging Smart Grid technologies may provide opportunities for TNSPs to better manage power flows on their network and reduce loadings during peak demand times. The revised revenue proposal considered Smart Grid was a distribution based technology and any gains would have been included in DNSP demand forecasts. EMCa agreed that some smart grid components are more relevant to distribution networks. However the benefits they provide can be realised along the whole supply chain. For example, Transpower NZ has provided information on how it intends to use smart grid technology to defer investment and improve reliability.³²⁹

3.3.4 Carbon price trajectory

The AER's final decision is to reject Powerlink's revised probabilities for the carbon price trajectory. The AER considers Powerlink's revised probabilities result in a forecast capex that does not reasonably reflect a realistic expectation of cost inputs required to achieve the capex objectives.³³⁰ The AER is thus not satisfied the capex forecast reasonably reflects the efficient cost of a prudent TNSP in Powerlink's circumstances.³³¹

³²⁶ EMCa, *Letter to AER*, 26 March 2012, p.8.

Refer to EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012.

EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, annex B.

³²⁹ EMCa, Forecast capital expenditure advice on Powerlink's revised revenue proposal, 18 April 2012, annex B,

pp.4–7.

³³⁰ NER, clause 6A.6.7(c)(3).

³³¹ NER, clause 6A.6.7(c)(2).

Table 3.6 sets out the AER's final decision probabilities for the carbon price trajectory. This reduces Powerlink's forecast capex (as set out in the revised revenue proposal) for the 2012–13 to 2016–17 regulatory control period by \$17 million.³³²

This final decision affirms the draft decision's probability assignments to the carbon price trajectory targets (the carbon targets). The AER considers Australia will not move beyond the Australian Government's pledge to the United Nations Framework Convention on Climate Change (UNFCCC) Copenhagen Accord and adopted in the Clean Energy Future legislation.³³³ The Australian Government's pledge to the Copenhagen Accord was to reduce Australia's greenhouse gas emissions by:

- 5 per cent from 2000 levels by 2020 (unconditional)
- between 15 per cent and 25 per cent from 2000 levels by 2020, conditional on the extent of action by other emitters.³³⁴

The carbon targets are Australia's greenhouse gas emissions reduction targets for 2020. It follows the AER considers Australia will not move beyond its Copenhagen Accord pledge in the 2012–13 to 2016–17 regulatory control period.

The AER reached this conclusion based on the following:

- the Australian Government has committed unconditionally only to the 5 per cent target and has not altered this position for several years.³³⁵
- the AER does not consider Powerlink provided evidence of other countries' actions that would result in Australia adopting greenhouse gas reduction targets of 15 per cent or 25 per cent from 2000 levels by 2020 (the higher targets).³³⁶
- actions by several major greenhouse gas-emitting countries at the recent UNFCCC Durban conference appear to reduce the likelihood Australia would adopt the higher targets.³³⁷
- the uncertainty associated with the carbon targets is extremely large and the assignment of probabilities to the higher carbon targets is arbitrary and not justified.³³⁸

³³² Powerlink, *Response - Request AER/061 – Carbon price trajectory*, 2 March 2012, pp. 5 and 8.

³³³ The Parliament of the Commonwealth of Australia (Senate), *Clean Energy Bill 2011, Revised Explanatory Memorandum*, 2010-2011, p. 11.

³³⁴ Australian Government, Australia's submission to Copenhagen Accord, 27 January 2010.

³³⁵ See 'Insufficient evidence of further action by other countries' section below.

³³⁶ See 'Insufficient evidence of further action by other countries' section below.

³³⁷ See 'UNFCCC Durban Conference' section below.

³³⁸ See 'Probabilistic method' section below.

Target (per cent greenhouse gas reduction from 2000 levels by 2020)	Probability of occurrence
5 per cent	100 per cent
10–15 per cent	0 per cent
25 per cent	0 per cent

Table 3.6 AER final decision on carbon price trajectory probabilities

Source: AER analysis.

The AER notes Australia's Copenhagen Accord pledge does not represent a particular Australian Government policy, such as the carbon tax.³³⁹ Nor does it represent a particular State Government policy, such as the various renewable energy subsidies and schemes. Rather, Australian and State Government policies and initiatives contribute to achieving the Copenhagen Accord pledge.³⁴⁰

The Australian Government may enact new legislation or make regulations increasing the 5 per cent carbon target, implementing an increase upon Australia's current commitment. If that occurs, Powerlink may apply to the AER for a pass through of any resulting increases in capital expenditure costs.

Draft decision

The draft decision assigned a 100 per cent probability to the unconditional 5 per cent target, rather than Powerlink's alternative probabilities because:

- assigning 100 per cent probability to the 5 per cent target is consistent with Australian Government decisions
- Powerlink did not provide evidence that action by other countries would result in Australia committing to the higher targets
- targets set at the UNFCCC are not legally binding
- there are large uncertainties about when such pledges would translate into policies, and when such policies would affect Powerlink's network
- Powerlink's assignment of probabilities to the carbon price trajectory was arbitrary.³⁴¹

Assessment of the revised revenue proposal

For its revised revenue proposal, Powerlink engaged ROAM Consulting to provide updated probabilities for the carbon price trajectory. Table 3.7 contains the updated probabilities Powerlink adopted in the revised revenue proposal.

³³⁹ http://www.climatechange.gov.au/government/clean-energy-future.aspx

³⁴⁰ The Parliament of the Commonwealth of Australia (Senate), *Clean Energy Bill 2011, Revised Explanatory Memorandum*, 2010-2011, p. 11.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 112–117.

Table 3.7 Revised revenue proposal—carbon targets probabilities

Target (per cent greenhouse gas reduction from 2000 levels by 2020)	Revised revenue proposal
5 per cent	80 per cent
10–15 per cent	17.5 per cent
25 per cent	2.5 per cent

Source: Powerlink, Revised revenue proposal, 16 January 2012, p. 85.

ROAM disputed the draft decision because:

- the conditions in Australia's pledge for moving to a 10–15 per cent target are not precise, but it could certainly be argued that they have been met already, or are likely to be met soon.³⁴²
- there was significant progress at the Durban UNFCCC negotiations with an agreement to develop a platform applicable to all parties including the USA and other large developing countries.³⁴³
- the probabilistic method allows consideration of outcomes that may be outside the central expectation, but nonetheless are a possibility. While the assignment of probabilities is imprecise, having a zero probability removes the variable from the probabilistic assessment entirely.³⁴⁴
- the impact of market uncertainty must be considered. It is widely acknowledged that investment in the Australian electricity sector over recent years has been strongly affected by "carbon uncertainty."³⁴⁵
- generation developers and financing companies are well informed of the global situation, and will invest in a way that hedges against risks of likely future policies.³⁴⁶

Powerlink emphasised the probabilities it incorporated into its probabilistic method relied on the assessments of qualified experts in the field (ROAM Consulting).³⁴⁷ However, the Energy Users Association of Australia (EUAA) noted an Australian National University working paper that stated:

Given the state of the negotiations, the lack of ambition expressed by other developed countries, and statements made by the Australian Government, most analysts have assumed that Australia will pursue its unconditional 5% target for 2020.³⁴⁸

The AER considers assigning zero probability to the higher targets is appropriate, for the reasons set out below.

³⁴² Powerlink, *Revised revenue proposal*, *Appendix K*, 28 December 2011, p. 2.

³⁴³ Powerlink, *Revised revenue proposal, Appendix K*, 28 December 2011, pp. 2–4.

³⁴⁴ Powerlink, *Revised revenue proposal, Appendix K*, 28 December 2011, pp. 2 and 5.

³⁴⁵ Powerlink, *Revised revenue proposal, Appendix K*, 28 December 2011, p. 4.

³⁴⁶ Powerlink, *Revised revenue proposal, Appendix K*, 28 December 2011, p. 4.

³⁴⁷ Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 85–86; Powerlink, *Information request AER/061 – Carbon price trajectory – Further response*, 16 March 2012.

³⁴⁸ EUAA, Submission in Relation to the Australian Energy Regulator's Draft Determination on Powerlink's REvenue Proposal 2012-2017 and Powerlink's Revised Proposal, February 2012, p. 14.

Insufficient evidence of further action by other countries

ROAM Consulting stated it is arguable 'the conditions around Australia moving to a higher carbon reduction target have already been met'.³⁴⁹

The AER considers ROAM Consulting did not provide sufficient evidence of further actions by other countries that would result in Australia adopting the higher targets. The following discusses the AER's reasons for this assessment.

ROAM Consulting pointed out 89 countries have made international pledges to limit their emissions, including major developing economies. ROAM Consulting listed the pledges of the most significant developing and developed countries. Tables 3.8 and 3.9 summarise these pledges.

Country (developing)	Target for 2020 (per cent)	Relative to	Date of pledge
China	40–45	2005	28 January 2010
India	20–25	2005	30 January 2010
Brazil	36.1–38.9	BAU	29 January 2010
Indonesia	26	BAU	30 January 2010
Mexico	30	BAU	31 January 2010
South Africa	34	BAU	29 January 2010
Republic of Korea	30	BAU	25 January 2010

Table 3.8 Developing country pledges to Copenhagen Accord

 Source:
 Powerlink, Response – Request AER/028 - Carbon price trajectory, 6 September 2011; http://unfccc.int/meetings/cop_15/copenhagen_accord/items/5265.php (accessed 29 March 2012).

 Note:
 BAU stands for 'business as usual'.

Table 3.9 Developed country pledges to Copenhagen Accord

Country (developed)	Target for 2020 (per cent)	Relative to	Date of pledge
European Union	20–30	1990	28 January 2010
Japan	25	1990	26 January 2010
Russian Federation	15–25	1990	3 February 2010
Canada	17	2005	29 January 2010
United States	17	2005	28 January 2010

Source: Powerlink, *Response - Request AER/028 - Carbon price trajectory*, 6 September 2011; http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php (accessed 29 March 2012).

Tables 3.8 and 3.9 show these major countries submitted their pledge to the Copenhagen Accord in late January 2010. As the draft decision noted, Australia submitted its targets to the

³⁴⁹ Powerlink, *Revised revenue proposal*, *Appendix K*, 28 December 2011, p. 2.

Copenhagen Accord at the same time (27 January 2010).³⁵⁰ This appears to be the basis for the carbon price trajectory probabilities in ROAM Consulting's May 2010 report to Powerlink.³⁵¹ If 'the conditions around Australia moving to a higher carbon reduction target have already been met' as ROAM Consulting stated, it requires either:

- major countries have submitted more ambitious targets compared to their Copenhagen Accord pledges, or
- the major countries' Copenhagen Accord pledges fulfil the Australian Government's conditions to adopt the higher targets.

Neither of these conditions appears to have been met.

The AER understands these major countries have not changed their pledge since the Copenhagen accord. Since then, countries have had the opportunity to submit higher targets in at least three major UNFCCC conferences and workshops:

- Cancun (December 2010)
- Bonn (June 2011)
- Durban (December 2011).

After the Bonn workshops, the Climate Action Tracker stated 'there were no new announcements that would increase the level of ambition and thereby help to close the emission gap.³⁵² Regarding the Durban Conference, the Climate Action Tracker reported:

The Durban Climate Summit concluded with the groundbreaking establishment of a new body to negotiate a global agreement covering all countries by 2015 (Ad Hoc Working Group on the Durban Platform for Enhanced Action).³⁵³ *With a new agreement not scheduled to take effect until 2020 the new agreement appears unlikely to affect the level of action in 2020 already pledged*.³⁵⁴ [emphasis added]

With no new pledges from these major countries, adoption of the higher targets requires that the pledges at the Copenhagen Accord meet Australia's conditions. However, this is also not

³⁵⁰ Minister for Climate Change and Water, *Copenhagen Accord*, 27 January 2010. http://www.climatechange.gov.au/en/government/initiatives/unfccc/submissions.aspx (Accessed 8 March 2012).

³⁵¹ Powerlink, *Revenue proposal, Appendix E*, 7 May 2010, p. 9.

³⁵² Climate Action Tracker, *Emissions and CO2 concentrations at record highs: developed countries ambitions stalled while developing countries gearing up to act*, Climate Action Tracker Update, 16 June 2011, p. 2. The Climate Action Tracker is an independent science-based assessment, which tracks the emission commitments and actions of countries (www.climateactiontracker.org). It was developed by Ecofys (www.ecofys.com), an energy and climate change consultancy, and Climate Analytics (https://sites.google.com/a/climateanalytics.org/test/), a non-profit organisation with climate change science and policy expertise.

Various countries such as the Republic of Nauru and organisations such as the Stockholm Environment Institute have referenced the Climate Action Tracker in submissions and presentations to the UNFCCC (see unfccc.int).

³⁵³ The 'Developments at the UNFCCC Durban Conference' section below discusses the Ad Hoc Working Group on the Durban Platform for Enhanced Action.

³⁵⁴ Climate Action Tracker, *After Durban: Risk of delay in raising ambition lowers chances for 2°C, while heading for 3.5°C,* Climate Action Tracker Update, 11 December 2011.

the case. The Australian Government has not adopted either of the higher targets in the two years since submitting its pledge to the Copenhagen Accord.

ROAM Consulting also noted a Productivity Commission review that found over 1000 carbon policy measures in a recent review of nine countries including China, India, Japan and the United States.³⁵⁵ ROAM Consulting also noted the successful passing of the Clean Energy Future package (the carbon tax) as a critical first step towards the higher targets.³⁵⁶ As previously discussed, all greenhouse gas-related initiatives from the Australian and State Governments have occurred under the unconditional 5 per cent target only and do not provide evidence of action by other countries. Similarly, the 1000 carbon policies the Productivity Commission identified contributes to each country's effort to achieve its Copenhagen Accord pledge. The important point is none of these Copenhagen Accord pledges have induced the Australian Government to adopt the higher carbon targets.

UNFCCC Durban Conference

Developments at the recent UNFCCC Durban Conference also suggest the probabilities for the 10–15 per cent target should be lower than ROAM Consulting's assignments prior to the revised revenue proposal (see table 3.10). However, ROAM Consulting assigned a higher probability to the 10–15 per cent target.³⁵⁷

Target (per cent greenhouse gas reduction from 2000 levels by 2020)	Revenue proposal	Revenue proposal update	Revised revenue proposal
5 per cent	40 per cent	80 per cent	80 per cent
10–15 per cent	57.5 per cent	10 per cent	17.5 per cent
25 per cent	2.5 per cent	10 per cent	2.5 per cent

Table 3.10	Powerlink and ROAM Consulting probability assignments for the carbon
	price trajectory

Source: Powerlink, *Revenue proposal, Appendix E*, 7 May 2010, p. 11; ROAM Consulting, *Revised CPT probabilities*, 2 September 2011, p. 4; Powerlink, *Revised revenue proposal, Appendix K*, 28 December 2011, p. 6.

ROAM Consulting noted the Durban Conference produced an agreement to develop an international legal instrument applicable to all parties, including the USA and other large developing countries. This is the Ad Hoc Working Group on the Durban Platform for Enhanced Action (Ad Hoc Working Group) mentioned earlier. However, the legally binding framework to be developed as agreed at the Durban conference will not take effect until 2020.³⁵⁸ This is well past the conclusion of Powerlink's regulatory control period in June 2017 lending further weight to rejection of Powerlink's proposed higher carbon target probabilities.

³⁵⁵ ROAM Consulting, *Revised CPT probabilities*, 2 September 2011, p. 2.

³⁵⁶ Powerlink, *Revised revenue proposal, Appendix K*, 28 December 2011, p. 3.

³⁵⁷ Table 3.10 demonstrates the arbitrary nature of the probability assignments. See the 'Probabilistic method' section for further discussion.

³⁵⁸ UNFCCC, *Draft decision: Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action*, 10 December 2011.

Japan's pledge at the Copenhagen Accord (see table 3.9) was conditional on 'the establishment of a fair and effective international framework in which all major economies participate'.³⁵⁹ The Ad Hoc Working Group appears to be the type of international framework that Japan's Copenhagen Accord pledge is conditional upon. However the Ad Hoc Working Group will not take effect until 2020, which is when Japan's pledge will end. The Climate Action Tracker noted Japan did not propose an alternative unconditional target.³⁶⁰ While Japan may yet submit another target, it appears Japan's Copenhagen Accord pledge is no longer valid.

As the previous section discussed, it does not appear any country has changed its Copenhagen Accord pledge. The discussion on Japan indicates the probabilities for the higher targets should be lower than previous assignments.

In addition Canada, Russia and Japan did not sign up to new targets under the second Kyoto commitment period at the Durban conference. Combined with the USA, which has never ratified the Kyoto Protocol, countries responsible for 85 per cent of emissions are not legally bound to cut emissions prior to the implementation of the Ad Hoc Working Group.³⁶¹ Just after the Durban Conference, Canada formally abandoned the first Kyoto commitment period which is scheduled to end in 2012. Further, other countries could not agree on a new accord to replace it with.³⁶² While the Kyoto Protocol is somewhat independent of the Copenhagen Accord, these developments send a signal regarding the level of commitment to these international agreements.³⁶³ It is arguable these developments would lower the probability of Australia adopting the higher targets.

Probabilistic method

The AER acknowledges the probabilistic method 'allows consideration of outcomes that may be outside the central expectation, but nonetheless are a possibility'.³⁶⁴ However, a probability of zero will often be a reasonable expectation, especially in light of available evidence at the time. The AER considers the lack of progress at recent UNFCCC conventions supports assigning a zero probability to the higher targets (see previous discussion).

Moreover, the AER does not consider the probabilistic methodology is to be used to account for every possible scenario. The AER is concerned scenarios with such high uncertainty have arbitrary probability assignments that are very difficult to assess objectively. For these reasons, the AER considers Powerlink's revised probabilities result in a forecast capex that

³⁵⁹ http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php (accessed 29 March 2012).

³⁶⁰ http://climateactiontracker.org/countries/japan.html (accessed 29 March 2012).

³⁶¹ http://www.hfw. com/publications/client-briefings/the-unfcccs-durban-platform-explained (Accessed 5 March 2012).

³⁶² New York Times, *Canada announces exit from Kyoto climate treaty*, 12 December 2011 (nytimes.com, accessed 29 March 2012).

³⁶³ While the Copenhagen Accord and Kyoto Protocol are independent commitments, they are interrelated. For example, Australia's target under the Kyoto Protocol is an increase in greenhouse gas emissions of 8 per cent relative to 1990 levels in the period between 2008 and 2012. The extent to which Australia meets this target will obviously affect action for the Copenhagen Accord pledge.

United Nations, *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, 1998, p. 20; http://www.climatechange.gov.au/government/initiatives/kyoto/kyoto-protocol-detail.aspx (accessed 2 April 2012).

³⁶⁴ Powerlink, *Revised revenue proposal*, *Appendix K*, 28 December 2011, pp. 2 and 5.
does not reasonably reflect a realistic expectation of cost inputs required to achieve the capex objectives.³⁶⁵

The wide range of probabilities ROAM has assigned to the carbon targets reflects the very large uncertainty of Australia adopting the higher targets (see table 3.10). Moreover, the changes to ROAM Consulting's proposed probabilities occurred with no changes to Australia's Copenhagen Accord pledge (see 'Insufficient evidence of further action by other countries' section). This reflects the arbitrary nature of the assignments.

The draft decision discussed some of the uncertainties associated with the higher targets.³⁶⁶ The AER notes a further factor—some countries' Copenhagen Accord pledges are also contingent on certain events occurring. The 'Developments at the UNFCCC Durban conference' section discussed the conditions in Japan's pledge. Similarly, the United States' pledge anticipated the enactment of US energy and climate legislation.³⁶⁷ The progress of the US' energy and climate legislation is unclear. The Climate Action Tracker noted:

In the Copenhagen Accord, the USA announced its -17% relative to 2005 levels which would have been in conformity with the anticipated U.S. energy and climate legislation.

Legislation was put forward to the Senate in 2010 outlining an emission pathway below 2005 levels of -30% in 2025 and -42% in 2030 in line with the goal to reduce emissions by -83% relative to 2005 by 2050. Following the November 2010 elections it is very unlikely that comprehensive climate and energy legislation will be considered in the next few years. It is not yet clear when, if at all, the administration will attempt to introduce GHG controls under the US EPA Clean Air Act.³⁶⁸

The AER did not analyse each country's Copenhagen Accord pledge. However the extent to which other countries' pledges are conditional on other factors clearly demonstrates the considerable uncertainty in regards to adopting the higher targets.

Carbon uncertainty

Regarding 'carbon uncertainty', ROAM Consulting referenced an AGL Energy article to support its argument. The article investigated the history and implications of the difficulty Australia experienced in introducing a specific direct greenhouse gas-reduction policy.³⁶⁹ It did not look at the effects of general greenhouse gas-reduction pledges such as those represented by the carbon targets, which relates to Australia's overall greenhouse gas-reduction efforts. The AER considers the passage through Parliament of the carbon tax on 8 November 2011 sufficiently resolves the uncertainty raised by the AGL Energy article.

As the draft decision discussed, the carbon tax passed by the Australian Government occurs within the context of the unconditional commitment to the 5 per cent target and conditional commitments to the 15 per cent and 20 per cent targets. The carbon tax did not, in itself,

³⁶⁵ NER, clause 6A.6.7(c)(3).

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 112–117.

³⁶⁷ http://unfccc.int/meetings/copenhagen_dec_2009/items/5264.php (accessed 29 March 2012).

³⁶⁸ http://climateactiontracker.org/countries/usa.html (accessed 2 April 2012).

³⁶⁹ 'Direct instruments for greenhouse gas reduction' refers to instruments that look to reduce greenhouse gas emissions directly, such as a carbon tax or an emissions trading scheme. Indirect instruments refer to instruments with an implied aim of reducing greenhouse gas emissions, but do so indirectly, such as renewable energy subsidies.

signal a move towards the higher targets, which depend on action by other countries (the 'Insufficient evidence of further action by other countries' section discussed these targets in detail).³⁷⁰ ROAM Consulting's contentions are therefore dismissed.

Hedging against likely future policies

Regarding investors hedging against risk from future policies, it is unclear to what extent such hedging is influenced by direct instruments, indirect instruments, or international pledges. Powerlink and ROAM Consulting did not provide evidence on this issue.³⁷¹

To reiterate, the substantive evidence is that all Federal and State policies that may affect Australia's greenhouse gas emissions reductions have all occurred within the context of the unconditional commitment to the 5 per cent target only.

AER probability assignment

Based on the discussion above, the AER considers assigning a 100 per cent probability to the 5 per cent carbon target reasonably reflects a realistic expectation of cost inputs required to achieve the capex objectives.³⁷² This probability assignment reflects the Australian Government's formal carbon reduction commitments.

The Australian Government committed unconditionally only to the 5 per cent target in its Copenhagen Accord pledge and has not changed this position for several years. Other countries have also not changed their Copenhagen Accord pledges (see 'Insufficient evidence of further action by other countries' section). The AER also understands the establishment of the Ad Hoc Working Group means any changes other countries make to their Copenhagen Accord pledge will likely occur after 2020. This is well past the 2012–13 to 2016–17 regulatory control period. Other developments at the UNFCCC Durban Conference indicate the Australian Government would be less likely to adopt the higher targets (see 'UNFCCC Durban Conference' section).

The Australian Government may enact new legislation or make regulations increasing the 5 per cent carbon target, implementing an increase upon Australia's current commitment. If that occurs, Powerlink may apply to the AER for a pass through of any resulting increases in capital expenditure costs.

3.3.5 Cost estimation risk factor

The AER's final decision is to accept Powerlink's 3 per cent cost estimation risk factor³⁷³ because the AER is satisfied that Powerlink has demonstrated asymmetric risk which is not accounted for elsewhere. Powerlink's BPO update process specifically excludes the 3 per cent cost estimation risk factor (and any risk factors) and the risk is therefore not 'double counted'.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 114.

AER, RE: Request AER/061 - Carbon price trajectory, 6 March 2012; Powerlink, Information request AER/061 – Carbon price trajectory - Further response, 16 March 2012.

³⁷² NER, clause 6A.6.7(c)(3).

³⁷³ This was valued at \$70 million in the draft decision (individual) and around \$48 million as an incremental adjustment.

The AER's draft decision rejected Powerlink's 3 per cent cost estimation risk factor because:

- Network service providers should not shift manageable risk onto customers
- Powerlink's Base Planning Objects (BPO) accounts for risk faced in the past and that project management planning should minimise risks and cost overruns.

Following the draft decision, the AER conducted a further detailed review of the project estimation and BPO update process. The AER attended Powerlink's headquarters and sought additional confidential information and clarification, including:

- a business process map demonstrating the application of the cost estimation risk factor and contingency allowances for risk
- worked examples of project costing processes
- financial system transactional analysis demonstrating the management of contingency accounts.

Figure 3.5 shows Powerlink's project estimation and BPO update process. Figure 3.5 shows that Powerlink, for the purposes of preparing the capex forecast the revenue/revised proposal– bases its uncommitted project costs on 'concept estimates' which are built from assembling BPOs. These estimates are top down estimates and do not include risk.



Figure 3.5 Powerlink's project estimation and update process map

Source: Powerlink, Response - Request AER/070 - BPO costing and CERF information request, 26 March 2012

Evans and Peck analysed historical base project outturn costs compared with concept estimate costs (by project, as presented in the revenue proposal). Actual outturn costs occurred up to five years after the concept estimate was prepared. Evans and Peck demonstrated that there is asymmetric risk in Powerlink's data set. Powerlink uses the cost estimation risk factor to compensate for these risks.

The AER accepts that the purpose of the cost estimation risk factor is to cover omissions from the BPO estimates. In this, the AER considers that the cost estimation risk factor is a reasonable (as opposed to an actual/precise) reflection of efficient costs, as per NER criteria–clause 6A.6.7(c)(1)-(3).

New evidence from Powerlink (and subsequently from other TNSPs) demonstrates that BPOs are not updated for asymmetric risk. Powerlink acknowledges that updating the BPO with 'risk' would result in (iterative) double counting and cost overruns. The AER reviewed Powerlink's internal documents, including financial system transaction tracking, at Powerlink's headquarters and is satisfied that Powerlink have correctly accounted for contingency and risk factors, such that there is no double counting in the revised revenue proposal.

The AER is satisfied that Powerlink's risk (business) management processes within its overall governance and management practices are acceptable and appropriately account for risks. This suggests Powerlink has taken reasonable steps to minimise risk from cost overruns and the cost estimation risk factor represents risks that Powerlink cannot completely mitigate or avoid.

The AER has accepted this proposition in the past in relation to Powerlink and other TNSPs. In past transmission reviews, the AER accepted that a cost risk factor was required, but did not accept the quantum of the proposed cost risk factor. For example, the AER's final decision was a cost estimation risk factor of 2.6 per cent verses Powerlink's proposed 9.2 per cent in the 2007–08 to 2011–12 regulatory control period. However, the AER's previous acceptance of a matter does not guarantee future acceptance of the same issue. The AER assesses each revenue proposal on its merits and each decision includes consideration of new and updated information or analysis not previously considered or understood.

In general, if previous capital expenditure is inefficient (that is outturn costs are overinflated) and the cost estimation risk factor estimate is based on outturn costs, this should not form a basis for future capital expenditure. The AER does not perform ex-post reviews, however the AER expects that, over time, a TNSP's forecast based on its unit costs would increase in accuracy (as more information about risks is realised). The AER therefore finds that the 3 per cent cost estimation risk factor is a reasonable estimate of risk.

3.3.6 Non-load driven capital expenditure

The AER is required to accept a TNSP's forecast capex if it is satisfied that the total forecast capex for the regulatory control period reasonably reflects the capex criteria.³⁷⁴ Powerlink's revised total forecast capex includes a non–load driven capex representing 44 per cent of total capex.³⁷⁵ The proposed non–load driven capex includes three main categories:³⁷⁶

replacement capex—expenditure to replace assets that are obsolete or near the end of their technical life.³⁷⁷

³⁷⁴ NER, clause 6A.6.7(a).

³⁷⁵ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 106.

³⁷⁶ Powerlink, *Revenue proposal*, 31 May 2011, p. 55.

³⁷⁷ Replacement capex may also include expenditure related to asset refurbishments with the objective of extending the relevant asset economic life.

- security/compliance capex—expenditure to ensure compliance with amendments to various technical, safety or environmental legislation. This capex category also relates to expenditure to ensure the physical security of Powerlink's infrastructure assets.
- other capex—expenditure to enhance communication systems, to improve switching functionality and insurance spares.

This section sets out the AER's final decision reasoning on Powerlink's updated non-load capex.

Table 3.11	AER	final	decision	on	Powerlink's	non–load	capital	expenditure
	(\$mill	ion, 20	11–12)					

Project category	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Replacement	310.0	277.1	259.4	229.6	206.6	1282.7
Security/ compliance	25.4	20.4	8.9	2.8	1.7	59.3
Other	33.1	30.7	19.9	21.7	12.7	118.2
Total non-load capex	368.5	328.2	288.2	254.1	221	1460.2

Source: AER analysis; AER, *Draft decision: Powerlink transmission determination 2012–2013 to 2016–2017*, November 2011, p. 133; Powerlink, *Revised revenue proposal*, 16 January 2012, p. 106.

The AER approves Powerlink's updated non–load capex of \$1460.2 million for the 2012–13 to 2016–17 regulatory control period. The AER is satisfied the updated non–load capex reasonably reflect the capex criteria for the following reasons:

- The draft decision approved Powerlink's proposed non–load capex of \$1389.6 million for the 2012–13 to 2016–17 regulatory control period.³⁷⁸
- The AER considers that normal business practice is to prioritise projects to reflect resource constraints and that this can result in updated estimates being provided to the AER between the original revenue proposal and the revised revenue proposal:
 - Powerlink submitted an updated non–load capex of \$1460.2 million, an increase of \$70.6 million. This increase in non–load capex results from Powerlink's updating its non–load capex account for the 2007–08 to 2011–12 regulatory control period. In particular, Powerlink:
 - replaced estimates for 2010–11 and 2011–12 with actual expenditure;³⁷⁹
 - shifted part of expenditure on some projects from the 2007–08 to 2011–12 regulatory control period into the 2012–13 to 2016–17 regulatory control period.³⁸⁰

The reasons for the AER's final decision are further discussed below.

³⁷⁸ The reasons for this decision are outlined in AER, *Draft decision: Powerlink transmission determination 2012–* 2013 to 2016–2017, November 2011, pp. 132-144.

³⁷⁹ Powerlink, *Revised revenue proposal*, pro-format statements, 16 January 2012.

³⁸⁰ The AER checked that the amount by which historic non–load capex reduced is the similar to the amount by which forecast non–load capex increased.

Tables 3.12 and 3.13 show Powerlink's updated non–load capex by project category and the draft decision.

Table 3.12 Total non-load capital expenditure: draft decision and Powerlink's revised proposal (\$million, 2011–12)

		2012–13	2013–14	2014–15	2015–16	2016–17	Total
Draft decision (7)	Total	348.7	290.2	288.3	250.3	212.1	1389.6
Powerlink's revised proposal (8)	Total	368.5	328.2	288.2	254.1	221	1460.2
Difference (8–7)		19.8	38	-0.1	3.8	8.9	70.6

Source: AER, Draft decision: Powerlink transmission determination 2012–2013 to 2016–2017, November 2011, p. 133; Powerlink, Revised revenue proposal, 16 January 2012, p. 106.

Table 3.13 Powerlink's revised non-load capital expenditure by category: comparison with the draft decision (\$million, 2011–12)

	Project category	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Draft decision (1)	Replacement	300.1	241.5	260.0	227.1	200.4	1229.0
Powerlink's revised proposal (2)	Replacement	310.0	277.1	259.4	229.6	206.6	1282.7
Difference (2–1)	Replacement	9.9	35.6	-0.6	2.5	6.2	53.7
AER's draft decision (3)	Security/ compliance	18.7	18.8	8.7	2.8	1.7	50.7
Powerlink's revised proposal (4)	Security/ compliance	25.4	20.4	8.9	2.8	1.7	59.3
Difference (4–3)	Security/ compliance	6.7	1.6	0.2	0	0	8.6
AER's draft decision (5)	Other	29.9	29.9	19.6	20.4	10.0	109.9
Powerlink's revised proposal (6)	Other	33.1	30.7	19.9	21.7	12.7	118.2
Difference (6–5)	Other	3.2	0.8	0.3	1.3	2.7	8.3

Source: AER, *Draft decision: Powerlink transmission determination 2012–2013 to 2016–2017*, November 2011, p. 133; Powerlink, *Revised revenue proposal*, 16 January 2012, p. 106.

The AER received submissions from the Energy Users Association of Australia (EUAA) and the Total Environmental Centre (TEC) concerned about Powerlink's non–load capex profile, as submitted in the revenue proposal on 31 May 2011.³⁸¹ This profile shows that the bulk of historical non–load capex is incurred in the last three years of the 2007–08 to 2011–12 regulatory control period. Specifically, there was a substantial increase in estimates for

³⁸¹ EUAA, Submission in relation to the Australian Energy Regulator's draft determination on Powerlink's revenue proposal 2012–2017 and Powerlink's revised proposal, February 2012, pp. 8–11; TEC, Submission to the AER, Powerlink revenue determination draft decision, February 2012, p. 7.

2010–11 and 2011–12. The profile also shows that most future expenditure is forecast to be incurred in the first three years of the 2012–13 to 2016–17 regulatory control period.

The EUAA submitted that the AER draft decision failed to consider 'massive unjustified increases' in Powerlink's non-load capex estimates in 2011–12 (replacement capex, security/compliance capex and other capex).³⁸² The EUAA added that non-load capex estimates for 2011–12 have the effect of increasing Powerlink's forecast non-load capex for the 2012–13 to 2016–17 regulatory control period above existing levels.³⁸³

The AER does not agree with the EUAA. The draft decision considered advice from Energy Market Consulting associates (EMCa) on Powerlink's capex. EMCa reviewed Powerlink's capex (including non–load capex) for the 2006–07 to 2011–12 regulatory control period.³⁸⁴ It found that Powerlink's estimated 2011–12 capex represented a considerable step increase compared with previous years. EMCa considered that while Powerlink had the capability to deliver the associated capex projects, it was likely that the expenditure would not be fully incurred.

EMCa's view was that some projects could have been prudently deferred from 2007–08 to 2011–12 regulatory control period to the 2012–13 to 2016–17 regulatory control period.³⁸⁵ Specifically, EMCa stated that the replacement capex profile could be improved to more efficiently manage both internal and external resources.³⁸⁶ The AER considered increases in Powerlink's non–load capex estimates in 2011–12 (replacement capex, security/compliance capex and other capex) in making its draft decision. It is also reasonable for service providers to adjust project expenditure to reflect resource constraints, among others.

The EUAA submitted that Powerlink's revised proposal 'dramatically' reduced the 2011–12 non–load capex estimates.³⁸⁷ The AER reviewed Powerlink's actual and forecast non–load capex from its May 2011 proposal and compared it with that of Powerlink's revised proposal.

The AER identified that Powerlink shifted part of its expenditure on some replacement and security/compliance capex projects from 2011–12 into 2012–13 and 2013–14.³⁸⁸ In light of the EUAA submission, the AER requested Powerlink explain these changes.³⁸⁹ Powerlink submitted that the change in capital expenditure is a result of changes in the cash flow of

³⁸² EUAA, Submission in relation to the Australian Energy Regulator's draft determination on Powerlink's revenue proposal 2012–2017 and Powerlink's revised proposal, February 2012, p. 9.

³⁸³ EUAA, Submission in relation to the Australian Energy Regulator's draft determination on Powerlink's revenue proposal 2012–2017 and Powerlink's revised proposal, February 2012, p. 9.

³⁸⁴ EMCa, Powerlink revenue determination: Technical review, Forecast capital expenditure and service targets, Report to AER, 6 September 2011, pp. 15–18.

³⁸⁵ EMCa, *Powerlink revenue determination: Technical review, Forecast capital expenditure and service targets, Report to AER*, 6 September 2011, p. 16 (paragraph 34).

³⁸⁶ EMCa, *Powerlink revenue determination: Technical review, Forecast capital expenditure and service targets, Report to AER*, 6 September 2011, p. 18 (paragraph 48).

³⁸⁷ EUAA, Submission in relation to the Australian Energy Regulator's draft determination on Powerlink's revenue proposal 2012–2017 and Powerlink's revised proposal, February 2012, p. 9.

³⁸⁸ For replacement capex, Powerlink shifted three projects for a combined expenditure of \$53.7 million (2011–12): Tully-Cardwell 132kV line replacement, Garbutt-Alan Sherriff T/L replacement and Swanbank B 275kV substation rebuild. For security/compliance capex, Powerlink shifted two projects for a combined amount of \$8.6 million (2011–12): substation security upgrade-stage 3 and substation security upgrade-stage 4.

³⁸⁹ AER, Information request of 29 February 2012—changes in projects in the revised revenue proposal, (telephone conversation).

projects.³⁹⁰ Powerlink also admitted to some minor transcription errors that occurred in its revenue proposal.³⁹¹ Powerlink corrected these errors when updating project estimates for the revised revenue proposal.³⁹² The AER checked these reasons against Powerlink's pro-forma statements and the profile of expenditure by asset category in the original and revised revenue proposals. All information was consistent. On this basis, the AER accepts Powerlink's clarification.

It is also preferable to use updated, accurate data where appropriate and for this reason the AER adopted the amended information Powerlink provided as part of its revenue proposal.

The AER requested Powerlink to clarify whether the shifting of non–load expenditure across regulatory control periods would have a cascading effect.³⁹³ In other words, the AER required Powerlink to clarify whether it expected to shift non–load capex projects into the 2017–18 to 2021–22 regulatory control period. Powerlink submitted that demand driven projects may have a cascading effect. However, there is no cascading effect for non–load driven projects.³⁹⁴ Powerlink added that the non–load driven projects in 2011–12 and the beginning of the 2012–13 to 2016–17 regulatory control period are independent of the projects at the end of the 2012–13 to 2016–17 regulatory control period.

The AER accepts Powerlink's submission. In the case of load-driven capex, there may be a cascading effect when expenditure is shifted from one regulatory period to another, driven for instance by changes in peak demand. For example, Powerlink revised down its demand forecast based on the latest economic information. It subsequently revised down load driven capex by deferring capex projects into the 2017–18 to 2021–22 regulatory control period. However, peak demand does not drive non-load driven capex. Therefore, it appears that a cascading effect is less likely to occur and the AER has no evidence to the contrary in this case.

The AER considers that under the NER regime, projects can be prioritised to reflect resource constraints. As a result of this prioritisation, projects may be delayed or deferred. It is therefore normal for some work to be advanced and for other projects to be deferred, while others are dropped entirely. This is normal commercial practice.

3.3.7 Non-network capital expenditure

The AER approves Powerlink's updated non-network capex of \$121.1 million (\$2011–12) for the 2012–13 to 2016–17 regulatory control period. Table 3.14 outlines the AER's final decision.

³⁹⁰ Powerlink, Response to information request Powerlink/027 of 29 February 2012—changes in projects in the revised revenue proposal, 1 March 2012.

³⁹¹ For other capex, one project (Ebenezer Line Training Facility) was not included in the revenue proposal due to a Powerlink data transcription error; another project (132/66kV System Spare Transformer) was incorrectly categorised by Powerlink as 'replacement' in the revenue proposal. This was amended by Powerlink to other capex.

³⁹² Powerlink, Response to information request Powerlink/027 of 29 February 2012—changes in projects in the revised revenue proposal, 1 March 2012.

³⁹³ AER, Information request AER/067 of 9 March 2012, Further request capex – movements in expenditure.

³⁹⁴ Powerlink, Response to the AER's information request AER/067 of 9 March 2012, response – further request AER/067 capex – movements in expenditure, 12 March 2012, p. 2.

Powerlink's non-network capex represents 3.7 per cent of its total revised capex forecast.³⁹⁵ Non-network capex includes two main categories:³⁹⁶

- business information technology (Business IT)—expenditure on projects to maintain information technology capability and improve business system functionality.
- support the business—refers to expenditure on projects to replace and upgrade business requirements, including the areas of commercial buildings, motor vehicles and moveable plant.

The AER is satisfied the updated non–network capex reasonably reflects the capex criteria for the following reasons:³⁹⁷

- The draft decision accepted Powerlink's proposed non–load capex of \$120.1 million for the 2012–13 to 2016–17 regulatory control period. ³⁹⁸
 - Powerlink accepted the draft decision,³⁹⁹ however submitted updated non-network capex of \$121.1 million,⁴⁰⁰ This increase results from Powerlink' s actions to
 - replace estimates for 2010–11 and 2011–12 with actual expenditure⁴⁰¹
 - update its forecast motor vehicle capex to account for the proceeds of fleet disposals.⁴⁰²
- Powerlink's adjustments to earlier estimates to account for motor vehicle asset disposal is a normal part of business operations and Powerlink's estimate reflects new information available to it.

The EUAA submitted that Powerlink did not justify why its proposed information technology expenditure is higher than trend.⁴⁰³ In making its draft decision, the AER reviewed the proposed non–network capex, including information technology expenditure and accepted Powerlink's forecasts. No new information has come to light that would change the AER's view. The AER's final decision is that Powerlink's proposed non–network capex reasonably reflects the capex criteria. The AER's assessment approach is outlined in its draft decision.⁴⁰⁴

³⁹⁵ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 106.

³⁹⁶ Powerlink, *Revenue proposal 2013–2017*, 31 May 2011, p. 55.

³⁹⁷ NER, clause 6A.6.7(c).

³⁹⁸ The reasons for this decision are outlined in AER, *Draft decision: Powerlink transmission determination* 2012–2013 to 2016–2017, November 2011, pp. 132–144.

³⁹⁹ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 106.

⁴⁰⁰ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 106.

⁴⁰¹ Powerlink, *Revised revenue proposal*, pro-format statements, 16 January 2012.

⁴⁰² Powerlink, *Revised revenue proposal*, pro-format statements, 16 January 2012.

⁴⁰³ EUAA, Submission in relation to the Australian Energy Regulator's draft determination on Powerlink's revenue proposal 2012–2017 and Powerlink's revised proposal, February 2012, p. 11.

⁴⁰⁴ AER, Draft decision: Powerlink transmission determination 2012–2013 to 2016–2017, pp. 144–152.

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Information technology	15.8	14.9	16.1	15.6	15.7	78.1
Commercial buildings	5.7	3.3	3.1	2.9	3.1	18.1
Motor vehicles	3.4	2.7	3.4	2.7	3.7	15.8
Moveable plant	1.9	1.8	1.7	1.8	1.9	9.1
Total non-network capex	26.8	22.7	24.4	22.9	24.3	121.1

Table 3.14 AER final decision on non-network capital expenditure (\$million, 2011–12) (\$million, 2011–12)

Source: AER analysis.

3.3.8 Revised escalators and replacement capital expenditure smoothing

Powerlink uses a set of cost escalators which vary according to material inputs (steel, copper, labour) to produce nominal dollar forecasts from real dollar cost inputs (\$2010 base year) in its uncommitted project budget model. The AER has used an alternative set of cost escalators for the substitute capex forecast and these cost escalators were applied directly in Powerlink's uncommitted project budgeting model.

Powerlink's revised revenue proposal showed replacement capital expenditure that was relatively similar year-on-year to its initial revenue proposal. EMCa considers this reasonable and no smoothing adjustment has been applied to this expenditure.

3.3.9 Equity raising costs

The AER does not accept Powerlink's revised proposed allowance for equity raising costs associated with its forecast capex. The AER considers that Powerlink's proposed allowance does not reflect the benchmark efficient equity raising costs that a prudent operator in Powerlink's position would incur to achieve the capex objectives.

In the draft decision, the AER did not accept Powerlink's use of a dividend yield approach to estimate the value of dividends under the cash flow analysis. The AER also did not accept Powerlink's adoption of a cap of 18 per cent for dividend reinvestment plans.⁴⁰⁵

Powerlink's revised evenue proposal did not accept the AER's draft decision. Powerlink's revised revenue proposal relied on a report from PricewaterhouseCoopers (PwC) to estimate the allowance for equity raising costs in the 2012–13 to 2016–17 regulatory control period.⁴⁰⁶ PwC's method for estimating equity raising costs is largely consistent with the AER's approach to employ a cash flow analysis. However, PwC adopted a dividend yield approach, as opposed to the payout ratio, to estimate the value of dividends in the cash flow analysis.⁴⁰⁷

⁴⁰⁵ AER, Draft decision, Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 152.

⁴⁰⁶ Powerlink's revised revenue revenue proposal was consistent with the initial Powerlink revenue proposal on this point. Powerlink, *Revised revenue revenue proposal*, pp. 107–110.

⁴⁰⁷ Briefly, the dividend yield approach estimates the dividends for the benchmark firm by taking the average observed dividend yield based on a set of firms in the Australian market. The payout ratio approach estimates the dividends for the benchmark firm by reference to the amount of imputation credits that needs to be distributed by the business, consistent with the assumptions of the building block model.

This approach produced higher forecast dividends, requiring greater seasoned equity offerings and associated equity raising costs.

The AER does not consider that the dividend yield approach is appropriate. The AER considers that to calculate Powerlink's required equity raising costs, dividends should be forecast using a payout ratio that is just sufficient to distribute the imputation credits assumed in the building block cash flows. This approach to estimating dividends in the cash flow analysis is consistent with the AER's draft decision, and with other recent AER decisions.⁴⁰⁸

Powerlink also engaged the Strategic Finance Group (SFG) to comment on the AER's method for calculating benchmark equity raising costs. Amongst other issues, SFG criticised the AER's approach, as it can include negative external equity raising costs.⁴⁰⁹ The AER has refined its cash flow analysis in response to these comments.

Powerlink's revised revenue proposal, however, accepted the AER's draft decision to apply a cap of 30 per cent for dividend reinvestment plans.⁴¹⁰ That is, it is assumed that 30 per cent of dividends paid are effectively returned to the business through reinvestment plans. Powerlink also adopted the AER's draft decision regarding the unit costs of dividend reinvestment plans (one per cent) and seasoned equity offerings (three per cent).

Based on the AER's method, the cash flow analysis calculated in the PTRM for Powerlink's benchmark equity raising cost is shown in Table 3.15 and Table 3.16. Table 3.15 sets out (in nominal terms) the derivation of the required new equity for the firm. The second part of the cashflow analysis (in real terms) derives the benchmark allowance for raising this equity and is set out in table 3.15.

The AER's final decision is to provide an allowance for equity raising costs of \$0.7 million (\$2011–12). This is a reduction of \$23.1 million or 97.1 per cent compared to that proposed by Powerlink. This amount has been included in Powerlink's opening RAB and amortised over the weighted average standard asset life of its RAB to provide the equity raising cost allowance over the 2012–13 to 2016–17 regulatory control period.⁴¹¹ The amortisation approach is consistent with Powerlink's revised revenue proposal.

⁴⁰⁸ AER, Final decision, Victorian electricity distribution network service providers, Distribution determination 2011–2015; AER, Final Decision, Jemena Gas Networks, Access arrangement proposal for the NSW gas networks ,1 July 2010 – 30 June 2015, June 2011.

⁴⁰⁹ SFG, Issues relating to Draft Decision, Report for Powerlink, 16 December 2011, p. 8.

⁴¹⁰ Powerlink's initial revenue proposal assumed that only 18 per cent of dividends are returned via dividend reinvestment plans.

⁴¹¹ In the draft decision, the AER accepted Powerlink's weighted average standard life of 43 years. The AER did not accept Powerlink's proposed tax standard life and instead determined a tax standard life of 5 years for equity raising costs. Powerlink's revised revenue proposal accepted the AER's draft decision.

Table 3.15AER's final decision cash flow analysis for Powerlink's benchmark equity
raising cost (\$million, nominal)

Cash flow analysis	Total (\$million, nominal)	Notes
Dividends	465.3	Set to distribute imputation credits assumed in the PTRM (100 per cent).
Dividends reinvested	139.6	Availability of reinvested dividends, capped at 30% dividends paid.
Capex funding requirement	2710.5	Forecast capex funding requirement (including half year WACC adjustment).
Debt component	1471.8	Set to equal 60% of annual change in RAB.
Equity component	1238.8	Residual of capex funding requirement and debt component.
Retained cash flow available for reinvestment	1163.4	Exclude dividends reinvested.
Equity required	75.4	Equals equity component less retained cash flows.

Source: AER analysis.

Table 3.16AER's final decision cash flow analysis for Powerlink's benchmark equity
raising cost (\$million, 2011–12)

Cash flow analysis	Total (\$million, 2011–12)	Notes
Equity component	1148.4	Residual of capex funding requirement and debt component.
Retained cash flow available for reinvestment	1077.1	Exclude dividends reinvested.
Equity required	71.2	Equals equity component less retained cash flows.
Dividends reinvested	128.7	Availability of reinvested dividends, capped at 30% dividends paid.
Dividend reinvestment plan required	71.2	Required reinvested dividends.
Seasoned equity offerings required	-	Required seasoned equity offerings (SEOs).
Cost of dividend reinvestment plan	0.7	Required reinvested dividends multiplied by benchmark cost (1%).
Cost of seasoned equity offerings	-	Required SEOs multiplied by the benchmark cost (3%).
Total equity raising costs	0.7	Sum of costs of dividend reinvestment plan and SEOs. To be added to the RAB at the start of the regulatory control period.

Source: AER analysis

The analysis explaining why the AER does not accept Powerlink's revised revenue proposal is below.

Dividend yield

PwC relied on a dividend yield approach to determine the level of dividends distributed by the benchmark firm. The sample of firms used by PwC to determine the level of dividends consisted of 13 infrastructure firms. This analysis produced an average dividend yield of 8.06 per cent. These infrastructure firms paid significantly higher dividend yields than the general market.⁴¹²

PwC, however, assumed that the infrastructure firms included in its sample are reasonably representative of the benchmark company structure assumed for regulatory purposes.⁴¹³ That benchmark assumption, consistent with the company tax assumptions in the building block framework, is a company structure that is subject to a flat company tax rate. This benchmark assumption is critical.

Trust structures are being employed more often by infrastructure businesses. Moreover, such structures are subject to significantly different taxation treatments to more conventionally structured companies. For example, the net income of a trust is typically taxed to the beneficiaries of the trust income, and not the trust itself.⁴¹⁴

Importantly, the tax treatments of trusts are not consistent with the company tax assumptions in the building block framework.⁴¹⁵ Only two of the 13 firms included in PwC's sample have corporate structures consistent with the benchmark company structure assumed for regulatory purposes.

Moreover, trust structures typically have dividend policies (or more technically, distribution policies) which differ significantly from more conventionally structured companies. In particular, trust structures allow for distributions which include a return of capital component. The AER has previously cautioned against the comparability of dividend yields without consideration of alternative company structures. The fundamental constraint when comparing stapled security (trust) distributions with the dividends of more conventionally structured companies is that including the return of capital component leads to an overstatement of the true dividend.⁴¹⁶

The benchmark firm is also a stand–alone entity.⁴¹⁷ In the context of the WACC, stand–alone refers to a business with regulated network operations and no parent support. To the extent that trust structures are stapled securities that cannot be traded separately, the AER does not consider these firms can be considered stand–alone.

⁴¹² PwC, Powerlink: Debt risk premium and equity raising costs, January 2012, pp. 30–31.

⁴¹³ Similarly, SFG stated that the dividend yield method cannot reasonably be rejected on the basis of there being a lack of comparable data. SFG, *Issues relating to Draft Decision, Report for Powerlink*, 16 December 2011, p. 6.

⁴¹⁴ http://www.ato.gov.au/taxprofessionals/content.aspx?doc=/content/00102262.htm (accessed 18 April 2012).

⁴¹⁵ The PTRM adopts a flat company tax rate.

⁴¹⁶ See AER, *Final decision, Envestra Ltd, Access arrangement proposal for the SA gas networks, 1 July 2011 – 30 June 2016, June 2011, p. 158.*

⁴¹⁷ AER, *Final decision, WACC review*, May 2009, pp. 101–110.

It is important to note that the AER consistently applies this benchmark assumption. For instance, the AER does not reduce the taxation building block to reflect the lower tax paid by trust structures. Similarly, it would be inappropriate for the AER to increase the equity raising costs where this increase is driven by the adoption of a trust structure that differs from the benchmark.

PwC's reliance on a dividend yield approach also assumed that a clientele effect exists, and is the overriding determinant of dividend policy.⁴¹⁸

In this context, it is important to recognise that even if a clientele effect is apparent—and PwC has not substantiated this—it does not follow that compensation should be provided for the costs of distributing above market average dividends.⁴¹⁹

The MRP implicitly includes investor transaction costs at the market average level.⁴²⁰ The clientele effect purportedly reduces investor transaction costs by allowing investors with a preference for high dividends to aggregate around shares providing that particular dividend level. The key insight of the clientele effect is that the firm can more efficiently provide a high dividend level than the individual investors acting independently.⁴²¹ Therefore, even where company transaction costs are increased, once the lower investor transaction costs are considered there is net increase in the final return to investors.⁴²² If this theory was adopted, providing additional compensation for maintaining above market average dividends would therefore be akin to double counting.

Stated another way, the AER considers that firms would only distribute dividends while concurrently raising (more expensive) equity through a seasoned equity offering if such an approach provided a benefit to shareholders. In the absence of any benefits it would seem irrational, prima facie, for a firm to raise expensive equity capital when a cheaper option (retained earnings) is readily available. Importantly, it is not clear how the AER could reliably quantify the benefits of distributing dividends in excess of that equal to the level of imputation credits assumed in the building block cash flows. For TNSPs, therefore, the AER makes the

⁴¹⁸ In this context, the clientele effect assumes that investors are attracted to different securities based on the dividend policy of the issuer. For example, high yielding stocks will attract a different type of investor to stocks with comparably lower dividend yields.

⁴¹⁹ There are many alternative theoretical explanations for the determination of dividend levels, but no consensus in the finance literature on a correct theory. See Brealey, Myers, Partington and Robinson, Principles of Corporate Finance, McGraw-Hill2007 (1st edition), pp. 450–487 (chapter 16–The dividend controversy).

⁴²⁰ That is, the observed return on the market portfolio (used to estimate the MRP) is the total return to investors (capital gains, dividends and imputation credits) without deducting the investor level transaction costs involved in holding these shares. Even though the MRP is 6 per cent, the 'take home' return to investors after transaction costs will be slightly below 6 per cent. As an example for illustrative purposes, if market wide investor costs average 0.3 per cent, the return to investors after accounting for these costs will be 5.7 per cent, not 6 per cent, above the risk free rate (on average).

⁴²¹ Even if a share pays no dividends, an individual investor can effectively obtain a high dividend level by selling a small proportion of their shares each time a dividend was desired. This strategy, however, would incur substantial transaction costs (including brokerage on the sale, tax implications, plus time and management costs). By investing in shares that match their desired high dividend level, the investor never has to sell shares and so dramatically reduces their investor level transaction costs.

⁴²² To continue from the previous footnote, imagine that the dividend clientele effect allows this group of 'high dividend' shareholders to reduce their investor level transaction costs from 0.3 per cent to 0.1 per cent. Since the MRP is predicated on the (market wide) investor level transaction costs, they have effectively increased their return by 0.2 per cent. The firm transaction costs can increase by up to 0.2 per cent and the investors are still net beneficiaries.

assumption that the benchmark firm would distribute dividends just sufficient to distribute 100 per cent of the imputation credits consistent with that employed in the PTRM.⁴²³

Dividend stability

PwC stated that the AER's approach would imply volatile assumed dividend payments over time, and therefore, is not reflective of observed market behaviour.⁴²⁴ PwC, however, has given little regard to the fact that electricity transmission networks are mature businesses and undertake capex to renew old assets and to also accommodate demand growth. Accordingly, regulated revenues are typically at least stable or trend upwards. It follows that the same is true for depreciation, other tax expenses and, therefore, taxation payments and implied dividends (based on matching the distribution of imputation credits).

Regardless, the AER considers that for the cash flow analysis purposes dividends have to be determined based on a distribution of imputation credits that matches the AER's implementation of a post-tax framework.⁴²⁵ This provides internal consistency with the building block model and the cash flow analysis for estimating equity raising costs. To this end, the relative stability of dividends is a secondary, and less relevant consideration. In contrast, the approach proposed by PwC is not necessarily consistent with the value ascribed to imputation credits under the post-tax framework.

For example, PwC identified a scenario which occurs at the end of an asset life, where there are a large number of imputation credits to distribute. In this scenario, as the number of imputation credits increased, so too would the level of dividends required to distribute these imputation credits. Increasing dividends, however, would be counter to the clientele effect proffered by PwC.⁴²⁶ Alternatively, not increasing dividends would be value–destructive, as imputation credits would not be paid out in full. Critically, failing to distribute the full value of imputation credits would be inconsistent with the post–tax framework.

Gearing assumptions

In addition to the AER's criticism of Powerlink's dividend yield approach, the method PwC used to determine the new equity requirements is flawed. Specifically, the gearing assumptions of the notional benchmark firm do not hold when PwC's method is applied.

PwC determined the equity portion of capex to be funded by multiplying the annual capex requirement by 40 per cent. This assumed, incorrectly, that changes in capex are the sole determinant of changes in the RAB.⁴²⁷ That is, adding the equity portion (40 per cent) of the annual capex requirement to the equity portion of the opening RAB does not result in a closing equity component of the RAB that is consistent with the assumed level of gearing. The effect of this error is that PwC's method understates the equity portion of the capex funding requirement.

⁴²³ The AER's determination for TNSPs in respect of the utilisation of imputation credits (gamma) must be consistent with the 2009 WACC review, which assumed a distribution rate of 100 per cent.

⁴²⁴ PwC, Powerlink: Debt risk premium and equity raising costs, January 2012, p. 30.

⁴²⁵ Consistent with its 2009 decisions, this is because it is driven by the amount of the tax building block in the PTRM relative to the RAB. AER, *Final decision, New South Wales distribution determination 2009–10 to 2013–14*, April 2009, p. 584.

⁴²⁶ PwC, Powerlink: Debt risk premium and equity raising costs, January 2012, pp. 30–31.

⁴²⁷ In addition to capex, the RAB also changes due to indexation and depreciation.

The AER was alerted to similar issues with the cash flow analysis following the 2008 draft decisions for the ACT/NSW/Tasmanian electricity network businesses.⁴²⁸ Accordingly, the AER's cash flow analysis now maintains the gearing assumptions consistent with the regulatory benchmark.⁴²⁹

Negative equity raising costs

The cash flow analysis in the AER's draft decision (in the PTRM) forecasts that in years one, two and five of the 2012–13 to 2016–17 regulatory control period, the sum of Powerlink's retained earnings and reinvested dividends will exceed the forecast level of required equity. That is, equity in excess of Powerlink's forecast equity requirements will be raised. However, seasoned equity offerings are required in years three and four to meet Powerlink's forecast equity requirements.

The cash flow analysis used in the AER's draft decision assumed that any excess equity forecast in prior years will be used to reduce the value of any seasoned equity offerings subsequently required. In Powerlink's case, the excess equity raised in years one and two was used to offset (partially) the seasoned equity offering requirement in year three. This netting of prior surpluses against subsequent deficits was implemented by the application of either positive or negative equity raising costs.

SFG proposed, however, that in years that do not require external equity to be raised, no external equity should be assumed to be raised. As such, in years one, two and five of the 2012–13 to 2016–17 regulatory control period, Powerlink would not incur any negative equity raising costs.

In effect, SFG's proposal assumed that cash flow management occurs in isolation for each year of the regulatory control period. That is, it appears to assume that excess equity forecast in prior years will not be used to offset forecast equity requirements (shortfalls) in subsequent years. For this reason, the AER considers that SFG's assumption is inappropriate.

Instead, the AER considers that it is reasonable to assess equity raising costs over the entire regulatory control period. This reflects management control over the timing of equity offerings (if required). The AER acknowledges that, upon reflection, the cash flow analysis used for the draft decision did not fully implement this approach. In particular, while the cash flow analysis accommodated the netting of prior surpluses against subsequent deficits, it did not accommodate the netting of future surpluses against prior deficits.⁴³⁰

To address this inconsistency, the AER has refined the cash flow analysis to better reflect the consideration of equity raising requirements over the entire regulatory control period. Specifically, the AER has converted retained cash flows, the equity portion of the capex

⁴²⁸ For example, see: KPMG, Integral Energy, Review of certain assumptions in the AER's financial model to support the draft NSW distribution network revenue 2009–2014, January 2009; CEG, Debt and equity raising costs, A response to the AER 2008 draft decision for electricity distribution and transmission, January 2009.

⁴²⁹ For example, see: AER, Final decision, *New South Wales distribution determination 2009–10 to 2013–14*, April 2009, pp. 586–587.

⁴³⁰ For example, the AER's draft decision cash flow analysis forecasts that excess equity will be raised in year five (due to the assumed level of dividends reinvested). As this excess occurs in the final year of the 2012–13 to 2016–17 regulatory control period, the cash flow analysis does not accommodate for this excess equity to offset the SEO incurred in years three and four of the regulatory control period.

funding requirements and reinvested dividends from nominal dollar term estimates to real dollar term (2011–12) estimates. The AER has then determined the subsequent requirement for equity raising costs across the entire regulatory control period.⁴³¹ This approach removes the need for implicit assumptions regarding the timing of equity raisings. It also ensures that the allowance for equity raising costs for the regulatory control period reflects the external equity that is forecast to be required.

3.4 Revisions

Where the determination requires a revision to the revenue proposal, this must be addressed in revision boxes at the end of the attachment, as follows:

Revision 3.1: The AER's final decision demand forecast, 500kV adjustments and carbon reduction target reduces Powerlink's capex by \$660 million. \$564 million of capex has been transferred to contingent projects for the 500kV projects.

Revision 3.2: The AER's final decision upholds the draft decision on the efficiency adjustment— that is Powerlink's capex is revised downwards by \$34 million for an efficiency adjustment.

Revision 3.3: The AER accepts Powerlink's cost estimation risk factor of 3 per cent.

Revision 3.4: The AER does not accept Powerlink's revised probabilities for the carbon price trajectory. The AER has substituted the probabilities set out in table 3.6.

Revision 3.5: The carbon price trajectory probabilities set out in table 3.6 reduces Powerlink's forecast capex for the 2012–13 to 2016–17 regulatory control period.

Revision 3.6: The AER does not accept Powerlink's materials costs and labour escalators and revises Powerlink's forecast capex for the 2012–13 to 2016–17 regulatory control period down by \$94 million accordingly.

Revision 3.7: The AER's final decision is to provide an allowance for equity raising costs of \$0.7 million (\$2011–12). This amount has been included in Powerlink's opening RAB and amortised over the weighted average standard asset life of its RAB to provide the equity raising cost allowance over the 2012–13 to 2016–17 regulatory control period.

⁴³¹ In contrast, the AER's draft decision cash flow analysis calculated dividend assessments, cash flows and funding requirements in nominal dollar terms only. Based on these nominal values, the cash flow analysis determined annual dividend reinvestment plan and seasoned equity offering costs. The annual costs were converted into real dollar term (2011–12) estimates, and totalled to provide the equity raising cost allowance for the entire regulatory control period. For the refinements, see rows 38 to 52 of the 'Equity raising cost-capex' tab in the AER's final decision PTRM for Powerlink.

4 Operating expenditure

Opex refers to the operating, maintenance and other non-capital costs that a TNSP incurs in providing prescribed transmission services. The AER must accept a TNSP's proposed total forecast opex if satisfied the forecast reasonably reflects the opex criteria.⁴³² If not satisfied, it must give reasons for not accepting a proposal, and estimate the total required opex that reasonably reflects the opex criteria. In doing so, the AER must take into account the opex factors.⁴³³

4.1 Decision

The AER is not satisfied Powerlink's revised total forecast opex of 1010.3 million $(2011-12)^{434}$ reasonably reflects the opex criteria. Its determination of Powerlink's total opex for the 2012–13 to 2016–17 regulatory control period is 33.5 million $(2011-12)^{435}$. This estimate includes changes to:

- real cost escalation
- network growth
- step changes
- opex provisions in the base year expenditure
- insurances
- network support
- debt raising costs.⁴³⁶

⁴³² NER, clauses 6A.6.6(c) and 6A.14.1(3)(i).

⁴³³ NER, clauses 6A.6.6(d), 6A.12.1(c) and 6A.14.1(3)(ii).

⁴³⁴ Powerlink, *Revised revenue proposal*, January 2012, p. 150.

⁴³⁵ Unless otherwise stated, all amounts expressed in 2011-12 dollars in this attachment are in mid year terms. Because all post tax revenue model inputs are in end of year terms these amounts are escalated by a half year of inflation prior to entering in the post tax revenue model.

⁴³⁶ NER, clause 6A.14.1(3)(ii).

Figure 4.1 AER final decision on Powerlink's operating and maintenance expenditure (\$million, 2011–12)



Table 4.1	AER	final	decision	on	Powerlink's	operating	and	maintenance
	exper	nditure	(\$million, 2	2011–	12)			

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Field maintenance	55.5	58.3	60.5	62.4	63.9	300.6
Operational refurbishment	34.0	34.9	33.4	35.0	39.4	176.6
Maintenance support	12.5	13.0	13.2	13.4	13.6	65.7
Network operations	13.8	14.2	14.5	14.7	14.9	72.2
Asset management support	32.8	33.4	34.0	34.3	34.7	169.2
Corporate support	14.2	14.8	16.7	18.9	16.9	81.5
Total controllable opex	162.7	168.6	172.3	178.7	183.4	865.8
Insurances	8.5	9.1	9.8	10.3	11.0	48.7
Network support	-	-	-	-	-	-
Debt raising costs	3.4	3.7	3.9	4.0	4.1	19.1
Total opex	174.7	181.4	186.0	192.9	198.5	933.5

Source: AER analysis.

4.2 Assessment approach

The AER adopted the assessment approach from its draft decision to assess Powerlink's revised opex forecast. This approach is summarised below. For more details see section 4.3 of attachment 4 of the AER's draft decision.⁴³⁷

The AER is required to assess Powerlink's total forecast opex to decide whether it:438

- accepts the total forecast opex, or
- does not accept it. In this case, the AER is required to estimate the total amount of Powerlink's required opex that it considers reasonably reflects the opex criteria, accounting for the opex factors.⁴³⁹

Although the AER considers each opex factor when assessing Powerlink's total forecast opex, not all factors are relevant for assessing each opex component. The AER also takes the revenue and pricing principles into account in its assessment.⁴⁴⁰

The AER must accept Powerlink's total forecast opex if satisfied it reasonably reflects the efficient costs that a prudent operator in Powerlink's circumstances would need to incur based on a realistic expectation of the demand forecast and the cost inputs required to achieve the opex objectives.⁴⁴¹

The AER must form a view on Powerlink's total forecast opex as a whole, not on individual projects or programs.⁴⁴² However, because the total forecast opex can be separated into expenditure components (as Powerlink does), the AER assesses these components to decide on the total forecast opex it will accept.

The AER first assesses actual expenditure in a base year that reflects the recurrent operating costs of providing prescribed transmission services. It then adjusts this base year opex to account for items that will drive changes in Powerlink's operating costs in the 2012–13 to 2016–17 regulatory control period. These adjustments include:

- removing non-recurrent costs from actual expenditure in the base year
- escalating forecast increases in the size of the network (referred to as 'scale escalation')
- escalating forecast real cost changes for labour and materials (referred to as 'real cost escalation')
- adding step changes for efficient costs not reflected in the base opex, such as costs due to changes in regulatory obligations and the external operating environment.

⁴³⁷ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, pp. 165–167.

⁴³⁸ NER, clause 6A.14.1(3).

⁴³⁹ NER, clause 6A.6.6(c), clause 6A.6.6(d). Clause 6A.6.6(e) specifies the opex factors.

⁴⁴⁰ NEL, s.7(a).

⁴⁴¹ NER, clause 6A.6.6(a), clause 6A.6.6(c).

⁴⁴² NER, clause 6A.6.6(c).

In determining the recurrent base year opex, the AER's draft decision noted Powerlink had largely spent its opex allowance in the 2007–08 to 2011–12 regulatory control period.⁴⁴³ This outcome seemed surprising given the incentives of the efficiency benefit sharing scheme (EBSS) and the revenue cap control. The EBSS and the revenue cap control mechanism interact to incentivise service providers to undertake opex that meets the opex objectives. The AER considered it could not rely on Powerlink's base year opex alone. This was one of the reasons that the AER undertook further analysis.

The AER subsequently benchmarked Powerlink's opex against that of other TNSPs.⁴⁴⁴ This analysis indicated Powerlink's current opex is in the average range compared with the opex of the other TNSPs in the National Electricity Market. The AER also reviewed specific aspects of Powerlink's proposal in detail such as non-recurrent costs and routine maintenance.⁴⁴⁵

On balance, the AER's draft decision accepted that Powerlink's 2007-08 to 2011–12 opex reflected Powerlink's recurrent costs.⁴⁴⁶ The base year for the final decision is from within this period, so the AER did not need to repeat this analysis.

The AER's assessment of Powerlink's forecast costs is a mix of top down and bottom up approaches. It assessed Powerlink's historic opex and determined the key drivers for forecast opex. This analysis included Powerlink's:

- Iabour and material cost escalation
- network growth
- step changes
- opex provisions in the base year expenditure
- insurances
- network support
- debt raising costs.

The AER also had regard to the extent that Powerlink's proposed capex affects its opex.⁴⁴⁷ When proposed capex results in opex savings (or increases), the AER adjusted the proposed forecast opex. For the AER to be satisfied Powerlink's proposed total forecast opex reasonably reflects the opex criteria, the AER must have regard to the effect capex has on opex as required by the opex factors.⁴⁴⁸

⁴⁴³ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 166.

⁴⁴⁴ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, pp. 169-174.

⁴⁴⁵ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, pp. 176-178.

⁴⁴⁶ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 166.

⁴⁴⁷ NER, clauses 6A.6.6(e)(6), (7), (10), (11), (12) and (13).

⁴⁴⁸ NER, clauses 6A.6.6(c) and 6A.6.6(e).

In assessing Powerlink's revised revenue proposal, the AER examined key documents, processes and assumptions, and compared historical expenditure to that proposed, to understand the drivers behind Powerlink's total forecast opex.

The AER also considered the issues raised in stakeholder submissions. When the AER considered an alternative approach to determining Powerlink's inputs was appropriate it applied this approach in its forecast of total opex. These considerations provided the AER with insight to whether Powerlink's proposed total forecast opex reasonably reflects the opex criteria.

4.3 Reasons

The AER is not satisfied Powerlink's revised total forecast opex reasonably reflects the opex criteria, having regard to the opex factors.⁴⁴⁹ Its reasons for this decision relate to not accepting the opex forecast for:

- real cost escalation
- network growth
- step changes
- opex provisions in the base year expenditure
- network support
- debt raising costs

4.3.1 Controllable operating expenditure

The AER is not satisfied Powerlink's revised forecast controllable opex reasonably reflects the opex criteria. The AER's determination of Powerlink's controllable opex for 2012-13 to 2016-17 is \$865.8 million (\$2011–12). This is presented in figure 4.2.

⁴⁴⁹ NER, clause 6A.6.6(d).

Figure 4.2 AER final decision on controllable opex (\$million, 2011–12)



Source: AER analysis

The reasons for this decision on controllable opex are presented below.

Selection of base year

The AER considers 2009–10 is an appropriate base year for forecasting Powerlink's total opex for the 2012–13 to 2016–17 regulatory control period because:

- there is no material difference in total forecast opex when using either 2009–10 (as proposed by Powerlink) or 2010–11 (as per the draft decision) as the base
- the EBSS incentives are not ultimately weakened by the using 2009–10 as the base year (the third year of the 2006–07 to 2011–12 regulatory control period).

The AER assessed the effects of the different base years by analysing two aspects. First, it assessed the difference between the 2010–11 value that Powerlink's 2009–10 revised forecast produced and the actual value in the 2010–11 regulatory financial statements. The latter value would be the starting point for a 2010–11 base year forecast. Second, the AER assessed the difference in total forecast opex delivered by the different base years.

The AER's analysis used Powerlink's opex model by using both 2009–10 and 2010–11 as the base year. Powerlink recast its revised total forecast opex using 2010–11 as a base year for this analysis. Both forecasts used consistent growth and real costs escalators. The 2010–11 base year forecast used updated work unit rates for the forecast routine maintenance to reflect actual 2010–11 costs. Table 4.2 provides the outcome of this analysis.

Table 4.2 Effects of using alternative base years for forecasting Powerlink's controllable opex (\$million, 2011–12)

	Base year	2009–10	2010–11	Total opex forecast
Powerlink revised total forecast opex	2009–10	140.8	147.6	922.5
Powerlink revised total forecast opex	2010–11		148.1	925.6
Regulatory financial statement			148.1	

Sources: AER analysis; Powerlink, *Revised revenue proposal*, January 2012.

The AER's analysis demonstrates Powerlink's 2009–10 base year forecast provides a lower 2010–11 value than in the 2010–11 regulatory financial statements.

The different base years' impact on the total forecast opex supports this trend. The 2009–10 base year total forecast opex delivers a \$3.2 million (or 0.34 per cent) lower outcome than that of the 2010–11 base year total forecast opex.⁴⁵⁰ This variation is partly due to the difference in the escalation from 2009–10 to 2010–11 in Powerlink's 2009–10 base year forecast, and partly due to the updated work unit rates in Powerlink's 2010–11 base year forecast. For comparative purposes, the AER modelled the 2009–10 work unit rates into Powerlink's 2010–11 model, which reduces the difference by \$0.7 million to \$2.5 million.

The AER's analysis demonstrates the application of growth and real cost escalation to a 2009–10 base year can result in a lower total forecast opex, compared with that from a 2010–11 base year. On balance, the AER considers its analysis demonstrates 2009–10 is an appropriate base for forecasting a total opex for the 2012–13 to 2016–17 regulatory control period.

The AER also analysed the different impacts and incentives under the EBSS. For the EBSS, the AER considers using the fourth year to forecast opex provides the most consistent and continuous incentive for a TNSP to minimise its operating costs over the next regulatory control period.⁴⁵¹ This result is particularly relevant when a TNSP realises a positive incremental efficiency gain in year four, as occurred with Powerlink. If the third year is used for forecast (which does not reflect the efficiency gain), as well as through the EBSS carryover amounts.

Such an outcome provides the TNSP with an incentive to increase expenditure in year three because it will increase its total forecast opex, but not be penalised through the EBSS (since the incremental efficiency loss in year three is cancelled out by the incremental gain in year four). However, for Powerlink, the efficiency gain in year four (2010–11) does not cancel out the efficiency loss in year three. The AER is satisfied therefore that Powerlink has not been rewarded for efficiency losses.⁴⁵² Further, Powerlink will incur a negative carryover amount from the application of the EBSS regardless of whether 2009–10 or 2010–11 is used as a base year.

⁴⁵⁰ Numbers may not add due to rounding.

⁴⁵¹ AER, *Final decision, Electricity transmission network service providers efficiency benefit sharing scheme*, September 2007, p. 9.

⁴⁵² NER, clause 6A.6.5(b)(2).

The AER's draft decision did not accept Powerlink's use of 2009–10 as its base year for forecasting its total opex.⁴⁵³ Typically the fourth year (2010–11 for Powerlink) of a TNSP's current regulatory control period is used as the base year because it:⁴⁵⁴

- is the most recent full year of actual data for the final decision, which is most likely to represent the recurrent costs in the next regulatory control period
- is consistent with the assumptions in the transmission EBSS.

On this basis the AER's draft decision substituted a pro–rata of Powerlink's opex reported in its 2010–11 regulatory financial statements.⁴⁵⁵

Powerlink's revised revenue proposal submitted 2009–10 is an appropriate base year for forecasting the total opex for the 2012–13 to 2016–17 regulatory control period.⁴⁵⁶ Powerlink stated:

- the AER did not demonstrate 2009–10 is not efficient⁴⁵⁷
- it is not a legitimate reason to not accept 2009–10 because it is not the most recent full year of actual data for the AER's final decision⁴⁵⁸
- the use of 2009–10 is not inconsistent with the AER's transmission EBSS.

After reviewing each of these points, the AER considers 2009–10 is an appropriate base year for the final decision.

The AER notes the concerns of the Energy Users Group operating in Queensland that Powerlink might have chosen 2009–10 as a base year for possible benefit in terms of the total forecast opex.⁴⁵⁹ But the difference overall is immaterial.

Similarly, the Energy Users Association of Australia (EUAA) submitted the AER should conduct a more detailed review of Powerlink's base opex for the final decision, given, Powerlink's 2007–08 to 2011–12 regulatory control period opex might not reflect its recurrent costs.⁴⁶⁰ However, the AER considers it undertook an appropriate level of review of Powerlink's recurrent opex in the draft decision which can be relied upon for the final decision. The complete discussion of this review is in section 4.4.1 of the draft decision.

⁴⁵³ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, pp. 174–176.

⁴⁵⁴ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 175.

⁴⁵⁵ A pro-rata was applied because Powerlink's opex model method disaggregates opex by service provider as well as labour and materials which are not required for the reporting of its regulatory financial statements.

⁴⁵⁶ Powerlink, *Revised revenue proposal*, January 2012, pp. 133–136.

⁴⁵⁷ Powerlink, *Revised revenue proposal*, January 2012, p. 135.

⁴⁵⁸ Powerlink, *Revised revenue proposal*, January 2012, p. 135.

⁴⁵⁹ The Group, *Response to draft decision: AER 2011 review of Queensland electricity transmission*, February 2012, p. 31. The Group is an energy consumers group operating in Queensland.

⁴⁶⁰ EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, pp. 15–20.

⁴⁶¹ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, pp. 167– 178.

The AER acknowledges the EUAA's concerns that some costs may still be above recurrent levels in Powerlink's base year opex, which might overstate the total forecast opex.⁴⁶² However, the AER considers these are at the margin and that the base year approach appropriately accounts for this. Each opex activity included in the base opex will not all increase at the same rate. Using a base year forecast approach accounts for the variances in costs changes for different opex activities as an aggregate. This is discussed further in the review of Powerlink's step changes below.

Application of real cost escalators

The AER is not satisfied Powerlink's proposed real labour and materials cost escalators reasonably reflect a realistic expectation of the cost inputs required to achieve the opex objectives.⁴⁶³ Powerlink's proposed total forecast opex included \$85.5 million (\$2011–12) for forecast real cost increases in labour, materials and land costs. Attachment 1 contains the AER's consideration of the real cost escalators proposed by Powerlink. Table 4.3 outlines the impact of the AER's real cost escalators.

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Powerlink's revised revenue proposal	8.8	12.8	17.0	21.3	25.6	85.5
AER's final decision	5.6	6.6	7.9	8.7	9.6	38.4
Difference	-3.3	-6.2	-9.0	-12.6	-16.0	-47.1

Table 4.3	Impact of real	cost escalation	(\$million, 2011-12	2)
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Source: AER analysis.

Accounting for network growth

The AER is not satisfied Powerlink's revised revenue proposed network growth factors reasonably reflect the opex criteria.⁴⁶⁴ The AER accepts the method used by Powerlink to calculate the network growth factors in the revised opex model. However, the AER adjusted Powerlink's revised network growth factors to reflect the AER's final decision on Powerlink's forecast capex (see attachment 3). The AER's final decision on Powerlink's network growth factors (table 4.4) results in a reduction of Powerlink's proposed total opex of 0.3 per cent, or \$2.5 million (\$2011–12) during the 2012–13 to 2016–17 regulatory control period.

⁴⁶² EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, pp. 19–20.

⁴⁶³ NER, clauses 6A.6.6(c)(3).

⁴⁶⁴ NER, clause 6A.6.6(c).

	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	Average
Communications	3.4	8.3	16.0	13.1	4.0	5.9	5.4	7.9
Transmission lines	4.7	3.7	3.1	5.2	2.4	1.4	1.0	3.1
Secondary systems	2.2	4.0	4.8	5.7	4.4	3.7	3.4	4.0
Substations	1.8	2.6	3.4	4.6	1.5	1.8	1.6	2.5
Land	3.4	10.0	3.5	1.0	4.9	3.9	2.0	4.1
Total	3.6	3.8	3.6	5.0	2.5	2.0	1.5	3.1

 Table 4.4
 AER final decision on Powerlink's network growth factors (per cent)

Source: AER analysis.

Consistent with the draft decision, Powerlink's revised revenue proposal excluded the impact of real cost escalation from the calculation of network growth factors. Further, Powerlink adopted the economies of scale factors in its initial revenue proposal and in the AER's draft decision. However, stakeholders considered that these factors understated the economies of scale that could be achieved.⁴⁶⁵ The AER considered and acknowledges stakeholders' concerns. However, as discussed in the draft decision, Powerlink's proposed economies of scale factors are largely consistent with those applied for other TNSPs in recent AER transmission determinations (table 4.5). The AER thus is satisfied Powerlink's proposed economies of scale factors reasonably reflect the opex criteria.⁴⁶⁶

Table 4.5Powerlink's proposed economies of scale factors and AER's approved
economies of scale factors in recent transmission determinations
(per cent)

Powerlink's opex component	Powerlink—proposed	TransGrid	Transend	ElectraNet
Field maintenance	95	95	100	95
Maintenance support	25	25		25
Direct charges	100	100		100
Network operations	40	25	25	25
Network planning	25	25		25
Asset management support	20		25	10
Corporate support	10	10	10	10

Sources: Powerlink, Revenue proposal 2013–2017, 31 May 2011, p. 92; AER, Draft decision: TransGrid transmission determination 2009–10 to 2013–14, 31 October 2008, pp. 128–129; TransGrid, Revenue proposal 1 July 2009– 30 June 2014, 31 May 2008, p. 87; AER, Draft decision: Transend transmission determination 2009–10 to 2013–14, 21 November 2008, p. 177; AER, Draft decision: ElectraNet transmission determination 2008–09 to 2012–13, p. 175.

⁴⁶⁵ EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, p. 21; Total Environment Centre, Submission to the AER- Powerlink revenue determination draft determination, February 2012, p. 7.

⁴⁶⁶ NER, clause 6A.6.6(c).

Step changes

Powerlink may be subject to changes in regulatory obligations or its external operating environment that are not reflected in its base year expenditure. The base year opex should be adjusted to account for these 'step changes'. Powerlink referred to 'step changes' as 'new requirements'. The AER is not satisfied the step changes in Powerlink's revised revenue proposal reasonably reflect the opex criteria (table 4.6).⁴⁶⁷

The AER accepts Powerlink's revised proposed step changes relating to:

- Iand tax
- tower painting refurbishment
- once-off painting and carpet replacement costs (part of the proposed additional building maintenance step change).

However, the AER does not accept Powerlink's revised proposed step changes relating to:

- maintenance and outgoings costs for the new office accommodation
- climate change investigations
- maintenance and outgoings costs for the disaster recovery site (part of the proposed additional building maintenance step change)
- increased helicopter support costs for south west Queensland maintenance.

Table 4.6AER final decision on Powerlink's step changes for 2012–13 to 2016–17
(\$ million, 2011–12)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Powerlink's revised revenue proposal	12.8	13.0	10.7	11.1	15.4	63.1
AER's final decision	11.8	12.1	9.8	10.6	14.9	59.1
Difference	-1.1	-1.0	-0.9	-0.6	-0.5	-3.9

Source: AER analysis.

Land tax

The AER is satisfied Powerlink's revised land tax costs of \$19.7 million (\$2011–12) for the 2012–13 to 2016–17 regulatory control period reasonably reflect the opex criteria.⁴⁶⁸

The draft decision did not accept Powerlink's proposed land tax costs because the AER considered Powerlink overestimated its land value escalation rates for the next regulatory control period and thus its forecast land tax costs. Subsequently, Powerlink revised its land

⁴⁶⁷ NER, clause 6A.6.6(c).

⁴⁶⁸ Powerlink's revised land tax costs of \$19.72 million (\$2011–12) represent the total land tax costs for the 2012– 13 to 2016–17 regulatory control period.

value escalators.⁴⁶⁹ The AER is satisfied Powerlink's revised land value escalators reasonably reflect a realistic expectation of land tax costs required to achieve the opex objectives (attachment 1). The AER is satisfied Powerlink's revised land tax costs also reflect a realistic expectation of land values for the 2012–13 to 2016–17 regulatory control period.

The EUAA stated the AER should ensure all step change costs are genuinely linked to the legislative changes.⁴⁷⁰ The AER notes the \$19.7 million (\$2011–12) of land tax costs represents Powerlink's total land tax liability for the 2012–13 to 2016–17 regulatory control period. Powerlink calculated land tax costs using a zero based method that reflects the requirements of the *Land Tax Act 2010* and the *Land Valuation Act 2010*.⁴⁷¹

Tower painting refurbishment

In its draft decision the AER was satisfied Powerlink's proposed tower painting costs reasonably reflect the opex criteria.⁴⁷² However, stakeholders did not agree with the decision to accept the tower painting costs as a step change.⁴⁷³

Tower painting costs are part of Powerlink's operational refurbishment costs, which are non-recurrent costs, forecast using a zero based forecast approach. The draft decision considered both recurrent and non-recurrent costs not reflected in the base year as 'step changes'.

As discussed in the draft decision, the AER's assessment of Powerlink's base year opex excludes Powerlink's proposed refurbishment opex. The AER reviewed these costs separately. Energy Market Consulting associates (EMCa) advised the AER that it considered Powerlink's refurbishment policy to be appropriate, and the systems and processes for developing refurbishment plans to be sound.⁴⁷⁴ Based on its review of Powerlink's operational refurbishment plan and the advice of EMCa, the AER remains satisfied Powerlink's proposed refurbishment opex (including the tower painting costs) reasonably reflect the opex criteria.⁴⁷⁵

Maintenance and outgoings costs for the new office accommodation

The AER is not satisfied Powerlink's proposed maintenance and outgoings costs for new office accommodation reasonably reflect the opex criteria.⁴⁷⁶

The draft decision did not accept the proposed costs because network growth escalation of base opex has incorporated the increase in Powerlink's office maintenance and outgoing

⁴⁶⁹ Powerlink, *Revised revenue proposal*, January 2012, p. 140.

⁴⁷⁰ EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, p. 26.

⁴⁷¹ Powerlink, *Response to information request AER/006 of 07 July 2011—Opex questions and meeting*, 1 August 2011, p. 3.

⁴⁷² AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 188.

⁴⁷³ EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, p. 26; An Energy consumers group operating in Queensland, Response to draft decision— AER Queensland electricity transmission revenue reset—Powerlink application, February 2012, p. 31.

⁴⁷⁴ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 188–189.

⁴⁷⁵ NER, clause 6A.6.6(a).

⁴⁷⁶ NER, clause 6A.6.6(c).

costs due to network expansion. By adding a step change to the base year opex, Powerlink double counted these costs in its opex model.

Powerlink did not agree with the draft decision and considered network growth escalation of base opex would not reasonably forecast future maintenance and outgoing expenditure for the new office accommodation.⁴⁷⁷

The AER notes Powerlink's proposed corporate support opex component already includes maintenance and outgoings costs for its existing office buildings. Powerlink used a top–down base year escalation approach to forecast this component.⁴⁷⁸ The costs of opex activities included in base year opex will not all increase at the same rate. Identifying opex activities that may have higher cost increases, and providing a step change for them, would overstate Powerlink's total opex requirement without adjusting for those opex activities that increase in cost at a slower rate. To appropriately account for the variances in cost changes for different opex activities, a detailed bottom–up analysis would be required. However, Powerlink used a top–down approach to forecast corporate support opex, and did not provide the evidence for a bottom–up analysis.

Further, as discussed in the draft decision, the AER considers step changes are efficient costs not reflected in the base opex. These include costs due to changes in regulatory obligations and the external operating environment.⁴⁷⁹ Powerlink's building maintenance and outgoings costs are included in the base year opex, and are not related to changes in regulatory obligations or the external operating environment. Powerlink has already escalated its base year corporate support costs by its network growth escalators. To avoid double counting, the increased building maintenance and outgoings costs should not be added as a step change to the base opex. For these reasons, the AER is not satisfied Powerlink's proposed step change for the maintenance and outgoing costs for the new office accommodation reasonably reflects the opex criteria.

Climate change investigations

The AER is not satisfied Powerlink's proposed costs for climate change investigations reasonably reflect the opex criteria. The draft decision did not accept the proposed costs because the AER considered no regulatory or legislative change required Powerlink to increase its reliability and technical standards. The AER also considered a prudent TNSP would regularly study the impact of various drivers on its transmission network, and such studies are a normal business cost and not a step change.⁴⁸⁰

Powerlink's revised revenue proposal did not agree with the AER's draft decision. Powerlink stated the nature and magnitude of its climate change investigations constituted new requirements. Powerlink considered its circumstances would be different in the 2012–13 to 2016–17 regulatory control period, and it needed an allowance to conduct these investigations.⁴⁸¹

⁴⁷⁷ Powerlink, *Revised revenue proposal*, January 2012, p. 140.

⁴⁷⁸ Powerlink, Operating expenditure forecasting methodology, May 2011, p. 12.

⁴⁷⁹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 165.

⁴⁸⁰ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 189.

⁴⁸¹ Powerlink, *Revised revenue proposal*, January 2012, pp. 141–142.

As discussed in the draft decision, the AER considers a prudent TNSP would regularly study the impact of drivers on designing, operating and investing in its transmission network. The EUAA stated Powerlink has performed such studies in the past.⁴⁸² The subject of such studies may vary over time. However, because Powerlink has not studied a particular issue in the base year, does not mean base year opex is insufficient for such a study in the future.⁴⁸³

Further, the incentive framework for TNSPs allows them to retain any efficiency savings that result from studies, thereby incentivising them to conduct these studies.⁴⁸⁴ The STPIS will likely reward service level improvements achieved through such studies.

For these reasons, the AER maintains Powerlink's base year opex is sufficient to undertake the proposed climate change investigations, in addition to any rewards that Powerlink receives through the STPIS.

Additional building maintenance

The AER is satisfied Powerlink's proposed once-off painting and carpet replacement costs reasonably reflect the opex criteria.⁴⁸⁵ However, it is not satisfied the proposed maintenance and outgoings costs for the disaster recovery site reasonably reflect the opex criteria.⁴⁸⁶

In the draft decision, the AER was not satisfied Powerlink's proposed step change for additional building maintenance reasonably reflected the opex criteria.⁴⁸⁷ The AER considered the base year opex includes the costs for Powerlink's disaster recovery site maintenance, and painting and carpet replacement.⁴⁸⁸

Powerlink's revised revenue proposal did not agree with the AER's draft decision. Powerlink considered the existing Virginia site and disaster recovery site would have similar marginal cost increases for building maintenance activities. But, they would not capture a base level maintenance requirement for the new site in the network growth escalator. It considered the forecast for building maintenance and outgoings captured this base level requirement.⁴⁸⁹

The AER is satisfied Powerlink's proposed carpet replacement and painting costs reasonably reflect the opex criteria. Powerlink confirmed that in developing its opex forecast it removed all one-off and non-recurrent items from its base year opex.⁴⁹⁰ Consequently any non-recurrent costs in the 2012–13 to 2016–17 regulatory control period need to be forecast separately. The AER is satisfied these costs, which are non-recurrent, are required by Powerlink to undertake the carpet replacement and painting works in the 2012–13 to 2016–17 regulatory control period.

⁴⁸² EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, p. 27.

⁴⁸³ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, p. 190.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 190.

⁴⁸⁵ NER, clause 6A.6.6(c).

⁴⁸⁶ NER, clause 6A.6.6(c).

⁴⁸⁷ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 191.

ABR, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 191.

⁴⁸⁹ Powerlink, *Revised revenue proposal*, January 2012, p. 142.

⁴⁹⁰ Powerlink, *Revised revenue proposal*, January 2012, p. 142.

However, the AER is not satisfied Powerlink's proposed disaster recovery site maintenance and outgoings costs reasonably reflect the opex criteria. Powerlink's proposed corporate support opex component already includes maintenance and outgoings costs for its existing office buildings. Powerlink used a top-down base year escalation approach to forecast this component. The AER considers the costs of opex activities included in base opex will not all increase at the same rate. Identifying opex activities that may have higher cost increases, and providing a step change for them, would overstate Powerlink's total opex requirement without adjusting for those opex activities that increase in cost at a slower rate. To appropriately account for the variances in cost changes for different opex activities, a detailed bottom-up analysis would be required. However, Powerlink used a top-down approach, and did not provide the evidence for a bottom-up analysis.

Powerlink's base year opex includes building maintenance and outgoings costs, escalated by the network growth factors. To avoid double counting, the increased building maintenance and outgoings costs for the disaster recovery site should not be also added as a step change to the base opex. For all these reasons, the AER is not satisfied Powerlink's proposed additional maintenance and outgoing costs for the disaster recovery site reasonably reflect the opex criteria.

Increased helicopter support costs for south west Queensland maintenance

The AER is not satisfied Powerlink's proposed increased helicopter support costs for south west Queensland maintenance reasonably reflects the opex criteria.⁴⁹¹

The draft decision did not accept the proposed increased helicopter support costs because network growth escalation of base opex incorporated the increase in Powerlink's helicopter support costs due to network expansion. By adding a step change to the base year opex, Powerlink double counted these costs in its opex model.

Powerlink did not agree with the AER's draft decision. It considered network growth escalation would not reasonably forecast its future helicopter support requirements.⁴⁹²

Powerlink's proposed field maintenance opex component already includes helicopter support costs. Powerlink used a top-down base year escalation approach to forecast opex, including field maintenance opex. The costs of each opex activity included in base year opex will not all increase at the same rate. Identifying opex activities that may have higher cost increases, and providing a step change for them, would overstate Powerlink's total opex requirement without adjusting for those opex activities that increase in cost at a slower rate. To appropriately account for the variances in cost changes for different opex activities, a detailed bottom–up analysis would be required. However, Powerlink used a top–down approach, and did not provide evidence that the costs of other opex activities that increase at a slower rate would not counterbalance helicopter support costs increasing at a faster rate. For all these reasons, the AER is not satisfied Powerlink's proposed increase helicopter support costs for south west Queensland maintenance reasonably reflect the opex criteria.⁴⁹³

⁴⁹¹ NER, clause 6A.6.6(c).

⁴⁹² Powerlink, *Revised revenue proposal*, January 2012, p. 143.

⁴⁹³ NER, clause 6A.6.6(c).

Provisions

The AER considers the base year requires an adjustment to ensure the level of opex in the financial statement provisions account reflects the amount that Powerlink will pay in the 2012–13 to 2016–17 regulatory control period. To include an amount above the expected pay out would overcompensate Powerlink in its total forecast opex. The AER considers the amount Powerlink is expected to pay out (rather than the amount Powerlink is expected to report in its provision account) reasonably reflects the efficient costs a prudent operator in Powerlink's circumstances would need to incur.⁴⁹⁴ The AER considers the movement in the provision account for employee benefits liabilities in the base year should be reversed, to reflect the actual level of payments of these costs. The impact of this reversal reduces Powerlink's total forecast opex by \$3.9 million (\$2011–12) and is outlined in table 4.7.

Table 4.7	Impact of reversal of movement in provisions (\$million, 2011–12)
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	2012–13	2013–14	2014–15	2015–16	2016–17	Total
AER final decision	-0.7	-0.7	-0.8	-0.8	-0.8	-3.9

Source: AER analysis.

The AER's draft decision accepted Powerlink's costs over the 2006–07 to 2011–12 regulatory control period reflected its recurrent costs.⁴⁹⁵ However, the AER considered Powerlink's base year required adjustment to more appropriately recognise the provisions paid out, rather than the provisions reported.⁴⁹⁶

Powerlink's revised revenue proposal disagreed with the AER's draft decision to reduce the base year opex by the amount of movement in provisions for that year.⁴⁹⁷ Powerlink stated:⁴⁹⁸

- the AER incorrectly interpreted 'Provisions' within Powerlink's financial accounts because it contains both liabilities and provisions under the same account heading
- the AER had accepted that Powerlink's actual costs reflected its recurrent costs, so there is no need to adjust the base year
- the employee benefits liability is not a provision but an accrued liability, so should not be reversed
- the environmental restoration liability is a provision but is not included in the base year calculations because it was resolved at the end of 2010–11 and is not factored into Powerlink's forecast.

The AER discussed with Powerlink the matter of reversing the movement in Powerlink's provision account from the base year to reflect recurrent costs on a number of occasions.

⁴⁹⁴ NER, clause 6A.6.6(c).

⁴⁹⁵ AER, *Draft decision: Powerlink Transmission determination 2012–13 to 2016–17*, November 2011, pp. 167–178.

⁴⁹⁶ AER, Draft decision: Powerlink Transmission determination 2012–13 to 2016–17, November 2011, pp. 176–177.

⁴⁹⁷ Powerlink, *Revised revenue proposal* January 2012, pp. 137–139.

⁴⁹⁸ Powerlink, *Revised revenue proposal*, January 2012, pp. 137–139.

However, through these discussions the AER and Powerlink were unable to reach a common understanding. 499

Provision accounts are used to set aside amounts for paying future liabilities of an uncertain timing or amount.⁵⁰⁰ The movement in provisions is reversed when the difference between the opening and closing balances of the provision account is netted off the base year. That is, reversing the difference between the amount set aside and the amount paid out. This reversal could be either a negative or positive movement in the base year. If the closing balance is higher than the opening balance, more money has been set aside in that year than paid out. The reversal of this movement would be a reduction to the provision for the base year. The opposite occurs when the closing balance is less than opening balance.

Powerlink acknowledged the movement in its provision account is an issue in forming a view on the recurrent base opex.⁵⁰¹

In assessing base year operating expenditure for instances of non-recurrent expenditure, Powerlink is aware of the importance of addressing provisions.

Powerlink has two liabilities in its provision accounts:

- employee benefits liabilities
- environmental restoration.

Powerlink considered employee benefits liabilities are an accrued liability and not a provision.⁵⁰² However, the AER considers these liabilities operate in a similar way to a provision—that is, funds are held aside to meet a future liability. The difference is that a provision is an amount set aside to cover a future liability of an uncertain amount, whereas an accrued liability is for a good or service that has already been received or supplied and the payment for a specified amount will occur in the future. The reversal of the movement in the provisions account should more appropriately recognise the amount paid out over the 2012–13 to 2016–17 regulatory control period for this liability, rather than the amount provided for.

The AER's historical trend analysis supports this adjustment. The AER analysed the movement in the provision account for employee benefits liabilities between 2004–05 and 2010–11. Over that period, Powerlink has annually set aside more for this liability than it incurred. Powerlink annually set aside an average \$2.6 million more than it paid out, with approximately half of this attributable to opex. This trend demonstrates the inclusion in the base year of the amount set aside in the provision account, rather than the actual costs, would overcompensate Powerlink's total forecast opex. This overcompensation could occur not only in the 2012–13 to 2016–17 regulatory control period, but possibly beyond this period. This is because this amount is escalated forward under the base year forecasting approach.

⁴⁹⁹ Powerlink, Response - Follow up - Request AER/066 - Provisions and base year opex, 4 April 2012.

⁵⁰⁰ AASB, 137: Provisions, contingent liabilities and contingent assets, section 10.

⁵⁰¹ Powerlink, *Revised revenue proposal*, January 2012, p. 137.

⁵⁰² Powerlink, *Revised revenue proposal*, January 2012, p. 137.

The AER considers such an approach does not comply with the NER opex criteria as an overcompensation would be above what is considered to be an efficient cost.⁵⁰³

The AER considers that any additional requirement above the actual costs Powerlink incurred in the base year should be accounted for. That is, if Powerlink foresees a change in the payout for employee benefits in the 2012–13 to 2016–17 regulatory control period then its forecast allowance should allow for this movement. To ensure procedural fairness in its decision making process, and account for Powerlink's requirements over the 2012–13 to 2016–17 regulatory control period, the AER requested Powerlink provide it with any forecast changes in relation to these costs.⁵⁰⁴ Powerlink responded that:⁵⁰⁵

...there is no forecast movement in the accrued liability for employee benefits.

In addition, Powerlink provided a revised opex model with the movement in the provision account for the employee benefits liabilities reversed out of the base year.⁵⁰⁶ The AER considers Powerlink's treatment of these costs is reasonable. Based on its review, the AER considers Powerlink's base year requires an adjustment of \$3.9 million (\$2011–12) to reverse the movement in Powerlink's provisions account for employee benefits liabilities. This adjustment reasonably reflects the efficient costs a prudent operator in Powerlink's circumstances would need to incur in the 2012–13 to 2016–17 regulatory control period.

Powerlink also noted that its forecast was done on an accrual basis based on the full cost of work.⁵⁰⁷ By doing so, Powerlink's forecast of a base year implicitly estimates its forecast requirements for the employee benefits liabilities. However, based on the information provided to it and its historical analysis of these costs, the AER considers this overstates Powerlink's requirements for these costs during the 2012–13 to 2016–17 regulatory control period.

The AER's approach to the provisions account is consistent with the approach applied in the Victorian electricity distribution determination 2011–15.⁵⁰⁸ The AER considers the same approach should apply to both distribution and transmission reviews. The movement in provisions has the same effect on base opex for both industry sectors.

No similar adjustment is required for Powerlink's environmental restoration provision. The AER notes Powerlink's confirmation that the environment restoration liability is a provision.⁵⁰⁹ However, the AER is satisfied from its analysis that Powerlink has no environmental restoration provision costs in its base year and, subsequently, its total forecast opex.

The environmental restoration provision was largely set up in 1996 for the legislative requirement to remove contaminated oil from Powerlink's network equipment.⁵¹⁰ Powerlink accounted for the forecast amount for this work in its provision account, and charged

⁵⁰³ NER, clause 6A.6.6(c)(i).

⁵⁰⁴ AER, Information request AER/066: Provisions and base year opex, 9 March 2012.

⁵⁰⁵ Powerlink, *Response to information request AER/066 of 9 March 2012–Provisions and base year opex*, 21 March 2012.

⁵⁰⁶ Powerlink, Response - Follow up - Request AER/066 - Provisions and base year opex, 4 April 2012.

⁵⁰⁷ Powerlink, *Response to information request AER/066 of 9 March 2012–Provisions and base year opex*, 21 March 2012.

⁵⁰⁸ AER. Final decision, Victorian electricity DNSPs, Distribution determination 2011–2015, 2010, pp. 336–347.

⁵⁰⁹ Powerlink, *Revised revenue proposal,* January 2012, pp. 138–139.

⁵¹⁰ Powerlink, *Revised revenue proposal*, January 2012, pp. 138–139.

year-on-year actual costs to this provision. The last charges to this provision were due in the 2007–08 to 2011–12 regulatory control period, and no environmental restoration provision will be made in the 2012–13 to 2016–17 regulatory control period.

4.3.2 Other operating expenditure

In addition to controllable opex, Powerlink proposed opex for insurances, network support cost and debt raising costs, collectively called 'other opex'. The AER is not satisfied Powerlink's revised forecast for network support costs and debt raising costs reasonably reflects the opex criteria. Powerlink accepted the AER's draft determination on insurances. The AER's determination of Powerlink's other opex for 2012–13 to 2016–17 is \$67.8 million (\$2011–12) (table 4.8).

Table 4.8 AER final decision on Powerlink's other operating and maintenance expenditure (\$million, 2011–12)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Network support	-	-	-	-	-	-
Debt raising costs	3.4	3.7	3.9	4.0	4.1	19.1
Insurances	8.5	9.1	9.8	10.3	11.0	48.7

Source: AER analysis.

Network support costs

Network support refers to costs for non-network solutions used by a TNSP as an efficient alternative to network augmentation. Network support involves sourcing local generation in order to address network limitations. In certain circumstances, a TNSP may find it more cost effective to use generators to maintain system reliability, rather than undertake network augmentation (such as building additional transmission lines).

The AER does not accept Powerlink's revised network support proposal of \$19.3 million (\$2011–12). Instead, it substitutes an amount of \$0 million (\$2011–12). The AER's final decision is set out in table 4.9. The reasons for this decision are:

the AER is not satisfied the proposed network support for the North Queensland projects reasonably reflect the opex criteria, as discussed in the draft decision.⁵¹¹ In making its draft decision, the AER reviewed all the information that Powerlink provided in its 31 May 2011 revenue proposal in support of the proposed North Queensland network support projects. At the time, the AER was not satisfied the proposed network support reasonably reflected the opex criteria.⁵¹² Powerlink did not provide new information to support its revised network support for North Queensland in its revised revenue proposal. Accordingly and for the reasons set out in the draft decision, the AER's final decision is to not accept the revised network support for North Queensland projects.

⁵¹¹ NER, clause 6A.6.6(c).

⁵¹² The reasons for the AER's decision are outlined in AER, *Draft decision, Powerlink transmission determination* 2012–2013 to 2016–2017, November 2011, pp. 200–207.
the NER sets out that a TNSP may only revise its revenue proposal so as to incorporate the substance of any changes required by, or to address matters raised in, the draft decision.⁵¹³ Powerlink's proposed network support for the Kogan Creek power station (PS) fault level management project was not raised as an issue in the draft decision, or in Powerlink's initial revenue proposal. It is therefore not a matter that can be subsequently proposed by Powerlink. Consequently, the AER has not assessed these costs for the final decision.

Table 4.9	AER final decision on Powerlink's network support (\$million, 2011-12)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Network support	-	_	-	-	-	-

Source: AER analysis.

Revised revenue proposal

Powerlink's revised revenue proposal did not agree with the AER's draft decision to set network support at \$0 for the 2012–13 to 2016–17 regulatory control period.⁵¹⁴ Further, it submitted that an oversight caused it to omit \$10.6 million (\$2011–12) for network support needs for the Kogan Creek PS fault level management from its May 2011 revenue proposal (see table 4.10).⁵¹⁵

Table 4.10	Powerlink's	revised	revenue	proposal—network	support
	(\$million, 2011-	–12)			

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
North Queensland	0.3	3.1	1.4	1.6	2.3	8.7
Kogan Creek PS fault level management	1.6	2.7	3.0	3.2	0.2	10.6
Total	1.9	5.8	4.3	4.7	2.5	19.3

Source: Powerlink, Revised revenue proposal, p. 147.

Powerlink submitted that the draft decision was imposing 'stringent evidentiary' requirements as regards network support forecasts and that the AER's assessment approach was unreasonable for the following reasons:⁵¹⁶

- regulatory process—the draft decision ignored the fundamental basis upon which the forecasts were developed in the context of the regulatory process.
- pass through provisions—Powerlink expressed concern that it cannot access the pass through provisions under clause 6A.7.2 in a situation where the AER set a building-block revenue allowance of \$0 for network support in the relevant regulatory year.
- North Queensland projects—the AER incorrectly identified two North Queensland network augmentation projects as committed.

⁵¹³ NER clause 6A.12.3(b).

⁵¹⁴ The approved amount of \$0 related to network support for North Queensland projects (AER, Draft decision, Powerlink transmission determination 2012–2013 to 2016–2017, November 2011, p. 201).

⁵¹⁵ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 146.

⁵¹⁶ Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 144–147.

These issues and the AER's view for Kogan Creek PS fault level management project are considered below. There were no stakeholder submissions on network support.

Regulatory process

The draft decision outlined matters that would be good indicators of whether network support costs reasonably reflect the opex criteria in clause 6A.6.6(c).⁵¹⁷ These matters include:

- the completion of a regulatory test for transmission investment (RIT-T) to evaluate options that address the relevant network limitations, and
- whether a TNSP applied an open tender process, with merit selection, in awarding network support contracts.

Powerlink had not undertaken either of these activities. It submitted that it was unreasonable to expect Powerlink to have undertaken them. Such an expectation did not account for the regulatory process that requires it to submit a revenue proposal 13 months prior to the regulatory period commencing.⁵¹⁸

However, it appears that Powerlink has provided this type of information previously. In its 2007–2012 revenue proposal, Powerlink provided information demonstrating that it had completed a regulatory test (the predecessor of the RIT-T) for projects related to its proposed network support at the time.⁵¹⁹ Powerlink demonstrated that it had based the then proposed network support on cost estimates resulting from its negotiations with providers of network support services.⁵²⁰ At the time, Powerlink provided this information in the context of the regulatory process that requires a TNSP to submit its revenue proposal 13 months prior to commencement of the regulatory period to which these forecasts relate. Therefore, it is not clear that Powerlink's submission on this point is accurate.

In regard to the proposed network support, the AER considers that inputs into the forecasting methodology that are associated with a relevant RIT–T process are likely to reflect efficient outcomes. Powerlink did not provide information that demonstrates that it identified the proposed North Queensland network support as the transmission investment option which maximises net economic benefits for the relevant network limitations. In addition, Powerlink did not provide the size of supply contracts for network support services related to the proposed North Queensland network support projects. Given this lack of information and the uncertainty on the size of the relevant supply contract for network support services, the AER is not satisfied the proposed North Queensland network support reasonably reflect the opex criteria as required by clause 6A.6.6(c) of the NER.

The AER notes, however, that this finding does not prevent Powerlink from receiving revenue in regard to the proposed network support. Powerlink may enter contractual agreements with

⁵¹⁷ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, pp. 201-203.

⁵¹⁸ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 145.

⁵¹⁹ AER, *Draft decision, Queensland transmission network revenue cap 2007–08 to 2011–12*, December 2006, p.146. The AER published its RIT-T in 2010, which replaces the existing regulatory test for transmission investments.

⁵²⁰ AER, *Draft decision, Queensland transmission network revenue cap 2007–08 to 2011–12*, December 2006, p. 146.

network support providers after commencement of the 2012–2013 to 2016–17 regulatory control period. If it does so, as noted below, clause 6A.7.2 of the NER makes provision for Powerlink to apply for a network support costs pass through.

Powerlink further submitted that the draft decision position on RIT–T and contractual agreements is at odds with the AER's procedural guideline for network support pass through application.⁵²¹ Powerlink stated that the AER's procedural guideline envisages that a TNSP may not have carried out a RIT–T and entered into contractual arrangements for the provision of network support services at the time of the revenue cap determination.⁵²²

The AER disagrees and considers the draft decision on network support and its procedural guideline for network support pass through applications are consistent because:

- The draft decision stated that Powerlink can submit a network support pass through application if it enters into contractual agreements with providers of network support during the 2012–13 to 2016–17 regulatory control period.⁵²³ This statement recognises that, for the relevant projects, Powerlink may carry out a RIT–T and enter into contractual arrangements within the 2012–2013 to 2016–17 regulatory control period. When this occurs, clause 6A.7.2 makes provision for Powerlink to submit an application for network support pass through.
- Sections 2.4 and 2.5 of the AER's procedural guideline require information to be part of a network support pass through application that is comparable to the draft decision requirements.⁵²⁴

Pass through provisions

Powerlink submitted that it cannot access the pass through provisions under clause 6A.7.2 of the NER where the AER has not provided any building-block revenue allowance for network support in the relevant regulatory year (that is, an allowance of \$0, as per the draft decision).⁵²⁵ It was concerned that AER had a conflicting interpretation of pass through provisions and the definition of a network support event.⁵²⁶

The AER considers Powerlink has misinterpreted clause 6A.7.2. The words 'if any' in the definition of 'network support event' anticipates a situation where a network support event occurs, even though the relevant annual building block revenue requirements do not provide an amount for network support payments, (i.e. the amount set is \$0).⁵²⁷

⁵²¹ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 145.

⁵²² Powerlink, *Revised revenue proposal*, 16 January 2012, p. 145.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 200.

⁵²⁴ AER, *Procedural guideline for preparing a transmission network support pass through application*, June 2011, pp.4–8. http://www.aer.gov.au/content/index.phtml/itemId/742680

⁵²⁵ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 145.

⁵²⁶ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 145.

⁵²⁷ Chapter 10 of the NER defines a network support event as follows: "if at the end of a regulatory year of a regulatory control period, the amount of network support payments made by a TNSP for that previous regulatory year is higher or lower than the amount of network support payments (if any) that is provided for in the annual building block revenue requirements for the TNSP for that regulatory year, this constitutes a network support event.

Powerlink further submitted that the draft decision gives conflicting interpretations of clause 6A.7.2 of the NER.⁵²⁸ The AER stated:

"If Powerlink enters into contractual agreements with network support providers after commencement of the next regulatory control period, it 'can' submit to the AER a network support pass through application under clause 6A.7.2",⁵²⁹

and later said:

"If network support does arise during the next regulatory control period, it 'may' qualify to be passed through under clause 6A.7.2".⁵³⁰

The AER considers no conflict is evident. The use of the term 'can submit' was intended to point out that Powerlink is allowed to apply for network support pass through under the NER. The use of 'may qualify' was intended to point out that the AER cannot guarantee that Powerlink's network support pass through application will be successful. In other words, the AER must be satisfied that the requirements in 6A.7.2 of the NER are met before it determines a network support event has occurred and the network support pass through amount. Therefore, the AER considers that:

- Powerlink may submit a network support pass through application under clause 6A.7.2 of the NER, even where a final decision sets network support of \$0.
- A network support pass through amount will only be approved if requirements of clause 6A.7.2 of the NER are met.

North Queensland projects

Powerlink's revised revenue proposal contained no new information to satisfy the AER that its revised network support of \$8.7 million (\$2011–12) for the North Queensland projects reasonably reflects the opex criteria in clause 6A.6.6(c) of the NER.⁵³¹ Accordingly, and for the reasons set out in the draft decision, the AER's final decision is to not approve the \$8.7 million (\$2011–12) network support for the North Queensland projects.

Powerlink stated that the AER incorrectly identified two North Queensland network augmentation projects as committed, whereas the revenue proposal had them as uncommitted projects.⁵³²An information check by the AER confirmed that these projects are uncommitted.⁵³³ Nevertheless, the draft decision to not accept the proposed network support for North Queensland, was not made based on the status of the projects (committed or uncommitted). Rather, it was based on the application of the AER's assessment framework for network support. This assessment framework is outlined in the AER draft decision.⁵³⁴

⁵²⁸ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 145.

⁵²⁹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 200.

⁵³⁰ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 203.

⁵³¹ In making its draft decision, the AER reviewed all the information that Powerlink refers to in its revised revenue proposal. For more details, see AER, *Draft decision, Powerlink transmission determination 2012–2013 to 2016–2017*, November 2011, pp. 202-203.

⁵³² Powerlink, *Revised revenue proposal*, 16 January 2012, p. 146. The two projects relate to augmentation in regard to Stanwell to Broadsound 2nd 275kV circuit and Stanwell to Broadsound 275kV 70 per cent and 65 per cent series capacitors.

⁵³³ Powerlink, *REvenue proposal*, Appendix M—Powerlink forecast network capital projects, May 2011, pp. 20, 28.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 201.

Kogan Creek power station fault level management

As outlined in table 4.9, the final decision is to not approve \$10.6 million (2011–12) of network support for the Kogan Creek power station fault level management for the 2012–13 to 2016–17 regulatory control period. The reasons are:

- The AER did not assess the proposed network support for the Kogan Creek power station fault level management. Under clause 6A.12.3(b) of the NER, a TNSP may only make the revisions referred to in its revised revenue proposal so as to incorporate the substance of any changes required by, or to address matters raised in, the draft decision.
- Powerlink's proposed network support for the Kogan Creek power station (PS) fault level management project was not raised as an issue in the draft decision, or in Powerlink's revenue proposal of 31 May 2011. Consequently, the AER has not assessed these costs for the final decision.

Debt raising costs

The AER has determined a benchmark debt raising cost allowance of \$19.1 million (\$2011–12) for Powerlink. Table 4.11 shows the annual allowance.

Table 4.11	AER final decision on	debt raising costs	(\$million, 2011–12)
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Unit rate	2012–13	2013–14	2014–15	2015–16	2016–17	Total
9.3 basis points per year	3.4	3.7	3.9	4.0	4.1	19.1

Source: AER analysis

Powerlink accepted the AER's draft decision approach to forecasting debt raising costs.⁵³⁵ The AER's draft decision applied updated unit cost inputs to its method for determining benchmark debt raising costs and determined the total debt raising cost allowance for Powerlink based on the debt component of the RAB. Some of the unit costs depend on the WACC. The AER updated those unit costs to reflect the WACC for this final decision. It also changed Powerlink's RAB value from the draft decision. As a result, while the debt component of the RAB has changed, Powerlink is still required to raise sixteen standard sized bond issues. Table 4.12 shows the unit costs and the resulting total unit cost of 9.3 basis points per year based on the required sixteen bond issues for this final decision.

⁵³⁵ Powerlink, *Revised revenue proposal*, January 2012, p. 148.

Table 4.12	AER (unit) debt raising cost for Powerlink based on a nominal WACC of
	8.61 per cent

Fee	Explanation	One issue	Four issues	Sixteen issues
Amount raised (\$million, 2011–12)	Multiples of median MTN (\$250 million)	250	1000	4000
Gross underwriting fee	Median gross underwriting spread upfront per issue amortised	6.89	6.89	6.89
Legal and road show	\$195 000 upfront per issue, amortised	1.19	1.19	1.19
Company credit rating	\$55 000 per year	2.20	0.55	0.14
Issue credit rating	4.5 basis points upfront per issue, amortised	0.69	0.69	0.69
Registry fees (initial)	\$4000 upfront per issue, amortised	0.02	0.02	0.02
Registry fees (annual) (previously labelled paying fees)	\$9000 per issue per year	0.36	0.36	0.36
Total	Basis points per year	11.4	9.7	9.3

Source: AER analysis.

The AER considers the benchmark debt raising unit cost of 9.3 basis points per year reflects efficient and prudent costs for current market conditions and it applied this value when estimating Powerlink's allowance for debt raising costs. This benchmark multiplied by the debt component of Powerlink's RAB results in a total allowance of \$19.1 million (2011–12) for debt raising costs.

Insurances

Powerlink's revised revenue proposal did not oppose the AER's draft decision approach to forecasting insurance costs. Powerlink subsequently incorporated the draft decision insurances allowance in its revised revenue proposal.⁵³⁶ Table 4.13 sets out the AER's final decision on Powerlink's insurances.

⁵³⁶ Powerlink, *Revised revenue proposal*, January 2012, pp. 148–149.

Table 4.13AER final decision on Powerlink's insurances (\$million, 2011–12)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Insurances	8.5	9.1	9.8	10.3	11.0	48.7
	a la la la se fa					

Source: AER analysis.

4.4 Revisions

Revision 4.1: The AER removed the movement in provisions from Powerlink's actual base year opex.

Revision 4.2: The AER adjusted forecast opex to reflect its determined labour cost escalators.

Revision 4.3: The AER adjusted network growth escalators to reflect its determined forecast capex.

Revision 4.4: The AER removed Powerlink's proposed maintenance and outgoings costs for Powerlink's new office accommodation.

Revision 4.5: The AER removed Powerlink's proposed step change for climate change investigations.

Revision 4.6: The AER removed Powerlink's proposed maintenance and outgoings costs for the disaster recovery site (part of the proposed step change for additional building maintenance costs).

Revision 4.7: The AER removed Powerlink's proposed increased helicopter support costs for south west Queensland maintenance.

Revision 4.8: The AER adjusted forecast opex to reflect its determined network support costs.

Revision 4.9: The AER adjusted debt raising costs to reflect updated unit costs and the RAB.

5 Cost of capital

As part of making a determination on the annual building block revenue requirement for a TNSP, the AER is required to make a decision on the return on capital building block.⁵³⁷ When the rate of return (or cost of capital) is applied to the value of the regulatory asset base (RAB) it results in the return on capital building block. This attachment sets out the AER's determination of the cost of capital to apply over the 2012–13 to 2016–17 regulatory control period. Under the NER the rate of return to be applied by the AER is based on the nominal vanilla weighted average cost of capital (WACC) formulation.⁵³⁸ The NER requires the AER to apply the capital asset pricing model (CAPM)⁵³⁹ to calculate the return on equity for TNSPs.⁵⁴⁰

5.1 Decision

The AER has not accepted Powerlink's revised proposed WACC of 8.68 per cent. This is because the WACC in Powerlink's revised revenue proposal is based on bond rates using an indicative averaging period.

For this final decision, the AER has determined a WACC of 8.61 per cent for Powerlink as set out in table 5.1. This WACC reflects parameters—such as the nominal risk free rate and debt risk premium (DRP)—estimated over the 40 business day averaging period of 6 February 2012 to 30 March 2012.

In the draft decision, the AER accepted Powerlink's proposed values for the equity beta, market risk premium (MRP), gearing and assumed utilisation of imputation credits (gamma).⁵⁴¹ As required under the NER,⁵⁴² the AER must adopt those values, which were determined in the 2009 review of the WACC parameters (WACC review), to calculate Powerlink's WACC.⁵⁴³ The AER also agreed to Powerlink's proposed averaging period to calculate the nominal risk free rate (and DRP). However, the AER did not accept Powerlink's proposed value for the DRP.

In establishing the WACC, the AER has applied the agreed averaging period to calculate the risk free rate. The AER accepts Powerlink's revised revenue proposal to use the extrapolated Bloomberg BBB rated fair value curve (FVC) to estimate the DRP.

In addition to bottom-up analysis on the parameter inputs, the AER has also assessed the overall rate of return against market data to ensure that the WACC is appropriate for this final decision.⁵⁴⁴

⁵³⁷ NER, clause 6A.5.4(a)(2).

⁵³⁸ NER, clause 6A.6.2(b).

⁵³⁹ The CAPM is a well known and widely used model. It specifies a relationship between the expected return of a risky (in terms of uncertainty over future outcomes) asset and the level of systematic (non-diversifiable) risk.
⁵⁴⁰ NEP closes 04 0.0(1)

⁵⁴⁰ NER, clause 6A.6.2(b).

⁵⁴¹ The gamma parameter affects the corporate income tax building block, which is discussed in attachment 8.

⁵⁴² NER, clause 6A.6.2(h).

⁵⁴³ AER, *Electricity transmission and distribution network service providers Statement of the revised WACC parameters (transmission)*, May 2009, p. 6.

⁵⁴⁴ NER, clause 6A.6.2(b).

Table 5.1	AER final decision on Powerlink's WACC parameters
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Parameter	AER draft decision	Powerlink revised proposal	AER final decision
Nominal risk free rate	4.32% ^a	4.25% ^a	4.17%
Equity beta	0.80	0.80	0.80
Market risk premium	6.50%	6.50%	6.50%
Gearing level (debt/debt plus equity)	60%	60%	60%
Debt risk premium	3.19% ^b	3.91% ^a	3.93%
Assumed utilisation of imputation credits (gamma) ^c	0.65	0.65	0.65
Inflation forecast	2.62%	2.62%	2.60%
Cost of equity	9.52% ^a	9.45% ^a	9.37%
Cost of debt	7.51% ^ª	8.16% ^a	8.10%
Nominal vanilla WACC	8.31% ^a	8.68% ª	8.61%

Source: AER, Draft decision : Powerlink transmission determination, November 2011 p. 213; Powerlink, Revised revenue proposal, p. 27.

(a) Based on different indicative averaging periods.

(b) Based on indicative averaging period and different estimation method.

(c) The gamma parameter affects the corporate income tax allowance. This allowance is discussed at attachment 8.

5.2 Assessment approach

There is a change to the assessment approach in respect of the DRP from that outlined in the draft determination. The assessment approach for the other WACC parameters has not changed from that outlined in the draft determination and therefore is not repeated here.

Debt risk premium

The AER estimates the DRP using:

- an appropriate benchmark—the AER specified in the WACC review that the benchmark term for the risk free rate, and therefore the term for the DRP, is 10 years, and that the benchmark credit rating is BBB+.⁵⁴⁵
- a method for estimating the DRP that conforms to these benchmark parameters as discussed below.

Method used to estimate the DRP

In assessing Powerlink's revised revenue proposal, the AER has considered:

- previous Australian Competition Tribunal (Tribunal) decisions on estimation of the DRP
- the use of the Bloomberg 7 year BBB FVC to estimate a 7 year (base) DRP⁵⁴⁶
- the method used to extrapolate the base DRP estimate from 7 to 10 years, consistent with the benchmark term.

In its draft decision for Powerlink, the AER estimated the DRP based on a sample of observed bond market data and placed no weight on the Bloomberg BBB rated FVC.

Following the draft decision, the Tribunal released its decisions relating to APT Allgas and Envestra's access arrangements (the APT Allgas and Envestra decision) and the Victorian electricity DNSPs. Amongst other issues, the Tribunal considered the AER's approach to estimating the DRP. The Tribunal found error in the AER's DRP approach. It decided that for those regulatory decisions under review, 100 per cent weight would be placed on the extrapolated Bloomberg BBB rated FVC to estimate the DRP.⁵⁴⁷ The Tribunal stated that if the AER wishes to adopt an alternative methodology to the extrapolated Bloomberg BBB rated FVC, it should develop the alternative approach through an industry wide consultation process.⁵⁴⁸

In those decisions, the use of the Bloomberg BBB rated FVC to estimate the DRP was in contention. The method for extrapolating the Bloomberg BBB rated FVC was not contested. However, the Tribunal stated that:

If the AER were to decide that the **EBV**⁵⁴⁹ was an unreliable indicator for the purposes of deciding that DRP, it would be desirable in the longer term to develop an alternative coherent and consistent methodology, in consultation with the relevant regulated entities

⁵⁴⁵ AER, *Electricity transmission and distribution network service providers, Statement of the revised WACC parameters (transmission)*, May 2009, p. 6.

⁵⁴⁶ While the benchmark credit rating is BBB+, Bloomberg's BBB rated FVC is based on a composite of BBB-, BBB, BBB+ and A- rated bonds.

⁵⁴⁷ Australian Competition Tribunal, *Application by Envestra Ltd* (*No 2*) [2012] ACompT 3, 11 January 2012, paragraph 120; Australian Competition Tribunal, *Application by APT Allgas Energy Ltd* [2012] ACompT 5, 11 January 2012, paragraph 117; and Australian Competition Tribunal, *Application by United Energy Distribution Pty Ltd* (*No 2*) [2012] ACompT 1, 6 January 2012, paragraph 462.

⁵⁴⁸ Australian Competition Tribunal, *Application by Envestra Ltd (No 2) [2012] ACompT 3*, 11 January 2012, paragraphs 98, 120 and 121.

⁵⁴⁹ The Tribunal used EBV as the acronym for the extrapolated Bloomberg fair value curve.

and other interested parties. Although the DRP must be determined at a particular point in time, the use of a consistent and acceptable methodology would ensure regulatory consistency, and in relation to particular matters would also facilitate efficient decision making and in turn reduce the number of reviews of the DRP decisions by the AER brought to the Tribunal. While such a task would be a complex and lengthy one, it is one the Tribunal commends to the AER.⁵⁵⁰ (AER's emphasis)

The Tribunal, of course, accepts that in the first instance it is for the AER to determine whether to rely upon the Bloomberg curve, **or to accept the extrapolation of that curve in the manner done in the past**. It is not obliged to do so, although given the past regulatory decisions it may be expected to do so unless there were sound reasons to depart from that practice. For the future, that is a matter for the AER.⁵⁵¹ (AER's emphasis)

In light of the Tribunal's statements, the AER understands that in discussing the extrapolated Bloomberg BBB rated FVC the Tribunal is referring to:

- the Bloomberg BBB rated FVC to estimate the DRP at 7 years
- the last historical spread⁵⁵² between the Bloomberg 7 and 10 year AAA rated FVCs to extrapolate the 7 year DRP estimate to 10 years.

The AER considers that there may be other preferable methodologies to estimate the DRP. Notwithstanding this, the AER acknowledges the Tribunal's views and agrees that it is desirable to widely consult on a new approach to estimate the DRP before it is used. Prior to undertaking this consultation, and taking account of recent Tribunal decisions, the AER will assess Powerlink's revised revenue proposal against the following method to estimate the 10 year DRP:

- the Bloomberg BBB rated FVC to estimate the (base) 7 year DRP
- the last historical spread between the Bloomberg 7 and 10 year AAA rated FVCs, to extrapolate the 7 year DRP estimate to 10 years.

The AER will begin an internal review of alternative methods to estimate the DRP and advise of a public consultation process in due course.

5.3 Reasons

This section sets out the AER's consideration of issues raised in Powerlink's revised revenue proposal and submissions. These issues include the determination of the nominal risk free rate and DRP. The AER has also assessed the overall rate of return against market data.

Powerlink's revised revenue proposal accepted the AER's approach to calculate the inflation forecast. The AER has updated the inflation forecast using that approach for the purposes of this final determination.

⁵⁵⁰ Australian Competition Tribunal, *Application by Envestra Ltd (No 2) [2012] ACompT 3*, 11 January 2012, paragraph 98.

⁵⁵¹ Australian Competition Tribunal, *Application by Envestra Ltd (No 2) [2012] ACompT 3*, 11 January 2012, paragraph 120.

⁵⁵² Specifically, it is based on the last published 20 days prior to 22 June 2010.

5.3.1 Nominal risk free rate

For this final decision, the AER has determined a nominal risk free rate of 4.17 per cent (effective annual compounding rate). This is based on a moving average of 40 business days for Commonwealth Government Securities (CGS) yields with a 10 year maturity for the period ending 30 March 2012.⁵⁵³

In the draft decision, the AER accepted Powerlink's proposed averaging period of 40 business days to calculate the risk free rate.⁵⁵⁴ The AER stated it would update the risk free rate based on the agreed averaging period for the final decision. The AER also stated that given the AER's agreement to the averaging period, in light of the Federal Court of Australia judgment for ActewAGL, Powerlink would be unable to amend the period.

Powerlink's revised revenue proposal acknowledged the AER's agreement to the proposed averaging period for calculating the risk free rate.⁵⁵⁵ Powerlink used an up-to-date averaging period to estimate the indicative risk free rate for the purposes of its revised revenue proposal. However, Powerlink reiterated its earlier concerns that financial markets may result in abnormal conditions during the averaging period such that Powerlink may not have the opportunity to recover at least its efficient costs. It noted that the CGS yields have fallen to historical lows which could not be foreseen by Powerlink at the time of lodging its request to fix the averaging period.

The AER's approach for determining the risk free rate in this final decision is consistent with the NER requirements.⁵⁵⁶ Further, the NER requires the AER's transmission determination for Powerlink to apply the risk free rate method determined in the WACC review.⁵⁵⁷ The AER therefore considers the adopted risk free rate for this final decision results in a rate of return required by investors in a commercial enterprise with a similar nature and degree of non-diversifiable risk as that faced by Powerlink.⁵⁵⁸ The risk free rate also reflects a forward looking rate that is commensurate with prevailing market conditions. The AER notes Powerlink's statement about having an opportunity to recover at least efficient costs. To satisfy itself in this regard, the AER has undertaken reasonableness checks of the overall cost of capital based on a broad range of estimates inferred from market sources. The AER has set out these considerations at section 5.3.3.

5.3.2 Debt risk premium

The AER accepts Powerlink's revised revenue proposal to estimate the DRP using the extrapolated Bloomberg BBB rated FVC. Based on Powerlink's revised revenue proposal, the

⁵⁵³ CGS yields sourced from the Reserve Bank of Australia: http://www.rba.gov.au/statistics/tables/xls/f16.xls.

⁵⁵⁴ AER, Draft decision, Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 239.

⁵⁵⁵ Powerlink, *Revised revenue proposal 2013–2017*, January 2012, p. 24. (Powerlink, *Revised revenue proposal*, January 2012)

⁵⁵⁶ NER, clauses 6A.6.2(c)(2), 6A.6.2(h).

⁵⁵⁷ The risk free rate is calculated using the annualised yield on 10 year CGS based on the agreed averaging period as close as practically possible to the commencement of regulatory control period. See: AER, *Statement of the revised WACC parameters (transmission)*, May 2009, p. 6.

⁵⁵⁸ NER, clause 6A.6.2(b).

AER has determined a benchmark DRP of 3.93 per cent (effective annual compounding rate) for this final decision.⁵⁵⁹

The AER has assessed Powerlink's revised proposed method to extrapolate the Bloomberg 7 year BBB rated FVC against two alternative approaches.⁵⁶⁰ These include:

- Historical spreads analysis—This approach uses the last historical spread⁵⁶¹ between the Bloomberg 7 and 10 year AAA rated FVCs to extrapolate the 7 year DRP estimate to 10 years.
- Linear extrapolation—This approach takes the difference between the 5 and 7 year DRPs published by the Bloomberg BBB rated FVC. The 7 year DRP is then extrapolated in a straight line to a 10 year term by adding that difference.

The three extrapolation approaches are set out in figure 5.1.



Figure 5.1 Extrapolation approaches for the Bloomberg 7 year BBB rated FVC

Source: Bloomberg, RBA, AER analysis.

The historical spreads approach results in a 10 year DRP estimate of 4.01 per cent. The linear extrapolation approach results in a 10 year DRP estimate of 3.67 per cent. The AER considers that all three of the extrapolation approaches have shortcomings, and all three rely

⁵⁵⁹ This is based on the same averaging period used to estimate the risk free rate.

⁵⁶⁰ Powerlink's revised proposed method extrapolates the Bloomberg 7 year BBB rated FVC using the 'paired bonds' analysis. This approach uses the change in observed spreads for a pair of bonds with different terms issued by the same corporation.

⁵⁶¹ Specifically, it is based on the last published 20 days prior to 22 June 2010.

on contentious assumptions.⁵⁶² In the absence of a more robust alternative approach to extrapolate the Bloomberg 7 year BBB rated FVC, the AER accepts Powerlink's revised proposed approach.

The Energy Users Association of Australia (EUAA),⁵⁶³ Energy Users Group⁵⁶⁴ and the Powerlines Action Group Eumundi⁵⁶⁵ submitted that the extrapolated Bloomberg BBB rated FVC results in an excessively high DRP estimate. In contrast, ElectraNet, TransGrid and Transend submitted that the AER should apply the Bloomberg BBB rated FVC to estimate the DRP.⁵⁶⁶ Specifically:

- ElectraNet submitted the AER should consider the Bloomberg BBB rated FVC in combination with direct market analysis.
- Transend submitted the continued use of the Bloomberg BBB rated FVC to estimate the DRP would promote regulatory stability and confidence, and that the AER should consult widely on any change in approach before applying a new methodology.

The AER notes the submissions, and considers that its previous analysis has shown that the extrapolated Bloomberg 7 year BBB rated FVC results in a DRP higher than that indicated from market evidence, such as observed bond data and independent market commentary.⁵⁶⁷ However, in light of the recent Tribunal decisions, the AER accepts Powerlink's revised revenue proposal to apply the extrapolated Bloomberg BBB rated FVC for estimating the DRP, until it has undertaken a public consultation process to determine alternative methodologies.

5.3.3 Reasonableness checks on overall rate of return

In previous sections the AER evaluates the evidence on each WACC parameter individually, while also taking into account the interdependencies between WACC parameters where relevant. In this section the AER evaluates the overall rate of return that results from the individual WACC parameter values being combined in accordance with the WACC and CAPM formulae. The AER considers that the overall rate of return is commensurate with the return required by investors in a commercial enterprise with a similar nature and degree of non-

⁵⁶² The AER set out its detailed analysis of the use of historical AAA curve spreads in its recent electricity draft decisions. For example, see: AER, *Draft distribution determination, Aurora Energy Pty Ltd 2012–13 to 2016–17*, November 2011, pp. 246–249; AER, *Draft decision: Powerlink transmission determination*, November 2011, pp. 229–232. The AER has also set out its analysis of the use of paired bonds in its recent electricity draft decision for Powerlink, in the context of reasonableness checks proposed by PricewaterhouseCoopers on behalf of Powerlink: AER, *Draft decision, Powerlink transmission determination 2012–13 to 2016–17*, November 2011, pp. 229–232. Similarly, the AER set out its detailed analysis of the use of historical linear extrapolation in: AER, *Final decision, Jemena Gas Networks 2010–2015*, June 2010, p. 189.

⁵⁶³ EUAA, Submission to the Australian Energy Regulator (AER) on its Draft Decision on Aurora Energy's Regulatory Proposal 2012-2017 and Aurora Energy's Revised Proposal, February 2012, p. 22.

⁵⁶⁴ Energy Users Group, AER 2011 review of Queensland electricity transmission—Response to Draft Decision, February 2012, pp. 14–15.

⁵⁶⁵ Powerlines Action Group Eumundi, Submission to the AER draft determination & Powerlink revised revenue reset application for 2012 to 2017, February 2012, p. 6.

⁵⁶⁶ ElectraNet, re: Powerlink draft transmission determination 2012–13 to 2016–17, February 2012, p. 4; TransGrid, Submission on the Powerlink draft decision, February 2012, p. 4; Transend, Submission to AER's draft decision for Powerlink, February 2012, p. 10.

⁵⁶⁷ See market evidence at: AER, Draft distribution determination, Aurora Energy Pty Ltd 2012–13 to 2016–17, November 2011, pp. 241–246; AER, Draft decision, Powerlink transmission determination 2012–13 to 2016– 17, November 2011, pp. 223–229.

diversifiable risk as that faced by Powerlink.⁵⁶⁸ In turn, the AER considers that the overall rate of return provides a reasonable opportunity for Powerlink to recover at least its efficient costs.⁵⁶⁹

The overall rate of return is determined using market data and finance theory. There are techniques available to assess the overall rate of return, which can produce a range of plausible results. Nevertheless, these techniques provide a useful reasonableness check for the AER's primary approach of using a detailed bottom-up analysis of the WACC input parameters.

The AER examines asset sales, trading multiples and broker WACCs for listed regulated business in Australia, as well as recent decisions by other Australian regulators and the historical range of WACC values provided by the AER for other electricity and gas service providers. These cross checks suggest that the regulated rate of return is reasonable.

For this final decision, the AER determines an indicative overall rate of return using a nominal vanilla WACC of 8.61 per cent. This is based on a cost of equity of 9.37 per cent, a cost of debt of 8.10 per cent and a gearing level of 60 per cent.

Trading multiples analysis suggests the overall rate of return is reasonable given market and sales valuations. The overall rate of return also falls within the range of estimates found in broker reports. While the overall rate of return is at the lower end of recent AER decisions, it is in line with recent decisions made by other Australian regulators.

Recent regulated asset sales

For recent transactions of regulated assets, for which relevant data is available, the AER compares the market value (i.e. the sale price) with the book value (i.e. the regulatory asset base).

Over the past few years, regulated assets have generally been sold at a premium to the regulatory asset base (RAB). If the market value is above the book value, this may imply that the regulatory rate of return is above that required by investors. Conversely, when the market value is below the book value, this may imply that the regulatory rate of return is below that required by investors.

Caution must be exercised before inferring that the difference indicates a disparity in WACCs, particularly where the difference is small. A range of factors may contribute to a difference between market and book values. A RAB multiple greater than one might be the result of the buyer:

- expecting to achieve greater efficiency gains that result in actual operational and capital expenditure below the amount allowed by the regulator
- increasing the service provider's revenues by encouraging demand for regulated services

⁵⁶⁸ NER, clause 6A.6.2(b).

⁵⁶⁹ NEL, section 7A(2).

- benefiting from a more efficient tax structure or higher gearing levels than the benchmark assumptions adopted by the regulator, and growth options
- expecting to achieve higher returns if regulation is relaxed.⁵⁷⁰⁵⁷¹

Regulated asset sales in the market are also infrequent allowing limited opportunity to conduct this analysis.

Regulated asset sales do, however, provide a useful real-world indication of whether market participants consider the AER's benchmark WACC is within a reasonable range. The consistent positive trend as discussed below provides evidence that the AER's WACC approach is not unreasonable.

In October 2010, Envestra purchased Country Energy's NSW gas network at a multiple of 1.25 times the 2010 RAB.⁵⁷² Further details on this transaction can be found in the AER's draft decision for the QLD/SA gas distribution networks.⁵⁷³

In July 2011, DUET sold its 25.9 per cent stake in West Australian Gas Network (WAGN) to ATCO Ltd in return for a 20 per cent interest in the Dampier to Bunbury pipeline (DBP) and a 20.1 per cent interest in Multinet.⁵⁷⁴

In December 2011, APA Group divested 80 per cent of its holding of APT Allgas (a gas distributor in South East Queensland) to Marubeni Corporation and RREEF; each acquiring 40 per cent equity stakes.⁵⁷⁵

APA Group figures stated that net funds released from the sale were \$477 million after transaction costs and the net enterprise value was \$526 million.⁵⁷⁶ Applying a RAB value, estimated at the sale date, to this enterprise value produces a multiple of 1.20.

This transaction involved the sale of both regulated and unregulated assets. Accordingly the RAB multiple may overstate the premium on the regulated assets as unregulated assets generally require a higher cost of capital.⁵⁷⁷

⁵⁷⁰ Grant Samuel & Associates Pty Limited, *Financial Services Guide and Independent Expert Report in relation to the Recapitalisation and Restructure of Babcock and Brown Infrastructure*, 9 October 2009, p.77.

⁵⁷¹ Each of these reasons assume the purchasing firm is making a rational purchasing decision. Another reason for a RAB multiple greater than one might be that the purchasing firm misjudged the value of the target assets and paid too much for those assets. Each transaction considered by the AER involved sophisticated investors with significant knowledge of the industry. Accordingly, the AER does not consider it likely that the RAB multiples greater than one result from poor valuations of the target assets.

⁵⁷² AER, *Final decision, Wagga Wagga natural gas distribution network, 1 July 2010-30 June 2015*, March 2010 and ASX, *Envestra company announcement,* 26 October 2010, viewed 10 January 2012, http://www.asx.net.au/asxpdf/20101026/pdf/31tcvlnblp4xqc.pdf.

AER, Draft decision, Envestra draft decision, 1 July 2011-30 June 2015, 17 February 2011, p. 63.

⁵⁷⁴ ASX, DUET company announcement, 29 July 2011, viewed 9 February 2012, http://asx.com.au/asx/statistics/announcements.do?by=asxCode&asxCode=due&timeframe=Y&year=2011>

⁵⁷⁵ APA Group, *Completion of the sale of 80% of Allgas*, 16 December 2011, viewed 10 January 2012, http://apa.com.au/investor-centre/news/asxmedia-releases/2011/completion-of-the-sale-of-80-per-cent-of-allgas.aspx.

⁵⁷⁶ APA Group, *Completion of the sale of 80% of Allgas*, 16 December 2011, viewed 10 January 2012, http://apa.com.au/investor-centre/news/asxmedia-releases/2011/completion-of-the-sale-of-80-per-cent-of-allgas.aspx.

⁵⁷⁷ Allgas is a holding company that also owns the unregulated Moura pipeline and the Gatton-Gympie easement.

APA Group also stated that the sale price was in line with the book value of the assets. The gross sale price was \$500.9 million, with the book value of assets sold at \$488.8 million.⁵⁷⁸ This equates to a multiple of 1.02. These multiples can be considered the upper and lower bound estimates of the RAB multiple for this transaction.

Other historical sales have been at premiums of between 20 and 119 per cent to the regulated asset base.⁵⁷⁹ The RAB multiples from each of these transactions, together with the transactions discussed above, are summarised in table 5.2 from most recent to least recent.

Date	Acquirer	Entity/Asset acquired	RAB multiple (times)
July 2011	ATCO	25.9% of West Australian Gas Networks	1.20
July 2011	DUET	20% of Multinet Gas	1.13
July 2011	DUET	20% of Dampier to Bunbury Natural Gas Pipeline	0.95 ⁵⁸⁰
Dec 2011	Marubeni Corp/RREEF581	Allgas	1.20
Dec 2011	Marubeni Corp/RREEF582	Allgas	1.02
Dec-06	APA	Directlink	1.45
Oct-06	APA	Allgas	1.64
Aug–06	APA	GasNet	2.19
Apr–06	Alinta	AGL Infrastructure assets	1.41–1.52
Mar-06	APA	Murraylink	1.47

Table 5.2 Selected acquisitions—RAB multiples

Source: DUET⁵⁸³, APA Group⁵⁸⁴, Grant Samuel, AER analysis.

- ⁵⁸¹ Quoted net enterprise value/calculated RAB.
- ⁵⁸² Gross sale price/book value of assets.

⁵⁷⁸ Net proceeds after transaction costs was \$478.4 million, with transaction costs of \$22.5 million and a gain on sale of \$12.1 million. The APA Group, Interim Financial Report for the half year ended 31 December 2011, 22 February 2012, p. 3.

⁵⁷⁹ Grant Samuel & Associates Pty Limited, *Financial Services Guide and Independent Expert Report in relation to the Recapitalisation and Restructure of Babcock and Brown Infrastructure*, 9 October 2009, p.78.

⁵⁸⁰ Dampier to Bunbury Natural Gas Pipeline (DBNGP) presents an unusual case because it is 96% contracted until 2016 under shipper contracts. As the Economic Regulation Authority of Western Australia (ERAWA) states, these contracts 'are substantially independent of the access terms and reference tariffs established under the access arrangement for the DBNGP.' ERAWA, *Final Decision, Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline – Submitted by DBNGP (WA) Transmission Pty Ltd*, 31 October 2011, p. 14. For this reason the DBNGP RAB multiple appears to be not driven by regulatory rates of return and does not provide a useful comparison for RAB multiples analysis.

⁵⁸³ DUET, Presentation to Macquarie Retail Adviser Network, 12 January 2012, viewed 9 February 2012.

APA Group, *Completion of the sale of 80% of Allgas*, 16 December 2011, viewed 10 January 2012, http://apa.com.au/investor-centre/news/asxmedia-releases/2011/completion-of-the-sale-of-80-per-cent-of-allgas.aspx.

As Grant Samuel has previously explained, listed infrastructure entities should theoretically trade at, and be acquired at, 1.0 times the RAB.⁵⁸⁵ However, nearly all recent asset sales have been transacted at RAB multiples of greater than one.

Acquisition premiums have been substantial and are, as a result, unlikely to be explained away by the factors noted above alone. This suggests that the regulated rate of return has been at least as high as the actual cost of capital faced by regulated businesses. Moreover, the consistency of the numbers across many transactions lends support to the conclusion that the regulated rate of return is at least consistent with the efficient rate of return.

The AER therefore considers that market transactions suggest that regulated rates of return provide network service providers the opportunity to recover at least efficient costs.

Trading multiples

A comparison of the asset value implied by share prices against the RAB—often expressed as a 'trading multiple'—also provides insight into the required rate of return.⁵⁸⁶

As with regulated asset sales, a trading multiple above one may imply that the market discount rate is below the regulated WACC. The same caution with interpreting the results of the regulated asset sales approach applies to trading multiples. In addition, this assessment relies on the assumption that share prices reflect the fundamental valuation of the company.

First, Grant Samuel showed in 2009 that trading multiples for listed businesses operating regulated networks have ranged from 1.15 to 1.81 times the RAB as outlined in table 5.3.⁵⁸⁷

Entity	Average RAB as at June 2009	Average RAB as at June 2010
SP AusNet	1.50	1.40
Spark	1.81	1.73
DUET	1.21	1.15
Envestra	1.28	1.21

Table 5.3RAB trading multiples of regulated assets

Source: Grant Samuel.588

Second, recent broker reports have also identified RAB trading multiples. These multiples are consistently greater than one, as shown in tables 5.4 to 5.7. None of these multiples are less than or equal to one.

⁵⁸⁵ Grant Samuel & Associates Pty Limited, *Financial Services Guide and Independent Expert Report in relation to the Recapitalisation and Restructure of Babcock and Brown Infrastructure*, 9 October 2009, p. 77.

⁵⁸⁶ The AER has not made any calculations of its own in this section. Trading multiples have only been stated where they could be identified in an external report.

⁵⁸⁷ Grant Samuel & Associates Pty Limited, *Financial Services Guide and Independent Expert Report in relation to the Recapitalisation and Restructure of Babcock and Brown Infrastructure*, 9 October 2009, p. 77.

⁵⁸⁸ Grant Samuel & Associates Pty Limited, *Financial Services Guide and Independent Expert Report in relation to the Recapitalisation and Restructure of Babcock and Brown Infrastructure*, 9 October 2009, p. 77.

Table 5.4 JP Morgan—various report dates

Date of report	Company	FY10A	FY11A	FY12E
22 Feb 2012	ENV	1.11	1.20	1.23
17 Feb 2012	DUET	1.33	1.26	1.12
13 Feb 2012	SKI	1.07	1.12	1.05
	590			

Source: JP Morgan.589

Table 5.5 Macquarie—8 November 2011

Company	2011	2012	2013
ENV	1.18	1.16	1.14
DUET	1.07	1.10	1.10
SKI	1.23	1.17	1.13
SPN	1.08	1.15	1.10

Source: Macquarie Group.590

Table 5.6 Credit Suisse—22 February 2012

Company	Date unspecified
ENV	1.29
DUET	1.09
SKI	1.32
SPN	1.13

Source: Credit Suisse.591

Table 5.7 Goldman Sachs—6 December 2011

Company	Various dates
SKI	1.15
ENV	1.25
SPN	1.14
0 1 592	

Source: Goldman Sachs.⁵⁹²

⁵⁸⁹ JP Morgan, Envestra Limited – 1H12 Result Preview, 22 February 2012, pg. 4; JP Morgan, DUET Group – Transition costs exert downward pressure, 17 February 2012, pg. 8; JP Morgan, Australian Regulated Utilities 2012 Outlook – Regulatory Clouds Gathering, p. 19.

⁵⁹⁰ Macquarie, *DUET Group – limited RAB growth – at fair value*, 8 November 2011, p. 4.

⁵⁹¹ Credit Suisse, *APA Group – Forget 1H12 result; all eyes on HDF refinance*, 22 February 2012, p. 8.

⁵⁹² Goldman Sachs, *Reinstating coverage: Prefer SKI, Ahead of APA, ENV & SPN*, 6 December 2011, p. 2.

Finally, Spark Infrastructure recently released a *Fact Book* showing an unadjusted trading multiple of 1.34 as at 24 February 2012. The *Fact Book* reports that this decreases to 1.10 when adjusted for total revenue excluding customer contributions.⁵⁹³

There are also other listed entities that hold regulated assets, such as APA Group and Hastings Diversified Utilities Fund. These companies are not conducive to RAB multiples analysis because they have a diverse portfolio of assets, some are unregulated, which makes it difficult to isolate the RAB.

Each of these figures cannot be considered definitive without careful consideration of the assumptions and methodologies used. They do, however, provide a useful insight into whether market analysts, and indeed industry analysts, consider the AER's benchmark WACC is appropriate. Importantly, each multiple is calculated after the GFC and also after the AER's WACC review.

Recent comments by Macquarie in a broker report also suggest the AER's WACC approach does not under-compensate service providers:

The importance of the RAB growth reflects our belief there is a sustainable arbitrage beyond the current regulatory period, that justifies paying a premium above RAB for these assets...This arbitrage reflects WACC calculations in the regulatory setting have a degree of conservatism.⁵⁹⁴

Comments made by the AEMC in its recent Directions Paper also lend support to the AER's interpretation of broker reports and suggest the cost of debt may be a driver of the RAB multiple premiums:

A number of these [broker] reports indicate that the recommended valuations placed on these businesses by the equity analysts assume an ability for the NSPs to raise debt at a rate lower than the cost of debt allowed by the regulator. A number of the reports have indicated that a major reason why they value the NSPs at above their RAB is due to their ability to out-perform their cost of debt allowance. ⁵⁹⁵

When coupled with the consistently high multiples shown above, these comments suggest the regulatory rate of return has been at least as high as the actual cost of capital, and most likely has been in excess of it. The conclusion then is that the AER's approach to setting WACC parameters is reasonable and allows a reasonable opportunity to recover at least efficient costs.

Broker reports

Equity analysts publish broker reports on listed companies operating regulated energy networks in Australia. These reports generally include WACC estimates along with a range of information, including analysis of current financial positions and forecasts of future performance.

⁵⁹³ Spark Infrastructure, 2012 Fact Book, 27 February 2012, p. 9.

⁵⁹⁴ Macquarie, *DUET Group – Limited RAB growth – at fair value*, 8 November 2011, p. 2.

⁵⁹⁵ Australian Energy Market Commission, *Directions Paper*, 2 March 2012, p. 108.

The AER uses broker WACC estimates as a reasonableness check for the overall rate of return. The Tribunal noted in the recent APT Allgas and Envestra decisions that it was acceptable for the AER to use broker reports in this manner.⁵⁹⁶

The broker reports generally do not state the full assumptions underlying their analysis, or provide thorough explanations of how they arrive at their forecasts and predictions. As such, caution should be exercised in the interpretation of these broker reports. In particular, the AER considers that the price and dividend forecasts from these reports do not constitute a sufficiently reliable basis for calculation of an overall rate of return. However, the broker reports do reliably report discount rates, which are equivalent to the broker's estimate of the WACC for the company.

It is important to note that the five listed companies undertake both regulated and unregulated activities, which are assessed by the brokers in aggregate. However, only the regulated activities are directly relevant to the benchmark firm.

It is generally considered that the regulated activities of the firms—operation of energy monopoly transmission and distribution networks—are less risky than the unregulated activities they undertake in competitive markets. As they are less risky, the return required on regulated activities is less than the return required by the firm as a whole. This means that the overall rate of return implied by broker reports will likely overstate the rate of return for the benchmark firm. Therefore the WACC for a regulated benchmark firm should be in the lower half of the observed range, noting the large range of broker WACCs.

The AER analyses recent equity broker reports, coinciding with the most recent round of earnings announcements for these companies. Only those brokers who report the WACC in nominal vanilla form or provide sufficient detail to enable conversion to this form were considered. The reports considered were from:

- Credit Suisse
- Goldman Sachs
- JP Morgan
- Deutsche Bank
- Macquarie Equities Research
- Bank of America Merrill Lynch.

The companies evaluated by the broker reports are:

- APA Group
- DUET Group
- Envestra Limited

⁵⁹⁶ Australian Competition Tribunal, *Application by Envestra Ltd (No 2)*[2012] ACompT 3, 11 January 2012, paragraph 167.

- Spark Infrastructure Group
- SP AusNet.

The output from this analysis is shown in table 5.8. The nominal vanilla WACC of 8.61 per cent for Powerlink falls within the lower half of that range.

Table 5.8 Broker WACC estimates (per cent)

Measure	Minimum	Maximum
Broker headline post-tax WACC	6.30	8.60
Calculated vanilla WACC	7.52	10.02

Source: AER analysis.

Recent decisions by other regulators and AER historical rates of return

The AER reviews a range of returns it approved for other gas and electricity service providers and also the rates of return in recent decisions by other Australian regulators. This provides a test of the reasonableness of the rate of return in this final decision. Recent rate of return values set by the AER since the WACC review are lower than those previously provided. However, recent decisions by other regulators suggest that these values—and 8.61 per cent in this case—are reasonable.

The rate of return range applied by the AER in recent decision for other gas and electricity service providers is 8.28 to 10.43 per cent.⁵⁹⁷ This range covers gas and electricity decisions made by the AER since the WACC review was completed in 2009 and includes the Aurora and Powerlink final decisions.

The AER has also considered recent decisions by other regulators setting a rate of return range from 6.45 to 9.08 per cent.⁵⁹⁸ The decisions reviewed are shown in table 5.9 and have been taken from those made in the last 12 months. The WACC of 8.61 per cent applied for

 ⁵⁹⁷ AER, Final decision: Distribution determination, Aurora Energy Pty Ltd 2012–13 to 2016–17, April 2012; AER, Final decision: Powerlink transmission determination 2012–13 to 2016–17, April 2012; AER, Final decision: Victorian electricity distribution service providers, Distribution determination 2011-15, October 2010, p. 519; AER, Final decision: Queensland distribution determination 2010-11 to 2014-15, May 2010, p. 267; AER, Final decision: Access arrangement proposal for the Amadeus Gas Pipeline, 1 August 2011-30 June 2016, July 2011, p. 80; Australian Competition Tribunal, Envestra - Annexure A (Part 2) - Amended Access Arrangement, February 2012, p. 13; Australian Competition Tribunal, APT Allgas - Annexure A - Amended Access Arrangement, June 2011, p. 18; Australian Competition Tribunal, ActewAGL Gas Distribution Network - Order, September 2010, p. 2.

ACCC, Final report: Inquiry to make final access determinations for the declared fixed line services, July 2011, p. 59; ESCV, Final decision: Metro Proposed Access Arrangement, August 2011, p. 87; ACCC, Final decision: Airservices Australia price notification, September 2011, p. 7; ERAWA, Final decision: Access Arrangement Information for the Dampier to Bunbury Natural Gas Pipeline, December 2011, p. 159; QCA, Draft report: SunWater Irrigation Price Review, 2012-17 - Volume 1, November 2011, p. 392; IPART: Final report, Review of water prices for Sydney Desalination Plant Pty Limited, December 2011, p. 80; ESCOSA, Final advice: Advice on a Regulatory Rate of Return for SA Water, February 2012, p. 50; IPART, Draft report: Review of prices for Sydney Water Corporation's water, sewerage, drainage and other services, March 2012, p. 79; IPART, Draft report - Review of prices for the Sydney Catchment Authority, March 2012, p. 85; ERAWA, Draft decision: Draft Decision on Proposed Revisions to the Access Arrangement for the Western Power Network, March 2012, p. 207.

Powerlink falls within this range. This suggests that the rate of return for this final decision is reasonable and in line with regulatory decisions that have been made in the past year.

Regulator	Decision	Date	Nominal vanilla WACC					
ACCC	FAD fixed line services —Final decision	Jul 2011	8.54					
ESCV	Metro access arrangement—Final decision	Aug 2011	9.08					
ACCC	Airservices Australia—Final decision	Sep 2011	8.60					
ERAWA	Dampier to Bunbury Pipeline—Final decision	Oct 2011	7.57					
QCA	SunWater—Final decision	Nov 2011	7.55					
IPART	Sydney Desalination Plant—Final decision	Dec 2011	8.16–8.59ª					
ESCOSA	Advice on a regulatory rate of return for SA Water—Final decision	Feb 2012	8.07					
IPART	Sydney Catchment Authority—Draft decision	Mar 2012	8.14–8.25 ^ª					
IPART	Sydney Water Corporation—Draft decision	Mar 2012	8.14–8.25 ^ª					
ERAWA	Western Power—Draft decision	Mar 2012	6.45					
Notes: Fo	Notes: For comparative purposes, all WACCs have been converted to the nominal vanilla WACC formulation							

 Table 5.9
 Recent decisions by Australian regulators (per cent)

Notes: For comparative purposes, all WACCs have been converted to the nominal vanilla WACC formulation consistent with the AER's reported figure for Powerlink (which excludes debt raising costs).
 (a) Ranges are presented for recent decisions by IPART where the point estimate (real post-tax or real pre-tax) was not sufficiently disaggregated so as to allow precise conversion to the relevant formulation (nominal vanilla WACC).

Issues relating to WACC parameter adjustments

In this section, the AER discusses its consideration of issues raised in Powerlink's revised revenue proposal and submissions concerning proposed adjustments to individual WACC parameters. Specifically, the AER addresses:

- the proposed adjustment to the risk free rate
- the proposed adjustment to the debt risk premium.

Proposed adjustment to the risk free rate

For this final decision, the AER has accepted Powerlink's proposed method to estimate the risk free rate—specifically, the averaging period and the use of CGS yields. However, Powerlink noted its concern that such an approach to estimate the risk free rate at a time when CGS yields have fallen to historical lows may lead to a cost of capital that may not provide Powerlink with the opportunity to recover at least its efficient costs. Similarly, TransGrid submitted that the AER's draft decision WACC applying to Powerlink was too low, and was therefore inconsistent with the NEL.⁵⁹⁹ In contrast, the EUAA,⁶⁰⁰ Energy Users

⁵⁹⁹ In particular, the National Electricity Objective (NEL, section 7), and the revenue and pricing principles (NEL, section 7A).

⁶⁰⁰ EUAA, Submission to the Australian Energy Regulator (AER) on its Draft Decision on Aurora Energy's Regulatory Proposal 2012-2017 and Aurora Energy's Revised Proposal, February 2012, p. 22.

Group,⁶⁰¹ and the Powerlines Action Group Eumundi⁶⁰² submitted that the allowed DRP estimate is too high, and as a result the overall cost of capital is excessively high.

TransGrid's submission acknowledged that the AER's approach for estimating the cost of capital complies with the NER. However, TransGrid stated that the resulting outcomes are inconsistent with the revenue and pricing principles in the NEL. TransGrid appears to suggest that the AER should abstract from the NER requirements, and alter parameters that are locked in under the WACC review, in order to address its claim that the cost of equity is understated. Specifically, TransGrid recommended the AER should either:

- adjust the MRP upwards to reflect a risk premium based on 'prevailing conditions', or
- adjust the risk free rate to reflect a 'longer term average rate'.

The AER does not agree with TransGrid's submission. The AER considers that there is an insufficient basis to justify amending the approach to estimate the risk free rate (or the MRP) for this final decision. As outlined in section 5.3.1 the AER's approach for determining the risk free rate is consistent with the NER requirements.⁶⁰⁴ It is also consistent with Powerlink's revised revenue proposal where it used an up-to-date risk free rate at the time and parameter values determined by the AER in the WACC review. These include the MRP, equity beta and gearing. Powerlink recognised that under the NER, parameter values and methods set in the WACC review cannot be varied in the final decision for Powerlink.⁶⁰⁵ Moreover, the AER considers that in prevailing market conditions the best estimate of the forward looking MRP is 6 per cent. The AER has applied a 6 per cent MRP for Aurora in its final determination made concurrently with the Powerlink decision. The MRP parameter applied to Powerlink consistent with the NER requirement, as locked in under the WACC review, is 6.5 per cent. The AER has requirement, as locked in under the WACC review, is 6.5 per cent. The AER therefore considers that the resulting cost of equity for Powerlink may lend support to the Energy Users Group's submission that the cost of equity applied to Powerlink in prevailing market conditions may be high.⁶⁰⁶

At the time of the WACC review the AER considered the implications of the revised parameter values for the resulting overall rate of return.⁶⁰⁷ This included evaluation of the return to debt and equity holders, market data on overall rates of return, the interactions between individual parameters and the implementation of the CAPM. The AER concluded that the revised parameters contributed to an overall rate of return that met the relevant legislative requirements. For this final decision, those parameters specified in the WACC review as methods (not values) have now been estimated using the averaging period relevant to this determination.

⁶⁰¹ Energy Users Group, AER 2011 review of Queensland electricity transmission—Response to Draft Decision, February 2012, pp. 14–15.

⁶⁰² Powerlines Action Group Eumundi, Submission to the AER draft determination & Powerlink revised revenue reset application for 2012 to 2017, February 2012, p. 6.

⁶⁰³ TransGrid, Submission on the Powerlink draft decision, February 2012, p. 6.

⁶⁰⁴ NER, clauses 6A.6.2(c)(2), 6A.6.2(h).

⁶⁰⁵ Powerlink, *Revised revenue proposal*, January 2012, pp. 20–27.

⁶⁰⁶ Energy Users Group, AER 2011 review of Queensland electricity transmission—Response to Draft Decision, February 2012, pp. 14–15.

⁶⁰⁷ AER, Final decision: Electricity transmission and distribution network service providers, Review of the weighted average cost of capital parameters, 1 May 2009, pp. 9–49.

As discussed above, the AER has considered the resulting overall cost of capital against the outcomes arising from techniques available for undertaking reasonable checks. The AER considers that the overall cost of capital accords with the broad range of estimates inferred from market sources. It therefore reflects the return required by investors in a commercial enterprise with a similar nature and degree of non-diversifiable risk as that faced by Powerlink.⁶⁰⁸ As a result, the AER is also satisfied that the overall cost of capital provides Powerlink with a reasonable opportunity to recover at least its efficient costs.⁶⁰⁹

Proposed adjustment to the debt risk premium

The method used to estimate the DRP is not specified in the WACC review—only the benchmark term and credit rating are specified. In its revised revenue proposal, Powerlink suggested that the AER should apply a 'conservative approach' to estimating the DRP to offset the effects that a falling risk free rate has on the cost of equity and to allow for debt market uncertainty.⁶¹⁰ TransGrid submitted Powerlink's proposed approach is worth further consideration by the AER.⁶¹¹

The AER considers it is not appropriate to adjust WACC parameter values to address perceived understatements or uncertainties in other parameter values. The AER has determined the WACC by assessing Powerlink's parameter estimates against the requirements of the NER. Where it is not satisfied that Powerlink's estimate for a parameter meets these requirements, the AER forms its best estimate of that parameter to meet the requirements, where it has discretion to do so. The AER therefore does not agree that it should take a conservative approach in respect of DRP for the reasons put forward by Powerlink.

As outlined in section 5.3.2, the AER has used the extrapolated Bloomberg BBB rated FVC to estimate the DRP for this final decision. The AER has considered the Tribunal's recent decisions on the DRP, and agrees that it is desirable to widely consult on a new approach to estimate the DRP before it is used. The AER has accepted Powerlink's proposed method to estimate the DRP.

The DRP estimate, in combination with the other WACC parameters, results in a rate of return of 8.61 per cent for Powerlink. As discussed above the AER examined regulated asset sales, trading multiples, broker reports and various regulatory WACCs, and these analyses support the conclusion that the overall rate of return of set by the AER reflects the return required by the relevant investors in the market.⁶¹² Accordingly, the AER considers there is no basis or need to adjust individual WACC parameters in this final decision.

5.3.4 Expected inflation rate

For this final decision, the AER adopts an inflation forecast of 2.60 per cent per annum because it represents the best estimate for a 10 year period.

⁶⁰⁸ NER, clause 6A.6.2(b).

⁶⁰⁹ NEL, section 7A(2).

⁶¹⁰ Powerlink, *Revised revenue proposal*, January 2012, pp. 23, 25–26.

⁶¹¹ TransGrid, Submission on the Powerlink draft decision, February 2012, p. 7–8.

⁶¹² Relevant investors are those investing in a commercial enterprise with a similar nature and degree of nondiversifiable risk as that faced by Powerlink.

In the draft decision, the AER forecast an inflation rate of 2.62 per cent per annum based on its approach for estimating forecast inflation.⁶¹³ The AER stated it would update its inflation forecast based on the latest RBA forecasts for 2012-13 and 2013-14 for the final decision.

Powerlink's revised revenue proposal applied the AER's draft decision expected inflation rate for the 2012–13 to 2016–17 regulatory control period.⁶¹⁴ It noted the AER's intention to update the inflation forecast for the final decision. Since the AER's draft decision, the RBA has released its February 2012 Statement on Monetary Policy which includes updated inflation forecasts for 2012-13 and 2013-14. The AER has therefore used this latest RBA statement to update its inflation forecasts as shown in table 5.10.

AER final decision on inflation forecast (per cent) Table 5.10

	2012–13	2013–14	2014–15 to 2021–22	Geometric average
Forecast inflation	3.25	2.75 ^ª	2.50	2.60

RBA, Statement on Monetary Policy, February 2012, p. 67. Source: (a)

The RBA published a range of 2.5–3.0 per cent for its 2013–2014 forecast of inflation. The AER has selected the mid-point of 2.75 per cent for the purposes of this final determination.

5.4 **Revisions**

The AER determines the following revision to Powerlink's revised revenue proposal in relation to its WACC:

Revision 5.1: The AER has determined a WACC of 8.61 per cent for Powerlink's as set out in table 5.1.

⁶¹³ AER, Draft decision: Powerlink transmission determination 2012-13 to 2016-17, November 2011, p. 243.

⁶¹⁴ Powerlink, Revised revenue proposal, January 2012, p. 26.

6 Regulatory asset base

The AER is required to make a decision on Powerlink's opening regulatory asset base (RAB) at the commencement of the 2012–13 to 2016–17 regulatory control period.⁶¹⁵ This attachment presents the determination of the opening RAB as at 1 July 2012 and the forecast RAB during the 2012–13 to 2016–17 regulatory control period.

6.1 Decision

The AER has determined the opening RAB as at 1 July 2012 to be \$6428.8 million. This value differs marginally from Powerlink's revised revenue proposal because the AER has updated the inflation adjustment for 2011–12 for actual inflation using the March 2012 CPI.

The AER has forecast Powerlink's RAB to be \$8882.5 million by 30 June 2017. The AER's forecast represents a reduction of 9.7 per cent to that in Powerlink's revised revenue proposal. This is due to differences in the opening RAB as at 1 July 2012, forecast depreciation, forecast inflation and forecast capex.

The AER's roll forward of the RAB during the 2007–08 to 2011–12 regulatory control period establishes the opening RAB value for the start of the 2012–13 to 2016–17 regulatory control period, and is shown in table 6.1. The AER's forecast roll forward of the RAB during the 2012–13 to 2016–17 regulatory control period is shown in table 6.2.

⁶¹⁵ NER, clause 6A.6.1.

AER final decision on Powerlink's RAB for the 2007-08 to 2011-12 Table 6.1 regulatory control period (\$million, nominal)

	2007–08	2008–09	2009–10	2010–11	2011–12
Opening RAB	3752.8	4448.1	5016.0	5429.6	5840.4
Capital expenditure ^b	693.1	640.8	460.6	439.8	707.8 ^ª
CPI indexation on opening RAB	159.2	109.7	144.9	181.0	92.5
Straight-line depreciation ^c	-157.0	-182.6	-192.0	-209.9	-225.0
Closing RAB as at 30 June	4448.1	5016.0	5429.6	5840.4	6415.8
Difference between forecast and actual capex (1 July 2006 to 30 June 2007)					-33.7
Return on difference for 2006–07 capex					-17.0
Difference between forecast and actual assets under construction (2006–2007)					42.3
Return on difference (assets under construction)					21.3
Closing RAB as at 30 June 2012					6428.8

Source: AER analysis.

(a) (b) (c) Based on estimated capex. An update for actual capex will be made at the next reset.

As incurred, net of disposals, and adjusted for actual CPI and WACC. Adjusted for actual CPI.

Table 6.2 AER final decision on Powerlink's RAB for the 2012-13 to 2016-17 regulatory control period (\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17
Opening RAB as at 1 July 2012	6428.8	7096.1	7642.0	8002.5	8406.9
Capital expenditure ^a	708.3	599.4	437.8	499.6	580.4
Inflation indexation on opening RAB	167.1	184.5	198.7	208.1	218.6
Straight-line depreciation	-208.1	-238.1	-276.0	-303.3	-323.3
Closing RAB as at 30 June 2017	7096.1	7642.0	8002.5	8406.9	8882.5

Source: AER analysis.

(a) As incurred, and net of disposals. In accordance with the timing assumptions of the PTRM, the capex includes a half-WACC allowance to compensate for the average six-month period before capex is added to the RAB for revenue modelling purposes.

6.2 Assessment approach

There have been no changes to the assessment approach from that outlined in the draft decision.⁶¹⁶ Accordingly, that discussion is not repeated here.

6.3 Reasons

Powerlink's revised revenue proposal accepted the AER's draft decision on the opening RAB as at 1 July 2012 and provided updated capex amounts for 2010–11 and 2011–12. This section sets out the AER's final decision on Powerlink's opening RAB as at 1 July 2012. This includes the AER's review of the updated capex and updating the RAB roll forward for actual inflation for 2011–12.

The AER also sets out its forecast of Powerlink's closing RAB as at 30 June 2017 resulting from input changes to the post-tax revenue model (PTRM) for the 2012–13 to 2016–17 regulatory control period, as outlined below.

6.3.1 Opening RAB as at 1 July 2012

The AER has determined Powerlink's opening RAB as at 1 July 2012 to be \$6428.8 million. The difference between the amount in the AER's final decision and Powerlink's revised revenue proposal is due to indexation for 2011–12 in the opening RAB roll forward. As outlined in its draft decision, the AER's intention was to update the forecast inflation for 2011–12 with actual inflation using the March 2012 CPI for the final decision. The March 2012 CPI was not available at the time Powerlink submitted its revised revenue proposal. Powerlink noted that the AER would update the opening RAB roll forward with actual March 2012 CPI before publishing the final decision.

In its revised revenue proposal, Powerlink accepted all aspects of the AER's draft decision in relation to the opening RAB.⁶¹⁸ Powerlink updated the forecast capex for 2010–11 with actual capex for that year in the roll forward model (RFM). Powerlink also updated its forecast capex for 2011–12 in the RFM. The AER accepts Powerlink's actual capex for 2010–11. These figures have been checked against regulatory accounting data supplied by Powerlink. The AER also accepts Powerlink's revision of the forecast capex for 2011–12. The AER considers the forecast capex amounts to be reasonable.⁶¹⁹ These amounts are lower than those approved in the AER's draft decision and reflect the best forecast available. The financial impact of any difference between actual and forecast capex for 2011–12 will be accounted for at the next reset.

The AER does not accept Intergen's submission that the Millmerran Power Station to Bulli Creek transmission line assets should be included in the RAB.⁶²⁰ In its revised revenue proposal, Powerlink stated that these transmission assets are subject to an agreement

⁶¹⁶ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 249.

⁶¹⁷ Powerlink, *Revised revenue proposal 2012–2017*, January 2011, p. 19.

⁶¹⁸ Powerlink, *Revised revenue proposal 2012–2017*, January 2011, p. 17.

⁶¹⁹ Similarly, the AER accepts the revised actual disposals for 2010–11. Forecast disposals for 2011–12 were also revised and appear reasonable.

⁶²⁰ Intergen, Submission - Powerlink's revenue proposal 2012/13– 2016/17, 27 October 2011, pp. 1–3.

contained in a non-regulated commercial contract between Powerlink and Intergen. The AER notes that contractual arrangements are in place for the negotiated services provided by Powerlink to Intergen. Therefore, the AER has not included these assets in the opening RAB for the purposes of its final decision.

Since the draft decision, it has come to the AER's attention that Powerlink has capitalised expense provisions for employee entitlements in the RAB. As discussed in attachment 4, these expenses have not been paid but are likely to be incurred at some time in the future. The AER considers that such capitalised provisions should not be included in the RAB.⁶²¹ However, in the present case, the capitalised amounts in the RAB are relatively small and consequently do not have a significant impact on revenues over the 2012–13 to 2016–17 regulatory control period.⁶²² Given the immateriality of the revenue impact, the AER has not removed the movement in these provisions from the capex included in the roll forward of the RAB as at 1 July 2012. The AER intends to monitor these provisions going forward and will review the matter at the next reset.

6.3.2 Forecast closing RAB as at 30 June 2017

The AER has determined the forecast RAB to be \$8882.5 million as at 30 June 2017. The forecast of Powerlink's closing RAB as at 30 June 2017 is impacted by input changes for the 2012–13 to 2016–17 regulatory control period made by the AER to the PTRM. These changes are:

- forecast capital expenditure, as discussed in attachment 3
- the inflation forecast for the 2012–13 to 2016–17 regulatory control period, as discussed in attachment 5
- the opening RAB as at 1 July 2012, as discussed in section 6.3.1
- forecast depreciation, as discussed in attachment 7.

6.4 Revisions

The AER determines the following revisions to Powerlink's revised revenue proposal in relation to its RAB.

Revision 6.1: The AER has determined Powerlink's opening RAB as at 1 July 2012 to be \$6428.8 million as set out in table 6.1.

Revision 6.2: The AER has determined Powerlink's forecast RAB as at 30 June 2017 to be \$8882.5 million as set out in table 6.2.

⁶²¹ AER, Aurora 2012–17 draft distribution determination, pp.199–120.

⁶²² In contrast, these provisions have a significant impact on the base opex amount that feeds directly into the forecast opex allowances and flows immediately into revenues and prices.

7 Regulatory depreciation

As part of making a determination on the annual building block revenue requirement for a TNSP, the AER is required to make a decision on the return of capital (or depreciation).⁶²³ Regulatory depreciation is used to model the nominal asset values over the regulatory control period and the depreciation allowance in the annual building block revenue requirement. This attachment sets out the annual allowances for regulatory depreciation—that is, the sum of the straight-line depreciation (negative) and the annual inflation indexation (positive) on the regulatory asset base (RAB). The attachment also analyses Powerlink's proposed depreciation schedule, including an assessment of the standard asset lives and remaining asset lives used for depreciation purposes over the 2012–13 to 2016–17 regulatory control period.

7.1 Decision

The AER does not accept Powerlink's revised proposed regulatory depreciation allowance of \$386.0 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period. The AER's adjustments to Powerlink's revised proposed opening RAB, forecast capex, and forecast inflation impact the forecast regulatory depreciation allowance under clause 6A.6.3(a)(1) of the NER. The AER's adjustments result in a regulatory depreciation allowance of \$371.8 million (\$nominal) (a 3.7 per cent reduction) as shown in table 7.1.

The AER accepts Powerlink's revised revenue proposal for the allocation of forecast capex associated with transmission line refit works to a new asset class of 'Transmission lines - refit'.⁶²⁴ However, the AER determines that Powerlink's revised proposed standard asset life for this asset class be increased from 15 years to 30 years.

The AER also accepts Powerlink's revised proposed remaining asset lives. The AER considers Powerlink's revised approach to calculating the remaining asset lives to be consistent with the NER's requirements.

Table 7.1AERfinaldecisiononPowerlink'sdepreciationallowance(\$million, nominal)

012–13	2013–14	2014–15	2015–16	2016–17	Total
208.1	238.1	276.0	303.3	323.3	1348.8
167.1	184.5	198.7	208.1	218.6	977.0
41.0	53.6	77.3	95.2	104.7	371.8
	012–13 208.1 167.1 41.0	012-13 2013-14 208.1 238.1 167.1 184.5 41.0 53.6	012-132013-142014-15208.1238.1276.0167.1184.5198.741.053.677.3	012-132013-142014-152015-16208.1238.1276.0303.3167.1184.5198.7208.141.053.677.395.2	012-132013-142014-152015-162016-17208.1238.1276.0303.3323.3167.1184.5198.7208.1218.641.053.677.395.2104.7

Source: AER analysis.

⁶²³ NER, clause 6A.5.4(a)(3).

⁶²⁴ Powerlink has changed the name of the new asset class for expenditure associated with transmission line extension or refit works from 'Transmission lines (LE)' to 'Transmission lines - refit'.

7.2 Assessment approach

There have been no changes to the assessment approach from that outlined in the draft determination.⁶²⁵ Accordingly, that discussion is not repeated here.

7.3 Reasons

This section sets out the AER's consideration of issues raised in Powerlink's revised revenue proposal and submissions. These issues include the standard asset life for the purposes of depreciating forecast capex allocated to the 'Transmission lines - refit' asset class and the remaining asset lives of all asset classes for the purposes of depreciating existing assets in the opening RAB.

The AER also sets out its final decision on Powerlink's regulatory depreciation allowance resulting from changes to other components of Powerlink's revised revenue proposal, as outlined below.

7.3.1 Regulatory depreciation allowance

The AER's final decision on Powerlink's regulatory depreciation allowance is \$371.8 million (\$nominal). This represents a reduction of \$14.2 million (\$nominal) or 3.7 per cent of Powerlink's revised proposed regulatory depreciation.

The AER does not accept Powerlink's revised proposed regulatory depreciation allowance of \$386.0 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period.⁶²⁶ This is because the AER's determinations regarding other components of Powerlink's revised revenue proposal impact the proposed regulatory depreciation allowance over the 2012–13 to 2016–17 regulatory control period. These are discussed in other attachments and include:

- forecast capex (attachment 3)
- forecast inflation (attachment 5)
- the opening RAB (attachment 6).

The AER's final decision on the standard asset life for the purposes of depreciating forecast capex associated with transmission lines refit works and adjustment to the remaining asset lives, as discussed below, also impact on the estimate of regulatory depreciation.

7.3.2 Standard asset life—Transmission lines-refit

The AER does not accept Powerlink's revised revenue proposal to assign a standard asset life of 15 years to its proposed new asset class of 'Transmission lines - refit'. The AER has assigned a standard asset life of 30 years for this asset class. For the reasons discussed below, the AER considers that this asset life reflects the mix of assets that are likely to be used in the refit works. In turn, the AER considers that this standard asset life creates a

⁶²⁵ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 256.

⁶²⁶ NER, clauses 6A.6.3(a)(1) and 6A.6.3(b)(1).

depreciation profile that reflects the nature of the underlying assets as required by clause 6A.6.3(b)(1) of the NER.

In the draft decision, the AER accepted the standard asset lives for the asset classes proposed by Powerlink.⁶²⁷ However, the AER did not accept the proposed allocation of forecast capex associated with refit works to the new 'Transmission lines - refit' asset class. This was because the standard asset life was appropriate for only a proportion of refit capex. Accordingly, only 20 per cent of refit capex was allocated to that asset class. The remainder was allocated to the existing 'Transmission lines - overhead' asset class with a standard asset life of 50 years. The alternative to allocating refit capex across the two asset classes would have been to allow all the refit capex to be included in the new 'Transmission lines - refit' asset class. Based on the proportions used in the draft decision, such a life would have been 43 years.⁶²⁸

In its revised revenue proposal, Powerlink did not accept the AER's draft decision to apportion refit capex across the 'Transmission lines - refit' and 'Transmission lines - overhead' asset classes. Powerlink suggested there are accounting/asset tracking benefits in allocating capex associated with all refit works in one asset class. Powerlink reiterated its proposed standard asset life of 15 years for all refit works. It stated that the AER had under estimated the proportion of refit works with a standard asset life of 15 years.

Powerlink recognised that some structural components can have a life beyond 15 years but suggested the value is small relative to the underlying asset.⁶²⁹ Powerlink stated that it has applied accounting standard AASB 116 and that the lives of longer lived assets were constrained by the most significant assets. It therefore considered that 15 years was an appropriate standard asset life for refit works.

The AER has reviewed the information presented in Powerlink's revised revenue proposal, including a confidential report by KPMG. The AER accepts that there could be benefits in including all refit works in the one asset class. Accordingly, the AER has considered what an appropriate standard asset life should be for a refit asset class that includes all refit work, rather than apportioning the forecast refit capex across two asset classes.

The NER requires the depreciation schedule to reflect the nature of the assets over the economic life of the assets.⁶³⁰ A key aspect in determining an appropriate standard asset life for the refit assets is therefore the expected economic lives of the various assets used for refit works. Based on the revised revenue proposal, the AER considers that approximately 60 per cent of the forecast expenditure associated with refit works allocated to the 'Transmission lines - refit' asset class may contain assets with a life of approximately 15 years, while the remainder would have lives on average similar to the 50 years previously adopted for such works. Prior to the draft decision, Powerlink advised that it based its proposed standard asset life of 15 years on what it considers to be a key component of any refit work, namely painting and surface preparation works, which can have a life of between 10 to 20 years.⁶³¹ In the draft

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 257–259.

 $^{^{628}}$ (0.2 × 15) + (0.8 × 50) = 43.

⁶²⁹ Powerlink, *Revised revenue proposal*, p. 155.

⁶³⁰ NER, clause 6A.6.3(b)(1).

⁶³¹ Powerlink, *E-mail, Response - Request AER/038 - Transmission line refit asset class*, 28 September 2011.

decision, the AER determined (based on data provided by Powerlink) that paint and surface preparation made up about 20 per cent of refit costs.⁶³²

In its revised revenue proposal, Powerlink stated that accounting standards require common costs (such as inspections) to be recognised at the time of inspection and de-recognised from the asset value at the time of the subsequent major inspection. Powerlink noted that such inspections are linked most directly to the anti corrosion measures and should therefore be depreciated over 15 years. Powerlink advised that painting, surface preparation and common costs represent approximately 57 per cent of transmission line refit costs.⁶³³ The AER accepts these components of a refit would have a useful life of approximately 15 years, consistent with the paint and surface preparation.

However, the AER considers that other refit components are likely to have much longer lives. Powerlink has advised that the 'Transmission lines - refit' asset class can include an entire range of components, including assets with useful lives beyond 15 years. For example, wires and fibre optic communication cables can be replaced and these assets have significantly longer lives than 15 years.⁶³⁴ Powerlink is not proposing any change to the 'Transmission lines - overhead' asset class, suggesting that if all parts of a line were refitted (replaced) a standard asset life of 50 years would be appropriate, consistent with the requirements of the NER.⁶³⁵ The AER recognises that not all components are subject to replacement during a refit. However, based on the information supplied by Powerlink, it appears a significant proportion (approximately 40 per cent) of refit component would have a useful life consistent with the existing 'Transmission lines - overhead' asset class of 50 years.

Based on the proportions above, the AER considers a standard asset life of 30 years for the 'Transmissions lines - refit' asset class would provide an appropriate economic life, consistent with the requirements of the NER.⁶³⁶ However, the AER has also considered a number of other issues in reaching its final decision. These issues include:

- KPMG recognised that the underlying asset life should be extended by the refit. However, Powerlink has not proposed extending the remaining asset lives of these assets. Powerlink stated that a refit decision is usually made when an asset has 20 per cent of its residual life remaining.⁶³⁷ This would mean that for transmission lines with a standard asset life of 50 years, initial refits are likely to occur when the asset has 10 years life remaining. Powerlink considers that the transmission line will have a further 15 years of life from the point the refit work is complete.⁶³⁸ By not revising these remaining asset lives Powerlink is effectively recovering too quickly the costs of the underlying assets. The AER does not consider revising these remaining asset lives to be practical, but this matter is relevant to another concern raised by Powerlink in the next point.
- Powerlink referred to the possibility that customers may pay for an asset that is no longer in service, if its proposal is rejected.⁶³⁹ Such a situation would emerge if the underlying assets and/or the refit assets were depreciated too slowly and the asset removed from

⁶³² AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, p. 258.

⁶³³ Powerlink, *Revised revenue proposal*, p. 155.

⁶³⁴ Powerlink, E-mail, Response - Request AER/038 - Transmission line refit asset class, 28 September 2011.

⁶³⁵ NER, clause 6A.6.3(b)(1).

⁶³⁶ NER, clause 6A.6.3(b)(1).

⁶³⁷ Powerlink, *Revised revenue proposal*, p. 155.

⁶³⁸ Powerlink, *E-mail, Response - Request AER/068 - Transmission lines - refit asset class*, 8 March 2012.

⁶³⁹ Powerlink, *Revised revenue proposal*, pp. 154–155.

service before being fully depreciated. However, the AER considers that the converse situation of a fully depreciated assets being in service earning no return for the business is also possible, if the refit asset life is too short or the remaining asset life of the underlying asset is not extended when a refit occurs. Customers have raised concerns that network service providers may be inclined to remove assets from service once fully depreciated, which would not be efficient. The AER considers this a matter of establishing an appropriate asset life to avoid either of these situations becoming common.

- Powerlink stated that refits are to become more material over the coming years.⁶⁴⁰ Its revised PTRM shows that by 2016–17 refit capex is expected to be (on an as commissioned basis) about 42 per cent of transmission lines capex, compared to zero per cent for 2012–13 and 3 per cent for 2013–14. This increasing materiality, combined with a significantly shorter standard asset life for the 'Transmission lines refit' asset class compared to the existing 'Transmission lines overhead' asset class, would heighten the incentive for Powerlink to potentially defer refit works it has forecast once forecast depreciation allowances based on the shorter standard asset life have been set.⁶⁴¹ Customers have also raised concerns about the increasing refit works.⁶⁴² Shorter asset lives will see prices rise more quickly as Powerlink recovers its expenditures sooner.
- Powerlink stated that it is important to note that changes to depreciation rates only alters the timing of the return of assets, but not the overall amount to be recovered in real terms.⁶⁴³ While this is true, the AER does not consider this an argument for adopting shorter asset lives as is implied by Powerlink. Otherwise, any arbitrary depreciation profile could be adopted. Further, while the timing may not matter (in real terms) to Powerlink, this is unlikely to be true for customers. Customer are likely to change in terms of consumption levels and numbers over time, and therefore how much they pay in real terms will be affected by the depreciation profile adopted.
- The AER considers that its regulatory approach is not constrained by accounting standard AASB 116. While the AER endeavours to maintain consistency with accounting practices were possible, it is bound by the requirements of the NER and the NEL to achieve outcomes in the long term interests of consumers.⁶⁴⁴ However, by allowing all refit capex to be included in the single 'Transmission lines refit' asset class, the AER considers that this will allow for any difference between the regulatory accounts and financial asset register to be more easily managed.

Based on the considerations above, the AER is satisfied that a standard asset life of 30 years for the proposed 'Transmission lines - refit' asset class (one that includes all refit capex) would be consistent with the requirements of clause 6A.6.3(b)(1) of the NER.

7.3.3 Remaining asset lives

The AER does not accept Powerlink's revised proposed remaining asset lives due to an error in the way the remaining asset lives were rolled forward from its financial asset register. However, the AER accepts the revised remaining asset lives as subsequently provided by Powerlink, as discussed below.

⁶⁴⁰ Powerlink, *Revised revenue proposal*, p. 154.

⁶⁴¹ Or Powerlink could reclassify the works as transmission lines (overhead) as was previous practice.

⁶⁴² Mrs J. Campbell, *Submission to the AER's Draft Decision*, p. 2.

⁶⁴³ Powerlink, *Revised revenue proposal*, pp. 155–156.

⁶⁴⁴ This view is also consistent with previous statements from the Australian Competition Tribunal. See Australian Competition Tribunal, *Application by Jemena Gas Networks (NSW) Ltd (No 3) [2011] ACompT 6*, paragraphs 31–32.

In the draft decision, the AER did not accept Powerlink's method for calculating the remaining assets lives as at 1 July 2012.⁶⁴⁵ The AER applied a weighted average approach to determine the remaining asset lives for the draft decision.

In its revised revenue proposal, Powerlink did not accept the AER's draft decision. Powerlink stated that its financial asset register provides an appropriate representation of the economic life of the assets as at 30 June 2011.⁶⁴⁶ It also highlighted differences in the depreciation projections in the AER's RFM and PTRM.⁶⁴⁷

In working out the remaining asset lives from the financial asset register, Powerlink adopted a revised approach to determining its proposed remaining asset lives from its original proposal. This revised approach resulted in longer remaining asset lives for all asset classes than originally proposed. Powerlink's revised approach involves extrapolating the depreciation profile for its various assets from its financial accounts for the six years from 30 June 2011. It then used this extrapolation to determine an average annual depreciation amount over the six years. It then divided this average by the net book values in its financial accounts as at 30 June 2011 to determine the remaining asset lives.

As discussed below, the AER considers that adopting a weighted average is a preferable approach to determining remaining assets lives. Powerlink observed that the AER had not explained why its weighted average remaining lives should be preferred in the draft decision.⁶⁴⁸ The detail of this approach may not have been discussed in the draft decision. However, the weighted average life calculations form part of the AER's RFM for TNSPs and has been through consultation with interested parties. The approach has also been discussed in the AER's handbook on the RFM.⁶⁴⁹ Powerlink also highlighted differences between the projected depreciation from the RFM and PTRM. These differences are largely explained by the adjustments due to Powerlink's underspending its capex in the final year of the previous regulatory control period and the reallocation of assets across categories that Powerlink adopted as at 1 July 2012.

Notwithstanding the position above, the AER has acknowledged other approaches may be reasonable depending on the circumstances. However, the AER has some 'in principle' concerns regarding the average depreciation approach, which it considers may have a disproportionate effect on remaining asset lives. This is discussed in more detail below. The AER also does not have access to Powerlink's financial asset register, which is more disaggregated in terms of individual assets. For these reasons, the AER has again assessed the reasonableness of Powerlink's revised approach against its preferred weighted average approach.

Based on the assessment of Powerlink's revised approach (and subject to the correction discussed below), the AER considers the revised remaining asset lives proposed by Powerlink to be consistent with clause 6A.6.3(b)(1) of the NER. In the draft decision, the AER noted the NER requires the use of the RAB values to establish the depreciation schedules.

⁶⁴⁵ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 259–261.

⁶⁴⁶ Powerlink, *Revised revenue proposal*, p. 156.

⁶⁴⁷ Powerlink, *Revised revenue proposal*, p. 157.

⁶⁴⁸ Powerlink, *Revised revenue proposal*, p. 157.

⁶⁴⁹ AER, Explanatory statement, Proposed amendment, Electricity transmission network service providers roll forward model, August 2010, p. 5.
The AER was concerned by the differences in the values of the assets in Powerlink's financial asset register and RAB, and how these differences affected Powerlink's proposed remaining asset lives. The asset values do differ across the financial asset register and RAB. However, the AER considers that Powerlink's revised approach to determining remaining asset lives achieves reasonably consistent rates of depreciation across both accounts. There is no systematic understating of remaining asset lives, with the proposed remaining asset lives of some asset classes longer than under the weighted average approach. In other cases, the revised approach has further closed the gap between the remaining asset lives under the two approaches. Overall, subject to the correction discussed below, there would be a marginal difference of less than one per cent in the total revenues for Powerlink over the 2012–13 to 2016–17 regulatory control period under either set of remaining asset lives.

However, the AER has identified an error in the way Powerlink rolled forward the revised remaining asset lives from its financial accounts as at 30 June 2011 to 30 June 2012 values for input into the PTRM. Powerlink overstated the average depreciation amount (due to an incorrect inflation adjustment). Therefore, it understated the resulting remaining asset lives. Powerlink has acknowledged this error and provided corrected figures.⁶⁵⁰ The AER accepts these corrected figures and is satisfied that they result in a depreciation profile that reflects the nature of assets within the asset classes over the economic life of the asset classes under clause 6A.6.3(b)(1) of the NER. Ttable 7.2 presents these approved (corrected) remaining asset lives, as well as Powerlink's remaining asset lives from its original proposal and the weighted average remaining asset lives as calculated in the RFM.

In principle, the AER still has concerns with the average depreciation approach for determining remaining asset lives. Unlike a depreciation approach based on a single year, an average will recognise that some assets may become fully depreciated during the years over which the average is taken. However, this approach can still result in significant weight being placed on assets near the end of their lives. For example, assume there were two assets in a class, one is a \$2 million asset with a remaining life of 6 years and the other is a newer \$10 million asset with a remaining life of 50 years. Under a (value) weighted average life approach the remaining asset life for the combined asset class of these two assets would be 42.7 years⁶⁵¹, while under an average depreciation approach of 6 years the remaining life would be 22.5 years.⁶⁵² Despite the older asset representing only 17 per cent of the value of the asset class, it has had a disproportionate effect on the average remaining asset life for that asset class.⁶⁵³ Accordingly, the AER considers its preferred weighted average approach to estimate the remaining asset life provides a better reflection of the economic lives of the mix of assets within an asset class, consistent with clause 6A.6.3(b)(1) of the NER.

⁶⁵⁰ Powerlink, *E-mail, Response - Request AER/054 - Powerlink's remaining asset lives, 20 February 2012.*

⁶⁵¹ $(6 \times (2 \div 12)) + (50 \times (10 \div 12)) = 42.7$

⁶⁵² Average depreciation = $(2 \div 6) + (10 \div 50) = 0.5333$, remaining asset lives = $12 \div 0.5333 = 22.5$.

⁶⁵³ Even a simple average of the remaining asset lives of 50 years and 6 years would yield a higher remaining asset life of 28 years compared to the average depreciation approach.

Asset class	AER approved standard asset life ^a	Powerlink's remaining asset life (original proposa)	AER approved – Powerlink's remaining asset life (revised revenue proposal— corrected)	Weighted average remaining asset life
Transmission lines—overhead	50	30.7	31.8	35.2
Transmission lines—underground	45	24	24.8	28.4
Transmission lines—refit	30	n/a	n/a	n/a
Substations primary plant	40	27.6	28.5	28.6
Substations secondary systems	15	11.8	12.2	9.2
Communications other assets	15	12.9	13.3	9.8
Communications—civil works	40	17.8	18.4	24.6
Network switching centres	12	10.2	10.6	9.3
Land	n/a	n/a	n/a	n/a
Easements	n/a	n/a	n/a	n/a
Commercial buildings	40	31.7	32.7	32.8
Computer equipment	5	4.2	4.4	3.2
Office furniture & miscellaneous	7	3.9	4.0	3.5
Office machines	7	4.9	5.0	4.6
Vehicles	7	5.7	5.8	6.0
Moveable plant	7	5.3	5.5	5.4
Insurance spares	n/a	n/a	n/a	n/a
Equity raising costs	43	39.0	39.0	39.0

Table 7.2 AER final decision on standard and remaining asset lives (year)

Source: Powerlink, Revised revenue proposal, 31 May 2011, PTRM; AER analysis.

(a) With the exception of the 'Transmission lines - refit' asset class, the standard asset lives are consistent with those approved in the draft decision.

7.4 Revisions

The AER determines the following revisions to Powerlink's revised revenue proposal in relation to its forecast depreciation.

Revision 7.1: The AER has determined Powerlink's forecast regulatory depreciation allowance to be \$371.8 million (\$nominal) over the 2012–13 to 2016–17 regulatory period as set out in table 7.1.

Revision 7.2: The AER has determined Powerlink's standard asset life for the 'Transmission lines - refit' asset class to be 30 years.

Revision 7.3: The AER has determined Powerlink's remaining asset lives as at the beginning of the 2012–13 to 2016–17 regulatory control to be those set out in table 7.2.

8 Corporate income tax

As part of making a determination on the annual building block revenue requirement for a TNSP, the AER is required to make a decision on the estimated cost of corporate income tax.⁶⁵⁴ This attachment sets out the AER's decision on Powerlink's proposed corporate income tax liabilities for the 2012–13 to 2016–17 regulatory control period. Under a post-tax framework, a corporate income tax allowance is calculated as part of the building blocks assessment. The post-tax revenue model (PTRM) is used to calculate this allowance. The attachment also sets out the analysis of Powerlink's tax asset base (TAB), including an assessment of standard tax lives remaining tax asset lives used for tax depreciation purposes over the 2012–13 to 2016–17 regulatory control period.

8.1 Decision

The AER does not accept Powerlink's revised revenue proposed cost of corporate income tax allowance of \$76.4 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period. The AER's adjustments to other building blocks including the proposed return on capital and forecast opex affect the estimated corporate income tax allowance under clause 6A.6.4 of the NER. The AER's adjustments result in a corporate income tax allowance of \$69.7 million (\$nominal). Based on the approach to modelling the cash flows in the PTRM, the AER has derived an effective tax rate of 19.84 per cent for this final decision. The AER's final decision on Powerlink's corporate tax allowance is shown in table 8.1.

In the draft decision, the AER accepted Powerlink's method to establish the opening TAB as at 1 July 2012.⁶⁵⁵ The AER required Powerlink to provide updated capex amounts in its revised revenue proposal. The AER has reviewed Powerlink's updates and accepts the revised proposed opening TAB. The AER also accepts Powerlink's revised revenue proposal method to calculate the remaining tax asset lives for the opening TAB.

The AER accepts Powerlink's revised revenue proposal for the allocation of forecast capex associated with transmission line refit works to a new asset class of 'Transmission lines - refit'.⁶⁵⁶ However, the AER determines that Powerlink's revised proposed standard tax asset life for this asset class is increased from 15 years to 30 years. The AER considers this provides an estimate of depreciation for tax purposes in estimating the cost of corporate income tax under clause 6A.6.4(a)(2) of the NER.

⁶⁵⁴ NER, clause 6A.5.4(a)(4).

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 265.

⁶⁵⁶ Powerlink has changed the name of the new asset class for expenditure associated with transmission line extension or refit works from 'Transmission lines (LE)' to 'Transmission lines - refit'.

Table 8.1AER final decision on Powerlink's corporate income tax allowance
(\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Corporate income tax	32.8	35.6	38.3	44.0	48.5	199.3
Less: value of imputation credits	21.3	23.1	24.9	28.6	31.5	129.5
Regulatory depreciation	11.5	12.5	13.4	15.4	17.0	69.7

Source: AER analysis.

8.2 Assessment approach

There have been no changes to the assessment approach from that outlined in the draft determination.⁶⁵⁷ Accordingly, that discussion is not repeated here.

8.3 Reasons

This section sets out the AER's consideration of issues raised in Powerlink's revised revenue proposal and submissions. The issues affecting Powerlink's revised estimated cost of corporate income tax include:

- the roll forward of Powerlink's TAB
- the standard tax asset life of the 'Transmission line refit' asset class
- Powerlink's calculation of remaining tax asset lives.

The AER outlines below its final decision of Powerlink's cost of corporate tax allowance resulting from changes to other components of Powerlink's revised revenue proposal.

8.3.1 Corporate income tax allowance

The AER's final decision on Powerlink's forecast corporate income tax allowance is \$69.7 million (\$nominal) over the 2012–13 to 2016–17 regulatory control period. This represents a reduction of \$6.7 million (\$nominal) or 8.8 per cent of Powerlink's revised proposed cost of corporate income tax.

The AER does not accept Powerlink's corporate income tax allowance of \$76.4 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period. This is because the AER's decisions on other components of Powerlink's revised revenue proposal have had a consequential effect on the corporate income tax allowance estimate under clause 6A.6.4 of the NER. These are discussed in other attachments and include:

- forecast capex (attachment 3)
- forecast opex (attachment 4)

⁶⁵⁷ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 256.

- cost of capital (attachment 5)
- the opening RAB (attachment 6).

The AER's final decision on the opening TAB, standard tax asset life for tax purposes associated with the transmission lines refit works and remaining tax asset lives affects the estimate of tax depreciation. The level of tax depreciation expense affects the amount of taxable income, and therefore the estimate of the corporate income tax allowance.

8.3.2 Opening tax asset base as at 1 July 2012

The AER accepts Powerlink's revised revenue proposal and determines an opening TAB as at 1 July 2012 of \$4493.5 million. The AER's final decision on the roll forward of Powerlink's TAB for the 2007–08 to 2011–12 regulatory control period is as shown in table 8.2.⁶⁵⁸

Powerlink's revised revenue proposal accepted the AER's draft decision regarding the opening TAB.⁶⁵⁹ In the draft decision, the AER required Powerlink to provide updated capex amounts in its revised revenue proposal.⁶⁶⁰ Powerlink updated the forecast capex for 2010–11 with actual capex for that year in its revised proposed roll forward model (RFM) used to establish the opening TAB. Powerlink also updated its forecast capex for 2011–12 in the RFM. For the reasons as outlined in section 6.3.1 regarding the opening RAB, the AER accepts Powerlink's updated capex amounts.⁶⁶¹ The actual capex amount has been checked against regulatory accounting data supplied by Powerlink.⁶⁶² The forecast capex amount is reasonable as it reflects the best forecast available.⁶⁶³

Table 8.2AER final decision on Powerlink's TAB for the 2007–08 to 2011–12regulatory control period (\$million, nominal)

	2007–08	2008–09	2009–10	2010–11	2011–12
Opening TAB	2492.5	3038.7	3561.6	3874.9	4157.3
Capital expenditure ^a	645.1	641.7	452.7	441.9	507.3 ^b
Tax depreciation	-99.0	-118.8	-139.4	-159.4	-171.2
Closing TAB as at 30 June 2012	3038.7	3561.6	3874.9	4157.3	4493.5

Source: AER analysis.

(a) As commissioned, net of disposals.

(b) Based on estimated capex.

8.3.3 Standard tax asset life—Transmission lines-refit

The AER determines a standard tax asset life of 30 years is appropriate for the asset class of 'Transmission lines - refit'. Powerlink proposed a standard tax asset life of 15 years in relation to this asset class for tax depreciation purposes, consistent with the standard asset life

⁶⁵⁸ The closing TAB as at 30 June 2012 becomes the opening TAB as at 1 July 2012.

⁶⁵⁹ Powerlink, *Revised proposal 2012–2017*, January 2011, p. 163.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 265.

⁶⁶¹ The roll forward of the opening TAB uses as commissioned capex amounts.

⁶⁶² The revised actual amount is \$2 million lower than that approved in the AER's draft decision.

⁶⁶³ The revised forecast amount is \$9.2 million higher than that approved in the AER's draft decision.

assigned for regulatory depreciation purposes.⁶⁶⁴ The AER considers the standard tax asset life of 30 years reflects the mix of assets and asset lives that are likely to be used in refit works. This standard tax asset life forms an estimate of depreciation for tax purposes for a benchmark efficient TNSP, which is used to determine the cost of corporate income tax under clause 6A.6.4(a) of the NER.

In the draft decision, the AER accepted Powerlink's proposed standard tax asset lives for the asset classes. However, the AER did not accept the proposed allocation of forecast capex associated with refit works to the new 'Transmission lines - refit' asset class.⁶⁶⁵ This was because the standard tax asset life was appropriate for only a portion of refit capex.

Powerlink's revised revenue proposal did not accept the AER's draft decision. It adopted the same approach used for calculating regulatory depreciation of the 'Transmission line - refit' asset class in calculating tax depreciation. As a result, the proposed standard tax asset life of 15 years is the same as the proposed standard asset life applied for regulatory depreciation purposes.⁶⁶⁶

Consistent with its final decision for the standard asset life assigned to the 'Transmission lines - refit' asset class, the AER does not accept Powerlink's revised revenue proposal on the standard tax asset life. The AER's reasoning for the determination of the standard tax asset life of 30 years is the same as the discussion in section 7.3.2 with regard to regulatory depreciation. This assessment is largely based on the mix of assets expected from expenditure allocated to the asset class.

Powerlink advised that the 'Transmission lines - refit' asset class can include an entire range of components, including assets with useful lives beyond 15 years.⁶⁶⁷ The refit asset class consists of underlying assets from the 'Transmission lines - overhead' asset class. Powerlink is not proposing any change to the 'Transmission lines - overhead' asset class, suggesting if all parts of a line were refitted (replaced) a standard asset life of 50 years would be consistent with the requirements of the NER.⁶⁶⁸ The AER recognises that not all components are subject to replacement during a refit.

The AER considers that refit components other than surface preparation and painting are likely to have much longer lives than 15 years. Based upon the information supplied by Powerlink, it appears a significant proportion (approximately 40 per cent) of refit component would have a useful life consistent with the existing 'Transmission lines - overhead' asset class. Based on these proportions, the AER considers a standard tax asset life of 30 years for the 'Transmission line - refit' asset class satisfies the NER requirements.⁶⁶⁹

The AER considers a standard tax asset life of 30 years for the 'Transmission lines - refit' asset class provides an appropriate estimate of depreciation for tax purposes for a benchmark efficient TNSP, under clause 6A.6.4(a)(2) of the NER. In forming a view on the appropriate standard tax asset life for the 'Transmission lines - refit' asset class, the AER has

⁶⁶⁴ Powerlink, *Revised Proposal 2012–2017*, January 2011, pp. 153–156, 163.

⁶⁶⁵ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, p. 266.

⁶⁶⁶ Powerlink, *Revised proposal 2012–2017*, January 2011, pp. 153–156, 163.

Powerlink, E-mail, Response - Request AER/038 - Transmission line refit asset class, 28 September 2011.

⁶⁶⁸ NER, clause 6A.6.3(b)(1).

⁶⁶⁹ NER, clause 6A.6.4(a)(2).

had regard to the ATO's tax ruling on the effective life of depreciating assets.⁶⁷⁰ The ATO's tax ruling applies a number of criteria in assessing the effective life of an asset including the mix of assets and the expected lives of assets. The standard tax asset life of this asset class should be consistent with the standard asset life for regulatory depreciation purposes given the mix of assets for the RAB and TAB are expected to be the same. The AER concludes that the standard tax asset life of 30 years reflects the approximate proportion of assets and their useful lives over which the asset class should be depreciated for tax purposes.

8.3.4 Remaining asset lives

The AER accepts Powerlink's remaining tax asset lives as at 1 July 2012. The AER considers Powerlink's revised method for calculating the remaining tax asset lives as at 1 July 2012 results in an estimate of depreciation for tax purposes for a benchmark efficient TNSP, which is used to determine the cost of corporate income tax under clause 6A.6.4(a) of the NER.

In the draft decision, the AER did not accept Powerlink's method for calculating the remaining tax assets lives as at 1 July 2012.⁶⁷¹ The AER applied a weighted average approach to determine the remaining tax asset lives for the draft decision.

Powerlink's revised revenue proposal did not accept the AER's draft decision. Powerlink applied the same method to calculate the remaining asset lives for both the RAB and TAB as at 1 July 2012. As discussed in section 7.3.3, the AER considers Powerlink's revised method results in remaining asset lives for the RAB that are consistent with clause 6A.6.3(b)(1) of the NER.⁶⁷² For the same reasons, the AER considers Powerlink's revised method results in remaining tax asset lives that provide an appropriate estimate of depreciation for tax purposes for a benchmark efficient TNSP, under clause 6A.6.4(a)(2) of the NER. This in turn is used to determine the cost of corporate income tax under the requirements of the NER.⁶⁷³

In assessing the proposed remaining tax asset lives, the AER compared the remaining tax asset lives under Powerlink's revised proposed approach and the AER's preferred weighted average approach. The AER found a difference of less than one per cent in total revenue for Powerlink over the 2012–13 to 2016–17 regulatory control period under either set of remaining tax asset lives. Therefore, the AER accepts Powerlink's revised proposed remaining tax asset lives. The AER's final decision on Powerlink's remaining tax asset lives by asset class is shown in table 8.3.

⁶⁷⁰ Australian Taxation Office, *Taxation ruling – Income tax: effective life of depreciating assets (applicable from 1 July 02011)(TR2011/2)*, 29 June 2011, pp.8–9.

⁶⁷¹ AER, *Draft Decision*, pp. 266–268.

⁶⁷² The AER identified an error with Powerlink's calculation of remaining asset lives for the RAB, which was subsequently corrected by Powerlink. This error did not apply to the remaining tax asset lives for the TAB.

⁶⁷³ NER, clause 6A.6.4(a)(2).

Asset classes	AER approved – Standard tax asset life ^ª	AER's weighted average remaining tax asset life	AER approved – Powerlink's remaining tax asset life
Transmission lines—overhead	47.5	36.0	29.6
Transmission lines—underground	45.0	34.6	22.5
Transmission lines—refit	30.0	n/a	n/a
Substations primary plant	40.0	30.4	27.3
Substations secondary systems	12.5	9.3	8.6
Communications other assets	12.5	9.4	9.3
Communications—civil works	40.0	26.0	20.5
Network switching centres	12.0	8.2	10.1
Land	n/a	n/a	n/a
Easements	n/a	n/a	n/a
Commercial buildings	40.0	33.0	35.7
Computer equipment	2.5	1.2	3.4
Office furniture & miscellaneous	15.0	11.5	10.2
Office machines	10.0	7.9	6.0
Vehicles	7.0	6.6	5.7
Moveable plant	5.0	3.4	5.0
Insurance spares	n/a	n/a	n/a
Equity raising costs	5.0	n/a	n/a

Table 8.3 AER final decision on standard and remaining tax asset lives (year)

Source:

Powerlink⁶⁷⁴, AER analysis. With the exception of the 'Transmission lines - refit' asset class, the standard tax asset lives are (a) consistent with those approved in the draft decision.

8.4 **Revisions**

The AER determines the following revisions to Powerlink's revised revenue proposal in relation to its forecast corporate income tax allowance.

Revision 8.1: The AER has determined Powerlink's estimated cost of corporate income tax allowance to be \$69.7 million (\$nominal) over the 2012-13 to 2016-17 regulatory control period as set out in table 8.1.

Revision 8.2: The AER has determined Powerlink's standard tax asset life for the 'Transmission lines - refit' asset class to be 30 years.

674 Powerlink, Revised revenue proposal, Post-tax revenue model, January 2012. **Revision 8.3:** The AER has determined Powerlink's remaining tax asset lives as at the beginning of the 2012–13 to 2016–17 regulatory control to be those set out in table 8.3.

9 Maximum allowed revenue

This attachment sets out the AER's final decision for Powerlink for the provision of prescribed transmission services during the 2012–13 to 2016–17 regulatory control period on the following matters:⁶⁷⁵

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

The AER determines Powerlink's annual building block revenue requirement using a building block approach. It determines the X factors by smoothing the annual building block revenue requirement over the regulatory control period. The X factor is used in the CPI–X methodology to determine the annual expected MAR (smoothed) for each regulatory year of the 2012–13 to 2016–17 regulatory control period.

9.1 Decision

The AER's determinations regarding Powerlink's proposed building block components have a consequential impact on the annual building block revenue requirement. The AER has recalculated the X factor and the annual expected MAR (smoothed) to reflect the AER's final decision on Powerlink's annual building block revenue requirement.

For this final decision, the AER has approved an estimated total revenue cap of \$4679.1 million (\$nominal) for Powerlink for the 2012–13 to 2016–17 regulatory control period.⁶⁷⁶ The AER approved X factor is -3.02 per cent per annum from 2013–14 to 2016–17.⁶⁷⁷

Table 9.1 sets out the AER's final decision on Powerlink's annual building block revenue requirement, the X factor, the annual expected MAR and the estimated total revenue cap for the 2012–13 to 2016–17 regulatory control period.

⁶⁷⁵ NER, clause 6A.4.2(a)(1)–(3) and clause 6A.6.8.

⁶⁷⁶ The estimated total revenue cap is equal to the total annual expected MAR.

⁶⁷⁷ Consistent with Powerlink's revised proposal, the AER has determined a constant X factor to apply over the next regulatory control period.

Table 9.1AER final decision on Powerlink's annual building block revenue
requirement, annual expected MAR, estimated total revenue cap and
X factor (\$million, nominal)

	2012–13	2013–14	2014–15	2015–16	2016–17	Total
Return on capital	553.3	610.8	657.7	688.8	723.6	3234.1
Regulatory depreciation ^a	41.0	53.6	77.3	95.2	104.7	371.8
Operating expenditure	181.8	193.7	203.7	216.9	229.0	1025.1
Efficiency benefit sharing scheme (carryover amounts)	-2.7	-0.7	-3.0	2.3	-	-4.0
Net tax allowance	11.5	12.5	13.4	15.4	17.0	69.7
Annual building block revenue requirement (unsmoothed)	784.9	869.8	949.2	1,018.6	1074.2	4696.7
Annual expected MAR (smoothed) ^b	835.0	882.6	933.0	986.2	1042.4	4679.1
X factor (%)	n/a	-3.02	-3.02	-3.02	-3.02	n/a

Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.
 The estimated total revenue cap is equal to the total annual expected MAR.

9.2 Assessment approach

The AER considered all issues raised by Powerlink and stakeholders using the assessment approach as outlined in the draft decision.⁶⁷⁸

9.3 Reasons for final decision

This section sets out the AER's approved revenue requirements for Powerlink based on the AER's determinations of the building block components. The AER also sets out its consideration of issues raised in submissions regarding indicative forecasts of average transmission prices resulting from the revenue requirements.

9.3.1 Annual building block revenue requirement

For this final decision, the AER has determined a total annual building block revenue requirement of \$4696.7 million (\$nominal) for Powerlink for the 2012–13 to 2016–17 regulatory control period. This represents a 6.1 per cent or \$307.3 million (\$nominal) reduction to Powerlink's revised proposed total annual building block revenue requirement for the 2012–13 to 2016–17 regulatory control period.⁶⁷⁹

In the draft decision, the AER determined a total annual building block revenue requirement of \$4576.8 million (\$nominal) for Powerlink for the 2012–13 to 2016–17 regulatory control period. The draft decision reduced Powerlink's proposed total annual building block revenue

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 271–74.

⁶⁷⁹ Powerlink, *Revised revenue proposal 2013–2017*, January 2012, p. 167.

requirement by about 23 per cent or \$1367.2 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period.⁶⁸⁰

In its revised revenue proposal, Powerlink estimated its revenue requirements based on its revised proposed building block components. Powerlink's revised total annual building block revenue requirement is \$5004.0 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period.⁶⁸¹

Figure 9.1 shows the AER's final decision on the components that make up the annual building block revenue requirement for the 2012–13 to 2016–17 regulatory control period and the corresponding building blocks components from Powerlink's revised revenue proposal.

The AER has calculated the annual building block revenue requirement for Powerlink based on the AER's final decision on these building block components. The revenues were affected by changes made by the AER to Powerlink's revised proposed building block components in this final decision. These changes include:

- forecast operating expenditure (attachment 4)
- the cost of capital (attachment 5)
- the opening RABs over the 2012–13 to 2016–17 regulatory control period (attachment 6)
- forecast regulatory depreciation (attachment 7)
- the corporate income tax allowance (attachment 8).

Powerlink, *Revised revenue proposal 2013–2017*, May 2011, p. 112.

⁶⁸¹ Powerlink, *Revised revenue proposal 2013–2017*, January 2012, pp. 165–167.

Figure 9.1 AER final decision and Powerlink revised proposed annual building block revenue requirement (\$million, nominal)



Source: AER analysis.

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

Powerlink accepted the methodology used by the AER in the draft decision regarding the smoothing of the MAR.⁶⁸² For this final decision, the AER has determined a revised X factor of -3.02 per cent per annum from 2013–14 to 2016–17. The net present value of the annual building block revenue requirement for the 2012–13 to 2016–17 regulatory control period is \$3644.0 million (\$nominal) as at 1 July 2012. Based on this net present value and applying the CPI–X method, the AER has determined the annual expected MAR (smoothed) for Powerlink that increases from \$835.0 million in 2012–13 to \$1042.4 million in 2016–17 (\$nominal).

The resulting estimated total revenue cap for Powerlink that the AER has approved is \$4679.1 million (\$nominal) for the 2012–13 to 2016–17 regulatory control period. The total revenue cap is the sum of the annual expected MAR. Figure 9.2 shows the AER's final decision on Powerlink's annual expected MAR (smoothed revenue) and the annual building block revenue requirement (unsmoothed revenue) for the 2012–13 to 2016–17 regulatory control period.

⁶⁸² Powerlink, *Revised revenue proposal 2013–2017*, January 2012, p. 167.

Figure 9.2 AER final decision on Powerlink's annual expected MAR (smoothed) and annual building block revenue requirement (unsmoothed) (\$million, nominal)



To determine the expected MAR over the 2012–13 to 2016–17 regulatory control period, the AER has set the MAR for the first regulatory year (2012–13) at \$835.0 million (\$nominal). This is higher than the annual building block revenue requirement for 2012–13, which is \$784.9 million (\$nominal). However, this MAR is similar to the amount for 2011–12.⁶⁸³ The AER then applied an X factor of –3.02 per cent per annum to determine the expected MAR in subsequent years. The AER considers that this profile of X factors results in an expected MAR in the last year of the regulatory control period that is as close as reasonably possible to the annual building block revenue requirement for that year as required under the NER.⁶⁸⁴ The AER considers a divergence of up to 3 per cent between the expected MAR and annual building block revenue requirement for the 2012–13 to 2016–17 regulatory control period is appropriate, if this can achieve smoother price changes for users over the regulatory control period. In the present circumstances, based on the X factors determined by the AER, this divergence is 3 per cent.

The average increase in AER approved expected MAR for Powerlink is 4.7 per cent per annum (nominal) over the 2012–13 to 2016–17 regulatory control period. This consists an initial increase of 0.8 per cent from 2011–12 to 2012–13 and a subsequent average annual increase of 5.7 per cent during the remainder of the 2012–13 to 2016–17 regulatory control period. In real terms (\$2011–12), the average increase in AER approved expected MAR for

⁶⁸³ The MAR for the last year of the 2007–08 to 2011–12 regulatory control period is approximately \$828 million.

⁶⁸⁴ NER, clause 6A.6.8(c)(2).

Powerlink is 2.1 per cent per annum over the 2012–13 to 2016–17 regulatory control period. This consists an initial decrease of 1.8 per cent from 2011–12 to 2012–13 and a subsequent average annual increase of 3.0 per cent during the remainder of the 2012–13 to 2016–17 regulatory control period.

The AER's final decision results in an increase to Powerlink's total revenue cap relative to that in the 2007–08 to 2011–12 regulatory control period. This increase in revenue is primarily because of:

- a higher WACC than was forecast in the 2007–08 to 2011–12 revenue cap decision
- an increase to forecast RAB due to addition of capital expenditure over the 2012–13 to 2016–17 regulatory control period
- increased opex due to an expanding network, increased refurbishment requirements and higher cost of labour over the 2012–13 to 2016–17 regulatory control period.

9.3.3 Indicative average transmission price impact

The NER does not require the AER to estimate transmission price changes for a TNSP revenue determination. However, the AER typically provides some indicative transmission price impacts flowing from its decisions.

The AER estimates the effect of the final decision on forecast average transmission charges by taking the annual expected MAR and dividing it by the forecast annual energy delivered in Queensland. Figure 9.3 shows the indicative average transmission charges resulting from this final decision compared with the average transmission charge for the last year of the 2007–08 to 2011–12 regulatory control period under three different forecast energy delivered scenarios.

Figure 9.3 Indicative transmission price path from 2011–12 to 2016–17 under each forecast energy delivered scenario (\$/MWh, nominal)



Source: AER analysis.

Transmission charges represent approximately 10 per cent on average of end user electricity charges in Queensland.⁶⁸⁵ Table 9.2 sets out the estimated impact of the AER's final decision on the indicative average transmission charges and the average residential customer's annual electricity bill of \$1655 during the 2012–13 to 2016–17 regulatory control period under three different forecast energy delivered scenarios.⁶⁸⁶

Table 9.2 Estimated impact of the AER's final decision on the average transmission charges and the average residential customer's electricity bill (\$nominal)

Forecast energy delivered scenarios	Increase in the nominal average transmission charges from 2011–12 to 2016–17	Increase in the average residential customer's annual electricity bill of \$1655
Powerlink's forecast energy	\$0 per MWh	\$0 per annum
Adjusted forecast energy based on demand reduction	\$0 per MWh	\$0 per annum
Adjusted forecast energy based on historical trend	\$3.20 per MWh (or 3.4 per cent)	\$6 per annum (or 0.4 per cent)

Source: AER analysis.

⁶⁸⁵ Queensland Competition Authority, *Final decision – Benchmark retail cost index for electricity 2011–12*, May 2011, p. 44.

⁶⁸⁶ The average customer annual electricity bill was calculated based on average household electricity consumption of 8000 kWh per year and QCA determined domestic tariff of 20.69 c/kWh (excluding GST) for 2011-12. See Queensland Competition Authority, *Queensland Government gazette No.35: Retail electricity prices for non-market customers*, May 2011.

Several stakeholders commented about the expected impact of transmission price changes on final customer bills. Many suggested the price impacts in the draft decision were understated due to the use of unreliable forecast energy delivered. The AER agrees that the pricing impact will vary, depending on customer usage and whether customers connect direct to the transmission network, or (as is normal for small businesses and consumers) through the distribution network. The AER also acknowledges stakeholders' concerns about the sensitivity of forecast energy and the resulting average price impact. Nevertheless, the AER has sought to provide an indicative average price impact.

In the draft decision, the AER adjusted Powerlink's energy delivered forecasts based on the same proportion of the AER's reduction to Powerlink's peak demand. As noted in the draft decision, this approach to adjust the energy delivered forecasts was only a high level approximation.⁶⁸⁷ Powerlink has updated its energy forecasts since the draft decision.

In 2011, the Australian Energy Market Operator (AEMO) undertook a high level review of historical electricity consumption trends and produced an alternative energy forecast for Queensland. AEMO considered that future energy consumption can be predicted by estimating potential trends among related historical factors. However, AEMO noted that the recent unexpected natural disasters and economic events in Queensland caused considerable challenge to forecasting energy in Queensland.⁶⁸⁸ Powerlink's revised forecasts are lower than AEMO's 2011 review.

The AER's draft decision also assessed the historical trend of electricity consumption in Queensland and noted that the growth in electricity consumption has been slowing down over the period 1960–61 to 2009–10.⁶⁸⁹ Powerlink's actual energy delivered from 2000–01 to 2010–11 is largely consistent with the trend in electricity consumption in Queensland (as shown in figure 9.4). However, Powerlink's forecast energy delivered over the 2012–13 to 2016–17 regulatory control period is above this trend.

⁶⁸⁷ AER, Draft decision: Powerlink revenue proposal 2012–13 to 2016–17, p. 277.

AEMO, *Electricity statement of opportunities*, 2011, pp. 62–64.

AER, Draft decision: Powerlink revenue proposal 2012–13 to 2016–17, November 2011, pp. 2–3.

Figure 9.4 Historical electricity consumption in Queensland and Powerlink's actual and forecast energy delivered (per cent)





For this final decision, the AER has estimated the average transmission price impact under the following scenarios for forecast energy delivered:

- Powerlink's revised forecast energy as shown in its updated 2011 Annual Planning Report⁶⁹⁰
- Adjusted Powerlink revised forecast energy based on the same proportion of the AER's adjustment to Powerlink's revised peak demand forecast (see attachment 2)⁶⁹¹
- Adjusted Powerlink revised forecast energy based on historical electricity consumption trends in Queensland⁶⁹²

Figure 9.5 shows the forecast annual growth in energy delivered in Queensland based on the above adopted scenarios.

⁶⁹⁰ Powerlink, Annual planning report 2011 update, January 2012, p. 8.

⁶⁹¹ The adjustment to Powerlink's revised forecast energy delivered is necessary because of the reduced demand forecasts. However, the AER notes that its approach to adjust the energy delivered forecasts is only a high level approximation. For simplicity, it has not taken into account other matters that may also affect forecast energy delivered such as load factors when making this adjustment.

⁶⁹² BREE, Australian Energy Statistics – Energy Update 2011, Table I. Website: http://bree.gov.au/data/energy/AES-2011.html

Figure 9.5 Forecast growth in energy delivered scenarios (per cent)



Source: AER analysis.

9.4 Revisions

The AER determines the following revision to Powerlink's revised revenue proposal in relation to its revenue requirements.

Revision 9.1: The AER has determined Powerlink's annual building block revenue requirement, X factor, annual expected MAR and the estimated total revenue cap over the 2012–13 to 2016–17 regulatory control period as set out in table 9.1.

10 Service target performance incentive scheme

This attachment sets out the AER's final decision on Powerlink's parameter values and weightings for the STPIS.⁶⁹³ The structure of the STPIS has two components: a service component and a market impact component.

The service component provides a financial incentive for TNSPs to maintain and improve their performance standard. This incentive counters the financial incentive under revenue regulation to pursue cost reductions at the expense of service performance. A TNSP's service performance is compared against the performance target for each parameter during the regulatory control period. Service performance improvements may result in a financial bonus for the TNSP, while a decline in service performance may result in a financial penalty. The financial bonus (or penalty) has been limited to 1 per cent of the TNSP's MAR for the relevant calendar year.

The market impact component financially rewards a TNSP for improving its performance measure against a performance target. Powerlink may earn an additional revenue increment of up to 2 per cent of its MAR for the relevant calendar year. Unlike the service component, the market impact component has no possible financial penalty.

10.1 Decision

The AER approves Powerlink's following revised parameter values because it is satisfied these values comply with the requirements in clause 3.3 and clause 4.2 of the STPIS:

- the performance target, cap and collar for the peak circuit availability subparameter
- the performance target, cap and collar for the reactive plant availability subparameter
- the performance target for the moderate (>0.10 system minutes) LOS event frequency subparameter
- the performance target, cap and collar for the large (>0.75 system minutes) LOS event frequency subparameter
- the performance target, cap and collar for the average outage duration parameter
- the cap for the market impact component parameter.

The AER also approves Powerlink's revised weightings for all its parameters because it is satisfied the revised weightings comply with the requirements in clause 3.5 and clause 4.3 of the STPIS.

However, the AER is not satisfied the following revised parameter values proposed by Powerlink comply with the requirements in clauses 3.3 and 4.2 of the STPIS:

⁶⁹³ The STPIS is established by clause 6A.7.4 of the NER.

- the performance targets, caps and collars for the transmission line availability and transformer availability subparameters. Powerlink's proposed offsets on the performance targets for the increased volume of operational refurbishment works are not allowed under clause 3.3(k) of the STPIS. The AER has recalculated the caps and collars for these subparameters in its final decision.
- the collar and cap for the moderate LOS event frequency sub-parameter. The revised collar and cap for this subparameter do not comply with clause 3.3(e) because they are not calculated by reference to Powerlink's proposed performance target. Powerlink used 2001–10 performance data to calculate the collar and cap, whereas the performance target is based on 2006–10 performance data.
- the performance target for the market impact component parameter. The proposed offset is inconsistent with clause 4.2(f) of the STPIS.

Table 10.1 sets out the STPIS parameter values and weightings that will apply to Powerlink in the 2012–13 to 2016–17 regulatory control period.

Table 10.1 AER final decision on STPIS parameter values and weightings for Powerlink

Parameters		Para	ameter valu	ues and weightings
Service component	Collar	Target	Сар	Weightings
				(per cent of MAR)
Transmission circuit availability parameter				
Peak transmission circuit availability (per cent)	98.31	98.76	99.20	0.10
Transmission line availability (per cent)	97.60	98.76	99.92	0.10
Transformer availability (per cent)	98.27	98.76	99.24	0.10
Reactive plant availability (per cent)	94.45	97.15	99.84	0.15
Loss of supply event frequency parameter				
>0.10 system minutes (number of events per annum)	6	4	2	0.15
>0.75 system minutes (number of events per annum)	2	1	0	0.30
Average outage duration parameter				
Average outage duration (minutes)	1306	859	412	0.10
Total service component weighting				1.00

Market impact component	Collar	Target	Сар	Weighting (per cent of MAR)
Market impact parameter (number of dispatch intervals)	n/a	1420	0	2.00

n/a Not applicable.

Source: AER analysis.

10.2 Assessment approach

The AER must assess whether Powerlink's proposed performance targets, caps, collars and weightings comply with the STPIS requirements for each of the following parameters:⁶⁹⁴

- transmission circuit availability parameter, with four subparameters:
 - transmission line availability
 - transformer availability
 - reactive plant availability
 - peak transmission circuit availability
- Ioss of supply (LOS) event frequency parameter, with two subparameters:
 - large (>0.75 system minutes) LOS event frequency
 - moderate (>0.10 system minutes) LOS event frequency
- average outage duration.

The AER must accept Powerlink's proposed parameter values if they comply with the requirements of the STPIS.⁶⁹⁵ It may reject Powerlink's proposed parameter values and weightings if it considers that they are inconsistent with the STPIS objectives.⁶⁹⁶

The AER is also required to determine Powerlink's proposed performance target and cap for the market impact parameter (MIP).⁶⁹⁷ The cap proposed by Powerlink must be equal to zero dispatch intervals.⁶⁹⁸

The AER has adopted the parameter values and weightings from its draft decision. However, in areas of the draft decision contested by Powerlink or stakeholders, the AER considered these submissions using the assessment approach outlined in the draft decision.⁶⁹⁹

⁶⁹⁴ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, appendix B.

⁶⁹⁵ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(a).

⁶⁹⁶ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(m), 3.5(e) and 1.4.

⁶⁹⁷ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 4.2(a).

⁶⁹⁸ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 4.2(c).

⁶⁹⁹ AER, *Powerlink Draft decision*, November 2011, pp. 283–4.

10.3 Reasons

The AER's draft decision considered that Powerlink's proposed parameter values largely complied with the requirements of the STPIS.⁷⁰⁰ However, the AER did not accept aspects of the proposed parameter values that it considered to not comply with the requirements. Also in the draft decision, it adjusted Powerlink's proposed weightings to reflect the importance of certain parameters.⁷⁰¹

Powerlink accepted the following aspects of the AER's draft decision:⁷⁰²

- the capital works offset for transmission line availability subparameter
- the caps and collars for the large LOS event frequency subparameter, based on five years (2006–10) performance data
- the transmission circuit availability parameter weightings
- the average outage duration parameter weighting
- the MIP performance cap.

Powerlink raised the following issues in its revised revenue proposal:⁷⁰³

- offsets on the transmission line availability and transformers availability performance targets for operational refurbishment works. The AER does not accept the proposed offset because it is not permitted under clause 3.3(k) of the STPIS.
- The data used for calculating the cap and collar of the moderate LOS event frequency parameter. The AER does not accept Powerlink's use of the most recent 10 years (2001–2010) performance data for calculating the cap and collar because this performance dataset is inconsistent with the dataset that Powerlink used to calculate the corresponding performance target.
- weightings for the LOS event frequency subparameters. The AER accepts Powerlink's revised weightings for these subparameters.
- the adjustment to the 2010 MIP performance data. The AER accepts Powerlink's proposed adjustment to the 2010 MIP performance data in the revised revenue proposal.
- the offset on the MIP performance target. The AER does not accept the proposed offset because the proposed offset is inconsistent with clause 4.2(f) of the STPIS.
- the updating of performance data in the final decision. The AER has not updated Powerlink's performance data in the final decision.

Further, the Energy Users Association of Australia (EUAA) and an energy users group operating in Queensland submitted the performance targets were too low in the draft

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 28.

⁷⁰¹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 28.

⁷⁰² Powerlink, *Revised revenue proposal*, January 2012, pp. 175 and 178–80.

⁷⁰³ Powerlink, *Revised revenue proposal*, January 2012, pp.176–85.

decision.⁷⁰⁴ The AER considers its decision on Powerlink's performance targets is consistent with the requirements of the STPIS.

10.3.1 Offsets on performance targets—service component

The draft decision did not accept Powerlink's proposed offsets on its performance targets for the increased volume of operational refurbishment works. Clause 3.3(k) of the STPIS does not expressly permit adjustment for operational refurbishment works.⁷⁰⁵

Powerlink's revised revenue proposal considered while clause 3.3(k) of the STPIS does not explicitly permitting an adjustment for operational refurbishment works, it does not prohibit an adjustment either.⁷⁰⁶ Powerlink's revised revenue proposal also stated that the AER needs to account for the circumstances of Powerlink's operational refurbishment offset.⁷⁰⁷ That is, Powerlink capitalises its network assets to a higher level of equipment grouping than other TNSPs in the NEM.⁷⁰⁸ As a result, Powerlink's operational refurbishment works would be classified as capital expenditure by other TNSPs.⁷⁰⁹ Powerlink stated that its operational refurbishment works, even though the expenditure is classified as operational.⁷¹⁰

The AER does not accept Powerlink's proposed offsets on performance targets for the increased volume of operational refurbishment works, for the following reasons:

The AER notes clause 3.3(g) of the STPIS provides the proposed performance targets must be equal to the TNSP's average performance history over the most recent five years. Clause 3.3(k) outlines when a performance target may be subject to reasonable adjustment. The AER considers it can accept an adjustment on the proposed performance target only for a reason listed under clause 3.3(k) of the STPIS.⁷¹¹ Powerlink's proposed offset for increased volume of operational refurbishment works does not fit within those reasons listed. Further, as the AER discussed in its draft decision, when the STPIS was first developed, the AER decided to not allow an

⁷⁰⁵ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 287.

⁷⁰⁴ EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, p. 35.

Powerlink, *Revised revenue proposal*, January 2012, p.176.

⁷⁰⁷ Powerlink, *Revised revenue proposal*, January 2012, p 176.

⁷⁰⁸ 'Powerlink...classifies assets at substation bay and transmission line built section levels. As a result, Powerlink classifies works as operational refurbishment that other TNSPs would classify as capital expenditure. For example, while some TNSPs classify replacement of a single circuit breaker as capital expenditure, Powerlink classifies it as operational refurbishment, as the circuit breaker by itself does not constitute the substantive part of the substation bay.' (Powerlink, *Revised revenue proposal 2013–2017*, January 2012, p. 176)

⁷⁰⁹ Powerlink, *Revised revenue proposal*, January 2012, p. 176.

⁷¹⁰ Powerlink, *Revised revenue proposal*, January 2012, p. 177.

⁷¹¹ Clause 3.3(g) of the STPIS provides proposed performance targets may be subject to reasonable adjustment to allow for:

⁽¹⁾ statistical outliers

⁽²⁾ the expected effects on the TNSP's performance from any increases or decreased in the volume of capital works planned during the regulatory control period (compared with the volume of capital works undertaken during the period used to calculated the performance target)

⁽³⁾ the expected material effects on the TNSP's performance from any changes to the age and ratings of the assets comprising the TNSP's transmission system during the TNSP's next regulatory control period (compared to the age an ratings of the TNSP's assets comprising the TNSP's transmission system during the period used to calculate performance targets), and

⁽⁴⁾ material changes to an applicable regulatory obligation.

adjustment to the performance target for operational refurbishment projects.⁷¹² For this reason, because an adjustment for operational refurbishment works is not permitted under clause 3.3(k) of the STPIS, the AER does not accept Powerlink's proposed offsets.

The AER considers Powerlink's determination of whether a refurbishment project is operational or capital expenditure is based on the TNSP's capitalisation policy. The NER does not place any specific requirements on a TNSP's capitalisation policy. However, the AER is concerned that a decision to allow Powerlink's proposed offset for operational refurbishment works may provide an incentive for other TNSPs to change their capitalisation policy to group assets at a higher level. If an adjustment for operational refurbishment work is allowed under the STPIS, a TNSP may benefit from both an increased opex allowance⁷¹³ and reduced service performance targets in a regulatory control period. Because the STPIS applies to all TNSPs in the NEM, the AER considers it must consult with TNSPs and stakeholders about any amendment to the scheme. For all these reasons, the AER does not accept Powerlink's proposed offsets on the performance targets for increased volume of operational refurbishment works.

10.3.2 Cap and collar for the moderate LOS event frequency subparameter service component

The draft decision accepted the use of the curves of best-fit method for calculating the caps and collars for the LOS event frequency sub-parameters. However, the AER did not accept the use of 10 years (2001–10) actual performance data for this calculation.

Powerlink's revised revenue proposal accepted the AER's draft decision to use the most recent five years (2006–10) performance data for calculating the cap and collar for the large LOS event frequency subparameter.⁷¹⁴ However, Powerlink did not accept the AER's draft decision to use Powerlink's most recent five years performance data for calculating the cap and collar for the moderate LOS event frequency subparameter.⁷¹⁵

The AER does not accept Powerlink's revised proposal to use 10 years (2001–10) performance data for calculating the cap and collar for the moderate LOS event frequency subparameter, for the following reasons:

In general, it is not appropriate to use different performance datasets to calculate the parameter values for the same parameter. The AER's draft decision compared the average of performance data in different time periods to demonstrate the averages varied across the different time periods.⁷¹⁶ Table 10.7 of the draft decision showed the performance target for the moderate LOS event frequency subparameter would be 6 if using 2001–10 performance data for the calculation.⁷¹⁷ However, Powerlink proposed performance target for this subparameter, based on the 2006–10 performance data, is 4. Thus, using a different performance dataset may result in different performance targets for the same parameter. By using 2001–10 performance data, Powerlink did not calculate its cap and collar for the moderate LOS event frequency sub-parameter by reference to

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 288.

⁷¹³ Opex is treated as an expense and will be fully recovered by a TNSP within a regulatory control period. However, capex is recovered by the TNSP through return on capital and return of capital over the economic life of the capital assets - which is usually much longer than a five year regulatory control period.

Powerlink, *Revised revenue proposal*, January 2012, pp. 171–179.

⁷¹⁵ Powerlink, *Revised revenue proposal*, January 2012, p. 178.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 290–1.

⁷¹⁷ Rounded to the nearest integer.

its proposed performance target for this subparameter. This approach is inconsistent with the requirement of the STPIS that the proposed caps and collars must be calculated by reference to the proposed performance targets and using a sound method.⁷¹⁸ Powerlink has concerns with the AER's analysis of means and variances of the performance data.⁷¹⁹ However, the AER notes that the STPIS requires calculation of performance targets by taking the average of the performance data.⁷²⁰ The AER thus considers its analysis of the average of Powerlink's performance data (as per the draft decision) is appropriate.

- Figure 10.1 of the draft decision showed Powerlink experienced a much higher moderate LOS event frequency in 2002 and 2003 compared with the performance in other years for this subparameter.⁷²¹ Powerlink considered its performance in earlier years (2002 and 2003) fairly represented possible future outcomes.⁷²² But the AER notes Powerlink was not under a service standard incentive scheme in 2002 and 2003. It considers, therefore, Powerlink's 2002 and 2003 performance may not reasonably reflect Powerlink's future performance outcome because Powerlink will be incentivised to reduce its LOS event frequency under the STPIS regime in the 2012–13 to 2016–17 regulatory control period.
- Powerlink attributed its recent years' better performance to fewer than normal number of intensive storms, lightening and high winds.⁷²³ It stated further performance improvements to the LOS parameter are unlikely.⁷²⁴ The AER notes that Powerlink amended its LOS event frequency parameter thresholds in early 2011 to provide an adequate incentive for that parameter.⁷²⁵ The AER also notes Powerlink can seek exclusions under the STPIS for force majeure events.⁷²⁶ Powerlink is still incentivised, therefore, to maintain and improve its LOS event frequency performance in the 2012–13 to 2016–17 regulatory control period.

10.3.3 Weightings for the LOS event frequency subparameters—service component

The AER accepts Powerlink's revised proposal that the weighting for the large LOS event frequency subparameter should be higher than the weighting for the moderate LOS event frequency subparameter, for the following reasons:

National safety guidelines require Powerlink to wait at least 15 minutes before manually reclosing high voltage electrical apparatus.⁷²⁷ Table 10.2 shows Powerlink, in a LOS event with a lost load of greater than 60 megawatts, has only 15 minutes or less to restore the supply at the moderate LOS event threshold. This response time is not achievable, so removes the incentive for Powerlink to respond to the LOS event. However, the large LOS event frequency subparameter provides for Powerlink to restore

⁷¹⁸ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(e).

⁷¹⁹ Powerlink, *Revised revenue proposal*, January 2012, p. 178.

⁷²⁰ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(g).

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 291.

Powerlink, *Revised revenue proposal*, January 2012, p. 178.

Powerlink, *Revised revenue proposal*, January 2012, p. 45.

Powerlink, *Revised revenue proposal*, January 2012, p. 45.

⁷²⁵ AER, Explanatory statement: Proposed amendment—Electricity transmission network service providers— Service target performance incentive scheme, November 2010, p. 10.

⁷²⁶ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, p. 27.

Powerlink, *Revised revenue proposal*, January 2012, p. 181.

the supply within an achievable timeframe, and thus incentivises Powerlink to minimise the duration of a LOS event for larger loss of load.

- Powerlink will have a larger number of direct connected customers located in geographically remote areas in the 2012–13 to 2016–17 regulatory control period. This customer spread will increase the risk of a moderate LOS event occurring as the response time to restore the supply in these load areas is likely to be increased. The AER considers it important, therefore, that the large LOS event frequency sub-parameter incentivises Powerlink to minimise the duration of the LOS events for customers with large load and in geographically remote areas.
- Powerlink's proposed weightings for the LOS event frequency parameter are largely consistent with the AER's approved weightings in recent transmission revenue cap decisions (as shown in table 10.3).
- The AER thus accepts Powerlink's revised weightings for the LOS event frequency parameter. The weighting for the large LOS event frequency sub-parameter is 0.30 per cent of the MAR, and the weighting for the moderate LOS event frequency subparameter is 0.15 per cent of the MAR.

Threshold (system minutes)	Load lost (MW)	System maximum demand (MW)	Customer outage duration/ required response time (minutes)
Moderate LOS event (>	0.10 system minu	tes)	
0.10	100	9000	9
0.10	90	9000	10
0.10	80	9000	11
0.10	70	9000	13
0.10	60	9000	15
0.10	50	9000	18
0.10	40	9000	23
0.10	30	9000	30
0.10	20	9000	45
Large LOS event (>0.75	5 system minutes)		
0.75	100	9000	68
0.75	90	9000	75
0.75	80	9000	84
0.75	70	9000	96

Table 10.2 Required response time for a LOS event for different sizes of load lost

0.75 0.75 0.75 0.75 0.75

Source: AER analysis.

Table 10.3AER approved weightings in recent transmission revenue cap decisions,
and Powerlink's proposed weightings for the LOS event frequency
parameter

	Powerlink revised proposal (% of MAR)	SP AusNet (% of MAR)	ElectraNet (% of MAR)	TransGrid (% of MAR)	Transend (% of MAR)
Moderate LOS event frequency	0.15	0.125	0.10	0.25	0.20
Large LOS event frequency	0.30	0.125	0.20	0.10	0.35
Total	0.45	0.25	0.30	0.35	0.55

Source: AER, Final decision: SP AusNet transmission determination 2008–09 to 2013–14, January 2008, p. 186; AER, Final decision: ElectraNet transmission determination 2008–09 to 2012–13, April 2008, p. 96. AER, Final decision: TransGrid transmission determination 2009–10 to 2013–14, April 2009, p. 113; AER, Final decision: Transend transmission determination 2009–10 to 2013–14, April 2009, p. 131.

10.3.4 Performance target—market impact parameter

Adjustment to Powerlink's 2010 performance history data

The draft decision made a number of adjustments to Powerlink's performance history for the period of 1 January 2010 to 12 July 2010. This resulted in an increase in the dispatch intervals for that period from 1414 to 1502. The resulting 2013–2017 performance target was 1442 dispatch intervals (which was the average performance history over the period 2006 to 2010, taking into account adjustments made to the 2010 performance history).⁷²⁸

Table 10.4 sets out Powerlink's proposed performance history data (excluding the claimed offset), and the AER's adjusted performance history data, for the calendar years 2006 to 2010 as outlined in the draft decision.

Table 10.4Powerlink's proposed and AER's adjusted performance history data
(number of dispatch intervals)

	2006	2007	2008	2009	2010
Powerlink proposed	3673	1702	179	143	1418 ^ª
AER draft decision	3673	1702	179	143	1513 [⊳]
Powerlink revised revenue proposal	3673	1702	179	143	1404
(a) comprises 4.4.4 dispetablister rate for the period of 4 lensers 2040 to 40, but 2040 and 4 dispetable					

(a) comprises 1414 dispatch intervals for the period of 1 January 2010 to 12 July 2010 and 4 dispatch intervals for the period of 13 July 2010 to 31 December 2010.

(b) comprises 1502 dispatch intervals for the period of 1 January 2010 to 12 July 2010 and 11 dispatch intervals for the period of 13 July 2010 to 31 December 2010.

Source: Powerlink, Revenue proposal 2013–17 Appendix O—Powerlink service target performance incentive scheme caps collars and weighting methodology, May 2011, p. 8; Powerlink, Revised revenue proposal 2013–17, January 2012, p. 182. AER analysis.

⁷²⁸ Refer to section 10.3.5 regarding the discussion on the most recent five years of data.

Powerlink's revised proposal accepted five of the six adjustments made by the AER to the 1 January 2010 to 12 July 2010 performance history data in its draft decision. Powerlink also accepted the adjustment made to the 13 July 2010 to 31 December 2010 performance history data.⁷²⁹

Powerlink did not agree with the adjustment made to the performance history associated with the Q>TV_TYP constraint, which affected market outcomes on 11 April 2010.⁷³⁰ Powerlink stated that the particular constraint referred to a planned line outage of a generator connection in Queensland. Powerlink noted that it had previously agreed the outage timing with the generator, and also noted that the outage was to assets that were not providing prescribed services. Powerlink stated that consistent with similar outages, Powerlink excluded the relevant dispatch intervals from the 2010 performance history.⁷³¹ Excluding the dispatch intervals in relation to the constraint would have the effect of decreasing the 2010 performance history by 109 dispatch intervals. Powerlink's revised proposal for 2010 performance history is 1404 dispatch intervals.

On 15 March 2012, the AER wrote to the affected generator to determine whether in its view the line outage was coordinated with a requirement for an outage of the generator. The generator stated that it was not. On 20 March 2012, the AER wrote to Powerlink seeking further information on the Powerlink line outage and evidence to show the coordination of this with the relevant generating unit outage.⁷³² Powerlink did not respond to the question of outage coordination. Instead Powerlink stated that the outage is to be excluded from the performance history as it was an outage of non-prescribed transmission services.⁷³³

The STPIS allows for outage related constraints to be excluded from the performance history if the outage is associated with assets that are not providing prescribed transmission services.⁷³⁴ On this basis, the AER has decided to exclude the 109 dispatch intervals from Powerlink's 2010 performance history.

The six adjustments accepted by Powerlink, and exclusion of the 109 dispatch intervals in relation to the Q>TV_TYP constraint, has a net effect of reducing the number of dispatch intervals in Powerlink's 2010 performance history from 1418 to 1404 (the years 2006 to 2009 have not been adjusted). The AER approves a performance target of 1420 dispatch intervals for the 2012–13 to 2016–17 regulatory control period.

⁷²⁹ These include constraint ID #N-Q-MNSP1_I_E, CA_BPS_3B1F648C_01, Q>GMBU_GMU_MDSPT, Q_RS_260 and Q^FNQ_-030. See Table 10.9 of AER, *Draft decision*, p. 297; Powerlink, *Revised revenue proposal 2013-2017*, January 2012, p. 183.

AER, *Powerlink Draft decision*, November 2011, pp. 296 – 297.

⁷³¹ Powerlink, *Revised revenue proposal 2013-2017*, January 2012, p. 182. The scheme allows for constraints which are used to manage outage of line(s) connected to plant(s) to be excluded if the line outage is coordinated with the plant outage. A line outage to be considered 'coordinated', when the line outage coincides with the relevant plant(s) outage(s). That is the TNSP minimises the impact of their line outage to the market by performing the outage at the same time as a scheduled plant outage. This falls under exclusion clause 3 of Appendix C of the STPIS.

AER, Request for follow-up information of AER/063–STPIS market impact component, 20 March 2012.

⁷³³ Powerlink, Response to information request of 20 March 2012–STPIS market impact component, 21 March 2012.

⁷³⁴ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, Appendix C–exclusions clause 4.

Offset on the performance target

The draft decision rejected Powerlink's proposed performance target offset in relation to network outages on assets it intends to acquire prior to the commencement of the 2012-13 to 2016–17 regulatory control period. The AER considered that the proposed offset did not meet the requirements of clause 4.2(f) of the STPIS.⁷³⁵

Powerlink's revised revenue proposal did not agree with the AER that the offset does not meet clause 4.2(f)(2) of the STPIS.⁷³⁶ Clause 4.2(f)(2) of the STPIS states:

The proposed performance target may be subject to reasonable adjustment to allow for:

(2) the expected material effects on the TNSP's performance from any changes to the age and ratings of the assets comprising the TNSP's transmission system during the TNPS's next regulatory control period (compared to the age and ratings of the TNSP's assets comprising the TNSP's transmission system during the period used to calculate performance targets) ...(Bold emphasis added.)

Powerlink's revised revenue proposal stated the offsets it proposed are the expected dispatch interval effects on Powerlink's performance as a result of the changes to the age and rating of the assets of Powerlink's network. Powerlink stated that the assets being purchased are around 25 years old (based on Powerlink's revenue proposal analysis) and of a rating that will have an impact on Powerlink's performance.⁷³⁷ The AER sought further information on the assets that Powerlink intends to acquire, the age and rating of those assets, and how the inclusion of those assets would affect the age and rating of Powerlink's network in the 2012–13 to 2016–17 regulatory control period.⁷³⁸ Powerlink's response stated:⁷³⁹

Powerlink does not expect the average age of its transmission lines to materially change over the next reset period. This is because the inclusion of new assets is relatively small compared to the existing asset base that continues to age.

However, the rating of the lines [that it intends to acquire] ... will impact Powerlink's market impact performance in the next regulatory period. ... [T]he individual rating of the feeders between Chinchilla and Columboola the lowest rated plant in the network in the region and as such is the limiting element. Consequently, ... [this] is the element responsible for the historical dispatch interval performance.

Figures 10.1 and 10.2 show the assets associated with Powerlink's proposed offset, noting the configuration of the network changed during 2008 to create the new Columboola substation. The network lines in green represent the equipment that Powerlink intends to acquire with the lines in blue representing equipment that will continue to be owned by one of the Queensland DNSPs.

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 297–8.

Powerlink, *Revised revenue proposal*, January 2012, p. 184.

⁷³⁷ Powerlink, *Revised revenue proposal*, January 2012, p. 184.

AER, Request for information of AER/063–STPIS market impact component, 2 March 2012.

⁷³⁹ Powerlink, *Response to information request of 2 March 2012–STPIS market impact component*, 7 March 2012, p. 2.

Figure 10.1 Network configuration pre Columboola



Source: Powerlink, Response to information request AER/063 of 2 March 2011–STPIS market impact component, received 7 March 2012, p. 1.

Figure 10.2 Current network configuration highlighting potential Powerlink assets



Source: Powerlink, Response to information request AER/063 of 2 March 2011–STPIS market impact component, received 7 March 2012, p. 1.

The AER notes that the assets that Powerlink intends to acquire were not owned by Powerlink at the time when the assets caused the relevant market impacts. As noted in the draft decision, clause 4.2(d) of the STPIS provides that the proposed performance target must be based on the TNSP's average performance history over the most recent five years, subject to the parameter definition in appendix C. The definition of the market impact parameter in appendix C specifies that the affected dispatch intervals must relate to 'an outage on a TNSP's network'. The proposed offsets relate to dispatch intervals affected by network outages for assets that were not part of Powerlink's network.⁷⁴⁰

However, clause 4.2(f) allows for the proposed performance target to be subject to reasonable adjustment in specific instances. Clause 4.2(f)(2) is set out above, and allows an adjustment to be made for 'the expected material effect on the TNSP's performance from any changes to the age and ratings of the assets comprising the TNSP's transmission system during the TNSP's next regulatory control period ...'.

The AER considers Powerlink's proposed offset should not be made under clause 4.2(f)(2) of the STPIS because there will not be a relevant 'material effect' on Powerlink's performance arising from changes in the age and rating of Powerlink's transmission network in the 2012–13 to 2016–17 regulatory control period.

Powerlink has noted that there will be no material change in the age of its network assets in the 2012–13 to 2016–17 regulatory control period. However, Powerlink considers that the ratings of the lines it acquires will impact its market impact performance in the 2012–13 to 2016–17 regulatory control period.

AER considers even if there was a change in the rating of the Powerlink's assets consistent with clause 4.2(f)(2) of the STPIS, the historical performance data of the assets it intends to

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 298.

acquire (the offset count) does not show there will be a material effect on Powerlink's performance in the 2012–13 to 2016–17 regulatory control period. In particular:

- Of the total proposed offset count of 2649, 1594 were associated with feeder number 3 and 4 in Figure 10.1, that connect the Roma generator to the NEM but these lines will remain under the ownership of one of the Queensland DNSPs and should therefore not be included.⁷⁴¹
- A further count of 1051 was associated with the Q>CLBCN_RUNBACK_OFF constraint.⁷⁴² The constraint only occurred in 2009 and was associated with an issue that has since been resolved and should therefore not be included. As AEMO in "The constraint report 2009"⁷⁴³ highlighted:

This Constraint Equation violated due to SCADA issues in the Ergon system that have since been resolved. Additionally the runback scheme was commissioned in late 2009.

The remaining count of 4 was associated with an outage of the feeder number 5 in Figure 10.2. These counts were accrued in 2010. The AER does not consider that this supports that there will be a relevant material effect on Powerlink's performance in the 2012–13 to 2016–17 regulatory control period. This is because a count of 4 over the period from some time in 2008 to end of 2010 is not material compared to an average of 1420 dispatch intervals for the period 2006 to 2010 (around 0.1 per cent).

For these reasons, the AER does not accept the proposed offset on the performance target in relation to Powerlink's intended acquisitions.

The AER therefore approves a performance target of 1420 dispatch intervals for Powerlink for the 2012–13 to 2016–17 regulatory control period.

10.3.5 Updating of parameter values to account for 2011 performance data

The AER has decided not to update Powerlink's STPIS parameter values to account for 2011 performance data.

The STPIS requires the proposed performance targets must be equal to the TNSP's average performance history over the most recent five years.⁷⁴⁴ It also states the AER must accept the proposed parameter values if they comply with the requirements of the STPIS.⁷⁴⁵ For this reason, previous AER's transmission decisions have set a TNSP's STPIS parameter values based on performance history data up to the year immediately before submission of the revenue proposal.⁷⁴⁶

⁷⁴¹ Powerlink, *Response to information request of 2 March 2012–STPIS market impact component*, 7 March 2012.

Powerlink, Response to information request of 2 March 2012–STPIS market impact component, 7 March 2012.
 AEMO, The constraint report 2009, February 2010, p. 16.

AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(g) and 4.2(d).

⁷⁴⁵ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(a) and 4.2(a).

AER, Final decision: SP AusNet transmission determination 2008-09 to 2013-14, January 2008, pp. 173–4; AER, Draft decision: ElectraNet transmission determination 2008-09 to 2012-13, pp. 194–5. AER, Draft decision: TransGrid transmission determination 2009-10 to 2013-14, 31 October 2008, pp. 169–72; AER, Draft decision: Transend transmission determination 2009-10 to 2013-14, 21 November 2008, p. 216.

When Powerlink submitted its revenue proposal in May 2011, the most recent five years were 2006–10. Thus, the AER accepts the use of Powerlink's 2006–10 performance data for calculating the performance targets because this approach is consistent with the requirements of the STPIS.⁷⁴⁷ The AER also considers it important to adopt a consistent approach across both components of the STPIS. For these reasons, the AER has not updated Powerlink performance data in the final decision.

The AER also notes that an energy users group operating in Queensland and the EUAA considered the performance targets have been set too low.⁷⁴⁸ The energy users group compared the draft decision with the average of Powerlink's historic performance over the 2007–10 calendar years.⁷⁴⁹ The AER has assessed Powerlink's proposed performance targets against the requirements of the STPIS. The STPIS states that the AER must accept the proposed parameter values if they comply with the STPIS requirements.⁷⁵⁰ The AER considers its decision on Powerlink's performance targets is consistent with those requirements.

10.4 Revisions

The AER requires the following revisions to Powerlink's revised revenue proposal in relation to its STPIS parameter values.

Revision 10.1: The AER does not accept Powerlink's revised proposed performance targets, caps and collars for the transmission line availability and transformer availability subparameters. Table 10.1 sets out the AER's final decision on the parameter values that are to apply to Powerlink in the 2012–13 to 2016–17 regulatory control period.

Revision 10.2: The AER does not accept Powerlink revised proposed collar and cap for the moderate (>0.10 system minutes) loss of supply event frequency subparameter. Table 10.1 sets out the AER's final decision on the parameter values that are to apply to Powerlink in the 2012–13 to 2016–17 regulatory control period.

Revision 10.3: The AER does not accept Powerlink's revised proposed performance target for the market impact parameter. Table 10.1 sets out the AER's final decision on the parameter values to apply to Powerlink in the 2012–13 to 2016–17 regulatory control period.

⁷⁴⁷ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(g) and 4.2(d).

⁷⁴⁸ EUAA, Submission on the AER draft determination on Powerlink revenue proposal 2012 to 2017, February 2012, p. 35.

An energy consumers group operating in Queensland, Response to draft decision: AER 2011 review of Queensland electricity transmission, February 2012, p. 18.

⁷⁵⁰ AER, *Final—Electricity transmission network service providers, Service target performance incentive scheme,* March 2011, clause 3.3(a) and 4.2(a).

10.5 Performance incentive curves

Part 2 of Appendix B of the STPIS defines the parameters applicable to Powerlink under the service component during the 2012–13 to 2016–17 regulatory control period.⁷⁵¹

Figures 10.3 to 10.9 and tables 10.5 to 10.11 represents the scale of the financial penalty or reward (y-axis) resulting from Powerlink's performance (x-axis) against each of its parameters under the service component. Tables 10.5 to 10.11 show the set of linear equations represented in Figures 10.3 to 10.9.

In accordance with the STPIS, the s-factor result for each calendar year should be determined by the following formula:

$$S_{ct} = S_1 + S_2 + S_3 + S_4 + S_5 + S_6 + S_7$$

Where:

S _{ct}	=	the total service standard factor (s-factor)
ct	=	the time period/calendar year
S ₁	=	s-factor for peak transmission circuit availability
S ₂	=	s-factor for transmission line availability
S ₃	=	s-factor for transformer availability
S ₄	=	s-factor for reactive plant availability
S ₅	=	s-factor for loss of supply event frequency >0.10 system minutes
S ₆	=	s-factor for loss of supply event frequency >0.75 system minutes
S ₇	=	s-factor for average outage duration

⁷⁵¹ AER, *Final—electricity transmission network service providers, Service target performance incentive scheme,* March 2011, pp. 25–8.
Figure 10.3 Peak transmission circuit availability



Table 10.5 Peak transmission circuit availability

Performance formula	When
S1 = -0.001000	Availability < 98.31%
S1 = 0.222222 x Availability + -0.219467	98.31% ≤ Availability ≤ 98.76%
S1 = 0.227273 x Availability + –0.224455	98.76% ≤ Availability ≤ 99.20%
S1 = 0.001000	99.20% < Availability

Figure 10.4 Transmission line availability



Table 10.6 Transmission line availability

Performance formula	When
S2 = -0.001000	Availability < 97.60%
S2 = 0.086207 x Availability + -0.085138	97.60% ≤ Availability ≤ 98.76%
S2 = 0.086207 x Availability + -0.085138	98.76% ≤ Availability ≤ 99.92%
S2 = 0.001000	99.92% < Availability

Figure 10.5 Transformer availability





Performance formula	When
S3 = -0.001000	Availability < 98.27%
S3 = 0.204082 x Availability + -0.201551	98.27% ≤ Availability ≤ 98.76%
S3 = 0.208333 x Availability + -0.205750	98.76% ≤ Availability ≤ 99.24%
S3 = 0.001000	99.24% < Availability

Figure 10.6 Reactive plant availability



Table 10.8 Reactive plant availability

Performance formula	When
S4 = -0.001500	Availability < 94.45%
S4 = 0.055556 x Availability + -0.053972	94.45% ≤ Availability ≤ 97.15%
S4 = 0.055762 x Availability + -0.054173	97.15% ≤ Availability ≤ 99.84%
S4 = 0.001500	99.84% < Availability



Figure 10.7 Loss of supply event frequency >0.10 system minutes

Table 10.9 Loss of supply event frequency >0.10 system minutes

Performance formula	When
S5 = -0.001500	6 < No. of events
S5 = -0.000750 x No. of events + 0.003000	$4 \leq No. of events \leq 6$
S5 = -0.000750 x No. of events + 0.003000	$2 \leq No.$ of events ≤ 4
S5 = 0.001500	No. of events < 2





Table 10.10 Loss of supply event frequency >0.75 system minutes

Performance formula	When
S6 = -0.003000	2 < No. of events
S6 = -0.003000 x No. of events + 0.003000	$1 \leq No. of events \leq 2$
S6 = -0.003000 x No. of events + 0.003000	$0 \le No. of events \le 1$
S6 = 0.003000	No. of events = 0

Figure 10.9 Average outage duration



Table 10.11 Average outage duration

Performance Formulae	When
S7 = -0.001000	1306 < Duration
S7 = -0.000002 x Duration + 0.001922	859 ≤ Duration ≤ 1306
S7 = -0.000002 x Duration + 0.001922	412 \leq Duration \leq 859
S7 = 0.001000	Duration < 412
Source: AER analysis.	

11 Efficiency benefit sharing scheme

The AER is required to specify in this determination how it will apply the efficiency benefit sharing scheme (EBSS) to Powerlink.⁷⁵² The EBSS operates, in conjunction with the ex ante incentive framework, to provide TNSPs with a continuous incentive to reduce opex. It does this by allowing a TNSP to retain efficiency gains for five years before passing them to consumers.⁷⁵³ It also removes the incentive for a TNSP to overspend in the opex base year to receive a higher opex allowance in the following regulatory control period.

Further, under transitional provisions in the NER, Powerlink operated under the electricity transmission EBSS during the 2007–08 to 2011–12 regulatory control period.⁷⁵⁴ Powerlink will receive any increments or decrements accrued under the scheme in the 2012–13 to 2016–17 regulatory control period.⁷⁵⁵

11.1 Decision

The AER is not satisfied Powerlink's revised proposed EBSS carryover amounts in table 11.2, totalling -\$4.7 million (\$2011–12), from the application of the EBSS during the 2007–08 to 2011–12 regulatory control period comply with the requirements in the EBSS. It considers a carryover of -\$3.9 million (\$2011–12) complies with the requirements in the EBSS.

The AER will apply the electricity transmission EBSS to Powerlink in the 2012–13 to 2016–17 regulatory control period. To calculate EBSS carryover amounts, the AER will adjust total forecast opex using the method proposed by Powerlink in appendix Q to its revised revenue proposal if:

- actual demand growth is less that the summer low economic growth 50 per cent probability of exceedance demand forecasts from its Annual Planning Report 2011 Update and actual total asset value is less than forecast, or
- actual demand growth is greater that the summer high economic growth 50 per cent probability of exceedance demand forecasts from its Annual Planning Report 2011 Update and actual total asset value is greater than forecast.

The AER will exclude the cost categories listed in section 11.3.2 from forecast and actual opex for the calculation of EBSS carryover amounts. The calculation of carryover amounts under the EBSS should include all other opex costs relating to prescribed transmission services.

Table 11.1 shows the total controllable opex forecasts that the AER will use to calculate efficiency gains and losses for the 2012–13 to 2016–17 regulatory control period, subject to adjustments required by the EBSS.

⁷⁵² NER, clauses 6A.4.2(a)(6) and 6A.14.1(1)(iv).

 ⁷⁵³ AER, *Electricity transmission network service providers: Efficiency benefit sharing scheme*, September 2007, p. 6.

⁷⁵⁴ NER, clause 11.6.12(l).

⁷⁵⁵ NER, clauses 6A.5.4(a)(5) and 6A.5.4(b)(5).

Table 11.1 AER final decision on Powerlink's forecast controllable opex for EBSS purposes (\$million, 2011–12)

	2012–12	2013–14	2014–15	2015–16	2015–17	Total
Total forecast opex	174.7	181.4	186.0	192.9	198.5	933.5
Adjustment for debt raising costs	-3.4	-3.7	-3.9	-4.0	-4.1	-19.1
Adjustment for insurances	-8.5	-9.1	-9.8	-10.3	-11.0	-48.7
Adjustment for network support costs	-	-	-	-	-	-
Forecast opex for EBSS purposes	162.7	168.6	172.3	178.7	183.4	865.8

Note: Amounts are expressed in mid year terms. Because all post tax revenue model inputs are in end of year terms these amounts are escalated by a half year of inflation prior to entering in the post tax revenue model.
 Source: AER analysis.

11.2 Assessment approach

The AER has assessed Powerlink's revised revenue proposal using the same approach as used for its initial proposal, which is outlined in the AER's draft decision.⁷⁵⁶

11.3 Reasons

The AER is required to specify in this draft decision how it will apply the efficiency benefit sharing scheme (EBSS) to Powerlink.⁷⁵⁷ Two important aspects of the EBSS that need to be specified by the AER in this draft decision are:

- the method to be used to adjust forecast opex for the cost consequences of the difference between forecast and actual demand growth over the 2012–13 to 2016–17 regulatory control period⁷⁵⁸
- cost categories to be excluded from the EBSS that are uncontrollable or would adversely impact the operation of the scheme.⁷⁵⁹

The AER must also determine the revenue increments or decrements that have arisen from the application of the EBSS during the 2007–08 to 2011–12 regulatory control period.⁷⁶⁰

11.3.1 Demand growth adjustment

To calculate carryover amounts, the EBSS requires adjustment of Powerlink's forecast opex for the cost consequences of any differences between forecast and actual demand growth over the regulatory control period. These adjustments must be made using the same

AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 303.

⁷⁵⁷ NER, clauses 6A.4.2(a)(6) and 6A.14.1(1)(iv).

⁷⁵⁸ AER, *Electricity transmission network service providers: Efficiency benefit sharing scheme*, September 2007, p. 7.

⁷⁵⁹ AER, *Electricity transmission network service providers: Efficiency benefit sharing scheme*, September 2007, p. 7.

⁷⁶⁰ NER, clauses 6A.5.4(a)(5) and 6A.5.4(b)(5).

relationship between growth and expenditure used in establishing the forecast opex.⁷⁶¹ This approach ensures Powerlink is not rewarded (or penalised) for cost decreases (increases) due to network growth factors beyond its control.

Powerlink proposed in its revised revenue proposal that the trigger for adjusting forecast opex for any difference between forecast and actual demand should be an exogenous one, consistent with the AER's draft decision.⁷⁶² However, Powerlink proposed that the upper threshold for adjustment should be its high demand growth scenario, not the medium demand growth scenario determined by the AER in its draft decision.⁷⁶³ When an update for actual demand growth is required, Powerlink proposed the opex model be updated using the actual change in total asset values to determine forecast opex for the purposes of the EBSS.⁷⁶⁴

The method for adjusting the EBSS for actual demand growth proposed by Powerlink would provide it a continuous incentive to reduce opex since the trigger is an exogenous factor and there would be no link between actual and forecast opex in the EBSS. However, the proposed method could result in the perverse outcome where actual demand is less (greater) than forecast yet forecast opex is increased (decreased). Consequently the AER considers that the method proposed by Powerlink (in appendix Q to its revised revenue proposal) should only be applied if:

- actual demand growth is less that the summer low economic growth 50 per cent probability of exceedance demand forecasts from its Annual Planning Report 2011 Update and total asset values are less than forecast, or
- actual demand growth is greater that the summer high economic growth 50 per cent probability of exceedance demand forecasts from its Annual Planning Report 2011 Update and total asset values are greater than forecast.

11.3.2 Excluded cost categories

The EBSS allows TNSPs to propose uncontrollable cost categories to be excluded from its operation. A TNSP is thus not rewarded (or penalised) for cost decreases (increases) over which it has limited control. TNSPs must propose cost categories for exclusion in their revenue proposal before the commencement of the regulatory control period during which the EBSS will be applied.⁷⁶⁵

The AER will exclude the following cost categories from the EBSS for calculating EBSS carryovers, consistent with its draft decision and Powerlink's revised revenue proposal:⁷⁶⁶

- debt raising costs
- network support costs

⁷⁶¹ AER, *Electricity transmission network service providers: Efficiency benefit sharing scheme*, September 2007, p. 7.

⁷⁶² Powerlink, *Revised revenue proposal*, 16 January 2012, p. 173.

⁷⁶³ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 173.

⁷⁶⁴ Powerlink, *Revised revenue proposal*, Appendix Q, 16 January 2012, p. 3.

⁷⁶⁵ AER, *Electricity transmission network service providers: Efficiency benefit sharing scheme*, September 2007, p. 7.

 ⁷⁶⁶ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, p. 306; Powerlink, Revised revenue proposal, 16 January 2012, pp. 173–174.

- insurance costs
- self insurance costs.

These costs will be excluded in addition to the adjustments set out in section 2.4.2 of the EBSS, which exclude the cost of recognised pass through events.

Powerlink stated, however, that it did not agree with the AER's draft decision that movements in provisions should also be excluded from the operation of the EBSS for the 2012–13 to 2016–17 regulatory control period. Powerlink considered the provisions in its financial statements to be controllable costs and therefore, there was no basis for excluding these costs from the EBSS.⁷⁶⁷ Similarly, Powerlink did not remove movements in provisions from its base year expenditure to forecast opex in its revised revenue proposal.⁷⁶⁸

As discussed in the draft decision, the EBSS requires the AER to measure actual opex using the same cost categories and methodology as those the used to calculate the forecast opex for the same regulatory control period. The AER removed movements in provisions from Powerlink's base year expenditure to determine Powerlink's forecast opex in the draft decision. Therefore the AER also determined that any movements in provisions in Powerlink's actual opex during the 2012–13 to 2016–17 regulatory control period should be excluded from the calculation of EBSS carryovers consistent with section 2.4.2 of the EBSS.⁷⁶⁹ Consistent with its draft decision (attachment 4). Therefore, to meet the requirements of the EBSS, movements in provisions should also be removed from the actual opex used to determine EBSS carryovers accrued during the 2012–13 to 2016–17 regulatory control period.

11.3.3 Rewards and penalties accrued during the 2007–08 to 2011–12 regulatory control period

In accordance with transitional provisions in the NER, Powerlink has been subject to the electricity transmission EBSS during the 2007–08 to 2011–12 regulatory control period.⁷⁷⁰ Powerlink will receive the increments or decrements accrued under the scheme in the 2012–13 to 2016–17 regulatory control period.⁷⁷¹ The AER is not satisfied Powerlink's proposed EBSS carryovers comply with the scheme. Table 11.2 outlines the increments and decrements included as building blocks in the determination of Powerlink's annual revenue requirement.⁷⁷²

⁷⁶⁷ Powerlink, *Revised revenue proposal*, 16 January 2012, p. 174.

Powerlink, *Revised revenue proposal*, 16 January 2012, pp. 136–139.

⁷⁶⁹ AER, Draft decision: Powerlink transmission determination 2012–13 to 2016–17, November 2011, pp. 306–307.

⁷⁷⁰ NER, clause 11.6.12(I)

⁷⁷¹ NER, clauses 6A.5.4(a)(5) and 6A.5.4(b)(5).

⁷⁷² NER, clauses 6A.5.4(a)(5) and 6A.5.4(b)(5).

Table 11.2AER final decision on EBSS carryover amounts for 2007–08 to 2011–12regulatory control period (\$million, 2011–12)

	2012–12	2013–14	2014–15	2015–16	2015–17	Total
Powerlink revised revenue proposal	-1.2	-0.7	-3.4	0.5	_	-4.7
AER conclusion	-2.6	-0.7	-2.8	2.1	-	-3.9

Source: Powerlink, Revised revenue proposal, p. 172; AER analysis.

The EBSS allows uncontrollable cost categories to be excluded from its operation. Powerlink excluded the following cost categories from the calculation of EBSS carryover amounts in its revised revenue proposal, consistent with the AER's draft decision:

- debt raising costs
- equity raising costs
- network support costs
- insurance costs
- self insurance costs.⁷⁷³

Similarly, consistent with Powerlinks initial proposal and the AER's draft decision, Powerlink did not adjust forecast opex amounts in the EBSS for outturn demand growth.⁷⁷⁴

However, Powerlink disagreed with the AER's adjustment to its actual opex for movements in provisions. It considered that these costs were controllable and should not be excluded from the EBSS.⁷⁷⁵ Further, Powerlink argued it was unreasonable for the AER to retrospectively exclude costs from the EBSS for the 2007–08 to 2011–12 regulatory control period. It considered the AER made an ex post adjustment to an ex ante incentive scheme in a way that was not known to Powerlink at the start of the regulatory period.⁷⁷⁶

The EBSS is an ex ante incentive scheme. Thus the way in which it will be applied, including the costs to be excluded, should be determined at the beginning of the regulatory control period. However, the EBSS was applied to Powerlink during the 2007–08 to 2011–12 regulatory control period under transitional rules.⁷⁷⁷ These transitional rules required the EBSS to be applied to Powerlink despite the fact that the EBSS was not published until after the AER made its final determination. Consequently the AER's final determination for the 2007–08 to 2011–12 regulatory control period did not list any excluded cost categories.

Despite this, the AER recognises the excluded costs proposed by Powerlink have been excluded from the EBSS for those TNSPs operating under the final transmission EBSS.⁷⁷⁸

Powerlink, *Revised revenue proposal*, 16 January 2012, p. 171.

Powerlink, *Revised revenue proposal*, 16 January 2012, p. 171.

Powerlink, *Revised revenue proposal*, 16 January 2012, p. 171.

Powerlink, *Revised revenue proposal*, 16 January 2012, p. 171.

⁷⁷⁷ NER, clause 11.6.12(l).

AER, Final decision: Transend transmission determination 2009–10 to 2013–14, 28 April 2009, p.123. AER, Final decision: TransGrid transmission determination 2009–10 to 2013–14, 28 April 2009, p. 102.

Further, in developing and implementing the EBSS, the AER must have regard to the desirability of both rewarding TNSPs for efficiency gains and penalising TNSPs for efficiency losses.⁷⁷⁹ To achieve this, costs that have been excluded from the base opex used to forecast opex for the 2012–13 to 2016–17 regulatory control period should also be excluded from the actual opex values used to determine carryover amounts accrued in the 2007–08 to 2011–12 regulatory control period. Given the AER has excluded movements in provisions from Powerlink's opex forecast it maintains these movements should also be excluded from the scheme for the 2007–08 to 2011–12 regulatory control period. However, it notes that in doing so for the draft decision it allocated the whole movement in provisions to opex. Powerlink have since advised that a proportion of these movements should be allocated to capex and unregulated services. Consequently, for this final decision the AER has only excluded a proportion of movements in provisions based on the allocations provided by Powerlink.⁷⁸⁰

11.4 Revisions

Revision 11.1: The AER will use the opex forecasts in table 11.1 to calculate EBSS carryovers, subject to other adjustments required by the EBSS.

Revision 11.2: Table 11.2 outlines the increments and decrements included as building blocks in the determination of Powerlink's annual revenue requirement.

SP AusNet, Vencorp and Electranet operate under the first proposed transmission EBSS, which does not allow for defined uncontrollable costs to be excluded.

⁷⁷⁹ NER, clause 6A.6.5(b)(2).

⁷⁸⁰ Powerlink, Response—Followup—Request AER/066—Provisions and base year opex, Email, 4 April 2012.

12 Contingent projects

The AER must determine whether Powerlink's proposed contingent projects meet the NER contingent project criteria set out in clause 6A.8.1. The AER must also determine whether the trigger event for each contingent project is appropriate.

If the trigger event occurs during the regulatory control period then the AER will separately assess the contingent project's costs upon application by Powerlink. To this extent, Powerlink will submit a forecast of the total capital expenditure, incremental operating expenditure and estimated incremental revenue, which the AER will assess. However the trigger event must be described in such terms that the occurrence of that event or condition is all that is required for the revenue determination to be amended. Therefore it is important that the trigger event be adequately defined and that the proposed contingent capital expenditure reasonably reflects the capital expenditure criteria.

12.1 Decision

Contingent projects approved

The AER upholds its draft decision which accepted the scope and indicative cost of seven⁷⁸¹ proposed contingent projects, but revised the project trigger event definition. These projects and indicative costs (\$million, 2011–12)⁷⁸² were:

- Galilee Basin connection shared network works, \$88.4 million
- Moranbah area \$54.9 million
- Bowen industrial estate \$80.7 million
- Callide to Moura transmission line and Calvale transformer \$50.8 million
- Gladstone state development area \$115.7 million
- Ebenezer establishment \$62.7 million
- QNI upgrade, \$60.6 million

The AER accepts two projects (proposed by Powerlink as contingent projects) that were previously rejected by the AER in its draft decision. These projects and indicative costs (\$million, 2011–12) are:

- Western Downs to Columboola 275kV 3rd circuit, \$59.5 million
- Columboola to Wandoan South 275kV 3rd circuit \$63.3 million

⁷⁸¹ AER, *Draft decision: Powerlink transmission determination 2012–13 to 2016–17*, November 2011, p. 310 says eight projects were accepted however this was an error as there was only seven.

⁷⁸² Unless otherwise stated, all monetary amounts expressed in this attachment are in 2011-12 dollars in mid year terms.

The AER finds that three projects (proposed by Powerlink for inclusion in its ex ante allowance in its revised revenue proposal) be included as contingent projects. These projects and indicative costs (\$million, 2011–12) are:

- Halys to Blackwall 500kV operating at 275kV increment \$149 million
- Halys to Western Downs, 3rd and 4th circuits, 500kV operating at 275kV \$261 million ⁷⁸³
- Halys to Greenbank, 3rd and 4th circuits, 500kV operating at 275kV \$149 million

Contingent projects not approved in final decision

The AER upholds its draft decision which did not accept the scope and indicative cost of four proposed contingent projects nor the project trigger event definition. These projects and indicative costs (\$million, 2011–12) are:

- FNQ 275kV energisation \$87.9 million
- N–2 security to essential loads (CBD) \$114.9 million
- Mt Isa connection shared network works \$74.4 million
- NEMLink Queensland \$788.0 million

The AER does not accept the following contingent projects that Powerlink submitted in its revised revenue proposal but did not propose in its initial revenue proposal. They are not approved on the basis of NER clause 6A 12.3(b):

- A "confidential" contingent project
- The Moranbah area contingent project (approved in the draft decision \$54.9 million) split into two separate projects: north (\$43.6 million) and south (\$51.1 million)

12.2 Reasons

Contingent projects approved

The approved contingent projects and indicative costs are set out in table 12.1. The AER has amended some trigger events, such that the AER is satisfied that trigger event is appropriate for the purposes of NER 6A.8.1(b)(4).

Powerlink's revised demand forecast deferred capex on the fourth 500kV project—Western Downs to Halys 5th–6th circuits—until after the 2012–13 to 2016–17 regulatory control period. It therefore is not part of the AER's final decision.

Project	Indicative cost
	(\$million, 2011–12)
Western Downs to Columboola 275kV 3rd circuit	59.5
Columboola to Wandoan South 275kV 3rd circuit	63.3
Galilee Basin connection shared network works	88.4
Moranbah area	54.9
Bowen industrial estate	80.7
Callide to Moura transmission line and Calvale transformer	50.8
Gladstone State Development Area	115.7
Ebenezer 330/275/110kV establishment	62.7
QNI upgrade - Queensland	60.6
500kV projects: Halys–Blackwall [increment]*	148.9
500kV projects: Halys–Greenbank*	149.2
500kV projects: Halys–Western Downs 3rd and 4th circuits	261.4
Total	1221.0

Table 12.1 Approved contingent projects and indicative costs (\$million, 2011–12)

Source: Powerlink revised revenue proposal chapter 8 and AER analysis *the 500kV projects are discussed in attachment 3.3.2.

Contingent projects not approved

The AER did not accept six proposed contingent projects as contingent project for the reasons set out in table 12.2.

Project	Reason the project was not approved	Indicative cost (\$million, 2011–12)
NEMLink	The project was rejected in the draft decision because the AER considers that the occurrence of the relevant trigger event is not probable in the 2012–13 to 2016–17 regulatory control period Powerlink agreed in its revised revenue proposal	788.0
Mt Isa shared network works	The project was rejected in the draft decision because the AER considers that the occurrence of the relevant trigger event is not probable in the 2012–13 to 2016–17 regulatory control period Powerlink agreed in its revised revenue proposal	74.4
FNQ energisation	This project does not reasonably reflect the capital expenditure objectives 6A 6.7.(a) (3) and (4) for the reasons discussed in section 12.4.3	87.9
N-2 security to essential loads	This project does not reasonably reflect the capital expenditure objectives 6A 6.7.(a) (3) and (4) for the reasons discussed in section 12.4.3	114.9
Confidential contingent project	Powerlink's first raised the project in its revised revenue proposal. Clause 6A 12.3 (b) prevents Powerlink from raising this project as part of its revised revenue proposal.	42.2
Moranbah north/south	The AERs draft decision was to accept the project indicative costs and scope of the Moranbah project (\$54.9 million) as submitted by Powerlink but with an amended trigger event. Therefore the only revision required (that is, open matter) was the trigger event, not the scope or indicative costs.	North 43.6 + South 51.1 (note: Moranbah area \$54.9)
	Powerlink subsequently (in its revised revenue proposal) proposed the project be split into two distinct projects including a cost and scope increase. Clause 6A 12.3 (b) prevents Powerlink from proposing to split the project as part of its revised revenue proposal because a TNSP may only make the revisions so as to incorporate the substance of any changes required by, or to address matters raised in, the draft decision.	

Table 12.2Contingentprojectsandindicativecostsnotapproved(\$million, 2011–12)

Source: Powerlink revised revenue proposal chapter 8 and AER analysis.

12.3 Trigger events

The AER has amended some trigger events. The AER is satisfied that the trigger events in relation to the proposed contingent projects set out in table 12.3 meet the NER clause 6A.8.1(b)(4).

Project	Revised trigger event
Western Downs to Columboola	 Commitment for net demand in the Surat area to exceed 850MW; and
circuit	 That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
	That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above; and
	That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
	 The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
	Powerlink has made a reasonable endeavour (as permitted by clause 6.3 of the Transmission Authority) to negotiate a reduction in the obligations imposed on Powerlink by clause 6.2 of the Transmission Authority and
	As required by Section 5.4A of the Rules, Powerlink has made an offer of compensation to those persons who receive, or wish to receive, transmission services.
Columboola to Wandoan South	 Commitment for net demand supplied from Wandoan South to exceed 850MW; and
circuit	That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
	 That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above; and
	 That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
	 The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
	Powerlink has made a reasonable endeavour (as permitted by clause 6.3 of the Transmission Authority) to negotiate a reduction in the obligations imposed on Powerlink by clause 6.2 of the Transmission Authority and

Table 12.3 Contingent project trigger events

	•	As required by Section 5.4A of the Rules, Powerlink has made an offer of compensation to those persons who receive, or wish to receive, transmission services.
Galilee Basin connection shared network works	•	Commitment of additional load in excess of 175MW to be connected to Lilyvale 275kV Substation; and
	•	That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
	•	That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above; and
	•	That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
	•	The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
	•	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
	•	Powerlink has made a reasonable endeavour (as permitted by clause 6.3 of the Transmission Authority) to negotiate a reduction in the obligations imposed on Powerlink by clause 6.2 of the Transmission Authority and
	•	As required by Section 5.4A of the Rules, Powerlink has made an offer of compensation to those persons who receive, or wish to receive, transmission services.
Moranbah area	•	Triggered by net load in excess of 870MW to be connected in to the Northern Bowen Basin North Zone which consists of the following areas North of Moranbah, Moranbah, South of Moranbah and Nebo; and
	•	That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
	•	That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above; and
	•	That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
	•	The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
	•	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
	•	Powerlink has made a reasonable endeavour (as permitted by clause 6.3 of the Transmission Authority) to negotiate a reduction in the obligations imposed on Powerlink by clause 6.2 of the

	Transmission Authority andAs required by Section 5.4A of the Rules, Powerlink made an offer
	of compensation to those persons who receive, or wish to receive, transmission services.
Bowen industrial estate	 Commitment for additional load increasing demand supplied from the Strathmore – Bowen North 132kV feeders to in excess of 215MW; and
	That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
	That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above; and
	 That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
	 The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
	Powerlink has made a reasonable endeavour (as permitted by clause 6.3 of the Transmission Authority) to negotiate a reduction in the obligations imposed on Powerlink by clause 6.2 of the Transmission Authority and
	As required by Section 5.4A of the Rules, Powerlink has made an offer of compensation to those persons who receive, or wish to receive, transmission services.
Callide to Moura transmission	 Commitment of additional load increasing demand supplied from the 132kV network to Moura to in excess of 80MW; and
line and Calvale transformer	That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
	That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above; and
	That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
	 The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
	Powerlink has made a reasonable endeavour (as permitted by clause 6.3 of the Transmission Authority) to negotiate a reduction in

	the obligations imposed on Dewarlink by device 6.2 of the
	Transmission Authority and
•	As required by Section 5.4A of the Rules, Powerlink has made an offer of compensation to those persons who receive, or wish to receive, transmission services.
Gladstone State Development Area	Commitment of additional load in excess of 575MW (above 2010 APR medium outlook forecast levels in summer 2016/17) within the GSDA and/or Curtis Island; and
•	That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
•	That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above.
•	That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
•	The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
•	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
•	Powerlink has made a reasonable endeavour (as permitted by clause 6.3 of the Transmission Authority) to negotiate a reduction in the obligations imposed on Powerlink by clause 6.2 of the Transmission Authority and
-	As required by Section 5.4A of the Rules, Powerlink has made an offer of compensation to those persons who receive, or wish to receive, transmission services.
Ebenezer 330/275/110kV	Commitment of load in excess of 125MW around the Ebenezer area; and
	That the additional load will lead to an N-1 overload, or a reduction in transfer capacity resulting in an N-1 overload condition; and
•	That Powerlink has completed a RIT-T assessment recommending that augmentation of the shared network be undertaken to address the N-1 overload conditions identified above; and
•	That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report; and
•	The connection agreement includes financial commitment by all customers affected by the net load increase at the connection point(s); and
•	That any connection is consistent with Section 5.4A of the Rules and Powerlink provides evidence that:
•	Powerlink has made a reasonable endeavour (as permitted by

	 clause 6.3 of the Transmission Authority) to negotiate a reduction in the obligations imposed on Powerlink by clause 6.2 of the Transmission Authority and As required by Section 5.4A of the Rules, Powerlink has made an offer of compensation to those persons who receive, or wish to receive, transmission services.
QNI upgrade - Queensland component	 AEMO's publication of advice that in its view further QNI augmentation studies (jointly by TransGrid and Powerlink) are required; and The successful joint application of the RIT-T by Powerlink and TransGrid concluding that a network solution maximises the net economic benefit under the RIT-T, compared to all other credible options across a range of reasonable scenarios is viable based on the principles and methodology of the RIT-T; and The financial commitment by the Powerlink and TransGrid Boards to undertake the project; and
	That Powerlink has, as required under the RIT-T assessment, considered available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report.
500kV projects: Halys– Blackwall [increment]	 For the 500kV increment component: Powerflow analysis taking into account scenarios of future generation development demonstrates forecast peak loadings on transmission circuits operated at 275kV will exceed voltage stability and/or thermal capacity limits If this expenditure is justified as a Prescribed Service, the completion of an NER compliance RIT-T demonstrating the need for and lowest cost of the 500kV incremental expenditure
500kV projects: Halys– Greenbank	 Powerflow analysis taking into account scenarios of future generation development demonstrates that forecast peak loadings on transmission circuits operated at 275kV will exceed voltage stability and/or thermal capacity limits If this expenditure is justified as a Prescribed Service, the completion of an NER compliance RIT-T demonstrating the need for and lowest cost of the 500kV expenditure
500kV projects: Halys–Western Downs 3rd and 4th circuits	 Powerflow analysis taking into account scenarios of future generation development demonstrates that forecast peak loadings on transmission circuits operated at 275kV will exceed voltage stability and/or thermal capacity limits If this expenditure is justified as a Prescribed Service, the completion of an NER compliance RIT-T demonstrating the need for and lowest cost of the 500kV expenditure

Source: Powerlink revised revenue proposal chapter 8 and AER analysis

12.4 Other considerations

12.4.1 Network support for deferred contingent projects

The draft decision included a number of safeguards in the description of the contingent project trigger events that relate to negotiated connection outcomes and these have been upheld in the AER's final decision. It is important that the trigger event be described in such terms that the occurrence of that event or condition is all that is required for the revenue determination to be amended.⁷⁸⁴ Powerlink's revised revenue proposal submitted that:

the existing regulatory safeguards that are in place will provide the level of security the AER is seeking. Consequently, the AER's proposed trigger conditions are not necessary...^{785}

The AER considers the safeguard elements of the trigger event important to ensuring that the trigger event meets the capital expenditure objectives and factors.⁷⁸⁶

Part of the trigger events described by the AER is a requirement that suitable non-network alternatives have been sought (but not implemented). Demonstrating the unavailability of feasible non-network alternatives thus makes the undertaking of the proposed augmentation reasonably necessary in order to achieve any of the capital expenditure objectives. The AER has retained these elements of the trigger events to provide the appropriate balance between incentives for investment and efficiency.

In its revised revenue proposal Powerlink sought to include 'any network support costs relevant to an approved contingent project':

Powerlink notes that any grid support relevant to a contingent project will not be incorporated into the Maximum Allowable Revenue (MAR) for Powerlink's 2013–17 revenue cap. However, from a practical perspective, such costs may be required as a substitute for, or in addition to, the capital expenditure that may be required for the contingent project. Powerlink also notes that the contingent project provisions in the Rules provide for incremental operating expenditure to be sought by the TNSP in the event a contingent project trigger is activated. It is unclear in the Rules however, as to whether such costs can also include network support.

To this end, Powerlink seeks confirmation from the AER in its Final Decision that any network support costs relevant to an approved contingent project can be treated as a pass-through by Powerlink in its 2013–17 regulatory period. Powerlink notes that such a requirement is necessary in relation to all of its proposed contingent projects.⁷⁸⁷

As such, Powerlink, in its revised revenue proposal, added a clause in all of its trigger events to reflect its concerns regarding network support cost pass through events:

That where Powerlink is successful in finding non-network solutions requiring compensation, Powerlink can seek pass-through of such cost in accordance with NER 6A.7.2

⁷⁸⁴ NER, clause 6A.8.1(c)(4).

Powerlink, *Revised revenue proposal*, 16 January 2012, p.119.

⁷⁸⁶ NER, clause 6A.8.1(c)(2).

⁷⁸⁷ Powerlink, *Revised revenue proposal*, 16 January 2012, p.120.

In determining whether a trigger event in relation to a proposed contingent project is appropriate, the AER must have regard to the need for the factors set out in 6A.8.1(c).(2). Specifically, the trigger event must be a condition or event which, if it occurs, makes the undertaking of the proposed contingent project reasonably necessary in order to achieve any of the capital expenditure objectives. The demonstration of the inability of feasible non-network options satisfies this condition (because it demonstrates that the undertaking of the proposed contingent project is reasonably necessary). However, the pass-through clause added by Powerlink (above) relates to regulatory process and does not. Therefore the AER has upheld the trigger event described in the draft decision and not included Powerlink's clause in the trigger event definition.

While the AER has not amended the trigger event to this effect, it notes that, if a contingent project is triggered the AER will assess it and/or any network support pass through application in accordance with the NER. The AER recognises that—in the event that a contingent project is triggered but a grid support arrangement is in put place that has the effect of deferring the contingent project augmentation— then a TNSP could apply to recover operating expenditure in the context of a network support pass through.

12.4.2 Additional projects accepted as contingent projects

The draft decision did not accept the Western Downs to Columboola or Columboola to Wandoan South proposed contingent projects because the AER did not consider the occurrence of the projects' trigger events *probable* in the 2012–13 to 2016–17 regulatory control period. These projects are projects driven by commitment of specific load/generation at a specific point (Surat Basin).

In response to the draft decision, Powerlink provided (in confidence) details of customer activities for these projects including: commitments, offers to connect, applications to connect and connection enquiries. Industry submissions on the draft decision stated that significant industrial development in the Surat Basin during the 2012–13 to 2016–17 regulatory control period is likely.⁷⁸⁸

As such, the AER accepts that the occurrence of the trigger events for the Surat Basin contingent projects are probable during the 2012–13 to 2016–17 regulatory control period. Therefore, the AER has included these as contingent projects.

In response to AEMO's submission (12 September 2011) Powerlink confirmed that these projects are not generation driven. The AER accepts Powerlink's response. The AER has therefore reflected Powerlink's submission that these network augmentation projects are not generation driven by removing the reference to "net generation export from the Surat area" in the amended trigger event.

The AER has included three projects as contingent projects that Powerlink proposed for inclusion in its ex ante allowance (relating to the 500kV network development). The issues considered by the AER in this decision are discussed in section 3.3.2.

⁷⁸⁸ Submissions: Australia Pacific LNG Pty Limited, Queensland Resources Council, Xstrata Coal, Hancock Coal Pty Ltd

12.4.3 Projects driven by changes to reliability standards

The AER has upheld its draft decision not to accept the N-2 security to essential loads (CBD) and Far North Queensland 275kV energisation projects as contingent projects. The AER is not satisfied that the proposed contingent capital expenditure meets the capital expenditure criteria for two reasons:

Firstly, the AER must be satisfied that the proposed contingent capital expenditure reasonably reflects the capital expenditure criteria, having regard to the capital expenditure factors. The capital expenditure objectives require the capital expenditure to be necessary to: *maintain* the reliability, safety and security of the transmission system.⁷⁸⁹ Powerlink propose the trigger event to be a change to its mandated reliability standards via a change to its Transmission Authority by the designated Minister. If such an event occurs, then the proposed capital expenditure for the project is required to address an *increase* to the reliability, safety and security of the transmission system. The reliability standards and the like are more effectively addressed through the pass through provision in NER clause 6A 7.3. The draft decision set out that Powerlink should consider proposal sought only to propose them as contingent projects.

Secondly, the trigger event must be an event or condition, the occurrence of which is probable during the 2012–13 to 2016–17 regulatory control period⁷⁹⁰. In its draft decision the AER considered the occurrence of such a change to Powerlink's mandated reliability standards improbable in the 2012–13 to 2016–17 regulatory control period. In response to this Powerlink submitted that the possibility exists because the AEMC's national review of transmission reliability standards has been underway for some years. The AER notes that the possibility exists, although the Standing Council on Energy and Resources (previously Ministerial Council on Energy) is yet to finalise its policy position in relation to the AEMC's Transmission Reliability Standards Review. However, the AER's draft decision considered it unlikely that Powerlink's mandated reliability standards could be amended in the future and Powerlink has not provided any contrary evidence. As a result, the AER still considers that the occurrence of the proposed trigger event is not probable.

However, even if the trigger event does occur, the other points remain:

- the AER considers that the expenditure does not reasonably reflect the capital expenditure criteria; and
- Powerlink might be able to recover these costs through the NER's regulatory pass through provisions.

If Powerlink's transmission authority is changed during the 2012–13 to 2016–17 regulatory control period (such that the reliability standards are amended) then the AER would consider such an application from Powerlink through the process outlined in NER clause 6A 7.3.

⁷⁸⁹ NER, clause 6A.6.7(a)(4).

⁷⁹⁰ NER, clause 6A.6.7(a)(3) and (4).

12.4.4 New proposed contingent projects

Confidential project

Powerlink's revised revenue proposal identified a new contingent project not previously proposed. Powerlink claimed confidentiality on this project because the information identifies sensitive preliminary network planning scenarios.

Clause 6A.12.3(b) provides that a TNSP may only make revisions to its revenue proposal so as to incorporate the substance of any changes required by, or to address matters raised in, the draft decision.

As Powerlink did not propose this project in its initial revenue proposal (May 2011) the draft decision did not consider it at all. As a result, the draft decision did not require any changes or raise any matters relating to this project. As there is no relevant change/issue for Powerlink's proposal to address, it's revised proposal is beyond what cl. 6A.12.3(b) allows.

Moranbah area project

In its draft decision, the AER accepted this contingent project including the indicative project cost and scope. However, the draft decision required changes to the trigger event for the project. Powerlink's revised revenue proposal proposed that the Moranbah contingent project be split into two distinct projects. The total cost of the project(s) increases from \$54.8 million (\$2011–12) to \$94.7 million (\$2011–12).

As with the confidential contingent project, clause 6A.12.3(b) provides that a TNSP may only make revisions to its revenue proposal so as to incorporate the substance of any changes required by, or to address matters raised in, the draft decision.

The draft decision did not require any changes or raise any matters relating to this project, other than those relating to the trigger event. As a result, Powerlink's revised proposal could only propose revisions to the trigger event, not the scope or indicative cost of the capital expenditure. The remainder of Powerlink's revised proposal (which is a change of scope and costs) is beyond what cl. 6A.12.3(b) allows.

Powerlink's proposed changes to the trigger event do not relate to the Moranbah area project described in the revenue proposal or the draft decision but instead relate to two "new" projects Moranbah north and Moranbah south. The AER notes that the new proposed trigger events (north and south) are significantly lower hurdles (individually and collectively) than the original proposed trigger event:

- The original trigger event (of Powerlink's revenue proposal) was for commitment in excess of 870MW at the Peak Downs North substation leading to an overload of the Nebo–Kemmis and Nebo–Moranbah circuits under N-1 conditions.
- The revised trigger event for the south project requires an additional load connecting between Moranbah and Lilyvale increasing peak demand to in excess of 150MW.
- The revised trigger event for the north project requires an additional load connecting between Moranbah and Collinsville increasing peak demand to in excess of 190MW and resulting in an overload of the Moranbah to Goonyella circuits.

Powerlink did not address the trigger event described in the draft decision as it referred only to the updated proposed contingent projects (i.e. north and south). Powerlink cites the reason that the project has been split is that it has continued to receive enquiries and applications to connect in the area. However, these points do not change the requirements of cl. 6A.12.3(b). Consequently the AER has upheld the trigger event from the draft decision. In any case the AER does not agree that enquiries subsequent to the lodgement of the draft decision constitute a reason to revise the trigger event.

12.5 Revisions

Revision 12.1: The contingent projects described in table 12.1 are approved.

Revision 12.2: The contingent project triggers set out in table 12.3 are approved.

13 Negotiated services and pricing methodology

The AER's transmission determination imposes control over revenues that a TNSP can recover from the provision of prescribed transmission services. Negotiated transmission services do not have their terms and conditions determined by the AER. Under the NER, these services are subject to negotiation between parties, or alternatively arbitration and dispute resolution by a commercial arbitrator. These processes are facilitated through two instruments:

- a negotiating framework
- a negotiating transmission service criteria (NTSC).

A negotiating framework sets out procedures to be followed when negotiating terms and conditions of access for a negotiated transmission service.⁷⁹¹

A NTSC sets out the criteria that a TNSP will apply in negotiating terms and conditions of access to its network, including the prices and access charges for negotiated transmission services.⁷⁹² It also sets out the criteria that a commercial arbitrator will apply in resolving disputes about terms and conditions of access for negotiated transmission services.⁷⁹³

A pricing methodology describes a methodology, formula, process or approaches that a TNSP uses to allocate the aggregate annual revenue requirement (AARR) to those categories of prescribed transmission services provided by the TNSP and to transmission network connection points of network users. The methodology also determines the structure of the tariffs that a TNSP may charge for each of the categories of prescribed transmission services.

The AER is required to make a determination relating to Powerlink's negotiating framework⁷⁹⁴, the NTSC⁷⁹⁵ and Powerlink's pricing methodology⁷⁹⁶ that are to apply to Powerlink in the 2012–13 to 2016–17 regulatory control period.⁷⁹⁷ This attachment sets out the AER's considerations and conclusions on Powerlink's negotiating framework, the NTSC and Powerlink's pricing methodology.

13.1 Decision

The AER approves Powerlink's revised proposed Negotiating Framework.⁷⁹⁸ Powerlink's revised proposed negotiating framework has incorporated changes set out in the AER's draft decision which the AER considered necessary to meet the requirements of the NER. The

⁷⁹¹ NER, clause 6A.9.5(a).

⁷⁹² NER, clause 6A.9.4(a)(1).

⁷⁹³ NER, clause 6A.9.4(a)(2).

⁷⁹⁴ NER, clause 6A.2.2(2).

⁷⁹⁵ NER, clause 6A.9.4.

⁷⁹⁶ NER, clause 6A.23.

⁷⁹⁷ NER, clause 6A.2.2(3).

⁷⁹⁸ Powerlink, Revised revenue proposal: Appendix R- Negotiating Framework for Negotiated transmission Services, January 2012, available from www.aer.gov.au/content/index.phtml/itemId/752073.

AER is therefore satisfied that Powerlink's revised proposed negotiating framework meets the requirements set out in clause 6A.9.5(c) of the NER.

Powerlink agreed with the NTSC specified in section 14.6 of the draft decision. The AER did not receive any stakeholder submissions on the NTSC. Therefore, the AER affirms that the NTSC specified in section 14.6 of the draft decision is the final decision for the 2012–13 to 2016–17 regulatory control period.

The AER approves Powerlink's proposed pricing methodology.⁷⁹⁹ The draft decision approved Powerlink's proposed pricing methodology because the AER is satisfied that Powerlink's proposed pricing methodology met the requirements of the NER and the Pricing Methodology Guidelines.⁸⁰⁰ Powerlink did not make further changes to its proposed pricing methodology in its revised revenue proposal.⁸⁰¹ The AER did not receive any stakeholder submissions on Powerlink's pricing methodology.

13.2 Assessment approach

The AER considered issues raised by Powerlink and other stakeholders using the assessment approaches outlined in the AER's draft decision.⁸⁰²

13.3 Reasons

The AER is satisfied that Powerlink's revised proposed negotiating framework meets the requirements set out in clause 6A.9.5(c) of the NER. This is because Powerlink's revised proposed negotiating framework has incorporated changes set out in the draft decision which the AER considered necessary to meet the requirements of the NER.

13.3.1 Negotiating framework

The draft decision required Powerlink to amend its proposed negotiating framework by including two additional clauses, to the effect:

6.1a The service applicant may request Powerlink to provide any additional commercial information that is reasonably required by the service applicant to enable it to engage in effective negotiations with Powerlink in relation to the provision of a negotiated transmission service or to clarify any commercial information provided (6.1a)

6.1b Powerlink must use its reasonable endeavours to provide the service applicant with commercial information requested by the service applicant in accordance with paragraph 6.1a within 10 business days of the date of the request under paragraph 6.1a, or such period as agreed by the parties

Powerlink's revised revenue proposal did not adopt these additional clauses. However, Powerlink amended clause 6.1 of its proposed negotiating framework to give a similar effect

⁷⁹⁹ Powerlink, *Powerlink Queensland 2013–2017 Revenue Proposal appendix P: Powerlink pricing methodology*, May 2011, available from www.aer.gov.au/content/index.phtml/itemld/750646.

⁸⁰⁰ AER, Draft decision: Powerlink revenue proposal 2012–13 to 2016–17, November 2011, p. 327.

⁸⁰¹ Powerlink, *Revised revenue proposal*, January 2012, p. 187.

⁸⁰² AER, *Draft decision: Powerlink revenue proposal 2012–13 to 2016–17*, November 2011, pp. 327, 328, 334 and 335.

as the draft decision clauses.⁸⁰³ The AER notes that Powerlink's amended clause 6.1 has clarified that:⁸⁰⁴

- the additional commercial information or clarification of commercial information are requested by service applicant
- Powerlink will provide or clarify any commercial information requested by the service applicant within 10 business days of the date of the request or such other period as agreed by the parties.

The AER considers that Powerlink's amended clause 6.1 has met the intent of the NER requirements and is therefore accepted.⁸⁰⁵

The draft decision also required Powerlink to amend clause 6.1.3 of the negotiating framework. Powerlink adopted the draft decision amendment in its revised proposed negotiating framework.⁸⁰⁶

The AER is therefore satisfied that Powerlink's revised proposed negotiating framework meets the requirements set out in clause 6A.9.5(c) of the NER.

⁸⁰³ Powerlink, *Revised revenue proposal*, January 2012, p. 188.

⁸⁰⁴ Powerlink, *Revised revenue proposal: Appendix R- Negotiating Framework for Negotiated transmission Services*, January 2012, p. 10.

⁸⁰⁵ NER, clause 6A.9.5(c).

⁸⁰⁶ Powerlink, *Revised revenue proposal*, January 2012, p. 188.

List of submissions

Submissions on revised revenue proposal and draft decision (20 February 2012)

Submittor	Date
Australia Pacific LNG Pty Limited	20 February 2012
Dept of Employment, Economic Development & Innovation	17 February 2012
Dorothy Christian	20 February 2012
ElectraNet Pty Limited	20 February 2012
Energex	20 February 2012
Energy Consumers Group operating in Queensland	20 February 2012
Energy Users Association of Australia	20 February 2012
Hancock Coal Pty Ltd	9 March 2012
Jeanne Campbell	20 February 2012
Powerlines Action Group Eumundi inc.	20 February 2012
Queensland Resources Council	21 February 2012
Santos GLNG Project	6 March 2012
Total Environment Centre	20 February 2012
Transend Networks Pty Ltd	20 February 2012
TransGrid	20 February 2012
Xstrata Coal	22 February 2012

Submissions on revenue proposal and NTSC (12 August 2011)

Submittor	Date
Australia Pacific LNG	11 August 2011
Australian Energy Market Operator	12 September 2011
Energy Consumers Group operating in Queensland	16 August 2011
Energy Users Association of Australia	13 August 2011
Powerlines Action Group Eumundi Inc	12 August 2011
Powerlink - response to submissions	30 August 2011
QR National	25 August 2011
Queensland Council of Social Services	12 August 2011
Total Environment Centre	12 August 2011
Total Environment Centre – response to Powerlink's reply to stakeholders	9 September 2011
Wesfarmers Limited	22 August 2011

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