Draft decision

Murraylink

Transmission determination

2013–14 to 2022–23

November 2012

AUSTRALIAN ENERGY REGULATOR

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Contents

Shortened forms

Shortened form	Full title
AER	Australian Energy Regulator
ABS	Australian Bureau of Statistics
ACG	Allen Consulting Group
APA	APA Operations Pty Ltd
AWOTE	Average weekly ordinary time earnings
Capex	capital expenditure
CAPM	capital asset pricing model
CGS	Commonwealth government securities
CHC	CHC Associates Pty Ltd
CPI	consumer price index
DRP	debt risk premium
EGWWS	Electricity, Gas, Water and Waste Services
EII	Energy Infrastructure Investments
LPI	Labour Price Index
MAR	maximum allowed revenue
MEU	Major Energy Users
MRP	market risk premium
NEL	National Electricity Rules
NEM	National Electricity Market
NEO	National Electricity Objective
NTSC	negotiating transmission service criteria

Opex	operating expenditure
PTRM	post tax revenue model
PwC	PriceWaterhouseCoopers
RAB	regulatory asset base
RBA	Reserve Bank of Australia
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
WACC	weighted average cost of capital

Overview

This AER draft decision sets out the amount of revenue that the Murraylink Transmission Company Pty Ltd (Murraylink) can recover from customers during the 2013–14 to 2022–23 regulatory control period. The AER applied the laws and rules governing the regulation of electricity transmission networks to make its draft decision.

This draft decision outlines revisions that Murraylink must make to its revenue proposal for it to be acceptable under the National Electricity Rules (NER). A revised revenue proposal must be submitted by 16 January 2013. The AER's final decision will be published in April 2013.

The context of Murraylink's revenue proposal

Murraylink has predominantly proposed a business as usual approach to operating its 180km high voltage direct current interconnector between Berri in South Australia and Red Cliffs in Victoria. It has however, proposed to undertake replacement of some existing assets that have degraded or are in need of repair, along with some minor network upgrades.

As an interconnector Murraylink provides a path for the flow of electricity to the limit of its 220MW capacity, in both directions, between the South Australian and Victorian transmission networks. In this way, it links the cheapest generation at a point in time with customers. Its network is therefore independent of demand within the adjoining transmission systems it links, which plays no part in interconnector capital expenditure augmentations.

As a direct current network, Murraylink's network equipment is highly specialised, complex and technologically advanced, compared to the conventional elements of most alternating current transmission networks in Australia. Murraylink seeks to maintain its assets in working order, and replace ancillary equipment that might soon fail to continue providing the market with a high level of interconnector service.

Murraylink is dispatched by the Australian Energy Market Operator, in a similar manner to that of a generator, to control electricity flow between South Australia and Victoria. Murraylink is therefore able to help overcome constraints in the national electricity market.

The AER's draft decision

After consideration of the revenue proposal, expenditure forecast, Murraylink's approach to operating its business to meet the needs of the national electricity market and the NER regime, the AER does not approve the proposed expenditure. This is because it does not meet the relevant opex and capex objectives and criteria.[1]

During the course of the AER's review of Murraylink's May 2012 revenue proposal, Murraylink made several resubmissions of forecast expenditure (capital expenditure and operating expenditure) in response to AER clarifying questions. The AER has not accepted these incremental expenditures. This is because they represent a new forecast from that originally proposed in May 2012. The AER did not request a new forecast from Murraylink as a response to questions seeking explanation and substantiation of costs initially proposed in its revenue proposal.

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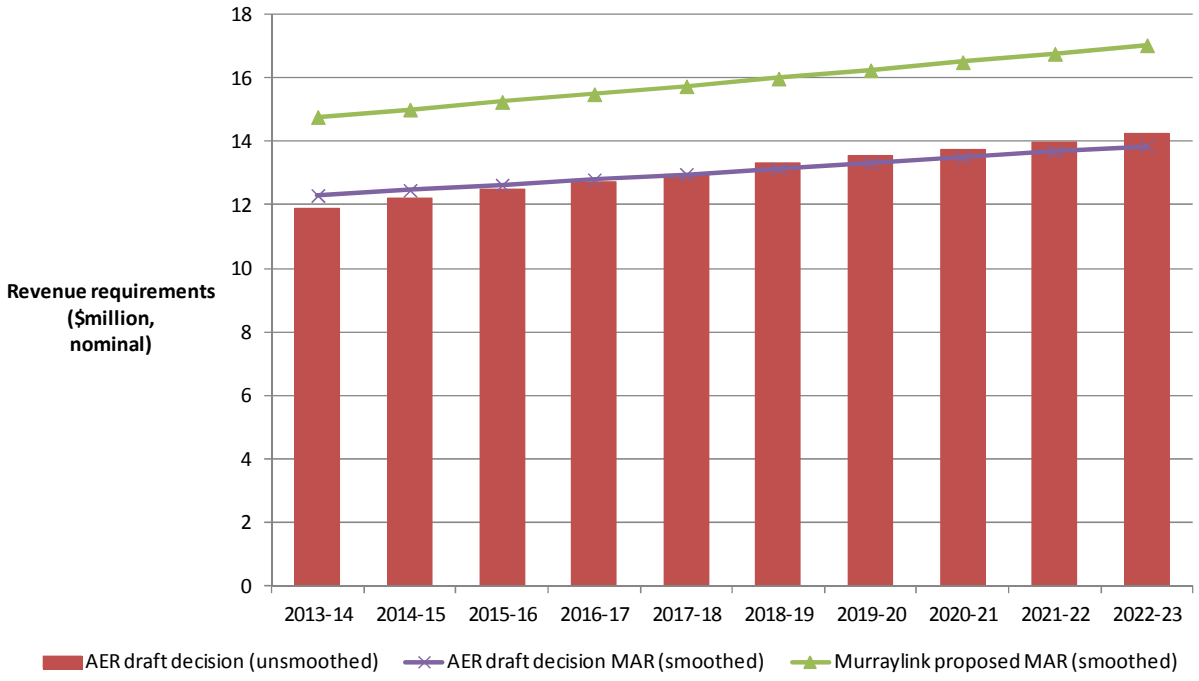
1 NER, clauses 6A.6.6 and 6A.6.7

The outcome of substituting alternative capital expenditure (capex) and operating expenditure (opex) forecasts that more realistically reflect the NER criteria, is that the AER's draft decision (smoothed) total revenue cap of $130.6 million ($ nominal) over the 2013–23 regulatory control period is 17.8 per cent less than that proposed.

Figure 1 compares the AER's draft decision with Murraylink's proposed revenue requirement. The AER applied the CPI–X formula to smooth the revenue profile over the forecast period. The draft decision X factor is 1.14 per cent per annum, meaning that smoothed revenues will decline (in real dollar terms) over the 2013–23 regulatory control period. The impact on average transmission prices and final customer bills in South Australia from this draft decision is therefore expected to be negligible.

Figure 1 Murraylink proposed and AER draft decision on total revenue requirement



Source: Murraylink, *Proposed PTRM*, May 2012; AER analysis.

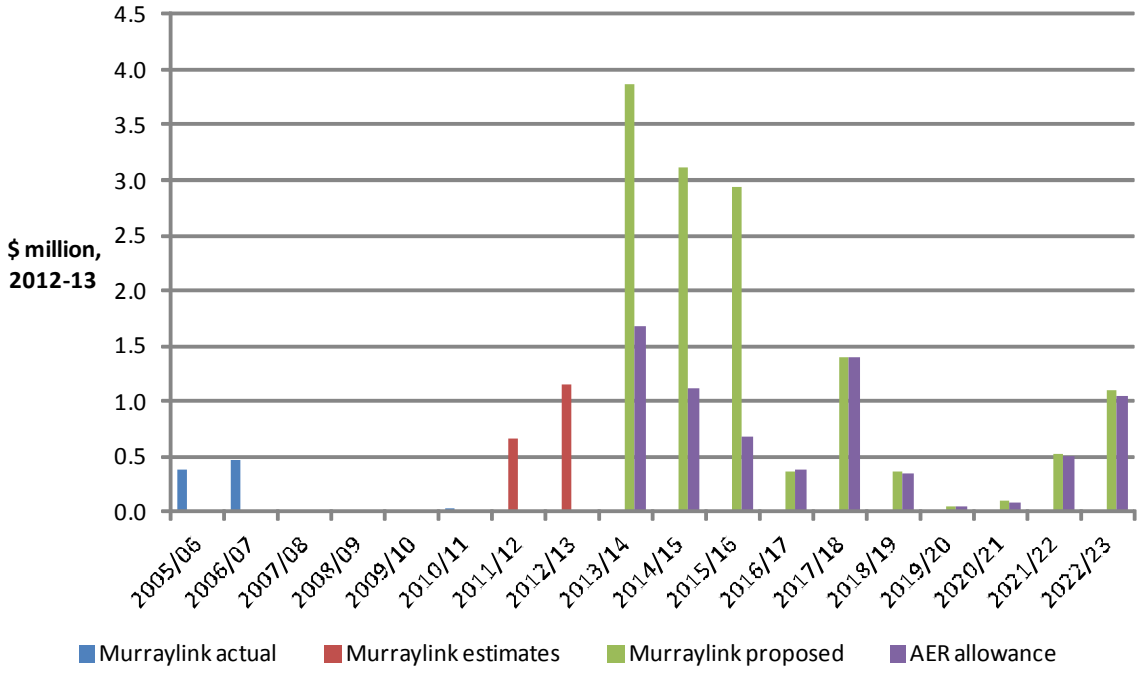
The AER assessed proposed capex, opex and service standards parameters in the context of the NER criteria and the business environment applicable to Murraylink.

Although Murraylink's operating environment is largely static (it has few assets and network expenditure on those assets is not affected by levels of electricity demand), the draft decision finds that some key elements of the revenue proposal are for significant infrastructure upgrades. The AER considers these cannot be characterised as business as usual, and in some cases do not even relate to prescribed transmission services.

Expenditure forecasts

Figure 2 shows Murraylink's total proposed capex and the AER's draft decision. Figure 3 shows Murraylink's total proposed opex and the AER's draft decision.

Figure 2 Comparison of Murraylink's capex and the AER's allowance ($ million, 2012–13)



Source: Murraylink, *Cost information templates*, May 2012; AER analysis.

Murraylink's forecast capex has increased from a negligible amount in the 1 October 2003 to 30 June 2013 regulatory control period, to a proposed $13.8 million ($2012–13) in the 2013–23 regulatory control period. A significant portion of this step up represents proposed expenditure on three discrete projects. The AER reviewed Murraylink's proposed capex to assess whether incentives were in place to promote economic efficiency. It also considered the balance between expenditure to improve systems and processes and the delivery of cost efficiencies compared to the investment.

The AER did not accept Murraylink's forecast capex for the following reasons:

- the three proposed projects were either not a prescribed transmission service or insufficient substantiation of proposed expenditure was provided. Adjustments to forecast expenditure in these areas has the effect of approximately halving Murraylink's proposed capex. Those projects were:
  - control system end of life replacement
  - control system black start
  - control system reduction of converter losses.
- replacing assets on a set time period, irrespective of actual asset condition was deemed inefficient. Murraylink has acknowledged that it needs to improve its measurement of asset condition and will introduce a new software package to achieve this.[2] The AER therefore applied

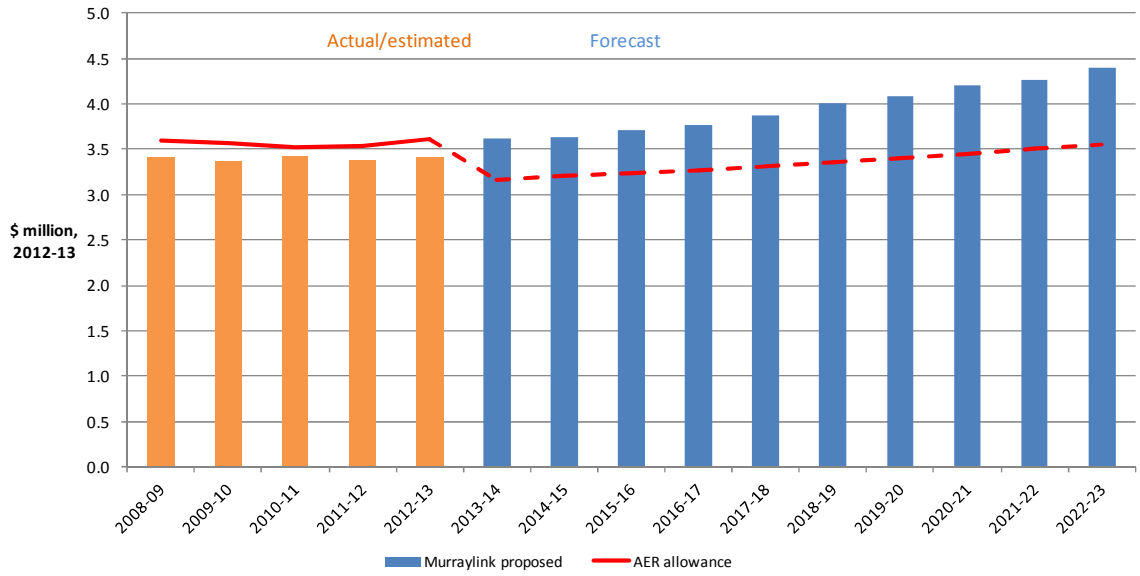
[2] Energy infrastructure investments, *Asset management strategy Murraylink and Directlink*, 2012, p. 4.

an efficiency adjustment to reflect expected improvements to asset condition monitoring that should flow from these initiatives.

- the proposed asset lives for some ancillary equipment was deemed not appropriate and would result in replacement before the end of the assets' useful life. The AER therefore extended the asset lives of key equipment, which has the effect of reducing the required level of replacement capex.

The AER did not accept Murraylink's proposed forecast opex of $40.1 million ($2012–13) and substituted an opex forecast of $34.1 million, or $6.1 million (15 per cent) less than proposed. Figure 3 shows the AER's draft decision and Murraylink's proposed opex.

Figure 3 AER draft decision on Murraylink's forecast opex ($ million, 2012–13)



Source: Murraylink, *Cost information template*, May 2012 and AER analysis.

The difference between the AER's substitute forecast total opex and Murraylink's proposal was primarily driven by:

- contracted services costs of $4.1 million that were not substantiated
- the AER applying a 2.5 per cent efficiency factor.

Murraylink entered a new contracting regime during the course of the review whereby some of its functions previously outsourced to a third party contractor were now brought in house and performed by Murraylink staff or the APA group.[3] Remaining routine and corrective maintenance functions continued to be provided by an external contractor but under a new contract commencing in June 2012.

The AER requested the contracts that govern outsourced activities. It observed a large difference between Murraylink's proposed forecast opex for 'contracted services' and the total of the contract prices. The difference was not entirely accounted for by costs associated with internal labour and services provided under the contracts.

[3] APA Operations operate and manage Murraylink's transmission network

Therefore the AER did not accept Murraylink's forecast opex for the following reasons:

- forecast maintenance opex was adjusted to account for the new contracting arrangements and costs divulged by Murraylink during the course of responding to AER clarifying questions
- the proposed opex program did not have a targeted efficiency or innovation program and was based on base year costs that were not efficient
- revised labour cost escalators based on the labour price index, unadjusted for productivity effects, were substituted. This reflects the AER's approach of forecasting labour cost growth in recent determinations.

Indicative price impact on customers[4]

Murraylink's revenues are charged to customers in South Australia and in Victoria. Murraylink uses the coordinating network service providers in these states, ElectraNet and AEMO respectively, to pass through its costs.

The AER has therefore combined the impact of the ElectraNet draft decision revenue with that of the Murraylink draft decision to estimate the average price impacts in South Australia. The AER's draft decisions for Murraylink and ElectraNet are anticipated to have no discernible impact on South Australian average residential electricity bills over 2013–18.[5] This is because the approved maximum allowed revenue is growing at a slower rate than the forecast of annual energy delivered in South Australia during 2013–18 (energy delivered is pertinent to ElectraNet average charges but is not relevant for Murraylink). Equally, the impact on Victorian transmission charges is negligible, with no reset of Victorian transmission charges currently underway.

Proposed contingent project

In its revenue proposal, Murraylink proposed a contingent project to the value of between $816 million and $918 million ($ nominal), depending on the scope of works. Murraylink's ability to provide interconnection across the national electricity market is limited by the capacity of the two regional transmission networks in South Australia and Victoria.[6] Constraints in these regions can limit Murraylink's capacity to less than 50MW, which is below its maximum capacity of 220MW.[7]

Murraylink's contingent project consists of three elements it considers will remove those constraints and make the interconnector more effective at transferring electricity:

- reinforcing the South Australia transmission network
- reinforcing the transmission network in Victoria
- increasing the rated capacity of the Murraylink interconnector by adding an additional line.

The AER does not approve this proposed contingent project because:

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4 The price impacts on South Australia customers have been estimated after accounting for both ElectraNet and Murraylink revenue proposals and draft decisions. These indicative figures are based on AEMO's 2012 energy forecast for South Australia.

5 Murraylink has a ten year regulatory control period (2013–23). This analysis is based on the first five years of that period, which coincides with ElectraNet's regulatory control period (2013–18).

6 Murraylink, *Revenue proposal appendix 7.3*, p. 2.

7 Murraylink, *Revenue proposal appendix 7.3*, p. 2.

- the proposed works in South Australia are unlikely to proceed during the course of the 2013–23 regulatory control period and any works are more likely be undertaken by ElectraNet, not Murraylink
- the proposed works in Victoria are not a prescribed transmission services and therefore cannot form part of a revenue determination
- Murraylink's proposal involves the use of expensive direct current technology. However it acknowledges that less expensive solutions would deliver the same or better service at lower cost.

Next steps

Murraylink has the opportunity to address this draft decision by submitting a revised revenue proposal by 16 January 2013.

The AER invites submissions from interested parties in response to this draft decision and Murraylink's revised revenue proposal by 19 February 2013. To aid this process, a predetermination conference explaining the draft decision will be held in Adelaide on 12 December 2012. Stakeholders can register their attendance via murraylink.2013@aer.gov.au. Further information on providing a written submission can be found at http://www.aer.gov.au/node/16252.

The AER's final decision will be published in April 2013. Table 1 sets out the key dates in the AER's decision making process.

Table 1 Key dates in the AER's decision making process

Key date in the decision making process	Date
Submission of Murraylink's revenue proposal to the AER	31 May 2012
Public forum on revenue proposal	23 July 2012
Submission on revenue proposal due	10 August 2012
Draft decision	30 November 2012
Predetermination conference	12 December 2012
Murraylink revised revenue proposal due	16 January 2013
Submissions on draft decision and revised proposal due	19 February 2013
Final decision and transmission determination	30 April 2013

What the AER considers in reaching its draft decision

The AER made its draft decision on Murraylink's revenue proposal for the 2013–23 regulatory control period in accordance with the relevant sections of the NEL and NER. It considered whether Murraylink's forecast capex and opex reflect the efficient costs that a prudent operator requires to

meet the NER objectives.[8] In forming its views on whether these forecasts are efficient and prudent, the AER took account of the factors listed in the NER.[9]

In reaching its draft decision, the AER:

- considered and analysed Murraylink's revenue proposal, pricing methodology and negotiating framework and other supporting information
- considered and analysed information provided by Murraylink during the review process
- considered submissions from interested parties
- considered views expressed at a public forum held 23 July 2012
- considered advice and analysis provided by AER commissioned independent experts.

NER objectives of capex and opex forecasts

The NER sets out the following objectives for Murraylink's forecasts of total capex and opex:[10]

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

The AER must determine whether Murraylink's forecast capex and opex reflect the efficient costs of meeting these objectives, based on a realistic expectation of the cost inputs.[11]

As an interconnector, Murraylink's chief role in the national electricity market is to be available to transport electricity in either direction instantaneously between South Australia and Victoria. This helps ensure that all customers have access to the cheapest electricity available during the day. Its ability to transport electricity is limited by constraints within the adjoining regional transmission networks, which can reduce its effective capacity to well below its rated maximum of 220MW. The AER was not required to assess demand forecasts, as Murraylink's network expenditure is independent of the levels of, or growth in, peak energy demand.

Notwithstanding that there is room for improvement in monitoring the condition of assets the AER considers Murraylink is mostly well governed and that its forecast expenditure is targeted at achieving the capex and opex objectives. Nevertheless, the AER is not satisfied that the proposed forecast expenditure reasonably reflects the efficient costs of achieving the capex and opex objectives for a prudent operator in the circumstances of Murraylink. The AER therefore substituted alternative forecasts that are set out in more detail in the chapters that follow.

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8 NER, clauses 6A.6.6(c) and 6A.6.7(c).
9 NER, clauses 6A.6.6(e) and 6A.6.7(e).
10 NER, clauses 6A.6.6(a) and 6A.6.7(a)
11 NER, clauses 6A.6.6(c) and 6A.6.7(c)

1 Real cost escalation

Real cost escalation is a method for accounting for expected changes in the costs of key factor inputs. Due to market forces these costs may not increase at the same rate as inflation.

1.1 Draft decision

Overall, the AER does not accept that Murraylink's proposed real cost escalators reasonably reflect a realistic expectation of the cost inputs required to achieve the opex and capex objectives.[12] However there are parts that the AER does accept. It has determined the substitute escalators in Table 1.1 and subsequently the values in Table 1.1, which reflect the AER's consideration that labour cost forecasts developed by Deloitte Access Economics (Deloitte) reasonably reflect a realistic expectation of the cost inputs required to achieve the opex and capex objectives.

The AER accepts Murraylink's proposed connection charges escalation method but will update the relevant inputs in the final determination to reflect the most contemporary data.

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

	State	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Internal labour - Utilities	SA	1.2	0.7	0.7	0.7	1.0	1.0	0.7	0.7	1.1	1.1
	VIC	1.1	1.0	1.2	0.9	1.0	1.2	0.8	0.9	1.3	1.3
	Average	1.2	0.9	1.0	0.8	1.0	1.1	0.8	0.8	1.2	1.2
External labour - Construction	SA	1.7	1.1	0.6	0.2	0.5	1.2	1.0	0.8	1.1	1.1
	VIC	0.9	0.7	0.4	0.4	1.0	1.3	0.9	0.7	1.0	1.0
	Average	1.3	0.9	0.5	0.3	0.8	1.3	1.0	0.8	1.1	1.1
Connection charges		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

Source: AER analysis, Deloitte Access Economics, *Forecast growth in labour costs: Victoria and South Australia*—Report prepared for the AER, 15 October 2012.

[12] NER, clauses 6A.6.6(c)(3) and 6A.6.7(c)(3).

1.2 Murraylink's proposal

Murraylink included an allowance for forecast real labour cost increases—that is, those greater than the forecast inflation rate—in its capital expenditure (capex) and operating expenditure (opex) forecasts.[13] It also proposed to escalate future connection charges, which it pays to ElectraNet and SP AusNet. Table 1.2 sets out Murraylink's forecast real cost escalators.

Table 1.2 Murraylink's real cost escalation forecasts (per cent)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Internal labour	7.5	6.8	2.5	1.0	2.8	3.2	1.8	2.0	2.2	2.6
External labour	2.1	-2.9	-1.0	2.2	1.2	2.8	2.5	1.9	2.9	1.0
Connection charges	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

Source: BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023-Victoria and South Australia*, May 2012.

Murraylink engaged BIS Shrapnel to advise it on the outlook for labour costs.[14] Murraylink proposed an average of forecast labour cost movements for South Australia and Victoria on the basis that it uses labour resources from both states.[15] For labour cost escalation, Murraylink proposed:[16]

- forecast growth in productivity adjusted average weekly ordinary time earnings (AWOTE) for the electricity, gas, water and waste services (EGWWS) industry for all non–construction/maintenance labour
- forecast growth in productivity adjusted AWOTE for the construction industry for contractor labour.

Murraylink also proposed real cost escalation be applied to connection charges it pays ElectraNet and SP AusNet.[17]

Murraylink did not seek an allowance for real cost escalation associated with materials.

1.3 Assessment approach

The AER assessed Murraylink's proposed real cost escalators against NER requirements. The AER must accept Murraylink's opex and capex forecasts if satisfied the total forecasts reasonably reflect the opex and capex criteria.[18] To do this the AER must be satisfied those forecasts reasonably reflect a realistic expectation of cost inputs required to achieve the opex and capex objectives.[19]

In making its draft decision for labour cost escalation, the AER:

13 Murraylink, *Revenue proposal*, pp. 43-6.
14 BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023-Victoria and South Australia*, May 2012.
15 Murraylink spans across both South Australia and Victoria.
16 Murraylink, *Revenue proposal*, pp. 43-6.
17 Murraylink, *Revenue proposal*, p. 45.
18 NER, clauses 6A.6.6(c) and 6A.6.7(c).
19 NER, clauses 6A.6.6(c)(3) and 6A.6.7(c)(3).

- reviewed the BIS Shrapnel report commissioned by Murraylink[20]
- considered advice from its commissioned consultant, Deloitte Access Economics[21]
- tested the experts forecasts against each other.

In forming its views the AER has also taken into consideration submissions from stakeholders.

1.4 Reasons for draft decision

The AER acknowledges there is no perfect predictor of escalators. This opinion is shared by expert forecasters.[22] Some forecasts are, however, more reliable than others, although the experts remain divided. Consequently, the AER has considered a range of material and views in reaching a conclusion. The AER is not satisfied that in all instances the forecasts proposed by Murraylink satisfy the requirements of the rules. In these instances the AER has substituted an alternative forecast.

1.4.1 Labour cost escalation

The AER does not accept that Murraylink's proposed labour cost escalators reasonably reflect a realistic expectation of future labour costs. This is because the AER considers:

- the labour price index (LPI) provides a better measure of labour cost changes compared to AWOTE
- real labour cost escalation should not be productivity adjusted due to systemic issues in measuring and forecasting productivity.

The following sections discuss these issues in detail.

1.4.2 The choice of labour price measure and use of productivity adjustments

The AER does not accept Murraylink's proposed use of the forecast AWOTE growth rates adjusted for forecast labour productivity, for the 2013–23 regulatory control period. The AER does not consider that this reasonably reflects a realistic expectation of cost inputs required to achieve the opex and capex objectives.[23]

The AER considers that LPI forecasts, unadjusted for productivity effects, reasonably reflects a realistic expectation of the demand forecast and cost inputs required to achieve the opex and capex objectives because:[24]

- productivity measures for the EGWWS industry exhibit estimation bias for the reasons outlined in recent Productivity Commission analysis[25]
- although productivity adjusted labour price movements provide the best estimate of labour cost movements, estimated productivity adjustments cannot be relied on due to the estimation bias in productivity measures

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20 BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023-Victoria and South Australia*, May 2012.
21 Deloitte Access Economics, *Forecast growth in labour costs: Victoria and South Australia - Report prepared for the AER, 15 October 2012.*
22 Deloitte Access Economics, *Responses to BIS Shrapnel reports*, 30 July 2012, BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023-Victoria and South Australia*, May 2012, pp. i-iii, CEG, *Escalation factors affecting expenditure forecasts: A report for ElectraNet*, May 2012, p. 13, paragraph 35.
23 NER, clauses 6A.6.6(c)(3) and 6A.7(c)(3).
24 NER, clauses 6A.6.6(c)(3) and 6A.7(c)(3).
25 Productivity Commission, *Productivity in electricity, gas and water: measurement and interpretation,* March 2012.

- the LPI contains less productivity effects than the AWOTE, where the AWOTE includes all productivity effects
- although the AER considers that LPI forecasts, unadjusted for productivity effects, provides the best possible forecast of labour cost movements, the AER recognises that this will over–compensate businesses to the extent that worker productivity gains over the forecast period are positive.

Each of these issues is considered in the sections below.

Labour productivity adjustments

Labour price changes are driven by both productivity effects and other effects. Productivity effects drive labour price changes since more productive labour receives higher wages.[26] Other effects include consumer price index (CPI) increases and any price changes driven by labour market supply/demand imbalances.

It is important to make the distinction between labour prices and labour costs. Deloitte stated:[27]

> ... labour costs will rise at a different rate [than labour prices] due to the effects of labour productivity growth. Effectively, labour productivity measures the number of units of output an individual employee can produce in a given time period. The more units of output each worker can produce, the fewer workers are required to create a given level of industry output. If productivity is rising, the total cost of labour (the price of each employee multiplied by the number of employees) will rise less rapidly than the individual employee's prices.

Broadly labour price changes can be described by three effects:

1. Composition productivity effects reflect increases in workforce productivity due to changes in the skill composition of the workforce. For example, an increased share of highly skill workers will increase average workforce productivity and average wage rate per worker. However, because average workforce productivity has increased, fewer workers are required to produce the same amount of output, and any increase in labour costs will be less than the increase in the average labour price.
2. Worker productivity effects are increases in workforce productivity due to increases in the productivity of individual workers. For example, workers may become more productive from working with better capital equipment. Again, because average workforce productivity has increased fewer workers are required and any increase in labour costs will be less than the increase in the average labour price.
3. Other effects unrelated to productivity. For example, wage increases due to inflation of labour supply or demand imbalances. Because these effects are unrelated to productivity the same amount of labour is required to produce a given amount of output and the change in labour price results in a corresponding change in labour costs.

Conceptually at least, either AWOTE or LPI labour price measures can quantify the change in labour costs. However, it is important to use matching labour price and productivity measures.[28] The ABS publishes a number of productivity measures, including labour, capital and multifactor measures. The labour productivity measures are published annually for the market sector as a whole, as well as at

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[26] Professor Jeff Borland, *Labour cost escalation report for Envestra Limited*, 2011, p. 2.
[27] Deloitte Access Economics, *Response to Professor Borland comments prepared for the AER*, 15 April 2011, p. 3.
[28] Deloitte Access Economics, *Response to Professor Borland: comments prepared for the AER*, 15 April 2011, p. 3.

the industry division level (for example, the electricity, gas and water industry). These measures indicate value added per hour worked. This conventional measure of labour productivity includes all productivity effects: composition productivity, worker productivity effects and other effects. The AWOTE labour productivity measure includes all of these effects; therefore it is the appropriate labour productivity measure for adjusting the AWOTE labour price.

A quality adjusted measure of labour productivity which includes worker productivity effects and other effects is the appropriate measure to adjust the LPI. The Australian Bureau of Statistics (ABS) recently developed quality adjusted measures of labour input and labour productivity. It released estimates for 1982–83 to 1999–2000 in 2005, and has since published yearly statistics from 1994–95.[29] The measure of labour captures the change in the aggregate quality of labour due to compositional changes such as higher education, or longer work experience, so the effect is not ascribed to productivity. Generally, the quality adjusted labour productivity index increases at a slower rate than the conventional labour productivity index, because the conventional index includes compositional productivity effects that may reflect increased skill composition of the workforce. An increase in the skill composition of the workforce, which may manifest itself in an increase in the labour price, does not necessarily suggest a simultaneous increase in the labour cost. This is because an increase in the skill level may mean fewer workers are employed, such that labour costs may fall.

The AER considers that Murraylink should not be compensated for labour price changes driven by labour productivity effects. This is because labour price changes do not equate to labour cost changes. To the extent labour prices compensate workers for increased productivity, those price increases do not increase labour costs to the same degree, since fewer workers are required to produce the same output.

Further, the AER has previously stated that to the extent that labour prices are rising due to increased labour productivity (due to either compositional productivity or worker productivity), the increase in labour costs will be less than the increase in the labour price.[30] To determine the impact of labour price increases on the total labour cost to produce a constant level of output, the price impacts of labour productivity effects should be removed from the labour price measure used.[31] However, the Productivity Commission has noted four broad issues which impact measurement of marginal factor productivity growth in electricity, gas and water industries:

1. cyclical investment—the lumpy nature of capital in relation to measured output[32]
2. output measurement—difficulty in measuring output which can lead to unanticipated changes in marginal factor productivity [33]
3. shifts to higher cost technologies—investments as a result of climate-related issues increasing the cost per unit of output[34]
4. unmeasured quality improvements—changes in government regulations mandating improvements in the network that are not directly measured, such as mandatory underground electricity cabling.[35]

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29 ABS, *Quality-adjusted labour inputs*, Research paper, Catalogue number 1351.0.55.010, November 2005.
30 See AER, *Draft Decision: Powerlink transmission determination*, November 2011, p. 57.
31 See AER, *Draft Decision: Powerlink transmission determination*, November 2011, p. 56.
32 Productivity Commission, *Productivity in electricity, gas and water: measurement and interpretation*, March 2012, p. 122.
33 Productivity Commission, *Productivity in electricity, gas and water: measurement and interpretation*, March 2012, p. 126.
34 Productivity Commission, *Productivity in electricity, gas and water: measurement and interpretation*, March 2012, pp 128–9.

The AER considers that the estimation issues identified by the Productivity Commission contribute to the uncertainty in forecasting productivity adjustments.

Productivity adjustments may also double–count other effects such as scale adjustments. Further, accurately forecasting labour productivity in the medium to long terms is extremely difficult, leading to high risk of forecasting error.

BIS Shrapnel stated that labour productivity growth will be weak over the next six years for three reasons:[36]

1. higher utilities prices (including due to the introduction of the carbon tax from 1 July 2012)
2. population growth is forecast to weaken. Household population growth is a key driver of energy and water use in the utilities sector.
3. independent forecasters have suggested that there will not be a significant jump in energy intensive projects, thereby containing future energy demand.

The AER considers that BIS Shrapnel's productivity forecasts do not sufficiently take into account these factors.

BIS Shrapnel provided the AER with a report submitted by Professor Jeff Borland on whether the AWOTE or the LPI method should be used for the purposes of real labour cost escalation.[37] This report was originally submitted to support Envestra's decision on adopting the AWOTE measure. BIS Shrapnel applied the same argument to the AER in regards to real cost escalation for Murraylink's 2013–2023 regulatory control period.

Professor Borland stated that the productivity adjusted LPI underestimates changes to labour costs by an amount equal to the change in the skill composition of the workforce.[38] The AER agrees with this view if the conventional labour productivity measure is used to adjust the LPI.

In response to Professor Borland, Deloitte stated its forecasts of LPI and productivity implicitly assume a zero value for composition productivity. If the compositional productivity adjustment is different from zero, this result would be deducted from both LPI growth and productivity growth resulting in a net effect of zero.[39]

Professor Borland further notes in his empirical analysis that, over the long run, changes in labour costs is equal to changes in other productivity effects such as CPI.[40]

The AER considers that in theory productivity adjustments should be applied to real cost escalations if productivity adjustments are not undertaken elsewhere in opex and capex forecasts.

However, the AER notes the high degree of difficulty in estimating both quality adjusted labour productivity and conventional labour productivity as evidenced by the conflicting productivity estimates

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35 Productivity Commission, *Productivity in electricity, gas and water: measurement and interpretation*, March 2012, pp. 129–130.
36 BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023 - Victoria and South Australia*, May 2012, p. 52.
37 Professor Jeff Borland, *Labour cost escalation: Choosing between AWOTE and LPI - Report for Envestra Limited*, March 2012.
38 Professor Jeff Borland, *Labour cost escalation: Choosing between AWOTE and LPI - Report for Envestra Limited*, March 2012, p. 6.
39 Deloitte Access Economics, *Response to BIS Shrapnel reports*, 30 July 2012, p. 5.
40 Professor Jeff Borland, *Labour cost escalation: Choosing between AWOTE and LPI - Report for Envestra Limited*, March 2012, p. 6.

from BIS Shrapnel and Deloitte and the analysis conducted by the Productivity Commission. Thus, while the AER anticipates worker productivity might improve over the long run, due to estimation difficulties, it has not sought to address this effect, at this stage, in Murraylink's forecasts of labour costs.

Choice of labour price measure

Given the difficulty in measuring and forecasting labour productivity movements, the AER considers that productivity adjustments should not be applied to Murraylink's labour cost escalations. The AER observes that currently unadjusted labour forecasts of the AWOTE and LPI are above inflation. This approach will allow Murraylink to benefit from changes in labour productivity effects. In light of the difficulties in estimating productivity, the AER considers an unadjusted LPI reasonably reflects a realistic expectation of labour costs in the circumstances although this figure is upwardly biased by not including labour productivity improvements.[41]

BIS Shrapnel's report provides both AWOTE and labour price index escalators for the EGWW industry in response to the AER's recent revenue determination that used LPI, largely because of the volatility of AWOTE. Although BIS Shrapnel considers AWOTE is a preferable measure of the change in overall costs per employee, the report provides both forecasts of LPI and AWOTE for easy comparison.

Murraylink has proposed the use of forecast movements in productivity adjusted AWOTE, to escalate its labour costs for anticipated real labour price increases as it considers that these best reflect the expected actual labour costs over the 2013–23 regulatory control period.

The AWOTE measures average employee earnings from working the standard number of hours per week. It is not strictly a price index (that measures the pure price effect) because the composition of labour is not held constant. It captures composition productivity effects, worker productivity effects and other effects. In contrast the LPI is a Laspeyres type price index, which measures the change in labour costs with the quantity and quality of work performed held constant.[42] It measures the pure price effect, showing how much the same quantity of labour costs in the current period, relative to the base period. The weights used are for the base period and are updated annually to represent job distribution.[43]

Conceptually at least, either labour price measure can quantify the change in labour costs, provided a correctly matched productivity measure is used.[44]

BIS Shrapnel considers that the LPI measures underlying wage inflation but does not measure variations in the quality or quantity of work performed. The AWOTE measures both the change in the cost of labour and skill level changes within an industry. It is for these reasons BIS Shrapnel prefers the use of AWOTE over the LPI.[45]

Deloitte noted that there are drawbacks to both the LPI and AWOTE measures. However it considered LPI to be a better measure than AWOTE, because compositional changes such as the

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41 NER, clause 6A.6.6(c)(3).

42 To the extent that some quality changes in the work performed are unquantifiable, the price change would incorporate some of the quality change effect. However, the magnitude of this effect is generally negligible.

43 ABS, *Labour Price Index: concepts, sources and methods*, Catalogue number 6351.0.55.001, 2004, p. 12.

44 Deloitte Access Economics, *Response to Professor Borland: comments prepared for the AER*, 15 April 2011, p. 3.

45 BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023,* May 2012, p. 28.

pace of recruitment and retirement and the changed relativities in the employment of men and women can distort AWOTE as a proxy for changes in the price of labour.[46]

Deloitte further notes the advantages of the LPI over the AWOTE as a measure of labour price changes will increase as the ABS commences publishing the AWOTE on a six monthly basis and ceases publishing all AWOTE by state by industry information. [47]

However, the AER notes that using LPI has its own difficulties because of the limited availability of quality adjusted labour productivity index data. The ABS publishes unadjusted labour productivity for the EGWWS industry but its quality adjusted labour productivity index is available only at the overall market sector level.

Despite this limitation, the ABS considers the LPI to be its preferred indicator of changes in the price of labour because average weekly earnings estimates are affected by changes in both the price of labour and changes in the composition of the labour market.[48]

Weighing the above evidence, the AER considers the problems with using AWOTE to be greater than those associated with using the LPI. This is because the higher volatility of the AWOTE, and the inclusion of the composition productivity effects, makes AWOTE unreliable for forecasting labour costs (as opposed to labour prices) for the utilities industry in comparison with the more stable LPI time series (see Figure 1.1).

The LPI unadjusted for labour productivity, which includes worker productivity effects, will more closely represent the true change in labour costs than the unadjusted AWOTE which includes both worker and composition productivity effects.

The AER considers that any labour cost increases associated with compositional change should be offset by productivity benefits. To estimate the efficient labour cost, it is appropriate to hold the labour force composition stable over the forecast period and allow Murraylink to retain any efficiency benefits derived from workforce compositional change.

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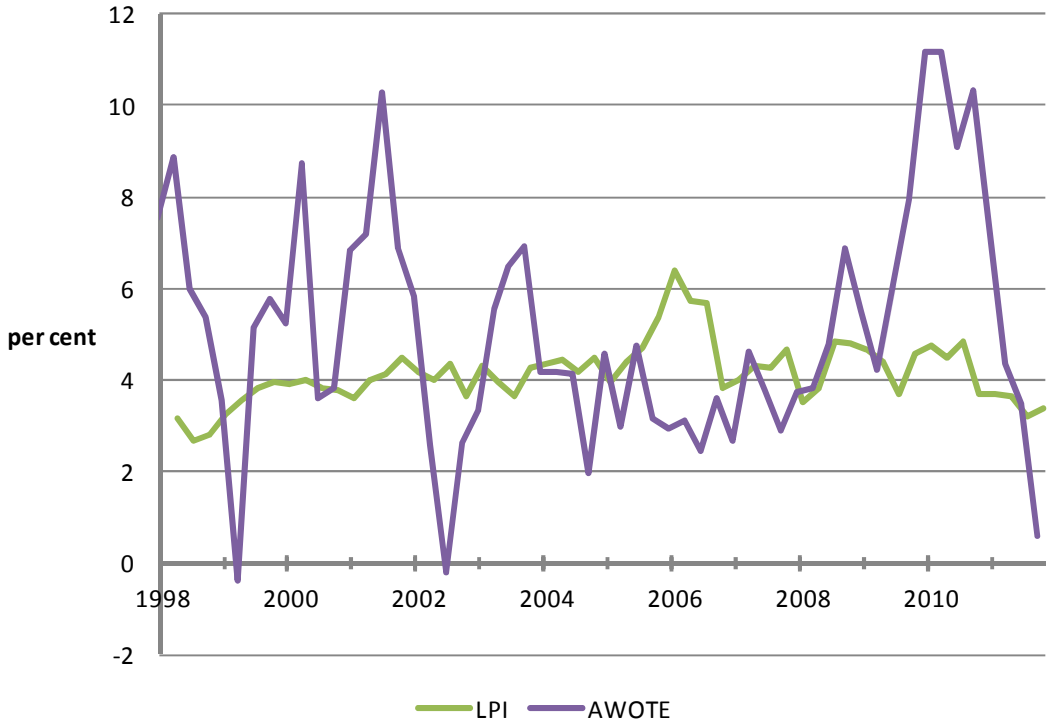
46 Deloitte Access Economics, *Response to BIS Shrapnel reports*, 30 July 2012, p. 2-3.
47 Deloitte Access Economics, *Response to BIS Shrapnel reports*, 30 July 2012, p. 2.
48 ABS, *Labour Price Index: concepts, sources and methods*, Catalogue number 6351.0.55.001, 2004, p. 43.

Figure 1.1 Annual growth in LPI and AWOTE, EGWWS industry, Australia (per cent)



Source: ABS, catalogue 6302.0, table H; ABS, catalogue 6345.0, table 9b; AER analysis

The AER notes that the inclusion of labour productivity effects will provide an upwardly biased forecast of labour cost movements if Murraylink has positive labour productivity over the forecast period.

Choice of LPI forecasts

BIS Shrapnel estimated Murraylink's forecast movements in both the labour price index and AWOTE. Deloitte's analysis has shown BIS Shrapnel's LPI forecasts have consistently been higher than actual LPI and BIS Shrapnel has criticised Deloitte's productivity growth forecasts as being too pessimistic.[49] BIS Shrapnel's LPI forecasts, unadjusted for productivity, are higher than those forecast by Deloitte, consistent with this analysis (Figure 1.2).

Murraylink suggested that if the AER did not use BIS Shrapnel's forecast AWOTE then it should instead apply BIS Shrapnel's LPI forecasts unadjusted for productivity. [50]

The AER considers on balance the downward bias in the difference between Deloitte's forecast LPI and actual LPI is less than the magnitude of Deloitte's forecast of quality adjusted labour productivity. That is, productivity adjustments are likely to outweigh any potential downward bias in Deloitte's forecasts Therefore the AER considers the LPI estimated by Deloitte reasonably reflects a realistic expectation of labour costs in the circumstances.[51]

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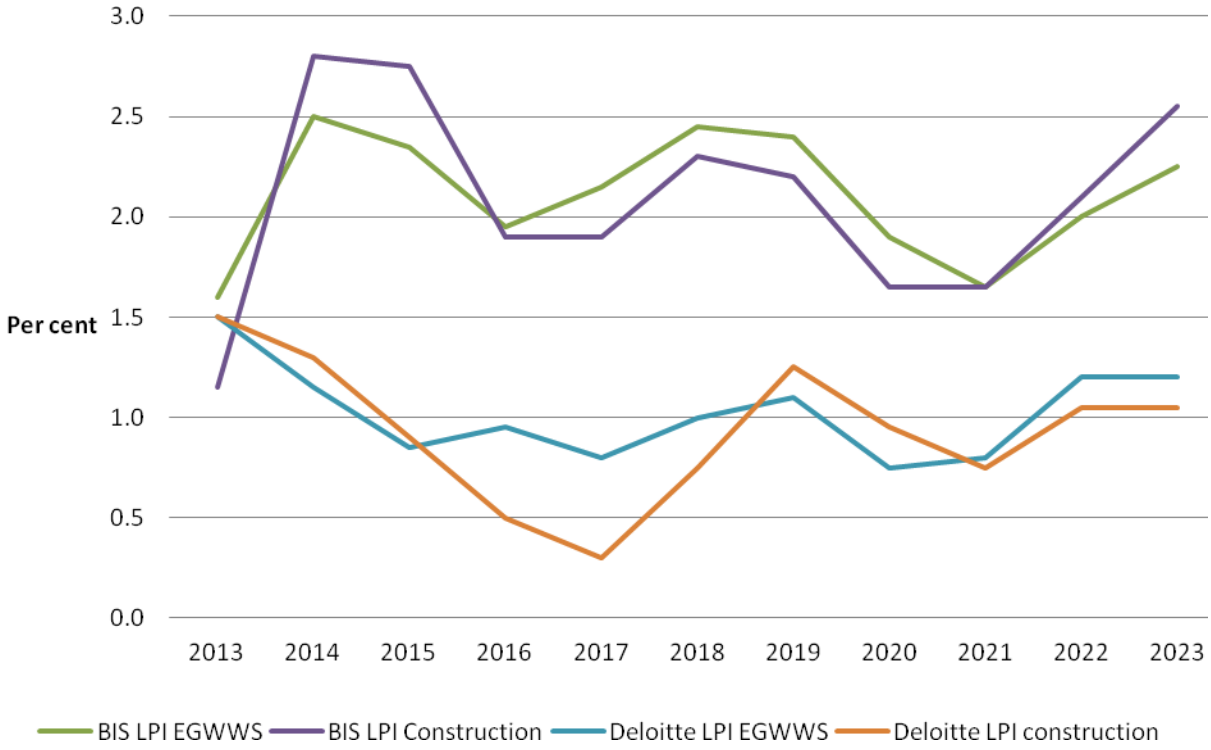
49 Deloitte Access Economics, *Response to BIS Shrapnel reports*, 30 July 2012, p. 16.
50 Murraylink, *Revenue proposal*, p. 45.
51 NER, clause 6A.6.6(c)(3).

Figure 1.2 Real LPI forecasts (per cent)



Source: BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023,* May 2012; Deloitte Access Economics, *Forecast growth in labour costs: Victoria and South Australia - Report prepared for the AER*, 15 October 2012.

In addition, the AER considers that due to timing, BIS Shrapnel's forecast applied assumptions are now less relevant. BIS Shrapnel noted its forecast expects a faster wage growth in the South Australia utilities and engineering construction sector.[52] One of the factors driving this wage growth is the increase demand for skilled workers which will be underpinned by the $27 billion expansion of the Olympic Dam mine.[53]

On 22 August 2012, BHP Billiton issued a media release stating:[54]

> ... that it will investigate an alternative, less capital-intensive design of the Olympic Dam open-pit expansion, involving new technologies, to substantially improve the economics of the project. As a result it will not be ready to approve an expansion of Olympic Dam before the Indenture agreement deadline of 15 December 2012.

The AER notes BIS Shrapnel released its labour cost escalation forecasts to 2023–24 in May 2012. Consequently BIS Shrapnel did not have the opportunity to factor the information released by BHP into its forecasts. Therefore, based on BIS Shrapnel's forecast, the AER considers this forecast somewhat outdated, as it includes the expansion of the (now delayed) Olympic Dam. Due to this uncertainty, the AER considers BIS Shrapnel's forecast does not reasonably reflect a realistic expectation of cost inputs required to achieve the opex and capex objectives.[55]

In comparison the AER considers Deloittes forecast an appropriate measure as it does not include the expansion of the Olympic Dam mine. At the time Deloitte submitted its forecast, it stated the

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52 BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023,* May 2012, p. 45.
53 BIS Shrapnel, *Real Labour Cost Escalation Forecasts to 2023,* May 2012, p. 45.
54 BHP Billiton, Investors and Media, *Latest News: Olympic Dam update*, 22 August 2012.
55 NER, clauses 6A.6.6(c)(3) and 6A.6.7(c)(3).

Olympic Dam mine had not been factored into its forecasts due to the recent decision by BHP not to expand the Olympic Dam mine in the near future.[56] On this basis, the AER considers the Deloitte forecast is robust and reasonably reflects a realistic expectation of cost inputs required to achieve the opex and capex objectives over the 2013–23 regulatory control period.[57]

1.4.3 Connection charge escalator

The AER accepts Murraylink's proposed connection charge escalator method as it will reasonably reflect a realistic expectation of future costs.[58] This is because the AER notes that Murraylink's connection charges will increase over time and the basis of the proposed escalator is reasonable. The AER accepts Murraylink's method for the draft decision but will update the inputs in the final determination to reflect the X factor that the AER will set in ElectraNet's final determination.[59]

Murraylink proposed to apply the average of ElectraNet's and SP AusNet's X factors to escalate the connection charges it will pay to these businesses over the 2013–23 regulatory control period.[60] These connection charges are a direct pass through and are anticipated to l increase annually. Part of the annual increase will be driven by ElectraNet's and SP AusNet's maximum allowable revenues and X factors allowed in the respective transmission determinations. Therefore, the AER considers it reasonable to accept Murraylink's proposal to reflect these annual increases in its allowed connection charges rather than apply an alternative escalator, such as CPI.

In addition, the AER accepts Murraylink's proposal to annually account for the difference between the connection charges allowed for in the final determination and actual connection charges paid by Murraylink to the adjoining TNSPs. Therefore, the AER considers there is no gaming risk of applying Murraylink's proposed connection charge escalator, as only actual costs will be passed through to customers. The AER anticipates that the escalation of Murraylink's costs will only reduce the difference between the connection charges allowed and the actual charges which are increasing annually.

1.5 Revisions

The AER requires the following revisions for Murraylink's revenue proposal to be approved against the NER criteria:

Revision 1.1: Table 1.1 sets out the AER's substitute real cost escalators for the 2013–18 regulatory control period.

56 Deloitte Access Economics, *Forecast growth in labour costs: Victoria and South Australia - Report prepared for the AER*, 15 October 2012, Executive Summary, p. iii.
57 NER, clauses 6A.6.6(c)(3) and 6A.6.7(c)(3).
58 NER, clauses 6A.6.6(c)(3) and 6A.6.7(c)(3).
59 The ElectraNet determination will be made concurrently with Murraylink's determination, in April 2013.
60 Murraylink, *Revenue proposal*, p. 45.

2 Capital expenditure

Forecast capital expenditure (capex) represents the cost of new assets that a network business is likely to require during a regulatory control period to operate the network efficiently. Capex is typically broken down into network and non-network related categories:

- network load driven — augmentation, connection and land/easements
- network non-load driven — replacement, refurbishment, security/compliance and inventory spares
- non–network — business IT and buildings/facilities

Murraylink is required to submit a building block proposal to the AER that forecasts capex for the 2013–23 regulatory control period.[61] The AER must either accept Murraylink's proposed total forecast capex allowance or determine a substitute forecast.[62]

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

2.1 Draft decision

The AER does not accept the total forecast capex of $13.8 million[63] ($2012–13) proposed by Murraylink for the 2013–23 regulatory control period.[64] It is not satisfied the proposed forecast reasonably reflects the capex criteria because it considers Murraylink overstated elements of the forecast.[65] The AER thus estimated a substitute total forecast capex that reasonably reflects the NER requirements.[66]

Table 2.1 summarises the substitute forecast capex that the AER considers Murraylink requires over the 2013–23 regulatory control period. The AER estimated a forecast capex of $7.3 million ($2012–13), which represents a 47.2 per cent reduction (or $6.5 million, $2012–13) on Murraylink's proposal.

61 NER, clause 6A.10.1.
62 NER, clauses 6A.6.7(c) and (d).
63 The AER notes there were multiple discrepancies between the values presented in Murraylink's revenue proposal and the values in the cost information templates which support the revenue proposal. The AER requested on numerous occasions for Murraylink to provide reconciliation between both sets of values. However, each time Murraylink provided a new set of cost information templates the values did not reconcile against the revenue proposal. The AER considers versions 2 of the cost information templates provided by Murraylink are the most accurate values and therefore have used these values for its assessment. The AER has also updated these values to be presented in real $2012–13 terms. The AER notes the forecast total capex was $13.4 million in version 2 of the cost information templates whilst the revenue proposal presented this as a forecast total capex of $13.6 million.
64 NER, clause 6A.14.1(2)(ii).
65 NER, clause 6A.6.7(c).
66 NER, clause 6A.14.1(3)(ii).

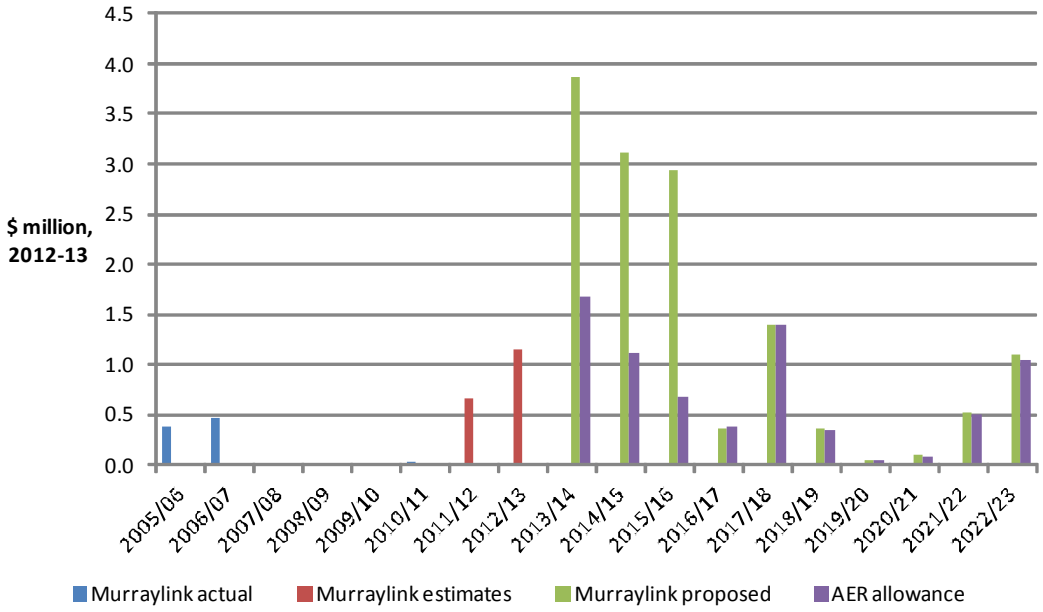
Table 2.1 AER's draft decision on Murraylink's total forecast capex ($ million, 2012–13)

	Adjustment	Total capex
Murraylink forecast capex		13.8
Control system end of life replacement	–2.3	
Control system black start	–2.2	
Control system reduction of converter losses	–2.0	
Capex efficiency factor	–0.05	
AER's draft decision		7.3

Source: AER analysis. Numbers do not add due to rounding. Includes the application of the AER's draft decision real cost escalation.

The AER notes Murraylink's capex increased substantially from a negligible amount in the 1 October 2003 to 30 June 2013 regulatory control period, to $13.8 million ($2012–13) in the 2013–23 regulatory control period (see Figure 2.1). A significant portion of this step up represents proposed expenditure on three discrete projects. However, the AER finds this expenditure has not been substantiated (after information requests), or do not meet the definition of a prescribed transmission service. Consequently, the magnitude of the AER's substitute forecast is significant (47.2 per cent) in relation to Murraylink's proposal. These are discussed in section 2.4 below.

Figure 2.1 Comparison of Murraylink's capex and the AER's allowance ($ million, 2012–13)



Source: Murraylink, *Cost information templates*, May 2012; AER analysis.

The AER assessed Murraylink's three major capex components, being refurbishment,[67] security and other. It found that Murraylink's intention to upgrade its asset management practices, through improved software, was justified and should deliver efficiency savings.

However the nature of this expenditure should enable Murraylink to deliver efficiency savings immediately to customers through more reliable asset condition monitoring. Presently, Murraylink replaces assets on a set time period, irrespective of actual asset condition. The AER in previous transmission determinations has not accepted this approach.[68] Furthermore, Murraylink has acknowledged that it needs to improve its measurement of asset condition.[69] The AER therefore applied an efficiency adjustment to reflect such improvements and extend the asset lives of key equipment. For example, the AER applied an efficiency adjustment to cooling systems to reflect an asset life applied by other transmission network service providers and recommended by manufacturers.

2.2 Murraylink's proposal

Murraylink proposed a total forecast capex of $13.8 million ($2012–13, see Table 2.2) over the 2013–23 regulatory control period.[70]

Table 2.2 Murraylink's proposed forecast capex, by category ($ million, 2012–13)

Capex category	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Refurbishment	0.728	0.255	0.034	0.355	1.387	0.344	0.034	0.079	0.515	1.080	4.810
Compliance	0.887	0.833	0.635	0.016	0.016	0.017	0.017	0.017	0.017	0.018	2.401
Other	2.255	2.024	2.274	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.553
Total	3.870	3.111	2.944	0.371	1.404	0.360	0.051	0.096	0.532	1.098	13.837

Source: Murraylink, *Revenue proposal*, p. 38.

Murraylink's total forecast capex proposal only contains network non–load driven capex. It did not propose any capex relating to network load driven or non–network expenditure. The proposed network non-load driven capex categories for the 2013–23 regulatory control period are:

- refurbishment—$4.8 million ($2012–13)
- compliance—$2.4 million ($2012–13)
- other—$6.6 million ($2012–13).

2.3 Assessment approach

The AER must accept Murraylink's proposed total forecast capex if satisfied it reasonably reflects the capex criteria.[71] It must form a view on the forecast capex as a whole, not as individual projects or

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67 Murraylink's proposed category of refurbishment capex is largely replacement of ancillary equipment. To be consistent with Murraylink's revenue proposal the AER will use the term refurbishment although by nature the expenditure relates to replacement capex.

68 AER, *Final decision, Powerlink transmission determination*, April 2012, pp. 120–128

69 Energy infrastructure investments*, Asset management strategy Murraylink and Directlink*, 2012, p. 4.

70 2008-11 is actual capex incurred while the 2011-12 capex is an estimate.

71 NER, clause 6A.6.7(c).

programs.[72] However, because the proposed total forecast capex is separated into expenditure components, the AER assesses these components to make its decision on the total amount.

The forecast must reflect the efficient costs that a prudent operator in Murraylink's circumstances would need to incur, based on a realistic expectation of the demand forecast and the cost inputs to achieve the capex objectives.[73]

In deciding whether Murraylink's proposed total forecast capex reasonably reflects the capex criteria, the AER must have regard to the capex factors.[74] Although the AER considered each capex factor when assessing Murraylink's proposed total forecast capex, not all factors were relevant for assessing each capex component.[75]

Also in its assessment, the AER had regard to the National Electricity Objective (NEO) as well as the revenue and pricing principles in the National Electricity Law (NEL).[76] For instance, the AER reviewed Murraylink's proposed capex to assess whether incentives were in place to promote economic efficiency. It also considered the balance between expenditure to improve systems and processes and the delivery of cost efficiencies compared to the investment.

Additionally, the AER and its technical consultant CHC Associates Pty Ltd (CHC) further tested their findings with Murraylink through ongoing engagement and consultation on key issues. This included additional information requests and teleconference meetings. The AER also considered stakeholders' submissions.

The AER engaged CHC to help review Murraylink's total forecast capex. CHC undertook a combined top down and bottom up approach to assess Murraylink's asset management framework.[77] The top down review focused on determining whether Murraylink's asset management framework is consistent with good industry practice. The bottom up review focused on determining whether Murraylink applied its asset management framework appropriately by reviewing Murraylink's forecast projects. To do this, CHC undertook the following steps:

- review characteristics of Murraylink's operating environment
- review Murraylink's proposal and supporting information
- undertake independent research of selected documented proposals
- sought clarification from Murraylink and the AER in regards to identified issues
- review against industry best practice.[78]

The AER decided, as a result of this assessment, to incorporate a capex efficiency factor.

In assessing Murraylink's efficient costs, the AER also considered a mix of top down and bottom up approaches. It assessed Murraylink's historic capex and determined the key drivers for forecast capex. This work included analysing Murraylink's:

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72 NER, clause 6A.6.7(f).
73 NER, clause 6A.6.7(c). Clause 6A.6.7(a) specifies the capex objectives.
74 NER, clause 6A.6.7(d).
75 Murraylink's capex forecast is recovered via the depreciation and return on capital in the building block regime. It covers new investments and the replacement of ageing assets to keep the high voltage transmission system operating effectively.
76 NEL, s.7 and s.7A.
77 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 10–14.
78 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 7.

- capex business cases
- asset management principles
- cost information template
- cost allocation method
- explanations provided by Murraylink in response to AER questions, for certain expenditures.

By examining key documents, processes and assumptions, and comparing historical expenditure to that proposed, the AER can better understand the key drivers behind Murraylink's need to undertake capex on its network. Section 2.4.2 sets out the AER's review of Murraylink's asset management framework, including its investment decision making process. This review and work undertaken by the AER's technical consultant CHC, informed the AER's analysis on how Murraylink applies the framework and the influence the framework has on Murraylink's forecast capex.

2.4 Reasons for draft decision

Overall, the AER does not accept that Murraylink's proposed total forecast capex meets the requirements of the NER or is consistent with the NEO.[79] The AER considers Murraylink has proposed a forecast that does not reasonably reflect efficient costs. There are two major considerations for the AER's draft decision.

Firstly, the AER considers proposed expenditure for three discreet projects have not been substantiated or do not meet the definition of a prescribed transmission service. Consequently, the AER has made adjustments to the following components of Murraylink's capex forecast to develop a substitute forecast as required under the NER:[80]

- control system end of life replacement
- control system black start
- control system reduction of converter losses.

Secondly, the AER considers Murraylink's forecast is based on an asset management framework and underlying supporting systems and methods that do not provide it with the ability to make the best informed asset management decisions. Thus Murraylink's proposed total forecast capex is largely based on refurbishment of the asset lives of its ancillary equipment. However, the AER notes Murraylink demonstrated its intention to upgrade its asset management framework and practices over the 2013–23 regulatory control period which includes improved software.[81] The higher costs Murraylink are likely to incur in developing and applying its new system cannot stand alone without considering the benefits that are likely to arise. Thus, the AER considers the benefits Murraylink will incur from the implementation of this upgrade would at least be equal to the investment of its implementation. The AER therefore considers no allowance should be provided for this software upgrade in Murraylink's total forecast capex.

The AER's detailed reasons are discussed below.

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79 NER, clause 6A.14.1(2)(ii), NER, clause 6A.6.7(c), NEL, s.7 and s.7A.
80 NER, clause 6A.14.1(2)(ii), NER, clause 6A.6.7(c), NEL, s.7 and s.7A.
81 Energy Infrastructure Investments, *Asset management strategy Murraylink and Directlink*, 2012, p. 4.

2.4.1 Unsubstantiated capex projects

The AER considered three discrete projects were either not substantiated or do not meet the definition of a prescribed transmission service. Consequently, the AER has made adjustments to the following components of Murraylink's capex forecast to develop its substitute forecast as required under the NER.[82]

Control system end of life replacement

The AER does not accept Murraylink's $2.3 million ($2012–13) proposal for control system end of life replacement capex.[83] The AER considers this cost is already accounted for elsewhere and therefore Murraylink's proposal is in excess of expenditure required to achieve the capex objectives, particularly for maintaining the reliability, safety and security of the transmission system.[84]

The AER notes Murraylink's asset management plan contains a capex proposal for the control system end of life replacement.[85] The asset management plan states this proposal is to upgrade Murraylink's control system computerised components and software.[86] CHC considered the proposal to be reasonable but questioned the costs because they were stated as two different costs in different parts of Murraylink's proposal.[87] It considered the lower of the two costs of $0.8 million (nominal) was a more reasonable amount for such a project although it was still waiting for Murraylink to provide it with a business case for this proposal. At the time of this draft decision a business case had still not been provided.

The AER considers Murraylink's capex proposal double counts for the control system end of life replacement because the cost is stated as two different costs, both of which Murraylink has included in its proposal. That is, Murraylink in its ancillary equipment refurbishment proposal included a cost for the upgrade of Murraylink's control system. The cost is described as 'hardware and software'.[88] The AER considers this descriptor is consistent with that in the asset management plan and therefore refers to the same project.[89] The AER notes that CHC requested Murraylink provide it with reasons for the variation in costs for this project in the two parts of the proposal.[90] In response, Murraylink referred to another question raised by CHC which noted the variance in cost were due to a version control issue.[91] The AER considers this version control issue caused Murraylink to account for this project twice.

Therefore, the AER does not accept Murraylink's $2.3 million ($2012–13) proposal for control system end of life replacement capex as this is already accounted for in Murraylink's proposed ancillary equipment refurbishment proposal. The AER therefore substitutes an amount of $0.

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82 NER, clause 6A.14.1(2)(ii), NER, clause 6A.6.7(c), NEL, s.7 and s.7A.
83 The AER notes the $2.2 million is consistent with Murraylink's cost information templates and consequently its revenue proposal. However, the AER notes Murraylink's asset management plan has a value of $2.4 million.
84 NER, clause 6A.6.7(a)(4).
85 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, pp.10 and 12.
86 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, p. 12.
87 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 23–4.
88 Murraylink, *Ancillary data spreadsheet*.
89 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, p. 12.
90 AER, *Information request AER.ML/013 of 20 August 2012.*
91 Murraylink, *Email response to information request AER.ML/013 20 August 2012*, received 27 August 2012, p. 4.

Capital growth capex

In addition to the refurbishment program of capex, Murraylink has proposed some additional capex for what it describes as 'capital growth capex'. The AER does not accept this capex for the reasons set out below.

Black start capability

The AER does not accept Murraylink's $2.2 million ($2012–13) capex proposal for control system enhancement – 'black start' as it is not a prescribed service. Black start capability is the ability to operate and supply an electricity network that is separated from any frequency controlling generators.[92]

Each of the capex objectives provide that a TNSP's capex forecast can only include capex for the provision of prescribed transmission services.[93] Prescribed transmission services are those services which are for the purpose of meeting the relevant jurisdictional electricity legislation, or which are required under the NER.[94] The AER considers Murraylink's proposal does not satisfy either of these requirements. Thus the AER does not consider that the provision of black start services, as proposed by Murraylink, would be for the provision of prescribed transmission services.

Murraylink stated that if its capability were more fully utilised than is presently it could provide greater benefits to the market.[95] Murraylink's interconnector can function only if there is a live transmission connection at both of its terminals.[96] As such it cannot be used to supply an isolated load area or 'island' or to enable the start-up of generators, at times of system blackout.[97] However, Murraylink stated this capability can be provided by modifying its control systems.[98] Murraylink has proposed $2.2 million ($2012–13) to modify its control systems, to allow it to provide 'black start' support to the two adjacent regions or to islanded sub–systems.[99]

CHC identified three possible applications of the proposed augmentation:

- to provide a means of supplying Riverland (South Australia) loads if both alternate current lines supplying the Berri area are out of service
- to provide a means of supplying North West Victorian loads if both alternate current lines supplying the Red Cliffs area are out of service
- to participate in AEMO's system restart strategy if supply to both South Australia and Victoria is interrupted.[100]

In respect of the first two applications, Murraylink stated that an enhancement to its control system would be required to permit the link to supply an isolated or 'black' system. It considered this approach would provide this service at a lower cost than traditional sources.[101]

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92 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, p. 13.
93 NER, clause 6A.6.7(a).
94 NER, Chapter 10.
95 Murraylink, *Revenue proposal*, pp. 2–3.
96 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 25.
97 Murraylink, *Capital expenditure business cases: Effective July 2013 to June 2023, Control system enhancement – black start*, May 2012, p. 1.
98 Murraylink, *Capital expenditure business cases: Effective July 2013 to June 2023, Control system enhancement – black start*, May 2012, p. 1.
99 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, p. 13.
100 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 25–26.

The AER considers that the reliability standard that it is required to meet assumes that there will always be at least one alternate current line supplying the Riverland and North West Victorian loads. Accordingly, Murraylink's proposal to provide energy to 'islanded' regions would be beyond the scope of the provision of prescribed transmission services. CHC also considered that the first two applications would not constitute the provision of prescribed services:[102]

> The reliability standard at both these locations is the ability to meet the whole demand (or a defined portion of it) while one of these paths is unavailable. According to this standard at least one of the AC paths will always be assumed to be available, and there is no requirement for Murraylink to operate into a dead system. The proposed enhancement would therefore result in a capability to supply the regional loads that is in excess of the requirement for a prescribed service.

In respect of the third application, Murraylink accepted that system restart services are not prescribed services.[103]

The AER notes that AEMO's system restart strategy is to start the network in defined geographic areas and the final stage is to interconnect these areas.[104] Because Murraylink is situated between Victoria and South Australia, the path it provides would not be used as part of the current system restart strategy.

Another consideration is that in implementing a system restart strategy AEMO uses the prescribed networks to connect pairs of generators.[105] If a generator located near Murraylink wished to tender for system restart services but needed Murraylink to provide a path, then Murraylink could enter a commercial arrangement with that generator. However, this would then be beyond the scope of the provision of prescribed transmission services.

The AER considers that providing black start services would not amount to prescribed transmission services and therefore does not satisfy the capex objectives.[106] Therefore, the AER does not accept Murraylink's proposed to modify its control system and substitutes an amount of $0.

Contingent reduction of converter losses

The AER does not accept Murraylink's proposed capex of $2.0 million ($2012–13) for 'contingent reduction of convertor losses'.[107] The AER is not satisfied that the proposed costs reasonably reflect the costs of a prudent TNSP and the efficient costs of achieving the capex objectives.[108] Thus the AER does not accept Murraylink proposed capex and substitutes an amount of $0.

Murraylink provided a description but not a business case for this project. It stated that the proposed capex is needed to improve the switching pattern of its insulated–gate bipolar transistors.[109] These are the valves that convert alternating current and direct current at Murraylink's terminals.[110] Improving the switching patterns of Murraylink's insulated–gate bipolar transistors is claimed to

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101 Murraylink, *Email response to information request AER.ML/013 20 August 2012*, received 27 August 2012, p. 6.
102 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 26.
103 Murraylink, *Email response to information request AER.ML/013 20 August 2012*, received 27 August 2012, p. 6.
104 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 26.
105 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 26.
106 NER, clause 6A.6.7(a)(4).
107 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, p. 13.
108 NER, clause 6A.6.7(c)(1) and (2).
109 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, p. 13.
110 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 9

reduce transmission losses, which could provide an economic basis for the project if the anticipated reduction is significant.[111]

The AER requested Murraylink to forecast the expected economic benefits.[112] This information was not provided,[113] so CHC conducted its own analysis using estimates from historical dispatch data and the average utilisation of Murraylink at full capacity:[114]

> Murraylink's dispatch data for the 2011 – 2012 fiscal year records that Murraylink's total losses were approximately 30,000 MW-hours. This is a low figure that represents average utilization at about 20% of Murraylink's full capacity. The value of the total lost energy is of the order of $1.2 m at an average regional reference node price of $40/ MW-hour. A 10% reduction in the total loss would be worth $0.12 m per annum, or $2.04 m if capitalised at 10% over 30 years remaining life.

The analysis from CHC concluded that the proposed capex of $2.1 million ($ nominal) is not justified considering the likely economic benefit is only $2.0 million ($ nominal).[115] Moreover, it was also noted that the proposed capex would have no effect on other transmission losses which, for example, arise in Murraylink's transformers and connecting cables.[116]

Murraylink stated that the future carbon pricing regime may focus attention on transmission system losses.[117] The AER does not consider this to be a reasonable basis on which to justify the proposed capex. There are more prudent methods of dealing with regulatory changes affecting a TNSP, such as the cost pass through mechanism in the NER. This is consistent with previous AER decisions which approved a pass through of costs for a pipeline operator following the introduction of the carbon pricing regime.[118]

2.4.2 Asset management framework

The AER has assessed Murraylink's:

- past capex
- asset management framework
- capex efficiency factor.

The AER's assessment of Murraylink's asset management framework is relevant to forming a view on whether the proposed capex forecast is reasonable. The AER's consideration of key components of Murraylink's asset management methods and governance are discussed below.

Past capex

Adjustments to past capex are outside the AER's scope under the NER.[119] However, the AER has reviewed Murraylink's past capex in considering the forecast expenditure proposed for the 2013–23 regulatory control period. This review will assist the AER in forming a view on Murraylink's current

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111 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 9.
112 AER, *Information request AER.ML/013 of 20 August 2012*, p. 3.
113 Murraylink, *Email response to information request AER.ML/013 20 August 2012*, received 27 August 2012 (information sought in request left blank), p. 6.
114 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 27.
115 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 27.
116 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 27.
117 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*, p. 13.
118 AER, *Allgas Energy cost pass through application*, June 2012.
119 NER, s6A.2.1(f).

asset management framework which is relevant to determining whether Murraylink's forecast allowances for the 2003–13 regulatory control period are efficient and prudent.

Murraylink has incurred capex intermittently since 2005–06 with a large part of this estimated to be in 2011–12 and 2012–13. The AER did not provide a capex allowance to Murraylink in its 2003 transmission determination.[120] However, Murraylink proposed that it expected to incur $2.7 million ($2012–13)[121] of capex over the 1 October 2003 to 30 June 2013 regulatory control period to 'maintain the serviceability and performance' of its network.[122]

The AER considers the capex in the 1 October 2003 to 30 June 2013 regulatory control period is reasonable. CHC noted that the previous opex allowance was:[123]

> ...set at the notional efficient cost of maintaining the AC transmission asset that would have satisfied the regulatory test at the time.
>
> Such an allowance would not have been sufficient to adequately maintain the type of equipment that comprises the Murraylink asset. Hence it is not surprising that Murraylink has incurred additional costs that it has chosen to submit as historic capex.

However, Major Energy Users submitted that it was not satisfied with the accuracy of Murraylink's estimates for 2011–12 and 2012–13 because there is a significant step compared to previous years.[124] It submitted that Murraylink undertook this expenditure to demonstrate a need for capex over the 2013–23 regulatory control period.

CHC questioned Murraylink about the historical values in its cost information templates. Murraylink responded that some of these values were not necessarily expenditure incurred but instead inputs to assist in forecasting future capex requirements.[125] The AER notes this appears to be consistent with Murraylink's spreadsheets where part of the forecast has been developed by taking the 2011–12 and 2012–13 values and then extrapolating forward based on proposed asset lives.[126] The AER considers Murraylink's estimates for 2011–12 and 2012–13 may be not be reasonably arrived at in so far as they reflect an asset management framework that is not consistent with good industry practice

The AER's consideration of this is set out below.

Asset management framework

The AER does not consider Murraylink's asset management framework is consistent with good industry practice and this is reflected in Murraylink's proposed capex. The AER considers that the asset management framework is outdated and its proposed asset management approach is focussed on a simple refurbishment capex program based on asset lives. This is not consistent with other TNSPs who focus on condition monitoring and maintenance.[127] Murraylink accepts that its measurement of asset condition needs to improve.[128] Therefore, the AER considers a forecast based on outdated asset management practices may overstate the capex required for the 2013–23 regulatory control period.

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120 AER, *Final decision, Murraylink transmission determination*, October 2003, pp. 164-5.
121 The 2003-11 capex is actual capex incurred while the 2011-12 capex is an estimate.
122 Murraylink, *Revenue proposal*, p. 18.
123 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 29.
124 Major Energy Users Inc., Submission re: Murraylink application for a revenue reset, 13 August 2012, p. 2.
125 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 48.
126 Murraylink cost information templates.
127 AER, *Draft decision, ElectraNet transmission determination*, November 2012, attachment 4.
128 Energy Infrastructure Investments, *Asset management strategy Murraylink and Directlink*, 2012, p. 4.

The AER considers good industry practice asset management frameworks focus on the condition of the asset and the risk of failure through routine monitoring. As such, asset managers are able to make decisions about the economically efficient trade-off between expenditure and risks based on the condition of the assets. Such frameworks allow for assessments of future cost implications of bringing forward or deferring corrective maintenance and refurbishment/replacement, using economic analysis such as net present value calculations.[129]

This view is supported by CHC:[130]

> The principles adopted by Murraylink for asset maintenance are not seen as reflecting modern industry practice in that there is an emphasis on replacement of plant due to age or number of operational hours. The principle should be that action is based on condition assessment and the performance history of the asset.

Subsequent to supplying its revenue proposal, Murraylink provided a copy of its latest asset management strategy document.[131] The AER and CHC consider the asset management strategy document provides a high level direction which demonstrates a progression towards good industry practice asset management. In particular, the asset management strategy document places an emphasis on asset inspection and condition monitoring practices and possible modification of its current asset management practices where more reliable and efficient practices may be available.[132] However, the influence of this asset management strategy document is not fully reflected in Murraylink's capex proposal.[133]

The AER notes that Murraylink is investigating a more robust and reliable database which will assist its asset management practices. Energy Infrastructure Investments —Murraylink's owner—stated in the asset management strategy document:[134]

> EII recognises the importance of the asset database in which the asset service history, condition and test and investigation outcomes are recorded. This is the foundation from which optimal decisions on:
>
> - the necessary routine maintenance scheduling; and
> - major maintenance or replacement;
>
> are made.
>
> At present, the asset management records for Murraylink and Directlink are largely kept in spreadsheet form. It is recognised that, even for these relatively small entities, this does not provide optimal support for asset management decision making.

The asset management strategy document further stated Energy Infrastructure Investments is investigating the purchase of more sophisticated software that will enhance its ability to make more optimised asset management decisions.

Improving processes like this will provide Murraylink with the opportunity to better align its practices with the asset management strategy document over the 2013–23 regulatory control period. The AER expects that such improvements would be justified on a cost–benefit basis such that it will deliver cost efficiencies at least equal to the investment of its implementation.

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129 EMCa, *Advice on forecast capital and operational expenditure, contingent projects and performance scheme parameters*, October 2012, p. 120, paragraph 448.
130 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 3–4.
131 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*.
132 Energy infrastructure investments, *Asset management strategy Murraylink and Directlink*, 2012, pp. 3–4.
133 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 12.
134 Energy Infrastructure Investments, *Asset management strategy Murraylink and Directlink*, 2012, p. 4.

Murraylink acknowledged that its proposed total forecast capex did not include the costs of implementing the upgrade to its asset management framework.[135] Murraylink requested these costs be added to its proposed total forecast capex. However, the AER considers to appropriately account for the capex cost–benefit balance over the 2013–23 regulatory control period these costs should not be added to Murraylink's proposed total forecast capex. The implementation costs are relatively modest and will be completed by the first year of the 2013–23 regulatory control period.[136] Therefore the AER considers Murraylink would be able to recover these investment costs through efficiencies over this time period. The AER considers this a reasonable consideration given the length of the regulatory control period (10 years).

Further, the AER considers once the upgraded asset management framework is in place it will deliver additional efficiencies not reflected in Murraylink's current capex proposal. The AER has taken this into consideration in assessing Murraylink's capex proposal and made adjustments where required.

Capex efficiency factor

The AER reviewed Murraylink's proposed capex to assess whether incentives were in place to promote economic efficiency. The AER decided, as a result of this assessment, to incorporate a capex efficiency factor.

Murraylink did not propose any forecast efficiencies for its total forecast capex. By doing so Murraylink is proposing that its asset management approach will not become any more efficient over the 2013–23 regulatory control period. The AER does not consider this reasonable given Murraylink's focus to improve its asset management framework and the underlying supporting systems and methods discussed above. Further, the AER considers that not proposing any forecast efficiencies is not reasonable given the length of the regulatory control period (10 years) and the large amount of repetitive refurbishment capex approved.

Thus, the AER considers efficiencies will be achieved as Murraylink aligns its asset management approach with its documented asset management strategy. In particular, the development of a more reliable asset database will provide for more prudent asset management decisions by balancing expenditure and risks based on the condition of the assets. Instead of repetitive refurbishment based on asset lives, gains will be indentified through areas of improved capex performance based on condition and deferral of capex investment. Therefore, the AER considers that by not proposing any forecast capex efficiencies Murraylink's proposed capex is overstated in this regard. This view is shared by CHC which noted:[137]

> In some cases there are concerns regarding the level of expenditure and a more rigorous estimation would seem appropriate.

Given the long lead in time for some of these forecast expenditures, the AER considers it reasonable to conclude that Murraylink will incur capex efficiencies by undertaking prudent decision making, including alternative options, which may result in more efficient outcomes. At present, Murraylink's proposal replaces assets on a set time period, irrespective of actual asset condition. Through a more reliable asset database Murraylink's asset condition monitoring will improve and result in fewer capex refurbishments.

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135 Murraylink, *Email response to AER questions Murraylink's cost of asset management strategy*, 5 November 2012.
136 Murraylink, *Email response to AER questions Murraylink's cost of asset management strategy*, 5 November 2012.
137 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 4.

Thus, to reflect these future gains, the AER considers an annual 1 per cent efficiency adjustment factor should be applied to Murraylink's forecast capex proposal. This approach is consistent with benchmark capex that would be incurred by an efficient TNSP.[138] The AER notes its final decision for Powerlink and ElectraNet contain capex efficiency factors which start in the second year of the regulatory control period and increase annually.[139] In addition, the AER considers the application of the efficiency adjustment factor will provide Murraylink with incentive to promote economic efficiency consistent with the NEL.[140]

The AER notes that because of Murraylink's size and its static network it does not have the same ability to seek accelerating efficiencies as other TNSPs. Thus, the AER has applied a flat 1 per cent annual efficiency adjustment factor to reflect this. The AER also notes that the new asset database is scheduled to be completed in 2013–14. Murraylink noted that the transfer of data into the new asset database would be undertaken progressively once the database was installed.[141] On this basis, the AER considers Murraylink would start to see improvements in its asset management practices by as early as 2014–15. Therefore the AER has applied the annual efficiency adjustment factor from this year onwards. Table 2.3 describes the basis of the annual efficiency adjustment factor for the 2013–23 regulatory control period.

Table 2.3 Basis for Murraylink's annual efficiency adjustment factor

Year	Proposed adjustment	Reasoning for the adjustment
Year 1	None	Implementation of asset database to be completed. Transfer of data to begin.
Year 2	None	Data transfer to continue. Potential gains will be indentified through areas of improved capex performance and deferral of capex investment.
Years 3 to 10	1 per cent of total capex for year	Gains from improved capex performance will begin to be realised. Gains from deferral of capital investment will begin to be realised.

Source: AER analysis.

The AER considers this application of the efficiency adjustment factor is consistent with its approach in previous decisions and with technical expert opinion.[142]

The AER considers that Murraylink should continuously monitor, quantify and internally report on its asset management improvements. This will provide valuable information for setting expenditure forecasts consistent with the NEO (long term interests of service providers and users). At the next revenue reset, the AER will review Murraylink's improvement initiatives during the 2013–23 regulatory control period and recognise efficiency benefits on an ongoing basis.

138 NER, clause 6A.6.7(e)(4). See: ElectraNet, *Revenue proposal 1 July 2013 — 30 June 2018*, 31 May 2012, pp. 72–73.
139 See: AER, *Final decision, Powerlink transmission determination*, April 2012, pp. 120-2; ElectraNet, *Revenue proposal 1 July 2013 — 30 June 2018*, 31 May 2012, pp. 72–73.
140 NEL, s7A.
141 Murraylink, *Email response to AER questions Murraylink's cost of asset management strategy*, 5 November 2012.
142 See: AER, *Final decision, Powerlink transmission determination*, April 2012, pp. 120-128.

Real cost escalators

Overall, the AER does not accept that Murraylink's proposed real cost escalators reasonably reflect a realistic expectation of the cost inputs required to achieve all the capex objectives.[143] It has determined the substitute escalators which reflect the AER's considerations that:

- the Labour Price Index (LPI) provides a more accurate measure of labour cost changes compared to Average Weekly Ordinary Time Earnings (AWOTE)
- real labour cost escalation should not be productivity adjusted because of issues with measuring and forecasting productivity.

Attachment 1 contains the AER's consideration of the real cost escalators proposed by Murraylink. The impact of the application of the AER's real cost escalators on Murraylink's proposed capex is $0.1 million ($2012–13).

2.4.3 Refurbishment capex

Murraylink is a single transmission link and apart from the proposed contingent project discussed at attachment 11 there is no additional augmentation or connection capex required for the 2013–23 regulatory control period. As such, Murraylink's proposal is largely focussed toward refurbishment capex to maintain the network service it currently provides.

Capex categorisation

The AER considers Murraylink's approach to capitalising its refurbishment projects is appropriate. CHC considered many of the refurbishment capex projects put forward by Murraylink should be classified as opex rather than capex as they relate to maintenance and are inconsistent with Murraylink's capitalisation policy.[144]

The AER acknowledges that the 'line' between determining whether a proposed expenditure is opex or capex is not always easy to identify. The AER considers CHC's definition of capex was too narrow. The AER notes that the Australian Competition Tribunal concluded in *Application by Jemena Gas Networks (NSW) Ltd (No 3) [2011] ACompT 6* that expenditure can be considered capex even if no new assets are created or the lives of existing assets are not extended.[145] The majority of the projects CHC considered should be opex relate to the refurbishment of ancillary equipment that does not extend the life of the primary equipment.[146] Although this type of refurbishment could be classified as opex, the AER considers Murraylink's proposal to classify this as capex is consistent with the Australian Competition Tribunal's decision. Thus, the AER considers Murraylink's proposal to classify ancillary equipment refurbishment as capex is appropriate.

The AER acknowledges CHC's view that maintenance solutions may be more appropriate than capex solutions in maintaining this equipment. The AER's discussion on whether a capex or opex solution is more appropriate over the 2013–18 regulatory control period is set out below.

In relation to Murraylink's capitalisation policy, the AER notes CHC's considerations largely concerned the timing of the installation of spares.[147] The AER considers Murraylink's proposal is both consistent

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143 NER, clause 6A.6.7(a).
144 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 27–30.
145 Australian Competition Tribunal, *Jemena Gas Networks (NSW) Ltd (No 3) [2011] ACompT 6*, paragraphs 9–41.
146 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 21–3.
147 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 20–1.

with its capitalisation policy and the treatment of spares by other TNSPs. Murraylink's capitalisation policy recognises spares as capex when they are incurred. The AER accepts spares as capex but only applies depreciation once the spare is installed. The AER notes this is consistent with the treatment of other TNSPs capitalisation of spares and thus considers Murraylink's proposal is appropriate.

Ancillary equipment refurbishment

The AER accepts Murraylink's proposed capex for ancillary equipment refurbishment. However, consistent with the discussion above, the AER has concerns regarding the level of capex proposed due to the AER's assessment of the limitations of Murraylink's asset management framework. Notwithstanding these concerns, the AER accepts Murraylink's proposal to ensure it can maintain the reliability, safety and security of its network and allow Murraylink the opportunity to transition to more optimised asset management practices.[148] The AER also notes its application of the capex efficiency factor partly accounts for the uncertainty of these costs over the 2013–23 regulatory control period.

The AER considers Murraylink's asset management framework is largely focussed toward refurbishment capex as the solution to maintaining its network rather than a more routine maintenance approach as undertaken by other TNSPs.[149] The AER considers this is not a prudent and efficient approach as Murraylink's proposal replaces assets on a set time period, irrespective of actual asset condition. CHC also noted its concerns with the amount of proposed ancillary equipment refurbishment over the 2013–23 regulatory control period and the short asset lives assigned to this equipment.[150] In CHC's expert opinion it noted:[151]

> Similar plant in, say, a power station would stay in service with regular inspections and infrequent overhauls for many more years.

The AER notes that part of this forecast refurbishment may be driven by inappropriate asset utilisation practices. CHC suggested that it is probable that some assets incurred earlier than expected failure rates and therefore the refurbishment of these items should be supported as a once off cost.[152] It considered once the reason for the failure was known more optimised decisions for the management of this asset could be undertaken. However, based on its analysis it appeared these optimised decisions had not been proposed in the forecast capex.

For example, CHC considered a liquid chiller unit may be found unsuitable for the operating environment it was installed in.[153] Thus a simple 'like for like' replacement of the asset may not address the fundamental issue of the failure. It considered a more optimised approach might be to undertake more routine maintenance or use alternative replacement components to remove unreliable ones. However, it noted Murraylink's forecast is based on a 'like for like' replacement. As such CHC recommended the AER reject Murraylink's proposal as capex and provide a corresponding increase in opex for routine maintenance.

Overall, the AER agrees with CHC's recommendation. However, the AER is unable to conclude that Murraylink is in the position at the start of the 2013–23 regulatory control period to make these

148 NER, clause 6A.6.7(a)(4).
149 AER, *Final decision, ElectraNet transmission determination*, November 2012, attachment 3.
150 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 21–3.
151 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 22.
152 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 14.
153 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 14.

optimised decisions. The AER notes Energy Infrastructure Investment's approach to asset management includes:[154]

> Determining the most appropriate and cost effective form of maintenance activity is derived from the analysis of asset records and condition assessment and is influenced by many factors...

Energy Infrastructure Investment also stated that Murraylink's current systems do 'not provide optimal support for asset management making decisions'.[155] The AER acknowledges that Murraylink is investigating possible ways to resolve this issue, namely the purchasing of asset database software. The AER considers Murraylink will benefit from the implementation of the asset database software and more optimised asset management will be achieved over the 2013–23 regulatory control period. The asset database software may also extend the asset lives of the proposed ancillary equipment. However, the timing for the implementation of this software is at present unknown.

Therefore instead of making an adjustment to Murraylink's proposal, the AER proposes to enable Murraylink to undertake at least one round of refurbishment of these assets over the 2013–23 regulatory control period to address any failure issues. This will allow Murraylink to maintain the reliability, safety and security of its network.[156] The AER has made an adjustment in Murraylink's regulatory asset base to reflect this (see attachment 5).

In addition, to reflect the likelihood of these efficiencies over the 2013–23 regulatory control period the AER has applied an efficiency adjustment factor to Murraylink's capex. The AER considers by improving processes like this Murraylink will better align its practices with the improved asset management strategy over the 2013–23 regulatory control period. This in turn will deliver efficiencies not yet reflected in its capex proposal.

2.5 Revisions

Revision 2.1: Make all necessary amendments to reflect the AER's draft decision on capital expenditure for the 2013–23 regulatory control period in Table 2.1.

154 Energy Infrastructure Investments, *Asset management plan (Murraylink) 2012–2016*.
155 Energy Infrastructure Investments, *Asset management strategy Murraylink and Directlink*, 2012, p. 4.
156 NER, clause 6A.6.7(a)(4).

3 Operating expenditure

Operating expenditure (opex) refers to the operating, maintenance and other non-capital costs, including labour and materials costs, incurred in the provision of prescribed transmission services. The AER must accept Murraylink's proposed forecast opex for the 2013–23 regulatory control period if satisfied the forecast reasonably reflects the opex criteria set out in the NER.[157] If not satisfied, the AER must give reasons for not accepting the proposal and substitute the total required opex that reasonably reflects the opex criteria. In doing so, it must have regard to the opex factors.[158]

3.1 Draft decision

The AER does not accept Murraylink's proposed forecast opex of $40.1 million ($2012–13)[159] for the 2013–23 regulatory control period. The AER's substitute opex forecast is $34.08 million, or $6.06 million (15 per cent) less than proposed. Table 3.1 and Figure 3.1 sets out Murraylink's proposal, the AER's decision and the difference between the two.

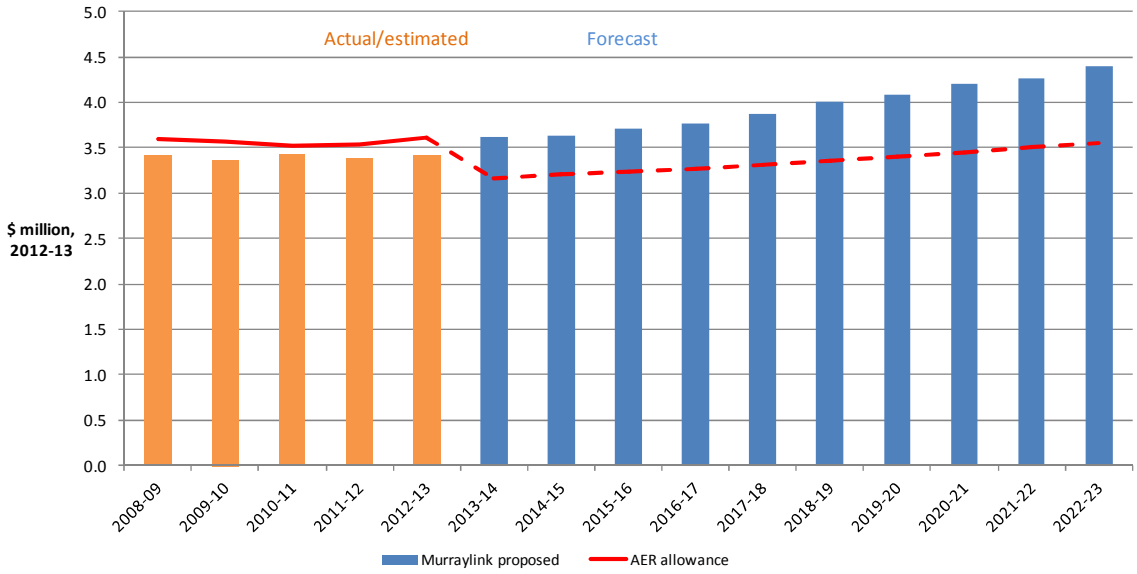
Table 3.1 Murraylink proposed opex and AER decision, 2013–23 ($ million, $2012–13)

	Murraylink proposed	AER draft decision	Difference
Maintenance	7.76	3.63	-4.13
Direct costs	24.52	23.26	-1.25
Overheads	7.25	6.58	-0.68
Sub-total	39.53	33.47	-6.06
Debt raising costs	0.61	0.61	-
Total	40.14	34.08	-6.06

Source: Murraylink, *Cost information template*, May 2012 and AER analysis.

157 NER, clause 6A.6.6 (c).
158 NER, clauses 6A.6.6 (d), 6A.12.1(c) and 6A.14.1(3)(ii).
159 All dollars in this document are 2012–13 prices unless otherwise stated. Murraylink's proposal was presented in nominal dollars but its PTRM inputs were in 2012–13 prices.

Figure 3.1 Murraylink actual/estimated and proposed opex and AER decision, 2008–23 ($ million, $2012–13)



Source: Murraylink, *Cost information template*, May 2012 and AER analysis.

3.2 Murraylink's proposal

Murraylink's controllable opex proposal was $39.5 million for the 2013–23 regulatory control period, this is a real increase of $1.2 million (3.2 per cent) on its 2003–13 opex allowance. During the 2013–23 regulatory control period, the opex forecast increases by 21 per cent (real).

Figure 3.2 shows Murraylink's actual opex (2008–11), estimated opex (2011–13) and proposed opex (2013–23) by cost category. Murraylink submitted that its costs are efficient because its opex costs are competitively outsourced and are below the consumer price index (CPI) adjusted regulatory allowance.[160] However, figure 3.2 shows that while most costs drivers show a real decrease over the 10 year period, overheads, management fees and margins shows a real increase, which is the largest driver of the overall increase in Murraylink's proposed opex.

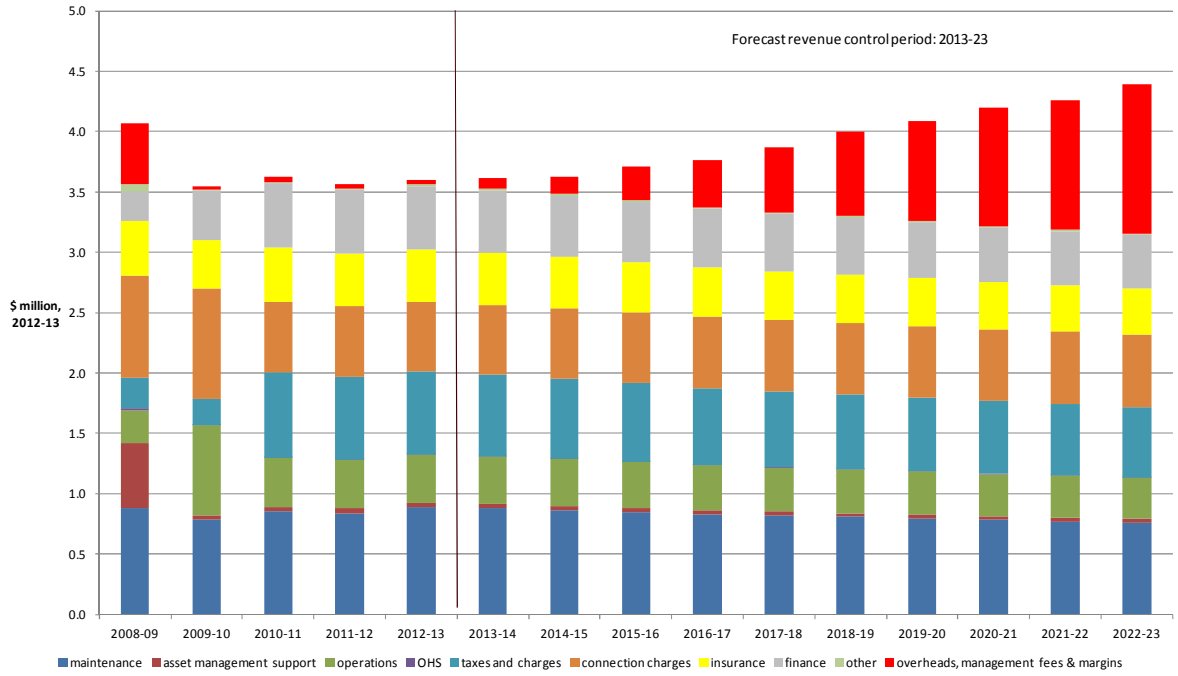
Energy Infrastructure Investments Pty Limited (EII) is the holding company of Murraylink. Murraylink outsources the operation and maintenance of its network to APA Operations Pty Limited (APA). In turn, APA manages the operation of the network, either through providing 'in-house' services or by sub-contracting to third parties. APA recovers its costs and direct overheads from Murraylink on the basis of a service agreement between APA, EII and Murraylink.[161]

As such, a large driver of Murraylink's forecast opex is the costs and fees it pays to APA under the service agreement. These costs include fees for the actual direct and indirect costs incurred by APA in providing the outsourced services, a margin and a commercial services fee. Murraylink submitted that its costs are efficient because its opex costs are competitively outsourced and are below the CPI adjusted regulatory allowance.[162] It stated that the opex costs are the result of a competitive tender process because its contractor (APA) engaged a subcontractor to perform maintenance of the

160 Murraylink, *Revenue proposal,* p.15.
161 Murraylink, *Management, operations and maintenance and commercial services agreement*, 2008 [confidential]
162 Murraylink, *Revenue proposal*, p.15.

Murraylink asset via an expression of interest process.[163] It also stated that expressions of interest would be sought at the expiry of the existing third party contract in June 2012.[164]

Figure 3.2 Murraylink's actual/estimated and proposed opex by cost category, 2008–23 ($ million, 2012-13)



Source: Murraylink, *Cost information template*, May 2012 and AER analysis. Note: does not include debt raising costs.

3.2.1 Murraylink's forecasting method

Murraylink used an historical cost approach to develop its opex forecast, where its forecast was escalated from a base year (2011–12) using labour, CPI or contract services escalators. The main inputs to its forecast are:

- routine maintenance costs
- fault and condition costs
- operations costs
- management fees, corporate overheads and margins
- cost escalators.

3.3 Assessment approach

The NER requires the AER to determine if Murraylink's proposed total forecast opex reasonably reflects the opex criteria. That is, the forecast must reflect the efficient costs a prudent operator in Murraylink'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.[165] If the AER does not accept the

163 Murraylink, *Revenue proposal*, pp. 41–42
164 Murraylink subsequently confirmed that this had occurred.
165 NER, clause 6A.6.6(c).

opex forecast, it must estimate the total amount of Murraylink's required opex it considers reasonably reflects the opex criteria, taking into account the opex factors.

In reviewing Murraylink's proposal, the AER engaged with stakeholders, including the Australian Energy Market Operator, SA Power Networks and ElectraNet. The AER also sought public submissions and held a public forum in July 2012. The AER considered submissions from ElectraNet, TransGrid and Major Energy Users Association of Australia and engaged with Murraylink throughout the review process. The AER engaged CHC to advise it on Murraylink's proposed capex and opex and Deloitte Access Economics to assess Murraylink's forecast of labour cost escalation.[166]

The AER must form a view on Murraylink's proposed total forecast opex as a whole, not individual projects or programs.[167] However, as Murraylink has done, a TNSP may separate the total forecast opex into expenditure components. In turn, the AER has assessed these components in forming a view about the total opex required to meet the opex objectives. The AER used a mixture of top down and bottom up techniques in its review. It used a base-year-extrapolated (revealed costs) approach to assess whether Murraylink's total forecast reasonably reflects the opex criteria and as the basis for its substitute forecast.

3.4 Reasons for draft decision

The AER does not accept that Murraylink's proposed forecast total opex because it does not reflect the efficient costs that a prudent operator in Murraylink's circumstances would require to meet the opex objectives.

The AER developed a base-year-extrapolated forecast to assess whether Murraylink's proposed forecast reasonably reflects the opex criteria. The AER then assessed each cost driver in detail.

The AER's review found that Murraylink's proposed opex forecast did not meet the opex criteria because it over estimated the costs a prudent operator in the circumstances of Murraylink would require to achieve the opex objectives.[168] Further, the forecast was not based on a realistic expectation of the cost inputs required to achieve the opex objectives.[169] because its base year costs did not reflect the efficient, recurrent cost (as a base to extrapolate from) and that its labour cost escalation was too high. The AER used its base-year-extrapolated forecast as a substitute.

The difference between the AER's substitute forecast total opex ($34.08 million) and Murraylink's proposal ($40.14 million) for 2013–23 was primarily driven by contracted services costs of $4.1 million that were not substantiated. The reduction in contracted services also reduced the overheads, fees and margins payable to APA of $0.70 million, because these are, in part, proportional to the contract service cost. Additionally, the AER applied a 2.5 per cent efficiency factor which resulted in a further reduction of about $0.86 million. The escalators adopted by the AER had a small impact as well. Table 3.2 sets out the AER's adjustments.

166 The scope of CHC's review is set out in the AER's 'Terms of reference for technical consultant and demand forecast consultant'.
167 NER, clause 6A.6.6(c).
168 NER, clause 6A.6.6(c)
169 NER, clause 6A.6.6(c)

Table 3.2 AER's substitute forecast adjustments ($ million, 2012–13)

Adjustment	$	$
Murraylink proposal		**39.53**
Contracted services - unsubstantiated costs	-4.10	
Overheads, fees and margins (partially proportional to contracted services adjustment)	-0.70	
Cost escalation	-0.41	
Subtotal		34.33
Efficiency adjustment, 2.5%	-0.86	
AER forecast		**33.47**

Source: AER analysis based on Murraylink, *Cost information template*, May 2012. Table excludes debt raising costs.

In coming to its decision, the AER had regard to the following issues:

- the efficiency of the base year (section 3.4.1)
- the contractual arrangements for outsourced activities (section 3.4.2)
- connection costs (section 3.4.3)
- overheads, management fees and margins (section 3.4.4)
- assessment of cost escalation (section 3.4.5)
- opex efficiency factor (section 3.4.6)
- debt raising costs (section 3.4.7).

3.4.1 Efficiency of base year

Murraylink used 2011–12 as the base year from which it escalated its forecast opex costs. The AER accepts that 2011–12 is an appropriate base year reflective of recurrent costs, but the base year required some adjustment to ensure it is an efficient reference base year. The AER's adjustment was a decrease in forecast opex for contracted services (and consequently overheads) which is discussed in section 3.4.2 and section 3.4.6.

In developing the base-year-escalated forecast to assess Murraylink's opex forecast, the AER first considered the incentive framework and Murraylink's current circumstances. Murraylink did not have an efficiency benefits sharing scheme (EBSS) during the 2003–2013 regulatory control period. The AER will apply the scheme to Murraylink in the 2013–23 regulatory control period, this is discussed in attachment 1. The NER regime provides incentives for a TNSP to reduce opex because it may retain any cost savings made during the regulatory control period. While this incentive to reduce expenditure declines over the period, the EBSS provides TNSPs with a continuous incentive to make savings. The revenue cap control mechanism also delivers savings because revenue is fixed during the regulatory control period, so any cost savings are retained by the TNSP. The EBSS and the revenue cap control mechanism interact to incentivise service providers to undertake opex that meets the opex objectives. However, in the absence of an EBSS scheme, such as in the 2003–13 regulatory control period, this incentive to reduce expenditure dissipates through time.

None-the-less Murraylink's total annual opex was below its allowance for each year in 2008–09 to 2012–13. The AER accepts 2011–12 as a year that is reflective of recurrent costs (but after adjustments for factors outlined in section 3.4.2 and section 3.4.6) and therefore as an appropriate base year from which to escalate for future requirements.

3.4.2 Contracted services - field maintenance

Murraylink proposed a total field maintenance forecast of $7.8 million for the 2013–23 regulatory control period.[170] The AER does not accept Murraylink's forecast maintenance opex because it does not meet the opex criteria—it is not the cost that a prudent operator in Murraylink's circumstances would require to achieve the opex objectives.[171] The AER considers Murraylink overestimated its forecast opex for contracted services (both for routine and corrective maintenance) because it did not include a 'step-change' decrement for new ongoing contractual arrangements. The AER substituted a maintenance forecast of $3.7 million[172], which is $4.1 million less than proposed, and is based on the revealed contract price.[173]

Murraylink outsources its field maintenance activities to APA. APA either performs the activities directly or sub-contracts to third party contractors. The AER observed a large difference between Murraylink's proposed forecast opex for its 'contracted services' and the total of the sub-contract prices. On 31 May 2012, when it submitted its proposal, APA had contracted out Murraylink's field maintenance services to Transfield. That contract ceased on 30 June 2012 and was not renewed. As of 1 July 2012, APA engaged another set of maintenance sub-contractors at a significantly lower cost. The lower cost in part reflects some maintenance services that were also brought 'in house' (to APA).

The AER sought clarification of:

- the cost of the services to be brought in house to APA and a description of those services[174]
- those services that were captured in the ‘routine maintenance materials’ cost and the ‘routine maintenance labour’ costs in Murraylink’s revenue proposal. The AER specifically noted that in-house costs to APA already appeared to be captured in these proposed costs.

In response, Murraylink did not explain the difference between its forecast opex for 2013–23 and the actual revealed contract price, or explain the composition of the in-house labour and materials costs included in its proposal. Instead, it reallocated its forecast opex across different maintenance categories and further increased its maintenance forecast by $2.7 million (or 7 per cent), from $39.5 million to $42.0 million (excluding debt raising costs) for the 2013–23 regulatory control period.

The AER does not accept Murraylink's revised proposed opex forecast because the AER did not request Murraylink to revise its revenue proposal.[175] The AER sought clarification of a specific difference between Murraylink's proposed forecast opex and the actual contract price payable for the same activity level. In the absence of an explanation from Murraylink, the AER applied the same ratio of 'savings' found in its revealed routine maintenance contracts to the corrective maintenance

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170 Murraylink proposed the costs in 2011-12 prices, inclusive of a margin on particular line items. The AER has adjusted these to real costs net of any margin.
171 NER, clause 6A.6.(c)(2)
172 Exclusive of the 2.5 per cent efficiency factor. The adjusted amount is $3.63 million.
173 The substitute forecast for field maintenance for 2013–23 is $3.31 million is part of the AER's base-year-extrapolated forecast, this has been calculated as a step change decrement to the base year before escalation. That is, the base year costs were decreased to ensure the base year reflects recurrent cost. This adjustment does not include the impact of the efficiency factor.
174 Information request ML/018, 18 October 2012.
175 That is, the revised proposal submitted on 26 October 2012.

forecast. The AER's substitute total forecast field maintenance opex is based on the forecast contracted services using actual contract prices and includes in-house services.

Along with its revised opex forecast, Murraylink also submitted a maintenance strategy document which set out APA's consideration of two contracting options for when APA's contract with Transfield expired.[176] The AER has considered the information in the maintenance strategy document to the extent that it answers the specific questions put by the AER to Murraylink for clarification of Murraylink's revenue proposal. The AER notes Murraylink submitted its revenue proposal on the basis that APA's existing outsourcing arrangement was coming to an end. Murraylink's revenue proposal therefore contemplates that APA will provide some services to Murraylink directly and will outsource other services to different contractors. Therefore, Murraylink's revenue proposal contemplates that routine and non-routine maintenance services will be provided by either APA or APA's sub-contractor and those costs already form the substance of Murraylink's proposal.

3.4.3 Connection costs

Murraylink proposed a total connection charge forecast of $6.99 million for the 2013–23 regulatory control period. It also proposed that these charges be subject to an annual revenue adjustment. The AER does not approve an annual adjustment mechanism to Murraylink's connection costs and considers the introduction of a series of step changes to be inappropriate. The AER considers that the opex forecast of $7 million is sufficient to cover these variations.

Murraylink pays connection charges to its adjacent TNSPs. These charges are paid to connect with SP AusNet's transmission network in Victoria and ElectraNet's transmission network in South Australia. These charges form part of the regulated revenue of ElectraNet and SP AusNet and are due to be reset on 1 July 2013 and 2014 (respectively) and again in 2018 and 2019. The charges may vary during the 2013–23 regulatory control period, so Murraylink proposed an annual adjustment to its opex to account for differences in the forecast and actual payments made.[177]

The network charges of a TNSP are directly related to its approved revenue in an AER determination. Noting this Murraylink stated its connection costs 'may change, potentially significantly, during [its] regulatory control period, as a result of AER regulatory decisions in 2013 and 2018 for ElectraNet and 2014 and 2019 for SP AusNet'.[178]

Murraylink proposed that during the 2013–23 regulatory control period, the difference between its connection cost forecast in this proposal and those actually charged should be subject to an annual revenue adjustment. The AER does not accept the proposal for an annual adjustment because it is not currently supported by the NER. The AER previously approved a pass through of costs with an annual true-up mechanism where the costs to be passed through were uncertain and occurred over multiple years.[179] Cost pass throughs are subject to a materiality threshold (of one per cent of MAR). Therefore if a change in regulatory decision for connecting TNSP charges occurs in the 2013–23 regulatory control period, and the change compared with allowance is material, Murraylink may be able to pass through the costs (negative or positive) if the NER permits.

The AER considered forecasting a step change in Murraylink's connection cost, for each time Electranet's or SP AusNet's revenues are scheduled to be reset. However, this approach is not appropriate because Murraylink's connection costs are not necessarily increasing each year.

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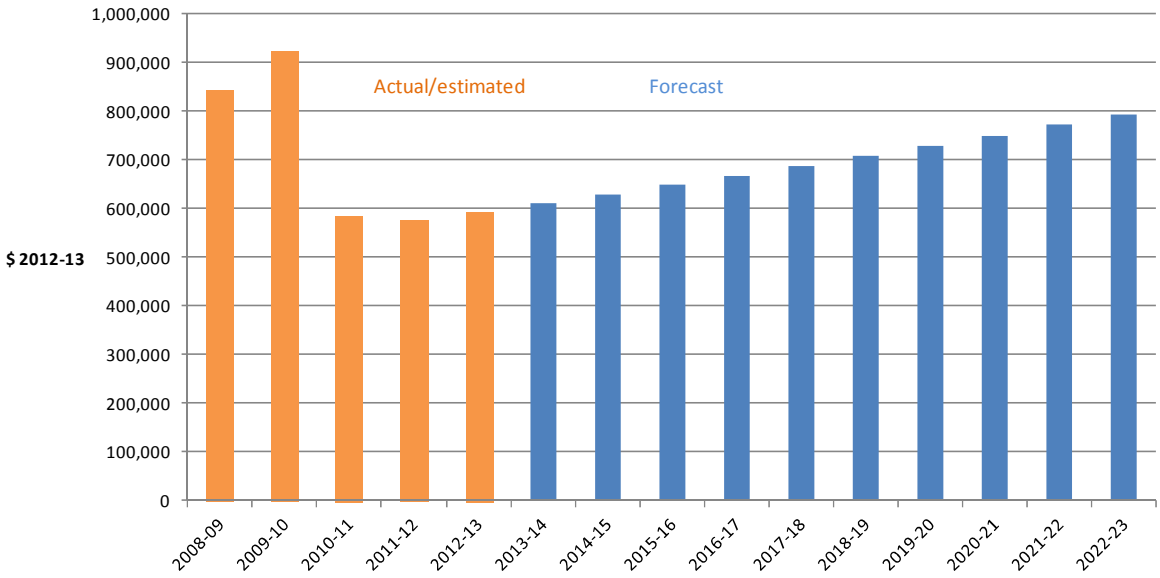
176 Murraylink, *Email from Murraylink to AER*, 26 October 2012, 3:36pm.
177 Murraylink, *Revenue proposal*, p.14.
178 Murraylink, *Revenue proposal*, p.14.
179 AER, Allgas Energy cost pass through application, June 2012.

Forecasting a series of step changes would therefore compensate Murraylink when its connection costs are high but would lead to an over recovery in expenditure when those costs are low. Figure 3.3 shows Murraylink's actual connection costs were high in 2008–09 and 2009–10 and then decreased in 2010–11 and 2011–12.

Figure 3.3 Murraylink's actual/estimated and forecast connection costs, 2008–23 ($ 2012-13)



Source: Murraylink, *Cost information template*, May 2012.

3.4.4 Overheads, management fees and margins for contracted services

Murraylink proposed a forecast margin payable to APA of about $7.2 million, which is about 22 per cent of its maintenance and operating costs. The AER calculated this margin from information provided by Murraylink, but Murraylink did not explicitly identify this amount in its proposal. The AER accepts this margin in principle meets the opex criteria, but does not accept that the value of the proposed margin reasonably reflects the efficient costs of achieving the opex objectives.[180] This is because the margin is, in part, proportional to Murraylink's other operating costs and the AER reduced those costs in its substitute forecast. Therefore the margin is also reduced.[181] The AER's substitute forecast includes $6.7 million for the forecast margin.[182]

Murraylink's forecast margin cost, while not explicit in its revenue proposal, is for all corporate services and overheads, management fees and margins.[183] The total margin is based on a variable and fixed component: that is, the total forecast margin has a component that is a percentage of specific direct cost items, as well as a corporate overhead, which is not linked to costs.[184]

The AER reviewed the contractual arrangements between Murraylink and APA. Outsourcing the operation and maintenance of transmission networks may be prudent and cost efficient where the outsourcing can take advantage of the economies of scope and scale that may be available to a large

180 NER, clause 6A.6.6(c)(1).
181 There is also a component that is not linked to operating costs, but is proportional to revenue generated within the APA group.
182 Exclusive of 2.5 per cent efficiency adjustment; $6.58 million after the efficiency adjustment.
183 From herein margin refers to any corporate overhead, management fee or margin paid by Murraylink to APA.
184 It is linked to Murraylink's proportion of revenue generate within APA's larger group of assets.

asset management company.[185] However, the AER cannot always assume this is the case and must examine the particular arrangement involved and the circumstances in which the parties entered it. In this case the AER cannot presume the contract (and contract price) is efficient because it was not the result of a competitive tender process. Rather, the arrangements were negotiated in December 2008 as part of a broader transaction in which APA sold its interest in the Murraylink transmission network asset to Murraylink. APA retains 19.9 percent ownership of Murraylink. As the contract is between parties with overlapping ownership, the overlapping owners' ability to receive dividends from both sides of the transaction may undermine the incentive to strike an efficient agreement. Similarly, negotiating several contracts as part of a broader deal may result in tradeoffs across the contracts. In turn, that may undermine the incentive to strike an efficient agreement for the particular outsourcing contract the AER is assessing.

For these reasons, the AER used a benchmarking approach to assess Murraylink's opex forecast margin with margins earned by comparable services providers. Murraylink did not provide any benchmarking of its margin costs so the AER has considered the industry benchmarking report by NERA[186] which was used in the AER's recent draft decision for Envestra.[187] NERA used the earnings before interest and tax (EBIT) margin metric as a standardised measure to assist with comparisons between different businesses.[188] The EBIT metric measured the difference between revenue and operating expenses and so provided a measure of the funds available to a contractor to pay taxes and a return on physical and intangible assets.[189] The EBIT margin standardises this profit measure for the scale of operations by measuring the funds available for these purposes on a 'per unit of revenue' basis.[190] The AER used Murraylink's margin as a ratio of its maximum allowable revenue (MAR) as a comparator.

However, the AER has previously expressed concerns with NERA's benchmarking analysis.[191] Specifically, business contracts use margins for different purposes including recovery of overheads and returns on assets. Given the variances between terms and price structures of individual contracts, the AER considers EBIT margins may not be compared on a like-for-like basis. The large volatility in the range of margins observed in NERA's sample is an indication that the margins included in the sample may be for different purposes.

Even so, while the NERA benchmarking report does have some limitations, the AER found that Murraylink's margin—about 4.9 per cent of MAR—sits within NERA's 95 per cent confidence interval for all the benchmark comparisons and was also in the most frequently observed category. This suggests that Murraylink's margin is not an 'outlier' and is within a reasonable range of comparable margins. On this basis, the AER accepts that Murraylink's margin paid to APA to operate Murraylink's assets may be reasonably reflective of the efficient cost.

3.4.5 Cost escalation

Real cost escalation is discussed in attachment 1.

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185 NER, 6A.6.6(a).

186 NERA Economic Consulting, *The market risk premium: A report for CitiPower, Jemena, Powercor, SP AusNet and United Energy*, February 2012 (NERA, *MRP for the Vic electricity DNSPs*, February 2012).

187 Envestra (Victoria) access arrangement 2013–17, p.105.

188 NERA Economic Consulting, *The market risk premium: A report for CitiPower, Jemena, Powercor, SP AusNet and United Energy*, February 2012 (NERA, *MRP for the Vic electricity DNSPs*, February 2012).

189 The EBIT margin may also incorporate the allowance paid to the contractor to align its interests with those of the asset owner.

190 NERA also noted that in this context while many companies report EBIT there are many other companies that simply report all sources of revenue and costs while others separately report earnings before interest tax depreciation and amortisation (EBITDA) and depreciation and amortisation (DA). In these circumstances the EBIT measure has been calculated using the information contained in the annual reports. For example, where EBITDA has been reported EBIT.

191 Envestra (Victoria) access arrangement 2013–17, p.106.

3.4.6 Opex efficiency factor

The AER is not satisfied Murraylink's base year opex is efficient and therefore is not satisfied that its forecast opex reasonably reflects the efficient costs of achieving the opex objectives for the reasons set out in section 3.4.2. Murraylink's opex in the base year (2011-12) included inefficiencies that should be removed so the forecast that is extrapolated from that base year is an efficient forecast. The AER's substitute forecast, set out in Table 3.2, removes these costs

In addition, the AER applied an opex efficiency factor of 2.5 percent to the 2011–12 adjusted base year (that is, after all other adjustments to the base year costs had been made). The AER applied this efficiency adjustment because it considered the adjusted base year expenditure was still overstated, even after the adjustments set out in Table 3.2. The AER's total adjustment for efficiency over the 2013–23 regulatory control period is $0.9 million. The reasons the AER considered the base year expenditure was not efficient are set out in this section.

Murraylink does not have a continuous improvement and innovation program in place but such a program could identify inefficiencies in its current practices and Murraylink could seek to implement solutions to reduce such inefficiencies. The AER considers that such a program is likely to achieve a five per cent efficiency gain—this estimate is based on the AER's concurrent assessment of ElectraNet's revenue proposal for 2013–18. In the ElectraNet review, ElectraNet demonstrated it had achieved a five per cent efficiency reduction in its opex routine maintenance program by formalising a program with its contractor in which its contract included financial incentives linked to specified targets. For example, these arrangements allow for:[192]

> forward maintenance works to be scheduled in conjunction with capital works, works in remote areas to be coordinated to reduce travel time and defects to be fixed 'on the spot' where this can be done within the time already allocated for inspection and routine work.

The AER considers Murraylink's joint works program is a good example of a work program in which efficiencies could be readily achieved through better coordination of a joint works program and planning arrangements. If Murraylink were to implement such a program, the AER expects it could realise a similar level of efficiency gain as ElectraNet was able to achieve. The AER notes that Murraylink has a ten year regulatory control period, which is twice as long as the regulatory control period in which ElectraNet was able to achieve a five per cent efficiency gain. That is, while Murraylink does not have a continuous improvement and innovation program in place at the start of the 2013–23 regulatory control period, such a program should be well established by the latter part of the ten year regulatory control period.

The AER recognises that Murraylink may not realised the full five per cent efficiency benefit in the beginning of the 2013–23 regulatory control period as the implementation of the program gets underway. But it considers it reasonable to expect that, when the program is well established, Murraylink should be able to achieve at least a five per cent efficiency gain per annum towards the end of its ten year regulatory control period. Therefore, on balance, the AER has applied at 2.5 per cent efficiency adjustment per annum across the whole of the 2013–23 regulatory control period.

A further example of opex (and capex) inefficiencies in Murraylink's practice that has been identified is demonstrated in Murraylink's asset management framework:[193]

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192 Energy Market Consulting Associates, *ElectraNet technical review,* October 2012, p.139.
193 Murraylink, *Asset management strategy*, p.4.

> EII recognises the importance of the asset database in which the asset service history, condition and test and investigation outcomes are recorded. This is the foundation from which optimal decisions on: the necessary routine maintenance scheduling; and major maintenance or replacement; are made. At present, the asset management records for Murraylink ... are largely kept in spreadsheet form. It is recognised that, even for these relatively small entities, this does not provide optimal support for asset management decision making.

3.4.7 Debt raising costs

Debt raising costs are transaction costs incurred each time debt is raised or refinanced. These costs may include underwriting fees, legal fees, company credit rating fees and other transaction costs. Debt raising costs are a legitimate expense for a prudent service provider acting efficiently and an allowance should be provided to recover these costs.

The AER accepts Murraylink's proposed method for determining its benchmark debt raising costs allowance. Murraylink proposed a total debt raising cost allowance of $0.6 million over the 2013–23 regulatory control period.[194] This allowance was calculated based on the benchmark unit rate for debt raising costs used by the AER in its draft decision for the Roma (Wallumbilla) to Brisbane Pipeline.[195]

The AER has updated Murraylink's proposed benchmark unit rate for debt raising costs to reflect the indicative WACC used in this draft decision. The updated benchmark unit rate also reflects the number of 'standard' bond issuances required over the 2013–23 regulatory control period to finance the debt portion of Murraylink's RAB. This has resulted in a benchmark unit rate for debt raising costs of 10.8 basis points per annum. Accordingly, the AER has determined a benchmark debt raising cost allowance of $0.6 million ($2012–13) for Murraylink.

To determine the total benchmark debt raising cost allowance, the AER relies on a method that was initially developed by the Allen Consulting Group (ACG).[196] Broadly, the ACG method involves two key steps:

- First, a benchmark unit rate for debt raising costs is calculated. This unit rate, expressed in basis points per annum, is determined based on estimates of:
  - the transaction costs that a prudent service provider, acting efficiently, would incur in raising debt[197]
  - the expected timing and frequency of these transaction costs[198]
  - the number of 'standard' bond issuances required over the regulatory control period to finance the benchmark debt portion of the TNSP's RAB.[199]
- Second, the debt raising cost allowance is determined in the post-tax revenue model as the product of the benchmark unit rate and the debt portion of the TNSP's RAB.[200]

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194 Murraylink, *Revenue proposal*, p. 47.

195 Further details regarding the AER's approach for calculating debt raising costs are outlined in the AER's final decision for Powerlink. AER, *Final decision Powerlink Transmission determination 2012–13 to 2016–17*, April 2012.

196 ACG, *Debt and equity raising transaction costs—Final Report*, December 2004.

197 These transaction costs include gross underwriting fees; legal and road-show costs; maintaining a company credit rating; establishing an issuance credit rating; and registry fees (both at commencement and ongoing).

198 The ACG method considers that transaction costs can be incurred up-front or annually, and per debt issuance or per company. The AER amortises up-front costs (for example, underwriting fees) using the relevant nominal vanilla WACC over a ten year amortisation period.

199 The AER assumes that the size of a 'standard' bond issue is currently $250 million. The standard bond issue is relevant to transaction costs that are independent of the number of debt issuances (for example, maintaining a company credit rating). In particular, the benchmark unit rate is inversely related to the number of bond issuances required by a TNSP over the regulatory control period. That is, as the number of bond issuances increases, the benchmark unit rate (for debt raising costs) per issuance will decrease.

The AER has periodically updated the inputs into the ACG method with more recent market data. Specifically, the AER has updated the value of expected transaction costs, the assumed standard bond size, and the WACC applied in deriving the benchmark unit rate.[201] Further, the AER will update the benchmark debt raising cost allowance for the final decision based on the debt component of the RAB and WACC determined at that time.

The AER considers this method provides estimates of debt raising costs that would be incurred by a prudent service provider, acting efficiently. Most notably, this is because the AER's approach:

- identifies the types of transaction costs that a prudent service provider acting efficiently would incur in raising debt, and
- quantifies the level of these costs (taking into account the specific circumstances of the service provider) with reference to market rates for the relevant services.

3.5 Revisions

Revision 3.1: Make all necessary amendments to reflect the AER's draft decision on operating expenditure for the 2013–23 regulatory control period set out in Table 3.1.

200 The debt portion of the TNSPs RAB is calculated based on the benchmark gearing ratio determined in the WACC review. That is, for the purpose of this draft decision, the debt component of the RAB is assumed to equal 60 per cent of the total RAB.

201 The revised transaction costs and standard bond size are consistent with those determined in the AER's final decision for Powerlink. These updates reflect analysis undertaken by PwC, which was commissioned by Powerlink. PwC, *Powerlink Queensland 2013–2017 Revenue proposal: Appendix K—Debt and equity raising costs,* April 2011.

4 Cost of capital

As part of making a determination on the annual building block revenue requirement for a transmission network service provider, the AER is required to make a decision on the return on capital building block.[202] The return on capital building block is calculated as the product of the cost of capital (or rate of return) and the value of the regulatory asset base (RAB).

This attachment sets out the AER's determination of the cost of capital component to apply to Murraylink over the 2013–23 regulatory control period. Consistent with the National Electricity Rules (NER), the cost of capital is measured as the return required by investors in a commercial enterprise with a similar nature and degree of non-diversifiable risk as that faced by the transmission business.[203] It must be calculated as a nominal post-tax weighted average cost of capital (WACC).[204]

4.1 Draft decision

The AER accepts Murraylink's proposed method for determining the WACC, including Murraylink's proposed averaging period.[205] However, the AER determined an indicative WACC of 7.11 per cent, as set out in Table 4.1. The AER's draft decision reflects market based parameters—the nominal risk free rate and the debt risk premium (DRP)—estimated over an indicative averaging period.[206] The AER will update these parameters for its final decision, based on the averaging period proposed by Murraylink.

202 NER, clause 6A.5.4(a)(2).
203 NER, clause 6A.6.2(b).
204 NER, clause 6A.6.2(b).
205 Consistent with the NER, Murraylink's proposed averaging period will remain confidential until the expiration of the agreed period.
206 Specifically, the AER's draft decision is based on a 20 business day indicative averaging period, from 24 September to 19 October 2012. Murraylink's proposed rate of return method, if also applied to market data from the AER's indicative averaging period, would result in a proposed rate of 7.14 per cent.

Table 4.1 AER's draft decision on WACC parameters

Parameter	AER draft decision
Nominal risk free rate	3.03%
Equity beta	0.8
Market risk premium	6.50%
Debt risk premium	3.34%
Gearing level	60%
Inflation forecast	2.50%
Gamma	0.65
Nominal post-tax cost of equity	8.23%
Nominal pre-tax cost of debt	6.37%
Nominal vanilla WACC	7.11%

Source: AER analysis.

4.2 Murraylink's proposal

Murraylink proposed a nominal vanilla WACC of 8.61 per cent, based on market data from March 2012.[207] This WACC reflects the parameters shown in Table 4.2 and the following discussion.

[207] Specifically, Murraylink's proposed WACC reflects a 40 business day indicative averaging period, from 6 February to 30 March 2012.

Table 4.2 Murraylink's proposed WACC parameters

Parameter	Murraylink's proposal
Nominal risk free rate	4.17%
Equity beta	0.8
Market risk premium	6.50%
Debt risk premium	3.93%
Gearing level	60%
Inflation forecast	2.50%
Gamma	0.65
Nominal post-tax cost of equity	9.37%
Nominal pre-tax cost of debt	8.10%
Nominal vanilla WACC	8.61%

Source: Murraylink, *Revenue proposal*, p. 30.

In calculating its proposed WACC, Murraylink applied the equity beta, market risk premium (MRP) and the level of gearing determined by the AER in the 2009 review of the WACC parameters. Similarly, as part of estimating its tax allowance, Murraylink proposed to apply the gamma value specified in the WACC review.

Murraylink's method for determining the risk free rate is also consistent with that stated in the WACC review. That is, the nominal risk free rate reflects the annualised yields on 10 year Commonwealth government securities (CGS) based on an averaging period as close as practically possible to the start of the regulatory control period. Given Murraylink's nominated averaging period is in the future, the risk free rate in the TNSP's revenue proposal is based on an indicative averaging period.

To determine the debt risk premium (DRP), Murraylink relied on a report from PriceWaterhouseCoopers (PwC), commissioned by the Victorian gas networks.[208] PwC estimated the DRP by extrapolating Bloomberg's seven year BBB rated fair value curve to an equivalent 10 year term. The extrapolation approach is based on a pair bonds analysis.[209] This approach is consistent with that previously developed by PwC and accepted by the AER in recent decisions.[210]

208 PwC, *SP AusNet, MultiNet Gas, Envestra, and APA Group: Estimating the benchmark debt risk premium*, March 2012.

209 Specifically, the Bloomberg seven year BBB fair value curve is extrapolated using the average annual increment observed across pairs of bonds of differing maturities issued by the same company.

210 For example, see: AER, *Draft decision: APA GasNet Australia (Operations) Pty Ltd, access arrangement draft decision,* September 2012.

Murraylink stated its proposed inflation forecast is consistent with the AER's previously adopted approach to estimating the expected inflation rate.[211]

4.3 Assessment approach

This section considers:

- the requirements of the National Electricity Law (NEL) and NER on the rate of return
- the determination of specific parameters.

4.3.1 Requirements of the NEL and NER on the rate of return

The NER requires the AER to apply a rate of return based on the nominal vanilla WACC formulation.[212] In calculating the nominal vanilla WACC, the AER must:

- apply the capital asset pricing model (CAPM) to determine the return on equity[213]
- adopt the parameter values, methods and credit rating determined in the WACC review.[214]

Murraylink submitted its revenue proposal after the completion of the 2009 WACC review. The relevant values, methods and credit rating, therefore, are those determined in that review (Table 4.3).

Table 4.3 Values, method and credit rating determined in 2009 WACC review

Parameter	WACC review
Nominal risk free rate	Annualised yield on 10 year CGS based on agreed averaging period as close as practically possible to the start of the regulatory control period
Equity beta	0.8
Market risk premium	6.50%
Credit rating	BBB+
Gearing level	60%
Assumed utilisation of imputation credits (gamma)	0.65

Source: AER, *Statement of the revised WACC parameters (transmission)*, May 2009, p. 6.

4.3.2 Determination of specific parameters

To determine the WACC applicable at the time of any given determination, the AER updates values for the DRP, nominal risk free rate and inflation based on prevailing market data. This market data reflects an averaging period as close as practically possible to the start of the regulatory control

211 Murraylink, *Revenue proposal*, p. 29.
212 NER, clause 6A.6.2(b).
213 The CAPM is a well known and widely used model. It specifies a relationship between the expected return of a risky asset (in terms of uncertainty over future outcomes) and the level of systematic (non-diversifiable) risk.
214 NER, clause 6A.6.2(h).

period. For this draft decision, the AER used an indicative 20 day averaging period, ending 19 October 2012.

Debt risk premium

The DRP is the margin above the nominal risk free rate that a debt holder would require to invest in a benchmark efficient service provider. Combined with the nominal risk free rate, the DRP represents the return on debt and is an input for calculating the WACC. The AER's assessment approach for this draft decision is consistent with that adopted in the AER's recent final decision for the Roma to Brisbane Pipeline.[215] That is, the AER estimated the DRP using:

- an appropriate benchmark
- a method that conforms to these benchmark parameters.

Benchmark

The AER adopted a 10 year Australian corporate bond with a BBB+ credit rating as the benchmark for estimating the DRP.[216] The term of this benchmark provides internal consistency with the method for calculating the nominal risk free rate determined in the WACC review.

Method used to estimate the DRP

To estimate the 10 year DRP for this draft decision, the AER used:

- the Bloomberg BBB rated fair value curve, to estimate the (base) seven year DRP
- the average annual increment observed across bonds of differing maturities issued by the same company, to extrapolate the seven year DRP estimate to 10 years.

Nominal risk free rate

The risk free rate measures the return that an investor would expect from an asset with zero volatility and zero default risk. The yield on long term CGS is often used as a proxy for the risk free rate because the risk of government default on interest and debt repayments is considered to be low.

In the CAPM framework, all information used for deriving the rate of return should be as current as possible, to achieve an unbiased forward looking rate. Using the on-the-day rate may be theoretically correct because it represents the latest available information. This approach, however, exposes the TNSP and customers to daily volatility. For this reason, an averaging period approach is used to minimise volatility in observed bond yields.

Expected inflation rate

The expected inflation rate is not a parameter relevant to the determination of the WACC.[217] However, it is used in the post-tax revenue model (PTRM)—for example, to index the RAB—and is an implicit component of the nominal risk free rate. For this reason, this attachment discusses the AER's determination of the expected inflation rate.

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215 AER, *Final decision: APT Petroleum Pipeline Pty Ltd, Access arrangement final decision, Roma to Brisbane Pipeline 2012–13 to 2016–17*, August 2012.
216 NER, clause 6A.6.2(e).
217 The WACC formulation is based on nominal parameters and does not incorporate an explicit inflation rate parameter.

The AER's approach to estimating inflation is consistent with that used in previous regulatory decisions. This method involves:

- taking a geometric average of forecast inflation for each of the next 10 years (consistent with using a 10 year term for the risk free rate and other WACC parameters)
- adopting the Reserve Bank of Australia's (RBA) headline inflation forecasts from the latest RBA Statement on Monetary Policy, for as many future years as the RBA publishes inflation forecasts
- adopting the mid-point of the RBA's inflation target (2.5 per cent) for the remaining future years (out to year 10).

4.4 Reasons for draft decision

Murraylink's proposed method for determining the WACC adopted the values, methods and credit rating determined in the WACC review—specifically, the equity beta, the MRP, the level of gearing and the value of the assumed utilisation of imputation credits (gamma).[218] The AER, therefore, accepts Murraylink's proposed values for these parameters (section 4.4.1).

In establishing the WACC, the AER also accepts Murraylink's proposed method for determining the DRP, the nominal risk free rate and inflation forecasts. The AER's reasons are discussed in sections 4.4.2, 4.4.3 and 4.4.4.

4.4.1 Parameters determined in the WACC review

In the WACC review, the AER specified the following parameter values:

- Equity beta of 0.8—The equity beta provides a measure of the 'riskiness' of an asset's return compared with the return on the entire market. The equity beta reflects the asset's exposure to non-diversifiable (systematic) risk, which is the only form of risk that requires compensation under the CAPM. An equity beta of 1.0 implies the firm's return has the same level of systematic risk as that of the overall market. An equity beta of less than 1.0 implies the firm's return is less sensitive to systematic risk than is the overall market, and vice versa.
- MRP of 6.5 per cent—The MRP is the expected return over the risk free rate that investors require to invest in a well diversified portfolio of risky assets. It represents the risk premium that investors in such a portfolio can expect to earn for bearing only non-diversifiable (systematic) risk. The MRP is common to all assets in the economy and not specific to an individual asset or business.
- Gearing level of 60 per cent—Gearing is defined as the ratio of the value of debt to total capital (that is, both debt and equity). It is used to weight the costs of debt and equity when formulating the WACC.
- Gamma of 0.65—Under the Australian imputation tax system, domestic investors receive a credit for tax paid at the company level (an imputation credit, or gamma), which offsets part or all of their personal income tax liabilities. For eligible shareholders, imputation credits represent a benefit from the investment in addition to any cash dividend or capital gains received.

[218] The assumed utilisation of imputation credits (gamma) affects the corporate income tax building block allowance. Although gamma is not directly included in the determination of the WACC, it was determined in the WACC review.

As outlined, the AER accepts Murraylink's proposed values for these parameters, which are consistent with those determined in the WACC review.[219]

4.4.2 Debt risk premium

The AER accepts Murraylink's proposed benchmark and method for determining the DRP. The AER, however, updated Murraylink's proposed DRP to 3.34 per cent, to reflect the indicative averaging period used throughout this draft decision.[220] The AER will again update this value for its final decision, based on Murraylink's final averaging period.

Specifically, the AER accepts Murraylink's proposed DRP benchmark based on an Australian corporate fixed rate bond issue with a term to maturity of 10 years and a BBB+ credit rating.[221] The AER adopted this benchmark assumption in previous electricity decisions.[222] Moreover, it considers the term to maturity and credit rating are two primary factors that reflect the risks involved in providing reference services.[223] The 10 year term for the cost of debt also provides internal consistency with the use of a 10 year risk free rate.

Further, the AER accepts Murraylink's proposed approach to establishing the DRP. In particular, it accepts Murraylink's proposal to estimate the benchmark DRP solely on the Bloomberg BBB fair value curve. Notwithstanding the AER's previous concerns with the Bloomberg fair value curve, the AER is mindful of the Australian Competition Tribunal's recommendation to complete a public consultation process before considering any alternative methods.[224]

The AER also accepts Murraylink's proposed method to extrapolate the Bloomberg BBB fair value curve from seven to 10 years, based on the PwC analysis of paired bonds.[225] The AER, however, does not consider PwC correctly applied this extrapolation approach. PwC's method extrapolated the Bloomberg seven year BBB fair value curve using the average annual increment observed across pairs of bonds of differing maturities issued by the same company. PwC's criteria for selecting the sample of paired bonds included that:

- the paired bonds were part of the wider sample that PwC used to conduct its broader econometric analysis
- the shorter dated bond (of the pair) had a remaining term to maturity closest to seven years.[226]

Based on PwC's selection criteria, the AER cannot reconcile the inclusion of the paired Telstra bonds in PwC's extrapolation sample. Specifically, Telstra bonds have an A credit rating by Standard and Poor's. Among other characteristics, the broader econometric sample used by PwC (of which the

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

220 This estimate also reflects the AER's amendment to the bond sample used to extrapolate Bloomberg's seven year BBB rated fair value curve. This is discussed in greater detail within this section.

221 Murraylink, *Revenue proposal*, pp. 24–29.

222 For example, see: AER, *Final decision, Powerlink transmission determination 2012–13 to 2016–17*, April 2012.

223 Other factors—for example, industry type—may also be relevant in determining the level of risk involved in providing reference services.

224 Australian Competition Tribunal, *Application by Envestra Limited (No 2)* [2012] ACompT 3, 11 January 2012, paragraphs 95, 118, 120–1; see also Australian Competition Tribunal, *Application by APT Allgas Energy Ltd* [2012] ACompT 5, 11 January 2012.

225 Seven years is the maximum term currently published for the Bloomberg BBB fair value curve.

226 PwC, *SP AusNet, MultiNet Gas, Envestra, and APA Group: Estimating the benchmark debt risk premium*, March 2012, p. 22.

paired bonds must be a subset) included only bonds with a BBB, BBB+ or A– credit rating by Standard and Poor's.[227]

Additionally, PwC's extrapolation sample included a pair of fixed rate Stockland bonds maturing in 2015 and 2020. However, a fixed rate Stockland bond matching all of PwC's selection criteria exists that matures in 2016. The AER considers the correct application of PwC's selection criteria requires the 2016 bond to be used (instead of the bond maturing in 2015).

For this draft decision, therefore, the AER excluded the Telstra bonds from the extrapolation sample. It also updated PwC's analysis to reflect the spread between the pair of Stockland bonds maturing in 2016 and 2020. It will consider including these bonds for the final decision if Murraylink substantiates its inclusion. The AER considers excluding the Telstra bonds and amending the Stockland pair is consistent with a benchmark DRP that reflects the risks involved in providing reference services.

In assessing Murraylink's proposal, the AER also considered a submission from the Major Energy Users (MEU).[228] The MEU stated the AER's previous approach to determining the DRP cannot be demonstrated to produce an efficient outcome. Further, it presented average debt premiums (based on annual reports) for four privately owned electricity and gas network firms operating in Victoria.[229]

The AER considers the MEU's analysis of annual report data is flawed. Most notably, it is unclear whether the average term of the debt referenced by the MEU corresponds to the benchmark term adopted by the AER. In this context, it is inappropriate to calculate the DRP for an entire portfolio with reference to only the 10 year risk free rate.[230]

Notwithstanding the above, the issues raised by the MEU warrant consideration—for example, the current DRP method does not reflect the full spectrum of debt options used by network service providers, and the Bloomberg method lacks transparency. These issues are consistent with the Australian Competition Tribunal's recommendation to undertake a public consultation process before selecting an alternative DRP method.[231] For these reasons, the AER commenced an internal review into alternatives to the Bloomberg fair value curve. It will advise of public consultation on the development of an alternative.

4.4.3 Nominal risk free rate

The AER accepts Murraylink's proposed averaging period to calculate the nominal risk free rate. It also accepts Murraylink's request to keep the averaging period confidential until the expiration of that period.[232] For this draft decision, the AER used an indicative 20 day averaging period ending 19 October 2012, which results in a risk free rate of 3.03 per cent (effective annual compounding rate).[233] The AER will update the risk free rate, based on the agreed averaging period, at the time of its final decision.[234]

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227 PwC, *SP AusNet, MultiNet Gas, Envestra, and APA Group: Estimating the benchmark debt risk premium*, March 2012, p. 13.

228 Major Energy Users, *Proposed Murraylink revenue reset, MEU response to Murraylink application*, August 2012.

229 Major Energy Users, *Proposed Murraylink revenue reset, MEU response to Murraylink application*, August 2012, appendix 1.

230 For example, the DRP for seven year debt should be determined with reference to the seven year risk free rate.

231 Australian Competition Tribunal, *Application by Envestra Limited (No 2)* [2012] ACompT 3, 11 January 2012, paragraphs 95, 118, 120–1; see also Australian Competition Tribunal, *Application by APT Allgas Energy Ltd* [2012] ACompT 5, 11 January 2012.

232 NER, clause 6A.6.2(c)(2)(iii).

233 CGS yields are sourced from the RBA: www.rba.gov.au/statistics/tables/xls/f16.xls.

234 It will use the same averaging period to calculate the DRP.

4.4.4 Expected inflation rate

The AER accepts Murraylink's proposed method for forecasting inflation. This approach is consistent with that previously adopted by the AER (and outlined in section 4.3.2). The AER, however, updated Murraylink's proposed inflation estimate to reflect the latest RBA forecasts. These estimates, shown in Table 4.4, result in an inflation forecast of 2.50 per cent per annum.[235] The AER will again update its inflation estimate for the final decision.

Table 4.4 AER draft decision on inflation forecast (per cent)

	2013–14	2014–15	2015–16 to 2022–23	Geometric average
Forecast inflation	2.50[a]	2.50[b]	2.50	2.50

Source: RBA, *Statement on Monetary Policy*, August 2012.
(a) The RBA published a range of 2.0–3.0 per cent for its 2013–2014 forecast of inflation. The AER has selected the mid-point of 2.50 per cent for the purposes of this decision.
(b) The AER expects the RBA to publish a 2014–15 inflation estimate prior to the AER's final decision. For this decision, the AER has adopted the mid-point of the RBA's inflation target.

4.4.5 Reasonableness checks on the overall rate of return

In addition to the consideration of individual WACC parameters, recent AER decisions have included analysis of available estimates of the overall rate of return.[236] For this decision, however, the AER has largely accepted Murraylink's proposed method for estimating the rate of return. As such, the difference between Murraylink's proposed WACC and the AER's draft decision is relatively minor.[237] This decision, therefore, does not include analysis of overall rate of return estimates.

4.5 Revisions

Revision 4.5: The AER has determined a WACC of 7.11 per cent for Murraylink, as set out in table 4.1

235 This estimate is identical to that proposed by Murraylink. This is because the RBA's inflation forecast for 2013–14 has not changed between its May and August monetary policy statements.
236 For example, this included analysis of: assets sales; trading multiples; broker WACC estimates; recent decisions by other regulators; the relationship between the cost of equity and the cost of debt.
237 If Murraylink's proposed method is applied to the AER's indicative averaging period, the difference between Murraylink's and the AER's WACC is only 3 basis points.

5 Regulatory asset base

The AER is required to determine the regulatory asset base (RAB) of Murraylink for the 2013–23 regulatory control period.[238] Setting the RAB provides the foundation for determining Murraylink's revenue requirement. The opening RAB for each regulatory year is used to determine the return of capital (regulatory depreciation) and return on capital building block allowances, which comprise about 70 per cent of Murraylink's forecast total revenue.[239]

This attachment presents the AER's draft decision on Murraylink's opening RAB at the commencement of the 2013–23 regulatory control period and the forecast RAB during the 2013–23 regulatory control period.[240]

5.1 Draft decision

The AER does not accept Murraylink's proposed opening RAB of $102.4 million at 1 July 2013, and determined an opening RAB of $107.1 million. The AER's draft decision represents an increase to the proposed value by $4.7 million (or 4.6 per cent), made for the following reasons:

- the AER's amendments to Murraylink's actual depreciation for the 'Easements' asset class. This amendment resulted in an increase in the proposed opening RAB as at 1 July 2013 by about $5.6 million (or 5.5 per cent).
- Murraylink's RAB roll forward during the 1 October 2003 to 30 June 2013 regulatory control period included the allocation of capex in new asset classes. The AER removed the proposed new asset classes and asset lives included in the proposed roll forward model (RFM) because they were not approved by the ACCC in the 2003 revenue cap determination for Murraylink. The AER reallocated the actual capex associated with these asset classes to the 'Switchyard' asset class. This amendment slightly increased the proposed opening RAB as at 1 July 2013 by about $0.3 million (or 0.3 per cent).
- the AER corrected several other input errors in the proposed RFM, including the opening RAB as at 2002, actual and forecast consumer price index (CPI) values, and actual capex and disposal values. The net effect of these amendments reduced the proposed opening RAB as at 1 July 2013 by $1.2 million (or 1.2 per cent).
- the AER adjusted the proposed 2006–07 actual capex to account for the movements in provisions. This amendment slightly reduced the proposed opening RAB as at 1 July 2013 by $0.1 million (or 0.1 per cent).

The AER forecasts that Murraylink's closing RAB will be $102.0 million by 30 June 2023. This is an increase of $6.1 million (or 6.4 per cent) compared to the proposed closing RAB of $95.9 million. The reasons for this increase are the AER's adjustments to:

- forecast capex (attachment 2)
- the opening RAB as at 1 July 2013 (section 5.4.1)
- forecast depreciation (attachment 6).

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238 NER, clause 6A.6.1.
239 Murraylink, *Revenue proposal*, May 2012, p. 53.
240 NER, clause 6A.6.1.

Table 5.1 sets out the AER's draft decision on the roll forward of Murraylink's RAB during the 1 October 2003 to 30 June 2013 regulatory control period and the opening RAB at the beginning of the 2013–23 regulatory control period. Table 5.2 sets out the AER's draft decision on Murraylink's forecast RAB during the 2013–23 regulatory control period.

Table 5.1 AER's draft decision on Murraylink's RAB for the 1 October 2003 to 30 June 2013 regulatory control period ($million, nominal)

	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12[a]	2012–13[b]
Opening RAB	103.0	102.7	102.7	103.6	103.6	105.4	105.3	105.6	106.3	105.8
Capital expenditure[c]	–	–	0.3	0.0	0.0	–	0.0	0.0	0.7	1.2
CPI indexation on opening RAB	2.0	2.4	3.1	2.5	4.4	2.6	3.0	3.5	1.7	3.2
Straight-line depreciation[d]	–2.3	–2.4	–2.4	– 2.5	–2.6	–2.7	–2.8	–2.8	–2.9	–3.0
Closing RAB as at 30 June	102.7	102.7	103.6	103.6	105.4	105.3	105.6	106.3	105.8	107.1
Opening RAB as at 1 July 2013										107.1

(a) Based on estimated capex. The AER will update the asset base roll forward for actual capex at the time of its final decision.
(b) Based on estimated capex and forecast inflation. The asset base roll forward will be updated for actual CPI at the time of the AER final decision. However, the update for actual capex will be made at the next reset.
(c) As incurred, net of disposals, and adjusted for actual CPI and weighted average cost of capital (WACC).
(d) Adjusted for actual CPI. Based on as-commissioned capex.

Table 5.2 AER's draft decision on Murraylink's RAB for the 2013–23 regulatory control period ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
Opening RAB	107.1	108.1	108.4	108.2	107.5	107.9	106.9	105.4	103.8	102.6
Capital expenditure[a]	1.8	1.2	0.7	0.4	1.6	0.4	0.1	0.1	0.7	1.4
Inflation indexation on opening RAB	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6
Straight-line depreciation[b]	–3.4	–3.6	–3.7	–3.8	–3.9	–4.1	–4.2	–4.3	–4.4	–4.6
Closing RAB	108.1	108.4	108.2	107.5	107.9	106.9	105.4	103.8	102.6	102.0

(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 six-month period before capex is added to the RAB for revenue modelling purposes.
(b) Based on as-commissioned capex.

5.2 Murraylink's proposal

Murraylink proposed an opening RAB of $103.0 million as at 1 October 2003.[241] This opening RAB value has been used to roll forward and establish an opening RAB of $102.4 million as at 1 July 2013, the start of the 2013–23 regulatory control period.[242]

Table 5.3 and table 5.4 show Murraylink's proposed roll forward of its RAB during the 1 October 2003 to 30 June 2013 regulatory control period and the 2013–23 regulatory control period respectively.

Table 5.3 Murraylink's proposed RAB for the 1 October 2003 to 30 June 2013 regulatory control period ($million, nominal)

	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	103.0	99.7	99.3	99.2	99.3	99.6	101.1	100.9	101.0	102.6
Capital expenditure[a]	–	–	–	–0.4	0.4	–	0.0	0.1	1.2	1.4
CPI indexation on opening RAB	3.5	2.0	2.3	3.0	2.4	4.2	2.5	2.9	3.4	1.6
Straight-line depreciation[b]	–6.8	–2.4	–2.4	–2.5	–2.6	–2.7	–2.8	–2.9	–3.0	–3.2
Closing RAB	99.7	99.3	99.2	99.3	99.6	101.1	100.9	101.0	102.6	102.4
Closing RAB as at 30 June 2013										102.4

(a) As incurred, net of disposals, and adjusted for actual CPI and WACC.
(b) Adjusted for actual CPI.
Source: Murraylink, *proposed RFM*, 31 May 2012.

Table 5.4 Muarrylink's proposed RAB for the 2013–23 regulatory control period ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
Opening RAB	102.4	105.3	107.3	108.9	107.2	106.6	104.7	102.2	99.6	97.3
Capital expenditure[a]	4.0	3.3	3.2	0.4	1.6	0.5	0.1	0.1	0.7	1.5
Inflation indexation on opening RAB	2.7	2.8	2.8	2.9	2.8	2.8	2.7	2.7	2.6	2.5
Straight-line depreciation[b]	–3.7	–4.1	–4.5	–4.9	–5.0	–5.2	–5.3	–5.4	–5.6	–5.4
Closing RAB	105.3	107.3	108.9	107.2	106.6	104.7	102.2	99.6	97.3	95.9

(a) As incurred, and net of disposals.
(b) Based on as-commissioned capex.
Source: Murraylink, *proposed PTRM*, 31 May 2012.

241 Muarrylink, *Revenue proposal*, May 2012, p. 22.
242 Muarrylink, *Revenue proposal*, May 2012, p. 22.

5.3 Assessment approach

The AER is required to roll forward a TNSP's RAB during the 2003–13 regulatory control period to establish an opening RAB for the 2013–23 regulatory control period.[243] The RAB value can be adjusted for any differences in the forecast and actual capex and disposals. It may also be adjusted to reflect any changes in the use of the assets, with the RAB to include only assets used in the provision of prescribed transmission services to be included in the RAB.[244]

To determine the opening RAB for a transmission determination, the AER developed an asset base RFM in accordance with the requirements of the NER.[245] A TNSP must use the AER's RFM in preparing its revenue proposal. The RFM rolls forward the TNSP's RAB from the beginning of the final year of the previous regulatory control period, through the 2003–13 regulatory control period, to the beginning of the 2013–23 regulatory control period. The roll forward occurs for each regulatory year by:

- adding an inflation (indexation) adjustment for the relevant year. This adjustment must be consistent with the inflation factor used in the annual indexation of the maximum allowed revenue (MAR).[246]
- adding capex incurred for the relevant regulatory year.[247] Actual 'as incurred' capex must be used when available. However, an estimated capex is typically required for the final year of the regulatory control period. This figure is then updated for actual capex at the next determination. The AER will check actual capex amounts against audited regulatory accounts data.
- subtracting depreciation for the relevant year. Depreciation based on actual capex is used to roll forward the RAB.[248]
- subtracting any disposals for the relevant year.[249] The AER will check these amounts against audited regulatory accounts data.

These annual adjustments give the closing RAB for a particular regulatory year, which then becomes the opening RAB for the subsequent regulatory year. Through this process the RFM rolls forward the RAB to the end of the 2003–13 regulatory control period. The post tax revenue model (PTRM) for the 2013–23 regulatory control period generally adopts the same roll forward approach as the RFM for establishing the forecast RAB, although the adjustments to the RAB are based on forecasts, rather than actual amounts.

5.4 Reasons for draft decision

The AER does not accept Murraylink's proposed opening RAB at 1 July 2013 of $102.4 million. It increased Murraylink's proposed opening RAB at 1 July 2013 to $107.1 million, for the following reasons:

- The AER corrected the asset lives inputs in the RFM for Murralylink's 'easements' asset class. This amendment increased in the proposed opening RAB at 1 July 2013 by $5.6 million (or 5.5 per cent).

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243 NER, clause S6A.2.1(f).
244 NER, clause S6A.2.1(f)(8).
245 NER, clause 6A.6.1(b).
246 NER, clause 6A.6.1(e)(3).
247 NER, clause S6A.2.1(f)(4).
248 NER, clause S6A.2.1(f)(5).
249 NER, clause S6A.2.1(f)(6).

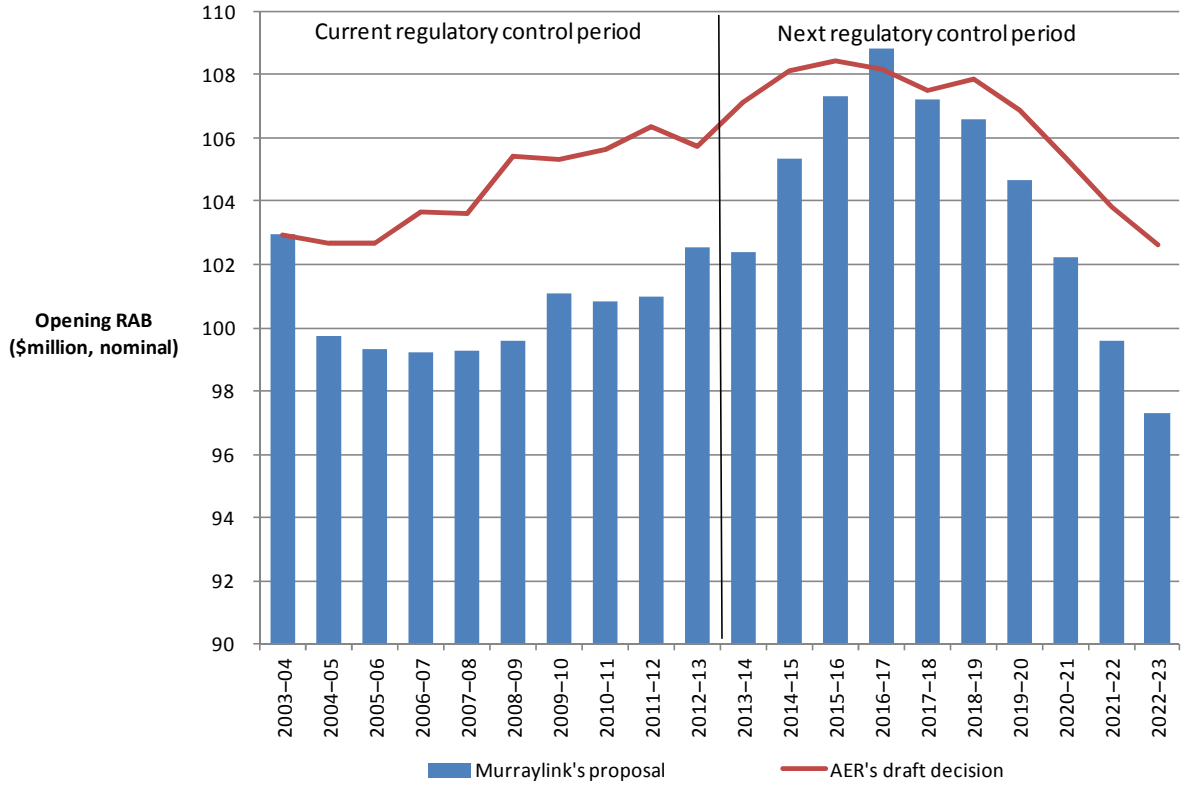
- The AER corrected several other input errors and reversed the movement in provisions for the 1 October 2003 to 30 June 2013 regulatory control period.

The AER forecasts that Murraylink's RAB will be $102.0 million by 30 June 2023. This is an increase of 6.4 per cent compared to the proposed closing RAB. The main reasons for this increase are the AER's adjustments to:

- forecast capex (attachment 2)
- the opening RAB as at 1 July 2013 (section 5.4.1)
- forecast depreciation (attachment 6).

Figure 5.1 shows the AER's draft decision on the opening RAB over the 1 October 2003 to 30 June 2013 regulatory control period and the forecast opening RAB over the 2013–23 regulatory control period, and Murraylink's proposal on these values.

Figure 5.1 Murraylink's opening RAB over the 1 October 2003 to 30 June 2013 regulatory control period and 2013–23 regulatory control period ($ million, nominal)



Source: Murraylink, *proposed RFM*, May 2012; Murraylink, *proposed PTRM*, May 2012; AER analysis.

5.4.1 Opening RAB as at 1 July 2013

The AER made several amendments to Murraylink's proposed opening RAB as at 1 July 2013 and determined an opening RAB of $107.1 million (an increase of $4.7 million or 4.6 per cent). This section outlines the reasons for the AER's amendments.

Opening RAB as at 1 July 2003

The AER accepts Murraylink's proposed total opening RAB at 1 July 2003 of $103 million, because this value is consistent with the ACCC's approved value in the 2003 revenue cap determination for Murraylink. However, the opening RAB values at the asset class level in the proposed RFM are inconsistent with the values in the ACCC's approved PTRM.[250] The AER therefore amended the proposed opening RAB at 1 July 2003 for each asset class to reflect the values set out in the previously approved PTRM. This amendment increased the value of opening RAB as at 1 July 2013 by about $0.2 million (or 0.2 per cent).

Easements asset class—remaining asset life input

Murraylink's proposed RFM depreciated about $4 million of the easements value from the RAB by inserting a remaining asset life of '0' in the proposed RFM.[251] The AER notes that Murraylink's easements value should not be subjected for depreciation purposes as determined by the ACCC in Murraylink's revenue cap determination for the 1 October 2003 to 30 June 2013 regulatory control period.[252] For non-depreciating assets, such as easements, the correct asset life input in the RFM should be 'n/a'. The AER has therefore changed the asset life input for the 'Easements' asset class from '0' to 'n/a' in the RFM to ensure that the value of easements are rolled forward without being depreciated. This adjustment results in an increase to the opening RAB as at 1 July 2013 by about $5.6 million (or 5.5 per cent).

New asset classes

The ACCC approved three asset classes for establishing Murraylink's RAB in the 2003 revenue cap determination, namely 'Switchyard', 'Transmission line' and 'Easements'.[253] However, Murraylink's proposed RFM and PTRM included six additional new asset classes as shown in table 5.5.

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250 ACCC, *PTRM model MTC decision (correction) for Murraylink for 1 October 2003 to 30 June 2013 regulatory control period*.

251 Muarrylink, *Proposed RFM*, May 2012.

252 ACCC, *Decision: Murraylink transmission company application for conversion and maximum allowed revenue*, October 2003, p. 166.

253 ACCC, *Decision: Murraylink transmission company application for conversion and maximum allowed revenue*, October 2003, p. 166.

Table 5.5 Murraylink's proposed new asset classes and standard asset lives in the RFM and PTRM

Asset class	Standard asset life (Year)	Examples of asset types/components
Ancillary 15	15	Refurbishment of chiller compressors Rectification of corrosion on fan coils and chilled water piping Refurbishment of chilled water and cooling system valves Industrial computers for link control
Ancillary 10	10	Refurbishment of ventilation fan bearings Fire system control system replacement and pressure vessel test Cooling system motor contactors
Ancillary 7	7	Refurbishment of chillers and cooling system pump bearings Pressure gauge replacement
Test equipment	10	Optic fibre test equipment
Other operating assets	5	Split system air conditioner refurbishment (consumer grade) Logic control reprogramming
Office machines	3	Portable computers and associated hardware and software

Source: Murraylink, *Email response to further information request AER.ML/007, Murraylink capitalisation of opex*, 6 August 2012.

The AER requested Murraylink to provide the reasons for proposing these new asset classes. Murraylink responded that:[254]

> The ACCC determination established a total asset value for Murraylink that was based on the cost of an alternative AC transmission augmentation and then apportioned this deemed asset value to the three major components of switchyard, transmission line and easement. This simplistic approach differs fundamentally from the much more detailed approach that the ACCC and AER has applied in its electricity transmission and distribution determinations.
>
> Whilst Murraylink is a single transmission asset, it comprises a suite of primary equipment, with long asset lives, and secondary equipment, with shorter asset lives. The ancillary equipment is necessary for the operation of the link and must be periodically refurbished to maintain the link in service. The ACCC's high-level treatment of assets in the determination failed to recognise this and as ancillary equipment is refurbished and replaced, these additional asset classes must be introduced.

The AER notes that the NER requires that only the rates and methodologies allowed in the previous transmission determination can be used for adjusting the RAB for depreciation purposes.[255] However, these new asset classes and the associated asset lives were not approved by the ACCC in the transmission determination for the 1 October 2003 to 30 June 2013 regulatory control period. Consistent with the NER, the AER cannot allow these new asset classes and asset lives to be used

254 Murraylink, *Email response to further information request AER.ML/007, Murraylink capitalisation of opex*, 6 August 2012.
255 NER, clause S6A.2.1f(5).

for rolling forward the RAB for the 1 October 2003 to 30 June 2013 regulatory control period. Therefore, the AER has removed these new asset classes from the RFM and reallocated the actual capex associated with these new asset classes to the approved asset class of 'Switchyard'. This amendment results in an increase in the proposed opening RAB as at 1 July 2013 by about $0.3 million (or 0.3 per cent).

The AER's consideration on whether the proposed new asset classes and asset lives are appropriate for forecast depreciation purposes over the 2013–23 regulatory control period is set out in the regulatory depreciation attachment 6.

Actual and forecast CPI values

Murraylink used CPI input values in the proposed RFM that are 'lagged' by one year. This is incorrect. The RFM inputs require 'un-lagged' annual CPI values because the RFM formulae apply the lag to the CPI inputs automatically. Therefore, the AER has changed the CPI inputs to reflect the measure of inflation movement for the relevant years, that is, the inputs are not lagged for the period 2002–03 to 2012–13.[256]

The AER also changed the 2002–03 and 2003–04 forecast inflation inputs from 2.50 per cent to 2.07 per cent. This value is consistent with the forecast inflation approved by the ACCC for the 1 October 2003 to 30 June 2013 regulatory control period.[257] These amendments reduced the proposed opening RAB as at 1 July 2013 by about $0.7 million (or 0.7 per cent).

Actual capex and disposal values

The AER found the actual capex and disposal amounts included in the proposed RFM are inconsistent with the audited regulatory accounts data. Murraylink advised the AER that this inconsistency relates to the timing difference of capitalisation of capex for accounting and regulatory purposes. Murraylink has subsequently provided to the AER its revised actual capex values and disposal values for RFM input purposes.[258] The AER notes that Murraylink's revised values are consistent with the audited regulatory accounts data. This amendment to the actual capex and disposal values reduced the proposed opening RAB as at 1 July 2013 by about $0.3 million (or 0.3 per cent).

Reversal of movements in provisions

Murraylink's proposed actual capex for 2006–07 included about $0.1 million ($ nominal) of capitalised provisions.[259] Provisions are expenditures that Murraylink has recorded for anticipated future payments, but not yet paid out (incurred). Examples of provisions include environmental provisions, superannuation and other employee entitlements such as annual leave and long service leave.

The NER requires that Murraylink's opening RAB must be increased by the amount of all capex incurred during the 1 October 2003 to 30 June 2013 regulatory control period.[260] The AER considers that capitalised provisions should not be included in the RAB as capex, because Murraylink has not yet paid out (incurred) the expenses to which the provisions relate. For this reason, the AER adjusted

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256 The AER has applied a 3 per cent estimated CPI for 2012–13 in the RFM for this draft decision. It will update this value with the actual CPI for 2012–13 at the time of the final decision.

257 ACCC, *Decision: Murraylink Transmission Company - Application for Conversion and Maximum Allowed Revenue*, October 2003, p. XIX.

258 Murraylink, *Response to AER information request AER.ML/007*, 27 August 2012.

259 Murraylink, *Response to AER information request AER.ML/009 - RFM inputs and provisions*, 15 August 2012.

260 NER, S6A.2.1(f)(1).

Murraylink's 2006–07 actual capex in the RFM to reverse the movements in capitalised provisions. This amendment reduced the proposed opening RAB as at 1 July 2013 by about $0.1 million (or 0.1 per cent).

5.4.2 Forecast closing RAB as at 30 June 2023

The AER forecasts Murraylink's closing RAB will be $102.0 million as at 30 June 2023, which represents a 6.4 per cent increase to the proposed closing RAB. This increase reflects the AER's draft decision on the inputs for determining the forecast RAB in the PTRM. The AER has amended the following PTRM inputs:

- It increased Murraylink's proposed opening RAB as at 1 July 2013 by $4.7 million, or 4.6 per cent (section 5.4.1)
- It reduced Murraylink's proposed forecast capex by $6.5 million, or 47.2 per cent (attachment 2)
- It reduced Murraylink's proposed forecast depreciation allowance by $8.3 million, or 38.1 per cent (attachment 6)

5.5 Revisions

Revision 5.1: The AER has determined Murraylink's opening RAB as at 1 July 2013 to be $107.1 million as set out in Table 5.1.

Revision 5.2: The AER has determined Murraylink's forecast opening RAB for each year of the 2013–23 regulatory control period as set out in table 5.2.

6 Regulatory depreciation

The AER is required to make a decision on Murraylink's indexation of the regulatory asset base (RAB) and depreciation building blocks over the 2013–23 regulatory control period.[261] The regulatory depreciation allowance (or return of capital) is the net total of the straight-line depreciation (negative) and the indexation of the RAB (positive), which comprises 14 per cent of Murraylink's proposed total revenue.[262]

This attachment sets out the AER's draft decision on Murraylink's regulatory depreciation allowance. It also presents the AER's draft decision on the proposed depreciation schedule, including an assessment of the standard and remaining asset lives used for depreciation purposes during the 2013–23 regulatory control period.

6.1 Draft decision

The AER does not accept Murraylink's proposed regulatory depreciation allowance of $21.8 million ($ nominal) for the 2013–23 regulatory control period. The AER determines Murraylink's regulatory depreciation allowance to be $13.5 million ($ nominal), $8.3 million (or 38.1 per cent) less than proposed. This reduction is necessary for the following reasons:

- The AER accepts Murraylink's proposal to align the standard asset life of the 'Transmission line' asset class with that of the 'Switchyard' asset class. It also accepts Murraylink's proposal in respect of the standard asset life assigned to the 'Office machines' asset class. However, the AER does not accept Murraylink's proposed depreciation schedules for asset classes 'Ancillary 15', 'Ancillary 10', 'Ancillary 7', 'Test equipment' and 'Other operating assets'. This is because the proposed standard asset lives for these new asset classes do not reflect the economic life of the assets in these asset classes.[263] The AER's draft decision on the standard asset lives for these asset classes are set out in table 6.4.
- The AER accepts Murraylink's proposed weighted average method to calculate the remaining asset lives of its RAB as at 1 July 2013. It also accepts the proposal to align the remaining asset life of the 'Transmission line' asset class with that of the 'Switchyard' asset class. In accepting the weighted average method, the AER has updated the proposed remaining asset lives as at 1 July 2013 to reflect the AER's adjustments to the RAB roll forward, as discussed in attachment 5.[264]
- The AER's determinations on other components of Murraylink's proposal also affect the regulatory depreciation allowance.[265] These determinations include the forecast capex (attachment 2) and the opening RAB as at 1 July 2013 (attachment 5).

Table 6.1 sets out the AER's draft decision on Murraylink's annual regulatory depreciation allowance for the 2013–23 regulatory control period.

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261 NER, clauses 6A.5.4(a)(1) and (3).
262 Murraylink, *Revenue proposal*, p. 51.
263 NER, clause 6A.6.3(b)(1).
264 At the time of this draft decision, the roll forward of Murraylink's RAB includes estimated capex values for 2011–12 and 2012–13. The AER will update the 2011–12 estimated capex value for its final decision with the actual value. The AER may update the 2012–13 capex value if Murraylink's revised proposal includes a more up-to-date estimate. The 2011–12 and 2012–13 capex values are used to calculate the weighted average remaining asset lives in the RFM. Therefore, the AER will recalculate Murraylink's remaining tax asset lives as at 1 July 2013 using the method approved in this draft decision to reflect the actual 2011–12 capex (and the 2012–13 capex estimate where relevant) for the final decision.
265 NER, clause 6A.6.3(a)(1).

Table 6.1 AER's draft decision on Murraylink's depreciation allowance for the 2013–23 regulatory control period ($ million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Straight-line depreciation	3.4	3.6	3.7	3.8	3.9	4.1	4.2	4.3	4.4	4.6	40.2
Less: inflation indexation on opening RAB	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6	26.7
Regulatory depreciation	0.8	0.9	1.0	1.1	1.2	1.4	1.6	1.7	1.9	2.0	13.5

Source: AER analysis.

6.2 Murraylink's proposal

Murraylink proposed a forecast regulatory depreciation allowance of $21.8 million ($ nominal) over the 2013–23 regulatory control period as shown in Table 6.2. It used the AER's post tax revenue model (PTRM) to calculate its proposed regulatory depreciation allowance.[266]

Murraylink proposed to align the standard and remaining asset lives of the 'Transmission line' asset class with those of the 'Switchyard' asset class. It stated that the switchyard assets (the convertors) were assigned a life of 40 years in the 2003 determination. The cable, however, was assigned a life of 50 years. Unlike a TNSP that has a broad portfolio of assets, Murraylink's assets work as a single entity to provide prescribed transmission network services. At the time that the convertor equipment reaches the end of its useful life, no investor would be prepared to renew this equipment to utilise the ageing cable for its short remaining life.[267]

Murraylink also proposed to introduce six new asset classes with assigned standard asset lives as shown in Table 6.3.

It stated that the ACCC's 2003 determination established three major components of switchyard, transmission line and easement. Although Murraylink is a single transmission asset, it comprises a suite of primary equipment with long asset lives, and secondary equipment with shorter asset lives. As ancillary equipment is refurbished and replaced, these additional asset classes must be introduced.[268]

266 Murraylink, *Revenue proposal*, p. 49.
267 Murraylink, *Revenue proposal*, p. 48.
268 Murraylink, *Email response to further information request AER.ML/007, Murraylink capitalisation of opex*, 6 August 2012.

Table 6.2 Murraylink's proposed depreciation allowance ($ million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Straight-line depreciation	3.7	4.1	4.5	4.9	5.0	5.2	5.3	5.4	5.6	5.4	49.1
Less: inflation indexation on opening RAB	2.7	2.8	2.8	2.9	2.8	2.8	2.7	2.7	2.6	2.6	27.3
Regulatory depreciation	1.0	1.3	1.7	2.0	2.2	2.4	2.6	2.8	3.0	2.9	21.8

Source: Murraylink, *Revenue proposal*, pp. 51–52.

Table 6.3 Murraylink's proposed new asset classes and standard asset lives

Asset class	Standard asset life (year)	Examples of asset types/components
Ancillary 15	15	Refurbishment of chiller compressors Rectification of corrosion on fan coils and chilled water piping Refurbishment of chilled water and cooling system valves Industrial computers for link control
Ancillary 10	10	Refurbishment of ventilation fan bearings Fire system control system replacement and pressure vessel test Cooling system motor contactors
Ancillary 7	7	Refurbishment of chillers and cooling system pump bearings Pressure gauge replacement
Test equipment	10	Optic fibre test equipment
Other operating assets	5	Split system air conditioner refurbishment (consumer grade) Logic control reprogramming
Office machines	3	Portable computers and associated hardware and software

Source: Murraylink, *Email response to further information request AER.ML/007, Murraylink capitalisation of opex*, 6 August 2012.

6.3 Assessment approach

The AER is required to determine the regulatory depreciation allowance as a part of a TNSP's annual building block revenue requirement.[269] The AER's calculation of Murraylink's regulatory depreciation building block is made in the PTRM and depends on several components. The calculation of

[269] NER, clause 6A.5.4(a)(3).

depreciation in each year is governed by the value of assets included in the RAB at the beginning of the regulatory year and the depreciation schedules.

The AER's standard approach to calculating depreciation is to employ the straight-line method as set out in the PTRM. The AER considers that the straight-line method of depreciation satisfies the National Electricity Rules (NER) requirements in clause 6A.6.3(b). It provides an expenditure profile that reflects the nature of the assets over their economic life.[270] Regulatory practice has been to assign a standard asset life to each category of assets that represents the economic or technical life of the asset or asset class. The AER must consider whether the proposed depreciation schedules conform to the following requirements:

- The schedules depreciate using a profile that reflects the nature of the assets or category of assets over the economic life of that asset or category of assets.[271]
- The sum of the real value of the depreciation attributable to any asset or category of assets must be equivalent to the value at which that asset or category of assets was first included in the RAB for the relevant transmission system.[272]

To the extent that a TNSP's revenue proposal does not comply with the above requirements, the AER must determine the depreciation schedules for calculating the depreciation for each regulatory year.[273]

The regulatory depreciation allowance is an output of the PTRM. The AER therefore has assessed Murraylink's proposed regulatory depreciation allowance by analysing the proposed inputs to the PTRM for calculating the regulatory depreciation allowance. These inputs include:

- the opening RAB as at 1 July 2013
- the forecast net capex in the 2013–23 regulatory control period
- the forecast inflation rate for the 2013–23 regulatory control period
- the standard asset life for each asset class—used for calculating the depreciation of new assets associated with forecast net capex in the 2013–23 regulatory control period
- the remaining asset life for each asset class—used for calculating the depreciation of existing assets associated with the opening RAB as at 1 July 2013.

The AER's determinations affecting the first three inputs in the above list are discussed elsewhere: forecast net capex (attachment 2), forecast inflation (attachment 4) and opening RAB (attachment 5). The AER's draft decision on Murraylink's regulatory depreciation allowance reflects the AER's determinations on these building block components. The AER's assessment approach on the remaining two inputs in the above list is set out below.

The AER assesses Murraylink's proposed standard asset lives, where necessary, against:

- the approved standard asset lives in the transmission determination for the 1 October 2003 to 30 June 2013 regulatory control period

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270 NER, clause 6A.6.3(b)(1).
271 NER, clause 6A.6.3(b)(1).
272 NER, clause 6A.6.3(b)(2).
273 NER, clause 6A.6.3(a)(2)(ii).

- the standard asset lives of comparable asset classes approved in the AER's recent transmission determinations for other TNSPs.

The AER's standard approach determines the remaining asset lives using the weighted average method as set out in the AER's roll forward model (RFM). The weighted average method rolls forward the remaining asset life for an asset class from the beginning of the 2003–13 regulatory control period. This approach reflects the mix of assets within that asset class, when they were acquired over that period (or if they were existing assets at the beginning), and the remaining value of those assets (used as a weight) at the end of the period. The AER will assess the outcomes of other approaches against the outcomes of this standard approach.

6.4 Reasons for draft decision

The AER accepts Murraylink's proposal to use the straight-line method for calculating the regulatory depreciation allowance as set out in the PTRM. However, the AER has reduced Murraylink's proposed regulatory depreciation allowance by $8.3 million ($ nominal) or 38.1 per cent, for the following reasons:

- the AER does not accept the proposed depreciation schedules for the 'Ancillary 15', 'Ancillary 10', 'Ancillary 7', 'Test equipment' and 'Other operating assets' asset classes.
- the AER has updated Murraylink's remaining asset lives as at 1 July 2013 for the 'Switchyard' asset class to reflect the AER's adjustments to the actual capex for this asset class in the RFM.
- the AER's determinations on other components of Murraylink's revenue proposal including the forecast capex (attachment 2) and the opening RAB at 1 July 2013 (attachment 5) also impact on the forecast regulatory depreciation allowance.

This section sets out the AER's consideration of Murraylink's proposed standard asset lives and the remaining asset lives.

6.4.1 Standard asset lives

Murraylink proposed two changes to the asset classes and standard asset lives approved by the ACCC in the 2003 determination:

- it proposed to align the standard asset life of the 'Transmission line' asset class (currently 50 years) with that of the 'Switchyard' asset class (40 years).[274]
- it proposed to introduce six new asset classes for forecast capex associated with ancillary equipments, test equipments, office machines and other operating assets. The proposed standard asset lives for these asset classes are within the range of 3 years to 15 years, which are much shorter than the standard asset lives for the transmission line and switchyard assets.

'Transmission line' asset class

The AER accepts Murraylink's proposal to align the standard asset life of the 'Transmission line' asset class with that of the 'Switchyard' asset class. In general, the standard asset life of an asset class should reflect the technical life of the assets in that asset class. However, unlike other TNSPs, Murraylink's transmission line assets and substation assets are joined as a single entity to provide

[274] Murraylink, *Revenue proposal*, p. 48.

prescribed transmission services. The transmission line will have no useful life when the substation ceases to operate.[275] Therefore, the AER agrees that it is reasonable to change the standard asset life of the 'Transmission line' asset class to 40 years from the current 50 years to better reflect the expected economic life of Murraylink's transmission line assets.[276]

'Ancillary' asset classes

The AER does not accept Murraylink's entire proposed standard asset lives for its ancillary equipment refurbishment capex. Murraylink proposed assigning standard asset lives of 15, 10 and 7 years for the 'Ancillary 15', 'Ancillary 10', 'Ancillary 7' asset classes respectively.

The AER notes that Murraylink's proposed ancillary equipment refurbishment capex accounts for about 83 per cent of the total proposed capex for the 2013–23 regulatory control period. As discussed in attachment 2, the AER approved the proposed refurbishment capex for ancillary equipment for the 2013–23 regulatory control period. However, the AER does not accept the proposed standard asset lives for the ancillary asset classes for regulatory depreciation purposes. It considers that Murraylink has understated the economic lives of the refurbishment capex in respect of ancillary assets during the 2013–23 regulatory control period. The reasons for this view are:

- CHC suggested that the manufacturer of the ancillary equipment is a major international supplier of power system equipment. Therefore, it seems unlikely that components supplied for a project with a 40 year life would require comparatively frequent replacement as proposed by Murraylink. It advised that most of Murraylink's ancillary assets have a technical life of 40 years.[277]
- As discussed in attachment 2, the AER has concerns about Murraylink's asset management framework and underlying supporting systems and methods. CHC noted that the principles adopted by Murraylink for asset maintenance are not seen as reflecting modern industry practice in that there is an emphasis on replacement of plant due to age or number of operational hours.[278]
- The AER considers that it is not prudent or efficient for a TNSP to systematically dispose of assets before they reach the end of their economic life. With improved asset management practices, the majority of the ancillary equipment replaced during the 2013–23 regulatory control period should reasonably be expected to be in service until the end of its economic life.

For these reasons, the AER considers that the proposed standard asset lives do not reflect the economic life of the ancillary equipment refurbishment capex during the 2013–23 regulatory control period.[279] While the technical life for most of the ancillary assets is 40 years, the AER considers a standard asset life of 30 years is more reasonable for depreciation purposes for the 2013–23 regulatory control period. This is because the ancillary assets will have no useful life once Murraylink's substation assets reach the end of their useful life, and the remaining asset life as at 1 July 2013 for the substation assets is 30 years.

Further, the AER considers some of Murraylink's ancillary equipment refurbishment capex may have a standard asset life that is shorter than 30 years. Murraylink has proposed a standard asset life of 15 years for its control systems, and 7 years for pressure vessel testing and inspection capex. The AER accepts the proposed standard asset lives for these capex, for the following reasons:

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275 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 45.
276 NER, clause 6A.6.3(b)(1).
277 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 46–47.
278 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 3–4.
279 NER, clause 6A.6.3(b)(1).

- The AER accepts the proposed 15 years for control systems, because it is comparable with the approved standard asset life for similar assets in recent transmission determinations. CHC also recommended that a standard asset life of 15 to 20 years for control systems is reasonable.[280]
- CHC advised that pressure vessel checks should be conducted according to statutory requirements or about every 5 years.[281] The AER agrees with CHC's advice and therefore accepts the proposed 7 years standard asset life for pressure vessel testing and inspection capex.

For modelling purposes, the AER has renamed Murraylink's ancillary equipment asset classes to reflect the nature of the assets for each of the ancillary asset classes as shown in table 6.4. The AER considers that the standard asset lives determined in this draft decision result in depreciation schedules that use profiles reflecting the nature of the assets over the economic life of those assets in each of the ancillary equipment asset classes.[282]

Other new asset classes—'Office machines', 'Test equipment' and 'Other operating assets'

The AER accepts the proposed standard asset life of 3 years for the 'Office machines' asset class, because it is comparable with the approved standard asset life for similar assets in the AER's recent transmission determinations. However, the AER does not accept the proposed standard asset lives for the 'Test equipment' and 'Other operating assets' asset classes. The AER considers it is not necessary to assess the proposed standard asset lives for these asset classes, because Murraylink has not proposed any forecast capex for allocation to these asset classes during the 2013–23 regulatory control period.[283] For modelling purposes, the AER has changed the standard asset life inputs for the 'Test equipment' and 'Other operating assets' asset classes to 'n/a' in the PTRM.

Table 6.4 sets out the AER's draft decision on Murraylink's standard asset lives for the 2013–23 regulatory control period.

280 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 47 and 49.
281 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 47.
282 NER, clause 6A.6.3(b)(1).
283 Murraylink, *Proposed PTRM*, May 2012.

Table 6.4 Murraylink proposed and AER's draft decision on Murraylink's standard asset lives and remaining asset lives as at 1 July 2013 (years)

Asset class—Murraylink	Standard asset life—Murraylink	Remaining asset life as at 1 July 2013—Murraylink	Asset class—AER approved	Standard asset life—AER approved	Remaining asset life as at 1 July 2013— AER approved
Switchyard	40	30.0	Switchyard	40	30.3
Transmission line	40	30.0	Transmission line	40	30.3
Easements	n/a	n/a	Easements	n/a	n/a
Ancillary 15	15	n/a	Ancillary 30	30	n/a
Ancillary 10	10	n/a	Ancillary 15—control systems	15	n/a
Ancillary 7	7	n/a	Ancillary 7—pressure vessel testing and inspection	7	n/a
Test equipment	10	n/a	Test equipment	n/a	n/a
Other operating assets	5	n/a	Other operating assets	n/a	n/a
Office machines	3	n/a	Office machines	3	n/a

n/a: not applicable.

6.4.2 Remaining asset lives at 1 July 2013

The AER accepts Murraylink's proposed weighted average method to calculate the remaining asset lives of its RAB as at 1 July 2013. In accepting the weighted average method, the AER has updated Murraylink's proposed remaining asset life for the 'Switchyard' asset class as at 1 July 2013. This is to reflect the AER's adjustments to actual capex in the RAB roll forward during the 1 October 2003 to 30 June 2013 regulatory control period, as discussed in attachment 5.[284] The actual capex values are inputs for calculating the weighted average remaining asset lives in the RFM. Further, for the same reasons discussed in section 6.4.1, the AER accepts the proposal to align the remaining asset life of the 'Transmission line' asset class with that of the 'Switchyard' asset class. As such, the remaining asset life of the 'Transmission line' asset class as at 1 July 2013 is amended to 30 years from 40 years. Table 6.4 sets out the AER's draft decision on Murraylink's remaining asset lives as at 1 July 2013.

6.5 Revisions

Revision 6.1: The AER determined Murraylink's forecast regulatory depreciation allowance to be $13.5 million ($ nominal) over the 2013–23 regulatory control period as set out in Table 6.1.

Revision 6.2: The AER determined Murraylink's standard asset lives and remaining asset lives as at 1 July 2013 for the 2013–23 regulatory control period as set out in table 6.4.

[284] At the time of this draft decision, the roll forward of Murraylink's RAB includes estimated capex values for 2011–12 and 2012–13. The AER will update the 2011–12 estimated capex value for its final decision with the actual value. The AER may update the 2012–13 capex value if Murraylink's revised proposal includes a more up-to-date estimate. The 2011–12 and 2012–13 capex values are used to calculate the weighted average remaining tax asset lives in the RFM. Therefore, the AER will recalculate Murraylink's remaining asset lives as at 1 July 2013 using the method approved in this draft decision to reflect the actual 2011–12 capex (and the 2012–13 capex estimate where relevant) for the final decision.

7 Corporate income tax

The AER is required to make a decision on Murraylink's estimated cost of corporate income tax.[285] Under the post tax framework, a corporate income tax allowance is calculated as part of the building block assessment using the AER's post tax revenue model (PTRM).

This attachment sets out the AER's draft decision on Murraylink's corporate income tax allowance for the 2013–23 regulatory control period. It also presents the AER's assessment on the proposed tax asset base (TAB), together with the standard and remaining tax asset lives, which are used to estimate tax depreciation for the purpose of calculating the estimated cost of corporate income tax allowance.

7.1 Draft decision

The AER does not accept Murraylink's proposed estimated cost of corporate income tax allowance of $3.3 million ($ nominal) for the 2013–23 regulatory control period. The AER determines an estimated corporate income tax allowance for Murraylink of $2.5 million ($ nominal), a reduction of $0.8 million (or 24.2 per cent) from that proposed. This decision has been made for the following reasons:

- The AER accepts Murraylink's proposed method of establishing the opening TAB as at 1 July 2013. However, the AER increased Murraylink's proposed TAB as at 1 July 2013 to $82.4 million ($ nominal) from $74.3 million. This is because the AER corrected the opening TAB as at 1 October 2003 and the tax asset lives inputs for the 'Easement' asset class in the roll forward model (RFM).
- The AER accepts Murraylink's proposal to align the standard tax asset life of the 'Transmission line' asset class with that of the 'Switchyard' asset class. It also accepts Murraylink's proposal in respect of the standard tax asset life assigned to the 'Office machines' asset class. However, the AER does not accept Murraylink's proposed standard tax asset lives for the following asset classes: 'Ancillary 15', 'Ancillary 10', 'Ancillary 7', 'Test equipment' and 'Other operating assets'. The AER's draft decision on the standard tax asset lives for these asset classes is set out Table 7.4.
- The AER accepts Murraylink's proposed weighted average method to calculate the remaining tax asset lives of its TAB as at 1 July 2013. It also accepts the proposal to align the remaining tax asset life of the 'Transmission line' asset class with that of the 'Switchyard' asset class. By accepting the weighted average method, the AER has updated the proposed remaining tax lives to reflect the AER's adjustments to Murraylink's actual capex in the RFM.
- The AER's determinations on other building blocks including forecast opex (attachment 3) and cost of capital (attachment 4) also impact the estimated corporate income tax allowance.[286]

Based on the approach to modelling the cash flows in the PTRM, the AER has derived an effective tax rate of 26.0 per cent for this draft decision. Table 7.1 sets out the AER's draft decision on Murraylink's estimated corporate income tax allowance over the 2013–23 regulatory control period.

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285 NER, clause 6A.5.4(a)(4).
286 NER, clause 6A.6.4.

Table 7.1 AER's draft decision on Murraylink's corporate income tax allowance ($ million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Tax payable	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.9	7.2
Less: value of imputation credits	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	4.7
Net corporate income tax allowance	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	2.5

7.2 Murraylink's proposal

Murraylink proposed a corporate income tax allowance of $3.3 million ($ nominal) over the 2013–23 regulatory control period as shown in Table 7.2.[287] It estimated the corporate income tax allowance using the AER's PTRM and the following input values:[288]

- an opening TAB of $74.3 million ($ nominal) as at 1 July 2013
- an expected statutory income tax rate of 30 per cent per year
- a value for the assumed utilisation of imputation credits (gamma) of 0.65
- standard tax asset lives and remaining tax asset lives contained in its proposed PTRM.

Table 7.2 Murraylink's proposed corporate income tax allowance ($ million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Tax payable	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.1	9.3
Less: value of imputation credits	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.7	6.1
Net corporate income tax allowance	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	3.3

Source: Murraylink, Proposed *PTRM*, May 2012.

7.3 Assessment approach

The AER is required to estimate Murraylink's cost of corporate income tax for each year of the 2013–23 regulatory control period under clause 6A.6.4(a) of the NER. The AER's approach to calculating Murraylink's cost of corporate income tax is set out in the AER's PTRM and involves the following steps:

[287] Murraylink, *Revenue proposal*, p. 52.
[288] Murraylink, *Proposed PTRM*, May 2012.

- First, the AER estimates the annual taxable income that would be earned by a benchmark efficient TNSP operating Murraylink's business.[289] A TNSP's taxable income is calculated by adjusting the AER's approved forecast revenues by estimates of tax expenses. Using the PTRM, the AER models Murraylink's tax expenses, including interest tax expense and tax depreciation, over the 2013–23 regulatory control period. The interest tax expense is estimated using the benchmark 60 per cent gearing, rather than Murraylink's actual gearing. Tax depreciation is calculated using a separate asset base value, and standard and remaining asset lives for tax purposes. All tax expenses (including other expenses such as opex) are offset against the TNSP's forecast revenue to estimate the taxable income.
- The statutory income tax rate is then applied to the estimated annual taxable income to arrive at a notional amount of tax payable.
- The AER then applies a discount to that notional amount of tax payable to account for the assumed utilisation of imputation credits (gamma).
- The final estimate of tax payable net of assumed utilised imputation credits is then included as a separate building block in determining the TNSP's annual building block revenue requirement.

The corporate income tax allowance is an output of the AER's PTRM. The AER therefore has assessed Murraylink's proposed corporate income tax allowance by analysing the proposed inputs to the PTRM for calculating the tax allowance. These inputs include:

- The opening TAB as at 1 July 2013: The AER considers that the roll forward of the opening TAB to 1 July 2013 should be based on the approved opening TAB as at 1 October 2003 and Murraylink's actual capex in the 1 October 2003 to 30 June 2013 regulatory control period.
- The standard tax asset life for each asset class: The AER assesses Murraylink's proposed standard tax asset lives, where necessary, against those prescribed by the Commissioner for Taxation in Tax Ruling 2012/2 and the approved standard tax asset lives in the 1 October 2003 to 30 June 2013 regulatory control period.
- The remaining tax asset life for each asset class at 1 July 2013: The AER's preferred method to determine the remaining tax asset lives is the weighted average method.[290] The AER considers the weighted average method provides a better reflection of the mix of assets within an asset class and the effective life of the asset class.
- The income tax rate: The statutory income tax rate is 30 per cent per year.
- The value of gamma: The value of gamma for Murraylink is 0.65, which is consistent with the value determined in the WACC review.[291]

7.4 Reasons for draft decision

The AER does not accept Murraylink's proposed estimated cost of corporate income tax allowance of $3.3 million ($ nominal) for the 2013–23 regulatory control period. This is because the AER adjusted several of Murraylink's proposed inputs to the PTRM for tax purposes, which include:

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289 NER, clause 6A.6.4(a)(2).

290 The weighted average method involves weighting the remaining life of each capital stream within an asset class (that is, the opening tax capital value and the capital expenditures for each year) by the closing tax capital value of that capital stream as a proportion of the total closing tax capital value of the asset class as a whole. The resulting individual values for each capital stream are then added together to obtain the overall weighted average remaining life of the asset class.

291 The value of gamma is also discussed in attachment 4 regarding the cost of capital.

- the opening TAB as at 1 July 2013
- the standard tax asset lives and the remaining tax asset lives at 1 July 2013 for several asset classes.

The AER determines the estimated cost of corporate income tax of Murraylink to be $2.5 million ($ nominal), which represents a reduction of $0.8 million (or 24.2 per cent) on Murraylink's proposal.

7.4.1 Tax asset base as at 1 July 2013

The AER accepts Murraylink's proposed method to establish the opening TAB as at 1 July 2013. However, the AER does not accept the proposed opening TAB value as at 1 July 2013 of $74.3 million (nominal). The AER determines the value of the opening TAB as at 1 July 2013 to be $82.4 (nominal), an increase of $8.1 million (or 10.9 per cent) on the proposal. The following are the reasons for this increase:

- The AER does not accept Murraylink's proposed opening TAB at 1 October 2003 of $97.3 million, because this value is inconsistent with the ACCC's approved value in the 2003 revenue cap determination. The ACCC approved value is $103 million ($ nominal). The AER therefore amended the proposed opening TAB at 1 October 2003 to reflect the values set out in the ACCC's 2003 determination.
- Murraylink's proposed RFM depreciated the easement value in the TAB roll forward by inserting a remaining tax asset life of zero as an input.[292] The AER notes that Murraylink's easements value should not be depreciated for tax purposes, consistent with the ACCC's 2003 determination.[293] For non-depreciating assets, such as easements, the correct tax asset life input in the RFM should be 'n/a'. The AER has therefore changed the tax asset life input for the 'Easements' asset class from zero to 'n/a' in the RFM to ensure that the value of easements are rolled forward without being depreciated.
- The AER's adjustments to the actual capex in the RFM also affect the value of the opening TAB as at 1 July 2013. The reasons for these adjustments are discussed in attachment 5.

Table 7.3 sets out the AER's draft decision on the roll forward of Murraylink's TAB during the 1 October 2003 to 30 June 2013 regulatory control period.

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292 Murraylink, *Proposed RFM*, May 2012.

293 ACCC, *Decision: Murraylink transmission company application for conversion and maximum allowed revenue*, October 2003, p. 166.

Table 7.3 AER's draft decision on Murraylink's tax asset base roll forward ($ million, nominal)

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Opening TAB	103.0	100.7	98.4	96.5	94.2	91.9	89.7	87.4	85.2	83.5
Capital expenditure	–	–	0.3	0.0	0.0	–	0.0	0.0	0.6[b]	1.2[b]
Tax depreciation	–2.3	–2.3	–2.3	–2.3	–2.3	–2.3	–2.3	–2.3	–2.3	–2.3
Closing TAB	100.7	98.4	96.5	94.2	91.9	89.7	87.4	85.2	83.5	82.4

Source: AER analysis.
Note: Totals may not add due to rounding.
(a) As commissioned, net of disposals.
(b) Based on estimated capex.

7.4.2 Standard tax asset lives

Murraylink proposed two changes to the asset classes and standard tax asset lives approved by the ACCC in the 2003 determination:

- align the standard tax asset life of the 'Transmission line' asset class (currently 50 years) with that of the 'Switchyard' asset class (40 years).[294]
- introduce six new asset classes for forecast capex associated with ancillary equipments, test equipment, office machines and other operating assets. The proposed standard tax asset lives for these asset classes are within the range of three years to 15 years, which are much shorter than the standard tax asset lives for the transmission line and switchyard assets.

'Switchyard' and 'Transmission line' asset classes

The AER accepts Murraylink's proposed standard tax asset life for the 'Switchyard' asset class of 40 years because it is consistent with the ACCC's approved standard tax asset life in the 2003 determination and the values in tax ruling 2012/2.[295] The AER also accepts the proposal to align the standard tax asset life of the 'Transmission line' asset class with that of the 'Switchyard' asset class. As discussed in attachment 1, unlike other TNSPs, Murraylink's transmission line assets will have no useful life when the substation assets reach the end of their useful life.[296] Therefore, the AER considers this proposal is appropriate.

New asset classes

The AER does not accept the proposed standard tax asset lives for the 'Ancillary 15', 'Ancillary 10', 'Ancillary 7', 'Test equipment' and 'Other operating assets' asset classes for tax depreciation purposes. The proposed standard tax asset lives for these asset classes are the same as the proposed standard asset lives for regulatory depreciation purposes. As discussed in attachment 1, the AER made several adjustments to the proposed standard asset lives for these asset classes. The AER has therefore amended the proposed standard tax asset lives to be consistent with those set out in the draft decision for the standard asset lives for regulatory depreciation purposes. The AER considers that the amended standard tax asset lives for these asset classes provides a better

294 Murraylink, *Revenue proposal*, p. 48.
295 ATO, Tax ruling 2012/2—income tax: effective life of depreciating assets, 1 July 2012, p. 143.
296 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 45.

estimate of tax depreciation amount for a benchmark efficient TNSP as required by the NER.[297] Table 7.4 sets out the AER's draft decision on Murraylink's standard tax asset lives for the 2013–23 regulatory control period.

7.4.3 Remaining tax asset lives

The AER accepts Murraylink's proposed weighted average method to calculate the remaining tax asset lives as at 1 July 2013. In accepting the weighted average method, the AER has updated Murraylink's proposed remaining tax asset lives to reflect the AER's adjustments to actual capex in the TAB roll forward during the 1 October 2003 to 30 June 2013 regulatory control period, as discussed in attachment 5.[298] This is because the actual capex values are inputs for calculating the weighted average remaining tax asset lives in the RFM. Further, for the same reasons discussed in section 7.4.2, the AER also accepts the proposal to align the remaining tax asset life of the 'Transmission line' asset class (currently 40 years) with that of the 'Switchyard' asset class (30 years). Table 7.4 sets out the AER's draft decision on Murraylink's remaining tax asset lives as at 1 July 2013 for the 2013–23 regulatory control period.

Table 7.4 Murraylink proposed and AER's draft decision on Murraylink's standard tax asset lives and remaining tax asset lives as at 1 July 2013 (years)

Asset class— Murraylink	Standard tax asset life— Murraylink	Remaining tax asset life as at 1 July 2013— Murraylink	Asset class— AER approved	Standard tax asset life— AER approved	Remaining tax asset life as at 1 July 2013— AER approved
Switchyard	40	30.0	Switchyard	40	30.4
Transmission line	40	30.0	Transmission line	40	30.4
Easements	n/a	n/a	Easements	n/a	n/a
Ancillary 15	15	n/a	Ancillary 30[a]	30	n/a
Ancillary 10	10	n/a	Ancillary 15—control systems[a]	15	n/a
Ancillary 7	7	n/a	Ancillary 7—pressure vessel testing and inspection[a]	7	n/a
Test equipment	10	n/a	Test equipment	n/a	n/a
Other operating assets	5	n/a	Other operating assets	n/a	n/a
Office machines	3	n/a	Office machines	3	n/a

n/a: Not applicable.
a: The AER has changed the names of these asset classes for the reasons discussed in attachment 6.

297 NER, clause 6A.6.4(a)(2).
298 At the time of this draft decision, the roll forward of Murraylink's TAB includes estimated capex values for 2011–12 and 2012–13. The AER will update the 2011–12 estimated capex value for its final decision with the actual value. The AER may update the 2012–13 capex value if Murraylink's revised proposal includes a more up-to-date estimate. The 2011–12 and 2012–13 capex values are used to calculate the weighted average remaining tax asset lives in the RFM. Therefore, the AER will recalculate Murraylink's remaining tax asset lives as at 1 July 2013 using the method approved in this draft decision to reflect the actual 2011–12 capex (and the 2012–13 capex estimate where relevant) for the final decision.

7.5 Revisions

Revision 1.1: The AER determined Murraylink's estimated cost of corporate income tax allowance to be $2.5 million ($ nominal) over the 2013–23 regulatory control period, as set out in Table 7.1.

Revision 1.2: The AER determined Murraylink's total opening TAB at 1 July 2013 to be $82.4 million ($ nominal), as set out in table 7.3.

Revision 1.3: The AER determined Murraylink's standard asset lives and remaining tax asset lives as at 1 July 2013 to be those as set out in Table 7.4.

8 Maximum allowed revenue

This attachment sets out the AER's draft decision on Murraylink's maximum allowed revenue for the provision of prescribed transmission services during the 2013–23 regulatory control period. Specifically, the attachment addresses:[299]

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

The AER determines Murraylink'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 2013–23 regulatory control period.

8.1 Draft decision

The AER's determination on Murraylink's proposed building block components has a consequential impact on the annual building block revenue requirement. The AER recalculated the X factor and the annual expected MAR (smoothed) to reflect the AER's draft decision on Murraylink's annual building block revenue requirement.

For this draft decision, the AER has approved an estimated total revenue cap of $130.6 million ($ nominal) for Murraylink for the 2013–23 regulatory control period.[300] The AER approved X factor is 1.14 per cent per annum from 2014–15 to 2022–23.[301]

Table 8.1 sets out the AER's draft decision on Murraylink's annual building block revenue requirement, the X factor, the annual expected MAR and the estimated total revenue cap for the 2013–23 regulatory control period.

299 NER, clauses 6A.4.2(a)(1)–(3) and clause 6A.6.8.

300 The estimated total revenue cap is equal to the total of the annual expected MAR over the 2013–23 regulatory control period.

301 Consistent with Murraylink's proposal, the AER has determined a constant X factor to apply over the 2013–23 regulatory control period.

Table 8.1 AER's draft decision on Murraylink's annual building block revenue requirement, annual expected MAR, estimated total revenue cap and X factor ($ million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Return on capital	7.6	7.7	7.7	7.7	7.6	7.7	7.6	7.5	7.4	7.3	75.8
Regulatory depreciation[a]	0.8	0.9	1.0	1.1	1.2	1.4	1.6	1.7	1.9	2.0	13.5
Operating expenditure	3.3	3.4	3.6	3.7	3.8	4.0	4.1	4.3	4.4	4.6	39.2
Net tax allowance	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	2.5
Annual building block revenue requirement (unsmoothed)	11.9	12.2	12.5	12.7	12.9	13.3	13.5	13.8	14.0	14.2	131.1
Annual expected MAR (smoothed)	12.3	12.5	12.6	12.8	13.0	13.1	13.3	13.5	13.7	13.9	130.6[b]
X factor (%)	n/a[c]	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	n/a

(a) Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.
(b) The estimated total revenue cap is equal to the total annual expected MAR.
(c) Murraylink is not required to apply an X factor for 2013–14 because the MAR is set in this draft decision. The MAR for 2013–14 is around 10.4 per cent lower than the MAR in the final year of the 2003–13 regulatory control period (2012–13) in real terms, or 13.1 per cent lower in nominal terms.

8.2 Murraylink's proposal

Based on its proposed building block components, Murraylink proposed a total (smoothed) revenue cap of $158.8 million ($ nominal) for the 2013–23 regulatory control period.[302] Table 8.2 sets out Murraylink's proposed annual building block revenue requirement, the X factor, the annual expected MAR and the estimated total revenue cap for the 2013–23 regulatory control period.

[302] Murraylink, *Revenue proposal*, May 2012, p. 53.

Table 8.2 Murraylink's proposed annual building block revenue requirement, annual expected MAR, estimated total revenue cap and X factor ($ million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Return on capital	8.8	9.1	9.2	9.4	9.2	9.2	9.0	8.8	8.6	8.4	89.7
Regulatory depreciation[a]	1.0	1.3	1.7	2.0	2.2	24	2.6	2.8	3.0	2.9	21.8
Operating expenditure	3.7	3.8	4.0	4.1	4.3	4.6	4.8	5.0	5.2	5.5	45.0
Net tax allowance	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	5.9
Annual building block revenue requirement (unsmoothed)	13.8	14.5	15.2	15.8	16.1	14.5	16.7	17.0	17.2	17.2	159.7
Annual expected MAR (smoothed)	14.8	15.0	15.3	15.5	15.7	16.0	16.2	16.5	16.8	17.0	158.8[b]
X factor (%)	n/a	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	n/a

Source: Murraylink, *Revenue proposal*, p. 53.
(a) Regulatory depreciation is straight-line depreciation net of the inflation indexation on the opening RAB.
(b) The estimated total revenue cap is equal to the total annual expected MAR.

8.3 Assessment approach

The AER must make a decision on Murraylink's total revenue cap for the 2013–23 regulatory control period and the MAR for each regulatory year of the 2013–23 regulatory control period.[303] In making its decision, the AER adopts a building block approach.[304] Under this approach the AER determines the value of the building block components that make up the annual building block revenue requirement for each regulatory year. These components include:

- the return on capital, which is a function of the rate of return and the opening RAB (including the addition of capital expenditure)
- the return of capital (regulatory depreciation), which is based on straight-line depreciation net of the inflation indexation on the opening RAB
- operating expenditure
- the estimated cost of corporate income tax
- other amounts associated with any relevant schemes or carried over from a previous regulatory control period.

The AER developed the post tax revenue model (PTRM), which brings together the various building block components and calculates the annual building block revenue requirement for each year of the regulatory control period.[305] The PTRM also calculates the X factors required under the CPI–X methodology which is used to escalate the MAR for each year (other than the first year) of the regulatory control period.[306] Using the X factors and annual building block revenue requirement, the

303 NER, clauses 6A.14.1(i)–(ii).
304 NER, clause 6A.5.4.
305 NER, clause 6A.5.
306 NER, clauses 6A.5.3 and 6A.6.8.

annual expected MAR (smoothed) are forecast for each year of the regulatory control period. A TNSP's revenue proposal must be prepared using the AER's PTRM and comply with the requirements of the submission guidelines.[307]

The annual building block revenue requirement can be lumpy over the regulatory control period. To minimise price shocks, revenues are smoothed within a regulatory control period while maintaining the principle of cost recovery under the building block approach. Smoothing requires diverting some of the cost recovery to adjacent years within the regulatory control period so that the net present value of the annual expected MAR (smoothed revenues) is equal to the net present value of the annual building block revenue requirement (unsmoothed revenues). That is, a smoothed profile of the expected MAR is determined for the regulatory control period under the CPI–X methodology.

The expected MAR for the first year is generally set equal to the annual building block revenue requirement for the first year of the regulatory control period or a similar amount to the MAR for the last year of the previous regulatory control period:[308]

$$MAR_1 = AR_1 \text{ or } MAR_L$$

where:

MAR_1 = the maximum allowed revenue for year 1 of the next regulatory control period

AR_1 = the annual building block revenue requirement for year 1 of the next regulatory control period

MAR_L = the maximum allowed revenue for the last year of the previous regulatory control period.

The AER uses the PTRM to estimate the expected MAR for each year of the regulatory control period by escalating the previous year's expected MAR using a CPI–X method, based on the MAR that applies to the TNSP in the first year of the regulatory control period. The PTRM incorporates a forecast inflation rate to calculate the expected MAR in nominal dollar terms, whereas the actual MAR is adjusted for actual inflation. This annual adjustment process is set out below.

8.3.1 Annual adjustment process

The MAR for the subsequent year of the regulatory control period requires an annual adjustment based on the previous year's allowed revenue (AR).[309] That is, the subsequent year's AR is determined by adjusting the previous year's AR for actual inflation and the X factor:

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

where:

AR = the allowed revenue

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307 NER, clause 6A.5.1(a).

308 The MAR for year 1 of the next regulatory control period may include adjustment for the performance incentive that applied during the previous regulatory control period, and under or over recovery adjustments from previous regulatory years.

309 In the case of making the annual adjustment for year 2, the previous year's AR would be the same as the annual building block revenue requirement for year 1.

t = time period/financial year (for t = 2, 3, 4, 5, 6, 7, ,8, 9, 10)

ΔCPI = the annual percentage change in the ABS Consumer price index all groups, weighted average of eight capital cities from March in year t – 2 to March in year t – 1

X = the smoothing factor.

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

- the service target performance incentive scheme revenue increment (or revenue decrement)[310]
- any approved pass through amounts[311]

Table 8.3 sets out the timing of the annual calculation of the AR and performance incentive:

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

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

where:

MAR = the maximum allowed revenue

AR = the allowed revenue

S = the revenue increment or decrement determined in accordance with the service target performance incentive scheme

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

t = time period/financial year (for t = 2, 3, 4, 5, 6, 7, 8, 9, 10)

ct = time period/calendar year (for ct = 2, 3, 4, 5, 6, 7, 8, 9, 10).

Under the NER, a TNSP must also adjust the MAR for under or over recovery amounts.[312]

310 NER, clauses 6A.7.4 and 6A.7.3.
311 NER, clauses 6A.7.2 and 6A.7.3.
312 NER, clauses 6A.23.3(c)(2)(iii) and 6A.24.4(c).

Table 8.3 Timing of the calculation of allowed revenues and the performance incentive

t	Allowed revenue (financial year)	*ct*	Performance incentive (calendar year)
2	1 July 2014–30 June 2015	2	1 January 2013–31 December 2013
3	1 July 2015–30 June 2016	3	1 January 2014–31 December 2014
4	1 July 2016–30 June 2017	4	1 January 2015–31 December 2015
5	1 July 2017–30 June 2018	5	1 January 2016–31 December 2016
6	1 July 2018–30 June 2019	4	1 January 2017–31 December 2017
7	1 July 2019–30 June 2020	3	1 January 2018–31 December 2018
8	1 July 2020–30 June 2021	4	1 January 2019–31 December 2019
9	1 July 2021–30 June 2022	3	1 January 2020–31 December 2020
10	1 July 2022–30 June 2023	4	1 January 2021–31 December 2021

8.3.2 Average transmission charges

The NER does not require an estimate of transmission price changes for a revenue determination of a TNSP. Although the AER assesses Murraylink's proposed pricing methodology, actual transmission charges established at particular connection points are not approved by the AER. Murraylink provides prescribed transmission services in two regions—South Australia and Victoria. Murraylink's MAR is portioned across the two regions whereby the coordinating network service providers[313] establish their transmission charges in accordance with the approved pricing methodology and the NER.[314]

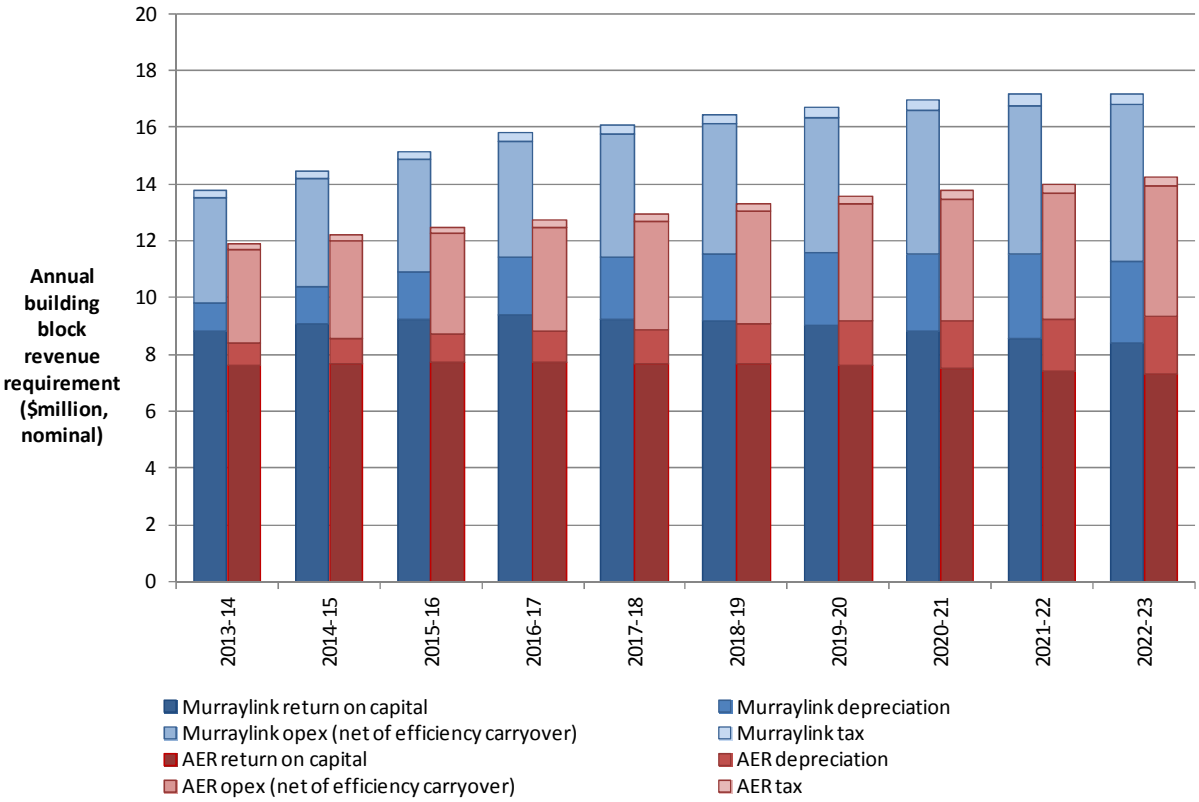
8.4 Reasons for draft decision

For this draft decision, the AER has determined a total annual building block revenue requirement of $131.1 million ($ nominal) for Murraylink for the 2013–23 regulatory control period. This compares to Murraylink's proposed total annual building block revenue requirement of $159.7 million ($ nominal) for this period.[315]

Figure 8.1 shows the AER determined components that make up the annual building block revenue requirement for the 2013–23 regulatory control period and the corresponding building blocks components from Murraylink's proposal.

313 The respective coordinating network service providers in South Australia and Victoria are ElectraNet and AEMO.
314 NER, clause 6A.24.1(d).
315 Murraylink, *Revenue proposal*, May 2012, p. 53.

Figure 8.1 AER's draft decision and Murraylink's proposed annual building block revenue requirement ($million, nominal)



Source: AER analysis.

The AER has calculated the annual building block revenue requirement for Murraylink based on the revised building block components. The revenues were affected by the AER's changes to Murraylink's proposed building block components. These changes include:

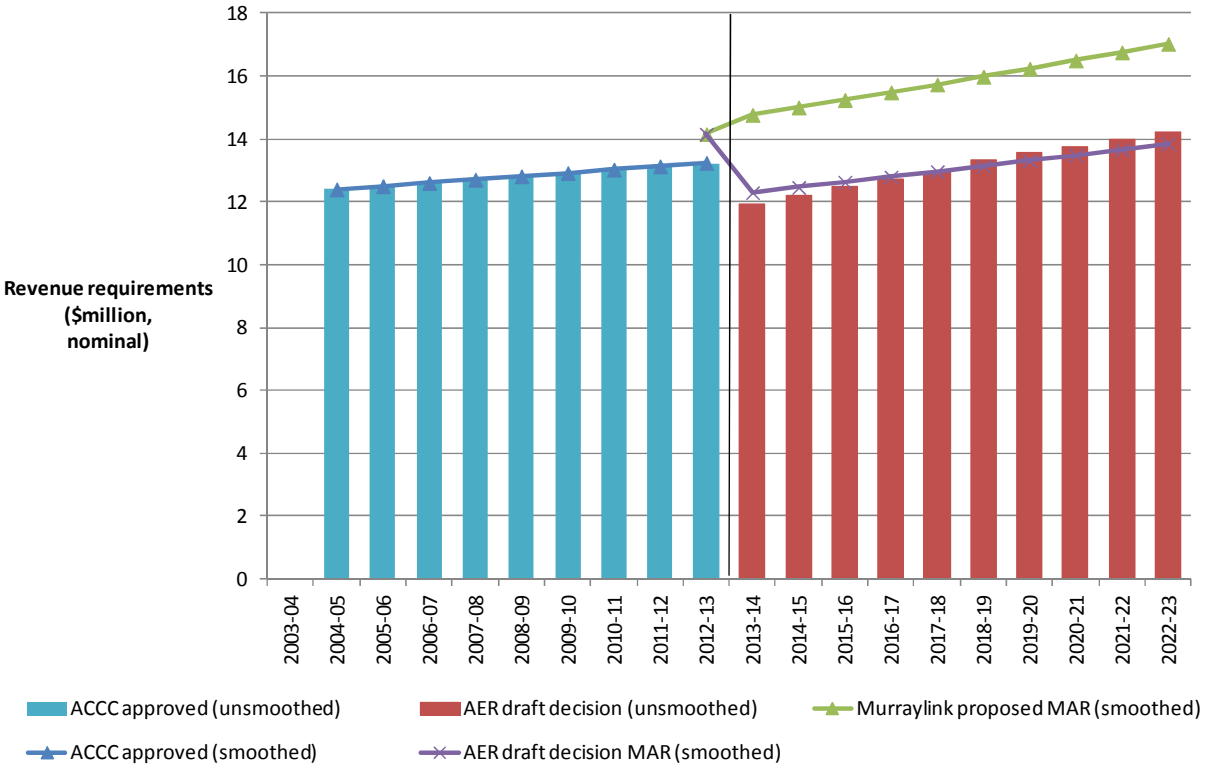
- the opening RAB as at 1 July 2013 (attachment 5) and forecast capital expenditure (attachment 2)
- forecast operating expenditure (attachment 3)
- the rate of return (attachment 4)
- forecast regulatory depreciation (attachment 6)
- the corporate income tax allowance (attachment 7).

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

For this draft decision, the AER has determined a revised X factor of 1.14 per cent per annum from 2014–15 to 2022–23. The net present value of the annual building block revenue requirement for the 2013–23 regulatory control period is $90.6 million ($ nominal) as at 1 July 2013. Based on this net present value and applying the CPI–X method, the AER has determined the annual expected MAR (smoothed) for Murraylink that increases from $12.3 million in 2013–14 to $13.9 million in 2022–23 ($ nominal).

The resulting estimated total revenue cap for Murraylink that the AER has approved is $130.6 million ($ nominal) for the 2013–23 regulatory control period. The total revenue cap is the sum of the annual expected MAR. Figure 8.2 shows the AER's draft decision on Murraylink's annual expected MAR (smoothed revenue) and the annual building block revenue requirement (unsmoothed revenue) for the 2013–23 regulatory control period.

Figure 8.2 AER's draft decision on Murraylink's annual expected MAR (smoothed) and annual building block revenue requirement (unsmoothed) ($ million, nominal)



Source: AER analysis.

To determine the expected MAR over the 2013–23 regulatory control period, the AER has set the MAR for the first regulatory year (2013–14) at $12.3 million ($ nominal). This is higher than the annual building block revenue requirement for 2013–14, which is $11.9 million ($ nominal).[316] The AER then applied an X factor of 1.14 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 2013–23 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.[317] The AER considers a divergence of up to three per cent between the expected MAR and annual building block revenue requirement for the last year of the 2013–23 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 2.7 per cent.

The average decrease in the AER approved expected MAR for Murraylink is 0.1 per cent per annum ($ nominal) over the 2013–23 regulatory control period. This consists of an initial decrease of 13.1 per cent from 2012–13 to 2013–14 and a subsequent average annual increase of 1.3 per cent during the remainder of the 2013–23 regulatory control period. In real terms ($2012–13), the average decrease

316 The MAR for the last year of the 2008–13 regulatory control period (2012–13) is approximately $14.2 million.
317 NER, clause 6A.6.8(c)(2).

in the AER approved expected MAR for Murraylink is 2.6 per cent per annum over the 2013–23 regulatory control period. This consists an initial decrease of 15.2 per cent from 2012–13 to 2013–14 and a subsequent average annual decrease of 1.1 per cent during the remainder of the 2013–23 regulatory control period.

The AER's draft decision results in an increase to Murraylink's total revenue cap relative to that in the 1 October 2003 to 30 June 2013 regulatory control period. This increase in revenue is primarily because of:

- a higher opening RAB than was forecast in Murraylink's 1 October 2003 to 30 June 2013 transmission determination
- increased capex driven by ancillary equipment refurbishment.

8.4.2 Indicative average transmission price impact

Murraylink's annual expected MAR is recovered through transmission charges applied to South Australian and Victorian customers.[318] The South Australian portion of Murraylink's annual expected MAR is 45 per cent.[319]

The AER has estimated the effect of the draft decision for the ElectraNet and Murraylink transmission determinations on forecast average transmission charges in South Australia. The details are available in attachment 10 of the ElectraNet draft decision. In summary, the AER's draft decision is not expected to contribute towards increased prices for an average South Australian residential electricity customer bill of $1800 ($ nominal , excluding GST) in 2012–13.[320] The AER estimates that its draft decision will result in lower transmission charges on average over the 2013–18 regulatory control period compared to ElectraNet and Murraylink's proposals.[321] ElectraNet's and Murraylink's proposals would result in an average residential bill increase of approximately $26 by June 2018. However, this draft decision would result in a typical residential bill reduction of $4 in total ($ nominal) by.

Similarly, for an average South Australian non-residential customer bill of $3457 ($ nominal , excluding GST) in 2012–13, ElectraNet's and Murraylink's proposals would result in an average increase of approximately $51 by June 2018. The AER estimates that a typical non-residential bill could be expected to reduce by $7 in total ($ nominal) by June 2018.[322]

8.5 Revisions

Revision 8.1: the AER has determined Murraylink's annual building block revenue requirement, X factor, annual expected MAR and the estimated total revenue cap over the 2013–23 regulatory control period as set out in table 8.1.

Revision 8.2: the AER has determined Murraylink's annual adjustment process for the MAR over the 2013–23 regulatory control period as set out in section 8.3.1.

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318 Murraylink, *Pricing methodology*, May 2012, p. 3.

319 ElectraNet, as coordinating network service provider for South Australia, takes the portion of Murraylink's expected MAR for developing the applicable transmission charges to apply to customers.

320 Based on a residential customer consuming approximately 5,000kWh pa. ESCOSA, *1 July 2012 Electricity standing contract price adjustment*, June 2012, p. 2; ESCOSA, *Email response to information request to the AER, Enquiry regarding average electricity bills*, 17 October 2012.

321 Murraylink has a ten year regulatory control period (2013–23). This analysis is based on the first five years of the period, which coincides with ElectraNet's regulatory control period (2013–18).

322 Based on a small business customer consuming approximately 10,000kWh pa. ESCOSA, *1 July 2012 Electricity standing contract price adjustment*, June 2012, p. 2; ESCOSA, *Email response to information request to the AER, Enquiry regarding average electricity bills*, 17 October 2012.

9 Service target performance incentive scheme

This attachment sets out the AER's draft decision on Murraylink's proposed parameter values and weightings for the service target performance incentive scheme (STPIS).[323] The structure of the STPIS has two components: a service component and a market impact component. This attachment deals with each component separately.

Service component

The service component of the AER's STPIS provides a financial incentive for transmission network service providers (TNSPs) to improve and maintain their performance. This incentive counters the financial incentive under revenue regulation to reduce costs at the expense of service performance. A TNSP's performance is compared against the performance target for each parameter during the regulatory control period. The TNSP may receive a financial bonus for service improvements, or a financial penalty for declines in service performance. The financial bonus (or penalty) is limited to 1 per cent of the TNSP's maximum allowed revenue (MAR) for the relevant calendar year.

The AER must assess whether Murraylink's proposed performance targets, caps, collars and weightings comply with the STPIS requirements for:[324]

- transmission circuit availability (with three availability sub–parameters)
  - planned circuit availability
  - forced peak circuit availability
  - forced off–peak circuit availability.

The AER must accept Murraylink's proposed parameter values if they comply with the requirements of the STPIS.[325] The AER may reject them if they are inconsistent with the objectives of the STPIS.[326]

Market impact component

The market impact component provides financial rewards to a TNSP for improvements in its performance measure against a performance target. The market impact parameter did not apply to Murraylink during the 1 October 2003 to 30 June 2013 regulatory control period. However, the AER has previously stated its intent to apply the market impact parameter to Murraylink during the 2013–23 regulatory control period.[327]

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323 The STPIS is established by clause 6A.7.4 of the NER.
324 AER, *Final – Electricity transmission network service providers, Service target performance incentive scheme, March 2011*, Appendix B, pp. 20–24.
325 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.3(a).
326 AER, *Final – Service target performance incentive scheme, March 2011,* clauses 3.3(m), 3.5(d)(4) and 1.4.
327 AER, *Final – Service target performance incentive scheme*, March 2011, p. 3.

9.1 Draft decision

Service component

The AER accepts Murraylink's proposed STPIS parameter values and weightings. Table 9.1 sets out the AER's draft decision on Murraylink's service component parameters.

Table 9.1 AER draft decision on Murraylink's parameter values and weightings for the STPIS—service component

Parameter	Collar	Target	Cap	Weighting (% of MAR)
Planned circuit availability	99.04	99.17	99.38	0.4
Forced peak circuit availability	98.90	99.48	100.0	0.4
Forced off–peak circuit availability	98.84	99.34	99.94	0.2

Source: AER analysis.

Market impact component

Murraylink did not propose market impact parameter values. However, the market impact parameter will apply to it during the 2013–23 regulatory control period. Table 9.2 shows the AER's draft decision on Murraylink's market impact parameter.

Table 9.2 AER draft decision on Murraylink's parameter values and weightings for the STPIS—market impact component

	Target	Cap	Weighting (% of MAR)
Market impact parameter	782.3	0	2.0

Source: AER analysis.

9.2 Murraylink's proposal

Service component

Murraylink proposed to maintain the current targets, caps, collars and weightings applicable for the 2013–23 regulatory control period. Table 9.3 sets out Murraylink's proposal.

Table 9.3 Murraylink's proposed parameter values and weightings for the STPIS—service component

Parameter	Collar	Target	Cap	Weighting (% of MAR)
Planned circuit availability	99.04	99.17	99.38	0.4
Forced peak circuit availability	98.90	99.48	100.0	0.4
Forced off–peak circuit availability	98.84	99.34	99.94	0.2

Source: Murraylink, *Revenue proposal*, p. 56.

Market impact component

Murraylink did not propose a target for the market impact parameter.

9.3 Assessment approach

Service component

The AER assessed Murraylink's proposal against the requirements of the STPIS—that is, whether:

1. Murraylink's systems and processes produce accurate and reliable data and whether the data is recorded consistently based on the parameter definitions in the STPIS
2. the proposed performance targets equal the average of the most recent five years performance data[328]
3. any adjustments to the proposed targets are warranted and reasonable[329]
4. Murraylink used a sound methodology, with reference to the performance target, to calculate the proposed caps and collars[330]
5. any adjustment to the performance target of a parameter was also applied to the cap and collar of that parameter[331]
6. Murraylink demonstrated the proposed weightings are consistent with the objectives of the scheme[332]
7. Murraylink accounted for the factors listed in the STPIS when proposing each parameter's weighting. In particular, the AER considers the proposed weightings should reflect:[333]
   - the importance of the parameter and sub–parameter in the reliability of Murraylink's transmission network
   - the scope for further performance improvement against the parameter

328 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.3(g).
329 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.3(k).
330 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.3(e).
331 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.3(e).
332 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.5(a).
333 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.5(d).

- the extent to which the parameters and sub–parameter applying to Murraylink overlap.

8. the sum of the weightings equals the maximum revenue increment or decrement (that is, 1 per cent)[334]

9. any of the proposed weightings are inconsistent with the objectives of the scheme. [335] In particular, the AER considers a proposed weighting should be rejected if it:

   - does not provide any incentive for Murraylink to maintain and improve reliability for its customers
   - does not assist in setting efficient capital and operating expenditure allowances by balancing Murraylink's incentive to reduce actual expenditure with the need to maintain and improve transmission system reliability for its customers.

Market impact component

Resources

To calculate both a TNSP's performance measure and performance target, the AER allocates each network constraint to the TNSP responsible for the constraint using:

1. the Market Information on Planned Network Outages, which is published every month by the Australian Energy Market Operator (AEMO) based on information provided by the TNSPs
2. the Network Outage Schedule, which is published by AEMO on its website based on information provided by the TNSPs
3. the description of the constraint ID published by AEMO, or
4. where it is not clear from (1), (2) or (3), the published market management system data or other information provided by AEMO.

Where the information described in (1), (2), (3) or (4) indicates that more than one TNSP is responsible for a single network outage constraint (for example an outage affecting an interconnector), the number of dispatch intervals is apportioned equally between the TNSPs.

MMS data

According to the definition of the market impact parameter, the marginal value of a constraint is an indication of the change, at the margin, in the cost of producing electricity sufficient to meet demand brought about by a particular network outage constraint.

When the STPIS was first introduced, AEMO published the marginal value of constraints within the market management system (MMS) database table called 'dispatchconstraint'. This table displays all marginal values as absolute values (ie no negative values appear).

In May 2009, AEMO began publishing the MMS database table 'mcc_constraintsolution'. The outputs of this table are produced by re–running the dispatch engine to relax violated constraints that appear in the 'dispatchconstraint' table. The marginal values produced by the 'mcc_constraintsolution' table

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334 AER, *Final – Service target performance incentive scheme, March 2011,* clause 3.5(b).
335 AER, *Final – Service target performance incentive scheme, March 2011,* clause 1.4.

are considered to be a better reflection of the true marginal value of the constraints. AEMO did not absolute the values in this table as they did for the 'dispatchconstraint' table. The 'mcc_constraintsolution' table contains both positive and negative marginal values.

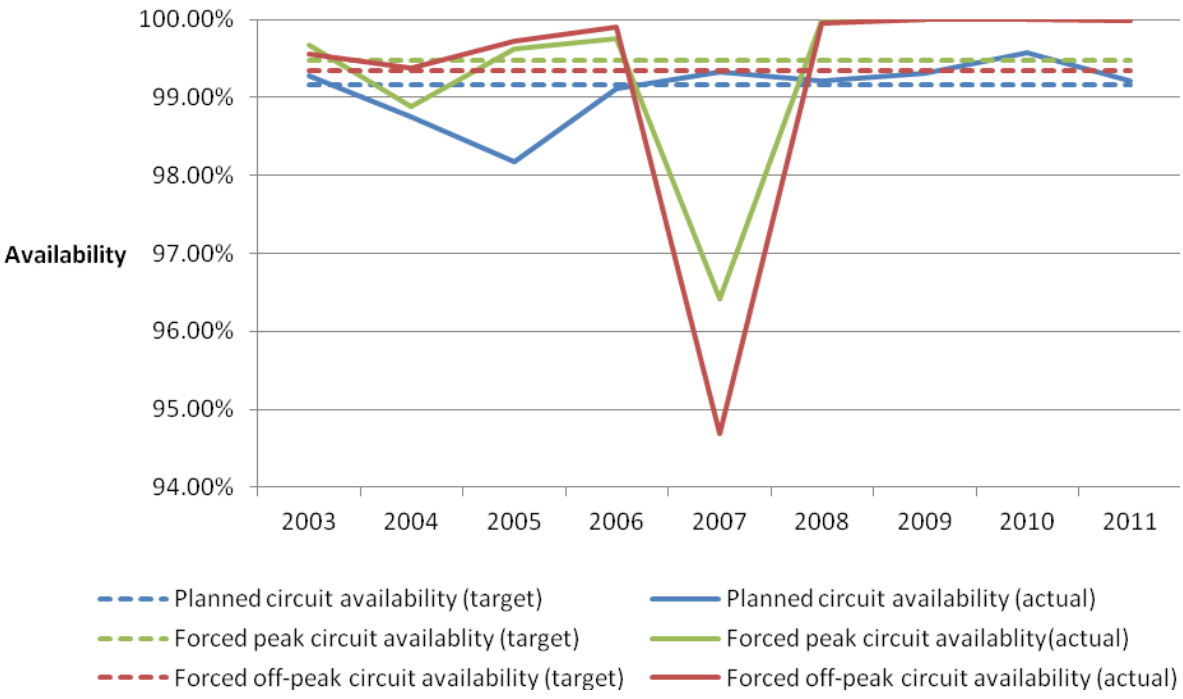
The AER has advised all TNSPs subject to the market impact parameter that 'mcc_constraintsolution' data should be used whenever available for the purposes of measuring performance and calculating the performance target. The TNSPs should convert all values in the tables to absolute values before submission or otherwise ensure marginal values greater than $10/MWh or less than -$10/MWh should be submitted. All TNSPs agree with the approach and have submitted the data accordingly. For this reason, marginal values less than –$10/MWh are included when assessing the market impact parameter.

9.4 Reasons for draft decision

Service component

Murraylink has consistently performed well against all three circuit availability sub–parameters. Performance against the 'planned circuit availability' sub–parameter exceeded the target for the past five years, while performance against the 'forced peak circuit availability' and 'forced off–peak circuit availability' sub–parameters exceeded the target in four of the past five years.[336] Figure 9.1 shows Murraylink's service performance between 2003 and 2011.

Figure 9.1 Murraylink's circuit availability performance between 2003 and 2011



Source: AER analysis

The STPIS parameter values applied to Murraylink during the 1 October 2003 to 30 June 2013 regulatory control period have incentivised the improvement and maintenance of Murraylink's service

[336] Murraylink received a penalty against the forced peak circuit availability and forced off–peak circuit availability parameters in 2007.

performance. The STPIS applying to Murraylink in the 2013–23 regulatory control period should provide ongoing incentives for Murraylink to:

- improve performance against parameters where improvements can reasonably be made, and
- maintain performance against parameters where opportunities for improvement are limited and/or where performance is at a high level.

This approach promotes the long term interests of consumers by encouraging TNSPs to improve and maintain the quality and reliability of supply of electricity, consistent with the National Electricity Objective (NEO), the STPIS principles[337] and the objectives of the STPIS.[338]

9.4.1 Murraylink's performance targets, caps and collars

Murraylink's STPIS proposal does not comply with the STPIS, as Murraylink's proposed performance targets are not based on the average of the most recent five years performance data.[339] However, the AER considers that Murraylink's proposed targets, caps and collars meet the objectives of the STPIS. Moreover, they provide better incentives to improve and maintain service performance than the alternative values calculated by the AER in accordance with the scheme. The AER therefore accepts Murraylink's proposed performance targets, caps, collars and weightings.

The targets, caps and collars applied in Murraylink's 1 October 2003 to 30 June 2013 regulatory control period were not derived using the approach the AER has applied to other TNSPs. Rather, parameter values were derived for the ACCC by Parsons Brinckerhoff in October 2003 based on an engineering assessment of Murraylink's equipment. This was considered a reasonable approach at the time given the lack of historical data on which to base the targets.[340] However, historical data is now available. This data should have been used for Murraylink's proposed performance targets, caps and collars to comply with the STPIS.[341] The AER used the most recent five years performance data to calculate alternative performance targets. The AER then used the same five years of data to calculate alternative caps and collars.

Caps and collars must be calculated with reference to the performance target using a sound methodology.[342] In other transmission determinations, the AER has approved caps and collars that were calculated using a 'distribution curve of best fit' approach. This involves deriving a distribution curve, such as a Poisson distribution or normal distribution, that reasonably reflects the distribution of service standard data. The caps and collars are then typically set two standard deviations from the mean.[343] The AER employed this approach to derive alternative caps and collars for Murraylink.

Using the Kolmogorov–Smirnov and Anderson–Darling 'goodness of fit' test statistics, the AER concluded that the logistic distribution provided a reasonable approximation of the distribution of

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337 NER, clause 6A.7.4.
338 NEL, section 7 and AER, *Final – Electricity transmission network service providers, Service target performance incentive scheme, March 2011,* clause 1.4.
339 AER, *Final–Service target performance incentive scheme*, March 2011, clause 3.3(g).
340 AER, *Preliminary view, Murraylink Transmission Company Application for conversion and maximum allowed revenue*, 14 May 2003, p. 99.
341 AER, *Final – Service target performance incentive scheme*, March 2011, clause 3.3(g) and 3.3(h).
342 AER, *Final – Service target performance incentive scheme*, March 2011, clause 3.3(e).
343 AER, *Draft decision, Powerlink Transmission determination, 2012–13 to 2016–17*, November 2011, p. 290–300; AER, *Draft decision, TransGrid transmission determination, 2009–10 to 2013–14*, October 2008, p. 163–181; AER, *Draft decision, SP AusNet transmission determination, 2008–09 to 2013–14*, August 2007, p. 194–213; AER, *Draft decision, ElectraNet transmission determination, 2008–09 to 2012–13*, November 2007, p. 184–202.

Murraylink's availability data.[344] Table 9.4 shows the values calculated by the AER compared to Murraylink's proposed STPIS values.

Table 9.4 Murraylink's proposed parameter values for the STPIS compared to the AER calculated parameter values for the STPIS

	Collar	Target	Cap
Murraylink's proposed STPIS values			
Planned circuit availability	99.04	99.17	99.38
Forced peak circuit availability	98.90	99.48	100.00
Forced off peak circuit availability	98.84	99.34	99.94
AER calculated STPIS values			
Planned circuit availability	99.07	99.33	99.59
Forced peak circuit availability	96.74	99.28	100.00
Forced peak circuit availability	95.16	98.92	100.00

Source: AER analysis and Murraylink, *Revenue proposal*, p. 56.

There is no material difference between the values calculated by the AER and those proposed by Murraylink for the 'planned circuit availability' sub–parameter. However, the performance targets and collars calculated by the AER for the 'forced peak availability' and 'forced off peak circuit availability' sub–parameters are lower than Murraylink's proposed values.

The AER considers that the STPIS should provide an incentive to improve Murraylink's performance, while maintaining Murraylink's current high level of performance. Murraylink's proposed STPIS values require a more stringent level of performance for the 'forced peak circuit availability' and 'forced off peak circuit availability' sub–parameters than the AER's alternative values. The AER considers that Murraylink's proposed values would result in an outcome that would further the objectives of the STPIS better than the AER's alternative values for these two sub–parameters. The AER also considers that the AER's alternative values for the 'planned circuit availability' sub–parameter would not provide a materially higher incentive for Murraylink to improve or maintain its performance against that sub–parameter.

Murrayilnk's performance during the 1 October 2003 to 30 June 2013 regulatory control period illustrates an improvement and maintenance of service performance. The AER sees no reason to diverge from the current parameter values that have incentivised this result. The AER therefore accepts Murraylink's proposed performance targets, caps and collar values, as they represent appropriate values that incentivise the improvement and maintenance of Murraylink's service performance, while meeting the objectives of the STPIS and NER.

9.4.2 Parameter weightings

Murraylink did not propose a change to the STPIS parameter weightings. The AER considers the current weightings are appropriate and should be maintained for the 2013–23 regulatory control period.

[344] AER analysis.

Market impact component

Murraylink did not propose a market impact parameter benchmark. On this basis, the AER used publically available information from the Australian Energy Market Operator (AEMO) to derive a benchmark for Murraylink. The AER performed a targeted search of AEMO market notices to determine whether certain constraints should be excluded as part of the historic performance count. The AER also referred to other TNSPs' performance measures to ensure there is no double counting of binding network constraints. The historic performance count for 2007–2011 determined by the AER is detailed in the table below.

Table 9.5 Murraylink's historic performance count for the STPIS—market impact component

Performance year	Performance count
2007	1793
2008	585
2009	911
2010	243.5
2011	379
Average	782.3

Source: AER analysis.

The AER provided this data to Murraylink for comment. Murraylink accepted the historic performance data and accepted the benchmark value as appropriate.[345] The AER therefore implements a benchmark value of 782.3 dispatch intervals.

9.5 Revisions

Revision 9.1: Table 9.1 and table 9.2 sets out the AER's draft decision on the STPIS values to apply to Murraylink during the 2013–23 regulatory control period.

[345] Murraylink, *Email response to AER ML/014*, 28 September 2012.

10 Efficiency benefit sharing scheme

The efficiency benefit sharing scheme (EBSS) provides transmission network service providers (TNSPs) with a continuous incentive to reduce operating expenditure (opex). It does this by allowing a TNSP to retain efficiency gains for a defined number of years before passing them to consumers.

Currently Murraylink does not operate under than EBSS, however, the National Electricity Rules (NER) requires the AER to apply the scheme to Murraylink in the 2013–23 regulatory control period. The benefits or penalties accrued under the scheme during the 2013–23 regulatory control period will be calculated and applied from the commencement of the subsequent period, beginning 1 July 2023.

10.1 Draft decision

Murraylink will be subject to the EBSS in the 2013–23 regulatory period with a carryover period of ten years. This matches the length of the ten year regulatory control period.

The EBSS requires the AER to adjust Murraylink's forecast opex for the cost consequences of any differences between forecast and actual demand growth. However, Murraylink did not submit a demand forecast for the 2013–23 regulatory control period because its network operation is independent of electricity demand. Therefore, the AER will not adjust Murraylink's opex forecast if actual demand is significantly different to forecast demand.

The AER will exclude two cost categories from forecast and actual opex when it calculates Murraylink's carryover amounts:

- debt raising costs
- connection charges.

Table 10.1 shows the total controllable opex forecasts that the AER will use to calculate efficiency gains and losses for the 2013–23 regulatory control period, subject to adjustments required by the EBSS.

Table 10.1 Murraylink forecast controllable opex for EBSS purposes ($ million, 2012–13)

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Total forecast opex	3.2	3.3	3.3	3.3	3.4	3.4	3.5	3.5	3.6	3.6
Excluded costs	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
Forecast opex for EBSS	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.8

Source: AER analysis

10.2 Murraylink's proposal

Murraylink did not propose how the EBSS should apply to it over the 2013–23 regulatory control period.

10.3 Assessment approach

The AER is required to specify how the EBSS will apply to Murraylink.[346] In doing so the AER has given particular consideration to:

- the need to provide Murraylink with a continuous incentive to reduce operating expenditure[347]
- the desirability of both rewarding Murraylink for efficiency gains, and penalising it for efficiency losses.[348]

10.4 Reasons for draft decision

The AER decided the values that will be attributed to the EBSS for Murraylink in the 2013–23 regulatory control period. Its reasons are discussed in this section.

Ten year carryover period

The EBSS will apply to Murraylink in the 2013–23 regulatory period with a ten year carryover period, consistent with the length of the regulatory control period. This is consistent with the AER's approach of matching the length of the EBSS to the service provider's regulatory control period.[349]

Operating expenditure adjustments

In calculating the benefits or losses to be carried over, the measurement of actual expenditure must be done using the same cost categories and methodology used to calculate the forecast expenditure. Further, the costs that are included must be those within ElectraNet's control. The scheme requires the AER to adjust Murraylink's forecast opex to account for:

- changes in Murraylink's capitalisation policy
- any significant difference between forecast and actual demand growth over the regulatory control period
- uncontrollable costs
- the occurrence of a recognised pass through events.[350]

Of these, those that need to be specified by the AER in this draft decision are:

- the adjustment to be made to opex for the cost consequences of the difference between forecast and actual demand growth
- cost categories to be excluded from the scheme that are uncontrollable or not forecast using historic expenditure.

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346 NER, clauses 6A.4.2(6) and 6A.14.1(1)(iv).
347 NER, clauses 6A.6.5(b)(1).
348 NER, clauses 6A.6.5(b)(2).
349 AER, *Electricity transmission network service providers efficiency benefit sharing scheme*, September 2007, section 2.4.3, p. 8; AER, *Final decision: Powerlink transmission determination 2012–17*, April 2012, p 251.
350 AER, Electricity TNSPs EBSS, September 2007, section 2.4.2, p.7.

Demand growth adjustment

Murraylink made no forecast of demand in its revenue proposal because it is a single transmission link of fixed capacity that connects regions within the national electricity market. It does not have a meshed network that needs to meet growing electricity demand. Therefore, this demand adjustment does not apply to Murraylink. Although the EBSS specifies that the AER must adjust forecast opex if actual demand is significantly different to forecast demand, adjustments must only be applied to those components of opex that have a direct relationship to growth.[351] Because Murraylink's forecast opex does not have a direct relationship to demand growth, no adjustment is required.

Excluded cost categories

A TNSP may propose uncontrollable cost categories be excluded from the operation of the EBSS. In this way it will not be rewarded (or penalised) for cost decreases (increases) over which it has limited control. The AER will exclude the following cost categories from opex for the purpose calculating EBSS carryovers:

- debt raising costs
- connection charges.

Debt raising costs are excluded because they are forecast based on a benchmark efficient firm rather than historic costs.[352] Connection charges are excluded because they are uncontrollable costs levied by the adjacent TNSPs, SP AusNet and ElectraNet.

10.5 Revisions

An EBSS will apply to Murraylink during the 2013–23 regulatory control period. Murraylink is required to apply the scheme to calculate carryover amounts for the regulatory control period beginning 1 July 2023.

Revision 10.1: The EBSS will apply to Murraylink in the 2013–23 regulatory period. The carryover period will be ten years, consistent with the length of the regulatory control period.

Revision 10.2: Murraylink's opex will not be adjusted based on the level of electricity demand during the 2013–23 regulatory control period.

Revision 10.3: The AER will exclude debt raising costs and connection charges from forecast and actual opex to calculate EBSS carryover amounts.

Table 10.1 shows the total controllable forecast opex that the AER will use to calculate efficiency gains and losses for the 2013–23 regulatory control period, subject to adjustments required by the EBSS.

351 AER, *Electricity TNSPs efficiency benefit sharing scheme*, September 2007, section 2.4.2, p 7.
352 The method for forecasting debt raising costs is discussed in section 3.4.7 of the operating expenditure attachment.

11 Contingent projects

Contingent projects are network augmentation projects that are significant, may arise in the relevant regulatory control period but are not yet committed and are not provided for in the capital expenditure (capex) forecast. Such projects are linked to unique investment drivers (rather than general investment drivers such as expectations of load growth within a region) and commence where a defined 'trigger event' has occurred. The occurrence of the trigger event must be probable during the relevant regulatory control period.[353]

If the trigger event occurs during the 2013–23 regulatory control period, then the AER will separately assess the contingent project under clause 6A.8.2 of the National Electricity Rules (NER) on application by Murraylink (contingent project application). 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.[354] For this reason, the trigger event must be adequately defined and the proposed contingent capex must reasonably reflect the capex criteria under the NER.[355]

Murraylink's revenue proposal included one proposed contingent project. Murraylink's proposed contingent project consisted of three components which would reinforce the South Australian and Victorian regional networks and increase Murraylink's interconnection capacity.

11.1 Draft decision

Contingent projects must:

- be reasonably required to achieve the capex objectives
- be for the provision of prescribed services
- reasonably reflect the capex criteria
- exceed the defined threshold and not otherwise be provided for in the capex proposal
- have appropriate trigger events.

The AER does not accept Murraylink's proposed contingent project and proposed contingent project capex because it does not satisfy the NER requirements. Although the project exceeds the defined threshold and is not otherwise provided for in the capex proposal,[356] the AER considers:

- much of the contingent project is not required to achieve the capex objectives as a significant portion does not relate to the provision of prescribed transmission services
- it is not the most efficient option for reinforcing the network between South Australia and Victoria and therefore does not reflect the capex criteria
- the trigger event is not appropriate because it is not probable that the trigger will occur during the 2013–23 regulatory control period.

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353 NER, clause 6A.8.1(c)(5).
354 NER, clause 6A.8.1(c)(4).
355 NER, clause 6A.8.1(b)(2)(ii).
356 NER, clause 6A.8.1(b)(2)(ii) and (iii).

The AER identified several technical concerns with Murraylink's project scope. Specifically, the AER considers the project is likely to be staged. This makes it less likely that Murraylink will construct the components within the South Australian and Victorian regional networks. Further, this also means the duplication of Murraylink is unlikely to occur in the 2013–23 regulatory control period. The AER also considers that Murraylink's proposal is unlikely to be the lowest cost option.

11.2 Murraylink's proposal

Murraylink proposed a single contingent project with associated capex 'in the order of $816 to $918 million'.[357] Although Murraylink identified this as one contingent project, it actually developed and proposed two conceptual proposals.[358] Each of these consists of three elements. Murraylink considered that the trigger event may justify one, or several, of these elements.[359]

The difference between the two proposals is to use a combination of alternating current (AC) and direct current (DC) transmission or, alternatively, use only DC transmission.[360] Both conceptual proposals include reinforcing the South Australian and Victorian transmission networks by constructing a new circuit line in each jurisdiction. Murraylink considered that such reinforcement would overcome constraints presently experienced in those existing networks and would allow its interconnector to operate at near full capacity most of the time. [361] This construction would also make it feasible to increase Murraylink's interconnector capacity in the future. In effect, Murraylink proposed to duplicate the existing Murraylink interconnector to transfer additional electricity from South Australia to markets on the east coast.

Murraylink's alternating current and direct current option

Murraylink proposed that the combination of an AC and DC option (see Figure 11.1) would:

- reinforce the South Australian transmission system in the Riverland area by a 275kV double circuit extension from Robertstown or Tepko to Berri–(a) or (b)
- reinforce the Victorian north-western and NSW south-western regional transmission systems, using a conventional 220kV double circuit line from Shepparton to Red Cliffs via Kerang–(c)
- restore the full capacity of the existing Murraylink interconnector to 220MW. Duplication would increase interconnection capacity to approximately 400MW–(d).[362]

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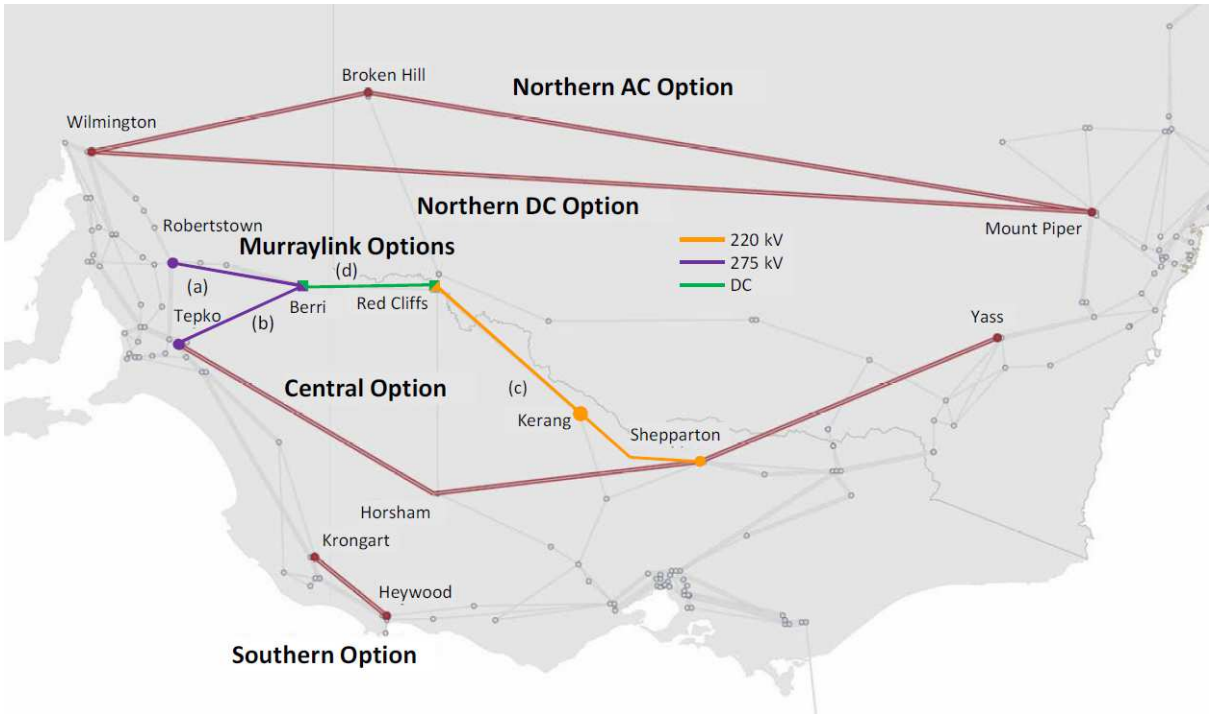
357 Murraylink, *Revenue proposal*, p. 37.
358 Murraylink, *Revenue proposal, attachment 7.3*, p. 3.
359 Murraylink, *Revenue proposal, attachment 7.3*, p. 10.
360 Murraylink, *Revenue proposal, attachment 7.3*, pp. 3–4.
361 Murraylink, *Revenue proposal, attachment 7.3*, pp. 3–4. The Murraylink interconnector has a maximum rated capacity of 220MW. Insert reference to Murraylink stating this contention.
362 Murraylink, *Revenue proposal attachment 7.3*, p. 4.

Figure 11.1 Murraylink interconnection options—AC and DC option



Source: Murraylink, *Revenue proposal, Attachment 7.3*, p. 3.

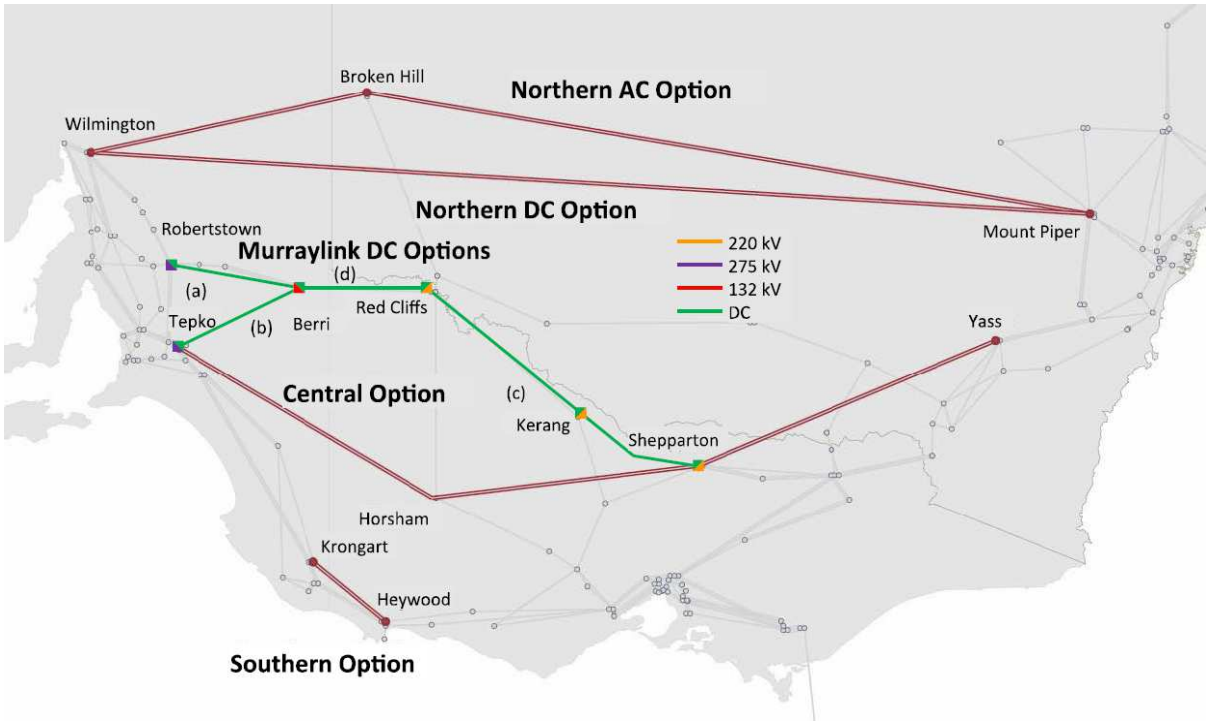
Murraylink direct current option

Murraylink considered its DC option would (Figure 11.2):

- reinforce the South Australian transmission system in the Riverland area by DC links from Robertstown or Tepko to Berri–(a) or (b)
- reinforce the Victorian north-western regional transmission system, using a DC link from Shepparton to Red Cliffs–(c)
- restore the full capacity of the existing Murraylink interconnector to 220MW. Duplication would substantially increase interconnection capacity to around 400MW–(d).[363]

[363] Murraylink, *Revenue proposal, attachment 7.3*, p. 4.

Figure 11.2 Murraylink, interconnection options—DC option



Source: Murraylink, *Revenue proposal, Appendix 7.3*, p. 4.

Irrespective of network design, Murraylink proposed the trigger events for the contingent project as a whole were:[364]

- the completion of a RIT-T consultation and cost–benefit analysis framework that maximises net economic benefit to the market must justify any one, or more than one element of the project to upgrade the capacity of the Murraylink corridor
- as required under the RIT-T assessment, available network and non-network solutions capable of meeting the identified limitation set out in the Project Assessment Draft Report are considered
- Murraylink is successful in tendering to develop an element of the contingent project, under the transmission procurement arrangements that currently apply in Victoria or those that may in future apply to other jurisdictions or across the NEM
- a financial commitment is made by the board of Energy Infrastructure Investments Pty Limited to undertake an element of the project.

11.3 Assessment approach

The AER reviewed Murraylink's proposed contingent project in the context of the relevant NER criteria, set out at clause 6A.8.1. The AER considered whether the:

- proposed contingent project is reasonably required to achieve the capex objectives
- proposed contingent project expenditure exceeds the defined threshold, is not otherwise provided for in the capex proposal, and reasonably reflects the capex criteria

364 Murraylink, *Revenue proposal, attachment 7.3*, p. 10.

- trigger event is appropriate.

In reviewing Murraylink's proposed contingent project the AER had regard to:

- Murraylink's revenue proposal and accompanying material[365]
- Australian Energy Market Operator (AEMO) advice
- CHC Associates' technical review of Murraylink's 2013–23 regulatory proposal including a review of whether any Murraylink forecast capex is more appropriately considered as contingent projects.[366]

11.4 Reasons for draft decision

The AER identified several issues with Murraylink's proposed contingent project. In particular, Murraylink's project scope does not support a finding that the project is reasonably required to achieve the capex objectives,[367] or that the occurrence of the trigger event is probable during the regulatory control period.[368] These are NER requirements that Murraylink must meet before a proposed contingent project can be included by the AER in a transmission determination. Specifically, the AER considers:

- much of Murraylink's proposed contingent project would not provide a prescribed transmission service. Murraylink has not satisfied the AER that it would be likely to displace the incumbent South Australian and Victorian regional networks and undertake these augmentations.[369]
- Murraylink did not explain how it would recover revenues in Victoria under clause 6A.8.2 of the NER, if it was the successful bidder for the Victorian element of the contingent project. Victorian transmission network augmentations are not necessarily recovered from regulated revenues where AEMO awards a successful tender to a party other than the regional TNSP for separable augmentations above $10 million.[370]
- Murraylink's proposed contingent project does not represent the most efficient option and therefore does not reflect the capex criteria. Murraylink accepted that its proposed contingent project was a 'conceptual proposal' and was not the least cost interconnection option. Murraylink's proposed contingent project therefore does not represent the efficient costs of achieving the capex objectives.[371]
- the occurrence of Murraylink's proposed trigger event is not probable during the 2013–23 regulatory control period. Duplicating Murraylink is not viable without reinforcing both the South Australian and Victorian regional transmission networks first. These regional networks are unlikely to both be reinforced in the 2013–23 regulatory control period. Further, electricity can be transferred by way of other existing interconnectors, such as Heywood, so overcoming constraints is not paramount. Alternatively, Murraylink accepts that there are lower cost options than its conceptual proposal. The AER therefore considers that the occurrence of the trigger event cannot be said to be probable during the 2013–23 regulatory control period.

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365 Murraylink, *Revenue proposal*.
366 NER, clause 6A.6.7(e)(10).
367 NER, clause 6A.6.7(a), 6A.8.1(b)(1).
368 NER, clause 6A.8.1(c)(5).
369 NER, clause 6A.6.7(a), (c); 6A.8.1(b)(2)(ii).
370 NER, clauses 8.11.3 and 8.11.6.
371 NER, clause 6A.6.7(c).

11.4.1 The capex objectives and prescribed services

Contingent projects must be reasonably required to achieve any of the capex objectives. Each of the capex objectives must be for the supply or provision of prescribed transmission services.[372] Prescribed transmission services are those services which are for the purpose of meeting the relevant jurisdictional requirements, or which are required under the NER.[373] The AER considers much of Murraylink's proposed contingent project does not satisfy the requirements for prescribed transmission services. Thus the AER does not consider that the proposed contingent project would achieve the capex objectives.

The following analysis demonstrates why much of Murraylink's proposed contingent project would not be for the provision of prescribed services.

Murraylink's ability to provide interconnection across the national electricity market (NEM) is limited by the capacity of the two regional transmission networks in South Australia and Victoria.[374] Constraints in these regions can limit Murraylink's capacity to less than 50MW.[375]

Murraylink's contingent project consists of three elements:

- reinforcing the South Australia transmission network
- reinforcing the transmission network in Victoria
- increasing the rated capacity of the Murraylink interconnector by adding an additional line.

It is unlikely that the South Australian and Victorian networks would be reinforced concurrently.[376] Reinforcing one region would alleviate, to some degree, constraints in the other and therefore could defer network upgrades in the other region, yielding market benefits.[377] For example augmentation of the South Australian Riverland would result in an increased ability to transfer power to Victoria (Red Cliffs) via the current Murraylink configuration, deferring the need to reinforce the Victorian regional network. It follows that the duplication of Murraylink would not be recommended by a RIT-T until the reinforcement of the South Australian and Victorian networks are both completed.

Murraylink accepts this analysis. It considered that the three elements of the Murraylink corridor reinforcement are more likely to be carried out in a staged fashion to maximise market benefits.[378] It also stated:[379]

> it would make no sense to reinforce the capacity of Murraylink without resolving these constraints as the augmented capacity of the link could not be used.

This staged approach raises several issues, specifically:

- Murraylink's role—if the project is to occur incrementally, then it is less likely that Murraylink would be the service provider to undertake the project work in South Australia or Victoria.

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372 NER, clause 6A.6.7(a).
373 NER, Chapter 10.
374 Murraylink, *Revenue proposal attachment 7.3*, p. 2.
375 Murraylink, *Revenue proposal attachment 7.3*, p. 2. The Murraylink interconnector rated capacity is 220MW.
376 Murraylink, *email response*, 20 August 2012.
377 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 34.
378 Murraylink, *email response*, 20 August 2012.
379 Murraylink, *email response,* 20 August 2012.

- timing—a staged project timing makes it unlikely that the contingent project is reasonably required to be undertaken during the 2013–23 regulatory control period.

Murraylink's role in reinforcing the regional transmission networks

The AER does not accept that Murraylink would construct the 275kV double circuit transmission line extension to reinforce the South Australian Riverland region.

ElectraNet has a licence to supply the Berri connection point, and must meet licence conditions that include a defined standard of reliability.[380] ElectraNet would be obliged to complete this network reinforcement as part of its licence condition. It has proposed augmentation of the Riverland region as a contingent project in its 2013-18 regulatory control period.[381]

The AER requested that Murraylink clarify why it, and not ElectraNet, would construct this line. Murraylink stated:[382]

> Murraylink (or more accurately, EII) could potentially construct the line to Berri from Robertstown or Tepko. Provided that the overall project involving a "Murraylink corridor" development were to qualify under the RIT-T, this section of line could be built either as a conventional overhead alternating current line or as a direct current underground cable.

This statement is inconsistent with Murraylink's view that the three elements of the Murraylink corridor reinforcement are more likely to be carried out in a staged fashion to maximise market benefits.[383] Because the project is more likely to occur incrementally, a 'Murraylink corridor development' incorporating all three elements is unlikely.

In addition, Murraylink proposed that if a 'Murraylink corridor development' satisfied a RIT–T, then it could construct the DC component to reinforce the South Australian Riverland region. Because the project would more likely occur incrementally, rather than as one single entity, the AER does not consider it likely that the project to reinforce the Riverland region would use DC transmission. Rather, it is more likely that the project would use standard AC because this is generally cheaper and consistent with the technology currently used in South Australia's transmission network.[384] Murraylink accepted ElectraNet would construct the line if AC transmission was preferred, stating:[385]

> If the alternating current option was the preferred outcome of the RIT-T, ElectraNet may choose to build this line under the current framework.

The most likely outcome then is that ElectraNet would construct this AC line to reinforce its network to eliminate or reduce network constraints in the South Australian Riverland region first. Murraylink has not satisfied the AER that it would be more likely to carry out this work.

Therefore, because reinforcing the South Australian regional network is beyond Murraylink's reliability requirements and the NER requirements, this aspect of Murraylink's proposed contingent project cannot be said to be for the purpose of providing prescribed transmission services. Further, this component of the proposed contingent project capex is not reasonably required to meet the capex objectives because the capex objectives are, by definition, concerned with prescribed transmission services.

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380 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 33.
381 ElectraNet, *Revenue proposal*, p. 79.
382 Murraylink, *email response*, 20 August 2012
383 Murraylink, *email response*, 20 August 2012.
384 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, pp. 34–35.
385 Murraylink, *email response*, 20 August 2012

Process for recovering revenues in Victoria

The likelihood of an incremental approach to resolving this issue similarly means that DC transmission is unlikely to be used in Victoria.

It is unlikely that Murraylink could undertake this project in Victoria and recover revenues under clause 6A.8.2. Murraylink's view was that:[386]

> under the Victorian framework, a party other than the regional TNSP could construct and own the asset.

The AER accepts this statement, although it notes, that in Victoria AEMO would need to run a tender process and award the contract to a party other than the regional TNSP. The AER does not have a role in the process of determining who would be best placed to construct and own this asset.

As an adoptive jurisdiction,[387] AEMO provides prescribed transmission services to the declared transmission system in Victoria.[388] Further, AEMO is authorised to exercise its declared network functions in Victoria in respect of the declared shared network.[389] AEMO's declared network functions are to plan, authorise, contract for, and direct, augmentation of the declared shared network.[390]

The Victorian declared shared network includes all the assets that supply the Red Cliffs terminal from Victoria.[391] It is these assets that Murraylink has proposed to augment as part of its contingent project. Therefore, Murraylink's proposed contingent project requires augmentation of the Victorian declared shared network.

This augmentation could be either a contestable or non-contestable service.[392] AEMO can only provide an augmentation direction[393] for a non-contestable service to an incumbent declared transmission system operator.[394] Murraylink is not an incumbent declared transmission system operator in Victoria.[395] If the augmentation were a contestable service, AEMO must conduct an open tender for the work, which could be won by any provider (including Murraylink).[396]

The question then is, if Murraylink won the tender process, how would it recover revenues. Murraylink's transmission charges, to recover these construction costs, would most likely be passed through to customers via AEMO's maximum allowed revenue (MAR).[397] Alternatively, once Murraylink completes the augmentation, it could become a declared transmission system operator in Victoria. If this were to occur, it could recover revenues under clause 6A.7.1 of the NER.[398]

The NEL and the NER put in place specific processes for recovery of revenues in respect of the declared shared network in Victoria, which does not include the contingent project provisions.

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386 Murraylink, *email response*, 20 August 2012.
387 *National Electricity (Victoria) Act (2005)*, section 32; NEL, section 50(2).
388 NEL, section 50C(1)(d).
389 NEL, section 2.
390 NEL, section 50C.
391 NEL, section 50. Therefore sections 50C–50J of the NEL apply to the declared shared transmission system in Victoria.
392 NER, Rule 8.11.
393 NER, clause 8.11.3: Augmentation direction means a direction given by AEMO to an incumbent declared transmission system operator to construct an augmentation of a declared shared network that is not a contestable augmentation.
394 NER, clause 8.11.5(b).
395 Section 33 of the National Electricity (Victoria) Act provides the only declared transmission system operators are those declared as such under section 31. Section 31 of the National Electricity (Victoria) Act provides the Victorian Energy Minister, may declare a person to be a declared transmission system operator. The Victorian Government Gazette, 30 June 2009, states the only declared transmission system operators are SP AusNet; Rowville Transmission Facility; and TransGrid.
396 NER, clause 8.11.7.
397 NER, Schedule 6A.4.2(c)(4).
398 NER, Schedule 6A.4.2(d).

In summary:

- This augmentation would likely only be deemed to be a prescribed transmission service if provided by AEMO. AEMO would be deemed to provide this prescribed transmission service even where it awarded a contract to construct the service to another party.[399]
- Even if Murraylink was awarded the contract, clause 6A.8.2 would not apply because either:
  - Murraylink would recover revenues for this augmentation from AEMO
  - alternatively, Murraylink may be able to recover revenues under clause 6A.7.1 (subject to declarations that can only be made by the Victorian Minister).

The AER therefore does not consider that a contingent project is appropriate for this proposed augmentation.

11.4.2 Capex criteria and efficient costs

The AER must only accept a proposed contingent project if satisfied that the proposed contingent capex reasonably reflects the capex criteria.[400] The capex criteria include a requirement that the forecast capex reasonably reflects the efficient costs of achieving the capex objectives.[401] The AER considers that Murraylink's proposed contingent project does not represent the most efficient costs of increasing the interconnection capacity between South Australia and Victoria.

Use of DC technology

The AER considers that Murraylink did not adequately explain its preference for constructing elements of the contingent project with DC transmission technology, rather than AC transmission, in its project scope. While one of Murraylink's conceptual proposals did propose the use of AC transmission to reinforce the networks in South Australia and Victoria, both conceptual proposals include the use of DC transmission for duplicating the Murraylink interconnector.

CHC advised that duplication of Murraylink, as proposed, would be more expensive than an AC alternative.[402] CHC advised:[403]

> ...there is a significant barrier to the proposal because the Murraylink HVDC Light technology is significantly more expensive for a given transfer capacity than conventional AC line technology.

Further, CHC considered the AC alternative would also have greater capacity than the Murraylink alternative.[404] Given this, it seems likely that Murraylink's proposed contingent capex would not meet the capex criteria.[405]

For the 1 October 2003 to 30 June 2013 regulatory control period, the ACCC considered that the underground high voltage DC (HVDC) option was not the most efficient alternative under the regulatory test applied at the time.[406] Rather, the ACCC considered that an 'AC mostly overhead

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399 NER, Schedule 6A.4.1.
400 NER, clause 6A.8.1(b)(2)(ii).
401 NER, clause 6A.6.7(c)(1).
402 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 35.
403 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 34.
404 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 35.
405 NER, clause 6A.6.7(c)(1).
406 ACCC, *Final decision Murraylink 2003–13*, pp. xviii, xxiv, 114.

transmission line' was the lowest cost option.[407] Accordingly, the ACCC included in Murraylink's opening 2003–04 RAB an amount consistent with the lowest cost alternative.

Murraylink did not explain why its DC project would be preferred ahead of AC options. Murraylink put forward other reasons why its proposed contingent project would provide additional market benefits by comparison to AC options.[408] However, CHC advised that the additional benefits claimed were minor and would not likely be sufficient to satisfy a RIT-T in the future.[409]

On balance, the AER considers Murraylink's proposed contingent project which involves the use of DC technology would cost more than AC alternatives. Therefore, it does not reflect the requirement of the capex criteria that a project reflects the efficient costs of achieving the capex objectives.[410]

Comparison with other options for increasing interconnection capacity

The AER considers that there are specific AC options for increasing the interconnection capacity which would offer additional market benefits, cost less overall and in $/MW, and offer more capacity.

The AER asked Murraylink whether its proposed contingent project would provide additional market benefits such that it might satisfy a RIT–T. Murraylink stated that the Heywood–Krongart reinforcement is expected in the near future, and that after that project, the Murraylink corridor offers the most economical solution.[411]

The AER accepts that an incremental upgrade of the Heywood interconnector is expected in the near future. This incremental upgrade will increase the capacity on the Heywood interconnector from 460MW to 650MW.[412] However, the Heywood–Krongart reinforcement, referred to by Murraylink, is a separate project from the project to increase capacity to 650MW. This second project is not certain to go ahead. The Heywood–Krongart project has several features which, by Murraylink's own numbers, would likely result in greater market benefits compared to the proposed contingent project as set out at Table 11.1. The Heywood–Krongart reinforcement:

- would increase capacity by a much larger amount than the Murraylink contingent project, around 2000MW[413]
- is cheaper overall ($530 million) compared to Murraylink ($816 million to $918 million)[414]
- is also cheaper than the Murraylink contingent project per MW at $0.27 million/MW, compared to at least $1.26/MW for Murraylink (for the reasons set below, the cost per MW is likely to be higher than proposed by Murraylink).[415]

ElectraNet included $407 million of proposed contingent capex to reinforce the South Australian Riverland.[416] Murraylink included between $191 million to $295 million of proposed contingent capex to reinforce the South Australian Riverland.[417] As set out at Table 11.1, if ElectraNet's estimates are used, which only changes the cost of one component of the project, then the Murraylink option

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407 ACCC, Final decision Murraylink 2003–13, pp. 50, 114 (this was described as alternative 3).
408 Murraylink, *email response*, 20 August 2012.
409 CHC, *Murraylink proposal May 2012: Report on engineering issues*, 19 October 2012, p. 35.
410 NER, clause 6A.6.7(c)(1).
411 Murraylink, *email response*, 20 August 2012.
412 ElectraNet, *Revenue proposal, appendix R*, p. 22.
413 Murraylink, *Revenue proposal attachment 7*.3, p. 8.
414 Murraylink, *Revenue proposal attachment 7*.3, p. 8.
415 Murraylink, *Revenue proposal attachment 7*.3, p. 8.
416 ElectraNet, *Revenue proposal*, p. 79.
417 Murraylink, *Revenue proposal, attachment 7*.3, pp. 8–9.

becomes more expensive per MW than the Northern DC option included in Murraylink's report (see Figure 11.1 and Figure 11.2).

Table 11.1 Comparison of interconnection options

Option	Cost ($million)	Capacity	Relative cost $million/MW	Rank	Rank using ElectraNet costings
Northern AC (Wilmington–Mt Piper)	3750	2000	1.88	6	6
Northern DC (Wilmington–Mt Piper)	3000	2000	1.50	4	2
Southern (Heywood–Krongart)	530	2000	0.27	1	1
Central (Tepko – Yass)	3500	2000	1.75	5	5
Murraylink AC and DC	816 (1032 using ElectraNet forecast for the Riverland)	600	1.26 (1.71 using ElectraNet forecast capex for the Riverland)	2	3
Murraylink DC	903 (1032 using ElectraNet forecast for the Riverland)	600	1.39 (1.71 using ElectraNet forecast capex for the Riverland)	3	4

Source: Murraylink, *Revenue proposal, appendix 7.3*, pp. 7–9; AER analysis.

Murraylink would need to demonstrate that its contingent project delivers market benefits that exceed those from the Heywood–Krongart reinforcement and likely the Northern (DC) and Central options. The AER considers that Murraylink's proposed contingent project would cost more than AC alternatives. The alternatives identified also deliver more long term capacity.

Therefore, the AER is not satisfied that Murraylink's proposed contingent project would reflect the efficient costs of increasing interconnection capacity. Accordingly, the proposed contingent capex does not reflect the capex criteria.

11.4.3 Trigger event must be probable during the 2013–23 regulatory control period

The AER must only accept a proposed contingent project if satisfied that the trigger events are appropriate.[418] In determining whether a trigger event is appropriate the AER must be satisfied that the trigger event makes the proposed contingent project reasonably necessary[419] and that it is all that

[418] NER, clause 6A.8.1(b)(4).
[419] NER, clause 6A.8.1(c)(2).

is required for the revenue determination to be amended.[420] Further, the occurrence of the trigger event must be probable during the regulatory control period.[421] For the reasons set out below, the AER does not consider that the trigger events identified by Murraylink will occur during the 2013–23 regulatory control period.

The AER does not consider that the duplication of the Murraylink interconnector or the underlying trigger event is probable during the 2013–23 regulatory control period.

The AER considers that reinforcement of the regional South Australian network is unlikely to be undertaken by Murraylink. Further, the reinforcement of the regional Victorian network is not likely to be a matter that should be considered under the contingent projects regime. In considering whether a trigger event is probable during the 2013–23 regulatory control period, the duplication of the Murraylink interconnector is likely the only component of the proposed contingent project that is relevant. However, for completeness, the AER considers the projects to reinforce the South Australian and Victorian regional networks are not likely to occur during the 2013–23 regulatory control period.

In its revenue proposal Murraylink noted:[422]

> AEMO's latest forecasting and modelling has indicated that the reinforcement of the interconnection capacity to South Australia is not likely to be required within the next five years and may possibly not be required within the next ten years.

Murraylink considered there is considerably uncertainty associated with these long–range predictions, particularly given the implementation of the carbon price and the subsequent development of renewable generation. These statements do not demonstrate that the occurrence of the trigger event is probable during the regulatory control period.

The AER asked Murraylink to demonstrate that its proposed contingent project was reasonably required or probable as required under the NER.[423] In response Murraylink stated:[424]

> AEMO's analysis of South Australian interconnection options is continuing to be refined in the light of changing generation and demand projections, but it is still Murraylink's understanding that reinforcement of the South Australian interconnection may well be required within Murraylink's next regulatory control period.

Murraylink added:[425]

> the reinforcement of the Murraylink corridor is probable within Murraylink's next regulatory control period.

As noted, the AER considers that the three components of the proposed contingent project will occur incrementally. Murraylink agreed 'construction would likely be carried out in a staged fashion to maximise market benefits'.[426] The AER considers that the duplication of the Murraylink interconnector would be the last component to be completed. Murraylink considered that duplicating the interconnector was not appropriate without resolving the constraints in the regional networks 'as the augmented capacity of the link could not be used'.[427]

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420 NER, clause 6A.8.1(c)(4).
421 NER, clause 6A.8.1(c)(5).
422 Murraylink, *Revenue proposal attachment 7.3*, p. 9.
423 NER, clause 6A.8.1(c)(5).
424 Murraylink, *email response* 20 August 2012.
425 Murraylink, *email response* 20 August 2012.
426 Murraylink, *email response* 20 August 2012.
427 Murraylink, *email response* 20 August 2012.

Subsequent to Murraylink submitting its revenue proposal, ElectraNet and AEMO both published their 2012 annual planning reports. Each report reflects downward revisions to electricity demand growth and that planned augmentations (in South Australia and Victoria) will now be deferred. ElectraNet's major augmentation for the South Australian Riverland is now forecast to occur in 2023–28.[428] AEMO considers that no action (network upgrades) will be taken within 10 years.[429]

Therefore, the AER is not satisfied that the duplication of Murraylink or the reinforcement of the regional South Australian and Victorian networks is reasonably required during the 2013–23 regulatory control period. The AER does not consider that the occurrence of the trigger event is probable during the 2013–23 regulatory control period. For the reasons set out above the AER does not accept Murraylink's proposed contingent project.

11.5 Revisions

Revision 11.1: The AER's draft decision is to reject the proposed contingent project in its entirety.

[428] CHC, Final report, p. 32.
[429] CHC, Final report, p. 32.

12 Negotiated services and pricing methodology

The AER's transmission determination imposes control over revenues that a transmission network service provider (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 National Electricity Rules (NER), these services are subject to negotiation between parties, or alternatively arbitration and dispute resolution by a commercial arbitrator. These processes are facilitated by:[430]

- a negotiating framework; and
- negotiated transmission service criteria (NTSC).

A TNSP must prepare a negotiating framework which sets out procedures for negotiating the terms and conditions of access to a negotiated transmission service.[431] The NTSC set out criteria that a TNSP must apply in negotiating terms and conditions of access, including the prices and access charges for negotiated transmission services.[432] They also contain the criteria that a commercial arbitrator must apply to resolve disputes about such terms and conditions and/or access charges.[433]

A pricing methodology describes a formula, process or approach that a TNSP uses to allocate the aggregate annual revenue requirement to those categories of prescribed transmission services provided by the TNSP and to transmission network connection points of network users.[434] The methodology also determines the structure of the tariffs that a TNSP may charge for each of the categories of prescribed transmission services.[435]

The AER is required to make a determination in relation to Murraylink's negotiating framework,[436] and pricing methodology[437] that Murraylink has proposed for the 2013–23 regulatory control period.[438] The determination must also specify the NTSC[439] that are to apply to Murraylink. This attachment sets out the AER's considerations and conclusions on these matters.

12.1 Draft decision

The AER's draft decision:

- approves Murraylink's proposed negotiating framework;
- specifies a proposed NTSC; and
- approves Murraylink's proposed pricing methodology which gives effect to the NER pricing principles and complies with the information requirements set out in the pricing methodology guidelines.

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430 NER, clause 6A.9.2.
431 NER, clause 6A.9.5(a).
432 NER, clause 6A.9.4(a)(1).
433 NER, clause 6A.9.4(a)(2).
434 NER, clause 6A.24.1(b)(1).
435 NER, clause 6A.24.1(b)(2).
436 NER, clause 6A.2.2(2).
437 NER, clause 6A.2.2(4).
438 NER, clause 6A.2.2(3).
439 NER, clause 6A.2.2(3).

12.2 Murraylink's proposal

In accordance with the NER, Murraylink submitted its proposed negotiating framework and pricing methodology with its revenue proposal for the 2013–23 regulatory control period.[440] Concurrently, the AER published on its website the AER's proposed NTSC that would apply to Murraylink (reproduced in section 1.5) as required by clause 6A.11.3 of the NER.[441] The AER acknowledges that there are currently no negotiated services associated with Murraylink and minimal potential for such services to be provided in the future.[442] This is because Murraylink's transmission network consists of a 180 kilometre underground cable with only two connection points.[443] Nonetheless, the NER does not exempt Murraylink from submitting a proposed negotiating framework, nor is the AER exempt from specifying NTSC.

12.3 Assessment approach

In reaching its draft decision, the AER considered whether the:

- proposed negotiating framework did specify each requirement in clause 6A.9.5(c) of the NER[444]
- NTSC reflects the negotiated transmission service principles in clause 6A.9.1 of the NER[445]
- proposed pricing methodology gives effect to the pricing principles for prescribed transmission services and complies with the information requirements of the pricing methodology guidelines.[446]

12.4 Reasons for draft decision

The AER is satisfied that Murraylink's proposed negotiating framework, and proposed pricing methodology satisfy the NER requirements. It is also satisfied that the proposed NTSC specified in its draft decision give effect to and are consistent with the Negotiated Transmission Service Principles.

12.4.1 Negotiating framework

The AER approves the proposed negotiating framework because it satisfies the requirements set out in clause 6A.9.5(c) of the NER. The AER's assessment is summarised in Table 12.1 .

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440 NER, clause 6A.10.1. Murraylink submitted its revenue proposal to the AER on 31 May 2012.
441 AER, *Proposed negotiating transmission service criteria for Murraylink, regulatory control period 1 July 2013 to 30 June 2023*, June 2012.
442 Murraylink, *Revenue proposal*, p. 59.
443 Murraylink, *Revenue proposal*, p. 2.
444 NER, clause 6A.9.5(b)(2).
445 NER, clause 6A.9.4(b).
446 NER, clause 6A.14.3(g)(1) and (2).

Table 12.1 AER's assessment of the negotiating framework proposed by Murraylink

NER requirements	AER assessment
Requirement for Murraylink and the applicant of a negotiated transmission service to negotiate in good faith—clause 6A.9.5(c)(1)	Paragraph 2 of Murraylink's proposed negotiating framework satisfies this requirement.
Requirement for Murraylink to provide all such commercial information reasonably required to enable the applicant of a negotiated transmission service to engage in effective negotiations—clause 6A.9.5(c)(2)	Paragraph 6 of Murraylink's proposed negotiating framework satisfies this requirement.
Requirement for Murraylink to identify and inform the negotiated transmission service applicant of the reasonable costs of providing the negotiated service; and demonstrate that charges reflect costs—clause 6A.9.5(c)(3)	Paragraph 6.1.3 of Murraylink's proposed negotiating framework satisfies this requirement.
Requirement for a negotiated transmission service applicant to provide all such commercial information reasonably required to enable Murraylink to engage in effective negotiation—clause 6A.9.5(c)(4)	Paragraphs 4 and 5 of Murraylink's proposed negotiating framework satisfy this requirement.
Requirement to specify a reasonable period of time for commencing, progressing and finalising negotiations; and a requirement for each party to use its reasonable endeavours to adhere to those time periods during the negotiation—clause 6A.9.5(c)(5)	Paragraph 3 of Murraylink's proposed negotiating framework satisfies this requirement.
Requirement to specify a process for dispute to be dealt with in accordance with the relevant provisions for dispute resolution[447]—clause 6A.9.5(c)(6)	Paragraph 9 of Murraylink's proposed negotiating framework satisfies this requirement.
Requirement to specify arrangements for the payment of Murraylink's reasonable direct expenses incurred in processing the application to provide the negotiated transmission service—clause 6A.9.5(c)(7)	Paragraph 11 of Murraylink's proposed negotiating framework satisfies this requirement.
Requirement for Murraylink to determine the potential impact of the provision of a negotiated transmission service on other network users—clause 6A.9.5(c)(8)	Paragraph 8 of Murraylink's proposed negotiating framework satisfies this requirement.
Requirement for Murraylink to notify and consult with any affected network user and ensure the negotiated transmission service does not result in noncompliance with obligations in relation to other network users under the NER—clause 6A.9.5(c)(9)	Paragraph 8.2 of Murraylink's proposed negotiating framework satisfies this requirement.

Source: Murraylink, *Proposed negotiating framework for 2013–23*, May 2012.

12.4.2 Pricing methodology

The AER approves Murraylink's proposed pricing methodology. Following a preliminary examination the AER assessed Murraylink's proposed pricing methodology as not meeting the information requirements in the pricing methodology guidelines. Specifically, Murraylink did not specify that ElectraNet is the coordinating network service provider in South Australia. It also did not specify that the Australian Energy Market Operator (AEMO) is the coordinating network service provider in Victoria. Murraylink, which provides prescribed transmission services in both South Australia and

[447] The relevant provisions for dispute resolution are set out in part K of chapter 6A of the NER.

Victoria, was required to provide this information under section 2.1(a)–(b) of the pricing methodology guidelines. In May 2012, Murraylink provided a revised pricing methodology which complies with the information requirements in the pricing methodology guidelines. The AER is satisfied that the amended pricing methodology complies with, and gives effect to the pricing principles.[448] Where these conditions are met the NER requires the AER to approve Murraylink's proposed pricing methodology.[449]

12.5 Negotiated transmission service criteria

This section reproduces the NTSC published by the AER in June 2012.[450]

12.5.1 National Electricity Objective

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

12.5.2 Criteria for terms and conditions of access

Terms and conditions of access

2. The terms and conditions of access for a negotiated transmission service must be fair, reasonable, and consistent with the safe and reliable operation of the power system in accordance with the NER.

3. The terms and conditions of access for negotiated transmission services, particularly any exclusions and limitations of liability and indemnities, must not be unreasonably onerous. Relevant considerations include the allocation of risk between the TNSP and the other party, the price for the negotiated transmission service and the cost to the TNSP of providing the negotiated service.

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

Price of services

5. The price of a negotiated transmission service must reflect the cost that the TNSP has incurred or incurs in providing that service, and must be determined in accordance with the principles and policies set out in the Cost Allocation Methodology.

6. Subject to criteria 7 and 8, the price for a negotiated transmission service must be at least equal to the avoided cost of providing that service but no more than the cost of providing it on a stand alone basis.

7. If the negotiated transmission service is a shared transmission service that:

    i. exceeds any network performance requirements which it is required to meet under any relevant electricity legislation; or

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448 NER, clause 6A.23.
449 NER, clause 6A.14.3(g)(1) and (2).
450 AER, *Proposed negotiating transmission service criteria for Murraylink, regulatory control period 1 July 2013 to 30 June 2023*, June 2012.

ii. exceeds the network performance requirements set out in schedule 5.1a and 5.1 of the NER

then the difference between the price for that service and the price for the shared transmission service which meets network performance requirements must reflect the TNSP's incremental cost of providing that service (as appropriate).

8. For shared transmission services, the difference in price between a negotiated transmission service that does not meet or exceed network performance requirements and a service that meets those requirements should reflect the TNSP's avoided costs. Schedule 5.1a and 5.1 of the NER or any relevant electricity legislation must be considered in determining whether any network service performance requirements have not been met or exceeded.

9. The price for a negotiated transmission service must be the same for all Transmission Network Users. The exception is if there is a material difference in the costs of providing the negotiated transmission service to different Transmission Network Users or classes of Transmission Network Users.

10. The price for a negotiated transmission service must be subject to adjustment over time to the extent that the assets used to provide that service are subsequently used to provide services to another person. In such cases the adjustment must reflect the extent to which the costs of that asset are being recovered through charges to that other person.

11. The price for a negotiated transmission service must be such as to enable the TNSP to recover the efficient costs of complying with all regulatory obligations associated with the provision of the negotiated transmission service.

12.5.3 Criteria for access charges

Access charges

Any access charges must be based on the costs reasonably incurred by the TNSP in providing transmission network user access. This includes the compensation for foregone revenue referred to in clause 5.4A(h) to (j) of the NER and the costs that are likely to be incurred by a person referred to in clause 5.4A(h)

13 Cost pass throughs

The pass through mechanism allows TNSPs to recover the costs of unpredictable, high-cost events that fall within the scope of a pass through event and are not provided for in the transmission determination. The pass through events for TNSPs are:

- a regulatory change event
- a service standard event
- a tax change event
- an insurance event
- any other event specified in a transmission determination as a pass through event.[451]

In relation to point 5, in August 2012, the Australian Energy Market Commission (AEMC) made a rule determination on the NER's cost pass through provisions which gave TNSPs the ability to nominate additional pass through events as part of their revenue proposals. The rule change included transitional provisions allowing Murraylink 30 days, or until 1 September 2012, to nominate additional pass through events as part of its revenue proposal.[452]

Murraylink did not nominate any additional pass through events to apply during the 2013–23 regulatory control period.

[451] NER, clause 6A.7.4(a1)
[452] AEMC, *Rule Determination, National Electricity Amendment (Cost pass through arrangements for Network Service Providers) Rule 2012*, 2 August 2012, p. 31.

List of submissions received

Submission	Submission date
ElectraNet	10 August 2012
TransGrid	10 August 2012
Major Energy Users	13 August 2012