



Murraylink Transmission
Company Pty Ltd

Murraylink Revised
Revenue Proposal -
Overview

Effective
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Murraylink - Attachment 1.2 - Murraylink - Plain English
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Glossary

Term	Definition
AER	Australian Energy Regulator
CESS	Capital Expenditure Sharing Scheme
DC	Direct Current
EBSS	Efficiency Benefit Sharing Scheme
EII	Energy Infrastructure Investments
HVDC	High Voltage Direct Current
MAR	Maximum Allowed Revenue
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
NPV	Net Present Value
Proposal	Murraylink Revenue Proposal
PTRM	AER Post Tax Revenue Model
Rules	National Electricity Rules
STPIS	Service Target Performance Incentive Scheme
TNSP	Transmission Network Service Provider
WACC	Weighted Average Cost of Capital

1 Introduction

This revised revenue proposal for the Murraylink transmission interconnector is submitted by Murraylink Transmission Company Pty Limited, on behalf of Energy Infrastructure Investments Pty Limited.

Murraylink is a 180km, High Voltage Direct Current (HVDC) 220 megawatt transmission link between Red Cliffs in Victoria and Berri in South Australia. It can control power transfers to the limit of its capacity, in either direction, between the Victorian and South Australian transmission networks. The link is dispatched by AEMO, in similar manner to a generator, to control flows between the Victorian and South Australian regions of the National Electricity Market (NEM) and thereby minimise the costs of generation in the NEM.

Murraylink is 'HVDC Light' technology. At the time of commissioning the Direct Current (DC) convertor stations were connected by the longest underground cable in the world. Whilst there have been a number of more recent DC transmission developments throughout the world, this type of equipment remains highly specialised.

Murraylink has accepted a large number of the elements of the AER's draft determination. This revised revenue overview outlines Murraylink's response to the AER's draft determination on those matters that warrant further consideration by the AER. Murraylink has supplied additional information on a range of matters including; the calculation of the allowed rate of return and forecast capital expenditure.

1.1 Current performance

In the revised proposal Murraylink has updated the historic information provided to the AER in relation to operating expenditure and capital expenditure.

The update includes actual incurred expenditure until the end of September 2017. It estimates costs for the 9 months that is the remainder of the current revenue control period.

The tables below set out an update of the historic capital expenditure and operating expenditure for the current revenue determination period.

Table 1.1 – Historic capital expenditure (\$m nominal)

	2013/14	2014/15	2015/16	2016/17	2017/18(e)	Total
AER forecast	1.8	1.4	1.8	0.5	0.6	5.9
Actual capital expenditure	0.3	0.7	0.9	0.8	12.5	15.3
Actual compared to forecast	-1.5	-0.6	-0.8	0.4	11.9	9.3

Table 1.2 – Historic operating expenditure (\$m nominal)

	2013/14	2014/15	2015/16	2016/17	2017/18(e)	Total
AER Forecast	3.7	3.9	3.9	4.0	4.3	19.9
Actuals	3.7	4.5	4.0	4.2	4.2	20.6
Actual compared to forecast	0.0	0.6	0.1	0.2	-0.1	0.8

1.2 Forecast capital and operating expenditure

The basis for the proposed capital expenditure forecast for Murraylink for the 2018-23 in Table 1.6.

1.2.1 Control System replacement

The majority of Murraylink's forecast capital expenditure is associated with the replacement of an obsolete control and protection system. Given the central role of the control system in the operation of Murraylink, the capital expenditure is unavoidable in order to be confident of Murraylink's ongoing availability from 2021 onwards.

The AER approved the project in the draft determination, however it removed some of the expenditure associated with the contract for service between Murraylink and APA. APA have provided additional information to the AER to consider in regards to its assessment of the efficiency of these amounts that demonstrate these amounts are efficient and should be included in the AER's capital expenditure allowance.

On this basis Murraylink is proposing the amounts in Table 1.3 for the replacement of the control and protection system.

Table 1.3 - Capital expenditure control and protection systems replacement (\$'000 real 2018)

	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Control systems replacement	3,912	11,298	8,787	1,255	-	25,252

1.2.2 Spare Capacitors

Murraylink has revised the forecast capital expenditure on spare capacitors. It has been able to identify significant cost savings in the replacement of the capacitors as a result of the scheduled outage on Murraylink to install the fire suppression system. This provides Murraylink with an opportunity to practice scale replacement over a period of time whilst still maintaining safe work

practices and not needing to schedule an outage specifically for these replacements.

Murraylink has also provided the AER with additional information on the basis of its revised forecast noting that future replacements are based on replacements identified as the result of the most recent assessment of capacitors at Murraylink. It is this that is driving the Murraylink forecast for capacitor replacements.

Table 1.4 - Capital expenditure capacitors (\$'000 real 2018)

	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Capacitors	59	105	105	101	99	469

1.2.3 Revenue determination and consumer engagement

Based on feedback from the AER as to the need for a broader consultation beyond Murraylink's customers, Murraylink will undertake such a consultation in preparation for the next revenue determination submission. Table 1.5 sets out the expected consumer engagement and revenue determination costs by year.

Table 1.5 - Capital expenditure revenue determination costs and consumer engagement (\$'000 real 2018)

	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Revenue determination and consumer engagement	10	36	61	82	56	245

Table 1.6 sets out the forecast capital expenditure which includes the above projects and some minor adjustments to the AER's draft determination.

Table 1.6 – Forecast capital expenditure (\$m nominal)

	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Forecast Capital Expenditure	4.4	12.0	9.7	2.2	0.8	29.0

1.3 Contingent Project

Murraylink accepts the AER changes to the trigger event for its contingent project as outlined in the draft determination.

1.4 Forecast operating expenditure

Murraylink has accepted the outcome of the AER's draft determination with respect to forecast operating expenditure for the upcoming regulatory control period. We have updated the outputs to make it consistent with the AER's historic and forecast inflation.

1.5 Rate of Return

1.5.1 Cost of debt

In its draft determination the AER accepted the cost of debt methodology that Murraylink proposed and updated it for available information at the time of its draft determination. Murraylink has also updated for more recent data. Murraylink expects the AER will revise the cost of debt again prior to issuing the final determination in 2018.

Murraylink's current estimate of the cost of debt is 4.70 per cent.

1.5.2 Return on equity

Murraylink is of the view that the AER has erred in its approach to the calculation of the cost of equity in particular by the approach it took to the market risk premium and an unjustified change to the equity beta measures that it used in the capital asset pricing model to calculate the cost of equity.

Murraylink's estimate of the cost of equity is 8.9 per cent.

1.6 Maximum allowable revenue

Murraylink's Revised Revenue Proposal is derived from the post-tax building block approach outlined in the Rules¹ and the AER's PTRM.² The Maximum Allowed Revenue (MAR) and X factor for Murraylink are calculated from the PTRM.

1.6.1 Building block approach

The building block formula to be applied in each year of the regulatory control period is:

$$\begin{aligned} \text{MAR} &= \text{return on capital} + \text{return of capital} + \text{opex} + \text{tax} \\ &= (\text{WACC} \times \text{RAB}) + D + \text{opex} + \text{tax} \end{aligned}$$

¹ *National Electricity Rules*, Part C of Chapter 6A, AEMC.

² AER, Final decision, Amendment - Electricity transmission network service providers Post-tax revenue model, December 2010.

Where:

MAR = Maximum Allowable Revenue.

WACC = post-tax nominal weighted average cost of capital ("vanilla" WACC).

RAB = Regulatory Asset Base.

D = Regulatory Depreciation.

opex = operating expenditure.

tax = income tax allowance.

The MAR is then smoothed with an X factor, in accordance with the Rules requirements.³

The Rules allow for revenue increments and decrements arising from the Efficiency Benefit Sharing Scheme (EBSS).

The total revenue cap and the MAR for each year of the next regulatory control period is provided below. Based on the building blocks outlined in the previous section, the total revenue cap and maximum allowable unsmoothed revenue requirement is summarised in Table 1.7.

Table 1.7 – Summary of unsmoothed revenue requirement (\$M, nominal)

	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Return on capital	7.2	7.3	7.9	8.3	8.2	38.8
Return of capital	3.5	3.7	3.6	3.8	5.9	20.4
plus operating expenditure	4.5	4.6	4.8	4.8	5.1	23.8
plus EBSS	-0.2	-0.2	0.5	-	0.1	0.2
plus net tax allowance	1.1	1.1	1.1	1.2	1.2	5.7
Unsmoothed revenue requirement	16.1	16.4	17.8	18.1	20.6	89.0

1.6.2 X-Factor smoothed revenue

A net present value (NPV) neutral smoothing process is applied to the building block unsmoothed revenue requirement, while ensuring the expected MAR

³ AEMC, *National Electricity Rules*, Chapter 6A, clause 6A.6.8.

for the last regulatory year is as close as reasonably possible to the annual building block revenue requirement.

Murraylink has included an X-factor which minimises the revenue increase in any individual year but at the same time meets the requirements of rule 6A.6.8 that the expected maximum allowed revenue in 2022/23 is as close as possible to the building block requirement for that year without adjusting the formulation of the AER's post tax revenue model. The associated X factors are presented in Table 1.8.

Table 1.8 – Smoothed revenue requirement and X factor (\$M, nominal)

	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Unsmoothed Revenue	16.1	16.4	17.8	18.1	20.6	89.0
Smoothed Revenue	15.1	16.4	17.8	19.2	20.6	89.2
X factors		-6.06%	-5.59%	-5.15%	-4.75%	

1.7 Incentive arrangements

Murraylink has accepted the AER's proposals in the draft determination with regards to the Service Target Performance Incentive Scheme, Efficiency Benefit Sharing Scheme and the Capital Expenditure Sharing Scheme.