

Marinus Link project

ASSESSMENT OF PROPOSED RISK ALLOWANCE EXPENDITURE FOR STAGE 1

Public Version



Report prepared for:
**AUSTRALIAN ENERGY
REGULATOR**
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Preface

This report has been prepared to assist the Australian Energy Regulator (AER) with its determination of a capex allowance of Marinus Link Stage 1 for the next regulatory period 2026 to 2030, consistent with the rules and guidelines that apply for consideration of actionable ISP projects in the NEM. The AER's determination is conducted in accordance with its responsibilities under the National Electricity Rules (NER).

This report covers a particular and limited scope as defined by the AER and should not be read as a comprehensive assessment of proposed expenditure that has been conducted making use of all available assessment methods. This report relies on information provided to EMCa by Marinus Link Pty Ltd and other parties. EMCa disclaims liability for any errors or omissions, for the validity of information provided to EMCa by other parties, for the use of any information in this report by any party other than the AER and for the use of this report for any purpose other than the intended purpose. In particular, this report is not intended to be used to support business cases or business investment decisions nor is this report intended to be read as a legal interpretation of the NER or other legal instruments.

EMCa's opinions in this report include considerations of materiality to the requirements of the AER and opinions stated or inferred in this report should be read in relation to this over-arching purpose.

Except where specifically noted, this report was prepared based on information provided by AER staff prior to 11 September 2025 and any information provided subsequent to this time may not have been taken into account. Some numbers in this report may differ from those shown in Marinus Link Pty Ltd's revised regulatory submission or other documents due to rounding.

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TABLE OF CONTENTS

ABBREVIATIONS	V
1 INTRODUCTION.....	1
1.1 Purpose of this report.....	1
1.2 Scope of requested work.....	1
1.3 Our review approach	2
1.4 This report.....	5
2 OVERVIEW OF MARINUS LINK PROJECT	6
2.1 Industry context.....	6
2.2 Project overview	7
2.3 Summary of project delivery	8
3 ASSESSMENT OF PROPOSED RISK COST ALLOWANCE.....	11
3.1 Introduction	11
3.2 What MLPL has proposed.....	12
3.3 Assessment of MLPL’s methodology for determining risk-costs.....	14
3.4 Summary.....	28
4 CONSIDERATION OF SPECIFIC RISK COST ALLOWANCES	30
4.1 Introduction.....	30
4.2 Consideration of project delivery risks	30
4.3 Consideration of compliance and legal risks	33
4.4 Consideration of procurement and commercial risks	34
4.5 [REDACTED].....	
4.6 [REDACTED].....	
4.7 Consideration of health and safety risks	38
4.8 Consideration of technical / design / commissioning risks	38
4.9 Summary.....	39
5 IMPLICATIONS FOR PROPOSED RISK ALLOWANCE	41
5.1 Summary of our assessment.....	41
5.2 Implications for proposed expenditure	42
APPENDIX A – SUMMARY OF TOP 30 RISKS	44
APPENDIX B – ALTERNATIVE SCENARIOS FOR RISK COST ALLOWANCE.....	47

LIST OF TABLES

Table 3.1:	Proposed construction expenditure, \$m real 2023	12
Table 3.2:	Proposed risk allowance by financial category, \$m nominal.....	14
Table 3.3:	Proposed risk allowance by financial category, \$m nominal.....	15
Table 3.4:	Summary of included risk-cost allowances by risk category, \$millions nominal.....	16
Table 3.5:	Summary of three point estimates and P50 approximation of risk allowance, \$m nominal	19
Table 3.6:	Summary of derived time delays from risk allowance, \$ nominal	20

LIST OF FIGURES

Figure 1.1:	AER’s definition of the scope of required work.....	2
Figure 2.1:	Transmission projects in the optimal development path, showing Project Marinus	7
Figure 2.2:	Marinus Link project overview, showing how Marinus Link connects Tasmanian and Victorian transmission networks	8
Figure 2.3:	Master project schedule (on a page).....	8
Figure 2.4:	NWTD Stage 1 (for cable 1) and Stage 2 (for cable 2)	10
Figure 3.1:	Best case, most likely and worst-case risk-cost estimates of top 30 risks estimates by risk id	19
Figure 3.2:	Extract from Ofgem FPA assessments for HVDC links	24
Figure 3.3:	Marinus Link Packaging Strategy	25
Figure 3.4:	Construction Work Package Contract Pricing Approaches.....	26
Figure 4.1:	MLPL’s residual risks	31

ABBREVIATIONS

Term	Definition
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
BoW	Balance of Works
CBS	Cable System, referring to the HVDC cable system - submarine and land cables
CDCS	Converter Station Design, Supply & Installation
CDSE	Converter Station Design and Equipment Supply
CPA	Contingent Project Application
D&A	Design and Approvals
E3 Advisory	E3 Advisory Pty Ltd
EMCa	Energy Market Consulting associates
EPA	Environmental Protection Agency
EPC	Engineering Procurement Construction
FID	Final Investment Decision
FPA	Final Project Assessment
HVDC	High Voltage Direct Current
IDP	Integrated Delivery Partner
IR	Information Requests (also referred to by MLPL as RFI - Request for Information)
ISC	Infrastructure Sustainability Council
ISP	Integrated System Plan
ITC	Incentivised Target Cost
KRA	Key Result Area
LCC	Land Cable Civils
LDs	Liquidated Damages
MCC	Material Change of Circumstances
MLPL	Marinus Link Pty Ltd
NEM	National Electricity Market
NER	National Electricity Rules
NWTD	North West Transmission Development
Ofgem	Office of Gas and Electricity Markets, Great Britain
PCR	Post Construction Review
R&C	Risk & Contingency
RCP	Regulatory Control Period

Term	Definition
RIT-T	Regulatory Investment Test for Transmission
RRP	Revised Revenue Proposal
SMEs	Subject Matter Experts
TNSP	Transmission Network Service Provider
TOC	Target Outturn Cost

1 INTRODUCTION

AER has engaged EMCa (in association with Kaihen Consulting) to advise on the risk allowance included by Marinus Link Pty Ltd (MLPL) in its Revised Revenue Proposal Stage 1– Part B (Construction costs)¹ for the regulatory period 2025 to 2030.

We have reviewed each of the components of the risk allowance that MLPL has submitted, with a particular focus on the top 30 risks. We have taken account of information provided in its Revised Revenue Proposal including associated reports and workings that MLPL has provided, together with MLPL's responses to information requests. We also held an onsite review meeting with MLPL representatives on 4 September 2025, and this was of considerable assistance in clarifying certain key aspects of MLPL's proposal.

By agreement with AER, we commenced our formal review in early September, and as at the time of completing this report, we have shared the substance of our findings with AER.

1.1 Purpose of this report

1. The purpose of this report is to provide the AER with advice to assist it with assessing the Revised Revenue Proposal (RRP) for Part B construction costs of Marinus Link stage 1, submitted by Marinus Link Pty Ltd (MLPL). This stage of the project is to design and construct the cable and converter stations for the first of two subsea high-voltage direct current (HVDC) cables providing an additional connection between the Tasmanian and Victorian transmission networks.
2. The assessment contained in this report is intended to assist the AER in its own analysis of the capital expenditure (capex) allowance as an input to a determination on MLPL's RRP to provide for the costs of this stage of the project to be recovered in a future Regulatory Control Period (RCP).

1.2 Scope of requested work

3. The AER's definition of the scope of the required work is reproduced in Figure 1.1.

¹ The scope of our review comprises all proposed risk costs included in the proposed risk allowance.

Figure 1.1: AER's definition of the scope of required work

AER's detailed statement of work

The consultant is required to provide advice and a report on the reasonableness of MLPL's proposed risk allowance, including assessment against the 2021 guidance note.

The AER has a requirement for a consultant with direct experience in assessing risk costs for high profile and large cost electricity transmission projects to provide expert technical analysis and advice to assist in assessing MLPL's proposed risk allowance. Particularly within a tight timeframe. These services are required to enable AER staff to critically review the proposed forecast expenditure and make a decision on whether it is prudent and efficient.

- The consultant will be provided with all relevant material MLPL has provided to the AER in support of its proposal. The consultant is to have regard to this information and any other information it has available to it in coming to its advice.*
- The consultant will set out its advice and findings in a report.*
- The consultant is to engage with MLPL as necessary including any information requests, through the AER.*

1.3 Our review approach

1.3.1 Approach overview

- In undertaking our review, we:
 - Completed a desktop review of the information provided to us by the AER
 - Assisted the AER in preparing requests for information to MLPL, and reviewed the information provided by MLPL (via the AER), and
 - Undertook an onsite meeting with MLPL on 4 September 2025, with the objective of helping to ensure that we correctly understood elements of the project as proposed and the basis on which MLPL has developed its proposed risk allowance.
- As a technical review, we undertook this review based on relevant requirements of the National Electricity Rules (NER) and AER assessment guidelines pertaining to the proposed expenditure. We have not sought, nor is it within our scope, to assess:
 - The overall economics of the project, or its role in the National Electricity Market (NEM)
 - MLPL's Material Change of Circumstances (MCC) statement, nor the merits (or otherwise) of reopening the Regulatory Investment Test for Transmission (RIT-T), other than to note MLPL's finding that its preferred option is unchanged, or
 - The merits or otherwise of past decisions, including the decision to 'stage' the project, and the AER's Stage 1 Part A determination relating to the cable and converter station construction costs.
- We do, however, comment on some of the matters above to the extent that they are relevant to MLPL's proposed risk allowance, or to the extent that elements of the proposed risk allowance may be relevant to the AER in considering these matters.
- We conducted a bottom-up review of the information MLPL provided in its RRP and in response to information requests (IR). Our review focused on considering the extent to

which the residual cost² attributed by MLPL to individual risks could be reasonably considered to satisfy AER guidance note criteria, namely:

- Where MLPL should have (or has) sufficient control (such as its own resources) to fully manage or at least mitigate the risk (either the cost of consequence or the probability of the detrimental event occurring), or
 - Where MLPL's exposure should be adequately covered by the allowances provided elsewhere in the project costs (including a reasonable ability to transfer or recover the costs from a contractor and/or a third party), or
 - Otherwise, avoided or included in a cost pass through event.
8. We also considered a top-down assessment of the risk allowance, including by reference to industry benchmarks, including those presented by MLPL.

1.3.2 Sources of information

9. Our principal source of information for review is the suite of documents and models that MLPL provided in support of its RRP for Stage 1. Of particular significance are:
- MLPL-B-002 MLPL Revised Revenue Proposal Stage 1 - Part B (Construction) 20250715
 - MLPL-B-009 Attachment 7 - Updated Explanation of Capital Expenditure Requirements - Risk Allowance (E3)
 - MLPL-B-011 Attachment 9 - Updated Independent Verification of MLPL costs (Aurecon Advisory) 20250807, and
 - Information provided in response to our information requests, primarily IR006 and IR009 which included a copy of the risk model, and contracts. Of particular relevance to our review was a summary of the proposed risk allocation between each of the three contractors³ and MLPL.
10. Our assessment draws on the AER's Guidance Note on Regulation of actionable Integrated System Plan (ISP) projects (March 2021).⁴
11. We were provided with a range of IR responses from MLPL dated 2 September 2025, including in response to our information request IR006 however this was not complete. Following our onsite meeting with MLPL on 4 September 2025, we were provided with material that MLPL had presented and the balance of IR006 on 4 September. We issued a follow-up information request (IR009) and we received a further and final set of responses to that IR on 9 and 11 September 2025.
12. We observe that the information that MLPL provided along with its RRP at commencement of our engagement by the AER, was incomplete. A set of information sufficient to adequately enable our review, was not available until MLPL had responded to our follow-up information request arising from the onsite meeting.
13. At this point the contract agreement for the Balance of Works (BoW), to which MLPL has attached several of its risk allowances, had not been finalised and this is likely to have a bearing on the proposed capex forecast including the final risk allocation and risk allowance. MLPL provided draft contract materials, and by agreement with the AER, we completed our review on this basis.
14. In this report, we refer to information that is most relevant in presenting the basis for our review findings. Absence of reference to particular documents or particular statements in those documents should not however be construed as implying that this material was not considered.

² That is, after taking into account the mitigating effects of existing and proposed additional controls on the risk

³ Cable contractor, HVDC converter contractor and Balance of Works contractor

⁴ AER, Guidance note - Regulation of actionable ISP projects, March 2021

1.3.3 Rules and guidelines relevant to our review

15. The principal guiding documents for our review are as follows:
- The NER, in particular the capex objectives and capex criteria and those parts that refer to contingent projects, and
 - The AER's guideline on regulation of actionable ISP projects.

16. We also referred to the AER determination for the Transgrid HumeLink stage 2 delivery contingent project, being the latest relevant large electricity project. In its determination the AER states:

'Our guidance note on the regulation of actionable ISP projects sets out our assessment approach and expectations on the supporting information accompanying a CPA.

*'When accounting for project risks, we do not provide a project risk allowance that completely covers all potential cost impacts to the project. We expect that most projects have symmetrical risk distributions, meaning that the likelihood of projects being over or underbudget is approximately equal. In those cases, we would expect a network service provider to balance the over and under-budget programs in its portfolio. Our contingent project determination is not intended to completely de-risk the project, as investment projects are inherently uncertain and financing arrangements account for this. However, it may be prudent to include specific and appropriate contingency costs for asymmetric risks, where the likelihood of programs being over-budget is greater than the likelihood of being underbudget. We only approve the incremental revenue for the expenditure reasonably required for the project by an efficient and prudent operator managing and mitigating the identified risks.'*⁵

17. The AER reflects the needs of its guidance note as:

'The guidance note outlines the information and justification we expect to accept a risk cost as prudent and efficient. In summary, it states that we can accept risk costs in a contingent project determination if the network service provider:

- *comprehensively and transparently identifies and defines the different project risks*
- *identifies and justifies reasonable and realistic potential cost impacts (including potential cost reductions) and likelihoods of occurrence, accounting for controls or mitigations*
- *shows that the residual consequential cost is weighted to reflect the likelihood of occurrence*
- *shows why the risk cannot be efficiently transferred, avoided or mitigated (or included in cost pass through events)*
- *shows that the cost of mitigation measures exceeds the expected weighted cost impact should the risk eventuate*
- *shows that risk will be allocated to the party that is best placed to manage that risk.'*⁶

18. In reviewing benchmark information, we also referred to decisions on final project assessments for HVDC projects by Ofgem. We comment on these as a part of our assessment.

⁵ AER Determination, Transgrid HumeLink Stage 2 Delivery Contingent Project, August 2024

⁶ AER, Guidance note - Regulation of actionable ISP projects, March 2021, pp. 16-21.

1.4 This report

1.4.1 Report content

19. We have included four further sections of this report, comprising:
- In section 2, we provide an overview of aspects of the Marinus Link project that are most relevant to our assessment.
 - In section 3 we provide our assessment of MLPL's proposed risk-cost allowance of \$363 million (real, 2023), specifically the method applied by MLPL in developing the risk cost allowance.
 - In section 4 we provide our consideration of specific risk cost allowances, focussing on the top 30 risks, as they account for 90% of the risk cost allowance, using the risk categories designated by MLPL.
 - In section 5 we provide a summary of our findings and implications for the proposed risk allowance.
 - In Appendix A we provide a summary of the top-30 risks referred to in our assessment, and in Appendix B we summarise our considerations of specific risk costs that are referred to in sections 4 and 5.

1.4.2 Basis for numbers

20. MLPL has presented its RRP submission in real FY 2023 terms and also in Nominal terms. We have adopted the denominations as presented in the various sources of information from MLPL, clearly annotating the cost basis in our report.

2 OVERVIEW OF MARINUS LINK PROJECT

Marinus Link is a proposed 1,500 MW interconnector between Victoria and Tasmania, to be delivered in two 750 MW stages by MLPL. It requires upgrades to the Tasmanian transmission network delivered by TasNetworks, referred to as the North West Transmission Development project. Collectively these projects are referred to as Project Marinus.

As outlined in section 1, the scope of our review is limited to the proposed risk allowance for the Marinus Link project. For the Marinus Link project, the AER has already made a determination for stage 1 Part A (early works). Due to the timing of the tender processes associated with stage 2 Part B, the AER determined that the regulatory review process will be undertaken in two stages, with an initial determination for the cable system and converter station equipment based on its initial proposal dated November 2024, and a later supplementary draft decision for all expenditure items based on its revised proposal dated July 2025. The latter was based on the availability of class 2 estimates as the basis for its updated capex forecast.

Status information suggests that MLPL is on schedule for Marinus Link, with good progress towards receiving the required planning and environmental approvals.

2.1 Industry context

21. The electricity system is currently undergoing a period of rapid transition, driven by a combination of consumer actions, government policy, and net zero emission ambitions. Both state and federal governments have set targets and announced legislation that includes increasing the proportion of electricity generation from renewable sources. We observe that these factors are driving a fundamental shift in the source and location of electricity generation at all levels of the electricity system.
22. The transition away from thermal generation, notably coal-fired generation, towards renewables sources such as hydro, wind and solar, presents challenges to the location and other characteristics of electricity networks, and to the security and reliability of the electricity system. For the latter, increased levels of energy storage are required to maximise the benefits of renewable sources of electricity.
23. The Australian Energy Market Operator (AEMO) states that the deepest energy storage⁷ available to the NEM are *‘the existing deep-reservoir hydro assets, which can also mitigate renewable droughts and balance energy availability across seasons.’*⁸ Project Marinus will provide transmission infrastructure to access deep storage from pumped hydro generation located in Tasmania. AEMO notes that Project Marinus is considered ‘nationally strategic’ and listed Project Marinus as an actionable project in the 2022 ISP.

⁷ Defined in AEMO’s 2024 ISP as strategic reserves that can dispatch electricity for more than 12 hours, to shift energy over weeks or months (seasonal shifting) or cover long periods of low sunlight and wind (renewable droughts), backed up by gas-powered generation.

⁸ AEMO 2024 ISP, page 68

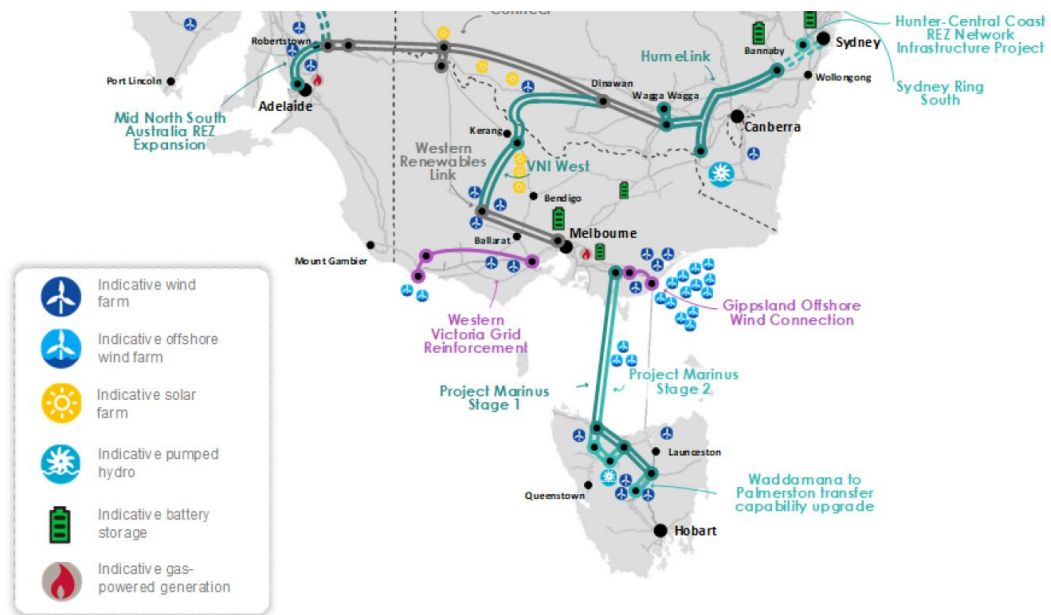
2.2 Project overview

2.2.1 Project Marinus

24. Project Marinus is a single actionable ISP project to deliver network capacity of 1,500 MW, in two 750 MW stages (Stage 1 by 2030 and Stage 2 by 2032). The net market benefits have been estimated at circa \$4.6 billion.⁹
25. In June 2024, AEMO published its Final 2024 ISP, which reconfirmed the actionable status of Project Marinus with no decision rules:

*'As it was for the 2022 ISP, the project is confirmed in this ISP as an actionable project. Project Marinus is a single actionable ISP project and is not a staged project for the purposes of the ISP framework and the Rules.'*¹⁰

Figure 2.1: Transmission projects in the optimal development path, showing Project Marinus



Source: Extract from AEMO 2024 ISP, Figure 3

26. The timing included in the 2024 ISP indicates stage 1 by 2030-31 and stage 2 by 2037-38 under the step change scenario,¹¹ with dates of Dec 2030 and Dec 2032 (full capacity release) for implementation as advised by the proponent.

2.2.2 Marinus Link project

27. Marinus Link will provide new transmission capacity between Victoria and Tasmania, allowing Hydro Tasmania to provide additional peaking capacity in Victoria. In Tasmania, Marinus Link will provide additional energy security when there are drought conditions or other disruptions to production of hydro power and offer potential for substantial wind farm investments.
28. MLPL is responsible for delivering the Marinus Link project, comprising new cables, converter stations, and connections to existing transmission networks as shown in Figure 2.2. Supporting upgrades, referred to as the North West Transmission Development

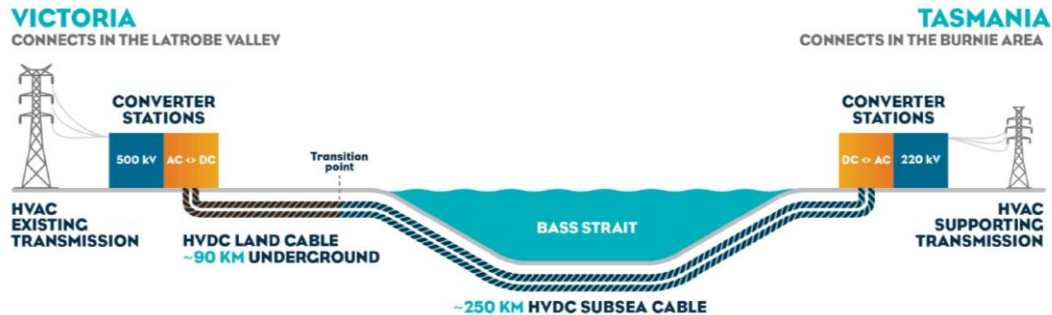
⁹ Based on AEMO 2022 ISP step change scenario

¹⁰ AEMO 2024 ISP Appendix 5

¹¹ AEMO 2024 ISP Appendix 5

(NWTD), are required to the Tasmanian transmission network. TasNetworks is responsible for delivering these upgrades.

Figure 2.2: Marinus Link project overview, showing how Marinus Link connects Tasmanian and Victorian transmission networks



Source: MLPL-B-002 MLPL Revised Revenue Proposal Stage 1 – Part B (Construction) 20250715, Figure 5

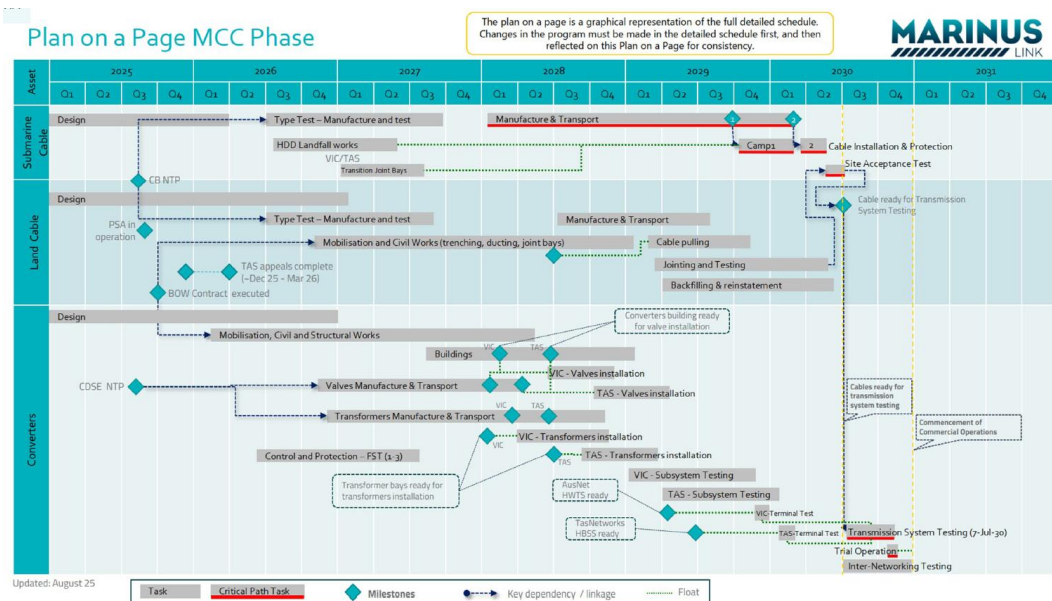
2.3 Summary of project delivery

2.3.1 Current project status

Master Project Schedule includes parallel progress on three fronts

- 29. Figure 2.3 shows a high-level breakdown of tasks associated with (i) the HVDC subsea cable construction and commissioning, (ii) the underground land HVDC cable works, and (iii) the converter stations – one in Victoria and one in Tasmania.
- 30. We asked MLPL to provide details of the project schedule to understand the critical path items. As shown in Figure 2.3, the critical path is heavily linked to the undersea cable manufacture, delivery and installation steps.

Figure 2.3: Master project schedule (on a page)



Source: Provided by MLPL in response to IRO06

There is evidence of progress with recent achievement of important project milestones

31. At our on-site meeting with MLPL representatives in early September 2025, we heard examples of how MLPL has taken steps to ensure adequate contingency in the schedule, such as planning completion of the civil works for land cable installation well ahead of the planned timing of cable installation by the cable contractor.
32. During the onsite meeting, MLPL stated that the project timeline remains on track for service commencement in 2030, with all major milestones met so far, including:¹²
 - Engagement of an Integrated Delivery Partner (IDP)
 - Selection of a preferred proponent for the Balance of Works (BoW) package
 - Positive Final Investment Decision (FID) by Shareholders
 - Achievement of Financial Close with the Clean Energy Finance Corporation
 - Issuance of Notices to Proceed to the selected cable and converter technology suppliers
 - Received key Commonwealth and Victorian environmental approvals, with primary Tasmanian approvals on track for late 2025, and
 - Easement and Lease Option Deeds presented to [REDACTED] landholders [REDACTED].
33. We have taken this progress into account in our assessment, as relevant to specific residual risk allowances.

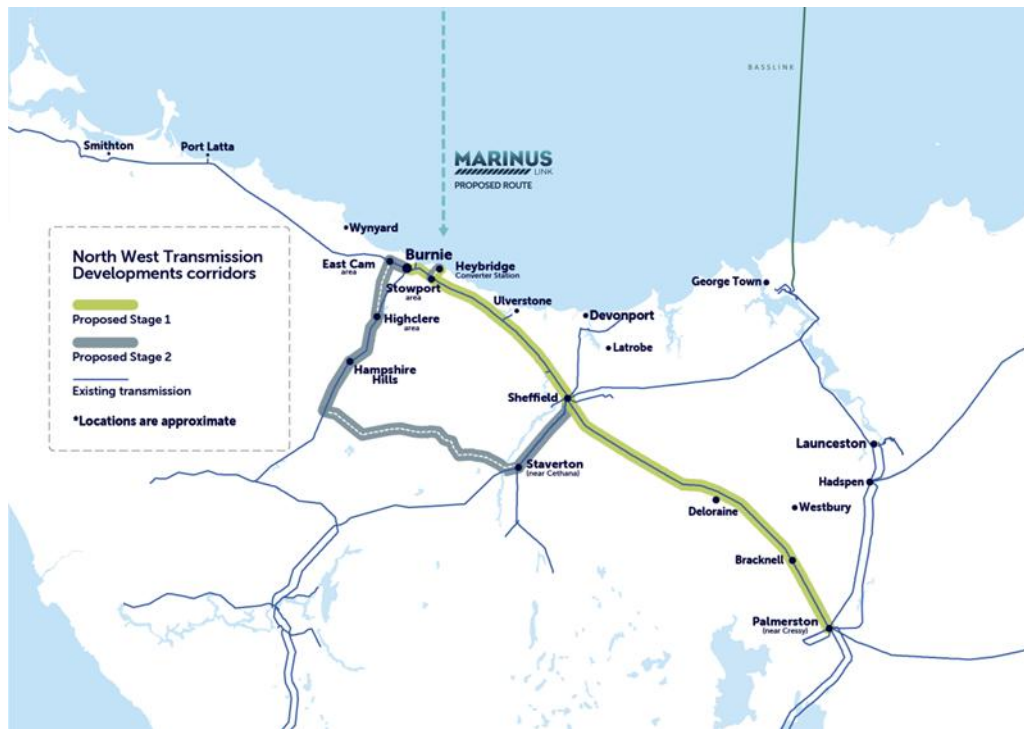
2.3.2 North West Transmission Development

34. The NWTD project is a component of Project Marinus. The NWTD project involves significant upgrades to the existing high voltage alternating current 220 kV transmission network in north-west Tasmania as shown in Figure 2.4. These upgrades are to facilitate the connection and operation of the Marinus Link interconnector between Tasmania and Victoria.¹³
35. Stage 1 of the NWTD project is costed at \$950 million and is in support of Cable 1, or stage 1 of the Marinus Link project. In March 2025, the AER published its decision on TasNetworks' contingent project application for its NWTD stage 1 early works. The NWTD project represent one of the largest investments in the Tasmanian transmission system since its inception.
36. Delivery of the NWTD project is a major enabler of the Marinus Link project, with MLPL recording a delivery risk associated with its timely completion.

¹² MLPL-IR006-Presentation-20250904-CONFIDENTIAL

¹³ AER website, accessed at <https://www.aer.gov.au/news/articles/communications/aer-approves-costs-north-west-transmission-developments-early-works>

Figure 2.4: NWT Stage 1 (for cable 1) and Stage 2 (for cable 2)



Source: TasNetworks – NWT Stage 1 – Early Works CPA – October 2024, Figure 3

3 ASSESSMENT OF PROPOSED RISK COST ALLOWANCE

As part of its RRP, MLPL has included a risk-cost allowance of \$363 million (real 2023). MLPL has quantified the probabilities and consequences of specific risks that it has identified and its proposed allowance results from Monte Carlo simulation of these probabilistic cost distributions. Most of the proposed risk-cost allowance results from MLPL's assumptions regarding various project delivery risks, many of which may result in project delay.

The principle of including a probability-weighted allowance for asymmetric risks that are likely to occur, above those included in the cost estimate, is consistent with the AER's guidelines. However, we consider that MLPL's application of its methodology for quantifying these risks results in an overstatement of the risk-cost allowance that it proposes for the Marinus Link, Stage 1 project. Based on the information provided to us, we find that the combination of likelihood and consequence applied by MLPL as a part of its 'bottom-up' workshop-based assessment, has resulted in an over-estimation of the proposed risk-cost allowance.

MLPL states that the proposed risk-cost allowance is comparable to benchmarks identified by its adviser, Aurecon. We consider that the range of risk cost allowances included in this advice is very broad, with MLPL's proposed risk allowance at the top-end of the range for international HVDC projects, and above the level applied to recent electricity transmission projects in Australia.

Our assessment considered each of the individual risks, focussing on the top 30 risks proposed by MLPL as presented in section 4. In this section 3, we describe the methodology issues that we found, with reference to the AER guidance material. We consider that MLPL has not taken satisfactory account of the AER guidance material. Nor has MLPL adequately drawn from the AER's published interpretation of its guidance in recent determinations regarding matters such as the inclusion of certain risks nor in relation to the evidence required to support the estimated probability and estimate of costs associated with deriving the individual risk allowances.

Our review is based on the information provided by MLPL and the AER, within the scope of our review as outlined in section 2. MLPL has not provided sufficient compelling evidence to allow us to conclude that it adequately considered mitigation of identified risks, including from management of its own costs, from contract management and incentive mechanisms, and from contractor contingencies to in turn ensure that the proposed risk allowance is prudent and efficient.

3.1 Introduction

37. In this section we present our assessment of the risk-cost allowance that MLPL has proposed for inclusion into its RRP capex forecast for Stage 1. The risk-cost allowance is intended to address the remaining risk and uncertainty associated with the construction phase of the project.
38. We have assessed MLPL's proposed project risk-cost allowance by a number of methods:

- Bottom-up assessment including:
 - examining the 60 individual risk items¹⁴ included within its allowance against the AER guidance, and previous AER decisions, and
 - review of the methodology for calculating the probability and financial impact of each individual risk. Here we also considered whether there were offsetting factors such as duplication between risk items or symmetrical likelihood of risks relating to both cost increases as well as cost savings, and
 - Top-down assessment of the risk-cost allowance against previous AER decisions and MLPL's own advisors; of relevance is the risk-cost allowances proposed for recent large scale electricity transmission investments in Australia.
39. Our review has focussed on the methodology followed by MLPL, and the application of reasonable inputs consistent with that methodology. We have not sought to independently develop a risk-cost allowance for this project using all inputs known to MLPL but rather we have undertaken a review of the information provided by MLPL to support the composition of the risk-cost allowance proposed as a part of Stage 1.
40. In undertaking our assessment, we also drew from the AER's assessment of Transgrid's HumeLink stage 2 risk allowance, to understand the extent to which similar issues are present. In respect of the HumeLink stage 2 risk allowance, the AER found evidence of:
- Risks that are included in or manageable within the other allowances provided in the capex forecast, and
 - Risk that are symmetric or have a most likely probabilistic cost of zero, specifically those described as being inefficient practices by the contractor or the TNSP, and that should not be passed onto customers.

3.2 What MLPL has proposed

3.2.1 Total project cost estimate

41. MLPL has proposed capex of \$3,524.9 million to the end of the next RCP for the construction of stage 1 and enabling works for stage 2 of Marinus Link as shown in Table 3.1.

Table 3.1: Proposed construction expenditure, \$m real 2023¹⁵

Category	pre-period	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Converter station design and equipment supply (CDSE)	99.7	104.2	338.9	95.6	79.5	55.3	773.2
HVDC cable system - Submarine and land cables (CBS)	51.6	93.7	118.2	134.3	370.8	150.4	918.9
Balance of Works (BoW)	-	101.4	352.4	393.8	74.8	23.4	945.8
Support activities	-	122.1	112.0	105.3	103.0	81.6	524.0
Risk allowance	-	44.0	118.8	110.7	62.9	26.7	363.0
Total expenditure	151.3	465.2	1,040.2	839.8	691.0	337.4	3,524.9

¹⁴ Which was increased to 61 in the risk model due to inclusion of a negative cost item for Risk & Contingency (R&C) Matters

¹⁵ These costs include pre-construction expenditure incurred prior to 1 July 2025, which was explicitly excluded from 'early works' in MLPL's Revenue Proposal Stage 1 – Part A (Early works), and exclude final milestone payments and commissioning costs, which will occur during the financial year commencing 1 July 2030 estimated to be \$120 million.

Source: MLPL-B-002 MLPL Revised Revenue Proposal Stage 1 – Part B (Construction) 20250715, Table 1

3.2.2 Total risk allowance

42. Our scope is confined to the review of the risk allowance only. We were able to identify a cost of \$365 million (real 2023) in the RRP cost model¹⁶ which for the purposes of our review we consider is materially the same as reported in the RRP. In nominal terms, MLPL reports the risk allowance as \$411.8 million.
43. As a percentage of the total proposed construction capex of \$3,524.9 million, the risk allowance accounts for approximately 10%. This reduces slightly to approximately 9% if the Design and Approvals (D&A) cost and commissioning costs are also included.¹⁷

3.2.3 Methodology

Summary of methodology adopted by MLPL

44. MLPL describes its methodology in its Risk and Contingency Report as prepared by E3 Advisory Pty Ltd (E3 Advisory) who also provided assistance to estimate the risk allowance. We summarise the methodology from MLPL's submission as:
- Risk identification and qualitative assessment, comprising:
 - risk identification process including interdisciplinary risk workshops, meetings and risk reviews
 - risk ratings in collaboration with subject matter experts (SMEs) as part of structured workshops
 - as part of the risk assessment process, existing controls were identified and documented during risk workshops with the input of relevant SMEs
 - Quantitative risk assessment, comprising:
 - quantitative risk modelling has been undertaken following the identification and assessment of risks and controls
 - for each risk, the best case, worst case and most likely case have been developed, collectively referred to as a 'three-point estimate' of the impact. Also, MLPL generated a risk-adjusted estimate based on the three-point estimate of the impacts and the probability of occurrence
 - a detailed cost basis that provides the foundation for the estimation of each risk's best case, most likely case, and worst-case outcomes
 - Monte Carlo simulation undertaken using a 'bottom-up' assessment of the individual risks using specialist software, and
 - Risk Model (risk register) developed as an output to the risk identification, qualitative and quantitative risk analysis process.
45. MLPL states that it has not included prolongation risk¹⁸ or symmetrical risks. MLPL also nominated risks that it omitted from its proposed risk allowance, including:
- Risks that are designated as AER pass through events
 - Financial risks that were relevant during the pre-Financial Close phase, but which no longer apply or are no longer subject to the same level of uncertainty
 - Risks that do not have an attributable cost impact, such as organisational reputation or stakeholder confidence, and

¹⁶ MLPL-B-014 Revised Revenue Proposal Cost Model 20250715

¹⁷ Based on a total project cost (inclusive of D&A and commissioning costs) of \$3,891.1 million (real 2023) or \$4,373.9 million (nominal)

¹⁸ Prolongation risk is the likelihood that a project will take longer than planned to complete

- Costs that are recoverable from third parties or contingency held by the contractor as part of its contractual obligations.
46. We consider that this list is consistent with the AER guidance ‘tests’ to help ensure that only residual risks are included in MLPL’s assessment. Our assessment considers whether MLPL has reasonably applied these tests and that in doing so that the qualitative and quantitative risks assessments are also reasonable for the risks that it has included in deriving its proposed risk allowance.

MLPL received external advice

47. MLPL sought expert advice for the development of its risk model, and individual risk items from a number of advisers which it has relied upon in developing and review of its proposed risk-cost allowance, including Jacobs, Amplitude, MBB Group, Intuit Technologies, and TBH.
48. We consider that it is prudent to involve a panel of experts such as this in the development of its proposed risk allowance.

3.3 Assessment of MLPL’s methodology for determining risk-costs

49. We consider that many of the risks and uncertainties identified by MLPL for the Marinus Link project stage 1 are reasonable. Our assessment focusses on the issues that we have identified and the impact of those issues on the determination of a prudent and efficient risk-cost allowance.

3.3.1 Proposed risk allowance

Risk cost allowance has been hardcoded in the cost model provided

50. In the cost model provided with its RRP, MLPL presents the risk allowance as shown in Table 3.2, totalling \$411.8 million (nominal).

Table 3.2: Proposed risk allowance by financial category, \$m nominal

Risk categories	Total risk allowance
Construction Support Costs + Management Costs	██████████
Land Cable Civils (LCC)	██████████
Cables	██████████
Converter	██████████
Converter Station Design, Supply & Installation (CDCS)	██████████
BoW	█
Total	411.8

Source: EMCa analysis of MLPL-B-014 Revised Revenue Proposal Cost Model 20250715 - CONFIDENTIAL

51. The cost profile for the risk allowance is proportional to the spend profile of the related categories. In our review of the individual risks, we note that there are a number of risks related to the BoW contract, however in the financial model the risk costs assigned to the BoW risk category, are ██████████.

A material amount of risk cost allowance is attributed to BoW contract activities

52. The risk-cost allowances included in the Contingency worksheet are hard-coded values and are not linked to the remainder of the cost build up included for the proposed capex. Whilst

Attachment 7 of the RRP submission. We have relied on the values included in the risk model and adopted the term 'risk model' throughout our report.

58. In its risk model, MLPL shows the individual risks that it has included with an aggregate risk cost of \$448.6 million (nominal) as shown in Table 3.4, and which after application of its Monte Carlo analysis determines a P50 value of \$411.8 million (nominal).

Table 3.4: Summary of included risk-cost allowances by risk category, \$millions nominal

Risk category	Number of risks	Proposed P50 deterministic risk-cost
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
[REDACTED]	1	[REDACTED]
Grand Total	61	448.6

Source: EMCa analysis of MLPL Project Risk Model (AER Submission)

3.3.2 Management of risk in project allowance

Guidance note is instructive on provisions for risk-cost allowances

59. The AER guidance note accepts provision for project risk allowances where it can be determined to be an efficient cost to address the residual risk. The AER states:
- 'We expect TNSPs to comprehensively and transparently identify and assess the different project risks for which It is seeking a cost allowance.'*²¹
60. We summarise the AER's expectations of Transmission Network Service Providers (TNSPs) as captured in its guidance note for proposing risk-cost allowances as follows:
- Risk will be allocated to the party that is best placed to manage that risk
 - TNSP to clearly identify the risk events for which it seeks a risk-cost allowance
 - It is only prudent to allow for residual risks that affect the cost of the project and cannot be efficiently transferred, avoided or mitigated
 - TNSP to demonstrate how its risk assessment represents reasonable and realistic expectations of risks that could be realistically encountered
 - TNSP to demonstrate the outcomes of each risk assessment
 - TNSP to explain where and why it has transferred risks to contractors as part of its scope of work, and
 - TNSP to identify, establish and maintain a risk management framework for all project risks.
61. AER guidance specifies considerations where a risk-cost allowance would not be provided, including that:
- It would not provide a project risk allowance that completely covers the eventuality of all consequential costs being incurred, and

²¹ AER Final Guidance note – Regulation of actionable ISP projects, March 2021


- A risk allowance would not be allowed for risks that are reasonably under, or should reasonably be under, the TNSP's control or form part of its business-as-usual practices.
62. We have taken account of the above factors, and of decisions made by the AER in recent determinations when applying these factors in our assessment.

Some considerations in the AER guidance have not been adequately considered by MLPL

63. The key issue identified in our review was the lack of evidence and artefacts to support MLPL's claims. In our initial information request we asked for evidence and artefacts relied upon from contract documents (e.g. assumed delay rates), quotations and estimates from third parties and internal business case documents as the basis for included costs and assigned probabilities in deriving the allowances. In the response, MLPL referred only to the cost basis information provided with the risk model. During the onsite meeting, MLPL confirmed that the risk model was the product of workshop discussions and SME input. We subsequently asked MLPL to provide any additional evidence and artefacts that had been relied upon in determining the consequence costs and assigned probabilities and likelihood underpinning each risk allowance or to confirm that no such additional information has been relied upon.

64. In its response, MLPL states:²²

'Further to the response provided to IR006 Q2 and Q6, MLPL's risk register and risk assessment was developed using expert elicitation via a structured interview and workshop approach with a range of subject matter experts (SMEs). The SMEs had regard to industry and project artefacts which include but are not limited to:

- *site investigation reports, including geotechnical reports*
- *inclement weather Bureau of Meteorology data,*
- *design information,*
- *contract terms and conditions,*
- *integrated delivery strategy prepared by independent experts,*
- *market engagement, including responses from Balance of Works proponents and insurance market*
- *contractor interaction and documents for awarded contracts*
- *MLPL budget cost estimate and program*
- 
- *legal benchmarking,*
- *site visits*
- *study tours to fabrication facilities and other HVDC projects*
- *TBH Peer Review*
- *Clean Energy Finance Corporation's advisors' due diligence documents*
- *AER guidance including 'Regulation of actionable ISP projects, Guidance Note' (March 2021), 'Better Resets Handbook Towards Customer Centric Network Proposals' (July 2024) and 'Expenditure Forecast Assessment Guideline for Electricity Transmission' (October 2024).²³*

65. It is the information that the SME's had regard to in support of the claims made by MLPL that we were seeking. However, this was not provided to us.

66. MLPL also stated that:

²² MLPL response to IR009 Question 5

²³ MLPL response to IR009 Question 5

*'It is also important to note that the SMEs engaged in the workshops have a deep understanding of the project and the risks arising from the contractual arrangements, which have been developed over an extended period, including during the 'early works' phase of the project. The knowledge and experience of the project, in addition to the wider project experience that the SMEs provide, ensured that the workshops were as effective as possible in identifying the risks; the mitigation measures and controls; the residual risks and potential consequences. MLPL also notes that it has relied on E3 Advisory to ensure that MLPL's risk assessment fully aligns with the AER's guidelines and is best practice.'*²⁴

67. Whilst we note that MLPL has relied on a range of information and on the experience of its experts, consistent with our reading of the requirements of the NER and supporting AER guidance materials, we sought to confirm that the assumptions relied upon by MLPL were supported by evidence. Absent the evidence, we were not able to confirm this.

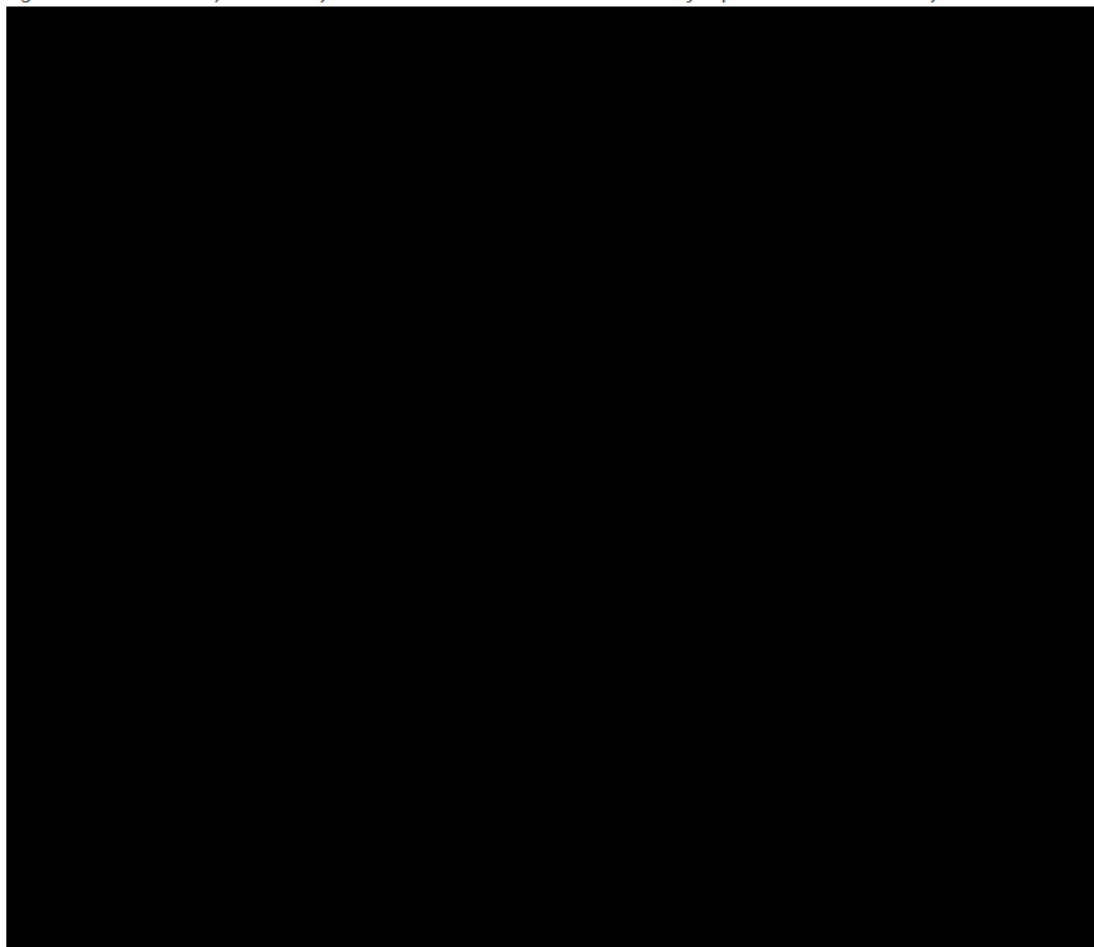
3.3.3 Dealing with uncertainties

Assumptions adopted by MLPL tend to have an upward bias to the identified risk allowances

68. MLPL has developed a risk model based on the aggregation of individual risk events and uncertainties. Since the initial proposal, MLPL has increased the number of risks from 40 to 60 individual risks.
69. Modelling on this basis may not adequately account for underlying uncertainties that affect multiple risks or uncertainties in a similar way, such as market conditions, design detail, weather or project duration.
70. We observed a potential that the risk cost estimates were biased upwards. To understand this, we plotted the three-point risk estimated for the top 30 risks as shown in Figure 3.1. This does not account for the Monte-Carlo analysis, however, we consider that it highlights the upward bias of the risk cost estimates. We observe that:
- All three point-estimates result in positive risk costs
 - The estimates are not symmetrical, with a skew towards the worst-case value, and
 - The P50 approximation based on the aggregate of the BetaPert and Uniform distributions used in the assessment is higher than the most likely value.

²⁴ MLPL response to IR009 Question 5

Figure 3.1: Best case, most likely and worst-case risk-cost estimates of top 30 risks estimates by risk id



Source: EMCa analysis of MLPL Project Risk Model (AER submission)

- 71. This analysis indicates that, in general, MLPL considers that the identified risks on a probabilistic basis are more likely to add cost to the base case estimate for the project, even for the best-case scenario.
- 72. This conclusion is consistent with MLPL’s claims that it has not considered risks that are symmetrical, or that can be mitigated such as via contracts or insurance, consistent with the AER guidance materials. However, we remain concerned that the level of risk cost allowance may not be efficient due to the apparent upward bias in the risk cost estimates.
- 73. To explore this further we also considered the range of three-point estimates that MLPL had included in its risk model as shown in Table 3.5. The data indicates that the best-case impact estimate, being the most optimistic case, indicates that the project will incur an additional cost of \$169 million.

Table 3.5: Summary of three point estimates and P50 approximation of risk allowance, \$m nominal

	Best Case Impact	Most Likely Impact	Worst Case Impact	P50 approximation
Sum of individual risk costs	941	1,834	3,794	-
Sum of probability weighted individual risk costs	169	407	895	449

Source: EMCa analysis of MLPL Project Risk Model (AER submission)

We observed a similar skewing of assumptions surrounding time delay

- 74. As the cost estimate used for many risks has been based on a cost of delay to the contractor (delay days multiplied by daily delay cost), the corresponding delays assumed in this formula can be aggregated.
- 75. Given the extent to which MLPL’s modelling of delays drives its proposed risk-cost allowance, we aggregated the project delay resulting from its risk model that it was using to determine the proposed risk-costs using the same formula applied by MLPL for the risk cost.²⁵ The aggregate of the individual risks totalled 475 days, as shown in Table 3.6.

Table 3.6: Summary of derived time delays from risk allowance, \$ nominal

Row Labels	Count of ID	Sum of BetaPert Approximation (P50)	Sum of P50 program impacts (days)
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
[REDACTED]	1	[REDACTED]	[REDACTED]
Grand Total	61	\$448,615,887	[REDACTED]

Source: EMCa analysis of MLPL Project Risk Model (AER submission)

- 76. The major delay-related risks are associated with Project Delivery, and then Environmental risks. This aligns with our expectations; however, the magnitudes are relatively high.
- 77. The analysis included in Table 3.6 indicates to us that MLPL’s assumption is that if the P50 risk cost is realised, [REDACTED]. Importantly the calculation of delay is applied to individual contract milestones and may not result in a delay to the overall schedule or critical path. Rather, MLPL has used delay as a means to quantify the potential cost exposure, and where MLPL does have cost exposure this may not result in a time or schedule delay to the project. However, in determining the cost exposure, the estimate should also take into account other risk controls and recovery methods available to MLPL to reduce the cost exposure, and which we consider it has not done sufficiently in all cases.
- 78. MLPL has not provided an overall schedule risk assessment to understand the impact that the time delays have to the overall project schedule. However, at a P50 estimate of [REDACTED], or the equivalent of 1.3 years, when we sum the P50 delay risks individually, it is hard to believe that this would not result in a material delay to the overall project such that it will not achieve June 2030 completion. This leads us to consider that the delay-based risk cost estimates are likely to over-estimate the impact of these risks.

Quantification of assessments is not compelling, leading to higher likelihood values

- 79. We have focussed our assessment on the quantitative assessment proposed by MLPL and which leads to the risk-cost allowance. As part of its risk model, MLPL also includes a qualitative risk assessment, using a traditional risk matrix, for ratings of uncontrolled risk (before risk treatments) and controlled risk (after risk treatments and existing controls). Of the identified risks, only one risk event has a post-treated (or controlled) residual risk rating

²⁵ Based on the estimated time delays referred to by MLPL in its basis of cost valuation, values assumed in the three-point impact estimates and use of contractor delay rates. We excluded insurance related risks Risk ID 66 and Risk ID 87.

of High,²⁶ with the majority of risk events having a rating of Medium. The qualitative risk rating leads to an assessment of the quantitative probability, or likelihood of the risk event occurring.

- 80. For some risk events, we found that the probability of the risk event occurring applied by MLPL was higher than indicated by MLPL’s qualitative risk assessment, which was developed through its risk assessment workshops with SMEs. As a result, we considered the risk description with a particular focus on the risk causes, and controls to understand the basis of MLPL’s assessment and the relationship between the probability and the basis of its consequence cost assessment.
- 81. It is fundamental to risk analysis to consider the combination of the likelihood of the risk occurring and the consequence cost assumed for alignment (i.e. internal consistency). In many cases we found that the consequence cost assumed by MLPL was relatively high, exceeding a reasonable level when considered in conjunction with the relatively high likelihood that MLPL ascribed to the risk manifesting. This results in a higher level of proposed risk cost from MLPL’s modelling than is prudent.

Uncertainty arising from the modelling method applied by MLPL does not appear to have been adequately considered

- 82. From the information provided on the commercial models, we understand that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].

- 83. The ability to mitigate delay costs is highest before delay-costs have occurred and before MLPL has made commitments based on plans that differ from those that eventuate. The capability established by MLPL to undertake roles such as project and contract management, both for individual contractors and in managing the interface requirements across contractors will be key to minimising this risk.

- 84. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

- 85. According to records provided by MLPL, [REDACTED]
[REDACTED]
[REDACTED]

- 86. Also, that:
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]²⁸

■ [REDACTED]
[REDACTED]

²⁷ Marinus Link – BOW (draft) contact risk allocation matrix (HSF 170525)

²⁸ Marinus Link – BOW (draft) contact risk allocation matrix (HSF 170525)

87.

[REDACTED]

Reference sites relied upon by MLPL as evidence of risk allowance are not directly relevant

88. MLPL included a number of reference projects/sites in its description of individual risks in its risk model, that we consider may not be directly applicable to the Marinus Link project. We asked MLPL to provide an explanation of the lessons or experience relied upon, and relevance of the lessons to the MLPL project that it relied upon in determining the proposed risk allowance. In its response, MLPL states that:

*'MLPL notes that there are no recent precedent projects in Australia which are directly relevant to Marinus Link, given the unique aspects.'*²⁹

89. Whilst we agree that the Marinus Link project has not direct comparator projects in Australia, MLPL provided a table describing how it has applied learnings from major infrastructure projects which it applied to its Risk Allowance assessment:

*'In developing the delivery strategy for the project and as part of assessing the probability and consequence for relevant residual risks, MLPL considered lessons learned from large scale multi-construction package projects in Australian transport and energy sectors, Basslink, and overseas interconnector projects.'*³⁰

90. The table included in MLPL's response focussed on two groups of risks only: interface-related risks, and [REDACTED] risks. However, MLPL appears to have relied on reference projects beyond this list for other risk allowances and, absent evidence to demonstrate the direct relevance to the Marinus Link project, we consider they are likely to result in an overestimate of the risk cost estimate.

3.3.4 Comparison to risk-cost allowances across projects

The risk allowance proposed by MLPL is at the upper end of the range of benchmarks applied by Aurecon

91. MLPL has relied on statements made by Aurecon in its independent review report, such as,

*'With respect to the aggregate contingency allowance, Aurecon notes that the current estimate implies circa 10% of capex which is consistent with benchmarks Aurecon has observed for subsea HVDC projects and recent AER determinations (for HumeLink).'*³¹

92. Also:

*'Aurecon is satisfied with the aggregate risk allowance allocated to the project. Interface risks have been well considered and the allowance allocated is within benchmark range. The approach to risk estimation is well considered given the complexity of the project.'*³²

93. We asked for copies of information relied upon by Aurecon in undertaking its review. MLPL provided a copy of the risk and contingency report, risk model and output from the Monte Carlo risk modelling. These documents have been updated and provided with the RRP. To our knowledge, Aurecon was not provided with additional information, including evidence and artefacts beyond that included in the aforementioned documents, nor did it participate in discussions with MLPL or their advisors in forming the opinion on the risk cost allowance.

²⁹ MLPL response to IR009 Question 4

³⁰ MLPL response to IR009 Question 4

³¹ MLPL-B-011 Attachment 9 – Updated Independent Verification of MLPL costs (Aurecon Advisory) 20250807, page 12

³² MLPL-B-011 Attachment 9 – Updated Independent Verification of MLPL costs (Aurecon Advisory) 20250807, page 12

94. We undertook our own review of the source material referenced by Aurecon relied upon in reporting of the benchmarks. We found that:
- The risk allowances included by Ofgem in its Final Project Assessment (FPA) were in general lower than proposed by each of the proponents,³³ with Ofgem often citing similar reasons as the basis for the reduction in risk allowance, and
 - Once the reductions had been accounted for, the benchmarks were marginally lower than Aurecon had reported, with an average of approximately 8.1%³⁴ and a range from 3.0% to 10.5%.

Proposed risk allowance is higher than included for large transmission projects in Australia

95. Whilst the risk allowance for the Marinus Link project lies within the range reported by Aurecon, including after adjustment, we also compared this with determinations for Project Energy Connect, Eyre Peninsula and HumeLink. In these cases, confined to recent mega electricity transmission projects in Australia, the average risk allowance was approximately 5%.³⁵
96. Neither cohort of projects reflect the specific circumstances of the Marinus Link project, however, they indicate to us that a risk allowance in the range of 5-10% is likely to reflect a reasonable allowance. The risk allowance proposed by Marinus Link is at the top of this range.

Reductions made by Ofgem to the risk allowance proposed by project proponents have a similar thread

97. In reviewing the material cited by Aurecon, we noted that there were a number of similar risks disallowed by Ofgem in its decisions, such as:
- *‘should not include risk allowances that result from inefficiencies. Furthermore, for risks which consumers should be (at least in part) underwriting, the developer should have appropriate mitigation measures in place,’*
 - *‘For example, we rejected risks relating to cable damage, as we believe they are covered by the project’s construction insurance,’* and
 - *‘For example, we are proposing to reject high impact, low probability risk costs, as these should not be taken into account when calculating the preliminary cap and floor levels. As well as removing ineligible risks, we are also proposing to reduce various costs for other risks, by adjusting the assumptions that sit behind these risks so that they are economic and efficient.’*
98. Ofgem sets out examples of what is referred to as ‘potentially eligible risks’ in the regime, to be considered as part of its Post Construction Review (PCR). Ofgem state that *‘These lists are non-exhaustive and it will be the responsibility of project developers to demonstrate that risk-related expenditure meets our eligibility principles in the PCR submission.’*³⁶ We reproduce an extract from this list in Figure 3.2.

³³ With the exception of NeuConnect

³⁴ By referring to HVDC projects only, and excluding the extreme values and Marinus Link, the average reduced to 7.7%.

³⁵ Based on analysis included in EMCa report on HumeLink CPA2 stage 1, Table 4.4 after adjustment to HumeLink risk allowance to 9.6%

³⁶ Final Project Assessment of the IFA2 interconnector to France, Appendix 2

Figure 3.2: Extract from Ofgem FPA assessments for HVDC links

Examples of risks that we would expect to be eligible for our PCR assessment:

- Weather conditions (cable) – harsh weather conditions offshore beyond statistical expectations for that time of year.
- Soil conditions are significantly different to those indicated by the survey, and therefore additional rock placement or ploughing/burial equipment is required.
- TSOs at either end change the connection arrangements or requirements, which leads to new design requirements and/or delays.
- Grid reinforcement works by TSOs are delayed.
- Weather conditions (converter) – site conditions mean that construction is delayed beyond what could have reasonably been expected. This can cover excessive wind, flooding, snow, avalanche etc.
- Unexploded ordnance not detected by adequate surveys result in additional costs.
- Additional remediation costs due to changes in legislation.

Examples of risks that we would expect to be ineligible for our PCR assessment:

- Performance of the project organisation leads to delays or additional costs.
- The cable or converter design is unsatisfactory, leading to additional costs or delays.
- Cable or converters are damaged during transport (unless this is due to third party actions or weather events beyond usual expectations).
- Cable laying vessels break down or are not available as scheduled.
- Cable is damaged during manufacturing.
- Cable damage during installation due to inappropriate practices/use of inappropriate equipment.

99. In general, we found that there was a good level of overlap between the AER guidance and this material from Ofgem.

3.3.5 Accounting for the commercial model and governance structure

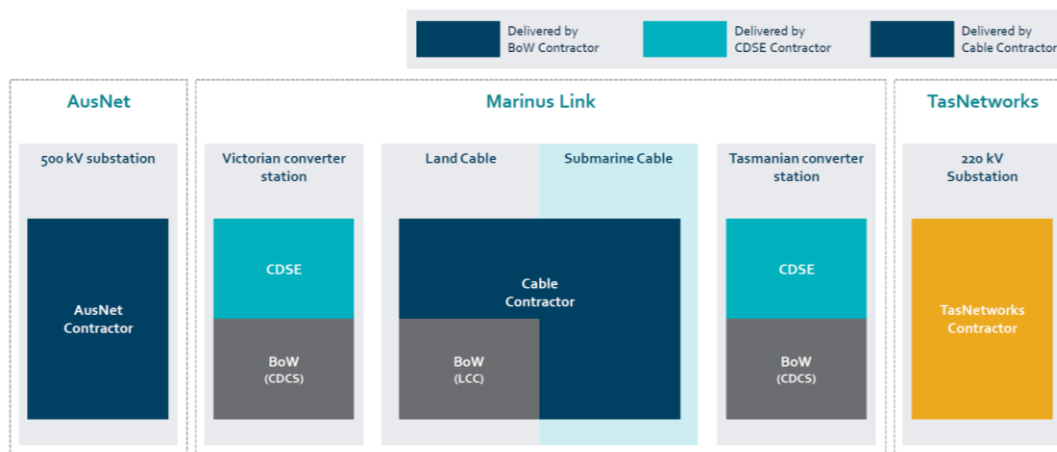
Risk-cost allowances should take adequate account of commercial arrangements

100. We expect that the proposed risk-cost allowances should not act against the incentive provisions that already exist in the commercial models that MLPL has established (or will) to encourage transparency and innovation, such that these and other items may result in costs that are lower than those included in the base estimate. Similarly, risk-cost allowances should take account of any back-to-back commercial arrangements including Liquidated Damages (LDs) that exist to recover costs from contractors (and which may be used to pay recompense under its contractual obligations to other impacted contractors).
101. We suggest that the costs proposed are not in every case consistent with the adopted commercial models and contractual arrangements. We explore these issues further in our review of specific risks, and particularly information provided by MLPL that describes the risk allocation provisions included in each of its contracts that indicates to us that there are mechanisms for recovery of costs, in part or in full, depending on the nature of the risk.

Commercial models vary by contract

102. MLPL has established commercial arrangements covering the scope of works, that includes Engineering Procurement Construction (EPC) (for cables and CDSE) and Incentivised Target Cost (ITC) (for BoW) commercial models as shown in Figure 3.3.

Figure 3.3: Marinus Link Packaging Strategy



Source: MLPL-B-009 Attachment 7 - Updated Explanation of Capital Expenditure Requirements - Risk Allowance (E3), Figure 1 and Marinus Link – AER presentation IR#006, slide 16

MLPL’s project management processes and resources include an IDP which will mitigate interface risks

103. To support the packaging of works and commercial model, MLPL has developed a project structure and governance model including appointment of an IDP, which will assist in managing the delivery of the project and minimising the risk of cost overruns. MLPL also has a framework and processes for the management of interface risks across the contracts and contractors to assist information flows, decision making and early intervention of issues.

Contract pricing reflects the commercial model

104. The three packages have been procured under three different contract pricing approaches as shown in Figure 3.4.

Figure 3.4: Construction Work Package Contract Pricing Approaches

Package	Contract and Pricing Approach	Allowed Adjustment Events
Cable (Awarded to Prysmian on 3 May 2024)	Engineering Procurement Construction (EPC) contract - Lump sum pricing (with partial reimbursable cost)	metals pricing adjustment linked to an index for materials such as aluminium, copper and lead. fuel pricing adjustment linked to an index for marine gas oil for the vessel. landfall horizontal directional drilling adjustment based on labour, bentonite, diesel and HDPE pipe costs linked to relevant indices.
CDSE (awarded to Hitachi on 1 August 2024)	Design and supply contract - Lump sum pricing	transformer price adjustment based on indices linked such as copper, steel, CPI and labour. labour adjustments based on a labour index in Australia and Sweden.
BoW (Class 2 estimate provided, currently being evaluated)	Design and Construct Incentivised Target Cost (D&C ITC) contract - Lump sum and reimbursable cost pricing	The final terms and conditions are to be negotiated. A reimbursable cost model plus painshare/gainshare arrangements will apply in accordance with the ITC contracting structure.

Source: MLPL-B-009 Attachment 7 - Updated Explanation of Capital Expenditure Requirements - Risk Allowance (E3), Table 1

- 105. Each contract and pricing approach has its advantages and disadvantages and is beyond the scope for our review. Importantly, the models each have a different risk allocation with MLPL required to accept a level of risks across and between all contracts.
- 106. To assist our review, we asked MLPL to provide a summary of key contract terms for the cable, converter and BoW contracts, and nominate key terms which expressly describe the risk allocation. We reviewed this information in our review of the individual risk items relating to project delivery, and which we discuss further in section 4.

In some instances, due to the complexity of multiple contractors, MLPL holds a residual delivery risk

- 107. In assessing the proposed allowances for residual project delivery risk borne by MLPL we were mindful of the allocation of time and cost under the three separate contracts (i.e. BOW, CBS, and CDSE), noting that depending on the contract and the risk item, MLPL bears either no residual risk or some risk. For example:³⁷

- [REDACTED]
- [REDACTED]
- [REDACTED]

- 108. In our assessment of the individual project risk allowances, we identify the risk allowances that we considered were reasonable and then identify the factors that led us to consider that the balance of proposed risk allowances is not reasonable (i.e. is overstated).

³⁷ MLPL response to IR006, question 12, MLPL-IR006-Presentation-20250904-CONFIDENTIAL

³⁸ Defined under the contracts [REDACTED] Our reading of the risk allocation for each of the contracts differs from materials provided to us during the onsite presentation

Whilst controls exist to minimise coordination of the interface between contractors, the complexities of the interface results in a residual risk to MLPL

109. MLPL describes a series of risks as derived from interface issues between the three contractors and which despite MLPL’s controls (including the IDP) and the contractors’ interface obligations, are likely to result in a residual exposure to MLPL.
110. Following further enquiry of these risks,³⁹ we now understand that this risk relates primarily to risks that are not able to be attributed to an interface deed or to any one contractor and thereby become the responsibility of MLPL. [REDACTED]
[REDACTED]
[REDACTED]
111. [REDACTED]
[REDACTED]
[REDACTED] In our assessment of interface risks, and specifically the residual risk to MLPL, we consider the extent to which MLPL has established the risk and estimated costs on a reasonable basis consistent with the requirements of the AER guidance materials .

Risk and contingency provisions included in BoW contract

- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]

3.3.6 Importance of alignment to cost allowances proposed for supporting activities

116. Whilst consideration of the cost allowance for supporting activities is beyond our scope of review, there is a direct relationship between risk mitigation provided by supporting activities and the risk allowance.
117. In assessing the proposed risk-cost allowance we have taken account of the aggregate cost allowance proposed for supporting activities (or owner’s cost) in considering the aggregate risk cost allowance, such that the allowable risk cost would be higher were it not for the cost proposed to manage the risk. In our onsite discussion, MLPL confirmed our view that these elements of the costs are indeed directly related, in so far as the labour and indirect costs provide potential risk mitigants for a some of the identified risks.
118. In these instances, we consider that it is not reasonable to propose a high level of owner’s cost (captured by labour and indirect cost) and also to retain the proposed a high level of risk-cost. In reaching a view on the efficient level of cost allowances, the specific conditions of MLPL need to be accounted for.

³⁹ MLPL-IR006-Response Document-20250904-CONFIDENTIAL, response to Question 14

⁴⁰ TasVic Greenlink_RFO-18-23-BOW.D Risk & Contingency Matters provided by MLPL in response to IR006, question 13

3.4 Summary

Proposed risk allowance is at the top-end of the benchmark range

119. The proposed risk-cost allowance is within the range of benchmarks identified by its adviser Aurecon, and whilst we identified the need to make adjustments to the indicated range, these were not material. The analysis did indicate a large range attributable to similar projects, and that the risk allowance proposed for the Marinus Link project is at the top-end of the range of projects selected.
120. For transmission infrastructure projects in Australia, the benchmark range included in AER decisions is consistently lower than proposed by MLPL for Marinus Link.

From a review of the risk model, we found insufficient compelling evidence supporting MLPL's position

121. We sought evidence from MLPL to demonstrate the bases for its assumptions, particularly regarding how it has accounted for contractual offsets/transfer of risk and cost, insurances, and other mitigating provisions such as float in its project schedule to help keep activities off the critical path. Whilst we received some helpful information, in some respects, based on a reasonable interpretation of the information provided for our review, we identified an apparent lack of due consideration of such mitigating provisions – such as for inclement weather.
122. Reference cases generally identified the worst case, which in many cases were not directly applicable to the Marinus Link project – for example citing the Adani Carmichael Coal Mine to draw parallels with social licence challenges that Marinus Link might face is not particularly instructive because of the contentiousness of the former from a number of perspectives. Further, for reference projects that we consider could potentially be useful in demonstrating how MLPL has taken into account the 'lessons' from these projects (e.g. via additional controls), insufficient compelling information was provided about who bore the burden of higher costs and delay.

Application of probabilities and consequences in combination reflect a risk cost estimate that is upwardly biased

123. We consider that in several cases the cost of consequences (often all three scenario estimates) were unreasonably high for the assumed probability that the risk event or risk events leading to residual cost impacts to MLPL would occur. That is, the probability of occurrence was not commensurate with a reasonable view on the cost of consequence arising from the relevant risk event occurring.

Application of project delays as the dominant basis for costing the risk consequence suggests the project will run late

124. We consider that the assumed project delivery timeline should be consistent with the risk-cost allowance, including any consideration of time delays. We observed material time delays incorporated into MLPL's P50 risk cost allowance, not all of which will result in a project schedule delay. However, the magnitude of the aggregate time delay included in the proposed risk cost allowance suggests to us that the risk assessment process followed by MLPL did not adequately consider factors mitigating project delay.
125. Without access to the time-dependency relationships that MLPL has relied upon we are not able to assess the implied aggregate project delay. However, we consider it most unlikely that it is represented by the aggregate of delay-related risk costs included in the risk allowance, suggesting that the risk allowance is overstated in this regard.

Some identified risks are likely to be at least partially covered by existing allowances or are otherwise not reasonable based on the information provided

126. We consider that MLPL has not taken satisfactory account of the AER guidance material available to it, nor has it adequately drawn from AER's interpretation of this guidance in recent determinations regarding matters such as the allowable inclusion of certain risks nor for its estimate of costs associated with these risks. MLPL also has not adequately considered mitigation of identified risks including from management of its own costs, from contract management and incentive mechanisms and contractor contingencies that it has presented to us to ensure that the risk allowance is prudent and efficient.

4 CONSIDERATION OF SPECIFIC RISK COST ALLOWANCES

Further to our assessment of methodology issues in section 3, in this section 4 we have considered the evidence provided by MLPL at an individual project risk level for each of its 60 identified risks, focussing on the top 30 risks. The top 30 risks account for 90% of the proposed risk-cost allowance.

Whilst many of the identified risk events and sources of risks are reasonable, we found evidence of inputs and assumptions relied upon by MLPL that should not be included in a regulatory allowance, or which overstate the likelihood and/or cost impact of specific project risks. We base this assessment on the information provided to us by MLPL with reference to AER guidance, recent AER decisions, consideration of the contracting model proposed by MLPL, and on industry good practice.

We also found evidence that indicates that MLPL has not taken sufficient account of interdependencies in its modelling approach, and specifically of means it has or should have to mitigate the identified risk and limit the cost exposure that it expects to incur.

4.1 Introduction

127. In this section we present our assessment of project specific risks, which provide examples of the issues we identified in section 3.
128. We have focussed our assessment on the top 30 risks, as they account for 90% of the risk cost allowance, as shown in Appendix A. We undertook a targeted review of the remaining lower value risks, based on the issues we identified, and found that these issues similarly exist in these remaining risks.
129. We present the outcomes of our review on an issues basis below. Where we state specific risk-costs, we are referring to the deterministic P50 amounts that MLPL has provided in its risk model, and which sum to the \$448.6 million (nominal) and which after application of its Monte Carlo modelling reduce to \$411.8 million (nominal).
130. MLPL has categorised the risks in eight categories as shown in Table 3.6 and we refer to key issues in those categories in our assessment that follows.

4.2 Consideration of project delivery risks

We consider that some of the proposed project delivery risks are reasonable

131. Where material uncertainty exists and/or risks may emerge beyond the reasonable control of MLPL, inclusion of risk allowance is reasonable to address costs beyond those which it is efficient to eliminate.
132. After considering the risk cause, existing and proposed risk treatments, MLPL's derivation of the cost of the consequences (under the three scenarios), and MLPL's probability that the event leading to the consequences, we determined that many of the proposed risk allowances were reasonable. We consider that accounting for the risk of delay imposed by third parties is reasonable, particularly where the delay is beyond the reasonable control of MLPL (This applies to Risk ID 20 associated with securing a licence, [REDACTED] and Risk ID 119 delay in connection of AusNet).

133. For these risks we consider that the probability of occurrence was aligned to the consequences and that it would not be efficient nor, with the contracts negotiated,⁴¹ possible for MLPL to avoid the proposed residual risks. Further we considered that the risk-costs under each of the Best Case, Most Likely Case, and Worst case were reasonably derived.

Contract provisions exclude some MLPL residual cost impacts

134. Review of MLPL's on-site presentation shows that for some risk events MLPL does not bear residual cost risk (and may not even have to grant an extension of time), as summarised in Figure 4.1.



135. We reviewed each of these risk drivers under the Project Delivery risk category for risk allowances and consider that some of the proposed risk allowances are inconsistent with the representation of contract provisions in Figure 4.1. Where we identified a possible issue, we also cross-checked with further, more detailed information provided by MLPL in response to our information requests.⁴²
136. Two such examples where we found that the residual risk and proposed cost as indicated by the contract provisions was lower than MLPL had assumed in the development of its risk cost include:
- For Risk ID15 (*Inclement weather greater than allowance impacting construction contractors' activities*) – MLPL has proposed a risk allowance of [REDACTED] (P50 approximation) to cover the possibility that the actual inclement weather is greater than the allowances included under the contracts; the cost for the best, most likely and worst case scenarios are derived from delivery delay day rates for each of the three contractors. However, whilst we consider provisions for a risk allowance for inclement weather greater than that provided for in the contract provisions is prudent, our understanding is that cost relief is limited to the CBS contract in a cost sharing arrangement, and therefore to estimate the cost based on delay rates in all contracts overstates the risk.
 - [REDACTED] MLPL's proposed risk allowance includes a cost of delay incurred by the Converter contractor, whereas [REDACTED] and (ii) regardless, the contract excludes a residual liability of MLPL to the Converter contractor for delays from this risk driver.

⁴¹ Based on draft BoW Deed

⁴² Marinus Link – Cable Contract Risk Allocation Matrix – CONFIDENTIAL, Marinus Link – BOW (DRAFT) Contract Risk Allocation Matrix (HSF 130525), and Risk Allocation for the CDSE Contract - CONFIDENTIAL

Inconsistency between qualitative and quantitative likelihood and probability assignment

- 137. MLPL's Risk Rating Matrix⁴³ includes a description of the five Likelihood ratings⁴⁴ with guidance for the commensurate probability of the event occurring. For example, if a risk likelihood is assessed as 'Possible', this is commensurate with a probability of occurrence of between 30% and 60%. MLPL's risk model also includes a quantified probability, which is the basis for deriving the risk cost, as described in section 3.2.3.
- 138. For several project delivery risks, MLPL's quantitative probability is higher than the top of the range of probabilities for the assessed Likelihood. In several cases, the quantified probability is lower than the bottom of the probability range. In each case we considered the alignment of the qualitative and quantitative probabilities with the consequences and the controls. In some cases, we consider that the probability is higher than a prudent level and results in an overestimate of the risk cost allowance for that risk event.
- 139. For example, for Risk ID 64 (*The asset control systems established by contractors fail to meet required performance i.e. SCADA and Metering Systems, resulting consequential impacts on MLPL*) - the residual Likelihood is reasonably rated by MLPL as 'Rare'⁴⁵ but MLPL has assigned a probability of 20%, which is at the mid-point of the 'Unlikely' range. In our view MLPL's assumed consequences are relatively severe and we consider that a lower probability more reasonably aligns with the description of its residual risk assessment, and also the nominated consequence cost.

We found evidence of overstated probability of occurrence for the consequence scenarios

- 140. We took into account MLPL's description of the risk cause, its identified controls (and any other control(s) that we considered it should reasonably introduce), and the contractual risk allocations and limitations and determined, in several cases, that the cost of consequence(s) is overstated.
- 141. MLPL stated that its consequence scenarios are the estimated residual costs to MLPL (under best, most likely and worst cases) *after* accounting for schedule float, contractor contingency, and in the case of the BoW contract, liquidated damages provisions and pain sharing apportionment.
- 142. However, we did not see evidence of the quantum MLPL assumed it would recover from contractors through contract provisions in its derivation of MLPL residual risk cost allowance, with the exception of the off-setting R&C Matters Allowance (refer to section 3.3.5).

[REDACTED]

[REDACTED]

[REDACTED].⁴⁶

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁴³ Provided in several MLPL documents, including in a tab in MLPL's Project Risk Model (AER Submission).xlsx

⁴⁴ Rare, Unlikely, Possible, Likely, and Almost Certain

⁴⁵ Which has a maximum of 10% probability in MLPL's Risk Rating Matrix

⁴⁶ Typically, the liability for LDs arises from error of commission or omission by the contractor

Apparent duplication or overlap with at least one other risk allowance

144. As mentioned in section 3.1, we were concerned that MLPL’s extension of the number of risks from 40 to 60 as part of its RRP was a potential source for duplication, or, more likely, to introduce overlap of two or more risks. We note that MLPL stated at our onsite meeting that it had only included risks that were mutually independent. Nonetheless, our review identified several cases where, based on MLPL’s own risk description, risk causes, and consequence scenarios, the risk allowance appears to be duplicative or otherwise overlaps with the provisions under a related risk(s). For example,

- Risk ID 3F (*Interface milestones is not achieved by a contractor impacting another contractors ability to perform work*) – MLPL’s description of the risk causes include poor project planning and sequencing, delays caused by external factors (e.g. weather, regulatory intervention, cyber-attack, etc), contractor failing to achieve a preceding key milestone, and ineffective communication and/or coordination between contractors. We consider that MLPL has included one or more of these risks in other risk allowance line items such as Risk IDs 3A, 3B, 3C, 3E per communication issues, Risk ID 15 per weather-related delays, Risk ID 50 per regulatory intervention, and [REDACTED].

[REDACTED]

Insufficient recognition of MLPL’s and/or the contractor’s ability to mitigate costs

145. We identified several cases in which we consider that the cost of consequence is overstated under one or more of the scenarios because MLPL does not appear to have accounted for in full or in part the ability for itself and/or the impacted contractor(s) to rearrange its work at relatively low cost to avoid relatively high delay costs. [REDACTED]

[REDACTED]

146. [REDACTED]

4.3 Consideration of compliance and legal risks

Inclusion of reasonable risks due to change in conditions outside of reasonable control of MLPL, given rapid change in pace of requirements

147. In a context of rapidly changing generation mix and market conditions, planning and regulatory bodies are rapidly pivoting to ensure that the electricity systems remain safe, secure and reliable. In the time that the Marinus Link project will be developed, we are likely

to witness further refinement of project requirements, including those related to testing and commissioning of major projects, in response to greater complexity in operating the power system through the addition of large renewable projects. This heightens a possible risk that testing and commissioning may be impacted despite the controls that MLPL has or will have in place.

148. We initially considered that the residual risk relating to AEMO guidance and unclear expectations arising from the market did not align with the risk assessment, however the nature of testing and commissioning is such that delay times and re-work can quickly escalate. Based on this activity being on the critical path and involving all primary contractors this remains a key risk for the project, and inclusion of a risk allowance is reasonable.
149. In relation to the change in baseline obligations, under the offshore crossing and proximity agreement, this too represents a risk beyond the reasonable control of MLPL. The uncertainty surrounding the potential for last-minute technical or legal conditions imposed by third-party infrastructure owners, suggests this risk is reasonably estimated.

4.4 Consideration of procurement and commercial risks

We consider that many of the proposed procurement and commercial risks are reasonable

150. Where material uncertainty exists and/or risks may emerge beyond the reasonable control of MLPL, inclusion of risk allowance is reasonable to address costs beyond that which it is efficient to eliminate. For example, we consider that the risk described in Risk ID 25 (*Missed cable manufacturing slots*) is reasonable, despite the manufacturing slots for both land and marine cables having been contractually secured in advance, and with adequate float built into the project schedule between contract commencement and manufacturing start as stated by MLPL. MLPL has included reference projects in its description of this risk and assigned a reasonable probability to the risk event. We consider that the current global demand (and competition) for transmission equipment and potential 'congestion' of projects across suppliers further supports retaining a risk allowance based on the impact to the project and critical path.

We identified several risks where we consider that MLPL has not demonstrated that it has adequately considered provisions that it has proposed within its ITC commercial model and support functions

151. We consider that productivity rates and subcontractor pricing forms part of the controls within the ITC framework. Under the pain/gain share mechanism, we expect that the additional cost of productivity levels that differ from that assumed in the TOC will be shared. However, it is unlikely that the contractor would have provided a price where it is less likely than more likely that they will be achieved. Thus, it is reasonable to assume this risk is symmetrical.
152. To the extent that these changes are linked to site conditions, MLPL has included other risk allowances relating to latent conditions differing from those assumed, and which, in general provide reasonable additional allowances over and above that which can be reasonably recouped through the contract provisions.
153. In other cases, in addition to the commercial controls, MLPL also has proposed a cost allowance for its supporting functions that amongst other things, provide for significant project and contract management resources. These resources (controls) are designed to help ensure that the contractor achieves the project outcomes, with early identification and intervention to mitigate potential risks to time delay and/or cost variances. We consider that in some cases, and subject to the AER's consideration of the efficiency of these costs, MLPL has not sufficiently considered the role that these functions have on mitigating potential risk allowances.

Changes in scope and design are a matter for MLPL

154. We consider that changes to the BOW scope and design are within the MLPL’s control, and it is unlikely that issues arising from negotiation of the BoW contract will result in the redesign of CBS and CDSE contracts because they are largely dictated by the international market. Nonetheless, we expect that these issues are likely to have been resolved prior to commencement of the project.

155. [Redacted text block]

156. We also understand that MLPL has already acquired the converter station sites.

157. We consider that the proposed cost allowance is likely to be sufficient without the additional risk allowance, as the reference sites relied upon to justify an additional risk allowance relate to above ground infrastructure, which comprise a small portion of the proposed Marinus Link project.

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

⁴⁷ MLPL-B-011 Attachment 9 - Updated Independent Verification of MLPL costs (Aurecon Advisory) 20250807, page 100
⁴⁸ MLPL-B-011 Attachment 9 - Updated Independent Verification of MLPL costs (Aurecon Advisory) 20250807, page 100
⁴⁹ AER Determination | Transgrid | HumeLink Stage 2 Delivery Contingent Project, August 2024.

168. As described, the cost consequences align with an extreme example and are not commensurate with the assigned probability of this risk event. Other more probable consequences are likely attributed to contractors with minimal exposure to MLPL.
- MLPL states that the risk cannot be fully eliminated beyond 20% and has costed the risk based on delays and decreased productivity of the cable offshore contract in the event of a risk event. [REDACTED]
170. To the extent that there is insufficient cover by existing contracts, if there are areas not sufficiently served by the combination of contracts and not able to be met by insurance, then the residual risk is likely to be much lower than MLPL has included.
171. We consider that inclusion of a risk of delays caused by [REDACTED] (Risk ID112) is reasonable, to the extent that similar provisions have not been included in cost allowances captured elsewhere in the project cost. However, we found that the cost consequence calculated by MLPL has not been adequately matched to the assessed likelihood ('Low').
172. MLPL's risk controls include route development, use of construction methodologies to avoid [REDACTED]. In our view, the time delay impacts assumed by MLPL of [REDACTED] (for the scenarios) costed at the total BoW delay rate results in an overstated risk allowance. [REDACTED] however the extent of the assumed time delay (across all sites) and associated cost to the project appears to be unlikely.
173. Whilst not included in the top 30 risks, we found further examples including:
- [REDACTED] However, the basis for a time delay to contractors, which is the basis for the proposed cost, is not adequately established by MLPL. Whilst a cost may be incurred, we consider there are likely lower cost alternatives than MLPL has proposed.
 - MLPL has included Risk ID9 (*Cost uncertainty to achieve sustainability goals*). However, according to Attachment 4 of the RRP, the application of a sustainability rating is not a mandatory requirement for energy projects and therefore is not mandatory for the Marinus Link project.⁵⁰ Setting and achieving a rating determined by the Infrastructure Sustainability Council (ISC) rating is included in the supporting activities, with MLPL having included both costs to the project and a requirement for Contractors to report. We consider that the product of this work is within reasonable control of MLPL to determine and therefore is not a reasonable cost to consumers.

⁵⁰ MLPL-B-006 Attachment 4 - Revised Explanation of Capital Expenditure Requirements - Support Activities 20250807

these risks are within MLPL's reasonable control and should not be included in risk cost allowances to be paid for by consumers.

179. For Risk ID 37 (*Changes in cable route are outside that identified in the Planning Scheme Amendment (PSA) and Specific Controls Overlay (SCO)*), the risk event is not as described or used as the basis for costs. We therefore consider that they should largely be accommodated within existing time and scope provisions such that the most likely value is zero, or that they should be within the reasonable control of the TNSP and not passed onto consumers.
180. Similarly, whilst not a top 30 risk, we consider that the controls and cost recovery potential from the relevant contractors⁵⁴ have not adequately been accounted for in Risk ID 64 (*The asset control systems established by contractors fail to meet required performance i.e. SCADA and Metering Systems, resulting consequential impacts on MLPL*).

4.9 Summary

We considered each of the individual risk costs in our assessment

181. This section 4 provides a summary of our assessment of the individual project risk events, focussing on the top 30 risks. The top 30 risks account for 90% of the proposed risk-cost allowance, and we have referred to the individual risk as examples of the issues that we identified.

Whilst MLPL has defined a reasonable risk event in most cases, there are many instances where, based on the information that we were provided, the risk cost allowance was not formed on a reasonable basis

182. Many of the proposed risk events are consistent with the risk events we had expected to find included for a project of this complexity.
183. After considering the risk cause, existing and proposed risk treatments, MLPL's derivation of the cost of the consequences (under the three scenarios), and MLPL's probability that the event leads to the consequences, we determined that many of the proposed risk allowances were reasonable. We consider that accounting for the risk of delay imposed by third parties is, in general reasonable, particularly where the delay is beyond the reasonable control of MLPL. Where material uncertainty exists and/or risks may emerge beyond the reasonable control of MLPL, inclusion of risk allowance is reasonable to address costs beyond that which it is efficient to eliminate.
184. However, in other cases we found examples of risk events where MLPL did not demonstrate a reasonable basis for inclusion of the risk, or that MLPL had sufficient control over the risk event that the cost should not be borne by consumers.
185. For many of the risks we reviewed, we found evidence of one or more of the issues identified in section 3 of this report, and which resulted in an overstatement of the risk cost.

Risk costs that result from contracted items formed a large part of the proposed risk allowance

186. The risk category of Project Delivery included the majority of risks by number (39%) and by value (58%) compared with other risk categories. Given the contribution of project delivery risk, and the relationship that many of the risks had to the individual contracts and contract terms, we considered the contract information provided by MLPL. Specifically, we referred to the descriptions of risk allocations between each of the contractors and MLPL to better understand the residual risks to MLPL.
187. As a TNSP, MLPL has mechanisms to manage the prioritisation and sequencing of costs associated with decisions within its control, and these are not costs that should be borne by

⁵⁴ The key risk cause cited by MLPL is 'inadequate design of control and protection systems by contractors'

consumers. Furthermore, while MLPL states that it has accounted for the risk of additional costs, we have considered in our review the extent to which these cost uncertainties are likely to be symmetrical; to the extent that this is the case, then it is important to see the symmetrical nature of these risks adequately accounted for in the derivation of an aggregate risk-cost allowance.

188. We found that MLPL had not demonstrated that it had sufficiently taken account of existing allowances where provision was included or is expected to be already included in the contracting models, and associated recovery methods. This included contracting information that was provided to us that indicates that contract provisions exclude some MLPL residual cost impacts.

5 IMPLICATIONS FOR PROPOSED RISK ALLOWANCE

Our assessment has considered the methodology applied by MLPL in forming its risk cost allowance and in the probabilities and consequences of each of the specific risks that MLPL has identified in its proposed risk allowance.

We consider that a risk-cost allowance for this project is reasonable in principle, however we consider that significant components of this allowance are not justified and not consistent with AER's guidelines on such allowances.

We focussed on issues that materially contribute to the level of overstatement of risk allowance that we had identified, on the basis that a level of uncertainty exists in any estimate of risk cost allowance.

Overall, we consider that the proposed risk allowance is overstated by between 30% and 45%, and corresponds to a risk allowance of between 5.0% and 7.0% of the total proposed capex.

5.1 Summary of our assessment

MLPL's application of its risk-cost estimation methodology has led to an overstatement of its required risk cost allowance

189. We consider that the Monte Carlo simulation methodology that MLPL has utilised, and the process by which it has sought to identify and to quantify individual risks and their associated costs, is reasonable. As a result, many of the individual risk items proposed by MLPL are commensurate with risk events common to projects of this complexity, and for many items we consider that the risk allowance has been formed on a reasonable basis.
190. However, we have also identified specific risk-cost allowances that are not consistent with the requirements of the AER guidance materials, or which overstate the likelihood and/or cost impact of specific project risks. We also consider that some of the proposed risks and uncertainties for which MLPL has claimed a risk-cost allowance are not independent and, because of the influence of compounding uncertainty factors, the aggregate risk-cost is more likely than not to result in an overstatement of requirements. For example, we found evidence of:
- Absence of artefacts that evidence the assumptions that MLPL has relied upon, including the assumptions for time delay and cost that have been applied by MLPL, we formed the view that they undervalue MLPL's ability to mitigate the identified risk
 - Risk and contingency allowances included where provision was included or is expected to be already included in the contracting models, and associated recovery methods
 - Contract provisions exclude some MLPL residual cost impacts
 - Inconsistency between qualitative and quantitative likelihood and probability assignment
 - Overstated the probability of occurrence for the consequence scenarios, and
 - Duplication or overlap with one or more other risk items.

Overall, the combination of assessment methods that we have applied indicates that the proposed risk cost allowance is overstated

191. We also compared our bottom-up assessment against other metrics, including the extent to which interdependencies and interactions between risks have been accounted for, and reference to the aggregate risk allowance as a percentage of the total project cost, including by reference to other projects. From these assessments, we also concluded that the proposed risk cost allowance is overstated.
192. We cannot rule-out additional risks eventuating that neither we nor MLPL has identified, and our assessment should not be read as forming a definitive position on the exact risks and contingencies that may be incurred by the project. However, MLPL has not demonstrated that what it has proposed is a prudent and efficient aggregate forecast.

5.2 Implications for proposed expenditure

Our assessment approach has focussed on issues of materiality to the proposed risk allowance

193. In considering the extent to which MLPL's proposed risk allowance is overstated, we focussed on issues that materially contribute to the level of overstatement of risk allowance that we had identified, on the basis that a level of uncertainty exists in any estimate of risk cost allowance. Our approach consisted of the following steps:
- Considered the justification for each of the 60 risks identified by MLPL, with an emphasis on the top 30 risks
 - Considered the extent to which each risk met the requirements of the AER guidelines and good practice
 - For each risk, then considered reasonable alternative parameters for probability and/or cost of consequence and/or extent to which the risk causes and controls may correlate with / overlap with other risks, and
 - Identified the aggregate deterministic impact of our assessment, and interpolated the impact on the P50 risk allowance.
194. We have taken account of the aggregate cost allowances proposed for supporting activities (or owner's cost) and also MLPL's estimate of its BoW costs in considering the aggregate risk cost allowance. We consider that in some cases, and subject to the AER's consideration of the efficiency of these costs, MLPL has not sufficiently considered the interaction of these cost allowances, and specifically the allocation of risk assumed in these allowances. We summarise our consideration of the specific risk costs in Appendix B, and which we present against two scenarios.

The proposed risk cost allowance is overstated by between 30% and 45%

195. Taking account of the elements that we have reviewed, we consider that MLPL's proposed risk-cost allowance is overstated by between 30% and 45%, corresponding with the scenarios presented in Appendix B. This range corresponds to an approximate risk allowance of between \$199 million (real 2023) and \$256 million (real 2023), and is indicative of a risk allowance of between 5.0% and 7.0% of the total proposed capex. At this level, the risk allowance is within the benchmark range of risk allowances discussed in section 3 of this report.

The risk cost allowance included in MLPL's updated revised proposal has not materially changed

196. Following submission of our draft report, the AER requested that we consider whether the risk allowance included in MLPL's updated revised proposal dated 17 October was likely to change the substance of our advice.

197. In its updated revised proposal, MLPL has proposed a reduction to the capex forecast by \$39.2 million, with \$29.6 million in the regulatory period including a reduction to the proposed risk allowance of \$1.5 million following updating of its risk model. The movement in risk allowance, whilst directionally consistent with our advice, is not material in aggregate or as a percentage of the proposed capex forecast to address the issues that we have identified in our report.

APPENDIX A – SUMMARY OF TOP 30 RISKS

198. In the Table A.1 we provide a summary of the top 30 risks identified by MLPL that we refer to in our assessment. The top 30 risks account for 90% of the proposed risk-cost allowance of \$448.6 million (deterministic approximation, in nominal terms), resulting in the Monte-Carlo derived P50 allowance of \$363 million (real 2023).

Table A.1: Summary of top 30 risks, \$m nominal

Top 30 ID	Risk ID	Risk title	Controlled risk rating	Risk category	Prob (%)	P50 approx (\$m)
		[REDACTED]				
2	66	Loss or damage to the asset, the works, goods/materials or contract documentation	2-Medium	Project Delivery	20%	28.6
		[REDACTED]				
4	50	Changes in AEMO expectations and unclear guidance in an evolving industry	2-Medium	Compliance and Legal	45%	21.1
5	52	MLPL receives more onerous environment and planning approval conditions than anticipated in baseline conditions	2-Medium	Environmental	40%	20.7
		[REDACTED]				
7	3C	Design changes not communicated / coordinated between contractors	2-Medium	Project Delivery	60%	19.0
8	65	Shortage of skilled labour resources impacting construction activities	2-Medium	Project Delivery	75%	18.3
9	25	Missed cable manufacturing slots	2-Medium	Procurement and Commercial	5%	18.0
		[REDACTED]				
		[REDACTED]				
		[REDACTED]				
13	15	Inclement weather greater than allowance impacting construction contractors' activities	2-Medium	Project Delivery	55%	13.6

Top 30 ID	Risk ID	Risk title	Controlled risk rating	Risk category	Prob (%)	P50 approx (\$m)
29	26	MLPL Service provider costs escalate over time above existing allowances	2-Medium	Procurement and Commercial	45%	4.7
30	32	Unforeseen environmental incident occurs within project area	2-Medium	Environmental	20%	4.6
Sub-total top 30 risks						404.0
Sub-total remaining risks						44.6
Total all risks						448.6

Source: EMCa analysis of MLPL Project Risk Model (AER submission)

APPENDIX B – ALTERNATIVE SCENARIOS FOR RISK COST ALLOWANCE

199. We summarise our consideration of the specific risk costs in Table B.1, which we present as Scenario A and Scenario B.
200. In Scenario A, we estimate the risk allowance after having applied what we consider to be reasonable alternative parameters for probability and/or cost of consequence and/or the extent to which the risk causes and controls may correlate with / overlap with other risks.
201. Notwithstanding that the onus is on MLPL to evidence the basis of its assumptions in proposing a prudent and efficient risk allowance, we account for the potential for uncertainty in our own alternative parameters through Scenario B. In Scenario B, for each of the individual risks assumed to be overstated, we have increased the alternate P50 estimate to the midpoint of MLPL's P50 estimate and our Scenario A alternative P50 estimate.

Table B.1: Alternative scenarios for risk cost allowance, \$m nominal

Top 30 ID	Risk ID	Risk title	Risk category	P50 approx	Summary	EMCa comment	Alternate P50 approx (Scenario A)	Alternate P50 approx (Scenario B)
		[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]		
2	66	Loss or damage to the asset, the works, goods/materials or contract documentation	Project Delivery	28.6	Assume overstated	Overstated consequence assumptions given that it is only for costs that cannot be recovered from the party at fault (noting that each of them must maintain insurance).	7.1	17.9
		[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]		
4	50	Changes in AEMO expectations and unclear guidance in an evolving industry	Compliance and Legal	21.1	Assume retain	This is an acceptable risk for inclusion.	21.1	21.1
5	52	MLPL receives more onerous environment and planning approval conditions than anticipated in baseline conditions	Environmental	20.7	Assume overstated	Insufficient consideration of project float and contingency allowances, and of the scale of impact of this risk to the scope of works.	10.3	15.5
		[REDACTED]	[REDACTED]		[REDACTED]	[REDACTED]		

Top 30 ID	Risk ID	Risk title	Risk category	P50 approx	Summary	EMCa comment	Alternate P50 approx (Scenario A)	Alternate P50 approx (Scenario B)
		[REDACTED]						
7	3C	Design changes not communicated / coordinated between contractors	Project Delivery	19.0	Assume overstated	The risk allowance is overstated given (i) the controls that MLPL has identified and should have in place, and (ii) overlap with related risk events that have not been adequately accounted for.	9.5	14.2
8	65	Shortage of skilled labour resources impacting construction activities	Project Delivery	18.3	Assume retain	This is an acceptable risk for inclusion.	18.3	18.3
9	25	Missed cable manufacturing slots	Procurement and Commercial	18.0	Assume retain	This is an acceptable risk for inclusion.	18.0	18.0
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Top 30 ID	Risk ID	Risk title	Risk category	P50 approx	Summary	EMCa comment	Alternate P50 approx (Scenario A)	Alternate P50 approx (Scenario B)
						████████████████████ ████████████████████		
13	15	Inclement weather greater than allowance impacting construction contractors' activities	Project Delivery	13.6	Assume overstated	Whilst weather impacts beyond the contractual allowances are possible, costs are overstated based on MLPL's assumption of delay to all contracts and has not sufficiently taken account of contractual provisions to share costs.	1.4	7.5
14	3A	Interface scope gaps and/or overlaps between contractors	Project Delivery	12.9	Assume removed	Considered to be within TNSP control and MLPL has included costs for support activities to manage interface risks.	-	-
15	122	Additional Tipping amounts and Topsoil for access track reinstatement dependent on landholder requirements	Project Delivery	12.1	Assume overstated	Probability is overstated when paired with the consequence scenarios assumed.	8.0	10.1
16	100	Repeated failure of a testing or commissioning requirement (Project)	Project Delivery	10.7	Assume overstated	Risk is overstated, as it is largely a contractor risk, with insufficient consideration by MLPL of cost recovery from the causal party, schedule float, and contingency in schedule.	4.8	7.7
17	3G	Delayed or inaccurate inputs from third parties (externals) such as AEMO, Ausnet Services and TasNetworks	Project Delivery	10.2	Assume retain	This is an acceptable risk for inclusion.	10.2	10.2

Top 30 ID	Risk ID	Risk title	Risk category	P50 approx	Summary	EMCa comment	Alternate P50 approx (Scenario A)	Alternate P50 approx (Scenario B)
18	57	A Critical Electronic Component Market Event occurs, incurring additional cost of electronic components	Procurement and Commercial	8.7	Assume retain	This is an acceptable risk for inclusion.	8.7	8.7
19	56	Uncertainty regarding future Operations and Maintenance contractor's requirements results in changes during the design and construction phase of the project	Technical / Design / Commissioning	8.1	Assume removed	Considered to be within TNSP control.	-	-
20	3B	Misalignment between contractors in coordinating on-site and construction activity	Project Delivery	8.0	Assume overstated	This is a reasonable risk to account for because of the interface complexities. However, the consequences are overstated given the stated controls and potential duplication with other risk allowances.	4.2	6.1
21	112	Unidentified flora and fauna during construction	Environmental	7.8	Assume overstated	Assumed probability of delay from discovery of unknown sensitive flora or fauna is reasonable, however the consequence is overstated (i.e. when paired with the probability).	3.9	5.9
22	11	The proposed burial depth of the cable may need to be increased to satisfy the insurer's requirements	Technical / Design / Commissioning	7.3	Assume overstated	Given the quality of controls including expert advice and insurer's requirements, the probability is overstated.	0.7	4.0

Top 30 ID	Risk ID	Risk title	Risk category	P50 approx	Summary	EMCa comment	Alternate P50 approx (Scenario A)	Alternate P50 approx (Scenario B)
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
25	90	Land cable civil installation works are incorrectly constructed leading to damage of the cable system	Project Delivery	6.2	Assume removed	Risk has not been sufficiently justified, including why this risk should not be the sole technical and commercial responsibility of the Contractor.	-	-
26	13	Unforeseen contamination at the Tasmanian converter site and/or the land cable Route (impacting to Balance of Works Contract)	Technical / Design / Commissioning	6.1	Assume overstated	Costs for stated probability have not been sufficiently justified, including the basis for additional costs of re-routing 10km of cable due to unforeseen contamination.	4.3	5.2
27	29	Replacement of contractor due to reasons outside MLPL control	Procurement and Commercial	6.0	Assume retain	This is an acceptable risk for inclusion.	6.0	6.0
28	36	Changes to executed contracts, resulting from changes in scope and design during negotiations phase	Procurement and Commercial	5.1	Assume removed	Considered to be within reasonable TNSP control and/or should have been resolved prior to determination of	-	-

Top 30 ID	Risk ID	Risk title	Risk category	P50 approx	Summary	EMCa comment	Alternate P50 approx (Scenario A)	Alternate P50 approx (Scenario B)
		with preferred Balance of Works Contractor				a reasonable estimate of required capex.		
29	26	MLPL Service provider costs escalate over time above existing allowances	Procurement and Commercial	4.7	Assume removed	Not sufficiently justified. Assumed to be included as part of supporting activity costs (which are beyond the scope of our review) and within TNSP control.	-	-
30	32	Unforeseen environmental incident occurs within project area	Environmental	4.6	Assume overstated	Insufficient justification of consequences, with a lower likelihood rating more likely than has been assumed. Other more probable consequences are likely attributed to contractors with reduced exposure to MLPL.	2.3	3.5
		Sub-total top 30 risks		404.0			216.4	280.0
		Sub-total remaining risks		44.6			29.6	36.2
		Total all risks (nominal)		448.6			246.0	316.1
		Total reduction from proposed					-45%	-30%

Source: EMCa analysis of MLPL Project Risk Model (AER submission)