

Marinus Link Project - Risk Allowance Report



E3 Advisory

Client: Marinus Link PTY LTD

Date: 14 November 2024

CONFIDENTIAL

MARINUS
LINK



Version Control

Revision	Date	Author	Reviewed By	Comments
1.0	14/11/2024	E3 Advisory	Marinus Link	Initial Revenue Proposal Submission – Risk Allowance Report



Table of Contents

1	Introduction and purpose	1
1.1	Purpose.....	1
1.2	Scope of Report	1
1.3	National Electricity Rules and AER Guidelines.....	1
1.4	Structure of this document.....	2
2	Overview of residual risks	3
2.1	Risk context	3
2.1.1	Work packages and contract model	3
2.1.2	Contract pricing approach	3
2.2	Overview of top 20 residual risks	5
3	Approach to developing risk allowance	12
3.1	Overview of risk approach.....	12
3.2	Risk identification process.....	12
3.3	Approach to determining risk allowance.....	12
3.4	Qualitative Risk Analysis	13
3.4.1	Probability-Impact Assessment	13
3.4.2	Risk Categorisation	13
3.4.3	Project Risk register	13
3.5	Quantitative Cost Risk Analysis.....	13
3.5.1	Scenario Analysis	13
3.5.2	Monte Carlo simulation	14
4	Risk review and management	15
4.1	Risk management framework.....	15
4.2	External risk expertise	15
4.3	Executive review.....	16
5	Finalisation of risk allowance	17
Appendix A	Project risk register	
Appendix B	Risk matrix	
Appendix C	Risk workshop schedule	
Figures		
Figure 1 - Marinus Link Packaging Strategy		3
Figure 2 - MLPL approach to determination of risk allowance.....		12



Tables

Table 1 - Construction Work Package Contract Pricing Approaches	4
Table 2 - Top 20 residual risks.....	5



1 Introduction and purpose

1.1 Purpose

This report is an attachment to the formal submission of the Marinus Link Revenue Proposal – Part B (Construction costs).

The purpose of this report is to:

- describe the process undertaken by Marinus Link Pty Ltd (MLPL) to estimate the risk cost allowance ('risk allowance') that has been included in its Revenue Proposal, with the assistance of external expert advisors; and
- describe the process to be undertaken by MLPL to estimate an updated risk allowance in its revised Revenue Proposal,

with the objective of identifying, managing and costing risks in accordance with the regulatory requirements and AER guidelines.

1.2 Scope of Report

This report has been prepared by E3 Advisory Pty Ltd (E3 Advisory) as part of a review of the risk analysis undertaken by MLPL to estimate a risk allowance for inclusion in its Revenue Proposal – Part B (Construction costs). E3 Advisory has provided assistance to MLPL to estimate the risk allowance, along with the assistance of expert advisors to identify and quantify risk, refer section 4.2 for details of the advisors that have provided assistance. This report provides a review and explanation of:

- the nature, boundaries and key characteristics of risks that could arise during the development and construction phases of the Marinus Link project ('Marinus Link' or 'Project');
- the reasons why these risks will remain with MLPL and why it is not feasible or efficient to transfer risks to contractors or mitigate these risks through insurance, hedging or pass through events;
- the approach and methodology undertaken to derive an efficient and prudent cost allocation profile for these risks; and
- an overall summary of the approach taken to estimate MLPL's risk allowance as a key for the construction phase of the project.

The scope of this report is limited to the current assessment of the risk allowance, reflecting the current status of the procurement process. It considers the extent of the risk analysis completed to date, with two out of three construction packages awarded. Additionally, it describes the ongoing process that will continue in parallel to provide an updated risk allowance to the AER, as part of a revised Revenue Proposal. The updated risk assessment and estimate of risk allowance will take into account the outcome from the Balance of Works (BoW) contractor procurement and the resulting risk allocation.

1.3 National Electricity Rules and AER Guidelines

Chapter 6A of the National Electricity Rules (NER) outlines the AER's general obligation to make determinations for Transmission Network Service Providers (TNSP) in respect of prescribed transmission services. The AER provides guidance on its approach to regulatory assessments for actionable Integrated System Plan (ISP) projects within the economic regulatory framework set out in the NER.



The AER guidance note¹ on the regulation of actionable ISP projects states that it can accept a project risk allowance by assessing the residual risks identified by the TNSP and the efficiency of the associated cost estimates and the consequential cost adjusted to reflect the likelihood of occurrence.

To inform its assessment, the AER expects a TNSP to comprehensively and transparently identify and assess the different project risks for which it is seeking a risk allowance. In practice, this requires:

- risk identification: clearly identifying the risk events for which a risk allowance is being sought; and
- risk cost assessment: estimating the potential cost impacts, estimating the likelihood of occurrence of the consequential costs being incurred and identifying any mitigation/management strategies.

The residual risk identification process seeks to identify residual risks that cannot reasonably be expected to be managed by MLPL, transferred to a contractor, or covered by insurance or pass through events. The AER has provided examples of risks that are generally reasonable to include an allowance for. These include:

- risks that are related to realistic latent condition with the site, e.g. encountering rock on the site;
- risks associated with actions or requirements of a third party that cannot be reasonably addressed through contractual terms; and
- risks associated with events that are outside a TNSP's control.

1.4 Structure of this document

The remainder of this document is structured as follows:

- Section 2: Provides a summary of the residual risks
- Section 3: Describes the approach to developing the risk allowance
- Section 4: Outlines the risk review and management process
- Section 5: Outlines the next steps to update the risk allowance in MLPL's revised Revenue Proposal
- supporting Appendices:
 - Appendix A: Project Risk Register
 - Appendix B: Marinus Link Risk Rating Matrix
 - Appendix C: Marinus Link Risk workshop schedule.

¹ AER, *Regulation of actionable ISP projects*, Guidance note, March 2021,



2 Overview of residual risks

2.1 Risk context

2.1.1 Work packages and contract model

Marinus Link will be delivered under three construction work packages, procured under individual competitive procurement processes:

- Cable Supply and Installation (Cable) package for the supply and installation of the High-Voltage Direct Current (HVDC) cable (*procured*);
- Converter Design and Supply Equipment (Converter Equipment or CDSE) package for the design and supply of the converter equipment (*procured*); and
- Balance of Works (BoW) package for the design and construction of the converter stations (civil and ancillary works) that house the converter equipment, the onshore civil works for the cable and connection to the electricity network. (*Currently in the procurement phase with market tenders due to be submitted in March 2025*).

The Marinus Link packaging strategy is shown diagrammatically in Figure 1.

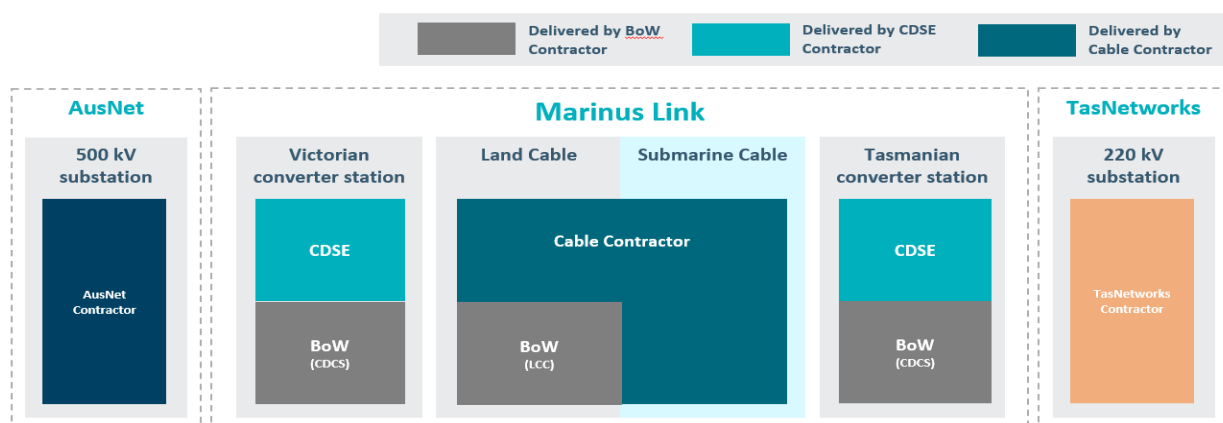


Figure 1 - Marinus Link Packaging Strategy

2.1.2 Contract pricing approach

The selection of contract pricing approach for each of the three packages is based on the level of certainty around the scope of work and the market's capacity to offer fixed pricing.

Elements of the scope subject to significant fluctuations, beyond the control of MLPL or the contractor - such as commodities, labour and materials - have been included as adjustment events within the contract. This strategy aims to better manage the risk and avoid MLPL paying high risk premiums charged by the contractor for accepting the risk of price fluctuations.

The three packages have been procured under three different contract pricing approaches as outlined in Table 1.



Table 1 - Construction Work Package Contract Pricing Approaches

Package	Contract and pricing approach	Allowed Adjustment Events
Cable <i>(Awarded to Prysmian on 3 May 2024)</i>	Engineering procurement construction (EPC) contract - Lump sum pricing (with partial reimbursable cost)	<ul style="list-style-type: none"> 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 <i>(awarded to Hitachi on 1 August 2024)</i>	Design and supply contract - Lump sum pricing	<ul style="list-style-type: none"> 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 <i>(under procurement)</i>	Design and construct incentivised target cost (D&C ITC) contract - Lump sum and reimbursable cost pricing	To be confirmed in the revised Revenue Proposal submission following market testing during competitive procurement.

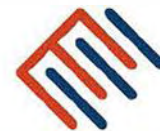


2.2 Overview of top 20 residual risks

The estimated risk allowance associated with the delivery of Marinus Link is \$ [REDACTED] m (nominal). Table 2 provides an overview of the top 20 residual risks. The residual risks identified below are not in order of quantified costs and are ranked based on the residual risk rating only. The risk register contained in Appendix A contains 40 residual risks that may arise during the development and delivery phase of the Marinus Link. Chapter 9 of the Revenue Proposal contains the nominated pass through events by MLPL. If the nominated pass through events are not accepted, they will be included in the project risk register and risk allowance in the revised Revenue Proposal submission.

Table 2 - Top 20 residual risks

No	Risk	Description	Residual Risk Rating	Key Risk Controls / Treatments	Why the risk cannot be efficiently mitigated, transferred or avoided
1					
2					
3					



No	Risk	Description	Residual Risk Rating	Key Risk Controls / Treatments	Why the risk cannot be efficiently mitigated, transferred or avoided
7					
8					
9					



No	Risk	Description	Residual Risk Rating	Key Risk Controls / Treatments	Why the risk cannot be efficiently mitigated, transferred or avoided



No	Risk	Description	Residual Risk Rating	Key Risk Controls / Treatments	Why the risk cannot be efficiently mitigated, transferred or avoided
20	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

3 Approach to developing risk allowance

3.1 Overview of risk approach

The estimated risk allowance has been established through quantification of Marinus Link’s residual risks and in consideration of the Marinus Link risk profile. The approach, illustrated in Figure 2, combines the qualitative risks analysis elements of the MLPL Risk Framework with a detailed Quantitative Cost Risk Analysis (QCRA).

3.2 Risk identification process

The risk identification process undertaken has included the following formal sessions:

- interdisciplinary risk workshops;
- functional monthly risk update meetings;
- legal and commercial contractual risk allocation meetings;
- one-to-one meetings, discussions, and updates with risk owners; and
- risk reviews by senior leadership and independent experts.

Attendees have included internal functional team members, internal risk owners, internal and external subject matter experts (SMEs), as well as specialist risk and estimating technicians and advisors. Appendix C provides further detail on formal risk sessions.

Interdisciplinary risk workshops, utilised in the risk identification process, have brought together stakeholders from different departments and disciplines, such as the technical, delivery, commercial and legal teams, to collaboratively identify potential risks. By leveraging the combined expertise of internal team members and external experts, the workshops uncovered a comprehensive range of risks.

3.3 Approach to determining risk allowance



Figure 2 - MLPL approach to determination of risk allowance

The risk analysis undertaken to determine the initial risk allowance has been comprehensive, utilising a significant number of risk-focussed workshops with Marinus Link subject matter experts, external risk

experts, executive reviews and assurance processes to ensure a robust process and level of scrutiny has been applied in allocating, mitigating and assessing the residual risk.

3.4 Qualitative Risk Analysis

3.4.1 Probability-Impact Assessment

For each risk identified, a qualitative assessment has been undertaken within the workshops to determine the risk's potential causes, consequences, scenarios, mitigation measures, controls and rating using the predefined scales to assess probability and impact of risk, included in Appendix B. As part of the risk management process, each risk has been assigned a 'risk owner' who is an SME for the identified risk related to the project including environment, land, stakeholder, commercial, planning and construction, transaction and procurement.

For each identified risk, MLPL has outlined the existing controls that are in place to manage it and has developed specific treatments that can be implemented in the future to further mitigate the risk.

3.4.2 Risk Categorisation

A key step in the risk analysis process was to categorise, group and assign potential risk to each of the main packages of work and the MLPL's support activities where appropriate.

3.4.3 Project Risk register

The Marinus Link Project Risk Register ('risk register'), included in Appendix A, has been developed as an output to the risk identification and qualitative risk analysis process. The risk register is utilised as part of the MLPL monthly risk review process which aims to ensure that Marinus Links risk exposure is reduced through the proactive and on-going review and update of existing risks, the addition of new potential risks and the closeout or transfers of existing risks to issue management.

3.5 Quantitative Cost Risk Analysis

3.5.1 Scenario Analysis

The project risk register has been utilised to extract the risks that significantly impact cost or schedule as part of developing an assessment of the risk allowance.

Each risk has been quantified individually by risk owners and specialists. This has focussed on assessing the likelihood of the risk as well as the expected cost impact based on experience from similar projects, subject matter expert experience, independent estimates, supplier, contract, design and program information.

Initially an expected value analysis was conducted for each risk as an initial method of understanding the possible quantum of the risk event. The expected value is calculated by multiplying the most likely outcome by the probability of the risk occurring.

In most cases, the impacts of each risk are not a single cost or schedule impact, but a range of possible impacts. In most cases the possible impact range can be assessed to have a:

- best case outcome;
- worst case outcome; and
- most likely outcome.

For each risk, the best case, worst case and most likely case have been developed with supporting evidence. This process is often referred to as a "three-point estimate" of the impact.

The risk model generated provides a risk-adjusted estimate that quantitatively accounts for the realistic effect of the risks generally described by three-point estimates of the impacts and the probability of occurrence.

3.5.2 Monte Carlo simulation

The Monte Carlo analysis undertaken uses a 'bottom-up' assessment based on the risks identified in the risk register. The analysis has used specialist risk modelling software (@Risk) which randomly generates a range of outcomes based on the consequence and likelihood of each of the residual risks.

The analysis began with the software randomly selecting a value from each of the risk ranges in accordance with the three-point distribution used to represent the risk. The approach was to configure the software to carry out 10,000 iterations of this process. The sum from each iteration produces an output distribution of the likely cost outcomes as if Marinus Link was delivered multiple times. 10,000 iterations was determined as sufficient to generate the Marinus Link risk allowance based on a plausible output of risk outcomes. In this instance, the outcome of this analysis was a probability distribution curve of expected costs, which was used to determine the level of risk allowance funding.

The output from this process was used to determine the 'P-value'. The P50 is a mid-point estimate It represents the project risk allowance with sufficient risk provision to provide a 50% level of confidence in the outcome. This means that there is a 50% likelihood that the risk allowance will not be exceeded, and a 50% probability that it will be exceeded.

An iterative process has been undertaken in assessing each risk to maintain integrity and accuracy ensuring no overlap or duplication of risk allowance or potential overstatement of cost risk impacts. The model data has been regularly reviewed by MLPL and updated with the involvement of the risk owners and specialists as better cost information is generated.

4 Risk review and management

4.1 Risk management framework

The approach applied for identification and analysis of its risks is aligned with MLPL's Risk Management Framework. The purpose of MLPL Risk Management Framework is to:

- demonstrate MLPL's commitment and approach to the management of risk;
- explain how risk management is integrated with MLPL's business practices and processes;
- ensure risk management is a day-to-day business activity rather than an isolated task;
- set a consistent and structured approach for the management of all types of risk across the business; and
- provide an overview on how to apply the risk management process.

Consistent with good industry practice, the MLPL Risk Management Framework includes a stepped approach as follows:

- risk identification, which involves identifying the risk and understanding how the risk can eventuate;
- risk mitigation, which involves identifying measures that MLPL can put in place to reduce the likelihood of the risk occurring, reduce the consequences if the risk eventuates, or both;
- risk measurement and assessment, which involves assessing the likelihood and consequences of risk, with and without mitigation;
- risk review and reporting, where risks are also tracked, controlled and monitored on an on-going basis through a risk register; and
- risk governance, where risks are allocated to appropriate risk owners with appropriate oversight and monitoring from management.

The adoption of the stepped approach under the MLPL Risk Management Framework ensures that risks associated with Marinus Link are monitored on an ongoing basis, with implementation of appropriate treatments and mitigation measures. These are recorded in the live risk register and updated on an ongoing basis.

4.2 External risk expertise

To enable sufficient rigour, support and ensuring industry best practice is applied, external risk specialists were engaged to advise on the risk assessment process and to provide input on appropriate risk mitigations and valuation of the residual risk.

The external specialists involved in risk identification, mitigation and valuation have included:

- Jacobs: provided expert risk analysis for project design and delivery risks.
- Amplitude (HVDC global specialist): provided expert input during the risk identification process.

The external specialists who supported MLPL during the risk review process included:

- MBB Group: reviewed the risk register and provided guidance on risk profile.
- TBH: provided advice in relation to risk register development, quantification, schedule risk analysis and risk modelling to determine the risk allowance.

- Houston Kemp: provided assistance in developing the risk allowance and ensuring that the approach aligned with the AER's guidelines.

4.3 Executive review

Several presentations to the MLPL Executive Team have been held to provide executive review and oversight of the risk management process. In addition, the Project Director attended the majority of the risk reviews undertaken.

The feedback from the reviews were included in updates to the risk register. This iterative process of review and refinement has continuously improved the risk register to ensure that the approach to identifying, mitigating and assessing risk has been applied consistently and in accordance with best practice. The detail of these reviews are included in Appendix C.

5 Finalisation of risk allowance

The iterative risk management process will continue in accordance with the MLPL Risk Management Framework, refining the risk allowance as the procurement of the BoW Contractor progresses. This process will incorporate updated cost information, pricing details, the negotiated risk profile and scope of works. This approach will ensure accuracy of pricing of the likely impacts and updated risk allowance which will be included in MLPL's revised Revenue Proposal, in alignment with the AER Guidelines.

Key activities will include:

- conducting additional risk workshops to review and update residual risks, controls/treatments and quantification of risks based on the agreed scope and risk profile of the BoW package;
- regularly reviewing and updating of the risk model data with input from risk owners and specialists; and
- incorporating executive level review and feedback.

This report will be updated to provide justification for the updated risk allowance identified in the revised Revenue Proposal, explaining the methodology used to quantify the cost for each of the key residual risks including the inputs and assumptions that have been relied on in determining the risk allowance.

Appendix Section

A Project risk register

B Risk matrix

C Risk workshop schedule

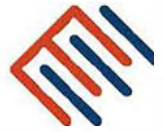
Appendix A Project risk register

Appendix B Risk matrix

RISK

	CONSEQUENCE				
	Insignificant	Minor	Moderate	Major	Exceptional
Safety & Wellbeing	Injury or illness that can be treated by oneself first aid with no lasting effects to a person's physical and/or mental health or ability to perform pre-injury duties.	Injury or illness that: •requires medical attention (eg GP, A&E Health) •results in short term (less than 3 months) effects to a person's physical and/or mental health. •results in a person returning to pre-injury duties following a return-to-work plan.	Injury or illness that: •results in hospitalization (advanced medical care, surgery intervention) •results in medium term (3 to 6 months) effects to a person's physical and/or mental health •results in a person returning to pre-injury duties following a return-to-work plan.	Injury or illness that: •results in significant long term impairment to a person's physical and/or mental health. •has a negative impact on the person's ability to maintain/return to pre-injury duties. •may meet the criteria of a workplace health and safety regulatory notifiable event.	Injury or illness that: •results in a fatal or permanent impairment •results in a permanent no return to work •meets the criteria of a workplace health and safety regulatory notifiable event
Corporate Governance & Compliance	Minor (technical or immaterial) non-systemic breach that can be managed internally (does not require significant management attention). Has no potential to damage relationships with regulators.	Minor non-systemic breach of legal/regulatory compliance obligations (where the financial penalties are negligible). Has no potential to damage relationships with regulators.	•Sustained Regulator attention and material impact on relationship with Regulator – increased oversight, audits, reporting. Resulting in minor, but recoverable, damage to relationship with regulator. •Material non-systemic breach of regulatory compliance obligations •Minor systemic breaches of legal/regulatory compliance requirements.	•Direct Regulator intervention in the business •Commencement of Court proceedings by Regulator Resulting in significant, but recoverable, damage to relationship with regulator. •Suspension of licence(s). •Major systemic breaches of legal/regulatory compliance obligations •Activation of potential for financial penalty for director, officer or employee	•Regulator actively intervenes in business through directives and/or suspends ability to operate. Resulting in significant non-recoverable damage to relationship with regulator. •Loss of licence(s) which are required for operation of the business. •Activation of potential for custodial sentence for director, officer or employee.
Reputation	•Small scale/localised publicity with associated impact on the MLPL reputation. •Can be addressed through normal day-to-day management. Has no material impact on MLPL and/or shareholder reputation.	•Some publicity on local and state press, with limited social media coverage, impacting the MLPL reputation. •Can be managed within the relevant MLPL divisions. Has no material impact on MLPL and/or shareholder reputation.	•Non-sustained state press coverage including wider social media coverage. •Potential for reputational impact to spread beyond MLPL reputation to affect shareholder reputation. Resulting in a minor, but recoverable, damage to the MLPL and/or shareholder reputation	Sustained state or national press coverage and/or social media coverage (>6 months). Resulting in a significant, but recoverable, damage to the MLPL and/or shareholder reputation	•Continuous large scale state or national coverage (>12 months); and/or •Active and sustained social media campaigns targeting a MLPL decision or activity (or shareholder support). Resulting in non-recoverable damage to the MLPL and/or shareholder reputation.
People	•Performance management cases resolved satisfactorily requiring minimal HR resources; •Higher than desired staff turnover in non-critical areas; Localised morale issues with minimal impact on operational performance	•Recruitment to a business critical role within <1 month; •Performance management case(s) satisfactorily resolved by MLPL requiring dedicated HR resources; •Inability to attract/retain staff in a specialised area; Morale issues restricted to a specific team at MLPL impacting operational performance	•Recruitment to a business critical role within 1-2 months; •Escalation of performance management case(s) to Far Work Comms on; •Inability to attract/retain key staff across multiple disciplines; Morale issues impacting operational performance across MLPL	•Recruitment to a business critical role 2-3 months, potentially impacting damage to reputation and/or delivery of works program to FID •Significant professional performance management case resulting in Far Work Comms on ruling against MLPL resulting in minor financial impact and causing reputational damage; •Higher than desired staff turnover across a MLPL impacting performance; •Morale issues impacting operational performance across MLPL; Industrial action	•Recruitment to a business critical role 4-6 months resulting in serious damage to reputation and/or delivery of works program to FID •A significant number of resignations among EMT and Heads Of •Systemic failure to deal with grievances leading to multiple Far Work Comms on rulings against MLPL with moderate financial impact and reputational damage affecting recruitment; Prolonged MLPL-wide industrial action potentially resulting in business disruption, reputational damage and recruitment
Project Budget/ Financial/ Revenue	Phase project budget increase <1% This equates to: -<\$2.5 m on during D&A phase -<\$33 m on during MCC phase Annual Operating Budget Increases <1%	Phase project budget increase >1% - 5% This equates to: ->\$2.5-12.5 m on during D&A phase ->\$33-165 m on during MCC phase Annual Operating Budget Increases 1-5%	Phase project budget increase >5% - 10% This equates to: ->\$12.5-25 m on during D&A phase ->\$165-330 m on during MCC phase Annual Operating Budget Increases 5-10%	Phase project budget increase >10% - 15% This equates to: ->\$25-37.5 m on during D&A phase ->\$330-495 m on during MCC phase Annual Operating Budget Increases 10-15%	Phase project budget increase >15% This equates to: -> \$37.5 m on during D&A phase ->\$495 m on during MCC phase Annual Operating Budget Increases >15%
Stakeholders	Minimal andowner, community and stakeholder opposition to the project. Has no material impact on stakeholder engagement.	Low level of andowner, community and stakeholder opposition to the project. Can be managed, recorded and reported internally. Has no material impact on stakeholder engagement.	Moderate andowner, community and stakeholder opposition to the project. Lack of community awareness Resulting in project delays or additional resources required to meet the design and approvals requirements of the project.	High level of andowner, community and stakeholder opposition and dissatisfaction of project. Resulting in: •Significant delays, further investigations and engagement and additional resource requirements. •Lack of and access to undertake pre-construction surveys and investigations.	Extreme political, andowner, community and stakeholder opposition, leading to regulators disapproval or cancellation of the project. Resulting in parliamentary enquiry.
Schedule	FID Approval Date in base schedule < 1 week delay Asset Comms on Date in base schedule < 1 month delay	FID Approval Date in base schedule > 1-2 weeks delay Asset Comms on Date in base schedule > 1 months -2 months delay	FID Approval Date in base schedule > 2 - 3 weeks delay Asset Comms on Date in base schedule > 2 months - 3 months delay	FID Approval Date in base schedule >3 weeks - 6 months delay Asset Comms on Date in base schedule >3 months - 6 months delay	FID Approval Date in base schedule >6 months delay Asset Comms on Date in base schedule >6 months delay

		Quality	Environment					
		<p>Quality of the verbe(s) LESS THAN EXPECTED</p> <p>Owner st accepts de very of the asset, however t may not meet the orgna qua ty nent to the extent that t s st acceptab e to a stakeho ders.</p> <p>Eg: Th s wou d be someth ng m nor ke some rehab work wasn t qu te as good as prescr bed, but the stakeho ders (Commun ty) are not dsasatf w th the fna product and so rework sn t requ red.</p>	<p>Quality of the verbe(s) LESS THAN EXPECTED</p> <p>Result ng n:</p> <ul style="list-style-type: none"> M nor non-functona rework pr or to acceptance by the Owner of de very of the asset A few manua workarounds <p>Eg: Th s mght be a m ss ng fence around the converter stat on, t can be worked around w th the purchase of a new fence, t doesn t stop the asset work ng, but t doesn t meet the qua ty expectat ons</p>	<p>Quality of the verbe(s) LESS THAN EXPECTED.</p> <p>Result ng n:</p> <ul style="list-style-type: none"> Moderate rework pr or to acceptance of de very of the asset by the Owner, regu ator accepts that the product meets safety and functona requirements. Manua workarounds nconvenent but manageab e. <p>Eg: The converters operate at a nose eve hgher than des gned and a owed for n the EIS, remed at on works need to be undertaken.</p>	<p>Quality of the verbe(s) UNSATISFACTORY.</p> <p>Result ng n:</p> <ul style="list-style-type: none"> S gn f cant remed at on required pr or to [the Owner s acceptance] of de very of the asset or the regu ator a ow ng connect on of the asset, or the asset be ng ft for ntended use. Manua workarounds cannot be absorbed w th current resourc ng. <p>Eg: Th s wou d be the cab e joint ng was not done properly and rework s requ red, or components w th n the converters are prone to outage at a rate not prescr bed. Performance Guarantee s not met.</p>	<p>Quality of the verbe(s) COMPROMISED.</p> <p>Result ng n the owner or regu ator not accept ng the asset as complete and functona, the regu ator not a ow ng connect on of the asset or the ab ty to use the asset as ntended s not poss b e.</p> <p>Eg: If the de verab e doesn t satisfy AEMO then the asset cannot generate revenue, th s wou d be any key qua ty ssue s to satisfy AEMO</p>		
		<p>Neg g be oca sed env ronmenta mpact.</p> <p>Result ng n mmed ale s te cean-up.</p>	<p>Loca area moderate y mpacted w th short term effects (1 to 3 months)</p> <p>Result ng n env ronmenta remed at on work and fo ow-up requ red (revers b e/w th n s te boundar es)</p>	<p>Wdespread moderate env ronmenta mpact w th med um term effects (3 – 6 months)</p> <p>Result ng n:</p> <ul style="list-style-type: none"> Loca area s gn f cant y mpacted S gn f cant env ronmenta remed at on work and fo ow-up requ red (revers b e/w e conta ned) 	<p>Extens ve mpact to mportant hab tat, ecosystems and/or spec es w th med um to ong term effects (6 - 12 months/potent a y rrevers b e)</p> <p>Result ng n:</p> <ul style="list-style-type: none"> Loca area permanent y affected. Major, ong-term env ronmenta remed at on work and expend ture 	<p>Severe mpact ment to cr tca hab tat, ecosystems and/or permanent oss of spec es (greater than 12 months and/or rrevers b e)</p> <p>Result ng n:</p> <ul style="list-style-type: none"> Large area permanent y affected. Env ronmenta remed at on on a sca e that s gn f cant y affects prof tab ty and costs to customers 		
			1 Insignificant	2 Minor	3 Moderate	4 Major	5 Exceptional	
LIKELIHOOD	<ul style="list-style-type: none"> • ≤1% probability • Occurrence requires exceptional circumstances • Only occurs as a "100 year event" 	1 Rare	1-Low	1-Low	1-Low	2-Medium	2-Medium	
	<ul style="list-style-type: none"> • 1% - 19% probability • May occur but not anticipated • Could occur in "years to decades" 	2 Unlikely	1-Low	1-Low	2-Medium	2-Medium	3-High	
	<ul style="list-style-type: none"> • 20% - 49% probability • May occur shortly but a distinct probability it won't • Could occur within "months to years" 	3 Possible	1-Low	2-Medium	2-Medium	3-High	3-High	
	<ul style="list-style-type: none"> • 50% - 98% probability • Balance of probability wll occur • Could occur within "weeks to months" 	4 Likely	2-Medium	2-Medium	3-High	3-High	4-Very High	
	<ul style="list-style-type: none"> • ≥ 99% probability • Impact occurring now • Could occur within "days to weeks" 	5 Almost Certain	2-Medium	3-High	3-High	4-Very High	4-Very High	



Appendix C Risk workshop schedule

Date	Workshop	Attendees included
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]



Date	Workshop	Attendees included
[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]
[REDACTED]	[REDACTED]	[REDACTED]



Date	Workshop	Attendees included
[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]
[REDACTED]	[REDACTED]	[REDACTED]



E3 Advisory

e3advisory.com

Sydney

Level 22, 9 Castlereagh Street
Sydney NSW 2000
+61 2 8097 0790

Brisbane

Level 8, 10 Eagle Street
Brisbane QLD 4000
+61 7 3160 3150

Melbourne

Level 5, 447 Collins Street
Melbourne VIC 3000
+61 3 7019 0934

Perth

Level 32, Central Park
152 St Georges Terrace
Perth WA 6000
+61 8 6110 1720