



Investment Evaluation Summary

Market Systems – Market Data Management System Replacement

Version Number: 2.1

Date: December 2022

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❖ For work being proposed for inclusion into the capital works program.

Project name:	Market Systems - MDMS Replacement
Department:	Technology & Performance
Investment Type:	Non-Network
Investment Category:	Non-Network - Information Technology
Functional Area(s):	ITDXC
Project ZoNe location:	assetzone.tnad.tasnetworks.com.au/R24_distribution/ICTIT
Document Number:	
Needs Item Reference:	
Regulatory Investment Test Required?	No
Version Number:	2.1
Date:	14/12/2022

❖

Preferred Option:			Option 1		
Level 1 Estimate [REDACTED] (preferred option – base dollars):			\$20,275,253		
Expenditure profile	FY25	FY26	FY27	FY28	FY29
Capex	\$9,208,253	\$11,067,000			
Opex					

❖

Sign-offs (in support of the recommended option)			
Works Initiator:		Date	
Leader: (Endorsement)		Date	
Leader or General manager noting delegation levels. (Approval)¹		Date	Click here and type the date.

Related Documents

Description	URL
Needs Form	
Estimate	R24_EST_S_IT_ITSSC_MDMS_Replacement_-_Project_Cost_Model_-_Option_1_-_V3.xlsm R24_EST_S_IT_ITSSC_MDMS_Replacement_-_Project_Cost_Model_-_Option_2_-_V3.xlsm
NPV	R24_NPV_S_IT_ITSSC_MDMS_Replacement_-_NPV_-_V4.xlsx
Asset Management Plan	IT Software Asset Management Plan
	TasNetworks Towards 2030
	TasNetworks Digital Strategy
	Future Distribution System Vision
	TasNetworks Corporate Plan
	TasNetworks Business Plan
	TasNetworks Risk Management Framework
	National Electricity Rules (NER)

¹ Approval based on delegation level.

❖ denotes mandatory field

1. Executive Summary

This document provides TasNetworks' analysis and justification for the revised plan and schedule for the replacement of its Market Data Management System (**MDMS**) and for the estimated capital costs of doing so.

In its final determination for the 2019-24 regulatory period, the AER accepted the prudence and efficiency of TasNetworks' proposal to replace its MDMS over a four-year period that spanned the 2019-24 and 2024-29 periods.

The MDMS was approaching its end-of-life date after which guaranteed support would not be available and it was becoming increasingly difficult and expensive to update for the high level of ongoing regulatory change occurring in the National Electricity Market (**NEM**).

During the current period a number of regulatory changes were needed to the MDMS, that either had not been planned for at all (for example, B2B procedure changes and the Shared isolation point rule change), or for which the level of complexity was significantly higher than anticipated (for example, 5-minute settlement and Life Support Arrangements).

The number, size and complexity of these regulatory changes on the current MDMS solutions impacted TasNetworks' ability to commence the MDMS replacement project per the planned schedule outlined in the original proposal.

At the same time as these regulatory changes were being implemented, the re-elected Liberal state government in Tasmania was actively following through on a pre-election pledge to accelerate the rollout of advanced electricity meters, aiming for a 2026 completion target, well ahead of the 2030 target date set by the Australian Energy Market Operator (**AEMO**) for the NEM participants as a whole.

The concurrency of these events created an opportunity for TasNetworks to take a holistic approach to the delayed start date and the upward budget pressures stemming from the complexity of implementing the regulatory changes in legacy applications. TasNetworks considered these factors, together with the Government's firm commitment to rollout advanced meters by 2026,² to design a new approach to the implementation of an MDMS replacement solution.

The new approach couples the advanced meter rollout schedule with the capabilities of modern MDMS solutions to define a new path that offers a lower cost to implement and a lower total cost of ownership. By focussing only on advanced metering, TasNetworks will be able to meet its regulatory and customer obligations at a materially lower overall cost than that previously allowed by the AER in its final determination for the 2019-24 regulatory period.

In order to ensure the most prudent and efficient solution is chosen, in this document we are proposing to undertake a formal approach to market to align TasNetworks' detailed MDMS advanced metering requirements with relevant market solutions. This follows a Request for Information (**RFI**) issued to market in early 2022 to determine availability and high-level costs of fit for purpose solutions. TasNetworks has used the results of this RFI to inform the cost estimates used in this IES.

It is still TasNetworks' firm position that the risks to the business and to the quality of service it provides to Tasmanian consumers make replacement of the current MDMS a non-negotiable need. While TasNetworks has taken steps to mitigate the end of support risks to an acceptable level for the

² [Tasmanian Liberals, Delivering Affordable, Reliable Clean Energy, Election commitment, 27 April 2021](#)

short term, it is recognised that they are not sustainable in the longer term. The longer-term costs of retaining the current solution with its potential impacts of system failure far outweigh the immediate costs of replacement.

The revised MDMS replacement approach takes best advantage of the opportunities presented to TasNetworks by the acceleration of the advanced meter roll out in Tasmania. By reducing the scope and effort of the implementation, we have reduced the overall capital cost and achieved the most prudent and efficient result for TasNetworks' customers.

2. Background

2.1 Market Data Management System, (MDMS)

An MDMS enables the management and operation of electricity meters by a DNSP, including various communication functions with the broader electricity market. This:

- allocates and registers the national identifier for every Tasmanian installation (**NMI**)
- maintains installation details and informs the market operator and its participants
- maintains inventory and consumption records for unmetered supplies
- stores and maintains customer information used to ensure compliance with National Energy Customer Framework (**NECF**) obligations (e.g. Life Support etc.)
- provides data, validation and supports completion of customer requested service orders (e.g. connections, reading and faults), and
- supports the provision of accurate and timely accounts to customers via their Retailer.

The MDMS is pivotal to various processes that support customer outcomes. Any change that affects market protocols, if unsupported, can cause substantial impact on TasNetworks' ability to serve its customers.

The MDMS is also critical for maintaining cash flow for TasNetworks and the predominant Retailer, Aurora Energy, with its customer management and billing systems and processes also dependent on the MDMS.

2.2 Review of MDMS history to June 2019

In 2005, TasNetworks completed the implementation of [REDACTED] as its MDMS. Since its implementation, [REDACTED] had been deliberately insulated from many regulatory changes, such as market transaction schemas, through TasNetworks' use of [REDACTED] solution. In order to minimise the need for complex customisations in [REDACTED], a number of manual processes were performed with the more complex scenarios catered for in [REDACTED]. Processes that reflect market transactions were configured through Bravo in a further attempt to minimise [REDACTED] customisation.

Whilst this strategy of limiting the customisations to [REDACTED] proved successful in mitigating technology risks to TasNetworks, aging technology culminating in the end of support for a range of systems, including [REDACTED] put the business at risk.

[REDACTED] had aged to the point where TasNetworks had received an end-of-life notice from [REDACTED] stating that support for [REDACTED] would cease on [REDACTED], thereby placing its link to vital business and customer systems in jeopardy. [REDACTED] had verbally offered to continue

supporting the product, however had expressed that this would be on a best endeavours basis, would likely increase in cost and that their own internal resources familiar with the aging platform were becoming increasingly limited.

As at July 2019 (start of the current 2019-24 regulatory period) TasNetworks was the only Australian electricity distribution network service provider (DNSP) using [REDACTED] customer base being primarily made up of [REDACTED]. Whilst [REDACTED] was used together with [REDACTED] solution, within the Australian NEM, [REDACTED] customer base had [REDACTED]. Together this placed additional risks on TasNetworks as a distributor, which had to be managed in conjunction with [REDACTED] aging technology. TasNetworks, therefore, needed to not only replace [REDACTED] but to leverage modern MDMS capabilities to remove the heavy reliance on Bravo as well.

Because of the serious risk that the current MDMS platform represented to the business, in its final proposal for the 2019-24 regulatory period, TasNetworks included a project to replace the aging MDMS system over a period that spanned the 2019-24 and 2024-29 regulatory periods.

This proposal was accepted by the regulator in its final decision.

2.3 Managing Risk

Given the technological challenges outlined in TasNetworks' previous MDMS replacement IES, TasNetworks took steps to address the cyber security risks posed by an out of support application on an out of support SQL server. This included upgrading the base infrastructure from [REDACTED] to [REDACTED] running on a [REDACTED] operating system and implementing the [REDACTED]. This was done in conjunction with [REDACTED] final, officially supported update which included database integration components that facilitated the [REDACTED] and [REDACTED] updates.

To manage the risk of the system's vulnerability to potential external cyber-attack, it is important that the various components of the underlying infrastructure retain 'security update support' from [REDACTED]. Accordingly, TasNetworks has considered how its cyber posture is maintained across the following infrastructure components:

- [REDACTED] (with extended support)³ which TasNetworks has committed to as part of its risk management plan.
- Whilst [REDACTED], TasNetworks will take advantage of [REDACTED] which provides for critical and important security updates to [REDACTED].
- [REDACTED]. As with [REDACTED], the [REDACTED] program is available to provide critical and important security updates for up to three years beyond the end of extended support date (that is, to [REDACTED]).

Utilising the planned levels of support described above, TasNetworks considers the cyber security risk of continuing to use the current Gentrack system in the short term, is appropriately managed.

2.4 Strategic changes during current regulatory period

During the current regulatory period, two critical events (one regulatory driven and one driven by the Tasmanian Government) have occurred that, together, have created an opportunity for

³ <https://learn.microsoft.com/en-us/lifecycle/products/windows-server-2019>

⁴ <https://learn.microsoft.com/en-us/lifecycle/faq/extended-security-updates>

⁵ <https://learn.microsoft.com/en-us/lifecycle/products/windows-10-enterprise-and-education>

TasNetworks to reassess the approach to the MDMS replacement. It has allowed TasNetworks to design a new approach that delivers better value to our customers.

2.4.1 Regulatory driven changes

The need to update our systems for the introduction of the new 5-minute settlement rule and life support arrangements, was anticipated in our RP 2019-24 submission. However, the complexity and cost of these projects was significantly underestimated due to an early reliance on discussion papers from the Australian Energy Market Commission (**AEMC**) and the related regulations to estimate the scope of changes required. The AEMO procedures, when published, revealed greater complexity regarding the nature of the rule change. Also, the following additional regulatory changes were introduced at relatively short notice during the period:

- [REDACTED] procedure changes
- Shared isolation point rule change
- Customer switching times, and
- [REDACTED] Standing data review and subsequent addition and removal of fields.

To ensure changes can be delivered within the regulated time frame, TasNetworks frequently commences early planning when AEMC position papers have been drafted and rules defined. This is often a successful strategy, however, in the instance of the 5-minute settlement rule and life support customer changes, the depth and complexity of procedures detailed in the papers from AEMO resulted in far more changes to systems than originally anticipated, such as the creation of new transaction sets and data points. These changes placed additional upward pressure on both time and budgets and required TasNetworks to readjust budgets and timelines across its project portfolio in order to respond in a prudent and efficient manner.

The absorption of funds to deliver these regulatory obligations prompted a review of the ways in which TasNetworks could deliver an MDMS replacement more efficiently.

1. Accelerated rollout of advanced meters (Tasmanian Government)

As part of its commitments for the May 2021 election, the Tasmanian Government committed to accelerating the rollout of advanced meters to the Tasmanian public, with a target completion date of 2026.⁶ The party's follow through with those election commitments coincided with the stream of regulatory changes that TasNetworks was undergoing.

This created the opportunity to reassess the scope of the MDMS replacement system, reduce its estimated cost and realign its delivery timetable to the rollout.

In order to develop a revised strategy for the MDMS replacement, TasNetworks undertook two investigative pieces of work to define the options available and identify the most prudent and efficient way forwards.

⁶ [AEMC, REVIEW OF THE REGULATORY FRAMEWORK FOR METERING SERVICES, Draft report, 3 November 2022](#)

2.4.2 Industry Study

TasNetworks engaged PricewaterhouseCoopers (PwC) to undertake an industry study (kept Commercial in Confidence) analysing the market systems used by DNSPs in the NEM. The scope of this study was to understand how other DNSPs were undertaking the following functions:

- meter data management
- B2B and B2M Transactions
- market gateway
- customer service order management
- network billing
- workflow and reporting.

Through this study eight DNSPs across four NEM jurisdictions participated. The study assessed the systems they each used and analysed the strengths and weaknesses in how the systems were operated and maintained.

The key findings from the PwC report included:

- 77 per cent of the participating organisations had four or more systems in place for Market Management, with an average age of 10-15 years.
- Most of the systems have been kept up-to-date with the latest updates/upgrades applied, on average, in the last 2-4 years. This is primarily to keep up with the industry rule changes and to maintain technical expectations (for example: security, performance)
- All of the systems, or the landscape as a whole, are on average 50 per cent customised to meet NEM and state-specific requirements and to have as much automation as possible to manage market transactions and expectations. Hence, the average use of manual processes is relatively low at 20 per cent.
- Some of the key technical challenges that were identified included usability, performance and scalability. These challenges relate to the age of the systems, an increase in the number of data streams and the changing industry landscape.

2.4.3 Request for Information (RFI)

Based on information gathered in the PwC industry study and taking account of the Tasmanian Government's commitment to rolling out advanced meters by 2026, TasNetworks conducted an open Request for Information (**RFI**) process to test the market for an MDMS solution that focused on advanced metering. The opportunity presented by the government's commitment to a 2026 roll out allowed TasNetworks to exclude basic meter capabilities from the RFI, thereby reducing the overall cost.

The results of the RFI confirmed that there are multiple system platforms in the market that can:

- meet TasNetworks' functional requirements within a single system
- be implemented within an acceptable capital budget, and
- operate within TasNetworks' current operational budget (Support and Maintenance costs).

All major respondents were deemed capable of meeting TasNetworks’ high-level requirements. The TasNetworks Evaluation Team recommended that TasNetworks proceed to the next stage of requesting a formal proposal from vendors.

2.4.4 Summary

During the current regulatory period TasNetworks has had to react to changes in the regulatory environment that have had significant impact on its planned IT capital program. Changes in the political environment, which have accelerated the rollout of advanced meters, have provided opportunity for a reassessment of the MDMS replacement strategy.

Information gathered through an independent market survey and formal RFI process has provided an option for TasNetworks to address its future needs for a new MDMS system in a prudent and efficient manner.

The analysis undertaken, and outlined below, concluded that the option of a formal Request for Proposal (RFP) process, focussed on advanced metering functionality only, represents the most prudent and efficient option available to us.

3. Corporate Alignment

3.1 Business Performance Objectives

This project will help achieve the customer and business performance objectives in TasNetworks’ Corporate Plan for the 2024 to 2029 regulatory period. The relevant performance measures are presented in Table 1.

Table 1 - Performance objectives relevant to this project.

Performance Category	Performance Measure	Investment impact on performance
Our Customers	Customer Satisfaction	The Market Systems are key components to many processes that support our customers.
	Customer Net Promoter Score	Ensure delivery of services that drive the Net Promoter score.
	Guaranteed Service Level (GSL) Payments	Ensure Market Systems remain functional and compliant, thus preventing the increase of payments made to customers through failure to meet our customer charter (GSL).
	AEMO MDP compliance measures	The Market Systems are central to the processes that provide quality meter data to market participants. The performance of these systems directly affects our ability to meet the AEMO compliance measures.
	AEMO DNSP/LNSP compliance measures	The Market Systems are central to the processes that maintain standing data and its supply to AEMO and to market participants. The

Performance Category	Performance Measure	Investment impact on performance
		performance of these systems directly affects our ability to meet the AEMO compliance measures.
	AEMO MPB compliance measures	The Market Systems are central to the processes that maintain standing data and its supply to AEMO and to market participants. The performance of these systems directly affects our ability to meet the AEMO compliance measures.
Safety and wellbeing	Reportable incidents	The Market Systems contain various information on [REDACTED].
Our people	Employee engagement	Maintaining properly operational systems without the need for manual workarounds is important to maintain staff morale and wellbeing. Failure or inadequate functioning of these systems would quickly put employees under significant additional workload stress.
Our business - Sustained cost management	Capital expenditure	Realignment of the scope of this project results in a reduced and delayed capital expenditure for the system replacement.
Our business - Sustained cost management	Operating expenditure	Maintaining Market Systems in line with market rules will help avoid penalty charges for non-compliance, such as with the Life Support outage notifications. Maintenance of aging system becomes more expensive over time so replacing the current MDMS with a new platform will reduce the long term running costs of the system.

3.2 Risk Objectives

The corporate plan identifies a number of business risks outlined in the TasNetworks Risk Framework. The TasNetworks Risk Appetite Statement details the level of risk the business finds acceptable in each category (Safety, Environmental, Financial, Regulatory, Legal and Compliance, Customers, Assets, Reputation and People).

This initiative addresses Customer, Financial and Regulatory compliance risks, of which TasNetworks has No to Low appetite. Those risks, which will be impacted by this project, are presented in Table 2 below.

Table 2 - Business risks mitigated by this project

ID	Risk Category	Risk	Impact
ITR-017	Regulatory Compliance	TasNetworks cannot remain compliant due to inability to make modifications to accommodate regulatory change.	Damage to relationships with market operator, AER, Retailers and customers. Possible fines.
ITR-018	Financial	If systems are not maintained in accordance with relevant changes, TasNetworks may face National Energy Customer Framework (NECF) breaches and fines.	Additional costs.
ITR-019	Customer	Impact to Retailers as a result of data quality and integrity of information.	Increase in disputes and complaints as well as customers' retail bills may be affected.
ITR-020	Financial	Market non-compliance may lead to high level of scrutiny during market audits.	Business disruption due to resources being tied up with auditing activities.
ITR-021	Financial	Inability to bill correctly.	Loss of revenue.
ITR-178	Sustainable and Predictable Pricing	If market systems are not adequately maintained, it is possible that billing errors will lead to under or over recovery.	Under or over recovery would result in price adjustments in the next reset period, thus jeopardising Predictable Pricing.
ITR-022	Financial	Increased revenue leakage.	Ongoing loss of revenue.
ITR-024	Customer	Potential for customers to be affected by our inability to handle modified market processes.	Customers without power/services in expected timeframes.
ITR-025	Business Continuity Mgmt.	If not maintained in a healthy supported state, the current system may suffer failure, which could lead to several issues, namely: market process issues, impact to Distribution Monthly Billing, non-compliance to regulatory, SLA and timeframe obligations.	Negative impacts on TasNetworks' operations, customers and retailers and non-compliance with regulatory obligations. Significant additional resources would be required to perform the necessary manual process. Failure likely to be identified by external parties and would negatively impact TasNetworks' reputation.
ITR-158	Cyber Security	If systems are not maintained in a healthy supported state, they become more vulnerable to Cyber Attack. The need for manual interventions to overcome functional gaps also increases the risk of Cyber Attack.	

ID	Risk Category	Risk	Impact
ITR-159	Emerging Complexity of the NEM	It is critical that our Market Systems are properly maintained for them to be able to deal with the increasing complexity of the NEM.	If systems are not maintained, it will hinder or prevent TasNetworks from participating in an increasingly complex NEM. This may have far reaching impacts on the business depending on how the NEM evolves.
ITR-160	Death or Injury (Employee)	The Market Systems contain various information on [REDACTED]	If these systems fail and the information is not available, employee injuries may result.
ITR-173	Cyber Security	If systems are not maintained in a healthy supported state, they become more vulnerable to cyber attack. A market system could also act as an entry point to the whole of TasNetworks' IT Ecosystem.	[REDACTED]

3.3 Strategic Objectives

Table 3: Strategic objectives that will be addressed by this project.

Strategic Document	Strategic Goal	How this initiative will address the strategic goal
Towards 2030	Achieve efficiencies and reinvest gains in innovation for customers and growth.	<p>When new regulations are enforced, existing processes may break and data can become mismanaged or lost. Manual complex workarounds may be required, making work practices difficult, thus negatively impacting the business.</p> <p>TasNetworks needs the capability to react to market and regulatory change which is hindered when aging and unsupported systems are in use for critical business functions. An inability to respond to such changes will affect customers and their retailers and increase the risk of:</p> <ul style="list-style-type: none"> • Issues being detected by the Market operator. • The Market operator might undertake more intensive compliance audits. • TasNetworks' not being able to deliver necessary data to the Market operator. • Adverse findings and potential fines that if not addressed, might result in deregistration in key roles. <p>This initiative results in a modern and efficient market data system that enables quicker response to regulatory change and helps in maintaining our reputation for operating compliantly.</p>

Strategic Document	Strategic Goal	How this initiative will address the strategic goal
TasNetworks Business Plan	Our Owners – “Driving an efficient business that ensures our business remains sustainable”	<p>Use of systems that are not maintained to match market protocols would result in errors, manual workarounds and duplication of effort and hence reduce our business efficiency. The use of manual processing would not be sustainable.</p> <p>Continued use of an aging system increases costs of maintenance and manual workarounds as well as the risk of system failure and its resultant impact on the business.</p>
TasNetworks Business Plan	Our Customers – “We engage with our customers, and continue to develop customer-centric approaches”	<p>A modern MDMS is essential to our ability to support the growth of DER (e.g. roof top solar) installed by our customers and for us to respond to market changes being brought in to benefit customers.</p> <p>This initiative results in a modern and responsive system that enables TasNetworks to maintain compliance with changing market needs and requirements in a timely manner. It helps ensure that we maintain valuable relationships with retailers and customers, ensuring TasNetworks can be trusted to deliver.</p>

3.4 Relationship with the NER Expenditure objectives

Table 4: NER Objectives relationship

National Expenditure Objectives	Contribution
Meet or manage expected demand over the period	<i>The MDMS systems are key to performing DNSP functions around Standing Data Management, NMI registration and Role assignments. The system is key to any future obligations from ESB reforms around DER.</i>
Comply with regulatory obligations	<i>The performance of the MDMS directly affects TasNetworks’ ability to meet the AEMO compliance measures.</i> [REDACTED]

National Expenditure Objectives	Contribution
<p>Maintain the quality, reliability and the security of the distribution system, or the supply of standard control services</p>	<p>[REDACTED]</p> <p><i>The implementation of a new MDMS solution will play a crucial role in addressing these risks.</i></p>
<p>Maintain safety obligations</p>	<p><i>The proposed options will deliver improved safety through enhanced communication for example receiving communications in regards to energising and de-energising connections.</i></p> <p><i>If the MDMS is not maintained, the current system could yield risks to [REDACTED].</i></p>

3.5 Relationship with the NER expenditure criteria

Table 5: NER Expenditure criteria

National Criteria	Activity
<p>Efficient cost of achieving objective(s)</p>	<p><i>Continuing to run the ‘end-of-life’ MDMS under ‘best-endendeavours’ support will result in increasing operational costs and the real potential for major compliance breaches and the associated rectification costs and regulatory fines.</i></p> <p><i>The long-term cost of replacing/upgrading the existing system with a modern, supported system will be less than that incurred through retaining the existing solution.</i></p>
<p>Cost of a prudent operator</p>	<p><i>The longer the time period that the current [REDACTED] MDMS is unsupported, the greater the risk of major non-compliance and significant additional costs being incurred for rectification and regulatory upgrades. Reliance on the ‘reasonable endeavours’ of the vendor to support the system, at significant additional cost, represents a high risk to the organisation and its continued ability to operate and maintain compliance with the Rules.</i></p> <p><i>To prudently manage the level of risk associated with this system, it is necessary to undertake a full replacement of the functionality provided by the current [REDACTED] system.</i></p>

National Criteria	Activity
<p>Realistic expectation of forecast and cost impact</p>	<p><i>Third party vendor costs have been obtained through the 2022 RFI process resulting within a [REDACTED] cost tolerance.</i></p> <p><i>Timeframes that allow for the necessary level of testing and integration have been determined for each option.</i></p> <p><i>An existing model for the budgeting of internal resourcing of major IT projects, which has been successfully used in the past, has been used and which has contributed to TasNetworks winning a number of awards for project management⁷. The daily rates applied to the resource estimates are the standard ones used within TasNetworks and are provided by the finance team.</i></p>

4. Business options considered

4.1 Desired Benefits

When considering the options for replacing the MDMS, TasNetworks took into account the likelihood of achieving the following desired benefits:

1. Continue to have a highly automated functional market system from 2026–2041 to:
 - Deliver customer outcomes
 - Recover \$350M revenue p.a.
 - Collect high volume transactions and maintain market and customer data
 - Comply with current and future NEM obligations.
2. Implement a simplified market systems architecture, with minimised applications and vendors.
3. Decommission the [REDACTED] meter reading system from service.
4. Potentially consolidate the Transmission and Metering and Billing systems into a Distribution Metering and Billing system.
5. Reduce Cyber risks via a modern, supported platform, and
6. Introduce modern vendor service agreements.

The results of the PwC study and recent RFI indicated that there are a number of solutions available in the market that would meet TasNetworks’ needs for a new MDMS. The five solutions that were analysed in the RFI are all considered capable of meeting TasNetworks’ requirements and have similar project complexity and risk profiles. Each of these potential solutions is projected to take roughly the same implementation time and provide similar process efficiencies.

⁷ Winner Best ICT Project 2014 Asia Pacific (APFPM) - Beijing 2014
 Full Retail Contestability – AIPM State Award – Project of the Year 2014
 Power of Choice: AIPM State award - Best Small Project 2018
 Power of Choice: TASICT - Best Project / Program Management 2018
 Ajilis Release 2 - Transforming Assets & Works Management – AIPM National Winner 2018, ICT/Telecommunications 2018

4.2 Options

Based on this information we have considered the following options:

0. **Do nothing** – continue to run and maintain the existing [REDACTED] and [REDACTED] solutions (NON-preferred due to excessive risk to the business).
1. **Advanced Metering** – undertake a detailed RFP process in the current period to test the analysis from the RFI and select a preferred vendor to implement the selected solution. (PREFERRED – on grounds of risk management, prudence and efficiency).
2. **Basic and Advanced Metering** – Similar to option 1, a detailed RFP process will be undertaken, this time covering both advanced and basic metering requirements. A preferred vendor will be selected to implement the basic and advanced metering solution. (NON-preferred due to increased costs to mitigate risks that can be managed to an acceptable level in Option 1).

Each of these options is discussed further below.

4.2.1 Option 0: Do Nothing

This option retains the existing capabilities that are a part of the current suite of MDMS solutions including [REDACTED]. As the current [REDACTED] is at end-of-life and is officially out of support its continued use represents an unacceptable risk to the business. [REDACTED]

[REDACTED] have also expressed that it is becoming increasingly difficult to update the code base as finding resources with the skill and knowledge is becoming harder.

Whilst the current MDMS solution is no longer officially supported, [REDACTED] has a long history with TasNetworks and are keen to maintain the relationship. [REDACTED] has expressed a willingness to support TasNetworks in keeping the current MDMS solution operational, on a best endeavours basis.

The current system has remained stable with no significant outages [REDACTED]. With the extended [REDACTED]. TasNetworks therefore has reasonable evidence to reflect its confidence in maintaining the current MDMS solution to [REDACTED]. However, post the extended [REDACTED] period, [REDACTED]

This option poses the highest risk of the proposed options considered, as it increases the likelihood of significant compliance and service level breaches.

4.2.1.1 Risk analysis

Table 6: The following key risks are associated with Option 0 – Do Nothing.

Ref	Description	Mitigation	Residual Risk
0-1	System failure – there is a significant risk associated with operating a major business system that is out of official support and for which only a ‘reasonable endeavours’ approach can be obtained. Any issues experienced with the system or need for regulation-imposed changes, will represent an increasing risk of system failure as availability of the necessary technical resources becomes scarcer. There is no guarantee that the product will continue to function on future versions of [REDACTED] or beyond without vendor support.	[REDACTED] is providing ‘best efforts’ support for the MDMS, however no regular updates or security patches are deployed. Skilled resources on the platform are becoming scarce and therefore expensive. Delaying a rollout of future [REDACTED] products will impact productivity [REDACTED] of the rest of the business.	Likely x Severe = Very High
0-2	Noncompliance – the continuous pace of change in regulatory requirements together with the increasing difficulty in updating an aging, out of support system, seriously increases the risk of non-compliance with market obligations.	[REDACTED] has committed to providing support on a ‘best endeavours basis’. As time goes on, it will become increasingly difficult to find skilled resources to provide updates for regulatory change.	Likely x Severe = Very High
0-3	Cyber threats – [REDACTED]	[REDACTED]	[REDACTED]

For the many reasons put forward in the RP 2019-24 regulatory proposal, it is imperative that TasNetworks takes steps to move off the current MDMS solutions and implement a modern, secure and resilient system that meets the future needs of the business. Whilst unexpected costs for regulatory change during the current period has necessitated revisiting the strategy for MDMS replacement, the option to ‘do nothing’ remains the highest risk option. This option is therefore non-preferred.

4.2.2 Option 1: Advanced Metering Only

This option proposes a detailed RFP process be undertaken in the current regulatory period such that by commencement of RP 2024-29 a preferred vendor has been selected and a two-year design and implementation process can be undertaken. This represents a one-year reduction in the length of the originally proposed project, allowing a start date two years later. This is advantageous as there is now only one year delay in delivery (as compared to the original schedule), and the project completion date now coincides with the 2026 advanced meter roll out. The reduced timeline is

possible because the accelerated rollout of advanced meters in Tasmania eliminates the need to implement basic meter functionality. This reduction in scope is illustrated in the diagram below.

Figure 1: Reduction in MDMS scope through removal of basic meter functionality

Future Market System Functions – Post Basic Metering



Whilst the AEMC has recommended a target date of 2030 for the complete removal of basic meters and their replacement with new advanced (or ‘smart’) meters,⁸ a number of jurisdictions are looking to accelerate this timeframe, including Tasmania. The Tasmanian Government is committed to meeting its recent election promise⁹ to accelerate the rollout of advanced meters across the state, with the aim of reaching full deployment by 2026. Aurora Energy has also confirmed its ability to meet this rollout timeline.

With completion of the MDMS implementation now planned to align with the substantial completion of the advanced meter rollout, the inherent assumption is that only an estimated 10,000 basic meters will remain in service as at December 2025.¹⁰ It is noted that the Government commitment refers to the rollout completing “by 2026”, implying the beginning of the year. TasNetworks is, therefore, taking a prudent approach of assuming an implementation window of March to September 2026, so allowing a prudent contingency for some slippage in the rollout program.

As this small volume of basic meters is able to be managed via manual workarounds, the cost of managing this small number of basic meters is deemed manageable within existing budgets. This enables the new solution to go live without the basic meter functionality.

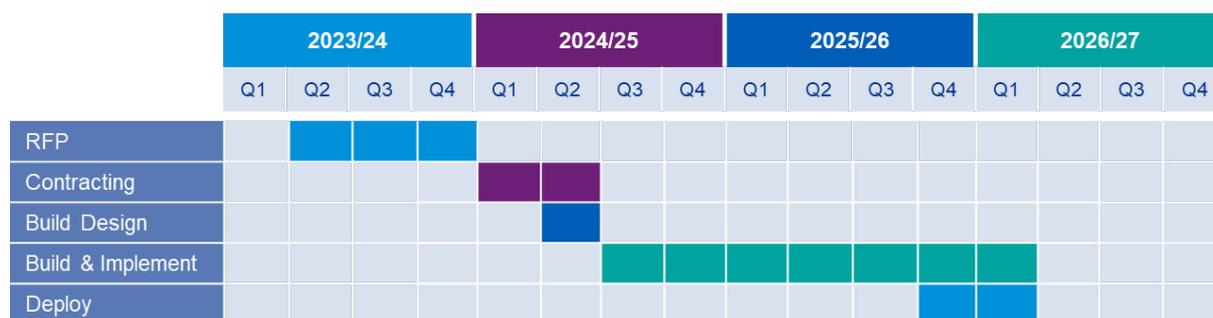
The diagram below illustrates the expected timetable for the overall process.

⁸ AEMC, REVIEW OF THE REGULATORY FRAMEWORK FOR METERING SERVICES, Draft report, 3 November 2022

⁹ Tasmanian Liberals, Delivering Affordable, Reliable Clean Energy, Election commitment, 27 April 2021

¹⁰ TasNetworks, Market Systems Strategy, Final Report, 14th September 2022, pg. 7

Figure 2: Option 1 Timeline



Given the impact of prior regulatory changes on the original MDMS replacement implementation, the timing for the Advanced Metering MDMS solution has been selected after close consideration of:

- the portfolio of projects to be delivered in the period, including project dependencies (such as decommissioning)
- the external factors that will influence the outcome (such as the rollout of advanced meters to be completed by 2026)
- any regulatory changes in the period, assuming that a number of smaller, low to medium complexity regulatory changes will be undertaken and are accounted for in our planning, and
- there being no large regulatory changes currently forecast for the period and, should they occur, they will be managed through existing prioritisation and governance mechanisms.

TasNetworks has a long history of successfully managing project delivery and reacting to change in the regulatory and market environment in a prudent and efficient manner. The ICT team’s approach includes strategic engagement of contract and consulting resources to assist in delivering TasNetworks planned program of work has worked well in the past and will in the future.¹¹

4.2.2.1 Risk analysis

The following risks are associated with the approach proposed in Option 1:

Table 7: Key risks associated with Option 1 – Advance metering only

Ref	Description	Mitigation	Residual Risk
1-1	System failure – there is a significant risk associated with operating a major business system that is out of official support and for which only a ‘reasonable endeavours’ approach can be obtained. Any issues experienced with the system or need for regulation imposed changes, will represent an increasing risk of system failure as availability of the necessary technical	A new system will negate this risk through use of a modern platform supported by available resources. In the interim, ██████ is providing ‘best efforts’ support for a stable system on a still supported platform. Skilled resources on the platform are becoming scarce and therefore	Unlikely X Minor = Low

¹¹ Winner Best ICT Project 2014 Asia Pacific (APFPM) - Beijing 2014
 Full Retail Contestability – AIPM State Award – Project of the Year 2014
 Power of Choice: AIPM State award - Best Small Project 2018
 Power of Choice: TASICT - Best Project / Program Management 2018
 Ajilis Release 2 - Transforming Assets & Works Management – AIPM National Winner 2018, ICT/Telecommunications 2018

Ref	Description	Mitigation	Residual Risk
	resources becomes scarcer. There is no guarantee that the product will continue to function on future versions of ██████████ or beyond without vendor support.	expensive. This is considered manageable in the short term.	
1-2	Noncompliance – the continuous pace of change in regulatory requirements together with the increasing difficulty in updating an aging, out of support system, seriously increases the risk of non-compliance with market obligations.	A new system will negate this risk through use of a modern platform supported by available resources. In the interim, ██████████ are providing 'best efforts' support for a stable system on a still supported platform. Whilst skilled resources on the platform are becoming scarce and therefore expensive, it is deemed feasible to make system changes to accommodate regulatory changes in the short term.	Unlikely X Moderate = Medium
1-3	██████████	A new system will negate this risk through use of a modern platform supported by available resources. ██████████	██████████
1-4	Smart meter rollout – the timing of this option and the assumption that it has a reduced scope (excluding basic metering) from the original proposal, is based on there being just circa 10,000 basic meters left in service at the go-live date. Numbers materially in excess of this will require additional costs and effort to facilitate.	TasNetworks are actively assisting Aurora Energy and the other Tasmanian retailers in progressing the rollout strategies in line with Government direction. If the number of basic meters has not reduced to an adequate level by Go Live there will be additional costs of increased manual work arounds for a short period of time.	Unlikely x Minor = Low

4.2.2.2 Investment

As this option does not seek to predict the eventual solution that will be chosen, we have proposed the costs represented by the solution with the highest NPV (and lowest up-front capital cost excluding 'do nothing') from the RFI process. This solution had the following cost profile:

Table 8: Investment Cost plan for Option 2

\$m (real22/23)	FY25	FY26	FY27	FY28	FY29	TOTAL
CAPEX	████	████	█	█	█	████

No Opex step change has been requested as it is assumed that any such costs will be absorbed into the business as usual and take over the cost of running the existing systems. As illustrated in the timeline above, the proposed RFP process will be conducted in the current regulatory period and be absorbed into existing budgets.

4.2.3 Option 2: Basic and Advanced Metering

Similar to Option 1, this option proposes an RFP process to identify an appropriate solution to replace the current market systems, but in this case, with a specification that includes the basic meter related functionality. This would mitigate the potential risk from material delays in the scheduled completion of the rollout of advanced meters by 2026, which is an important assumption of Option 1.

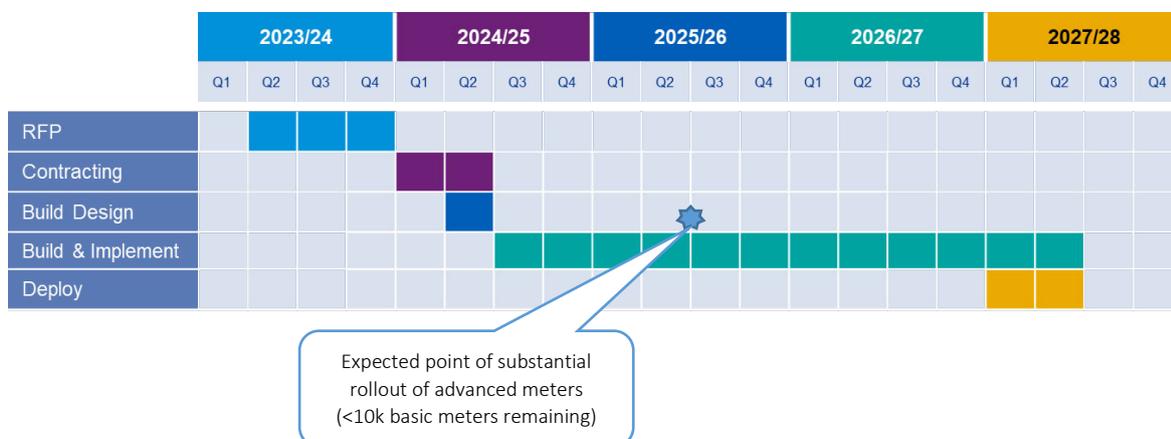
The RFP under this option would be conducted in the same timeframe as proposed in Option 1, but due to the additional functionality, the design and implementation phase of the project will extend an additional year. This is in line with the proposed solution in our RP 2019-24 submission which included a three-year implementation process following the RFP.

The additional functionality included in this option, over that proposed for Option 1, includes:

- **Meter Management for Basic Meters (MPB Type 6):** includes meter standing data management, register configuration, data stream configuration and metering standing data updates.
- **Metering Provider (reading collection) (MPC Type 6) Obligations:** reading routes, calendar/cycle management, route sequence management, download management, upload management, outstanding read management and reporting.
- **Metering Data Provider (MDP Type 6) Obligations:** basic reading processing, basic reading substitution, reading validation, reading storage and processing performance.
- **In-field Route Based Meter Reading Collection:** in-field meter reading through the bulk process of walking a route will not be considered for replacement in this project.

The resultant timeline for this option, with an expected deployment one year later than that proposed in Option 1¹², is illustrated below:

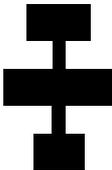
Figure 3 Option 2 Timeline



¹² [TasNetworks, Market Systems Strategy, Final Report, 14th September 2022, pg. 4](#)

4.2.3.1 Risk analysis

Table 9: Key risks associated with Option 2 – Advanced and basic metering.

Ref	Description	Mitigation	Residual Risk
2-1	System failure – there is a significant risk associated with operating a major business system that is out of official support and for which only a ‘reasonable endeavours’ approach can be obtained. Any issues experienced with the system or need for regulation imposed changes, will represent an increasing risk of system failure as availability of the necessary technical resources becomes scarcer. There is no guarantee that the product will continue to function on future versions of ██████████ or beyond without vendor support.	<p>A new system will negate this risk through use of a modern platform supported by available resources.</p> <p>In the interim, ██████████ is providing ‘best efforts’ support for a stable system on a still supported platform. Skilled resources on the platform are becoming scarce and therefore expensive.</p> <p>The extended time period of running the existing ██████████ system increases the likelihood of this occurring.</p>	<p>Possible X Minor = Low</p>
2-2	Noncompliance – the continuous pace of change in regulatory requirements together with the increasing difficulty in updating an aging, out of support system, seriously increases the risk of non-compliance with market obligations.	<p>A new system will negate this risk through use of a modern platform supported by available resources.</p> <p>In the interim, ██████████ is providing ‘best efforts’ support for a stable system on a still supported platform. Whilst skilled resources on the platform are becoming scarce and therefore expensive, it is deemed feasible to make system changes to accommodate regulatory changes in the short term.</p> <p>The extended time period of running the existing ██████████ system increases the likelihood of this occurring.</p>	<p>Possible X Moderate = Medium</p>
2-3	██████████	<p>A new system will negate this risk through use of a modern platform supported by available resources.</p> <p>██████████</p>	

Option 2 is predicated on the implementation of basic meter functionality that, should the advanced meter rollout progress as planned, the expenditure of additional time and capital will be for little benefit.

This option becomes valuable if the rollout materially exceeds the ██████████ deadline. This option offers significant risk mitigation by enabling basic metering infrastructure to be in use by Tasmanian consumers for a longer period.

4.2.3.2 Investment

As this option does not seek to predict the eventual solution that will be chosen, we have proposed the costs presented in the RP 2019-24 regulatory submission (escalated to \$ real 2022/23) as this was for the same scoped full functioning system, inclusive of basic metering.

Table 10: Investment Cost plan for Option 2

\$m (real22/23)	FY25	FY26	FY27	FY28	FY29	TOTAL
CAPEX	█	█	█	█	█	█

The only notable benefit of this option over Option 1 is that it mitigates the risk from delays in the advanced meter rollout. Given the other mitigations in place to ensure the roll out program runs according to plan and the option for additional manual work arounds in Option 1 should delays occur, Option 2 is non-preferred.

4.2.4 Recommended Option

4.2.4.1 Option justification

It is clear that, as a prudent operator, TasNetworks has to replace its current █ MDMS solution due to █ in an ever changing technological and regulatory environment. █ together with its inability to cope with the increasing volumes of data make its replacement a necessity.

The key justifications for choosing Option 1 as TasNetworks’ preferred approach at this stage are:

- The assumption that the available solutions can meet TasNetworks’ requirements.
- It represents the most prudent and efficient option based on cost and value to TasNetworks and our customers.
- The solution will be fully supported by an industry leading vendor with a strong Australasian market footprint.
- There will be efficiencies gained from IT system consolidation.

TasNetworks has identified the following areas of functionality¹³ required for the replacement of its MDMS:

- **Installation Management:** covering installation creation, static installation data, date effective installation data and installation data updates.
- **Customer Data Management:** customer data management functionality and capabilities including the ability to capture customer data through market transactions, manual inputs and the ability to review full date effective history.
- **Meter Management:** includes supporting interval meters and logical meters (used for UMS), register configuration, data stream configuration and metering standing data updates.

¹³ TasNetworks – MDMS Replacement High Level Scope – V9

- **Unmetered Supply (UMS) Management:** includes inventory maintenance, standing data administration, and interval data management, processing performance, configuration, and logical data entities and reporting.
- **Metering Data Provider (MDP Type 7) Obligations:** UMS consumption data generation, validation, reading storage, supply to AEMO and processing performance.
- **Distribution Billing:** The replacement of the Distribution Billing capability is in scope for this project. Includes capabilities around tariff and invoice management, market NSW billing protocol support and unbilled energy.
- **Market Integration:** There are two key areas of market integration that are in-scope for the MDMS replacement which extends to support of business to market transactions and business to business transactions. The MDMS will need to support B2M transactions such as CAT transactions, retailer transfers and role changes and MSATS synchronisation. B2B transaction support includes service order management, meter data provider support, customer notifications/requests and one-way notifications.
- **Market Gateway:** The market gateway leads to AEMO's transaction hub for B2M and B2B transactions.

TasNetworks has explicitly stated that various functions within an MDMS suite will be considered out-of-scope:

- **In-field Work Order Management:** The system used for scheduling, allocation and execution of In-field Work Orders is not in scope for this project. The current system will be replaced under a separate initiative replacing [REDACTED]
- **Meter Management for Basic Meters (MPB Type 6):** includes meter standing data management, register configuration, data stream configuration and metering standing data updates.
- **Metering Provider (reading collection) (MPC Type 6) Obligations:** reading routes, calendar/cycle management, route sequence management, download management, upload management, outstanding read management and reporting.
- **Metering Data Provider (MDP Type 6) Obligations:** basic reading processing, basic reading substitution, reading validation, reading storage and processing performance.
- **In-field Route Based Meter Reading Collection:** The process of in-field meter reading through the bulk process of walking a route will not be considered for replacement in this project. The current tool [REDACTED] along with the associated handheld computing devices will interface to the new MDMS solution.
- **Distributed Energy Resources (DER) Trading:** Capabilities around managing bids, tracking dispatch and coordinating billing and settlement are considered out-of-scope. Functionality specification such as integration with DER billing systems and an interface to the national market platform are also considered out-of-scope.

4.2.4.2 Timescale

The timing of the MDMS replacement project has been planned to complete shortly after the advanced meter rollout in Tasmania has completed and is at the point that workarounds can cope with the remaining basic meters.

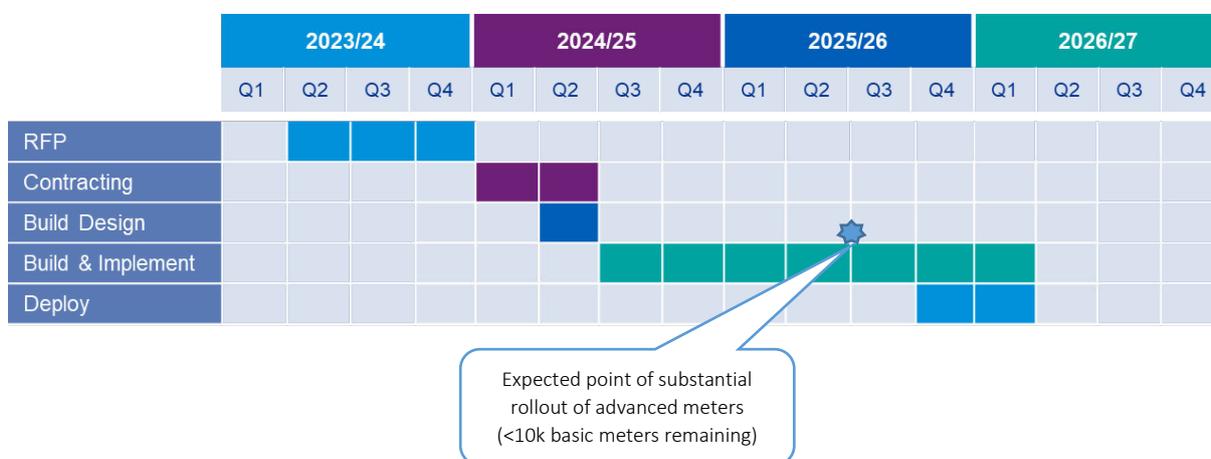
Confidence in advanced meter rollout timeframe

On 30 Nov 2022, Aurora Energy hit an important milestone with more than 50 per cent of all regulated residential and small business customers now having an advanced meter installed meaning it is on target to complete this significant state-wide roll-out by 2026.¹⁴

In addition, Aurora’s metering service provider, TasMetering, is currently building its capacity to deliver up to 10,000 advanced meters each month across Tasmania. This will put them in a strong position to complete the rollout by the December 2025 target deadline set by the Tasmanian Government.¹⁵

The anticipated timeline for delivery of the MDMS replacement is illustrated below. A deployment window of March to September 2026 has been planned to provide a prudent contingency for some slippage in the rollout timeline.

Figure 4: Preferred Option (Option 1 – Advanced Metering Only) Timeline



4.2.4.3 Cost Estimates

Table 11: Preferred Option (Option 1 – Advanced Metering Only) Cost Profile

\$m (real22/23)	FY25	FY26	FY27	FY28	FY29	TOTAL
CAPEX	█	█	█	█	█	█

Table 12 : The capital cost for the 2024-29 regulatory period is **\$20.2m** (Real 2022).

SAP Cost Summary								
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	TOTAL
Project Costs	█	█						
Vendor Costs	█	█						
Hardware								
Yr1 Support								
Contingency								
Fin Year Totals	█	█						
Reg. Period Totals					\$20,275,253			

¹⁴ https://www.premier.tas.gov.au/site_resources_2015/additional_releases/real-relief-provided-to-tasmanians-through-aurora-energy#:~:text=Aurora%20hit%20an%20important%20milestone,wide%20roll%20out%20by%202026.

¹⁵ <https://www.intellihub.com.au/intellihub-selected-to-deliver-accelerated-advanced-meter-roll-out-across-tasmania/>

The total cost estimate of **\$20.3m** is based upon a mix of vendor provided estimates and detailed internal project resource plans.

4.2.5 Economic Analysis¹⁶

Table 13 lists the options considered, the outcome of the economic analysis for each option, and the option being proposed for endorsement in this Investment Evaluation Summary.

Table 13 - Options considered

		Option 0	Option 1	Option 2
		Status Quo - Do Nothing	Advanced Metering Only	Basic and Advanced Metering
CASHFLOW				
	<i>flow</i>			
Capital Expenditure	Cash outflow	(3,158,820)	(20,275,253)	(31,166,955)
Operational Expenditure	Cash outflow	(70,889,260)	(16,831,205)	(14,351,058)
Operational Cost savings	Cash Inflow	-	-	-
Total Expenditure	Cash outflow	(74,048,080)	(37,106,458)	(45,518,013)
Revenue	Cash Inflow	-	-	-
Net Cashflow	Net cash	(74,048,080)	(37,106,458)	(45,518,013)
CASHFLOW NPV		(65,633,444)	(34,370,882)	(42,329,480)
PLUS NON CASH				
Non Cash Benefits	Non cash in	-	-	-
Non Cash Costs	Non cash out	-	-	-
Net Value	Net Value	(74,048,080)	(37,106,458)	(45,518,013)
COST BENEFIT NPV		(65,633,444)	(34,370,882)	(42,329,480)
RANKING		3	1	2

¹⁶ Cost estimates used on the analysis have a level of accuracy of ±30% and do not include the 20% contingency amount applicable to this type of project.

5. Appendix – Risk Management Framework

LIKELIHOOD		CONSEQUENCE				
		1 NEGLIGIBLE	2 MINOR	3 MODERATE	4 MAJOR	5 SEVERE
<ul style="list-style-type: none"> • ≥ 99% probability • Impact occurring now • Could occur within “days to weeks” 	5 ALMOST CERTAIN	MEDIUM	MEDIUM	HIGH	VERY HIGH	VERY HIGH
<ul style="list-style-type: none"> • 50% - 98% probability • Balance of probability will occur • Could occur within “weeks to months” 	4 LIKELY	LOW	MEDIUM	HIGH	HIGH	VERY 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	LOW	LOW	MEDIUM	HIGH	HIGH
<ul style="list-style-type: none"> • 1% - 19% probability • May occur but not anticipated • Could occur in “years to decades” 	2 UNLIKELY	LOW	LOW	MEDIUM	MEDIUM	HIGH
<ul style="list-style-type: none"> • ≤1% probability • Occurrence requires exceptional circumstances • Only occur as a “100 year event” 	1 RARE	LOW	LOW	LOW	MEDIUM	MEDIUM