Investment Evaluation Summary (IES)

Project Details:

Project Name:	Asset Management Information System (AMIS) Improvement Program
Project ID:	00585
Business Segment:	Distribution
Thread:	Operational Support Systems
CAPEX/OPEX:	CAPEX
Service Classification:	Standard Control
Scope Type:	C
Work Category Code:	AMITS
Work Category Description:	AMIS Improvement Program
Preferred Option Description:	Continue to implement the TasNetworks AMIS to ensure essential Asset Management outcomes are met in accordance with the International Infrastructure Management (IIM) Manual and the AS/NZS/ISO:55000 international standards.
Preferred Option Estimate (Dollars $2016/2017):	$24,345,000

	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29
Unit ($)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Volume	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Estimate ($)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total ($)	$5,845,000	$5,300,000	$5,000,000	$4,700,000	$3,500,000	$3,760,000	$3,760,000	$3,760,000	$3,410,000	$3,410,000

Governance:

Works Initiator:	Bianca de Jersey	Date:	29/05/2017
Team Leader Endorsed:	Bianca de Jersey	Date:	29/05/2017
Leader Endorsed:	Bianca de Jersey	Date:	09/06/2017
General Manager Approved:	Mark Richardson	Date:	15/11/2018

Related Documents:

Description	URL
TasNetworks Policy - Asset Management Policy	http://businesszone.tnad.tasnetworks.com.au/policies/policies/Asset%20Management%20Policy%20(1).docx
TasNetworks AMIS Asset Management Plan	http://assetzone.tnad.tasnetworks.com.au/strategic-asset-management/Management%20Plans/AMIS%20Asset%20Management%20Plan.DOCX
NPV Calculation Tool	http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/r19workprogram/Deliverables/IES%20Referenced%20Documents%20-%20Distribution/Operational%20Support%20Systems/R19%20AMITS-SFTAA%20NPV%20Calculations(new)%20(3).xlsx

Section 1 (Gated Investment Step 1)

1. Overview

1.1 Background

This IES is for the Distribution component of the AMIS Improvement Program (AMISIP). The previous transmission and distribution determinations along with the GHD asset management maturity findings identified that the formation of TasNetworks brought with it a number of key, asset management related inconsistencies including misaligned business processes and asset information management anomalies.

To address these TasNetworks established the Asset Management Information System Improvement Project (AMISIP) to implement the necessary processes, information and tools required to support the strategic, tactical and operational management in accordance with the company's current Asset Management Policy.

This Regulatory Reset 2019 (RR19) investment need seeks to build on previous revenue reset outcomes to further implement and consolidate AMISIP in the future.

1.2 Investment Need

The investment need further supports compliance with the approved Asset Management Policy and alignment with the TasNetworks Strategy on a Page 2018-19.

As referenced in the Asset Management Policy the TasNetworks Asset Management System (AMS) is being developed in accordance with the requirements of AS/NZS/ISO55001:2014 – Asset Management – Management System – Requirements where a key requirement is that asset management and the asset management system be continually improved. To achieve this an Asset Management Improvement Program (AMIP) has been established to further develop the end-to-end Asset Management System and improve asset management capability across the organisation.

1.3 Customer Needs or Impact

TasNetworks regularly undertakes consumer engagement activities as part of business as usual and supported by the 'voice of the customer' program. This engagement seeks in depth feedback on specific issues relating to:

- how prices impact on services;
- current and future consumer energy use;
- outage experiences (frequency and duration) and expectations including communication expectations;
- Service Target Performance Incentive Scheme (STPIS) expectations (i.e. reliability standards and incentive payments); and increased understanding of the electricity industry and TasNetworks particularly.

Customers have identified safety, restoration of faults/emergencies and supply reliability as the highest performing services offered by TasNetworks. They also identified that into the future affordability, green, communicative, innovative, efficient and reliable services must be provided by TasNetworks.

The AMISIP will address customer needs and impacts by improving service levels through improved network availability; increased cost savings from improved asset management practices; supporting 'zero harm' commitments in terms of safety toward customers and TasNetworks staff, and the reliable and secure operation of the network.

1.4 Regulatory Considerations

Due to the nature of electricity as an essential service to the community, allied to its associated dangers, signifcant formal requirements are imposed upon TasNetworks. Consequently TasNetworks operates in a highly regulated business environment and must operate in accordance with a substantial suite of State and Commonwealth legislation, regulations and industry codes that together impose specifc compliance requirements on the organisation. The need to comply with these obligations has a signifcant influence on asset management processes and practices.

The AMISIP will continue to support the regulatory environment by incorporating compliance into the core AMS framework.

AMISIP will continue to support capital and operational expenditure objectives, as described by the National Electricity Rules, section 6.5.7(a). These include:

1. Comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
2. To the extent that there is no applicable regulatory obligation or requirement in relation to:

i. The quality, reliability or security of supply of standard control services; or
ii. The reliability or security of the electricity network through the supply of standard control services, to the relevant extent:

- Maintain the quality, reliability and security of supply of standard control services; and
- Maintain the reliability and security of the electricity network through the supply of standard control services.
- Maintain the safety of the electricity network through the supply of standard control services.

2. Project Objectives

In accordance with ISO55000, an Asset Management Information System (AMIS) is a combination of people, processes, data and technology that combine to provide the essential outputs for effective asset management. These outputs include:

- reduced risk;
- enhanced network performance;
- enhanced regulatory compliance;
- effective asset knowledge management; and
- effective resource utilisation and optimum infrastructure investment.

The AMIS management model to be implemented by TasNetworks has the objectives of:

- ensuring that holistic asset information is maintained and made available to support evidenced based decision making;
- enhancing the visibility, accessibility and trust in our asset data holdings;
- sustaining and improving network performance; and
- adopting continual improvement practices to support the asset management process.

AMISIP will continue to develop improved business systems and processes to further improve the efficiency of TasNetworks asset management activities on an ongoing basis. This will support the 'our business' strategic goal as it will interlink asset management processes and information through the entire asset lifecycle of - asset creation, operation and maintenance, performance monitoring, decommissioning and disposal. AMISIP will be continuously developed to deliver a robust platform for the extraction of asset information for various purposes.

3. Strategic Alignment

3.1 Business Objectives

Strategic and operational performance business objectives relevant to the AMIS program are derived from the approved TasNetworks Corporate Plan 2018-19 to 2023-24. The program aligns to the following areas of the Corporate Plan:

- we care for our customers and make their experience easier;
- we keep safe, building trusting relationships, and enable our people to deliver value;
- we manage our assets to deliver safe and reliable services, while transforming our business; and
- we operate our business to deliver sustainable shareholder outcomes.

3.2 Business Initiatives

The business initiatives reflected in TasNetworks Transformation Roadmap 2025 publication (January 2018) for transition to the future that have synergy with this project are as follows:

- Voice of the customer: We'll keep investing in support systems that make it easy for you to do business with us and help us understand your needs, so that either directly or through partnerships, we deliver services you value.
- Network and operations productivity: We'll improve how we deliver the field works program, continue to seek cost savings and use productivity targets to drive our business.
- Business productivity: We're transforming our business support systems to reduce costs and add value.
- Electricity and telecoms network capability: To meet your energy needs and ensure power system security, we'll invest in the network to make sure it stays in good condition, even while the system grows more complex. For instance, we'll need more sophisticated management, operating and protection schemes for intermittent power generation and to enable new technologies.
- Predictable and sustainable pricing: Because we want to deliver the lowest sustainable prices, we'll transition our pricing to better reflect the way you produce and use electricity and provide you with greater choice and control over your energy use.

4. Current Risk Evaluation

The current risk analysis indicates sub-optimal asset management information system processes, data and technology as key aspects to be addressed.

The continued implementation of AMISIP will help mitigate these risks such that future, decision-based asset management decision making will be significantly improved.

4.1 5x5 Risk Matrix

TasNetworks' business risks are analysed utilising the 5x5 corporate risk matrix, as outlined in TasNetworks Risk Management Framework.

Relevant strategic business risk factors that apply are as follows:

Risk Category	Risk	Likelihood	Consequence	Risk Rating

Customer	An unacceptable increase in unscheduled outages and a follow-on decline in network reliability.	Unlikely	Moderate	Medium
Environment and Community	Non-conformance with internal and external environmental policies and regulations.	Unlikely	Moderate	Medium
Financial	The reduced ability to determine optimal strategy for asset maintenance, refurbishment or replacement resulting in under/over expenditure.	Unlikely	Moderate	Medium
Financial	The inability to effectively justify expenditure.	Unlikely	Moderate	Medium
Financial	Declining network performance leading to possible regulatory penalties.	Unlikely	Moderate	Medium
Network Performance	Suboptimal asset maintenance, refurbishment and/or replacement leading to a decline in network reliability.	Unlikely	Moderate	Medium
Regulatory Compliance	The inability to undertake evidence-based decision making.	Unlikely	Moderate	Medium
Regulatory Compliance	The inability to demonstrate effective long-term asset management planning.	Unlikely	Moderate	Medium
Regulatory Compliance	The inability to effectively comply with statutory, legal and regulatory obligations.	Unlikely	Moderate	Medium
Reputation	The inability to effectively comply with TasNetworks strategic goals.	Unlikely	Moderate	Medium
Safety and People	Compromises the safety and wellbeing of our people and the wider community.	Unlikely	Moderate	Medium
Safety and People	The exposure of our field people to potential accident/injury as they unknowingly make decisions using poor quality/inaccurate information.	Unlikely	Moderate	Medium

Section 2 (Gated Investment Step 2)

5. Preferred Option:

As outlined in the International Infrastructure Management (IIM) manual and AS/NZS/ISO:55000 an AMIS is the combination of people, processes, data and technology collectively applied to provide the essential Asset Management outcomes. These include, but are not limited to:

- reduced risk of asset failure;
- enhanced network performance;
- enhanced compliance with regulatory and governance requirements;
- effective collection and management of asset knowledge;
- effective resource utilisation;
- optimum infrastructure investment; and
- understanding risk at an individual asset level and asset portfolio level.

The TasNetworks' AMISIP will deliver these outcomes as it will be the mechanism that interlinks asset management information and processes across the end-to-end asset life cycle (i.e. acquire, operate, maintain and dispose) as described in the IIM manual and ISO:55000 international standards.

Building on previous improvement programs, the current AMIS solution will be extended to include an advanced, unified AMIS across TasNetworks operations that incorporate all asset categories covering transmission and distribution assets. This involves identifying, specifying, developing and deploying fit-for-purpose asset information processes and supporting documentation to support evidence-based decision making in accordance with the strategic, tactical and operational asset management practices of the business.

A Key driver for implementing the AMIS Improvement Program is to increase TasNetworks' asset management maturity to level commensurate with industry peers and best practice. This is in part in response to improvement opportunities identified during the AERs consultation with TasNetworks on its 2019-24 Regulatory Proposals.

This increase in maturity is required in order to address the AERs claims that "...there is a lack of risk quantification in the underlying cost-benefit analysis supporting its capex forecast..." and "...the lack of quantifying risk consequences means that TasNetworks' approach to risk analysis is inadequate in fully understanding the impact of risks to the network".

In addition, the AER has stated as its First Principle in its draft Industry Practice Application Note for Asset Replacement Planning that:

> *To align with the NEO and to satisfy the requirements of the NER, asset management practices should enable demonstrably prudent and efficient expenditure decisions that accord with good electricity industry practice. This should, among other things, provide transparency of key information so key stakeholders are sufficiently informed about NSPs planning and decision making processes. These key stakeholders include, but are not limited to, non-network service providers, users of the network, and the AER.*

This program will materially increase the application and maturity of asset risk management systems in a timely manner.

5.1 Scope

The scope of work consists of a number of initiatives that, when implemented, will deliver a fully integrated, one business AMIS. The identified business process improvements for the period are described below. The AMIS program elements and initiatives required to achieve this are split across a number of periods and include but are not limited to, the following:

Period 2019/20 to 2023/24 and 2025/26 to 2028/29

- Asset Register enhancement
- Asset Technical Information
- Asset Geospatial Information

Period 2019/20 to 2021/22, 2024/25 to 2028/29

- Asset Operational Information

Period 2019/20 to 2021/22, 2025/26 to 2028/29

- Asset Technical Drawings

Period 2020/21

- Asset repair/refurbish/replace decision making

Period 2021/22

- Asset Inspection and condition

Period 2019/20 to 2028/29

- Asset risk management

Period 2024/25 to 2028/29

- Network performance targets and measures
- Performance reporting

Period 2019/20 to 2022/23 and 2025/26 to 2028/29

- Network Asset Data information and analytics

Period 2019/20 and 2025/26 to 2028/29

- Data quality
- Asset documentation

Period 2019/20 to 2020/21 and 2025/26 to 2028/29

- External systems integration

Out of scope

Due to the recent implementation of SAP across TasNetworks the following non-network asset information and business functions and systems are out-of-scope of the AMIS program, with a proviso that required system interfaces may be constructed, where prudent and efficient, to streamline underlying business functions and processes including but not limited to the following:

- processes and systems related to Facilities, IT and Fleet;
- Finance;
- Governance Risk and Compliance;
- Human Capital Management; and
- Supply Chain Management.

5.2 Expected outcomes and benefits

The expected outcomes from the AMIS program are as follows:

- AMIS will ensure that network asset information across all network assets will be available to support evidence based asset management decision making;
- AMIS will provide enhanced visibility, accessibility and trust in network asset information and processes;
- AMIS will support ongoing improvement in network performance; and
- AMIS will ensure the development and adoption of continuous improvement practices to support appropriate asset management processes and practices.

The expected key benefits are summarised as follows:

- improved trust in the accuracy, completeness and integrity of network asset information and processes resulting in improved uptake;
- increased confidence to make decisions that are based on high quality and reliable asset information;
- improved network asset information and processes to support revenue determination submissions;
- enhanced asset management processes will be embedded into daily activities;
- improved asset information accuracy, integrity, quality and availability that supports best appropriate practise asset management decision making; and
- reduction in the number/duration of outages due to improved network availability resulting from improved asset information and processes.

A significant component of this program includes the application of condition based risk management systems and practices extended to cover major network asset classes. Quantification of risk across these asset classes will strategically support the demonstration of prudency and efficiency of future revenue proposals.

The development and application of a comprehensive, robust and well supported asset risk management system will provide significant benefits in terms of efficiently managing network assets throughout the life-cycle. It will enable key information about assets to be analysed and presented quantitatively. Quantitative outputs from the asset risk management system will include:

- likelihood of asset failures (predictions for individual assets or populations of assets);
- consequences of asset failures (presented in dollar terms);
- optimum replacement timing (calculated based on the likelihood and consequence of failure);
- risk profiles of an asset population;
- impacts of changing the timing of asset replacements (can be assessed in risk and dollar terms); and
- alternative maintenance, refurbishment and replacement plans can be developed, compared and optimised.

5.3 Regulatory Test

A Regulatory Investment Test may be required for this program.

6. Options Analysis

The options analysis for this submission is limited to option 0, do nothing and option 1 continue to implement TasNetworks AMIS.

6.1 Option Summary

Option description	
Option 0	Do Nothing. Base Option - Do Nothing poses an unacceptable business risk by limiting the capability to undertake effective, evidence-based decision making across the asset management operations of the business. Ultimately this could adversely compromise TasNetworks ability to comply with a number of policy goals.
Option 1 (preferred)	Continue to implement the TasNetworks AMIS to ensure essential Asset Management outcomes are met in accordance with the International Infrastructure Management (IIM) Manual and the AS/NZS/ISO:55000 international standards.

6.2 Summary of Drivers

Option	
Option 0	Not applicable
Option 1 (preferred)	Drivers for this program include: • manage the asset base to meet the strategic goals, measures and initiatives outlined in the Corporate plan; • comply with relevant legislation, licences, codes of practice and industry standards; • apply contemporary condition assessment and risk management techniques to identify and effectively manage risks and opportunities; • develop and continuously improve asset management processes and systems to optimise asset management efficiencies and decision making processes; • operate assets safely within prescribed limits and apply dynamic ratings where appropriate; • maintain a complete and accurate register and documentation system of all our assets; • prepare and maintain high quality asset management plans, standards, guidelines, and procedures; • reduce the risk of asset failure; • enhanced network performance; • effective collection, enhancement and management of asset knowledge; • effective resource utilisation; and • optimum infrastructure investment.

6.3 Summary of Costs

Option	Total Cost ($)
Option 0	$0
Option 1 (preferred)	$24,345,000

6.4 Summary of Risk

See Risk Matrix

6.5 Economic analysis

Option	Description	NPV
Option 0	Do Nothing. Base Option - Do Nothing poses an unacceptable business risk by limiting the capability to undertake effective, evidence-based decision making across the asset management operations of the business. Ultimately this could adversely compromise TasNetworks ability to comply with a number of policy goals.	$0
Option 1 (preferred)	Continue to implement the TasNetworks AMIS to ensure essential Asset Management outcomes are met in accordance with the International Infrastructure Management (IIM) Manual and the AS/NZS /ISO:55000 international standards.	-$34,791,448

6.5.1 Quantitative Risk Analysis

TasNetworks business risks are analysed in accordance with the 5x5 corporate risk matrix, as outlined in TasNetworks Risk Management Framework.

The target risk profile at the completion of the submission is expected to achieve successful risk mitigation of all medium risks.

6.5.2 Benchmarking

Direct benchmarking against industry peers has not been undertaken however TasNetworks is aware that the provision and delivery of advanced asset management information initiatives is considered a high priority for most transmission and distribution Network Service Providers (NSP) around Australia.

6.5.3 Expert findings

In July 2014 GHD undertook a base line study of the current Asset Management (AM) processes and practices utilised in the management of infrastructure assets, and recommended a prioritised asset management improvement program for TasNetworks. This assessment determined the current level of sophistication of asset management processes and practices and identified the gap between what is deemed to be appropriate practice as described by the ISO55000 standards and having consideration for the size and complexity of the infrastructure asset portfolios involved. The key outcome of the study was a prioritised asset management improvement program that includes specific initiatives around Data and Information and Technology from which the AMISIP was established.

Recommended Improvement Projects

Data and Information

Managing Asset Knowledge – develop effective processes and procedures to improve the management of asset knowledge. Tasks include:

- link drawings/plans of assets and facilities to GIS;
- develop procedures to ensure electronic Maintenance Manuals are deployed;
- develop procedures to manage externally supplied distribution documents;
- review procedures and processes to capture necessary asset data across asset classes; and
- review processes and procedures to collect all asset attribute data across all asset classes.

Asset Data and Knowledge

Following the SAP Enterprise Asset Management (SAP EAM) implementation this project is to enhance the asset register and review and realign any discrepancies within the SAP asset register. The key improvement tasks include:

- Develop the physical asset hierarchy (Asset Breakdown Structure) and asset attribute definitions (Data Integrity Standards) across the asset register base ensuring they are fit-for-purpose; and
- identify and develop processes and procedures to collect condition and risk data across nominated asset classes.

Activity Data and Knowledge

Improve known asset data capture issues with operations and maintenance data to ensure job close-out processes are completed on time. The key improvement areas include:

- Review and improve current work practices to ensure activity data and knowledge comprising asset risk, maintenance and operations, work/resource management, valuation, cost histories, job costing and life cycle data are the most appropriate for TasNetworks.

Technology

Asset and Works Management Information Systems – TasNetworks has recently undertaken a business-wide business transformation program to implement SAP. Release one encompassing Finance, Governance Risk and Compliance, Human Capital Management and Supply Chain Management successfully achieved go-live in February 2017. Release two encompassing SAP EAM was deployed in March 2018.

The AMISIP will build upon the new SAP technology platform and deliver improvements including:

- developing processes and procedures to improve the timeliness and feedback from field crews regarding asset attribute data, asset utilisation, asset condition and asset performance;
- developing improved quality assurance checking of field-collected data and information, with emphasis on accuracy and data integrity in a common format for uploading into the various systems operating at the time.

6.5.4 Assumptions

The key assumptions for the AMIS program continue to include:

- Required internal and/or external resources are available to assist the AMIS team as required; and
- TasNetworks can provide operational and administrative support of the AMIS systems and applications.