

# Investment Evaluation Summary (IES)



## Project Details:

Project Name:	Asset Management Information System (AMIS) Improvement Program
Project ID:	02461
Business Segment:	Transmission
Thread:	Operational Support Systems (Transmission)
CAPEX/OPEX:	CAPEX
Service Classification:	Prescribed
Scope Type:	C
Work Category Code:	TAMSI
Work Category Description:	Asset Management Information System (Transmission)
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. Total Cost does not include 20% contingency.
Preferred Option Estimate (Dollars \$2016/2017):	\$9,855,000

	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	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Estimate (\$)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total (\$)	\$1,305,000	\$1,200,000	\$1,200,000	\$1,200,000	\$750,000	\$900,000	\$900,000	\$900,000	\$750,000	\$750,000

## Governance:

Works Initiator:	Bianca de Jersey	Date:	29/05/2017
Team Leader Endorsed:	Bianca de Jersey	Date:	29/05/2017
Leader Endorsed:	Mark Richard	Date:	09/06/2017
General Manager Approved:	Wayne Tucker	Date:	01/11/2017

## Related Documents:

Description	URL
TasNetworks Policy - Asset Management Policy	<a href="http://businesszone.tnad.tasnetworks.com.au/policies/policies/Asset%20Management%20Policy%20(1).docx">http://businesszone.tnad.tasnetworks.com.au/policies/policies/Asset%20Management%20Policy%20(1).docx</a>
TasNetworks AMIS Asset Management Plan	<a href="http://assetzone.tnad.tasnetworks.com.au/strategic-asset-management/Management%20Plans/AMIS%20Asset%20Management%20Plan.DOCX">http://assetzone.tnad.tasnetworks.com.au/strategic-asset-management/Management%20Plans/AMIS%20Asset%20Management%20Plan.DOCX</a>
NPV Calculations	<a href="http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/r19workprogram/Deliverables/IES%20Referenced%20Documents%20-%20Distribution/Operational%20Support%20Systems/R19%20AMIS-SFTAA%20NPV%20Calculations(new)%20(3).xlsx">http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/r19workprogram/Deliverables/IES%20Referenced%20Documents%20-%20Distribution/Operational%20Support%20Systems/R19%20AMIS-SFTAA%20NPV%20Calculations(new)%20(3).xlsx</a>
GIS Strategy	<a href="http://assetzone.tnad.tasnetworks.com.au/strategic-asset-management/Strategic%20Plans/Forms/AllItems.aspx">http://assetzone.tnad.tasnetworks.com.au/strategic-asset-management/Strategic%20Plans/Forms/AllItems.aspx</a>

# Section 1 (Gated Investment Step 1)

## 1. Overview

### 1.1 Background

This EIS is for the Transmission component for the AMIS Improvement Program. 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 miss-aligned 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 2016-17.

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 undertake consumer engagement activities as part of business and 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; achieving '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 imposes significant formal requirements 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 specific compliance requirements on the organisation. The need to comply with these obligations has a significant 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 evidence base 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 'one 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 and 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 2016-17 to 2020-21. The program aligns to the following areas of the Corporate Plan:

- we understand our customers by making them central to all we do;
- we enable our people to deliver value and keep safe;
- we care for our assets, delivering safe and reliable network services while transforming our business; and
- we operate our business to deliver sustainable shareholder outcomes.

### 3.2 Business Initiatives

The business initiatives that relate to the AMIS program are as follows:

- safety of our people and the community, while reliably providing network services, is fundamental to the TasNetworks business and remains our immediate priority;
- we care for our assets to ensure they deliver safe and reliable network services to our customers; and
- the strategic key performance indicators that will be impacted through undertaking this program are as follows:
  - customer price considerations – lowest sustainable prices;
  - zero harm – reduced number of significant and reportable incidents; and
  - sustainable cost reduction – efficient operating and capital expenditure.

## 4. Current Risk Evaluation

## 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 inability to effectively justify expenditure.	Unlikely	Moderate	Medium
Financial	Declining network performance leading to possible regulatory penalties.	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
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 effectively comply with statutory, legal and regulatory obligations.	Unlikely	Moderate	Medium
Regulatory Compliance	The inability to demonstrate effective long-term asset management planning.	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; and
- optimum infrastructure investment.

The TasNetworks AMIS 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 revenue reset determinations 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.

#### 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 and 2025/26 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 2022/23 and 2025/26 to 2028/29

- Asset failure prediction

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

- Asset criticality assessment

Period 2024/25 to 2028/29

- Asset risk evaluation

Period 2024/25 and 2025/26 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 the pending 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 networks 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 best 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 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;
- reduction in the number/duration of outages due to improved network availability resulting from improved asset information and processes.

## 5.3 Regulatory Test

There is no specific regulatory test designed for this program of work.

# 6. Options Analysis

## 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. Total Cost does not include 20% contingency.

## 6.2 Summary of Drivers

Option	
Option 0	Not applicable
Option 1 (preferred)	<p>Drivers as outlined in the Asset Management Plan include:</p> <ul style="list-style-type: none"> <li>• manage the asset base to meet the strategic goals, measures and initiatives outlined in the Corporate plan;</li> <li>• comply with relevant legislation, licences, codes of practice and industry standards;</li> <li>• apply contemporary condition assessment and risk management techniques to identify and effectively manage risks and opportunities;</li> <li>• develop and continuously improve asset management processes and systems to optimise asset management efficiencies and decision making processes;</li> <li>• operate assets safely within prescribed limits and apply dynamic ratings where appropriate;</li> <li>• maintain a complete and accurate register and documentation system of all our assets;</li> <li>• prepare and maintain high quality asset management plans, standards, guidelines, and procedures;</li> <li>• reduce the risk of asset failure;</li> <li>• enhanced network performance;</li> <li>• effective collection, enhancement and management of asset knowledge;</li> <li>• effective resource utilisation; and</li> <li>• optimum infrastructure investment.</li> </ul>

## 6.3 Summary of Costs

Option	Total Cost (\$)
Option 0	\$0
Option 1 (preferred)	\$9,855,000

## 6.4 Summary of Risk

## 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. Total Cost does not include 20% contingency.	-\$12,498,373

### 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 'high' risks. At the same time a number of medium and low risks will be mitigated as a result.

## 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 best 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 born.

### 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 new and review the physical asset hierarchy (Asset Breakdown Structure) and asset attribute definitions (Data Integrity Standards) across the asset register base 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 is currently undertaking 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 on 3 February 2017. Release two encompassing SAP EAM is scheduled for go-live at 5 February 2018.

As the outcomes of the SAP program are as yet unknown any commentary on technology is limited to that technology outside of the SAP environment.

EMS-WASP is the current asset and work management system and as part of the SAP program is scheduled for decommissioning by the end of 2017 or early 2018. Regardless of the toolset key improvements include:

- develop processes and procedures to improve the timeliness and feedback from field crews regarding asset attribute data, asset utilisation, asset condition and asset performance;
- develop 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:

- The organisation structure within NIS fundamentally remains the same in terms of business functions NIS will deliver to the business;
- TasNetworks has access to business process modelling expertise (i.e. internally or externally) with the key skills necessary to support the AMIS team;
- 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.