Investment Evaluation Summary (IES)

Project Details:

Project Name:	Telecommunications Ethernet Systems
Project ID:	00875
Thread:	Operational Support Systems
CAPEX/OPEX:	CAPEX
Service Classification:	Standard Control
Scope Type:	D
Work Category Code:	AMITS
Work Category Description:	AMIS Improvement Program
Preferred Option Description:	This program of work is for the replacement of the Ethernet networking system assets used for the distribution system SCADA operating around the Hobart area zone substation network. The equipment includes: Data networking equipment; eg switches, routers and wireless base stations; Management software for the operations and maintenance of the equipment; Equipment and patching racks; Minor data communications assets eg patch cables, media converters, transceivers and utilisies.
Preferred Option Estimate (Nominal Dollars):	$224,000

	19/20	**24/25**
Unit ($)	N/A	N/A
Volume	1	1
Estimate ($)		
Total ($)	$112,000	$112,000

Governance:

Project Initiator:	Marcus Excell	**Date:**	31/03/2015
Thread Approved:	Ben Cashman	**Date:**	16/10/2015
Project Approver:	Josh Cunningham	**Date:**	19/10/2015

Document Details:

Version Number:	1

Related Documents:

Description	URL

Section 1 (Gated Investment Step 1)

1. Background

TasNetworks utilises Ethernet Systems for the purpose of providing SCADA communications at a number of electricity infrastructure sites enabling the remote monitoring and control of the electricity network. This enables efficiencies in he way the network is managed.

1.1 Investment Need

The Ethernet switches located at the distribution substations are a crucial enabling medium for the internal organisational processes. The devices have a short life span (<5 years) which creates a significant driver for change due to:

- Manufacturers supersceding products and ceasing support;
- Product interoperability with other devices;
- Product visibility on management systems;
- Potential compromises to Ethernet security.

1.2 Customer Needs or Impact

These services are a crucial enabling medium supporting the operations of the electricity network as well as enabling internal organizational processes. These services are often invisible to customers and are a requirement for the electricity system. Customer consultation is through routine Tasnetworks processes including ongoing regular customer liaison meetings and in future the Annual Planning Review. The Ethernet switches and routers are subject to the same obsolescence and manufacturer support issues that affect the other Ethernet equipment utilized through the company.

- Ethernet equipment has a short life <5 years;
- Manufacturers supersede products and cease support shortly after a product is superseded;
- Product interoperability with other devices and with management systems is not maintained; and
- Ethernet security can be compromised following the ceasing of vendor support.

1.3 Regulatory Considerations

Provides the control and operational facilities for the major distribution and sub-transmission system around Hobart. In maintaining adequate electricity system control and therefore compliance, the communications facility becomes a crucial component.

2. Project Objectives

The program of work focusses on the Ethernet networking system assets used for the distribution system SCADA operating around the Hobart area zone substation network. The equipment includes:

- Data networking equipment; eg switches, routers and wireless base stations;
- Management software for the operations and maintenance of the equipment;
- Equipment and patching racks;
- Minor data communications assets eg patch cables, media converters, transceivers and utilisies. These systems provide services to the distribution operations around the zone

substations.

3. Strategic Alignment

3.1 Business Objectives

Continue to improve business processes - Ensure the availability of systems to support business process improvement. Communications Availability - Maintain the communications performance (around the zone substations) in support of the electricity system. Not doing this project means that switches are planned to run to failure, and losing communications to the substations will mean that feeder status is not monitored compromising safety of people and plant, and meaning that system faults are not immediately identified.

3.2 Business Initiatives

As critical assets necessary for the reliable operation of SCADA communications, it is necessary to ensure good asset management practices. The assets need to be supported by the vendor and the manufacturer to ensure adequate product patching against security threats, and to ensure complex asset failures can be resolved quickly.

4. Current Risk Evaluation

The current Ethernet switches will be obsolete and no longer supported by the vendor. The devices capabilities will not provide the same level as modern devices and will create incompatibilities with new devices when the system is expanded. Obsolete devices are also not included in updated versions of management systems and therefore cannot be managed remotely.

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 follows:

Risk Category	Risk	Likelihood	Consequence	Risk Rating
Network Performance	Poor condition assets remaining in the system increase the performance risk with outages from fatigued electronics becoming more common and with the technology vendor support diminishing the system repairs may be higher than usual.	Possible	Negligible	Low
Regulatory Compliance	Compliance with NER 4.11.2 regarding the operational control and indication communications facilities.	Possible	Negligible	Low

Section 1 Approvals (Gated Investment Step 1)

Project Initiator:	Marcus Excell	**Date:**	31/03/2015
Line Manager:		**Date:**	
Manager (Network Projects) or Group/Business Manager (Non-network projects):		**Date:**	
[Send this signed and endorsed summary to the Capital Works Program Coordinator.]			

Actions			
CWP Project Manager commenced initiation:		**Assigned CW Project Manager:**	
PI notified project initiation commenced:		**Actioned by:**	

Section 2 (Gated Investment Step 2)

5. Preferred Option:

This program of work is for the replacement of the Ethernet networking system assets used for the distribution system SCADA operating around the Hobart area zone substation network. The equipment includes:

- Data networking equipment; eg switches, routers and wireless base stations;
- Management software for the operations and maintenance of the equipment;
- Equipment and patching racks;
- Minor data communications assets eg patch cables, media converters, transceivers and utilities.

Scope of works for Ethernet System Replacements:

- Replace the existing Ethernet equipment with the standard network Ethernet equipment for the purpose required ensuring that the present and future capacity and configuration needs of Tasnetworks are accounted for;
- Provide appropriate equipment cabinets where required with suitable patching systems for the mounting of equipment and the secure patching of services. Temporarily relocate existing equipment where necessary to free required space for the installation;
- Ensure that the system performance of the Ethernet system can be provided at the required service levels as provided in the Telecommunications Ethernet Systems Asset Management Plan ;
- Remove redundant Ethernet equipment and other network components superseded by the new Ethernet installations; and
- Install appropriate management equipment(where required) and integrate the new equipment in TNOCS.

5.1 Scope

Scope of works for Ethernet System Replacements:

- Replace the existing Ethernet equipment with the standard network Ethernet equipment for the purpose required ensuring that the present and future capacity and configuration needs of Tasnetworks are accounted for;
- Provide appropriate equipment cabinets where required with suitable patching systems for the mounting of equipment and the secure patching of services. Temporarily relocate existing equipment where necessary to free required space for the installation;
- Ensure that the system performance of the Ethernet system can be provided at the required service levels as provided in the Telecommunications Ethernet Systems Asset Management Plan ;
- Remove redundant Ethernet equipment and other network components superseded by the new Ethernet installations; and
- Install appropriate management equipment(where required) and integrate the new equipment in TNOCS.

5.2 Expected outcomes and benefits

The solution will enable the continued operation of the Distribution SCADA operating around the Hobart Area Zone Substations, and will allow Tasnetworks to continue to manage the system through the management packages. The replacements will be for obsolete devices which are no longer supported by the manufacturer and therefore excluded from the manufacturers updated

management packages.

5.3 Regulatory Test

Not applicable - this is not an augmentation project.

6. Options Analysis

This project is a low cost project at $112,000 in capital expenditure. The project considers the replacement of the assets against the option to maintain the existing assets. It is deemed that risks associated with maintaining the assets is increasing and higher than what is tolerable and therefore the Do Nothing option is not consider credible. The preferred option is based on addressing these risks and is the option to replace the existing assets with modern network devices. No NPV has been undertaken for this project due to the cost of the project.

6.1 Option Summary

Option description	
Option 0	Do nothing
Option 1 (preferred)	This program of work is for the replacement of the Ethernet networking system assets used for the distribution system SCADA operating around the Hobart area zone substation network. The equipment includes: Data networking equipment; eg switches, routers and wireless base stations; Management software for the operations and maintenance of the equipment; Equipment and patching racks; Minor data communications assets eg patch cables, media converters, transceivers and utilisies.

6.2 Summary of Drivers

Option	
Option 0	• Equipment will have exceeded their useful service life; • The equipment will be obsolete and is expected to be unsupported by the vendor; • The Product will be removed from future management platform updates and become unmanageable; • The product patching will not be available and security vulnerabilities will not be fixed.
Option 1 (preferred)	• Devices will be latest generation, current models, and will be supported by the vendor; • Product interoperability and management system operation will be maintained; • A security patched product will be maintained addressing the Ethernet security risks.

6.3 Summary of Costs

Option	Total Cost ($)
Option 0	$0
Option 1 (preferred)	$224,000

6.4 Summary of Risk

Current generation Ethernet switches provide:

- Modern performance;
- Reduced downtime during a system failure due to the access to the vendors experts;
- A secure environment through system patching;
- Continued system management through operational management systems.

6.5 Economic analysis

Option	Description	NPV
Option 0	Do nothing	$0
Option 1 (preferred)	This program of work is for the replacement of the Ethernet networking system assets used for the distribution system SCADA operating around the Hobart area zone substation network. The equipment includes: Data networking equipment; eg switches, routers and wireless base stations; Management software for the operations and maintenance of the equipment; Equipment and patching racks; Minor data communications assets eg patch cables, media converters, transceivers and utilisies.	$0

6.5.1 Quantitative Risk Analysis

Not undertaken due to the low value of the project.

6.5.2 Benchmarking

Benchmarking has not been considered due to the low value of the project.

6.5.3 Expert findings

Not considered necessary due to the low value of the project.

6.5.4 Assumptions

The project is at a cost of $112,000 once every 5 years. The project is covering the need to replace obsolete and therefore unserviceable products. The cost of the project warrants comparison of the preferred option against the Do Nothing option but does not warrant the time to analyse the option alongside any other options.

Section 2 Approvals (Gated Investment Step 2)

Project Initiator:	Marcus Excell	**Date:**	31/03/2015
Project Manager:		**Date:**	

Actions			
Submitted for CIRT review:		**Actioned by:**	
CIRT outcome:			