Investment Evaluation Summary (IES)

Project Details:

Project Name:	Replace Recloser and/or Control Box
Project ID:	00393
Thread:	Protection and Control
CAPEX/OPEX:	CAPEX
Service Classification:	Standard Control
Scope Type:	D
Work Category Code:	RERPC
Work Category Description:	Replace reclosers - controllers
Preferred Option Description:	Option 1 (preferred): Capital-based replacement of recloser controller. Advantages: costs in completing this work are sustainable. Disadvantages: requires failure in service.
Preferred Option Estimate (Nominal Dollars):	$1,325,700

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Unit ($)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Volume	6	6	6	6	6	6	6	6	6	6
Estimate ($)										
Total ($)	$132,570	$132,570	$132,570	$132,570	$132,570	$132,570	$132,570	$132,570	$132,570	$132,570

Governance:

Project Initiator:	Sperry Pinner	**Date:**	11/03/2015
Thread Approved:	David Ellis	**Date:**	02/11/2015
Project Approver:	David Ellis	**Date:**	02/11/2015

Document Details:

Version Number:	1

Related Documents:

Description	URL

IES	http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Protection%20and%20Control/RERPC%20Replace%20Recloser%20and%20or%20Control%20Box.docx
NPV	http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Protection%20and%20Control/NPV%20RERPC%20(Controllers).xlsm

Section 1 (Gated Investment Step 1)

1. Background

TasNetworks (TN) has a fleet of pole-mounted reclosers which includes load break switches and sectionalisers, throughout its overhead network. These devices comprise controller cubicles which house associated secondary electronic equipment. This equipment experiences a wide range of failures and requires reactive:

- Operational expenditure to replace individual components such as circuit boards and modems; and
- Capital expenditure for more substantial controller faults such as surges, fires, and equipment malfunction to replace an entire controller.

This Investment Evaluation Summary document pertains to the latter.

1.1 Investment Need

The recloser fleet has an age profile as shown in Figure 1, with a controller failure rate of approximately 1% yearly. Using this failure rate and the predicted growth rate based on historic data, it is anticipated that TN will require 6 recloser controller (capital) replacements per year.

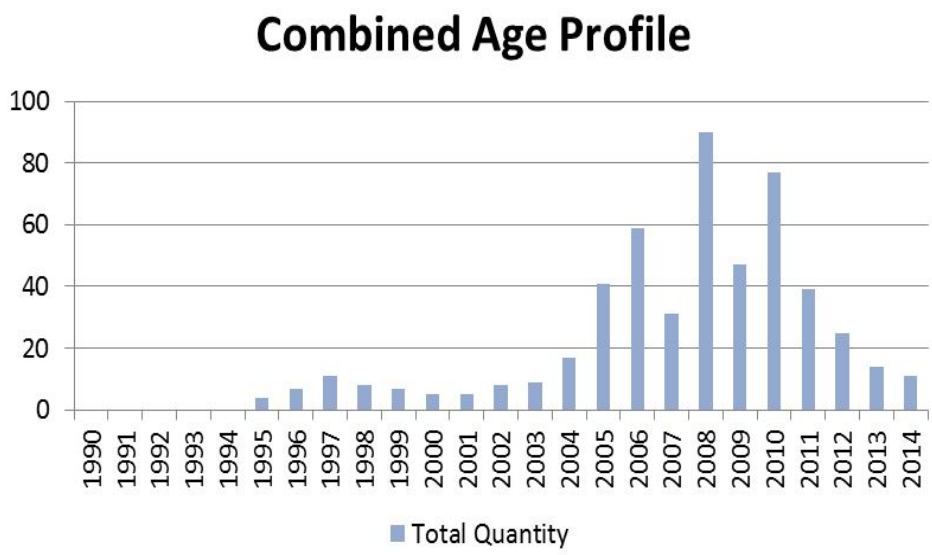

Figure 1: Recloser age profile (including LBS and sectionalisers)

Ramping up OPEX programs to target controller pre-failure is not considered a worthy option due to the modes of failure experienced. The modes of in-service failure relating to an entire controller are largely unpreventable, and it is good asset management practice to carry sufficient spares to cover the expected failure numbers.

CAPEX-based pre-failure replacement is similarly not regarded a worthy option, due to the unpredictability and cost.

1.2 Customer Needs or Impact

TasNetworks continues to undertake a consumer engagement as part of business as usual and through the voice of the customer program. This engagement seeks in depth feedback on specific issues relating to:

- How it prices impact on its services;
- Current and future consumer energy use;

- Outage experiences (frequency and duration) and expectations;
- Communication expectations;
- STPIS expectations (reliability standards and incentive payments); and
- Increase understanding of the electricity industry and TasNetworks.

Consumers have identified safety, restoration of faults/emergencies and supply reliability as the highest performing services offered by TasNetworks.

Consumers also identified that into the future they believe that affordability, green, communicative, innovative, efficient and reliable services must be provided by TasNetworks.

This project specifically addresses the requirements of consumers in the areas of safety, restoration of faults/emergencies and supply reliability.

1.3 Regulatory Considerations

This project is required to achieve the following capital and operational expenditure objectives as described by the National Electricity Rules section 6.5.7(a). (4) maintain the safety of the distribution system through the supply of standard control services.

2. Project Objectives

To undertake specified replacement of a Nulec recloser and/or control box.

3. Strategic Alignment

3.1 Business Objectives

Strategic and operational performance objectives relevant to this project are derived from TasNetworks 2014 Corporate Plan, approved by the board in 2014. This project is relevant 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.
- We care for our assets, delivering safe and reliable networks services while transforming our business.

3.2 Business Initiatives

The business initiatives that relate to this project 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

The strategic key performance indicators that will be impacted through undertaking this project are as follows:

- Price for customers – lowest sustainable prices
- Zero harm – significant and reportable incidents
- Sustainable cost reduction – efficient operating and capital expenditure

4. Current Risk Evaluation

Do nothing is not an acceptable option to TN's risk appetite.

The level of risk identified is such that a treatment plan is required to reduce the risks to a tolerable level, in line with TasNetworks' Risk Management Framework.

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
Customer	Outage effects on customer	Possible	Minor	Low
Environment and Community	Environmental damage	Rare	Negligible	Low
Financial	Penalties resulting from reliability events following recloser controller failure	Possible	Negligible	Low
Network Performance	Damage to plant and equipment with asset failure	Unlikely	Moderate	Medium
Regulatory Compliance	Penalties resulting from reliability events in the critical infrastructure area	Possible	Negligible	Low
Reputation	Outage effects on customer	Rare	Moderate	Low
Safety and People	Damage to personnel and/or the general public	Unlikely	Moderate	Medium

Section 1 Approvals (Gated Investment Step 1)

Project Initiator:	Sperry Pinner	**Date:**	11/03/2015
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:

The preferred option is to replace the failed controllers after they have failed in service with a like-for-like equivalent controller.

5.1 Scope

Replace failed controller as required.

5.2 Expected outcomes and benefits

The expected outcome of this program is like for like replacement of failed-in-service controller, at minimal cost to the customer.

5.3 Regulatory Test

Not applicable.

6. Options Analysis

6.1 Option Summary

Option description	
Option 0	Do nothing.
Option 1 (preferred)	Option 1 (preferred): Capital-based replacement of recloser controller. Advantages: costs in completing this work are sustainable. Disadvantages: requires failure in service.
Option 2	Option 2: Replace complete recloser tank and controller Use CAPEX funding to replace the complete recloser assembly. Advantages: also reduces risk of primary failure. Disadvantages: more costly than Option 1 (controller replacement).

6.2 Summary of Drivers

Option	
Option 0	Keep a reliable supply to the customer - Does not address risk Minimum cost to the customer - Does not address
Option 1 (preferred)	Keep a reliable supply to the customer - Addresses risk Minimum cost to the customer -Addresses
Option 2	Keep a reliable supply to the customer - Addresses risk

	Minimum cost to the customer - Does not address

6.3 Summary of Costs

Option	Total Cost ($)
Option 0	$0
Option 1 (preferred)	$1,325,700
Option 2	$3,828,956

6.4 Summary of Risk

Option	Risk Assessment
Option 0	Medium
Option 1 (preferred)	Low
Option 2	Low

6.5 Economic analysis

Option	Description	NPV
Option 0	Do nothing.	$0
Option 1 (preferred)	Option 1 (preferred): Capital-based replacement of recloser controller. Advantages: costs in completing this work are sustainable. Disadvantages: requires failure in service.	-$938,220
Option 2	Option 2: Replace complete recloser tank and controller Use CAPEX funding to replace the complete recloser assembly. Advantages: also reduces risk of primary failure. Disadvantages: more costly than Option 1 (controller replacement).	-$2,705,091

6.5.1 Quantitative Risk Analysis

Not applicable.

6.5.2 Benchmarking

Similar strategies have been adopted by mainland utilities for their regulatory submissions.

6.5.3 Expert findings

Not applicable.

6.5.4 Assumptions

All costs are in 2014/15 dollars.

Section 2 Approvals (Gated Investment Step 2)

Project Initiator:	Sperry Pinner	**Date:**	11/03/2015
Project Manager:		**Date:**	

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