Investment Evaluation Summary (IES)

Project Details:

Project Name:	Replace station services transformer at Derwent Park Zone
Project ID:	00658
Thread:	Zone Substations
CAPEX/OPEX:	CAPEX
Service Classification:	Standard Control
Scope Type:	A
Work Category Code:	REUZO
Work Category Description:	Replace Urban/CBD Zones Other
Preferred Option Description:	Replacement of station services transformer
Preferred Option Estimate (Nominal Dollars):	$140,000

	19/20
Unit ($)	N/A
Volume	1
Estimate ($)	
Total ($)	$140,000

Governance:

Project Initiator:	Michael Healy	**Date:**	26/03/2015
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 REUZO Replace station services transformer at Derwent Park Zone	http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Zone%20Substations/DRAFT%20IES%20REUZO%20Replace%20station%20services%20transformer%20at%20Derwent%20Park%20Zone.docx

Section 1 (Gated Investment Step 1)

1. Background

The Derwent Park Zone substation is a 33/11kV substation of 45MVA capacity in the northern suburbs of Hobart. The substation was commissioned in 1964.

The substation supplies 3302 residential and commercial customers in the areas of Derwent Park, Moonah, Lutana, Goodwood and Glenorchy. The substation is also strategic in providing alternative supply to other surrounding areas e.g. Glenorchy and New Town in the event of a need to supplement Chapel St or New Town substations.

The station service supply is a critical component of the substation as it provides all the low voltage power for the site. The supply comprises or a high voltage circuit breaker and a 100kVA transformer.

Photo 1 –Services transformer and HV switchgear

1.1 Investment Need

Replacement of the station services transformer and the high voltage switchgear that supplies the transformer has become necessary to ensure that adequate network security is maintained for the high voltage feeders supplied from the zone substation and to also minimise the safety risks associated with the site.

The high voltage switchgear that supplies the station services transformer uses oil as the insulating medium, which result in a significant safety risk if a catastrophic failure occurs when switching is being undertaken. Such an event could result in harm to operational personnel.

1.2 Customer Needs or Impact

TasNetworks continues to undertake 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
- Increasing 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 and affordability.

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).

(2) Comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;

(3) 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 distribution system through the supply of standard control services, to the relevant extent:

(iii) Maintain the quality, reliability and security of supply of standard control services; and

(iv) Maintain the reliability and security of the distribution system through the supply of standard control services; and

(4) Maintain the safety of the distribution system through the supply of standard control services.

2. Project Objectives

The objective of this project is to replace the station services power transformer at Derwent Park Zone to ensure the security of supply is maintained for the site for long term.

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; and
- 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; and
- 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; and
- Sustainable cost reduction – efficient operating and capital expenditure

4. Current Risk Evaluation

If TasNetworks does not replace the station services transformer there is a risk that a failure could occur that results in a significant disruption to all customers supplied from Derwent Park Zone.

The assessment of risk was undertaken using TasNetworks' Risk Management Framework.

The level of risk identified was such that a treatment plan is required to reduce the risk down to a manageable level.

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	Loss of supply	Possible	Moderate	Medium

Network Performance	Partial disconnection of network	Possible	Minor	Low
Reputation	Damage to reputation from harm to member of the public	Possible	Minor	Low
Safety and People	Failure of the HV circuit breaker under switching	Unlikely	Major	Medium

Section 1 Approvals (Gated Investment Step 1)

Project Initiator:	Michael Healy	**Date:**	26/03/2015
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 station services transformer at Derwent Park zone .

5.1 Scope

The scope would consist of:

- Replacement of the station services transformer
- Removal of the HV circuit breaker
- Installation of a new minipad kiosk (transformer, HV fuses and LB board)
- Installation of the HV cable that connects the minpad onto the HV feeder circuit breaker
- Replacement of the LV cables

5.2 Expected outcomes and benefits

Following the completion of this project the security of supply for the site would be maintained for the long term.

5.3 Regulatory Test

Not applicable

6. Options Analysis

6.1 Option Summary

Option description	
Option 0	Do nothing
Option (preferred)	Replacement of station services transformer

6.2 Summary of Drivers

Option	
Option 0	• Potential for significant power disruption. • Potential for significant network disruption. • Risk to reputation from asset failures resulting in large power disruption.
Option (preferred)	• Greatly reduces the likelihood of customer impact from asset failures. • Greatly reduces the likelihood of harm to employees from an asset failure. • Greatly reduces the risk of network disruption from asset failures. • Greatly reduces the risk to reputation from a failure occurring that causes significant network disruption.

6.3 Summary of Costs

Option	Total Cost ($)
Option 0	$0
Option (preferred)	$140,000

6.4 Summary of Risk

Option 0: Do Nothing

Safety risk to operational personnel at an unacceptable level (Medium), increasing over time.

Customer supply risk remains at an unacceptable level (Medium), with the risk increasing further over time as the asset condition further deteriorates.

Option 1: Replacement of both power transformers [Preferred Option]

Both safety and customer supply risks reduced to a manageable level (Low).

6.5 Economic analysis

Option	Description	NPV
Option 0	Do nothing	$0
Option (preferred)	Replacement of station services transformer	$0

6.5.1 Quantitative Risk Analysis

Not applicable

6.5.2 Benchmarking

Maintaining security of supply for the electrical distribution network is also considered a high priority for other DNSP's around Australia.

6.5.3 Expert findings

Not applicable

6.5.4 Assumptions

Nil

Section 2 Approvals (Gated Investment Step 2)

Project Initiator:	Michael Healy	**Date:**	26/03/2015
Project Manager:		**Date:**	

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