Investment Evaluation Summary (IES)

Project Details:

Project Name:	Address safety and environmental Issued in ground mounted substations - Replace substation doors
Project ID:	00524
Thread:	Ground Mounted Substations
CAPEX/OPEX:	CAPEX
Service Classification:	Standard Control
Scope Type:	B
Work Category Code:	SIGMS
Work Category Description:	Address Safety and Env Issues in GMS
Preferred Option Description:	Install fire rated door
Preferred Option Estimate (Nominal Dollars):	$600,000

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Unit ($)	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Volume	20	20	20	20	20	20	20	20	20	20
Estimate ($)	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
Total ($)	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000

Governance:

Project Initiator:	Jarad Hughes	**Date:**	20/03/2015
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
Address Safety and Environmental Issued in Ground Mounted Substations - IES	http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Ground%20Mounted%20Substations/DRAFT%20SIGMS%20-%20Address%20Safety%20and%20Environmental%20Issues%20in%20Ground%20Mounted%20Substations%20IES.docx

Section 1 (Gated Investment Step 1)

1. Background

TasNetworks own and maintain approximately 1900 ground mounted distribution substations which can be divided into the following types:

1. Building: Indoor equipment enclosed in a permanent building with working space and passageways;
2. Fence: Predominantly outdoor equipment, but may be indoor equipment installed in individual weatherproof housings, within a fenced enclosure;
3. Kiosk: Indoor equipment enclosed in a common weatherproof housing with little or no working space or passageway. Provision is made for individual items to be changed;
4. Padmounted: A complete assembly, which is installed or replaced as a unit on a concrete foundation at ground level; and
5. Vault: Indoor equipment housed in an underground vault with access by a vertical hatchway from a road or footpath.

These assets were installed from the 1950s and the technology and designs used previously vary greatly to those of today's standards. As such a number of these contain safety and environmental issues of which this program aims to address. The issues are as follows:

- Lack of adequate oil containment
- Asbestos containing material
- Fire standards compliance
- Exposed energised equipment (live front boards)

1.1 Investment Need

TasNetworks is required to comply with the Work Health and Safety Act and Regulations 2012, along with the Building Code of Australia, AS 2067 Substation and High Voltage Installations Exceeding 1 kV AC, AS 3000 Electrical Wiring Rules and WorkSafe Tasmania – How to Manage and Control Asbestos in the Workplace Code of Practice.

Fire standards compliance:

TasNetworks own 196 building integrated substations that have doorways that lead into buildings owned by another party. It is a requirement of AS 2067 that these substations be fitted with self-closing fire doors having a Fire Rated Level (FRL) not less than 120/120/120. Many of the installed doors do not meet the required fire rating or are in poor condition.

Figure 2 - Poor condition building type substation fire door

Figure 3 - New fire door which compliant with current building codes

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)
- 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
- affordability, green, communicative, innovative, efficient and reliable services

Customers will continue to be consulted through routine TasNetworks processes, including the Voice of the customer program, the Annual Planning Review and ongoing regular customer liaison meetings.

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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).

6.5.7 (a) Forecast capital expenditure

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

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

2. Project Objectives

The objective of this program is to address sites that have poor condition doors and those that are not fire rated

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:

- Zero harm – significant and reportable incidents

4. Current Risk Evaluation

If TasNetworks where to take a do nothing approach and a fire occured in a substation it may not be contained on site, resulting in an elevated risk of damage occurring to adjacent property and the public.

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
Safety and People	Multiple fatalities from building/vault type substation fire	Unlikely	Severe	High

Section 1 Approvals (Gated Investment Step 1)

Project Initiator:	Jarad Hughes	**Date:**	20/03/2015
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:

Replace poor condition and non-fire rated doors

5.1 Scope

As of March 2015 TasNetworks is undertaking an audit to assess the condition of all building type substation access doors. Early results from the North West of the state indicate that of the 42 sites completed there are 34 doors that are in poor condition and require replacement. Replacement priority will be given to those doors that have access to other sections of a building, high risk areas based on location and foot traffic, and those that contain asbestos. It is expected that the audit will highlight approximately 160 doors state-wide that require replacement. 20 doors are to be replaced per year

5.2 Expected outcomes and benefits

This work will ensure TasNetworks distribution substations are compliant with AS2067 and the Building Code of Australia, and ensure that fires are contained within substations in the event that one occurs

5.3 Regulatory Test

Not applicable

6. Options Analysis

6.1 Option Summary

Option description	
Option 0	Do nothing
Option 1 (preferred)	Install fire rated door

6.2 Summary of Drivers

Option	
Option 0	Potentially non-compliant sites that will not prevent the spread of substation fires
Option 1 (preferred)	This will help contain fires in the event one starts inside a substation

6.3 Summary of Costs

Option	Total Cost ($)
Option 0	$0
Option 1 (preferred)	$600,000

6.4 Summary of Risk

Option 0: Do Nothing

There is risk to the public being injured or fire causing property damage due to, fire containment not being as robust as it is in current standards.

Option 1: Install Fire Rated Doors [Preferred Option]

The risk of the public being injured or fire causing property damage, it will be reduced as the fire rated doors are what is required in the current standard.

6.5 Economic analysis

Option	Description	NPV
Option 0	Do nothing	$0
Option 1 (preferred)	Install fire rated door	$0

6.5.1 Quantitative Risk Analysis

Not applicable

6.5.2 Benchmarking

Other DNSPs also have policies to ensure other installations are compliant with fire regulations and strategies to minimise the risks associated with fire.

6.5.3 Expert findings

Not applicable

6.5.4 Assumptions

None

Section 2 Approvals (Gated Investment Step 2)

Project Initiator:	Jarad Hughes	**Date:**	20/03/2015
Project Manager:		**Date:**	

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