# Investment Evaluation Summary (IES)

## Project Details:

| | |
|---|---|
| **Project Name:** | Replace station services transformer at Geilston Bay Zone |
| **Project ID:** | 00660 |
| **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:** | Replace 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 Geilston Bay Zone substation | http://projectzone.tnad.tasnetworks.com.au/business-projects/nis-program/DD17SAM/Deliverables/Zone%20Substations/DRAFT%20IES%20REUZO%20Replace%20station%20services%20transformer%20at%20Geilston%20Bay%20Zone.docx |

# Section 1 (Gated Investment Step 1)

## 1. Background

The Geilston Bay Zone is a 33/11kV substation of 45MVA capacity in the eastern suburbs of Hobart. The substation was commissioned in 1964.

The substation supplies 6268 residential and commercial customers in the areas of Geilston Bay, Lindisfarne, Rose Bay, Montagu Bay and Risdon Vale. The substation is also strategic in providing alternative supply to other surrounding areas e.g. Mornington, Warrane, Rosny Park and Bellerive in event of a need to supplement Bellerive Zone 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 – Station 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 transformer at Geilston Bay 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 Geilston Bay 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 | Risk of harm if asset failure occurs | Unlikely | Major | Medium |

# Section 1 Approvals (Gated Investment Step 1)

| | | | |
|---|---|---|---|
| **Project Initiator:** | Michael Healy | **Date:** | 26/03/2015 |
| **Line Manager:** | | **Date:** | |
| **Manager (Network Projects)<br>or<br>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 Geilston Bay 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 1 (preferred) | Replace station services transformer |

### 6.2 Summary of Drivers

| Option | |
|---|---|
| Option 0 | • Potential for significant power disruption.<br>• Potential for significant network disruption.<br>• Risk to reputation from asset failures resulting in large power disruption. |
| Option 1 (preferred) | • Greatly reduces the likelihood of customer impact from asset failures.<br>• Greatly reduces the likelihood of asset failure causing harm.<br>• Greatly reduces the risk of network disruption from asset failures.<br>• 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 1 (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 1 (preferred) | Replace 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:** | | | |