# Investment Evaluation Summary (IES)

## Project Details:

| | |
|---|---|
| **Project Name:** | Install/Augment Pole Substation (Capacity) |
| **Project ID:** | 00827 |
| **Thread:** | System Development |
| **CAPEX/OPEX:** | CAPEX |
| **Service Classification:** | Standard Control |
| **Scope Type:** | A |
| **Work Category Code:** | CATXU |
| **Work Category Description:** | Transformer Upgrades - Capacity |
| **Preferred Option Description:** | Install Pole substation with appropriate rating |
| **Preferred Option Estimate (Nominal Dollars):** | $0 |

| | 17/18 | 18/19 | 19/20 | 20/21 | 21/22 | 22/23 | 23/24 | 24/25 | 25/26 | 26/27 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Unit ($)** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Volume** | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 |
| **Estimate ($)** | | | | | | | | | | |
| **Total ($)** | $167,920 | $167,920 | $167,920 | $167,920 | $167,920 | $167,920 | $167,920 | $167,920 | $134,336 | $167,920 |

## Governance:

| | | | |
|---|---|---|---|
| **Project Initiator:** | Ewan Sherman | **Date:** | 30/03/2015 |
| **Thread Approved:** | Stephen Jarvis | **Date:** | 19/10/2015 |
| **Project Approver:** | Stephen Jarvis | **Date:** | 19/10/2015 |

## Document Details:

| | |
|---|---|
| **Version Number:** | 1 |

## Related Documents:

| Description | URL |
|---|---|
| Summary Report - Priority Distribution Substations | - |
| Network Development Management Plan 2017-19 | - |

# Section 1 (Gated Investment Step 1)

## 1. Background

This program includes Low Voltage (LV) distribution substations, transformers, and associated feeder circuits operating at < 1 kV (i.e. 400/230 V).

Common projects and programs within this planning level include:

- Upgrading, relocating or establishing distribution transformers, substations, and LV circuits to manage localised thermal loading, voltage, performance, or power quality regulations;
- Installation of HV and LV duct (conduit) with other TasNetworks or third party (local council, developments, etc) works for future network development. Typically for road crossings.
- Reinforcing localised supply feeds to manage exposure of the HV and LV feeder elements (bird strike mitigation, protection relocation, Local Reliability Program);

In particular, this program includes the installation and augmentation of pole mounted distribution transformers greater than 50kVA in capacity.

### 1.1 Investment Need

Distribution substations and LV networks exposed to excessive thermal loading, or voltage and power quality issues pose a significant risk in terms of:

- public safety,
- third party equipment failure;
- regulatory obligations;
- community values and expectations;
- premature asset failure; and
- reliability performance.

The management of the above risks support TasNetworks to deliver the following:

- Compliance with regulatory obligations; and
- Safety, reliability and security of supply outcomes that meet customers' needs, by maintaining asset utilisation rates at appropriate levels at the lowest whole of life 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. Consumers have identified safety, restoration of faults/emergencies and supply reliability as the highest performing services offered by TasNetworks. This project specifically addresses the requirements of consumers in the area of safety, restoration of faults/emergencies and supply reliability.

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.

### 1.3 Regulatory Considerations

This project is required to achieve the following capital expenditure objectives as described by the National Electricity Rules section 6.5.7(a) 6.5.7 (a).

Forecast capital expenditure

1. meet or manage the expected demand for standard control services over that period;
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:
    - the quality, reliability or security of supply of standard control services; or
    - the reliability or security of the distribution system through the supply of standard control services, to the relevant extent:
    - maintain the quality, reliability and security of supply of standard control services; and
    - 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

To manage network risk associated with localised thermal loading, voltage, performance, or power quality constraints.

## 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 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
- We will transform our business with a focus on: - an appropriate approach to the management and allocation of risk The strategic key performance indicators that will be impacted through undertaking this project are as follows:
    - Customer engagement and service – customer net promoter score
    - Price for customers – lowest sustainable prices
    - Network service performance – meet network planning standards

## 4. Current Risk Evaluation

The current risk evaluation is Medium.

### 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 | Localised supply outage and contribution towards:<br>• negative impact on community values and expectations<br>• Increased customer complaints<br>• Reputation damage | Possible | Minor | Low |
| Environment and Community | Increased risk of asset failure leading to interruptions, explosion | Likely | Minor | Medium |

| | | | | |
|---|---|---|---|---|
| | and expulsion of oil. | | | |
| Financial | Higher cost associated with repairing equipment under fault, compensation payments (GSL). | Possible | Minor | Low |
| Network Performance | Decreased life expectancy of assets due to operating above design criteria.<br><br>Overheating of transformers and switchgear leading to:<br>• flashover<br>• explosion<br>• oil spill<br>• reduced current ratings | Likely | Minor | Medium |
| Regulatory Compliance | Non-compliance with obligations, resulting in:<br>• Minor fine, or<br>• breach of code and standard or licence for TEC, NER, connection agreements, legislation and regulation; | Possible | Negligible | Low |
| Reputation | Minor loss of reputation with affected customers. | Rare | Negligible | Low |
| Safety and People | Assets in this class are generally located in public areas with high chance of pedestrian traffic. Asset failure could cause:<br>• Decreased operating clearances<br>• Increasing risk of third party contact<br>• Electric shock or electrocution<br>• Explosion,<br>• Physical damage or harm. | Likely | Minor | Medium |

# Section 1 Approvals (Gated Investment Step 1)

| | | | |
|---|---|---|---|
| **Project Initiator:** | Ewan Sherman | **Date:** | 30/03/2015 |
| **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:

Install Pole substation with appropriate rating to manage LV System asset loading and/or system voltage for normal network configurations.

### 5.1 Scope

This program consists of installing and augmenting small pole mounted substations to manage asset loading and voltage votlage or power quality issues.

### 5.2 Expected outcomes and benefits

The outcome of augmenting distribution substation and LV network elements to manage localised thermal loading, voltage, performance, or power quality constraints is the reduction of risk associated with:

- public safety,
- third party equipment failure;
- regulatory obligations;
- community values and expectations;
- premature asset failure; and
- reliability performance.

### 5.3 Regulatory Test

Not applicable.

## 6. Options Analysis

The following tables provide a brief summary of the options considered as part of a desk top assessment and in accordance with the Network Development Management plan.

### 6.1 Option Summary

| **Option description** | |
|---|---|
| Option 0 | Do nothing |
| Option 1 (preferred) | Install Pole substation with appropriate rating |

### 6.2 Summary of Drivers

| **Option** | |
|---|---|
| Option 0 | Continued exposure of LV network elements and customers to excessive loading, and/or votlages; resulting in business risks described in Section 1.1. |
| Option 1 (preferred) | Manage exposure of LV network elements and customers to excessive loading, and/or votlages; resulting in business risks described in Section 1.1. |

### 6.3 Summary of Costs

| **Option** | **Total Cost ($)** |
|---|---|
| Option 0 | $0 |

| | |
|---|---|
| Option 1 (preferred) | $0 |

## 6.4 Summary of Risk

As a result of the program the target risk assessment will be Low.

## 6.5 Economic analysis

| Option | Description | NPV |
|---|---|---|
| Option 0 | Do nothing | $0 |
| Option 1 (preferred) | Install Pole substation with appropriate rating | $0 |

### 6.5.1 Quantitative Risk Analysis

Not applicable.

### 6.5.2 Benchmarking

Not applicable.

### 6.5.3 Expert findings

Not applicable.

### 6.5.4 Assumptions

Not applicable.

# Section 2 Approvals (Gated Investment Step 2)

| | | | |
|---|---|---|---|
| **Project Initiator:** | Ewan Sherman | **Date:** | 30/03/2015 |
| **Project Manager:** | | **Date:** | |

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