# Investment Evaluation Summary (IES)

## Project Details:

| | |
|---|---|
| **Project Name:** | SIWES - Endangered Species |
| **Project ID:** | 00690 |
| **Thread:** | Overhead |
| **CAPEX/OPEX:** | CAPEX |
| **Service Classification:** | Standard Control |
| **Scope Type:** | D |
| **Work Category Code:** | SIWES |
| **Work Category Description:** | Wildlife Endangered Species Protection |
| **Preferred Option Description:** | Risk based mitigation: Install covers or barriers to at risk pole tops within the network. Reduce the likelihood of endangered bird species coming in contact with pole top electrified assets to comply with our environmental regulatory requirements. |
| **Preferred Option Estimate (Nominal Dollars):** | $1,870,000 |

| | 17/18 | 18/19 | 19/20 | 20/21 | 21/22 | 22/23 | 23/24 | 24/25 | 25/26 | 26/27 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Unit ($)** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Volume** | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| **Estimate ($)** | | | | | | | | | | |
| **Total ($)** | $187,000 | $187,000 | $187,000 | $187,000 | $187,000 | $187,000 | $187,000 | $187,000 | $187,000 | $187,000 |

## Governance:

| | | | |
|---|---|---|---|
| **Project Initiator:** | Gary Carleton | **Date:** | 26/03/2015 |
| **Thread Approved:** | David Ellis | **Date:** | 02/11/2015 |
| **Project Approver:** | David Eccles | **Date:** | 30/10/2015 |

## Document Details:

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

## Related Documents:

| Description | URL |
|---|---|
| IES - SIWES | http://teamzone.tnad.tasnetworks.com.au/asset-strategy/Shared%20Documents |

| | |
|---|---|
| | /DD17/Overhead%20Thread /SIWES%20-%20Endangered%20Species/IES-SIWES.docx |
| NPV - SIWES | http://teamzone.tnad.tasnetworks.com.au/asset-strategy/Shared%20Documents /DD17/Overhead%20Thread /SIWES%20-%20Endangered%20Species/NPV-SIWES.xlsm |

# Section 1 (Gated Investment Step 1)

## 1. Background

TasNetworks records approximately 500 outages caused by birds and animals every year (including mid-span collisions). The separation distances between conductors and pole top hardware are generally adequate to prevent current tracking down the pole to the ground. However, birds and animals occasionally bridge this gap, resulting in phase-to-phase contact of the conductors and the electrocution and potential combustion of the animal. This project involves insulating live components and parts on pole tops in high wildlife trafficked areas.

The drivers for this project are compliance with regulatory requirements and maintaining network reliability. The aim of this program is to proactively mitigate the risk of harm to protected species (such as wedge tail eagles) through interaction with overhead assets. The secondary objective is to protect overhead assets from damage due to wildlife contact. The justification for this program is based on asset failures and outage information.

This program is coordinated by the Regional Asset Manager (South) in collaboration with the relevant authorities.

TasNetworks has had an agreement in place with the Department of Parks and Wildlife since 2008 to install bird perches and insulate the tops of steel lattice towers in endangered species nesting areas to reduce the risk of electrocution. Areas and poles for treatment are identified in conjunction with the Department before work is undertaken.

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 its 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)

• 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, 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.

### 1.1 Investment Need

The drivers for this program are to:

- Meet TasNetworks environmental regulatory obligations under the Public Authority Management Agreement

(PAMA) with the Department of Primary Industries, Parks, Water and Environment (DPIPWE);
- Protection of endangered bird species; and
- Maintain asset reliability.

TasNetworks seeks to manage the risk of widespread environmental harm caused by failure of our network or operations to as low as reasonably practical. TasNetworks has low appetite for the potential to cause widespread environmental harm as a result of our network or operations.

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) and 6.5.6(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:

(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.

The aim of this program is to proactively mitigate pole top assets to ensure that protected species (such as wedge tail eagles) are not harmed when interacting with overhead assets. The secondary aim is to protect overhead assets from damage due to wildlife contact. The justification for this program is based on asset failures and outage information.

## 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 its 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) • 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, 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.

## 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) and 6.5.6(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: (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 aim of this program is to proactively mitigate pole top assets to ensure that protected species (such as wedge tail eagles) are not harmed when interacting with overhead assets. The secondary aim is to protect overhead assets from damage due to wildlife contact. The justification for this program is based on asset failures and outage information.

## 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 • We will transform our business with a focus on: - the customer, and a strong commitment to delivering services they value - 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 • Zero harm – significant and reportable incidents • Network service performance – meet network planning standards • Network service performance – outcomes under service target performance incentive schemes • Sustainable cost reduction – efficient operating and capital expenditure

## 4. Current Risk Evaluation

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 |
|---|---|---|---|---|
| Financial | | | | |
| Customer | Disruption to customers from decreased network reliability | **LIKELY** | **NEGLIGIBLE** | **LOW** |
| Regulatory Compliance | Not meeting our obligations under the requirements of the Public Authority Management Agreement | **LIKELY** | **MODERATE** | **HIGH** |
| Network Performance | | | | |
| Reputation | Public relations and corporate name in global, national and state Media for endangered Tasmanian Wedgetail Eagles | LIKELY | MODERATE | HIGH |
| Environment and Community | Fatality of endangered bird. | **LIKELY** | **MODERATE** | **HIGH** |
| Safety and People | | | | |

### 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 | Disruption to customers from decreased network reliability | Unlikely | Negligible | Low |
| Environment and Community | Fatality of endangered bird. | Likely | Moderate | High |
| Regulatory Compliance | Not meeting our obligations under the requirements of the Public Authority Management Agreement | Likely | Moderate | High |

# Section 1 Approvals (Gated Investment Step 1)

| | | | |
|---|---|---|---|
| **Project Initiator:** | Gary Carleton | **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:

Risk based mitigation: Install covers or barriers to at risk pole tops within the network. Reduce the likelihood of endangered bird species coming in contact with pole top electrified assets to comply with our environmental regulatory requirements.

The preferred option is to install covers or barriers to high risk pole tops within the network.

The scope of the work to be undertaken is the:

a. Installation of redback insulation and Adept insulator covers. The entire pole top should be insulated to prevent inadvertent contact with electrified assets.

Particular methodology required to undertake the work:

a) Ensure that the HV is covered and insulated where it crosses the tower structure using a combination of Adapt Insulator cover and redback insulation as detailed in Appendix A.

b) If any tower is a strain position then all loops over the top of the tower must be insulated. Where loops are under slung on strain positions then no insulation is required. Report these instances to the client prior to issuing to construction.

c) Where access allows, Live Line work is the preferred option for fitting.

### 5.1 Scope

The scope of the work to be undertaken is the: a) Installation of redback insulation and Adept insulator covers. The entire pole top should be insulated to prevent inadvertent contact with electrified assets. Particular methodology required to undertake the work: a) Ensure that the HV is covered and insulated where it crosses the tower structure using a combination of Adapt Insulator cover and redback insulation as detailed in Appendix A. b) If any tower is a strain position then all loops over the top of the tower must be insulated. Where loops are under slung on strain positions then no insulation is required. Report these instances to the client prior to issuing to construction. c) Where access allows, Live Line work is the preferred option for fitting.

### 5.2 Expected outcomes and benefits

Environmental The expected outcome of this program is a reduction in the frequency of fatalities of endangered birds.

### 5.3 Regulatory Test

## 6. Options Analysis

# 1. Options Analysis

## 1.1 Option Summary

| Option description | |
|---|---|
| Option 0 - Do Nothing | Do nothing. The likelihood of endangered bird species coming in contact with electrified asset is not reduced. Continued trend of electrocution of endangered bird species. This would be a breach of TasNetwork's environmental regulatory requirements. |
| Option 1 | Risk based mitigation: Install covers or barriers to at risk pole tops within the network. Reduce the likelihood of endangered bird species coming in contact with pole top electrified assets to comply with our environmental regulatory requirements. |
| Option 2 | |
| Option 3 | |

SUMMARY OF DRIVERS

This option matrix provides a comparison of the options against the investment drivers detailed in section 2.

| Summary of Drivers | Reliability | Environment and Community | Regulatory Compliance |
|---|---|---|---|
| **Option 0 - Do Nothing** | Reliability levels will not be maintained. | Continued trend of electrocution to endangered bird species caused by TasNetworks assets. | Poses unacceptable risk in terms of meeting TasNetworks environmental regulatory requirements (under the PAMA). |
| **Option 1 – Risk based rectification** | Reliability is improved through a reduction in frequency of bird contacts with electrified assets. | Reduction in electrocution of endangered bird species by utilising mitigation measures. | Fulfills TasNetworks commitments to DPIPWE under the PAMA to mitigate high risk pole top assets. |
| **Option 2** | | | |
| **Option 3** | | | |

| Option | Total Costs ($) |
|---|---|
| 0 – Do Nothing | Fault budget costs plus breaching regulatory environmental requirements up to $200K per eagle .)<br>OH line Auto reclose function minimises many bird fault costs.<br>And PR image penalties for extinction risk to Tasmanian Wedge Tail Eagles population down to 200 , with electrocutions as reported in local press media. |
| 1 – Proactive Risk Based Mitigation | $187,000 per annum |

**Summary of Economic Analysis**

| Option No. | Option description | NPV | Reason got selection/rejection |
|---|---|---|---|
| 0 | Do Nothing | | Unacceptable risk |
| 1 | Proactive Risk Based Mitigation Measures | -$1.048 M | Adequately addresses the risk. |
| | | | |
| | | | |

## 6.1 Option Summary

| Option description | |
|---|---|
| Option 0 | Do nothing. The likelihood of endangered bird species coming in contact with electrified asset is not reduced. Continued trend of electrocution of endangered bird species. This would be a breach of TasNetwork's environmental regulatory requirements. |
| Option 1 (preferred) | Risk based mitigation: Install covers or barriers to at risk pole tops within the network. Reduce the likelihood of endangered bird species coming in contact with pole top electrified assets to comply with our environmental regulatory requirements. |

## 6.2 Summary of Drivers

| Option | |
|---|---|
| Option 0 | Reliability Reliability levels will not be maintained. Environment and Community Continued trend of electrocution to endangered bird species caused by TasNetworks assets. Regulatory Compliance Poses unacceptable risk in terms of meeting TasNetworks environmental regulatory requirements (under the PAMA). |
| Option 1 (preferred) | Reliability Reliability is improved through a reduction in frequency of bird contacts with electrified assets. Environment and Community Reduction in electrocution of endangered bird species by utilising mitigation measures. Regulatory Compliance Fulfills TasNetworks commitments to DPIPWE under the PAMA to mitigate high risk pole top assets. |

## 6.3 Summary of Costs

| Option | Total Cost ($) |
|---|---|
| Option 0 | $0 |
| Option 1 (preferred) | $1,870,000 |

## 6.4 Summary of Risk

## 6.5 Economic analysis

| Option | Description | NPV |
|---|---|---|
| Option 0 | Do nothing. The likelihood of endangered bird species coming in contact with electrified asset is not reduced. Continued trend of electrocution of endangered bird species. This would be a breach of TasNetwork's environmental regulatory requirements. | $0 |
| Option 1 (preferred) | Risk based mitigation: Install covers or barriers to at risk pole tops within the network. Reduce the likelihood of endangered bird species coming in contact with pole top electrified assets to comply with our environmental regulatory requirements. | -$992,905 |

**6.5.1 Quantitative Risk Analysis**

TBC

**6.5.2 Benchmarking**

TBC

**6.5.3 Expert findings**

TBC

**6.5.4 Assumptions**

•Assume same volume per year for mitigation program; and •Assumed asset life of 25 years for cross arm covers and barriers.

# Section 2 Approvals (Gated Investment Step 2)

| | | | |
|---|---|---|---|
| **Project Initiator:** | Gary Carleton | **Date:** | 26/03/2015 |
| **Project Manager:** | | **Date:** | |

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