

Investment Evaluation Summary (IES)



Project Details:

Project Name:	Augment OH HV Feeder (Capacity)
Project ID:	00822
Thread:	System Development
CAPEX/OPEX:	CAPEX
Service Classification:	Standard Control
Scope Type:	A
Work Category Code:	CAHVF
Work Category Description:	HV Feeder Upgrade - Capacity
Preferred Option Description:	Augment HV conductor or cable to 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	29	18	10	10	10	10	10	10	10	10
Estimate (\$)										
Total (\$)	\$2,236,300	\$1,388,048	\$771,138	\$771,138	\$771,138	\$771,138	\$771,138	\$771,138	\$771,138	\$771,138

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
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Related Documents:

Description	URL
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Section 1 (Gated Investment Step 1)

1. Background

Reinforcement works on the High Voltage (HV) feeder network include elements operating at 6.6 kV, 11 kV, 22 kV, 33 kV or 44 kV (including SWER).

The main components of HV system includes:

- Overhead conductor
- Underground cable
- Voltage regulators
- Overhead switchgear (Reclosers, Gas Switches, ABS, Fuses, Links)
- Ground mounted switchgear (generally components of Distribution Substations)

This program covers management of network risks associated with HV elements operating at asset loading levels in excess of manufacturers ratings.

In particular this program addresses HV overhead conductors and underground cables.

1.1 Investment Need

Network elements exposed to excessive loading pose a significant risk in terms of

- public safety,
- environmental (bushfire start);
- power quality;
- premature asset failure, and
- reliability performance.

The management of the above risks supports TasNetworks to deliver the following outcomes:

- 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 risk. Not applicable. Not applicable. Risks associated with:

- excessive thermal loading of HV feeder elements,
- voltage levels outside acceptable limits; and
- operational limitations in the HV feeder network resulting from the above.

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 network 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

The current risk evaluation is Medium to High.

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	Material Supply Interruption, and contribution towards: <ul style="list-style-type: none">• substandard performance (SAIFI)	Possible	Minor	Low

	<ul style="list-style-type: none"> and SAIDI) • unavailability of network services • negative impact on community values and expectations • Increased customer complaints • Reputation damage 			
Environment and Community	<p>Significant localised environmental impact with short-term effects where there is an Increased risk of explosion and expulsion of oil, conductor clashing or failure leading to interruptions and fire ignition particular in regards to:</p> <ul style="list-style-type: none"> • High bushfire risk areas; • public roads, traffic hazards; • Area's of environmental significance; 	Possible	Minor	Low
Financial	Higher cost associated with repairing equipment under fault, compensation payments, under regulatory regime - STPIS outcomes;	Possible	Negligible	Low
Network Performance	<p>Running the system in an insecure state or above its capability that may lead to consequential failures:</p> <ul style="list-style-type: none"> • Protection operation initiated interruptions to supply • Rotational interruptions to supply to manage equipment loading and downed networks 	Possible	Minor	Low
Regulatory Compliance	<p>Non-compliance with obligations, resulting in:</p> <ul style="list-style-type: none"> • Minor fine, or • breach of code and standard or licence for TEC, NER, connection agreements, legislation and regulation; • Failure of assets 	Possible	Negligible	Low
Reputation	<p>Non-sustained state press coverage including wider social media coverage, particularly in regards to:</p> <ul style="list-style-type: none"> • High bushfire risk areas; • Area's of environmental significance 	Rare	Negligible	Low
Safety and People	<p>Explosion, or decreased operating clearances resulting in:</p> <ul style="list-style-type: none"> • Increasing risk of third party contact • Electric shock or electrocution • 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:

Augment under rated feeder elements (including associated connection loops and clamps) to suitably rated alternatives from the standard available asset types used by TasNetworks.

Augmentation is generally undertaken where alternative options are not economical, or do not prudently manage the risk.

5.1 Scope

This program includes the augmentation of existing overhead conductors or underground cables where the peak loading is in excess of asset rating or results in excessive voltage and related power quality issues.

An estimated 8 km of overhead conductor and underground cables are forecast to exceed rated thermal capacity within the planning period. The majority of which will occur within the current and two year determination.

TasNetworks will manage these constraints by upgrading overloaded sections and/or undertake minor augmentation to re-rate some overhead sections to operate at a higher temperature (increase capacity). This results in a total of 7 km within the two year determination (2017-19).

5.2 Expected outcomes and benefits

The outcome of augmenting network elements are:

- the safer operation of the network; and
- the reduction of risk associated with public safety, asset failure and community reliability.
- Improved operational flexibility.

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)	Augment HV conductor or cable to appropriate rating

6.2 Summary of Drivers

Option	
Option 0	This option includes the continued operation of the network outside its capability and/or outside of acceptable voltage levels; resulting in the business risks as described in Section 1.1
Option 1 (preferred)	This option includes the reinforcement of HV network elements such that the loading and voltage issues are managed, enabling TasNetworks to meet our regulatory requirements, and meet our customers' needs by providing a safe, and reliable network.

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)	Augment HV conductor or cable to 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:			