

Investment Evaluation Summary (IES)



Project Details:

Project Name:	Road lighting - bulk lamp replacement program - minor
Project ID:	00608
Thread:	Public Lighting
CAPEX/OPEX:	OPEX
Service Classification:	Alternative Control
Scope Type:	B
Work Category Code:	RLBLR
Work Category Description:	Bulk Lamp Replacement (4 year cycle)
Preferred Option Description:	Road lighting - bulk lamp replacement program - minor (in conjunction with 4 year RLMIN replacement program) Advantages: - lowest cost to maintain lights Disadvantage: Not lowest NPV
Preferred Option Estimate (Nominal Dollars):	\$5,961,288

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Unit (\$)	\$152	\$152	\$152	\$152	\$152	\$152	\$152	\$152	\$152	\$152
Volume	2,750	2,750	2,750	2,750	2,750	2,750	2,750	4,750	6,750	6,750
Estimate (\$)	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$722,000	\$1,026,000	\$1,026,000
Total (\$)	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$418,000	\$722,000	\$1,026,000	\$1,026,000

Governance:

Project Initiator:	Gerard Martindill	Date:	25/03/2015
Thread Approved:	Darryl Munro	Date:	16/10/2015
Project Approver:	Darryl Munro	Date:	16/10/2015

Document Details:

Version Number:	1
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Related Documents:

Description	URL
SDW.UMS_130315S	http://reclink/R204663
NPV RLMIN	http://reclink/R126228

Section 1 (Gated Investment Step 1)

1. Background

The aims of the Bulk Lamp Replacement Program are to:

- Maintain the light output levels of all public lights to the standards as set out by AS/NZ1158;
- Maintain the public lighting assets in a manner that is efficient and cost effective; and
- Reduce light failures by replacing the lamps and PE cells in accordance with the manufacturer's specifications.

The bulk lamp replacement program is conducted on a 4-year cycle (non LED fittings) and includes:

- The replacement of the lamp;
- Replacement of the PE cell (if this is the method of control); (every 8 years)
- A condition assessment of the wiring systems, support brackets and mounting and protective fuses;
- Cleaning of the diffuser.
- Fixing of immediate safety issues; and
- Testing to ensure the luminaire is operating after completion of work.

The program is split into two components:

- Major Public Lighting; and
- Minor Public Lighting.

The lamps that may fail prematurely will be repaired under the Public Lighting Repair and Maintenance work category (RLREM).

A four-year maintenance cycle (for non LED fittings) has been factored into the network tariff build up for public lights.

1.1 Investment Need

The investment required for proactive bulk lamp replacement program for minor lights. The aim is to replace the lamps before they failure in service. The unit rates for bulk replacement programs are less than for spot replacement as there is less travel time between tasks.

In addition, the bulk lamp replacement program is used in conjunction with the coordinating the planned bulk replacement of category P light program (RLMIN). The work practices are designed to reduce costs by replacing the fitting whilst on site for the lamp replacement thereby removing the need for additional site visits.

There is an OPEX/CAPEX trade off with this program (RLBLR) and minor light replacements (RLMIN). Instead of maintaining older asset luminaires in a four yearly cycle, the plan (via RLMIN) is to replace with new luminaires which have a greater maintenance requirements.

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.

1.3 Regulatory Considerations

Forecast operating expenditure 6.5.6 (a) (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

To provide the routine maintenance (bulk replacement of Road Lighting Lamps and PE Cells) as required by the Public Road lighting tariff structure as part of a rolling cycle for minor public lights.

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 engaged workplace with strong cultural qualities and people who will be great ambassadors for TasNetworks - a high performing culture with clear accountabilities for deliverables - an appropriate approach to the management and allocation of risk - a well run, efficient business, that delivers sustainable returns to the Tasmanian community and is resilient to future challenges. 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 • Sustainable cost reduction – efficient operating and capital expenditure

4. Current Risk Evaluation

Do nothing is not an acceptable option to TN's risk appetite. TN will not be able to carry out effective asset maintenance and replacement of ageing/inefficient luminaires or apply OPEX savings in the fault budget POW.

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
Regulatory Compliance	To maintain lighting level to required Australian Standards.	Possible	Minor	Low
Reputation	Maintain good reputation with TasNetworks and the customer.	Possible	Minor	Low
Safety and People	Maintain adequate lighting levels for public safety.	Possible	Minor	Low

Section 1 Approvals (Gated Investment Step 1)

Project Initiator:	Gerard Martindill	Date:	25/03/2015
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:

To provide the routine maintenance (bulk replacement of Road Lighting Lamps and PE Cells) as required by the Public Road lighting tariff structure as part of a rolling cycle for minor public lights.

5.1 Scope

Work to be undertaken:

The work to be undertaken shall be the bulk replacement of all Road Lighting Lamps including cleaning the luminaires, replacement of PE cells and checking of the fitting installation. The replacements will be sourced by the following method:

a) Assets generated

i) Market Support will create Service Orders in the Service Order Management System for all lights requiring tasks.

ii) The work will be structured so that the fittings to be visited are categorised into Roadlight Maintenance Areas (RLMAs).

iii) RLMAs are allocated to specific 3-month periods (quarters) within each year allowing for the same task to be performed on a 4 yearly rolling basis. iv) Work to be carried out in conjunction with RLMIN: Minor Bulk Replacement Road lighting and RLMAJ: Minor Bulk Replacement Road lighting in accordance with Rule base as defined. Note: Where replacement is required immediately it should be allocated to Fault and Emergency work category RLREM.

2 Particular methodology to undertake the work:

a) Data to be captured for all service orders shall include the Pole ID, Address, Location, Lamp Size, Task performed and date. This is important to enable correct records to be kept, which will enable tasNetworks to undertake bulk lamp replacement in future years.

b) Lamp replacement shall include the cleaning of the luminaire to improve lumen output and the replacement of the PE cell where one is installed.

c) Visual inspection of all wiring connections including fuse, bolted connections on outreach arm and light fitting mounting.

d) Handling and disposal of hazardous materials including Asbestos, PCB's and Streetlight globes components contained within the light fittings or control boxes shall be in accordance with the work procedures developed by Network Services as listed below:

JSA No. 001 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAMINATED STREET LIGHT FITTINGS

JSA No. 002 - REMOVAL AND DISPOSAL OF A CHOKE BOX THAT MAY CONTAIN AN ASBESTOS SEAL AND A PCB CONTAMINATED CAPACITOR

JSA No. 003 - REMOVAL AND DISPOSAL OF A PCB CONTAMINATED CHOKE BOX

JSA No. 004 - REMOVAL AND DISPOSAL OF A PCB CONTAMINATED CONTROL UNIT IN A STREET LIGHT STANDARD

JSA No. 005 - REPLACEMENT AND DISPOSAL OF MERCURY AND SODIUM STREET LIGHT GLOBES -

JSA No 006 - REMOVAL AND DISPOSAL OF ASBESTOS CONTAMINATED STREET LIGHT FITTINGS THAT HAVE BEEN DAMAGED IN A FAULT SITUATION (Car Hit Pole etc.)

In addition to the Works Delivery JSA documents the following shall be noted and disposed of in an approved manner:- All separate control boxes or panels in the base of Street lighting steel standards may contain capacitors that have PCB's.- Panels in the base of Street lighting steel standards may be constructed from materials containing Asbestos.e) Major and Minor Replacement of light fitting as determined by field implemented rule base. Rule bases are as follows:Ø Road light Maintenance Area – Rule Base A: Document # NW 30009891Ø Road light Maintenance Area – Rule Base B: Document # NW 30009892

5.2 Expected outcomes and benefits

This operational program is required to:

- Reduce reactive operational maintenance expenditure
- Improve customer satisfaction
- Maintain a safe and reliable network.
- Maintain adequate lighting levels to improve public safety.

5.3 Regulatory Test

6. Options Analysis

6.1 Option Summary

Option description	
Option 0	Do Nothing - Run to failure and replace lights under fault Advantage: Nil Disadvantages: - Fault rates increase - Customer satisfaction reduces - Public safety reduced due to inadequate lighting levels - Most expensive NPV
Option 1	Road lighting - bulk lamp replacement program - minor (in conjunction with 2 year RLMIN replacement program) Advantages: - lower cost than BAU Disadvantage: - highest NPV to maintain lights
Option 2 (preferred)	Road lighting - bulk lamp replacement program - minor (in conjunction with 4 year RLMIN replacement program) Advantages: - lowest cost to maintain lights Disadvantage: Not lowest NPV
Option 3	Business as usual Advantages: - Lowest NPV - Fault level maintained to historical levels Disadvantages: - highest cost option

6.2 Summary of Drivers

Option	
Option 0	<ul style="list-style-type: none"> • Reduce reactive operational maintenance expenditure - No. • Improve customer satisfaction - No. • Maintain a safe and reliable network - No. • Maintain adequate lighting levels to improve public safety - No.
Option 1	<ul style="list-style-type: none"> • Reduce reactive operational maintenance expenditure - Yes. • Improve customer satisfaction - Yes. • Maintain a safe and reliable network - Yes. • Maintain adequate lighting levels to improve public safety - Yes.
Option 2 (preferred)	<ul style="list-style-type: none"> • Reduce reactive operational maintenance expenditure - Yes. • Improve customer satisfaction - Yes. • Maintain a safe and reliable network - Yes. • Maintain adequate lighting levels to improve public safety - Yes.
Option 3	<ul style="list-style-type: none"> • Reduce reactive operational maintenance expenditure - Yes. • Improve customer satisfaction - Yes. • Maintain a safe and reliable network - Yes. • Maintain adequate lighting levels to improve public safety - Yes.

6.3 Summary of Costs

Option	Total Cost (\$)
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Option 0	\$0
Option 1	\$6,348,812
Option 2 (preferred)	\$5,961,288
Option 3	\$8,864,640

6.4 Summary of Risk

This section outlines an overall residual asset risk level, for each of the options.

Option	Risk Assessment
Option 0	Medium
Option 1	Medium
Option 2 (preferred)	Low
Option 3	Medium

6.5 Economic analysis

Option	Description	NPV
Option 0	Do Nothing - Run to failure and replace lights under fault Advantage: Nil Disadvantages: - Fault rates increase - Customer satisfaction reduces - Public safety reduced due to inadequate lighting levels - Most expensive NPV	-\$16,585,844
Option 1	Road lighting - bulk lamp replacement program - minor (in conjunction with 2 year RLMIN replacement program) Advantages: - lower cost than BAU Disadvantage: - highest NPV to maintain lights	-\$13,335,530
Option 2 (preferred)	Road lighting - bulk lamp replacement program - minor (in conjunction with 4 year RLMIN replacement program) Advantages: - lowest cost to maintain lights Disadvantage: Not lowest NPV	-\$12,426,539
Option 3	Business as usual Advantages: - Lowest NPV - Fault level maintained to historical levels Disadvantages: - highest cost option	-\$12,133,633

6.5.1 Quantitative Risk Analysis

A quantitative risk assessment has not been completed for this project.

6.5.2 Benchmarking

Benchmarking has not been completed for this project.

6.5.3 Expert findings

There are no expert findings to report on this project.

6.5.4 Assumptions

Section 2 Approvals (Gated Investment Step 2)

Project Initiator:	Gerard Martindill	Date:	25/03/2015
Project Manager:		Date:	

Actions

Submitted for CIRT review:		Actioned by:	
CIRT outcome:			