Investment Evaluation Summary (IES)

Project Details:

Project Name:	LV CT Replacement
Project ID:	00762
Thread:	Connection Assets
CAPEX/OPEX:	CAPEX
Service Classification:	Standard Control
Scope Type:	D
Work Category Code:	SCNVT
Work Category Description:	CT AND VT - Replacement
Preferred Option Description:	Replace LV CTs
Preferred Option Estimate (Nominal Dollars):	$1,500,000

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Unit ($)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Volume	45	45	45	45	45	45	45	45	45	45
Estimate ($)										
Total ($)	$135,000	$135,000	$135,000	$135,000	$135,000	$135,000	$135,000	$135,000	$135,000	$135,000

Governance:

Project Initiator:	Darryl Munro	**Date:**	30/03/2015
Thread Approved:	Darryl Munro	**Date:**	16/10/2015
Project Approver:	Darryl Munro	**Date:**	16/10/2015

Document Details:

Version Number:	1

Related Documents:

Description	URL

Section 1 (Gated Investment Step 1)

1. Background

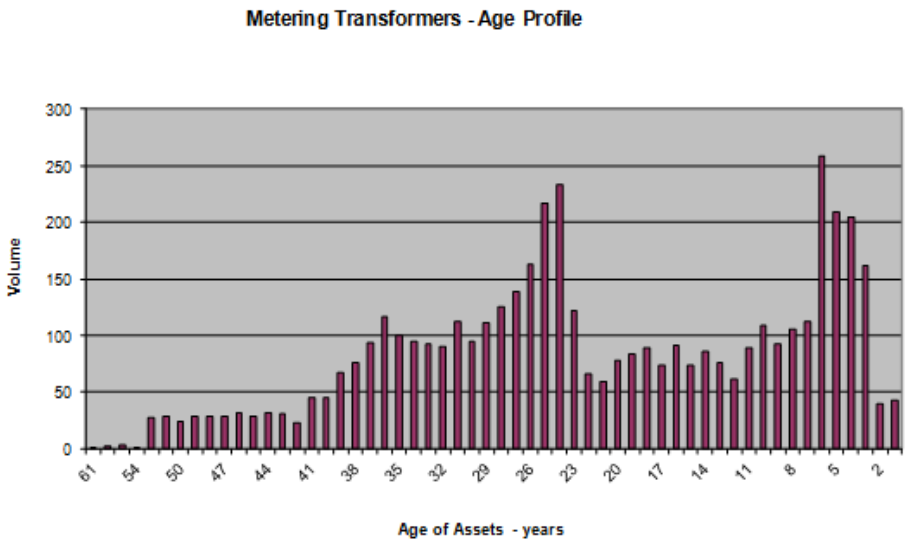
There are approximately 4,600 sets of LV metering current transformers (CTs) installed in the network as at March 2014, with approximately 60 being more than 50 years old.

The age profile of metering CTs is shown in Figure 2.

A set of metering transformers usually consists of three transformers (one for each phase). In order to comply with National Electricity Rules (NER) obligations TasNetworks must test every CT once every 10 years.

TasNetworks is assessing the option to move to a random sample-testing regime as described in the AEMO document Alternative Testing Minimum Requirements. This obligation drives a metering equipment testing program, from which it is expected a certain percentage will not meet the required accuracy and condition standards and will therefore require replacement.

Figure 2: Age Profile of installed metering CTs (as at March 2014)



The data held by TasNetworks on each of its LV CT installations presently does not include precise information on the actual CTs fitted. Hence in some cases it is difficult to know whether a given CT is a fixed tap device or a multi tap CT. Fortunately this confusion only relates to 800:5 CTs which may be either Type B or Type T; (there are no Type U CTs used by TasNetworks).

Since 2004 when AS60044.1 came into force, TasNetworks has been installing single tap extended range CTs in new installations, (200:5, 800:5 or 1500:5). This has reduced the range of stock CTs required while catering for a wide range of customer loads.

TasNetworks has determined the number of each Type of CT it has in service from the meter multiplier used. Table 1 shows the breakdown of each CT type in service. There are 15 installations in Tasmania where the CTs do not fall into any of these families, and the CTs at these locations are likely to be very old and will be replaced.

Table 1: Volume of Installed CTs by Type

CT Type	CT Ratio	Number of Installations
A	150/300 /600/5	303
B	400/800 /1200/5	181
C	1000/2000 /3000/5	114
S	200/5	3,175
T	800/5	727

U	2000/5	0
V	4000/5	0
W	1500/5	92
Other	Various	15
Total		**4,607**

1.1 Investment Need

This program is required for TasNetworks compliance with NER obligations, dictating that any metering equipment that fails testing or is in poor condition must be replaced.

These rules were amended in 2005 requiring mandatory testing of HV CTs and VTs used for metering once every 10 years. Therefore little historical data or trends exist on typical metering transformer failure rates, making it difficult to forecast a replacement program. Based on the standard asset life of a transformer (40 years) and the current metering transformer population, it is expected that on average approximately three HV metering units will fail testing and require replacement per year.

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

Non-demand repalcement of HV CTs and VTs to ensure accurate network and customer billing and maintain a safe and reliable network.

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
- 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
- Culture and people engagement – Culture score
- 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

Do nothing is not an acceptable option to TasNetworks' risk appetite. The level of risk identified above is such that a treatment plan is required to reduce the risks to a tolerable level, in line with TasNetworks' Risk Management Framework.

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

Financial	Failed or inaccurate CTs result in inaccurate network and customer billing.	Possible	Minor	Low
Network Performance	Supply interruption resulting from failure of CTs.	Possible	Minor	Low
Regulatory Compliance	Regulatory breach for failure to replace non-compliant CTs.	Possible	Moderate	Medium

Section 1 Approvals (Gated Investment Step 1)

Project Initiator:	Darryl Munro	**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:

This program provides for a replacement program of LV CTs that have either failed the accuracy and compliance testing or have failed in service.

5.1 Scope

1 Work to be undertaken: The work to be undertaken shall be the replacement of metering transformers for customer power supply connections.

2 Particular methodology to undertake the work:

a) All work shall be undertaken as per TasNetworks Metering Procedures.

b) Update and complete metering information on Current Service Order Management System and the Current Meter Data Management System within 2 working days of metering transformers being exchanged, except when working in remote areas and crews do not have access to systems.

c) Metering registration forms to be completed and returned as required to Network Market Services via email to MP mailbox. (MP@tasnetworks.com.au)

d) Authorised Contractors are not to perform any CT or HV metering works.

e) Construction work to be co-ordinated between Works & Service Delivery and customer.

3 Technical conditions: a) All work to be carried out in accordance with the TasNetworks Metering Procedures & Service and Installation Guidelines.

5.2 Expected outcomes and benefits

This capital expenditure is required to:

- Replace LV CTs that have failed accuracy and compliance testing; and
- Replace LV CTs that have failed in service.

5.3 Regulatory Test

6. Options Analysis

Option 0: Do nothing
Advantages

- Less expenditure than option 1

Disadvantages

- Non compliance with NER due to failure to test CTs in accoradnace with the rules.
- Could result in inaccurate network and customer billing.
- Poor customer service resulting in complaints and negative publicity.

Option 1: Replace LV CTs
Advantages

- Enables NER compliant metering for accurate network and customer billing.
- Restores the network to a safe condition with NER compliant metering as required by the NER.

Disadvantages

- More expensive than option 0

6.1 Option Summary

Option description	
Option 0	Do nothing
Option 1 (preferred)	Replace LV CTs

6.2 Summary of Drivers

Option	
Option 0	• Replace LV CTs that have failed accuracy and compliance testing - No • Replace LV CTs that have failed in service - No
Option 1 (preferred)	• Replace LV CTs that have failed accuracy and compliance testing - Yes • Replace LV CTs that have failed in service - Yes

6.3 Summary of Costs

Option	Total Cost ($)
Option 0	$0
Option 1 (preferred)	$1,500,000

6.4 Summary of Risk

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

Option	Risk Assessment
Option 0	High
Option 1	Low

6.5 Economic analysis

Option	Description	NPV
Option 0	Do nothing	$0
Option 1 (preferred)	Replace LV CTs	$0

6.5.1 Quantitative Risk Analysis

Not completing this program will result in inaccurate network and customer billing, failure to provide a functional metering installation following a fault in contravention of the requirements of the NER and also has the potential to result in negative publicity from customer complaints and poor customer service.

6.5.2 Benchmarking

Benchmarking has not been completed for this item.

6.5.3 Expert findings

No expert findings have been used for this item.

6.5.4 Assumptions

Increase in expenditure due to increasing compliance testing program (AIANC) identiying non-compliant assets that require replacement.

Section 2 Approvals (Gated Investment Step 2)

Project Initiator:	Darryl Munro	**Date:**	30/03/2015
Project Manager:		**Date:**	

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