DRAFT

Asset Management Plan 2013/14 to 2017/18

March 2013

PUBLIC VERSION

SP AusNet
A member of Singapore Power Group

Authorised	Date
Charles Popple Group General Manager Networks Strategy and Development	

Version	Date	Change	Amended
1.0	26/10/2012	Initial draft for AMC review	Network Strategy & Development
2.0	19/12/2012	2nd draft	Network Strategy & Development
2.1	21/12/2012	Minor change to align Capex with Corp plan	Network Strategy & Development
2.2	17/1/2013	Amendment to correct error in 2013/14 Capex	Network Strategy & Development
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Executive Leadership Team SP AusNet	December 2012
SPI Management Services Board of Directors	
Asset Management Committee	
SPI Management Services Board of Directors	
SP AusNet Board of Directors	

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Contents

1 Purpose 4

2 Electricity Transmission Network Overview 4

3 Network Objectives 5

4 Capital Expenditure 6

4.1 Programs 8
4.2 Melbourne CBD 8
4.3 New Network Connections 9
4.4 Power Transformers 9
4.5 Terminal Station Redevelopments 10
4.6 Reactive Plant 10
4.7 Circuit Breakers 10
4.8 Lines 11
4.9 Secondary Systems 11
4.10 Communications 12

5 Operational and Maintenance Expenditure 12

5.1 Recurrent Opex 12
5.2 Non-recurrent Opex 13
5.3 Easement and Vegetation Management 13

6 Network Risk Profile 13

Appendix 3A – Transmission Projects 15

1 Purpose

The Electricity Transmission Asset Management Plan (AMP) is central to SP AusNet's processes for delivery of network services in accordance with SP AusNet's Asset Management Policy and the Victorian Electricity Transmission Network Asset Management Strategy (AMS 10-01).

The AMP defines the investment profile for the periods 2013/14 to 2017/18 (inclusive) needed to maintain and safely operate the Electricity Transmission network in accordance with network objectives.

2 Electricity Transmission Network Overview

SP AusNet's electricity transmission network serves more than 2.2 million Victorian households and businesses with more than 6,500 kilometres of transmission lines that transport electricity from power stations to electricity distributors and large customers. The network is centrally located among Australia's five eastern states that form the National Energy Market, providing key connections between South Australia, New South Wales and Tasmania's electricity transmission networks[1]. The network transferred over 50,261 GW hours of energy in 2011/12 and serviced a peak demand of 9,190 MW[2]. Figure 1 shows the Victorian electricity transmission

[1] SP AusNet 2011 Business Review

[2] The highest peak demand on the Victorian network was 10,554 MW, which occurred on 20 January 2009.

network.

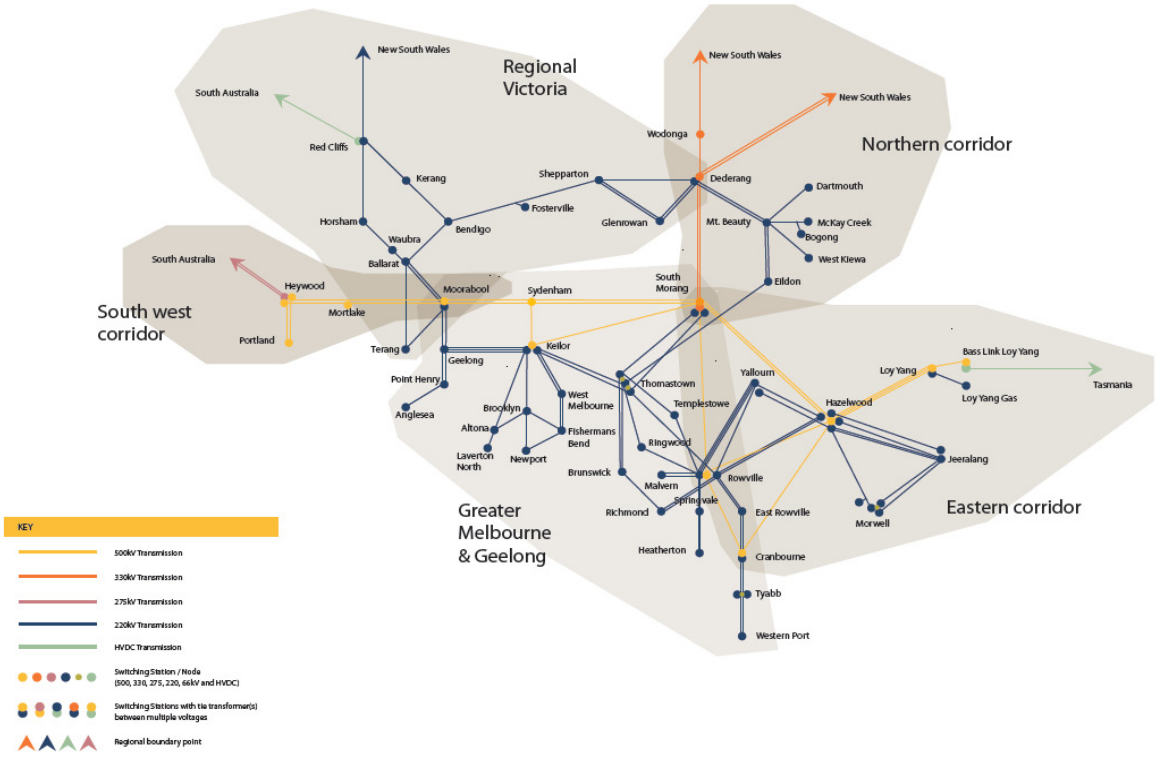

Figure 1 - Electricity Transmission Network Diagram

3 Network Objectives

Three primary objectives have been developed for SP AusNet's electricity transmission network to enable the successful delivery of the asset management vision and mission and to govern how the network is operated and maintained. These are summarised in Table 1.

Network Objective	Drivers	Targets	Strategic Alignment
1. Improve safety	• Public Safety • Harm - Asset Failure • Equipment Access	• Zero Conductor Drops (ESV expectation) • Zero Explosive Failures • 50% of all towers with fall arrests by 2014 • Removal of all Accessible asbestos by 2025	Strengthen Transform Modernise Mission Zero
2. Exceed Customer Expectations	• Customer expectations • Aging assets	• Availability - STPIS revenue > 41.7% for 2013/4 - MIP < 1,400 generation dispatch intervals • Plant performance - < 1.15 System minutes - < 8 major incidents for 2013/14	Strengthen Transform

3. Value for money	• Regulatory Reform • Technology Development • Climate Change	• Total expected capex by project/category against regulatory allowance	Strengthen Transform

Table 1 – Electricity Transmission Network Objectives

SP AusNet made its first Market Impact Parameter (MIP) incentive scheme submission to the AER in January 2012. For the current reset period the MIP provides an additional reward of up to 2% of annual revenue (there is no penalty in this adoption phase) for reducing the number of generation dispatch intervals with a market impact of more than $10/MWhr that are caused by SP AusNet initiated outages. SP AusNet's target of 2,072 dispatch intervals per annum is based on historical performance over the last five years. Each five-minute dispatch interval below the target is worth approximately $5,000 to SP AusNet.

During 2012, a program to actively manage outages that affect the MIP scheme was implemented. This program will result in a positive outcome MIP for 2012. A strategy has been adopted to set an initial target for 2013 of approximately 1400 dispatch intervals. Of concern is volatility of the measurement of congestion due to outages on the SA interconnector and whether these impacts are reflective of actual market costs to consumers.

4 Capital Expenditure

This AMP draws from the plant specific strategies that support the above network objectives and ensure the network is operated safely and sustainably. Capital investment is captured in two categories:

- **Customer Initiated** – Customer capital expenditure driven by connections, upgrades and additions to SP AusNet's transmission network.
- **Company Initiated** – Capital expenditure initiated by SP AusNet's Electricity Transmission Asset Management team required to maintain network safety, sustainability and availability.

The current capital expenditure requirements for FY2013/14 to FY2017/18 is summarised below in Figures 2 and 3, and Table 2.

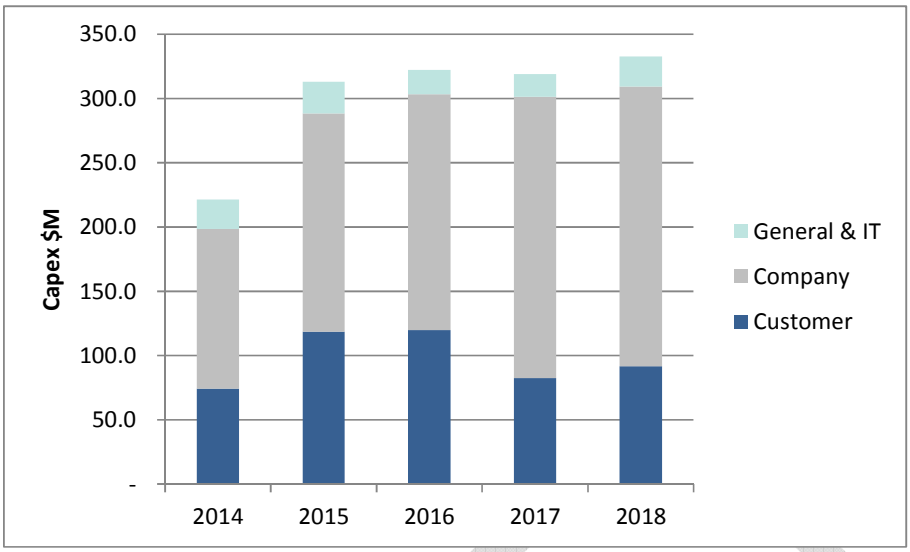

Figure 2 - Electricity Transmission Capex Summary ($Nominal)

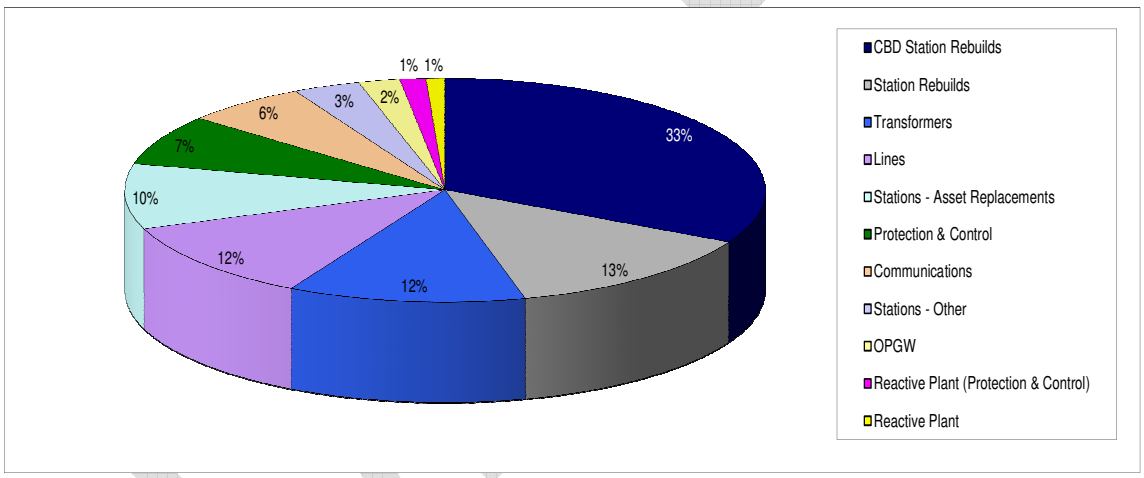

Figure 3 - Electricity Transmission Company Initiated 5-year Capex

Year Ending 31st March	2014	2015	2016	2017	2018	Total
(A$M) Nominal	Budget	Plan	Plan	Plan	Plan	FY14-18
Transmission						
Customer	74.3	118.6	119.9	82.4	91.6	486.9
Company	124.3	169.7	183.3	219.0	217.5	913.8
General & IT	22.9	24.7	18.8	17.4	23.4	107.3
Net Transmission Capex	**221.5**	**313.1**	**322.0**	**318.8**	**332.6**	**1,508.0**

Table 2 - Electricity Transmission Capex 2013/14 to 2017/18 ($Nominal)

4.1 Programs

The augmentation plans of the Australian Energy Market Operator (AEMO)[3] and the distribution businesses[4] have been integrated with SP AusNet's asset renewal plan to form a consolidated Transmission Development Plan (TDP) as summarised in the following sections and Appendix A of this AMP.

SP AusNet's asset renewal projects are primarily focussed on *strengthening* the resilience and reliability of the network. To a lesser extent, a number of protection, control and communication renewal projects can be categorised as *modernising* the network to meet the requirements of the National Electricity Code.

A few key projects dominate expenditures within the period of this plan and delays in these projects have led to peak expenditure occurring in the middle years of the forecast period. As far as possible, other projects have been scheduled to commence after these major projects.

4.2 Melbourne CBD

Two major station redevelopment projects at Richmond Terminal Station (RTS) and West Melbourne Terminal Station (WMTS), and an augmentation project at Brunswick Terminal Station (BTS) are planned to be undertaken during this period. These projects will replace critical end of life assets and enhance the supply to Melbourne's Central Business District (CBD).

The RTS redevelopment project has been approved for an amount of $137M with completion currently scheduled for 2017. Three of the four 220/66kV transformers at RTS are in poor condition and on 1 February 2011, peak loads on one transformer group exceeded their cyclic ratings. A temporary 5th 220/66 kV transformer has been installed at RTS to avoid shedding load for the unplanned outage of one of the existing 220/66 kV transformers. This is supplemented by the construction of a 66 kV tie line to transfer load from Richmond to Malvern, distribution load transfers and radial operation of Little Burke Street Zone Substation (JA) from West Melbourne Terminal Station.

The BTS 220/66kV augmentation is part of CitiPower's plan to provide an increased level of security of supply, to the CBD consistent with good industry practice, estimated around $215M. This project has been significantly delayed however planning approval was granted for this project during 2012 and the project is currently scheduled for completion in 2016.

The redevelopment of WMTS is scheduled to be completed by 2016 at an estimated cost of $193M. Similar to RTS, this terminal station also has 220/66kV transformers (three) requiring immediate replacement, but more importantly progression of this project will allow for the installation of additional transformational capacity needed should the BTS project experience further delays.

[3] Victorian Annual Planning Report 2010 AEMO

[4] Transmission Connection Planning Report 2009 Victorian Electricity Distribution Businesses

4.3 New Network Connections

Market modelling studies for AEMO's National Transmission Network Development Plan (NTNDP) foreshadows closure of some of the coal fired power stations in the Latrobe Valley, as well as economic development of new gas fired power generation and renewable generation such as wind and geothermal generation in Victoria over the 25 year study period.

A new terminal station, Tarrone, has recently been commissioned and a further station, Elaine, is required to interconnect new generation sources. The Elaine Terminal Station is scheduled for completion in 2015.

Increasing utilisation of existing assets and load growth outside the economic supply area of existing terminal stations provide the business drivers for the development of new terminal stations. One new 220/66kV terminal stations at, Deer Park (2017) is required in the planning period. This is a change from the previous AMP where two new terminal stations were forecast in the planning period.

4.4 Power Transformers

Additional 500/220kV transformation capacity is required in the greater metropolitan Melbourne area within the forecast period. AEMO is considering a number of locations including South Morang, Ringwood, Templestowe, Rowville and Cranbourne terminal stations. At present, the preferred option involves the installation of an additional 500/220kV transformer at either Cranbourne or Rowville terminal stations with some 220kV line works at an estimated cost of $72M.

AEMO has carried out a regulatory test to mitigate a constraint on the interconnector between Heywood and South Australia. The preferred option will result in the installation of an additional 500/275kV transformer at Heywood by 2016. This option has asset management benefits to SP AusNet as no spares are currently held for the existing Heywood 500/275kV transformers.

The Distribution Businesses identified a number of potential augmentations of the existing connection transformer capacity to mitigate network constraints identified at Bendigo, Cranbourne, Ringwood, and Tyabb terminal stations. Projects to augment capacity at Cranbourne, Ringwood and Tyabb were initially planned for completion during the forecast period and have now been deferred beyond the forecast period.

Modelling of safety, environmental, reliability, availability and business risks associated with major transformer failures is used to rank transformer refurbishments and replacements from the fleet of more than 200 units[5]. Thirteen transformer replacements have been initiated to *strengthen* the *resilience and reliability* of our existing networks (refer to Table 3). These are in addition to the replacement of transformers at RTS and WMTS as part of the station redevelopment works previously discussed in Section 4.2.

[5] A number of single phase transformers will be replaced with 3-phase units over the next decade resulting in a reduced total number of power transformers.

Location	Transformer	Voltage	Target
Geelong TS	B1 and B3	220/66kV	2013
Bendigo TS*	2A-2B	220/66kV	2014
Glenrowan TS*	B1	220/66kV	2014
Dederang TS	H1	330/220kV	2014
Morwell TS	B2	220/66kV	2014
Fishermans Bend TS	B1	220/66kV	2016
South Morang TS	H2	330/220kV	2016
Heatherton TS	B1, B2 and B3	220/66kV	2017
Keilor TS	B4 and A4	220/66 and 500/220kV	2018

Table 3: Power Transformer Replacements

* Note: single phase transformers are installed at Bendigo (6 units) and Glenrowan (3 units)

The transformer contingency plan is reviewed annually to ensure that the consequences of a major failure of a connection transformer are minimised by the availability of appropriate spare equipment.

4.5 Terminal Station Redevelopments

A redevelopment project for Glenrowan terminal station is currently in the design phase and approval has been granted to commence redevelopment of Heatherton terminal station. The Heatherton terminal station project has been advanced in response to new condition information which indicates that the transformers have deteriorated rapidly in the recent past.

These redevelopment projects are focussed on *strengthening* the resilience and reliability by stabilising circuit breaker and transformer failure risks within sustainable ranges and include re-configuration to meet future network needs as defined by AEMO and the Distribution Businesses.

4.6 Reactive Plant

Refurbishment of the Fishermans Bend and Templestowe terminal station synchronous condensers and replacement of their associated secondary systems is being planned to meet AEMO's specification for dynamic reactive support of the shared transmission network.

Also, the replacement of the thyristors and associated secondary systems on the static VAR compensators (SVCs) at Kerang and Rowville terminal stations, along with the replacement of the control systems for the series capacitor banks at South Morang terminal station will modernise these assets.

4.7 Circuit Breakers

Air-blast circuit breakers - SP AusNet has substantially completed a program to replace air-blast circuit breakers, which has included the replacement of 99 units over the past ten years. The replacement of eight remaining air-blast circuit breakers installed at Glenrowan terminal station will complete the air-blast circuit breaker program.

Bulk Oil Circuit Breakers – SP AusNet has commenced a replacement program for 220kV bulk oil circuit breakers and selected replacement of critical 66kV bulk oil units due to safety, reliability and environmental risks. The staged replacement of 220kV bulk oil circuit breakers at Hazelwood power station switchyard has commenced and 14 units have been replaced as part of the Thomastown terminal station rebuild project. In addition, nine circuit breakers are scheduled for replacement at Rowville and Dederang terminal stations and a further 10 units at Ringwood terminal station are scheduled for replacement by 2015. Further stages of Hazelwood power station switchyard circuit breaker replacement are currently being developed.

4.8 Lines

The tower climbing fall arrest system program involving installation of a cable system to prevent falls has commenced with expenditure of approximately $21M over the next five years. This program will not be complete over the forecast period and is planned to continue beyond the forecast period. A further program to install fall arrests on station racks is planned to commence in 2014/15. This will involve annual expenditure to $0.3M to prevent falls from station racks. The Tower Safe Access (Ladders and Screens) program is scheduled for completion in 2013/14 with expenditure of $1.2M.

Conductor replacements totalling $35M are planned over the forecast period to replace corroded conductor. The second phase of conductor replacement on the Heywood – Alcoa 500kV line is scheduled for 2014/15 and 2015/16. Sections of ground wire will also be replaced with some sections of the Hazelwood – South Morang 500 kV line targeted for replacement.

The insulator replacement program undertaken over the past few years has been successful in reducing failures and risk associated with failure. This program will now reduce in size and will primarily involve replacement of very old insulators in low corrosion environments.

The program targeting road and rail crossings and other high consequence towers on the BETS-KGTS 220 kV Line will finish in 2013/14. A program to replace towers with a high risk of collapse on the [C-I-C] line will commence in 2014/15. Total expenditure on tower replacement over the forecast period is over $30M.

A new program to mitigate corrosion on towers which are not badly deteriorated but would be extremely difficult to replace is planned to commence in 2014/15. This will involve the application of a preventative coating to 6 towers each year at a forecast operational cost of $12M over the period of this plan.

Risk modelling of the transmission network has identified conductor as an emerging issue due to a combination of corrosive environments and asset age. Further analysis using aerial imaging correlated with conductor sampling is planned to develop a detailed understanding of the size of this issue and the required response over a 20-year period.

4.9 Secondary Systems

Protection system replacements have focused on addressing reliability risks associated with slow or incorrect operation and deterioration of older electro-mechanical and first generation electronic relays. The new protection systems have provided the benefit of remote access to fault location information that has improved fault investigation and response.

The secondary systems replacement program of approximately $60M over the period of this plan program will continue to target non-compliant and non-supported assets. This program incorporates DC systems replacement, primarily batteries and chargers that no longer provide the required back-up supply at terminal stations.

4.10 Communications

The existing power line carrier systems are being progressively replaced with modern microwave and optical fibre bearers to comply with the redundancy and timing performance requirements of the National Electricity Rules (NER) and mitigate the risks associated with the absence of manufacturer's support. Modern power line carrier systems are used where NER compliance can be achieved.

The copper supervisory cables are reaching end-of-life and services are being transferred to fibre in conjunction with protection and communication equipment replacements.

5 Operational and Maintenance Expenditure

SP AusNet determines its asset related operations and maintenance activities by reference to industry best practice programs, and by introducing incremental refinements to established programs as a result of accumulated knowledge of the asset base. From time to time these schedules are revised to cater for external changes (i.e. new legislation), risk exposure or reviewed from a zero-base (e.g. application of RCM analysis to maintenance schedules).

The Opex plan showing forecast expenditure for each of the transmission network operational functions is detailed in Table 4.

Function description	2013-14	2014-15	2015-16	2016-17	2017-18
EM - Maintenance for External customers	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OAE - Easement Management	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OAW - Asset Works	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OAWM - Wholesale Metering Code	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OE - Operating Expenditure	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OMD - O&M Maintenance Domestic	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OMO - O&M Maintenance Operations for VPX & DBs	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OMS - O&M Maintenance Scheduled	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OMU - O&M Maintenance Unscheduled	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OMV - O&M Vegetation Management - Transmission	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
TOTAL	$26,314	$28,459	$29,272	$31,442	$32,271

Table 4 - Electricity Transmission O&M 2013/14 to 2016/17

5.1 Recurrent Opex

Recurrent Opex includes both scheduled and unscheduled maintenance of network assets. The maintenance philosophy is to "optimise the security, reliability and operational capability of the transmission system, under both normal and abnormal conditions, and preserve the good condition and functional capability so as to maximise service life by the use of safe, efficient and cost-effective work practices". In general terms, the goal is to perform maintenance in conjunction with

asset replacement to achieve the mandated levels of service and performance at the lowest total life cycle cost.

A detailed maintenance plan covering the next 12 months is produced each year and a three-month look-ahead plan is produced each month.

5.2 Non-recurrent Opex

Non-recurrent works (known as Asset Works) are singular, large, or specialised activities focussed on specific issues. They include emergency works following major failures, corrosion mitigation, repair of equipment fleets, condition assessments, civil infrastructure maintenance, power cable repairs and high voltage bushing replacements. Major self-funded insurance events are also funded from the Asset Works Allowance.

Asset works expenditure of over $40M is planned for the period of this plan. The major programs of work are:

- Refurbishment of circuit breakers - SF_6 and minimum oil;
- Refurbishment of Gas Insulated Switchgear (GIS);
- Power transformer oil leak repairs and oil treatment;
- Repair of failed circuit breakers and instrument transformers;
- Overhaul of reactive plant;
- Refurbishment and repair of civil infrastructure and station facilities;
- Treatment of ground level tower corrosion (Sox);
- Replacement of line hardware and tower steelwork;
- Assessing clearance of lines using Light Detection and Ranging (LIDAR) technology; and
- Improving maintenance support for circuit breakers.

5.3 Easement and Vegetation Management

The easement and vegetation management provision includes inspections, regular vegetation clearing to meet relevant codes and upkeep of access tracks.

Extreme weather and ageing has affected line easement access routes. Many of these routes are maintained by DSE however, SP AusNet is the primary user of the routes. Toward the end of the period of this plan allowance has been made to contribute to the cost of replacement of some line access bridges which will have reached end of life.

6 Network Risk Profile

This AMP includes programs, projects and planned expenditure aimed at stabilising the risks associated with the electricity transmission network. The trends in failure risk for major asset classes is summarised in Figure and is based on the proposed programs and associated planned expenditure.

A reduction in transmission network risk is evident over the period shown in Figure 4. This reduction is primarily the result of the large number of transformer replacements related to the CBD

station rebuild projects. Asset classes other than transformers display a relatively flat risk profile with the exception of transmission lines, where risk is increasing due to deterioration of assets and a relatively small asset replacement program.

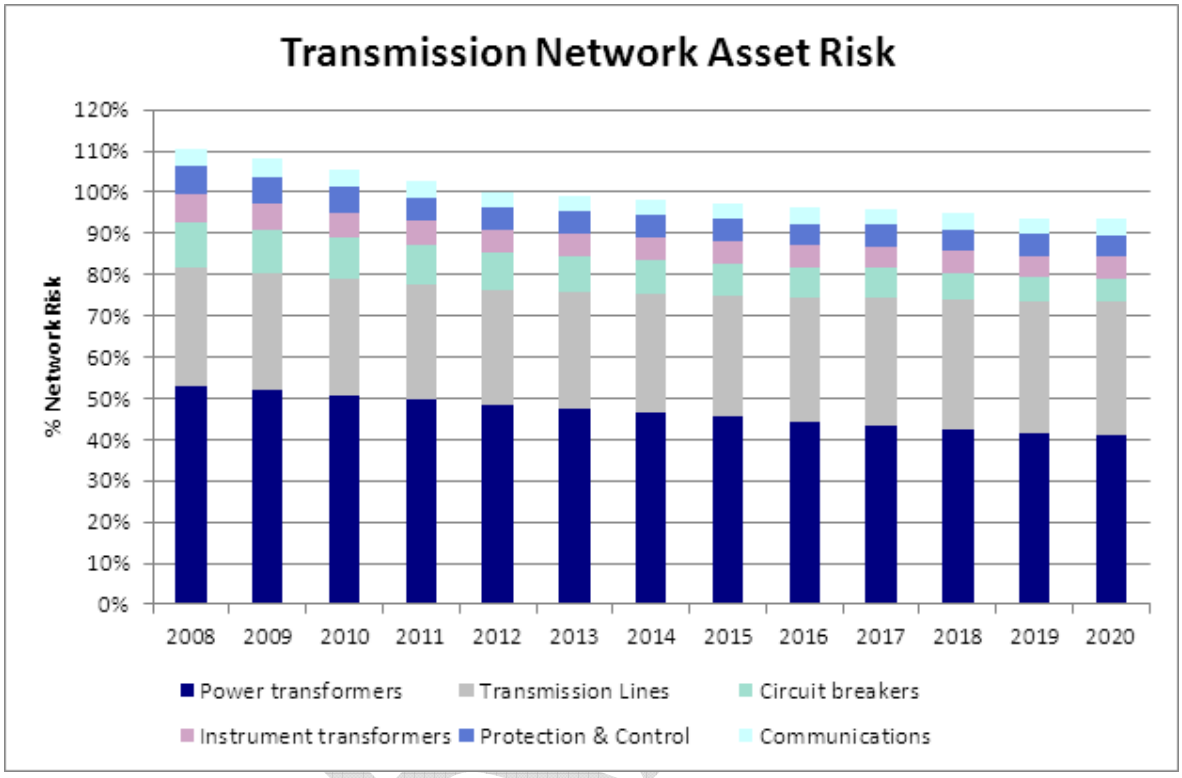

Figure 4 - Electricity Transmission Network Risk Profile

Appendix 3A – Transmission Projects

Company initiated projects with forecast expenditure greater than $2M over the plan period

Title	2013/14 ($m)	2014/15 ($m)	2015/16 ($m)	2016/17 ($m)	2017/18 ($m)
RTS Redevelopment Project	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
WMTS Redevelopment Project	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
HTS Rebuild	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Transmission Line Conductor & Groundwire replacement program 201	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
KTS B4 & A4 Transformer Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
SMTS H1 Transformer Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Tower replacement on high risk sites	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Glenrowan Terminal Station Redevelopment Project	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
YPS 220kV CB Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Fall Arrest Installation on EHV Towers	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Replace 1990 vintage line differential protections.	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Ringwood Terminal Station (RWTS) 220kV Circuit Breaker Replacem	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Redevelopment of HWPS 220kV Switchyard, Stage 4	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
BLTS 220kV, 66 kV and 22 kV CB Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Ringwood Terminal Station - Replace B4 ASEA Transformer and 8 66	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
GTS B1 and B3 Transformer and 66 kV CB Replacement Project	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
DDTS H1 330/220 kV Transformer Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Upgrade SCADA at Non-SCIMS & Old SCIMS sites	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
MWTS B2 Transformer Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
KGTS-WETS OPGW	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
FBTS 66kV CBs, 220kV CBs and B Transformers Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Installation of Fall Arrests on Transmission Line Towers	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Synchronous Condensors Refurbishment - Stage 2	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
HWPS CB Replacement Stage 3	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Transmission Line Insulator replacement program 2014 - 2020	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Fire protection - Fire hydrants replacement and upgrade - stage 3	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Instrument Transformer Repplacement Program - Stage 7	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
ROTS 220kV Switchbay Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Station Security upgrades (fences, access system)	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Next Generation Network (Transport) Phase 1	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
BETS R2A/2B 220/66 kV Transformer Group Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
BETS-KGTS Radio Link	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Install OPGW BETS - KGTS	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Power System Quality Monitor Stage 2	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
DC Supply Upgrade Stage 3 (Stations not covered by X803 & XA29)	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Transformer - Improved safe maintenance access for units since late	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Next Generation Network (Transport) Phase 2	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Next Generation Network (Access) Phase 1	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Station Environmental Works	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
OTN Replacement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Replace Protection on SVCs (KGTS, HOTS, ROTS No1, ROTS No2)	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Transformer - Bushing replacement program - Stage 3	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Fire protection - Fire hydrants replacement and upgrade - stage 4	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
LG4C Bulk Oil CB Replacement - Stage 2	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Instrument Transformer Replacement Program - Stage 8	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Station security upgrades (fences, access system) - stage 2	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
HYTS-SESS Radio Link	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Replace CB PLC controls (500 PLCs)	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
SVTS Redevelopment Project	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Battery upgrade and replacement program Phase 1	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
BLTS Rebuild	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Communications Cyber Security Implementation	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
LG4C Bulk Oil CB Replacment - Stage 1	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Transformer - OTI/WTI replacement - Stage 2	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Sub-total	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Other projects, overheads, CFC & cost escalation	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Total	**124.3**	**169.7**	**183.3**	**219.0**	**217.5**