

Appendix 3A: Deliverability Strategy 2014/15 to 2016/17

8 February 2013

Public Version

ISSUE/AMENDMENT STATUS

Issue Number	Date	Description	Author	Approved by
1	8/2/2013	Final version	R Jones	K Karafotias

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1 Introduction

This document provides an overview of SP AusNet's key initiatives that support the delivery of transmission network capital projects for the 2014/15 to 2016/17 period. It summarises the deliverability considerations for the proposed capital works program and outlines the key program delivery initiatives adopted by SP AusNet to ensure the efficient delivery of the capital works program.

2 Deliverability Review

SP AusNet has undertaken a review on the deliverability of the forecast network capital works program. This section provides a summary of the review, including a comparison of historic and forecast network expenditure and a summary of major projects included in the program.

2.1 Network Expenditure Comparison

The forecast transmission network capital expenditure program represents a material increase in expenditure compared to actual expenditure in the current period. During the current regulatory period, SP AusNet has demonstrated that it can deliver the demands of an increasing capital expenditure program, which increased from an annual average of \$100 million in the previous period to \$130 million this period. SP AusNet's ability to achieve substantial increases in capital expenditure demonstrates that it can deliver the proposed program in the forthcoming regulatory period.



Figure 1 provides a comparison of historic and forecast network capital expenditure.

Figure 1 – Historic and Forecast Network Capex (real 2013/14, \$million)



In terms of expenditure by asset class, the forecast spend in the forthcoming regulatory period is also below historic levels for each category (excluding CBD projects). The forecast expenditure levels for the majority of asset classes are considerably lower than historic levels.



Figure 2 provides a comparison between historic and forecast expenditure by asset class.

Figure 2 – Network Capex by Asset Class excluding CBD projects (real 2013/14, \$million)

The increased program should also be assessed against of the total capex managed by SP AusNet in Victoria. For example, in 2012/13, SP AusNet is forecasting to spend \$1.1 billion across its gas and electricity networks. Thus, the average real increase of 47 per cent in forecast electricity transmission capex represents just a five per cent increase on total annual SP AusNet capex. SP AusNet has demonstrated during the current period that it can successfully manage an increase in capex of this order.

2.2 Summary of Major Projects and Programs

The majority of the network capital expenditure program for the 2014/15 to 2016/17 regulatory period is driven by a relatively small number of major projects. The program includes 10 projects that represent over 70 per cent of the total expenditure for the three-year period. In particular, Richmond and West Melbourne terminal station rebuilds (committed projects) represent over 37 per cent of total network capital expenditure during the period. The timing of other major station rebuild projects has been scheduled around the delivery of the Richmond and West Melbourne rebuild projects.

The following table and sub-sections provide further details regarding the deliverability of the major projects and programs.



Table 1 – Top 10 Network Projects and Programs

Project/Program	Project Type	3-Year Expenditure 2014/15 to 2016/17 (\$m*)	Contribution to overall network capex
West Melbourne TS Redevelopment	CBD Rebuild	106.4	21%
Richmond TS Redevelopment	CBD Rebuild	79.5	16%
Heatherton TS Redevelopment	Major Stations Projects	38.5	8%
South Morang TS H2 transformer Replacement	Transformer Replacement	30.8	6%
Yallourn PS 220kV CB Replacements - Stage 1	Major Stations Projects	22.5	4%
Tower replacement program	Lines Program	21.7	4%
Conductor and Ground wire replacements	Lines Program	20.0	4%
Fishermans Bend TS Asset Replacements	Major Stations Projects	19.7	4%
Tower structures - fall arrest program	Lines Program	12.4	2%
Springvale TS Redevelopment – Stage 1	Major Stations Projects	11.5	2%
*\$real 2013/14 includes O/H costs excludes finance costs		363.0	71%

*\$real 2013/14, includes O/H costs, excludes finance costs

CBD Rebuilds

The deliverability of Richmond and West Melbourne terminal station redevelopment projects is addressed in Section 4.

Major Stations Projects

SP AusNet has demonstrated the capability to deliver a number of major 'brown-field' station rebuild and asset replacement projects during the previous and current regulatory period. In this period, the major projects to rebuild Brooklyn, Geelong, Keilor, Thomastown terminal stations, and Hazelwood Power Station have been completed, or are expected to be completed by the end of the current regulatory period. In addition, major rebuild projects at Glenrowan and Ringwood terminal stations are substantially progressed.

The capital works program for the 2014/15 to 2016/17 period includes the redevelopment of Heatherton Terminal Station and the commencement of the Springvale Terminal Station redevelopment project. In addition, major asset replacements are planned for Yallourn Power Station and Fishermans Bend Terminal Station. The proposed implementation strategy for these types of projects includes replacing assets with conventional air-insulated switchgear (AIS) within existing switchyards. This approach to implementation is well proven and considered noncomplex in terms of project delivery.

Transformer Replacements

SP AusNet has considerable experience in replacing power transformers within the transmission network. During the current regulatory period, SP AusNet has installed 21 power transformers (up to December 2012).

The capital works program for the forthcoming regulatory period includes replacing a number of power transformers as part of station rebuild projects to maximise delivery efficiencies and minimise implementation risks. Power transformers will be replaced in conjunction with station rebuild works at Glenrowan. Heatherton and Fishermans Bend terminal stations.





Standalone transformer replacements are planned for Morwell and South Morang terminal stations. The replacement of transformer H2 at South Morang Terminal Station (SMTS) forms part of a staged approach to replacing the two 330/220kV, 700MVA transformers at SMTS. The project includes installing three single-phase units in a new position adjacent to the existing transformer H2. The implementation strategy effectively adopts a 'green-field' approach, which significantly minimises the risks associated with installing and commissioning the new units. In addition, the approach adopted in replacing transformer H2 will facilitate the future in-situ replacement of transformer H1.

The replacement of transformer B2 at Morwell Terminal Station is well progressed and commissioning is scheduled for 2014.

Lines Programs

The capital works program for the forthcoming regulatory period includes a number of transmission lines programs, including tower replacements, conductor and ground wire replacements, and installing fall arrests for tower structures.

The tower replacement program includes replacing transmission towers associated with two 330kV circuits between Dederang and South Morang terminal stations. In the current regulatory period, SP AusNet has successfully completed the replacement of 19 towers. The proposed tower replacement program presents similar access and terrain considerations to past tower replacement projects.

The conductor replacement program includes replacing 10 kilometres of conductor and 35 kilometres of ground-wire. SP AusNet has recently competed replacing 16 kilometres of conductor associated with the Heywood to Alcoa Portland 500kV transmission line. In addition, the project to replace corroded ground wire across major road and rail crossings was also recently completed. The project successfully met the deliverability challenges presented with this type of project, including stakeholder negotiations and traffic management.

The lines program of works also includes the continuation of the fall arrest installation program for tower structures. The fall arrest installation program does not present deliverability issues and SP AusNet has made substantial progress in implementing the fall arrest installation program in the current regulatory period. The program includes installation of 5200 tower fall arrest systems in the current regulatory period. To date, approximately 4100 fall arrest systems have been installed as part of the program.

3 Program Delivery Initiatives

SP AusNet continues to focus on improving its program delivery capability. In particular, the growth in capital expenditure for the transmission and electricity distribution network has required considerable changes to structure, resources, process and governance arrangements to meet the demands of an increasing capital works program. This section summarises the key initiatives that have been implemented during the current regulatory period that have enhanced the organisation's program delivery capability.



3.1 Structure

SP AusNet has implemented a number of organisational changes during the current regulatory period that have resulted in improved efficiency and effectiveness in capital works delivery. The key improvements included:

- Established an enterprise-wide Program Management Office;
- Restructured the Major Projects team within Integrated Network Services (INS) to create dedicated teams for the portfolio of transmission and electricity distribution network projects. The formation of dedicated teams has resulted in improved focus on respective network projects and clearer accountabilities; and
- Formed a dedicated Program Delivery team within Networks Strategy and Development (NSD).

3.2 Resource Management

Design Management

SP AusNet has established a pre-qualified panel of external design service providers (DSPs) to undertake the majority of detailed design works for capital projects. The contract arrangements with external DSPs ensure that engineering and quality standards are maintained at negotiated market rates. The DSP panel was formed using a competitive tender process, which involved an assessment of cost, availability of relevant skills and key resources to undertake the works, proven ability to perform works and works management methodology.

SP AusNet regularly reviews the performance of the panel of DSPs. The expertise for establishing and reviewing engineering standards, and managing the design services is maintained within the business. New DSPs undergo a rigorous pre-qualification process.

In addition to utilising the external DSP panel for design works, SP AusNet has established an internal design capability team that supplements DSP resources. The internal design team has successfully completed designs for a number of projects since it was established. The team is currently leading the design for 22 projects for SP AusNet's transmission and electricity distribution networks. The internal design team provides SP AusNet the necessary flexibility to deliver the program of works in a cost-efficient manner.

To assist the delivery of projects in the design phase, SP AusNet maintains a comprehensive suite of technical design documentation, which includes technical specifications, guidelines and standards in the form of a Station Design Manual (SDM) for terminal stations. By adopting a highly standardised approach to project delivery, significant benefits are achieved in terms of improved efficiencies in design, procurement and commissioning. SP AusNet continues to pursue opportunities to improve design standards and is currently undertaking a review that includes updating existing design standards and creating new engineering design standards that are customised for SP AusNet's future capital program.

Installation Service Provider Management

SP AusNet has established a pre-qualified panel of external installation service providers (ISPs) to undertake the majority of project implementation works. Contractual arrangements with ISPs ensure that pricing remains competitive and delivery and quality targets are maintained. New ISPs must undergo a rigorous pre-qualification process to ensure they possess appropriate skills, capability, experience and management systems to undertake works in the electricity infrastructure environment.





The ISP panel was formed using a competitive tender process, which involved an assessment of cost, availability of relevant skills and key resources to undertake the works, proven ability to perform works and works management methodology.

In addition, SP AusNet maintains its own internal construction team that supplements the panel of ISPs. The internal construction team has been engaged to construct a number of major projects, including the \$50 million project to rebuild Brooklyn Terminal Station. In addition, the internal construction team is currently delivering the \$18 million project to replace 220kV switchgear at Rowville Terminal Station and the \$4.7 million project to replace 66kV switchgear at Morwell Terminal Station. The internal construction team provides SP AusNet the necessary flexibility to deliver the program of works in a cost-efficient manner and has experience in delivering a number of major capital projects.

To assist the delivery of projects in the implementation phase, SP AusNet has re-located project managers within the Major Projects team to a centralised location, which has resulted in improved communications, skills sharing and mentoring among project managers. In addition, project management practices and processes have been aligned with the Australian Institute of Project Management (AIPM) and Project Management Body of Knowledge (PMBOK). This has included the establishment of a number of key processes that support the implementation phase for the delivery of major projects. The processes are encompassed in the Project Execution Manual and the Major Projects Operations Manual.

Procurement Strategies

SP AusNet uses competitively sourced period agreements for the supply of major plant required in capital projects. SP AusNet has developed strong long-term relationships with its major suppliers, which has enabled improved efficiency in delivering major capital projects. Notwithstanding, SP AusNet continues to seek improvement opportunities and is currently reviewing its sourcing arrangements in order to identify further potential cost efficiencies.

3.3 Program Management

SP AusNet has implemented a number of program management improvement initiatives in the current regulatory period. One of the key improvements has been the development of a consolidated 5-year works program for SP AusNet's electricity distribution and electricity transmission networks. The works program provides business-wide visibility of capital and operational expenditure programs and is a central source of information for decision-makers, resource planners and delivery teams. The works program provides a targeted analysis of categories of portfolio expenditure, which enables the balancing of portfolio expenditure with the resource capacity and availability. In addition, the works program details regional expenditure levels which further enhances resource planning and portfolio optimisation.

In terms of system improvements, SP AusNet has implemented Enterprise Project Management (EPM) for capital works program management. The use of EPM has enabled SP AusNet to improve the management of the transmission portfolio of projects by providing centralised reporting and performance monitoring functionality.

3.4 **Process and Governance**

Process Improvement

SP AusNet established the Program Management Office (PMO) in 2009. The PMO has introduced a number of key process improvements that has enhanced the organisational focus on project governance and delivery. In particular, the review and implementation of the project



lifecycle (and associated governance and compliance framework) has improved the effectiveness and consistency of project governance and reporting.

Project Post Implementation Reviews

SP AusNet routinely conducts project post implementation reviews (PIRs) for major projects. The aim of the review process is to collect and utilise knowledge learned throughout a project to optimise the delivery and outputs of future projects. Objectives from the process include:

- Providing a feedback mechanism to enhance decision-making in future projects;
- Identifying areas to improve efficiency and effectiveness during all phases of the project lifecycle;
- Identifying ways to improve value-for-money in project delivery; and
- Identifying innovation opportunities.

The PIRs are undertaken by a mix of internal resources and external service providers.

PAS55 Accreditation

SP AusNet's three energy networks are accredited to British Standards Institution's Publically Available Specification 55 1:2008 (PAS 55). During the PAS 55 re-accreditation process undertaken in 2011, a number of policies, processes, procedures and practices relevant to project delivery were assessed using the PAS 55 framework. With regard to Clause 4.5.1 (Life Cycle Activities), the auditors, AMCL Pty Ltd, assessed the maturity of SP AusNet's practices as "fully effective and are being integrated throughout the business". In addition, the auditors did not identify any major or minor non-conformances while assessing the requirements of Clause 4.5.1. They also noted that "it was clear from the implementation of the PMO that SP AusNet is benefitting from the focus it brings to the management of the project lifecycle".

3.5 Summary

During the current regulatory period, SP AusNet has successfully implemented a number of significant changes that have improved the organisation's program delivery capability. While the forecast capital program represents a material increase in expenditure compared to the current period, SP AusNet is confident that the improvements to structure, resourcing, processes and governance will ensure the forecast program can be delivered. In addition, SP AusNet's demonstrated ability to adapt to an evolving, resource-constrained operating environment in the current period provides further confidence that it is capable of delivering the proposed capital program.





4 Delivery of CBD Rebuild Projects

The two largest company-initiated projects in the forthcoming regulatory period are the Richmond and West Melbourne terminal station rebuild projects, which represent 37 per cent of total network capital expenditure in the period.

This section provides an overview of the CBD projects and summarises SP AusNet's approach to project delivery.

4.1 Overview of Projects

The CBD rebuild projects aim to provide safe, secure, reliable and cost effective power supply to Melbourne CBD and its surrounding inner suburbs. The projects include:

- The redevelopment of Richmond Terminal Station (RTS), which was approved by SP AusNet's Board in March 2010. RTS provides supply to the Eastern Central Business District and inner suburban areas in the inner east and south-east of metropolitan Melbourne. The project includes redeveloping the 220kV, 66kV and 22kV switchyards and replacing four 220/66kV transformers.
- The redevelopment of West Melbourne Terminal Station (WMTS), which was approved by SP AusNet's Board in May 2012. (WMTS) is one of the three terminal stations in Melbourne supplying the CBD plus the surrounding residential, commercial and industrial western area. The project includes replacing the 220kV, 66kV and 22kV switchgear, and three 220/66kV transformers.
- The project to upgrade Brunswick Terminal Station (network augmentation project), which was approved by SP AusNet's Board in May 2012.

The delivery of the three projects has been consolidated into the Project Edison Team.

4.2 **Project Governance**

The Richmond and West Melbourne terminal station rebuild projects are critical to strengthening the electricity supply to the Melbourne CBD and surrounding areas. Given the importance and complexity of the CBD rebuild projects, a rigorous project governance framework has been established for the project that has increased transparency and provided clearly defined accountabilities. The governance arrangements include project oversight by SP AusNet's Board, who are provided with progress project updates on a six-monthly basis. In addition, the Managing Director has direct oversight of the project and represents the Board as Chair of the Project Edison Review Group. The review group also includes representation from two other senior executive managers within the organisation. In addition to the review group, the Project Edison Working Group has been established and includes representation from key senior managers and stakeholders who are accountable for the delivery of the project. The roles and accountabilities of the review and working groups are provided in the following sections.

Project Edison Review Group

The review group was established to ensure that the project's key objectives are met and provides a forum for the discussion and resolution of project related matters. In particular, the group draws upon members' experience to enable effective resolution of issues and management of key project risks.



Stakeholder	Roles & Accountabilities
Managing Director	Chairman/Convener of Review Group
	Accountable to the SP AusNet Board for the ultimate delivery of Project Edison Project Objectives.
	Providing strategic oversight and guidance to Project Edison Review Group and Project Edison Working Group.
Group General Manager NSD	Project meets the required technical, network and commercial objects as specified as the Asset Owner.
	Strategic oversight and accountability concerning network and regulatory implications.
	Management of external regulatory and government stakeholders.
	Providing strategic oversight and guidance to Project Edison Working Group.
Group General Manager INS	Strategic oversight concerning delivery implementation.
	Providing strategic oversight and guidance to Project Edison Working Group.
Manager, Program Delivery	Provides overall direction for Project Edison.
	Accountable for the end to end delivery of the Project Edison Project Objectives including Working Group and Implementation Team effectiveness, MD Reporting and Financial Management.

Project Edison Working Group

The role of the Project Edison Working Group includes:

- providing assistance and governance to the Project Director and Project Sponsor;
- assisting in managing SP AusNet's process and procedures;
- providing technical and delivery experience to the implementation team;
- ensuring that the Implementation Team has all necessary resources to implement their functions;
- providing guidance and mentoring to foresee and resolve issues; and
- ensuring that an appropriate risk management framework is implemented and adhered to.

Title	Roles & Accountabilities
Manager Major Projects	Direct oversight of the delivery of Project Edison scopes to meet the Project Edison Project Objectives. Ensuring that all delivery service provides are strategically aligned to Project Edison Project Objectives. Accountable for delivery and management of delivery risk.
Director Network Engineering	Directly accountable for engineering outcomes and ensuring design service providers are strategically aligned with the Project Edison Project Objectives.
Project Edison, Project Director	Accountable for the delivery of the Project Edison Project Objectives including the implementation of the agreed delivery strategy as articulated in the Project Execution Plan. Managing all day to day implementation requirements and leading the Implementation Team to succeed in the meeting and exceeding of the Project Edison Project Objectives.
Project Sponsor	Accountable for the end to end delivery of the Project Edison Project Objectives.





4.3 CBD Project Delivery Considerations

This section includes summarises the key considerations that support the successful delivery of the CBD rebuild projects.

Technology

Extensive engineering studies were undertaken at the concept design stage for the RTS project to determine the optimum solution to address identified project risks. The risks include site access issues, network outage constraints, construction limitations, community expectations and council planning considerations. As a result of the engineering studies, the selected solution for RTS includes the use of indoor gas-insulated switchgear (GIS) technology to replace the 220kV and 66kV switchyards.

In terms of deliverability advantages, the major benefits of utilising a GIS solution include:

- enabling a 'greenfield' approach to be adopted for project implementation. The GIS equipment will be installed in a new building and can be assembled and pre-commissioned without impacting existing infrastructure.
- minimising the impact of transmission network outages during implementation phases.
- reducing the safety risk associated with implementation as the majority of works will be
 effectively isolated to within the new GIS building. The conventional air-insulated solution
 would involve extensive work in close proximity to energised equipment, GIS solution largely
 eliminates the associated risks.
- minimising the impact on the existing ISP resource pool. The installation of GIS equipment will use specialised resources provided by the equipment manufacturer.

Acknowledging the planning and design criteria for the redevelopment of Richmond and Brunswick terminal station projects, 220kV and 66kV indoor GIS will be deployed at West Melbourne Terminal Station. The implementation benefits of GIS equally apply to the West Melbourne project. In addition, use of GIS will reduce the footprint and improve the visual amenity at WMTS. This is consistent with the City of Melbourne's plan for the Arden-Macaulay area, which includes rezoning the area for high density residential, light industrial and commercial activities with more vegetated areas.

Planning and Community Consultation

The planning permit for the Richmond Terminal Station rebuild project was issued in March 2012. Completion of this major project milestone has significantly reduced the delivery risk associated with the project by mitigating the possibility of an adverse planning outcome. A dedicated project team continues to ensure compliance with planning permit conditions and to manage the community consultation process. A detailed community management plan identifies the activities that may impact the community and planning permit compliance is managed through a periodic auditing process.

Design Development

The design development for Project Edison is being undertaken by SP AusNet's preferred design service providers. The compliance of the design with SP AusNet design standards will be managed by an internal Design Manager for the work program.

During the design development process, the design will be assessed against constructability operability and maintainability criteria. This will be done via comprehensive design



discussions/workshops. For this purpose, inputs will be taken from operation, maintenance and constructions staff within SP AusNet. In addition, the design will be reviewed with help from industrial experts who have constructed similar terminal stations in the recent past.

Project Execution

A comprehensive Project Execution Plan (PEP) has been established for Project Edison. The PEP provides details of the management processes of Project Edison and includes the permit process, procurement strategy, high level schedules, organisational structure, responsibilities of the positions in the organisation structure and resources required for the key phases of the project.

The construction works associated with Project Edison have been sequenced in a series of stages. The proposed construction strategy has been designed to maintain the availability and security of electricity supply to customers during the upgrade works and ensures that necessary assets are available in the case of a contingency event.

Installation works will be undertaken using SP AusNet preferred service providers. The selection of delivery parties will be done via competitive tender processes within preferred delivery partners. Multiple work groups will be used for the delivery and all the work groups will be managed by a dedicated fully qualified construction manager who has proven experience in high voltage construction industry.

The quality control will be monitored through an extensive quality management process and the complete commissioning process will be managed by a qualified commissioning manager.

The required resource levels to meet the construction stages have been communicated to installation delivery partners through extended communication protocols.

Project Delivery Synergies

The three CBD rebuild projects have a number of similar technical, logistical, environmental and community management considerations. The synergies enable SP AusNet to incorporate key learning opportunities into continually improve project delivery across the three projects. A significant example is the revised community consultation and statutory planning processes adopted for the redevelopment of Richmond Terminal Station. By incorporating a number of the key learnings identified in the Brunswick Terminal Station rebuild project, SP AusNet experienced an improved outcome. A number of design, procurement and implementation synergies are also expected in the delivery of RTS and WMTS projects.

Risk Management

A Risk Management Strategy has been developed for Project Edison. The strategy utilises SP AusNet's corporate framework for assessing risk. It details the accountabilities associated with recognising, monitoring, reporting and controlling program and project risk. A consolidated risk register listing the key project risks has also been developed and is reviewed on a periodic basis.

Dedicated Project Team

A dedicated project team was formed in 2011 to ensure the successful delivery of the portfolio of projects included in Project Edison. The establishment of a dedicated team has enabled clearer focus and accountabilities within the business. An overview of the project team structure and accountabilities is included in Appendix A.



Appendix A – Project Edison Structure

The following figures depict the structure and accountabilities for Project Edison.

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Figure – Project Edison Team Accountabilities



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Figure – Project Edison Team Structure