PM&R Business Case Review Summary

Key Project Details	
Project No / Title:	**TD-003415** **SVTS Redevelopment Project**
Portfolio:	Transmission
Revision (Y/N):	No
Project Capex Budget for Approval *(Direct + CFC + OH)*	$52.891M
Total Estimated Expenditure for Approval *(Incl. Management Reserve, WDV + opex)*	$56.367M
Financial Years (FY) of Spend	FY17/18 – $1.981M FY18/19 - $21.069M FY19/20 - $21.409M FY20/21 - $11.602M FY21/22 - $306K
Portfolio Management & Review (PM&R) – review points	
Project NPV (post tax)	$10.170M
IRR	6.25%
Payback	29.8
1. Bus Case review Preferred Option	Approval is requested for a total expenditure of $56.367M to replace three 150 MVA 220/66 kV transformers, four 220 kV minimum oil circuit breakers (CB) and nineteen 66 kV circuit breakers at Springvale Terminal Station (SVTS). The project improves the reliability of supply and reduces the safety risk associated with an unlikely asset explosive failure at SVTS; consistent with the regulatory obligation to maintain the quality, reliability and security of supply of prescribed transmission services as stated in the National Electricity Rules. **The following options have been considered:** • Business as Usual (BAU) : Define the baseline risk **(PV$155.619M)** • Integrated Redevelopment : Replace all deteriorated assets in a single integrated project **(PV$66.930M)** • Staged Replacement – Transformers and 220 kV assets : Selectively replace the deteriorated assets over two stages starting with the transformers and 220 kV assets **(PV$77.615M)** • Staged Replacement – 66 kV assets : Selectively replace the deteriorated assets over two stages starting with the 66 kV assets **(PV$85.731M)** • GIS Redevelopment : Replace all deteriorated assets in a single integrated project utilising 220 kV and 66 kV gas insulated switchgear (GIS) **(PV$89.170M)** This is one of the major capex projects proposed for the 2017 to 2022 regulatory period.
2. NPV model review	
3. Business Benefits	This capital project will generate regulated capital return to the business and avoid increase in operational expenses over the forecast period and beyond. 5 x Options have been presented and the preferred option offers the lowest PV Cost (66.930M). Other qualitative benefits: Avoid negative company reputation due to asset failures, Improve supply reliability and improve visual amenity.
4. Budget Allowance	Transmission revenue application for the 2017 to 2022 revenue period includes forecast expenditure for the redevelopment of SVTS. The Project is partially funded in the FY17/18 Portfolio Plan. **BC asking for $1.981M in FY18 – Budget allocated is $971K, therefore the FY19 budget will require an additional $1.01M**
5. Accounting notes	The total written down value (WDV) of the project is $1.345 M (WDV spread sheet is available in SAP)
6. Other issues to note	**Business Case approved at the Board Meeting held 20 July 2017.** **Final Approval Delegated to [C-I-C] MD**
Date review completed:	2/05/17
Prepared by:	[C – I – C]
Approval signature	[C – I – C]

AusNet Services Ltd
Board Meeting No: 06/17

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PM&R Business Case (BC)
TD-0003415
SVTS Redevelopment Project

Portfolio:	Transmission
Regulatory Category:	2002 TCAPEX Station Rebuilds
Transmission Regulatory Key:	
Project Initiator & Dept.	[C C], Regulated Energy Services, Network Engineering, Network Planning
Prepared by:	[C-C]
Date BC submitted:	28/03/17
Project start date:	09/03/16
Commissioning Readiness Date:	01/09/21
Project Completion Date:	20/12/21
Delivery Budget:	$52.89 M
Management Reserve:	$2.13 M
Total Budget for Approval:	$56.367 M
Is this budgeted in the current Portfolio FY Plan:	Yes
Scope of Work attached?	Yes (Appendix A.1)
Planning extract attached?	Yes (Appendix A.2)
ESV / Legal Directive?	No
Capex profit centre	13260
Propex profit centre	Not Applicable
Opex (BAU) owner & cost centre	[C-C] – Major Projects Delivery cost centre
Incremental change in Opex	Reduction of $21.3 k per annum

Approvals:			**Endorsement to Proceed:**
EGM, RES	Chief Financial Officer	Managing Director	Manager, PM&R
Approval Budget - $1M to $5M	*Approval Budget – $5M to $50M*	*Approval Budget – $5M to $50M*	
[C-I-C]	*[C-I-C]*	*[C-I-C]*	*[C-I-C]*

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Business Case Accountability Matrix

The table below provides delineation and shows *who* is responsible to review *which* section of the BC. This will expedite approval as only the person best placed to review a specific section will be accountable for it.

When the business case is approved, all the stakeholders below will be copied into the confirmation email.

Development	Review
Initiator: [C/C]	**Initiator's manager:** [C – I – C]
• All aspects of the Business Case	• Executive summary • Project Background • Scope . Schedule . Options considered (financial & technical) . Risk assessment
High Level Designer (PD): [C-I-C]	**PM&R:** [C – I – C]
• Options considered (Technical solution) • Risk assessment • Benefit assessment	. Due Diligence o Financial o Documentation . Project Governance . Benefit assessment . Financial assessment
Project Manager: [C-I-C]	**Portfolio Review** [C – I – C]
• Schedule • Options considered (Technical solution) • Risk assessment	• Overall Business Case • Validation of Opex (BAU) cost centre
Project Owner: [C – I – C]	

1. EXECUTIVE SUMMARY

Approval is sought for a total expenditure of $56.37 M (including overheads, contingency allowance, finance charges and asset retirements) to replace three 150 MVA 220/66 kV transformers, four 220 kV minimum oil circuit breakers (CB) and nineteen 66 kV circuit breakers at Springvale Terminal Station (SVTS).

The project will improve the reliability of supply and reduce the safety risk associated with an unlikely asset explosive failure at SVTS; consistent with the regulatory obligation to maintain the quality, reliability and security of supply of prescribed transmission services as stated in the National Electricity Rules.

The project targets a completion date of December 2021 and is economic before December 2018 based on the asset condition and failure risks identified at SVTS. It is hence recommended to prioritise this project to achieve an earlier completion date of December 2020 if the corporate budget allows for it to be funded to achieve the earlier completion date.

AusNet Services transmission revenue application for the 2017 to 2022 revenue period includes forecast expenditure for the redevelopment of SVTS.

Table 1.1: Project Expenditure Forecast

	First 5 years					
Project Expenditure Forecasts ($'000s)	2017 / 18	2018 / 19	2019 / 20	2020 / 21	2021 / 22	Total
Direct Expenditure	1,790	18,678	18,051	7,139	-	45,658
Overheads	161	1,681	1,625	643	-	4,109
Capitalised Finance Charges	30	710	1,733	344	306	3,123
Project Delivery Budget - Direct & CFCs & OH (SAP budget)	1,981	21,069	21,409	8,126	306	52,891
Management Reserve	-	-	-	2,131	-	2,131
Total Expenditure incl Management Reserve	1,981	21,069	21,409	10,257	306	55,022
Total CAPEX for Approval (incl risk, CFCs & OHs)	1,981	21,069	21,409	10,257	306	55,022
Operating Expenditure	-	-	-	-	-	-
Written Down Value (WDV) of Assets retired (non-cash)	-	-	-	1,345	-	1,345
Total Estimated Expenditure for Approval	1,981	21,069	21,409	11,602	306	56,367
Total Revenue	88	709	1,845	2,648	2,882	191,182
NPV (post Tax)						10,170
Payback Period (Discounted)						29.8
Internal Rate of Return (IRR)						6.25%
Corporate WACC (Post Tax Nominal)						4.82%

** Access to the Management Reserve component is subject to approval of a Change Control Request (CCR) in SAP and prior to exceeding the Project Delivery Budget

2. PROJECT BACKGROUND

SVTS was developed in the mid 1960's and supplies the eastern Melbourne zone substations of Clarinda, East Burwood, Glen Waverley, Notting Hill, Noble Park, Oakleigh East, Riversdale, and three zone substations in Springvale via 66 kV feeders. SVTS is a summer critical terminal station and provides 66 kV supply to United Energy (94%) and CitiPower (6%).

The majority of the electricity assets at SVTS are around 50 years old and condition assessments indicate that several assets are approaching the end of their technical lives. The emerging service constraints are:

- Health and safety risks presented by a possible explosive failure of instrument transformers, 220 kV circuit breaker bushings, 66 kV bulk oil circuit breaker bushings and 220/66 kV transformer bushings;
- Security of supply risks presented by a failure of the three ASEA 220/66 kV transformers, 220 kV circuit breakers or 66 kV circuit breakers;
- Operational and security of supply risks from the existing 220 kV switching arrangement;
- Collateral plant damage risks presented by an explosive failure of a transformer bushing, instrument transformer or bulk oil circuit breaker bushing;
- Environmental risks associated with insulating oil spill or fire.

The 220 kV switchyard consists of two incoming lines from Rowville Terminal Station (ROTS), directly connected to the 220 kV busbars and two outgoing lines to Heatherton Terminal Station (HTS), connected via two minimum oil circuit breakers. There are two more minimum oil circuit breakers connecting two busses and one SF_6 bus-tie circuit breaker in an open ring bus arrangement. All four 220 kV minimum oil circuit breakers are of SPRECHER & SCHUH type and are in a very poor (C5) condition.

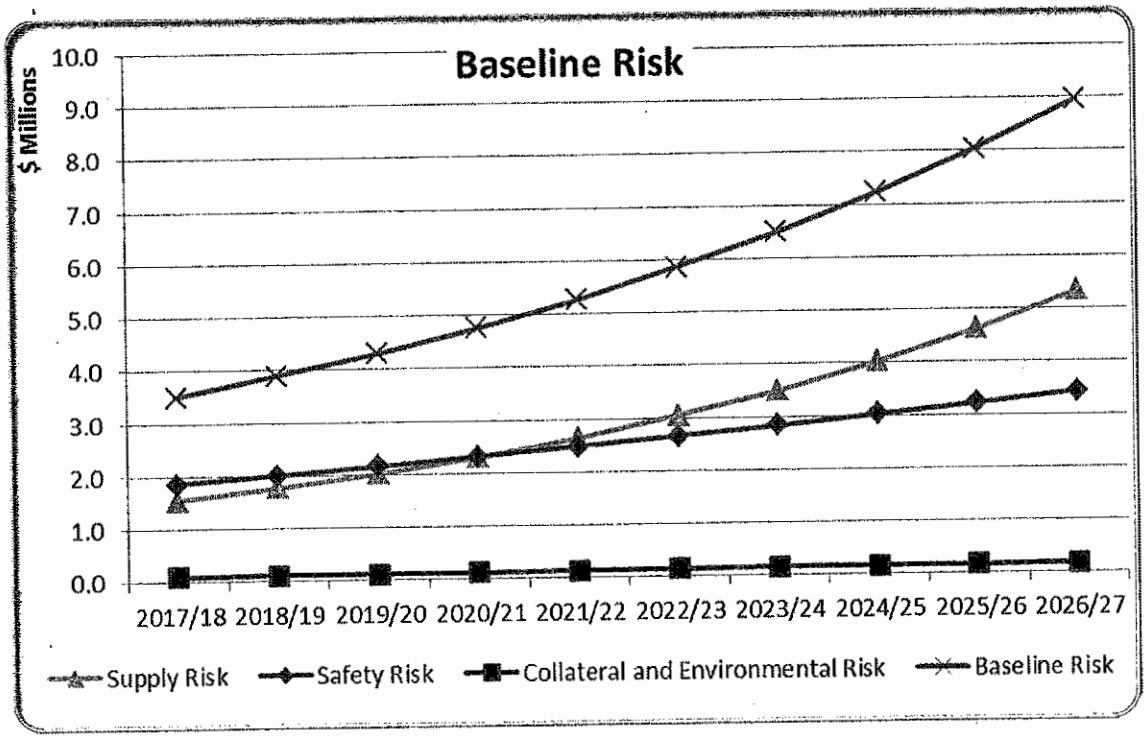
Transformation at SVTS comprises of four 150 MVA 220/66 kV transformers that provide transmission connection services to United Energy and CitiPower. The overall conditions of three of these transformers are poor (C4) and these are proposed for replacement.

The 66 kV switchyard includes ten feeders, six buses, five bus-ties and three 50 MVAr capacitor banks. Nineteen of these circuit breakers are either in very poor or poor condition. Eighteen of them are bulk oil circuit breakers with risks including explosive failure mode, supply risk, environmental and collateral damage.

Many of the primary and secondary assets installed at the time that SVTS was established have deteriorated and are reaching the end of their technical lives. The risks associated with plant failure are increasing and these assets are becoming more difficult and expensive to maintain due to a lack of manufacturer support and a scarcity of spare parts.

The attached "SVTS Redevelopment Planning Report" (Appendix A2) was prepared and submitted to the AER as a supporting document for the Transmission Revenue Reset (TRR) submission. It provides more information on the risks caused by the old and deteriorated assets at SVTS. This project is one of the major capex projects proposed for the 2017 to 2022 regulatory period.

The following chart shows the monetised safety, environmental, collateral damage and supply risks associated with the deteriorated assets at SVTS.



3. SCOPE – HIGH LEVEL

The following is a brief summary of the proposed scope of work:

- Remove the existing 220 kV 1-3 bus tie circuit breaker and 220 kV 2-4 bus tie circuit breaker.
- Remove the 220 kV HTS No.1 and HTS No.2 line circuit breakers.
- Remove the existing B1, B2 and B3 transformers.
- Replace the existing 220 kV buses including insulators and supports.
- Supply and install three 150 MVA 220/66 kV three phase transformers (B1, B2 and B3) including all associated primary and secondary connections (Replaced B3 & B6 transformers from RTS Redevelopment project (TD-0003317) would provide two of the 220/66 kV transformers for replacement).
- Supply and install six new 220 kV dead tank circuit breakers including associated remote operated isolators (ROIs), earth switches, voltage transformers, primary and secondary connections for the

switching of the B1, B2, B3 and B4 transformers (B2 and B3 single switched, B1 and B4 double switched).

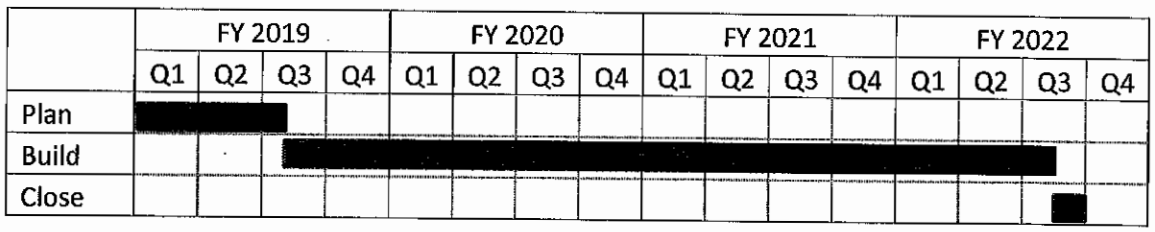
- Supply and install six new 220 kV dead tank circuit breakers including associated ROIs, earth switches, voltage transformers and primary and secondary connections for the switching of the incoming ROTS-SVTS lines and the SVTS-HTS outgoing lines.
- Remove nineteen 66 kV circuit breakers
- Supply and install seventeen new 66 kV dead tank circuit breakers and two new 66 kV live tank circuit breakers (cap bank switching) including associated isolators and primary and secondary connections.

3.1 Standards to be developed for this project

The engineering standards for this project are current and available via ECM. The project manager is comfortable that no new standards are required for this project.

4. SCHEDULE

Date of idea initiation: 01.04.2015 Date of Commissioning Readiness:01.09.2021



5. OPTIONS CONSIDERED

The following options have been considered:

- Business as Usual (BAU) : Define the baseline risk
- Integrated Redevelopment : Replace all deteriorated assets in a single integrated project
- Staged Replacement – Transformers and 220 kV assets : Selectively replace the deteriorated assets over two stages starting with the transformers and 220 kV assets
- Staged Replacement – 66 kV assets : Selectively replace the deteriorated assets over two stages starting with the 66 kV assets
- GIS Redevelopment : Replace all deteriorated assets in a single integrated project utilising 220 kV and 66 kV gas insulated switchgear (GIS)

The duration of analysis is over 45 years from FY2017/18 to FY2061/62

Table 5.1: Analysis of investment options

	Economic Least Cost Analysis				Financial Return		
Analysis of Investment Options ($'000s)	PV Capital Cost	PV Opex Costs	PV Community Costs & Benefits	Total PV Cost	NPV including Reg Return (post tax)	PV Cost Ratio	PV of Incentive / (Penalty)
Business As Usual	-	(846)	(154,773)	**(155,619)**	-	1.00	-
Integrated Redevelopment	**(44,591)**	**(396)**	**(21,943)**	**(66,930)**	**10,170**	**53.17**	-
Staged Replacement - Transformers and 220kV assets	(50,731)	(419)	(26,465)	**(77,615)**	12,632	60.46	-
Staged Replacement - 66kV assets	(44,919)	(462)	(40,350)	**(85,731)**	13,117	53.64	-
GIS Redevelopment	(66,831)	(396)	(21,943)	**(89,170)**	15,332	79.46	-

All figures are in $000's unless otherwise stated.
(nominal and discounted)

Business as usual

The Business as Usual (BAU) option quantifies the base line risk (primarily supply and health & safety risk) at SVTS. It is used for modelling purposes in the economic cost-benefit analysis to determine the economical time

for the asset replacement option with the lowest PV cost to proceed. A failure of any of the deteriorated assets at SVTS (220/66 kV transformers, 220 kV circuit breakers, 220 kV current transformers, 66 kV circuit breakers or 66 kV current transformers) poses a significant supply and safety risk.

The "Business as usual" option does not address the following AusNet Services obligations:

- under the National Electricity Rules to maintain the quality, reliability and security of supply of prescribed transmission services
- under the Electricity Safety Act to operate, maintain and decommission the supply network to minimise as far as practicable the hazards and risks to the safety of any person arising from the supply network

This option has a total present value (PV) cost of ($155,619 K), which is mainly due to escalating supply and safety risks costs. The level of risk and the number of assets that are in a deteriorated condition at SVTS supports the recommendation for asset replacement as this risk cannot be managed by the creation of exclusion zones. The Business as Usual option is not an economical option or a prudent management strategy for the assets at SVTS.

<table>
<tr><td>Capex and Opex</td><td>No Additional capex is included for this option.

Opex consists of transformer and circuit breaker operation and maintenance costs, which is estimated at $33.8 K pa given the age and condition of the assets at SVTS.

Transformer annual opex is estimated at $2.18 k pa for each one of the three old transformers and $0.38 k pa for the relatively new B4 transformer.

Circuit breaker annual opex is estimated at $1.85 k for each of the five 220 kV circuit breakers and $0.8 k for each of the twenty two 66 kV circuit breakers.</td></tr>
<tr><td>Community Costs & Benefits</td><td>The community cost of the Base Case option includes safety, supply, collateral and environmental risk cost as well as transformer losses. The monetised risk has been calculated in accordance with AMS 10-24 and the following input assumptions: Detailed information is provided in Appendix A.4.

Safety consequence = $20 M

Plant Collateral Damage Cost = $1 M

Environmental Risk Cost = $0.5 M

Value of Customer Reliability (VCR) = $39.355 / kWh

The supply, safety, collateral and environmental risk cost of the deteriorated switchgear at SVTS increases from $1.85 M to $3.22 M over the period from 2017/18 to 2025/26. (See detailed breakdown for each voltage in the table below).

The supply, safety, collateral and environmental risk cost of the deteriorated transformers at SVTS increases from $1.65 M to $4.82 M over the period from 2017/18 to 2025/26. (See detailed breakdown for N-1, N-2 and N-3 risk in the table below)

The transformer losses increase from $447 k to $457 k over the period from 2017/18 to 2025/26. It includes load losses based on the forecast demand at SVTS as well as no load losses using the following assumptions for losses on the three old and one new 220/66 kV transformers.

<table>
<tr><th>150 MVA 220/66 kV Transformers</th><th>Old</th><th>New</th></tr>
<tr><td>No load losses (kW)</td><td>95</td><td>50</td></tr>
<tr><td>Load losses @ 150 MVA (kW)</td><td>776</td><td>475</td></tr>
</table>

The sum of all identified risk and operating cost for 2017/18 is $3.98 M as detailed below.</td></tr>
</table>

Option 1: Business as Usual	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Capex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Annual payment for Non-Network Options	0	0	0	0	0	0	0	0	0
RISK AND OPERATING COST									
Transformer Risk	0.112	0.120	0.128	0.137	0.146	0.155	0.165	0.175	0.186
220 kV Circuit Breaker Risk	0.437	0.467	0.497	0.529	0.562	0.596	0.632	0.669	0.707
220 kV Instrument Transformer Risk	0.422	0.458	0.496	0.536	0.578	0.622	0.667	0.715	0.765
66 kV Circuit Breaker Risk	0.694	0.746	0.801	0.857	0.916	0.978	1.041	1.108	1.176
66 kV Instrument Transformer Risk	0.298	0.327	0.357	0.389	0.422	0.458	0.495	0.534	0.574
22 kV Circuit Breaker Risk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22 kV Instrument Transformer Risk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N-1 Supply Risk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N-2 and N-3 Supply Risk	0.593	0.736	0.868	1.098	1.337	1.650	1.985	2.412	2.898
Market Impact Cost / Switching Supply Risk	0.948	1.041	1.126	1.206	1.303	1.398	1.513	1.613	1.734
Transformer Maintenance	0.007	0.007	0.007	0.008	0.008	0.008	0.008	0.008	0.009
Circuit Breaker Maintenance	0.027	0.028	0.028	0.029	0.030	0.031	0.032	0.033	0.034
Transformer Losses	0.447	0.457	0.457	0.452	0.454	0.453	0.459	0.464	0.457
Annual Risk Cost and Operating Cost	**3.984**	**4.385**	**4.785**	**5.240**	**5.757**	**6.348**	**6.997**	**7.721**	**8.541**

Preferred option - Integrated Redevelopment

This option involves replacement of three 150 MVA 220/66 kV transformers (B1, B2 & B3), selected 220 kV and 66 kV assets with elevated failure risks and includes a reconfiguration of the 220 kV switchyard using air insulated switchgear in a single integrated project. The replacement of the three ASEA transformers will be done in-situ as it can be undertaken over the lower demand period when demand is below the capacity of two transformers. This will ensure that a transformer outage during the replacement swap over does not present an unmanageable risk.

This option addresses the safety, security of supply, collateral damage and environmental risks presented by the three poor condition 220/66 kV transformers, 220 kV minimum oil circuit breakers, 220 kV current transformers, 66 kV circuit breakers and 66 kV current transformers. This option also addresses the security of supply risks associated with the un-switched 220/66 kV transformers and 220 kV lines by improving the switching capabilities of the 220 kV switchyard.

This option has the lowest PV cost ($66.93 M) of all technically feasible options and the project economic timing is prior to summer 2018. This option addresses all the identified risks in a single efficient project and is therefore recommended for approval.

The Integrated Redevelopment option is economic before December 2018 based on the asset condition and failure risks identified at SVTS. It is recommended that this project be considered for earlier completion by December 2020 should company budget provisions allow for the earlier spend required to achieve project completion by December 2020. The earlier completion date will help to manage supply and safety risk, which has been assessed to be more than $4 M pa as shown in the table above in the BAU Option.

Capex and Opex	The project capex cost is $55.02 M (excluding asset retirement cost). Opex consists of transformer and circuit breaker operation and maintenance costs. The project will deliver a $21.3 k saving in operation and maintenance cost. The saving is due to the lower expected maintenance cost associated with the new transformers and switchgear.
Community Costs & Benefits	The residual safety, supply, collateral and environmental risk cost will be negligible after project completion. Transformer losses will be around $250 k pa and will grow slightly as demand grows at SVTS.
Incentive Benefits (Electricity only)	

Option 3 - Staged Replacement – Transformers and 220 kV assets

This option involves staged rather than integrated replacement of the deteriorated assets at SVTS. The first stage replaces the 220 kV switchgear that are in very poor condition (C5), three of the four 220/66 kV transformers and critical 66 kV switchgear such as the bus tie circuit breakers and transformer incomer circuit

breakers. The remainder of the plant are replaced in a second stage, five years after completion of the first stage.

This option allows deferral of some asset replacements and the first stage is estimated to cost $45.1 M. It delivers significant benefits by addressing most of the critical risks.

The total PV cost for this option is ($77.615 M). This option addresses most of the identified risks; however the PV cost is higher than the preferred option and is not recommended.

Capex and Opex	The capex for this option is $45.1 M followed by the second stage capex of $16.3 M in 2025/26. Opex consists of transformer and circuit breaker operation and maintenance cost. The stage 1 will deliver a $16.2 k saving in operation and maintenance cost. The saving is due to the lower expected maintenance cost associated with the new transformers and selected switchgear. The completion of second stage will deliver opex savings similar to the preferred option after 2025/26.
Community Costs & Benefits	The stage 1 will reduce the energy supply risk due to replacement of deteriorated assets at critical locations. The supply risk will reduce from $2.304 M to $5.5 k after the completion of stage 1. However this option will reduce the safety risk only by 60%. The safety risk posed by the most of the 66 kV bulk oil circuit breakers remains until the completion of stage 2 in 2025/26. Replacement of transformers will reduce the transformer losses from $451.8 k to $266.9 k after stage 1.
Incentive Benefits (Electricity only)	

Option 4 - Staged Replacement – 66 kV assets

This option also involves staged rather than integrated replacement of the deteriorated assets at SVTS. The first stage replaces selected 66 kV switchgear, followed by a second stage that replaces selected 220 kV switchgear and three of the four 220/66 kV transformers.

This option allows deferral of some asset replacements and the first stage is estimated to cost $9.8 M. It only addresses some of the immediate critical risks.

The total PV cost for this option is ($85.731 M). This option addresses only a limited number of identified risks and the PV cost is higher than the preferred option. This option is not recommended.

Capex and Opex	The capex for this option is $9.8 M followed by the second stage capex of $51.6 M in 2025/26. Opex consists of transformer and circuit breaker operation and maintenance cost. Stage 1 will deliver a $6.1 K saving in operation and maintenance cost. The saving is due to the lower expected maintenance cost associated with the selected switchgear. The completion of the second stage will deliver opex savings similar to the preferred option after 2025/26.
Community Costs & Benefits	Stage 1 will reduce the energy supply risk by 17% from $2.448 M to $2.041 M due to replacement of selected deteriorated 66 kV switchgear. The safety risk posed by the 66 kV switchgear will be reduced by 35% from $2.304 M to $1.489 M. There will be no change to the transformer losses until the transformers are replaced in stage 2.
Incentive Benefits (Electricity only)	

Option 5 - GIS Redevelopment

This brownfield redevelopment option is similar to the preferred option, however the existing 220 kV and 66 kV air insulated switchgear (AIS) is replaced with compact gas insulated switchgear (GIS) within buildings. Some of the existing rack structures and line termination structures remain, yet many of the overhead connections and feeder exits will be placed underground in this option.

SVTS is located within a suburb characterised by a mixture of commercial and industrial developments. The nearest residential properties are more than 200 m from the SVTS site on the opposite side of a main arterial

road. It is not expected that GIS equipment within buildings will be a requirement of a planning permit, as was the case with the Brunswick augmentation and Richmond redevelopment projects. However, this remains a possibility and has hence been considered in the economic evaluation.

The total PV cost for this option is ($89.17 k). This option has the highest PV cost compared to all the replacement options considered due to excessive cost of GIS installations. This option is not recommended though it addresses all the risks.

Capex and Opex	The project capex cost is $76.8 M. Opex consists of transformer and circuit breaker operation and maintenance costs. The project will deliver a $21.3 k saving in operation and maintenance cost similar to the preferred option. The saving is due to the lower expected maintenance cost associated with the new transformers and switchgear.
Community Costs & Benefits	Similar to the preferred option, the residual safety, supply, collateral and environmental risk cost will be negligible after project completion. Transformer losses will be around $250 k pa and will grow slightly as demand grows at SVTS.
Incentive Benefits (Electricity only)	

6. RISK ASSESSMENT

Project delivery risk (known)

Project Risk	What could occur?	Consequence	Likelihood	Residual Risk Level	Actions and controls in place to manage/reduce risk
Plant explosive failure during project delivery phase	Safety risk and supply outages	4	A	III	Monitor assets during project. Safety review completed prior to project start.
Plant failure during project delivery phase	Supply outages	2	A	IV	Contingency plans, load transfers and monitor assets for any deterioration in condition.
Brown Field Redevelopment	Supply outages	2	B	III	Manage outages and limit it to the lower demand period.

Other risks

Some of the project materials such as three 220/66 kV transformers, 220 kV circuit breakers, 66 kV circuit breakers may be procured from foreign manufacturers/ suppliers.

Project Governance

Project governace arrangements will be put in place commensurate with the challenges of a large transmission network redevelopment project.

7. BENEFIT ASSESSMENT

Financial benefits to the business

This capital project will generate regulated capital return to the business and avoid increase in operational expenses over the forecast period and beyond.

Other qualitative benefits

Avoid negative company reputation due to asset failures, improve supply reliability and improve visual amenity.

8. FINANCIAL ASSESSMENT

Capitalised Finance Charges (CFC) table

Financial Year ($'000s)		Month	Project Direct Expenditure				Net Monthly Expenditure	Cummulative WIP Balance	Transferred into RAB (Sarcoded)	Customer Contribution Receipted into Trust	Finance Charges	Total Finance Charges	Cumulative Finance Charges
			Project Direct Expenditure $Real	Project Direct Expenditure $Nominal	Overheads	Totals							
	2017 / 2018	Apr-17	4.0	4	0		4	4	-		-		-
		May-17	4.0	4	0		4	9	-		-		-
For A to P:		Jun-17	24.0	24	2		26	35	-		-		-
Direct	1,790	Jul-17	24.0	24	2		26	61	-		-		-
Overheads	161	Aug-17	24.0	24	2		26	87	-		-		-
Finance Charges	30	Sep-17	24.0	24	2		26	114	-		1		1
	1,981	Oct-17	24.0	24	2		26	141	-		1		1
Error checks ($Real)		Nov-17	336.4	336	30		367	510	-		2		4
		Dec-17	336.4	336	30		367	881	-		4		8
Direct	-	Jan-18	336.4	336	30		367	1,253	-		6		13
Overheads	-	Feb-18	336.4	336	30		367	1,627	-		8		21
		Mar-18	316.4	316	28	1,951	345	1,981	-		9	30	30
	2018 / 2019	Apr-18	1,211.1	1,241	112		1,353	3,360	-		15		45
		May-18	987.0	1,012	91		1,103	4,473	-		21		66
For A to P:		Jun-18	987.0	1,012	91		1,103	5,602	-		26		92
Direct	18,678	Jul-18	1,717.1	1,760	158		1,918	7,555	-		35		127
Overheads	1,681	Aug-18	1,717.1	1,760	158		1,918	9,517	-		44		171
Finance Charges	710	Sep-18	1,717.1	1,760	158		1,918	11,489	-		53		224
	21,069	Oct-18	1,717.1	1,760	158		1,918	13,469	-		62		286
Error checks ($Real)		Nov-18	2,532.5	2,596	234		2,829	16,374	-		76		361
		Dec-18	1,404.7	1,440	130		1,569	18,027	-		83		444
Direct	-	Jan-19	1,404.7	1,440	130		1,569	19,687	-		91		535
Overheads	-	Feb-19	1,413.6	1,449	130		1,579	21,365	-		99		634
		Mar-19	1,413.6	1,449	130	20,359	1,579	23,050	-		106	710	740
	2019 / 2020	Apr-19	1,413.6	1,485	134		1,619	24,783	-		114		854
		May-19	1,628.9	1,711	154		1,865	26,772	-		123		978
For A to P:		Jun-19	1,463.9	1,538	138		1,676	28,580	-		132		1,110
Direct	18,051	Jul-19	1,463.9	1,538	138		1,676	30,397	-		140		1,250
Overheads	1,625	Aug-19	1,463.9	1,538	138		1,676	32,222	-		149		1,398
Finance Charges	1,733	Sep-19	1,463.9	1,538	138		1,676	34,056	-		157		1,555
	21,409	Oct-19	1,547.6	1,626	146		1,772	35,994	-		166		1,722
Error checks ($Real)		Nov-19	1,712.6	1,799	162		1,961	38,131	-		176		1,897
		Dec-19	1,547.6	1,626	146		1,772	40,088	-		185		2,082
Direct	-	Jan-20	914.5	961	86		1,047	41,326	-		191		2,273
Overheads	-	Feb-20	1,729.9	1,817	164		1,981	43,508	-		201		2,473
		Mar-20	830.8	873	79	19,675	951	-	44,459		-	1,733	-
	2020 / 2021	Apr-20	830.8	895	81		975	980	-		5		2,478
		May-20	1,628.9	1,754	158		1,912	2,905	-		13		2,491
For A to P:		Jun-20	830.8	895	81		975	3,898	-		18		2,509
Direct	7,139	Jul-20	830.8	895	81		975	4,896	-		23		2,532
Overheads	643	Aug-20	830.8	895	81		975	5,898	-		27		2,559
Finance Charges	344	Sep-20	1,617.6	1,742	157		1,899	7,833	-		36		2,595
	8,126	Oct-20	20.0	22	2		23	7,893	-		36		2,632
Error checks ($Real)		Nov-20	20.0	22	2		23	7,953	-		37		2,668
		Dec-20	20.0	22	2		23	8,014	-		37		2,705
Direct	-	Jan-21	-	-	-		-	8,051	-		37		2,742
Overheads	-	Feb-21	-	-	-		-	8,088	-		37		2,780
		Mar-21	-	-	-	7,782	-	8,126	-		37	344	2,817
	2021 / 2022	Apr-21	-	-	-		-	8,163	-		38		2,855
		May-21	-	-	-		-	8,201	-		38		2,893
For A to P:		Jun-21		-	-		-	8,239	-		38		2,931
Direct	-	Jul-21		-	-		-	8,277	-		38		2,969
Overheads	-	Aug-21		-	-		-	8,316	-		39		3,007
Finance Charges	306	Sep-21		-	-		-	8,354	-		39		3,046
	306	Oct-21		-	-		-	8,393	-		39		3,084
Error checks ($Real)		Nov-21		-	-		-	8,432	-		39		3,123
		Dec-21		-	-		-	-	8,432		-		-
Direct	-	Jan-22	-	-	-		-	-	-		-		-
Overheads	-	Feb-22	-	-	-		-	-	-		-		-
		Mar-22	-	-	-	-	-	-	-		-	306	-
Total						49,768					-	3,123	
Cash flow amount should equal the total directs as shown on page 1 of the A to P						Total Including Finance Charges					49,768		

Corporate accounting considerations

Asset Retirements

The project includes retirement of:

- Three 150 MVA 220/66 kV transformers (B1, B2 and B3)
- Four 220 kV minimum oil circuit breakers, three 220 kV current transformers
- Nineteen 66 kV circuit breakers with associated isolators and primary and secondary connections
- One 66 kV current transformer and six 66 kV voltage transformers

The total written down value (WDV) of the project is $1.345 M (WDV spread sheet is available in SAP).

Contributed (Gifted) Assets

Not applicable

Assets to be created

See Appendix A.5

Accounting Review

Not Applicable

Appendix A

A.1 Scope of works/ Initiative Brief (ICT)


Conceptual Scope v0.02.doc


SVTS Handover v0.1_020216.ppt

A.2 Asset Management Strategy Extract


SVTS Redevelopment Planning Report_CON

A.3 ESV or Legal Directive

None

A.4 Detailed Cost and Benefit Assumptions


Copy of SVTS Economic Model TRR_

A.5 Detailed List of New Assets Created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