RIN Schedule 1 Supporting Documents

2023-27 Transmission Revenue Reset

PUBLIC

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1 Introduction

1.1 Purpose

The purpose of this document is to provide information in relation to information requested in Schedule 1 of the Regulatory Information Notice (RIN) for the forecast period 1 April 2022 to 31 March 2027.

Most of the information requested in Schedule 1 is included in AusNet Services' submission, the appendices to the submission, or in supporting documentation. Information is included in this document where the submission, the appendices to the submission, or the supporting documentation does not provide the information requested in Schedule 1.

1.2 Structure

This document provides information referenced to the numbering in Schedule 1 of the RIN.

2 Replacement Capital Expenditure Modelling

RIN Reference	Commentary
1.4b (ii)	Refer to RIN Reference section below 4.1(a)(ii).
3.4	Over previous regulatory periods AusNet Services has demonstrated its ability to deliver multiple programs of asset replacement and construction with various rates of activity. AusNet Services manages the scheduling of work to optimise use of resources and mitigate the effects of fluctuations in workload. Large programs such as Station Rebuild Projects, Power transformer and Switchgear Replacement programs are delivered across multiple years and regulatory periods which mitigates risks to deliverability. Deliverability process is shown in section 6.
4.1(a)(i)	Data in template 2.2 has been provided in the asset categories defined in Appendix F of the RIN except for the following categories. TRANSMISSION TOWER SUPPORT STRUCTURES - OTHER This category includes targeted replacement of insulators on power transmission lines under the insulator replacement program. Further detail of these assets is provided in the AMS 10-75 Transmission Line Insulators. CONDUCTORS - OTHER This category includes replacement of transmission line overhead earth wires on transmission lines under the asset replacement programs. Further detail of these assets is provided in the AMS 10-79 Transmission line conductors and Ground wires. TRANSMISSION CABLES - OTHER This category involves strategic replacement spares for high risk 220 kV oil filled power cables in terminal stations. Further detail of these assets is provided in the AMS 10-66 Power Cables.

	SCADA, NETWORK CONTROL AND PROTECTION SYSTEMS There are five subcategories covered under this asset replacement program. - Communication Network Assets: This category involves replacement of key communication assets mainly, Bearer Replacements, Bearer & Network Technology Replacements, Network Technologies Replacements, Radio Replacements, Telephony Replacement and Infrastructure & Facilities which involve communication systems associated with power system protection and control. involved in transmission system. Further detail of these assets is provided in the AMS 10-56 Communication Systems. - Control equipment systems: This category involves cable partial discharge monitor / fault location of oil filled 220kV critical Power cables. Further detail of these assets is provided in the AMS 10-66 Power Cables. - Metering systems: This category is involved with revenue metering replacement program of works which involve replacement of early generation energy meters. Further detail of these assets is provided in the AMS 10-68 Secondary Systems. - Protection schemes / systems: This category involves targeted replacement of high risk 66kV,220kV, 330kV, 500kV bus zone, circuit breaker, capacitor bank, Power transformer, HV and EHV line protection systems under the asset replacement program. Further detail of these assets is provided in the AMS 10-68 Secondary Systems. - Station SCADA and control systems: This category involved replacement of first generation microprocessors Remote Terminal Unit. Further detail of these assets is provided in AMS 10-68 Secondary Systems. Other BY: This category of replacement expenditures incorporates replacement asset groups /asset categories not identical to above categories but indirectly related to the replacement of associated asset categories mentioned above. - Other primary and secondary projects: This category covers the civil infrastructure including buildings, environmental systems, overall switchyard including switchyard surface, access roads, stations lights, cable ducts and trenches, signage and name plates, support structures and foundations that all contribute to the overall function of the stations. It also includes secondary works associated with the replacement of primary equipment of Terminal Station Major Projects except specific projects mentioned below at SYTS & SMTS, WMTS, RCTS, TSTS, KTS, HOTS and SMTS Transformer projects. - Fall Arrest Systems This category covers the installation of fall arrest systems of transmission line towers and rack structures in terminal stations which will have other programs done on them such as insulator replacement, conductor replacement, and ground wire replacements. Further detail of these assets is provided in the AMS 10-77 Transmission Line Structures. - Auxiliary power supplies

	This category covers targeted replacement of DC power supply equipment in terminal stations covered under the asset replacement program. Further detail of these assets is provided in the AMS 10- 52 Auxiliary Power Supplies. - 22kV,66kV,220kV surge arrester replacement This category covers the replacement of poor condition silicone carbide and porcelain housed surge arresters in terminal stations under the asset replacement program. Further detail of these assets is provided in the AMS 10-73 Surge Arresters. - Civil infrastructure This category covers the replacement of fire hydrant systems and pipe works, building replacements, switchyard refurbishments and access roads to Terminal stations covered under the asset replacement program. Further detail of these assets is provided in the AMS 10-55 Civil Infrastructure and AMS 10-61 Fire detection and Suppression. - AIS replacing GIS at SYTS and SMTS All expenditures associated with replacing GIS at SYTS with AIS and partial replacement of GIS with AIS are covered under this category under major projects. - TD-3319- WMTS Redevelopment Project Remaining civil works, site preparation and demolition works associated with WMTS project are covered under this project. - TD-8004-RCTS Transformer and Switchgear Replacement This category covers the civil infrastructure including buildings, environmental systems, overall switchyard including switchyard surface, access roads, stations lights, cable ducts and trenches, signage and name plates, support structures and foundations that all contribute to the overall function of the stations. It also includes secondary works associated with the replacement of primary equipment. - TD-7772- TSTS Transformer and 66kV Circuit Breaker Replacement This category covers the civil infrastructure including buildings, environmental systems, overall switchyard including switchyard surface, access roads, stations lights, cable ducts and trenches, signage and name plates, support structures and foundations that all contribute to the overall function of the stations. It also includes secondary works associated with the replacement of primary equipment. - TD-3454-KTS A4 500/220kV Transformer Replacement This category covers the civil infrastructure including buildings, environmental systems, overall switchyard including switchyard surface, access roads, stations lights, cable ducts and trenches, signage and name plates, support structures and foundations that all contribute to the overall function of the stations. It also includes secondary works associated with the replacement of primary equipment. - TD-3546-HOTS SVC Replacement This category covers the total expenditures relating to the replacement of HOTS SVC with new SVC. - TD-6169-SMTS 330/220kV Transformer Replacement - Stage 2 This category covers the civil infrastructure including buildings, environmental systems, overall switchyard including switchyard surface, access roads, stations lights, cable ducts and trenches, signage and name plates, support structures and foundations that all contribute to the overall function of the stations. It also includes secondary works associated with the replacement of primary equipment.

<table>
<tr><td></td><td>
- Infrastructure security

This category covers the installation of CCTV, lighting and other security improvements at Terminal Stations. Further detail of these assets is provided in the AMS 10-63 Infrastructure Security.

- Power transformer Bushings, PIB & WTI replacements & online monitoring.

This category covers following works under the asset replacement program:

- 220kV,275kV and 500kV OIP bushing replacements of power transformers in terminal Stations
- Neutral SRBP bushing replacement
- Online bushing condition monitoring at critical power transformers
- 22kV PIB replacement at HWTS
- WTI replacement power transformers

Further detail of these assets is provided in the AMS 10-67 Power Transformers.
</td></tr>
<tr><td>4.1(a)(i)(A)</td><td>Boundary issues and any overlaps had been avoided through top down review and adjustment and are described under specific categories in template 2.2.</td></tr>
<tr><td>4.1(a)(i)(C)</td><td>The drivers for the proposed asset replacement projects and programs are discussed in Chapter 4 of the Revenue Proposal and the various Planning Reports and Plant Asset Management Strategies.</td></tr>
<tr><td>4.1(a)(i)(D)</td><td>This information is provided in AusNet Services - TRR 2023-27 Appendix 4A Unit Rates - 31 October 2020 PUBLIC</td></tr>
<tr><td>4.1(a)(ii)
(A),(B), (C)</td><td>
<table>
<tr><th></th><th>FY2018</th><th>FY2019</th><th>FY2020</th><th>FY2021</th><th>FY2022</th></tr>
<tr><td>Condition & Obsolescence</td><td>94.7%</td><td>95.8%</td><td>94.4%</td><td>97.6%</td><td>87.9%</td></tr>
<tr><td>Safety, Security & Compliance</td><td>5.3%</td><td>4.2%</td><td>5.6%</td><td>2.4%</td><td>12.1%</td></tr>
</table>

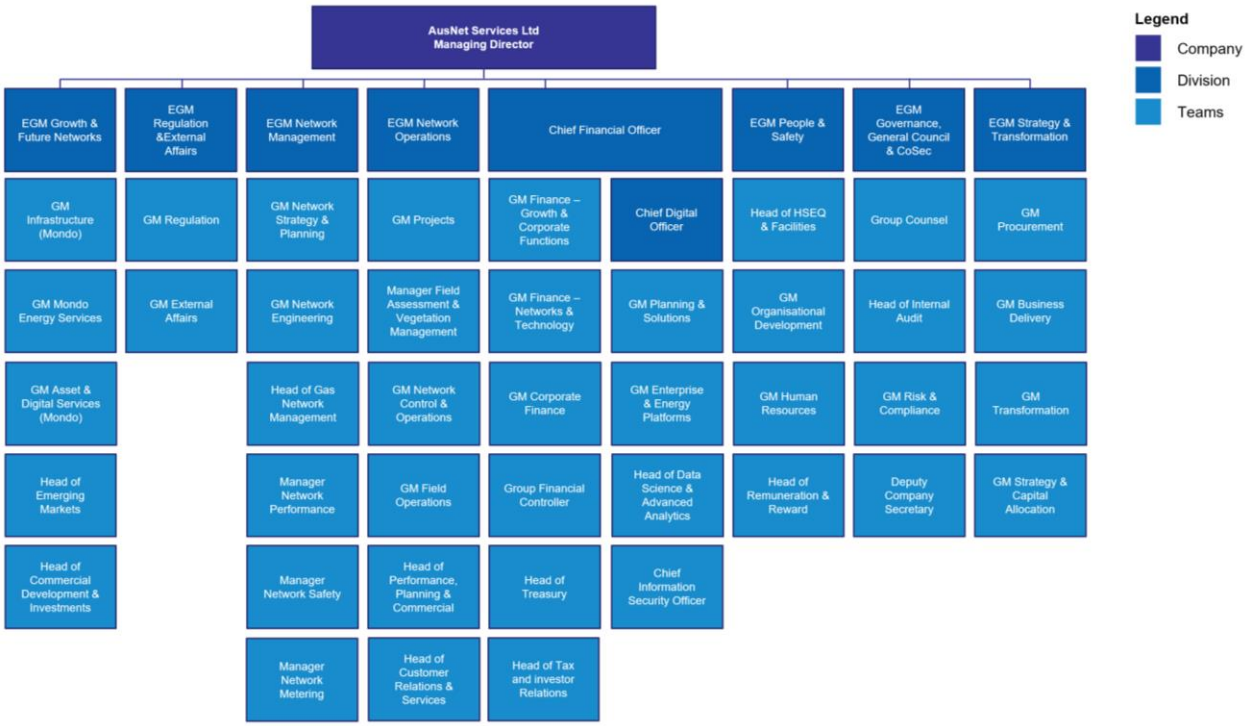
The Methodology applied is:

Condition & obsolescence – Assets that have reached the end of their effective life or can no longer be maintained. Note that AusNet Services replaces assets based on the condition, rather than the age, of the asset.

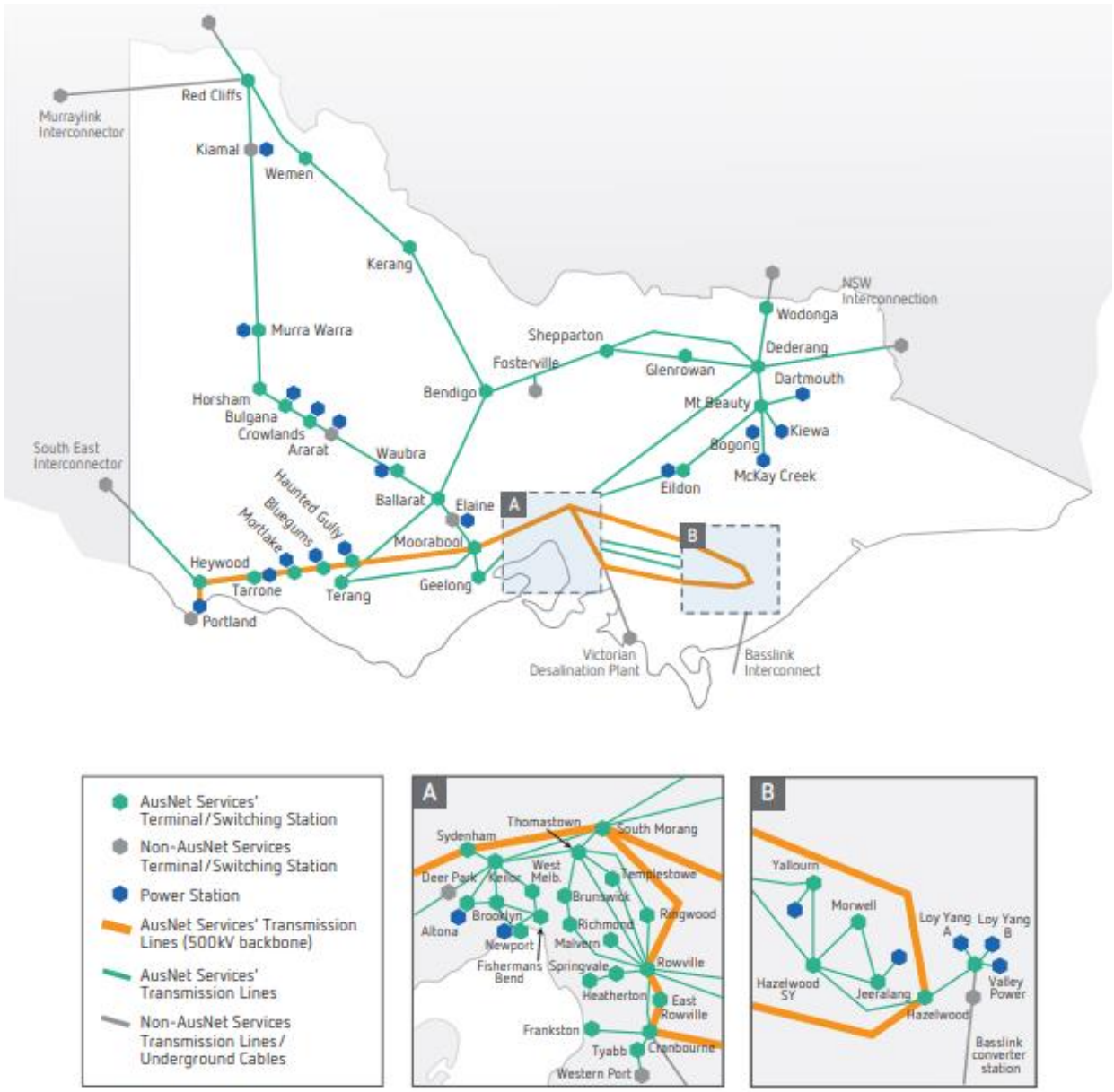
Safety, Security & Compliance – Assets replaced to maintain or improve the physical security or safety of the network, examples include infrastructure security, fire protection systems, environmental protection systems and structure fall arrests.
</td></tr>
<tr><td>4.1(a)(ii)(D)</td><td>The majority of assets in template 2.2 are forecast for replacement due to the poor condition of the assets or obsolescence; factors which are generally associated with asset aging.</td></tr>
<tr><td>4.1(b)</td><td>The key drivers affecting asset replacement expenditure are described in Chapter 4 of the submission, and in the plant asset strategies. A summary of the factors and the affected asset categories is shown below.
<table>
<tr><th>Factor</th><th>Asset categories</th><th>Impact</th></tr>
<tr><td>Network safety obligations (Rules, codes, license conditions,</td><td>Transmission Lines insulators and tower fall arrest system and fire and environmental</td><td>In some cases, assets are replaced before the end of their effective life in order to reduce the risk of safety, security and</td></tr>
</table>
</td></tr>
</table>

	statutory requirements)	protection systems. Communications security infrastructure	compliance. In some cases, assets are replaced with newer models / technology to meet regulatory obligations.
	Development of asset management system and techniques (Internal planning and asset management approaches.)	Most asset categories	Risk based analysis leads to life extension of lower risk assets; particularly in stations. Improved condition monitoring techniques should lead to more targeted replacement of assets resulting in life-extension of some assets and less failures in other asset classes. Improved condition assessment and data leads to more accurate forecasts of replacement needs. Refer to plant asset strategies for more details.
	Asset factors – asset condition profile and risk profile	Conductors, power transformers, circuit breakers,	The quantity of assets reaching the end of effective life drives the need for asset replacements. If changes in failure rates are noticed, this may lead to a re-evaluation of asset risk profiles, driving a change in replacement rates. Refer to AMS 10-54 Circuit Breakers, AMS 10-67 power transformers for more details.
	External factors - Security requirements	Terminal Stations	The threat of terrorist related activity and increasing incidents of theft leads to increasing measures to mitigate the risk. These measures lead to changing standards and higher replacement costs. For example, a deteriorated Terminal Station fence will be replaced with a more expensive fence with increased CCTV facilities. Refer to AMS 10-63 Infrastructure Security for more details.
	Technology solutions	Terminal Stations dynamic Voltage regulation	The use of the SVC enables continuous voltage stability enabling the network to withstand unplanned outage events. Some SVC equipment must be upgraded and replaced to mitigate the effects of increased impact to customers in regional Victoria and critical supporting loads in NSW. Refer to AMS 10-71 Static Var Compensators for more details.

3 Organisational Structure as at 22 October 2020



4 Transmission System Map



5 Ratings of Assets

Transmission Line Ratings

From	To	No.	Voltage (kV)	Continuous Rating Winter (Amps)	Continuous Rating Summer (Amps)	Length (km)
ATS	BLTS	1	220	2850	2170	7.35
BATS	BETS	1	220	1075	710	96
BATS	ELTS	1	220	1540	1180	20.43
BATS	MLTS	1	220	1075	710	63.57
BATS	TGTS	1	220	1195	910	115.39

BATS	WBTS	1	220	1540	1180	38.11
BETS	KGTS	1	220	1195	910	121.65
BETS	SHTS	1	220	1195	910	116.99
BTS	RTS	1	220	1180	1180	8.7
DDTS	GNTS	1	220	1540	1180	81.3
DDTS	GNTS	3	220	1540	1180	81.3
DDTS	MBTS	1	220	1075	710	37.02
DDTS	MBTS	2	220	1075	710	37.04
DDTS	MSS	1	330	2185	1825	113.55
DDTS	MSS	2	330	2185	1825	113.1
DDTS	SHTS	1	220	1075	710	151.82
DDTS	WOTS	1	330	2200	1710	41.21
EPSY	MBTS	1	220	1075	710	137.95
EPSY	MBTS	2	220	1075	710	137.95
ERTS	CBTS	1	220	2850	2170	19.56
ERTS	CBTS	1	66	1080	825	19.58
ERTS	CBTS	2	220	2850	2170	19.56
ERTS	CBTS	2	66	1080	825	19.52
FBTS	BLTS	1	220	2850	2170	8.29
FBTS	NPSD	1	220	2850	2170	4.4
FBTS	WMTS	1	220	1375	1050	2.75
FBTS	WMTS	2	220	1375	1050	2.78
FTS	CBTS	1	66	1080	825	19.87
FTS	CBTS	2	66	1080	825	19.35
GNTS	SHTS	1	220	1540	1180	70.65
GNTS	SHTS	3	220	1540	1180	70.65
GTS	MLTS	1	220	2850	2170	7.1
GTS	MLTS	2	220	2850	2170	7.1
GTS	PTH	1	220	1075	710	31
GTS	PTH	2	220	1075	710	31.04
HOTS	RCTS	1	220	1195	910	276.89
HOTS	WBTS	1	220	1375	1050	140.95
HTS	SVTS	1	220	1375	1050	8.18
HTS	SVTS	2	220	1375	1050	8.18
HWPS	JLTS	1	220	2750	2100	3.71
HWPS	JLTS	2	220	2750	2100	3.76
HWPS	JLTS	3	220	1425	1085	3.27
HWPS	JLTS	4	220	1425	1085	3.27
HWPS	MPS	1	220	1260	825	3.85
HWPS	MWTS	1	220	1260	825	3.85
HWPS	YPS	1	220	1425	1085	14.3
HWPS	YPS	2	220	1425	1085	14.3
HWTS	CBTS	4	500	5000	3980	115.74
HWTS	HWPS	1	220	2850	2170	3.48
HWTS	HWPS	2	220	2750	2100	3.38
HWTS	HWPS	3	220	2750	2100	3.37
HWTS	HWPS	4	220	2750	2100	3.01
HWTS	LYPS	1	500	4840	3700	14.07
HWTS	LYPS	2	500	4840	3700	14.31
HWTS	LYPS	3	500	4840	3700	14.52
HYTS	APD	1	500	4320	3300	31.85
HYTS	APD	2	500	4320	3300	31.75
HYTS	MOPS	2	500	4320	3300	94.5
HYTS	SESS	1	275	1425	1160	78.27
HYTS	SESS	2	275	1425	1160	78.26
HYTS	TRTS	1	500	4320	3300	49.59
JLGA	JLTS	1	220	1425	1085	0.14

JLTS	JLGB	1	220	1425	1085	0.17
JLTS	MWTS	1	220	1425	1085	2.42
JLTS	MWTS	2	220	1425	1085	2.58
KGTS	WETS	1	220	1195	700	170.66
KTS	ATS	1	220	2850	2170	14.66
KTS	BLTS	1	220	2850	2170	15.02
KTS	GTS	1	220	1075	710	67.11
KTS	GTS	2	220	1075	710	66.86
KTS	GTS	3	220	1075	710	67.06
KTS	SMTS	1	500	4840	3700	29
KTS	SYTS	1	500	4840	3700	11.75
KTS	WMTS	1	220	2750	2100	12.06
KTS	WMTS	2	220	2750	2100	12.06
LY	MWTS	1	66	990	760	15.36
LY	MWTS	2	66	990	760	15.36
LY	MWTS	3	66	1130	900	15.89
LY	MWTS	4	66	1130	900	15.89
LYPS	LYPB	1	500	4320	3300	1.06
LYPS	LYPB	2	500	4320	3300	1.13
MBTS	DPS	1	220	1075	710	42.08
MBTS	MKPS	1	220	1075	710	15.65
MBTS	WKPS	1	220	1075	710	2.83
MLTS	ELTS	1	220	1540	1180	43.21
MLTS	MOPS	2	500	4320	3300	146.74
MLTS	TGTS	1	220	1075	710	134.28
MLTS	TRTS	1	500	4320	3300	191.47
MPS	MWTS	1	220	1260	825	3.85
NPSD	BLTS	1	220	2750	2100	4.89
RCTS	WETS	1	220	1195	700	62.1
ROTS	CBTS	4	500	5000	3980	20.86
ROTS	ERTS	1	220	2750	2100	1.87
ROTS	ERTS	2	220	2750	2100	1.87
ROTS	HWPS	1	220	1220	805	114.89
ROTS	HWPS	2	220	1220	805	114.77
ROTS	HWTS	3	500	5000	3980	135.99
ROTS	MTS	1	220	1075	710	14.7
ROTS	MTS	3	220	1075	710	14.75
ROTS	RTS	1	220	2160	1650	25.22
ROTS	RTS	4	220	2160	1650	25.21
ROTS	RWTS	1	220	2850	2170	13.08
ROTS	SMTS	3	500	4000	3980	38.72
ROTS	SVTS	1	220	2750	2100	7.41
ROTS	SVTS	2	220	2750	2100	7.42
ROTS	TSTS	1	220	2850	2170	22.69
ROTS	TTS	1	220	2160	1650	47.17
ROTS	YPS	5	220	1220	805	105.59
ROTS	YPS	6	220	1220	805	105.84
ROTS	YPS	7	220	1220	805	105.99
ROTS	YPS	8	220	1220	805	106.02
SMTS	DDTS	1	330	2060	1520	225.38
SMTS	DDTS	2	330	2060	1520	225.34
SMTS	HWTS	1	500	4840	3700	154.25
SMTS	HWTS	2	500	4840	3700	154.19
SMTS	SYTS	1	500	4840	3700	43.21
SMTS	SYTS	2	500	4840	3700	43.22
SYTS	MLTS	1	500	4840	3700	62.88
SYTS	MLTS	2	500	4840	3700	62.88

TBTS	CBTS	1	220	2850	2170	21.97
TBTS	CBTS	2	220	2850	2170	21.97
TBTS	JLA	1	220	1425	1085	1.8
TBTS	JLA	2	220	1425	1085	1.8
TSTS	TTS	1	220	2420	1850	31.56
TTS	BTS	1	220	2160	1650	10.13
TTS	BTS	3	220	2750	2100	10
TTS	EPSY	1	220	2150	1420	98.48
TTS	KTS	1	220	2440	1610	16.43
TTS	KTS	2	220	2540	1770	16.34
TTS	RWTS	1	220	2420	1850	41.24
TTS	SMTS	1	220	2160	1650	7.78
TTS	SMTS	2	220	2160	1650	7.78
WOTS	JDSS	1	330	2200	1710	20.26
YPS	YWPS	1	220	1375	1050	1.26
YPS	YWPS	2	220	1375	1050	1
YPS	YWPS	3	220	1375	1050	1.17
YPS	YWPS	4	220	1375	1050	1.23
YPS	YWPS	5	220	1375	1050	0.78
YPS	YWPS	6	220	1375	1050	0.78
YPS	YWPS	7	220	1220	805	0.51

Transformer Ratings

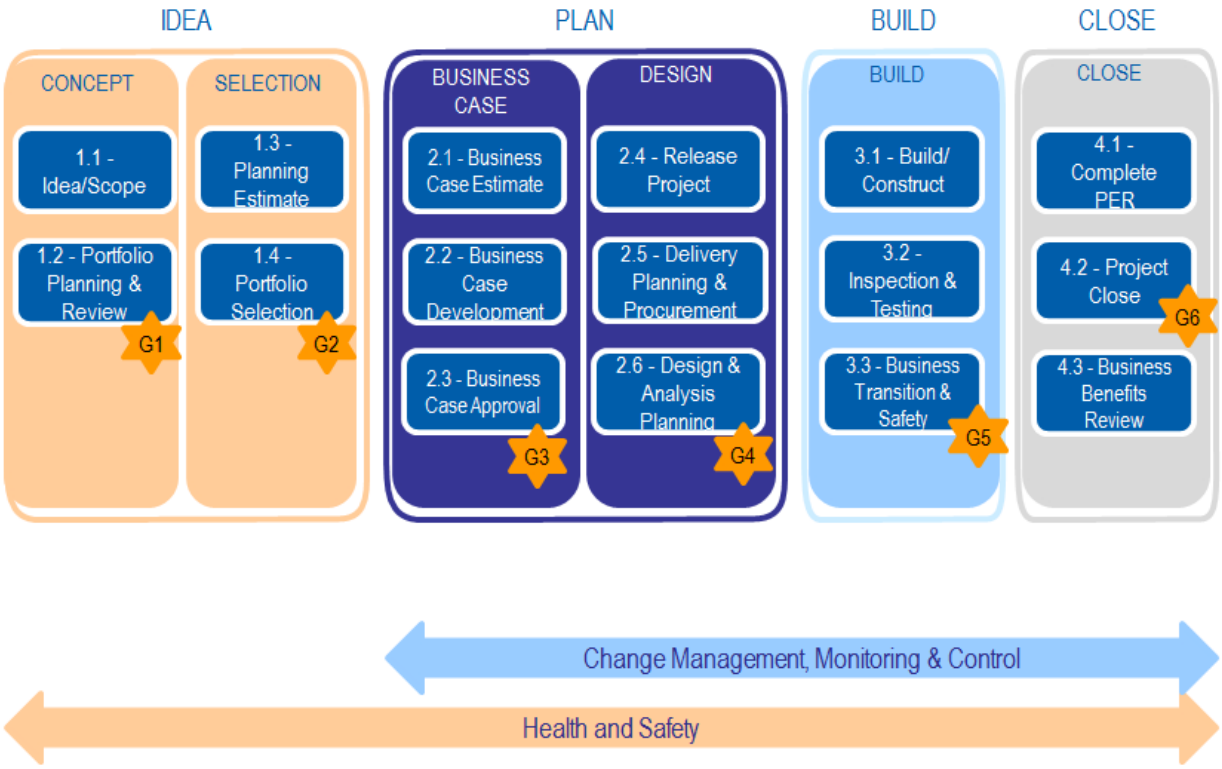
Station	Unit	HV	MV	LV	Rating (MVA)
ATS	B2 220/66KV TRANS AT ATS	220	66	11	150
ATS	B3 220/66KV TRANS AT ATS	220	66	11	150
ATS	B4 220/66KV TRANS AT ATS	220	66	11	150
BATS	B1 220/66KV TRANS AT BATS	230	67.5	22	150
BATS	B2 220/66KV TRANS AT BATS	230	67.5	22	150
BETS	B3 220/66KV TRANS AT BETS	230	67.5	22.5	150
BETS	B4 220/66KV TRANS AT BETS	230	67.5	22.5	125
BETS	L2 220/22KV TRANS AT BETS	230	22.5		75
BETS	L4 220/22KV TRANS AT BETS	230	22.5		75
BLTS	B1 220/66KV TRANS AT BLTS	220	66	11	150
BLTS	B3 220/66KV TRANS AT BLTS	220	66	11	150
BLTS	B5 220/66KV TRANS AT BLTS	220	66	11	150
BLTS	L1 220/22KV TRANS AT BLTS	220	22	11	75
BLTS	L3 220/22KV TRANS AT BLTS	220	22	11	75
BTS	L1 220/22KV TRANS AT BTS	220	22	11	75
BTS	L2 220/22KV TRANS AT BTS	220	22	11	75
BTS	L3 220/22KV TRANS AT BTS	220	22	11	75
BTS	B1 220/66/11 TRANS AT BTS	220	67.5	11	225
BTS	B2 220/66/11 TRANS AT BTS	220	67.5	11	225
BTS	B3 220/66/11 TRANS AT BTS	220	67.5	11	225
CBTS	A1 500/220KV TRANS BANK AT CBTS	500	220	22	1000
CBTS	B1 220/66KV TRANS AT CBTS	220	66	11	150
CBTS	B2 220/66KV TRANS AT CBTS	220	66	11	150
CBTS	B3 220/66KV TRANS AT CBTS	220	66	11	150
DDTS	H1 330/220KV TRANS AT DDTS	330	220	22	340
DDTS	H2 330/220KV TRANS AT DDTS	330	220	22	340
DDTS	H3 330/220KV TRANS AT DDTS	330	240	22	225
ERTS	B1 220/66KV TRANS AT ERTS	220	66	11	150
ERTS	B2 220/66KV TRANS AT ERTS	220	66	11	150
ERTS	B3 220/66KV TRANS AT ERTS	220	66	11	150
ERTS	B4 220/66KV TRANS AT ERTS	220	66	11	150
FBTS	B1 220/66KV TRANS AT FBTS	220	66	11	150

FBTS	B2 220/66KV TRANS AT FBTS	220	66	11	150
FBTS	B3 220/66KV TRANS AT FBTS	220	66	11	150
FBTS	B4 220/66KV TRANS AT FBTS	220	66	11	150
GNTS	B2 220/66KV TRANS AT GNTS	230	67.5	22.5	125
GNTS	B3 220/66KV TRANS AT GNTS	230	67.5	22.5	150
GTS	B2 220/66KV TRANS AT GTS	220	66	11	150
GTS	B4 220/66KV TRANS AT GTS	220	66	22.5	150
GTS	B1 220/66KV TRANS AT GTS	220	66	11	150
GTS	B3 220/66KV TRANS AT GTS	220	66	11	150
HOTS	B2 220/66KV TRANS AT HOTS	230	67.5	22.5	100
HOTS	B3 220/66KV TRANS AT HOTS	230	67.5	22.5	100
HOTS	SVC 220/4.5KV TRANS AT HOTS	220	4.5		50
HTS	B1 220/66KV TRANS AT HTS	220	66	11	150
HTS	B2 220/66KV TRANS AT HTS	220	66	11	150
HTS	B3 220/66KV TRANS AT HTS	220	66	11	150
HWTS	A1 500/220KV TRANS AT HWTS	515	230	22	600
HWTS	A2 500/220KV TRANS BANK AT HWTS	515	230	22	600
HWTS	A3 500/220KV TRANS BANK AT HWTS	515	230	22	600
HWTS	A4 500/220KV TRANS BANK AT HWTS	515	230	22	600
HYTS	M1 500/275KV TRANS AT HYTS	500	275	22	370
HYTS	M2 500/275KV TRANS AT HYTS	500	275	22	370
HYTS	M3 500/275KV TRANS AT HYTS	500	275	22	370
KGTS	B1 220/66/22KV TRANS AT KGTS	235	66	22	35
KGTS	B2 220/66/22KV TRANS AT KGTS	235	66	22	35
KGTS	B3 220/66/22KV TRANS AT KGTS	235	66	22	35
KGTS	SVC 220/4.5KV TRANS AT KGTS	220		4.5	50
KTS	A2 500/220KV TRANS BANK AT KTS	500	220	22	750
KTS	A3 500/220KV TRANS BANK AT KTS	500	220	22	750
KTS	A4 500/220KV TRANS BANK AT KTS	500	220	22	750
KTS	B1 220/66KV TRANS AT KTS	220	66	11	150
KTS	B2 220/66KV TRANS AT KTS	220	66	11	150
KTS	B3 220/66KV TRANS AT KTS	220	66	11	150
KTS	B4 220/66KV TRANS AT KTS	220	66	11	150
KTS	B5 220/66KV TRANS AT KTS	220	66	11	150
MBTS	B1 220/66KV TRANS (HOT SPARE) AT MBTS	230	67.5	22.5	50
MBTS	B2 220/66KV TRANS AT MBTS	230	67.5	22.5	50
MLTS	A1 500/220KV TRANS BANK AT MLTS	500	220	22	1000
MLTS	A2 500/220KV TRANS BANK AT MLTS	500	220	22	1000
MTS	B1 220/66KV TRANS AT MTS	220	66	11	225
MTS	B3 220/66KV TRANS AT MTS	220	66	11	225
MTS	U1 66/22KV TRANS AT MTS	66	22	6	60
MTS	U2 66/22KV TRANS AT MTS	66	22	6	60
MWTS	B1 220/66KV TRANS AT MWTS	230	67.5	22.5	150
MWTS	B2 220/66KV TRANS AT MWTS	230	66	11	150
MWTS	B3 220/66KV TRANS AT MWTS	230	66	22	165
RCTS	B1B 220/66/22KV TRANS AT RCTS	235	66	22	70
RCTS	B2B 220/66/22KV TRANS AT RCTS	235	66	22	70
RCTS	B3 220/66/22KV TRANS AT RCTS	235	66	22	140
RCTS	L1A 220/66/22KV TRANS AT RCTS	235.04	66	22	35
RCTS	L2A 220/66/22KV TRANS AT RCTS	235	66	22	35
ROTS	A1 500/220KV TRANS BANK AT ROTS (RTF)	500	220	22	1000
ROTS	A2 500/220KV TRANS BANK AT ROTS	500	220	22	1000
ROTS	NO.1 CSC 220/10.5KV TRANS AT ROTS	220	10.5		100
ROTS	NO.2 CSC 220/10.5KV TRANS AT ROTS	220	10.5		100
RTS	B1 220/66KV TRANS AT RTS	220	66	11	225
RTS	B2 220/66KV TRANS AT RTS	220	66	11	225
RTS	B5 220/66KV TRANS AT RTS	220	66	11	225
RTS	L1 220/22KV TRANS AT RTS	220	22	11	75
RTS	L2 220/22KV TRANS AT RTS	220	22	11	75

RWTS	B1 220/66KV TRANS AT RWTS	220	66	11	150
RWTS	B2 220/66KV TRANS AT RWTS	220	66	11	150
RWTS	B3 220/66KV TRANS AT RWTS	220	66	11	150
RWTS	B4 220/66KV TRANS AT RWTS	220	66	11	150
RWTS	L2 220/22KV TRANS AT RWTS	220	22	11	75
RWTS	L3 220/22KV TRANS AT RWTS	220	22	11	75
SHTS	B2 220/66KV TRANS AT SHTS	230	67.5	22	150
SHTS	B3 220/66KV TRANS AT SHTS	230	67.5	22	150
SHTS	B4 220/66KV TRANS AT SHTS	230	67.5	22	150
SMTS	B1 220/66KV TRANS AT SMTS	220	66	11	225
SMTS	B3 220/66KV TRANS AT SMTS	220	66	11	225
SMTS	F2 500/330KV TRANS BANK AT SMTS	500	330	22	1000
SMTS	H1 330/220KV TRANS BANK AT SMTS	330	220	22	700
SMTS	H2 330/220KV TRANS BANK AT SMTS	330	220	22	700
SMTS	H3 330/220KV TRANS BANK AT SMTS	330	220	22	700
SVTS	B1 220/66KV TRANS AT SVTS	220	66	11	150
SVTS	B2 220/66KV TRANS AT SVTS	220	66	11	150
SVTS	B3 220/66KV TRANS AT SVTS	220	66	11	150
SVTS	B4 220/66KV TRANS AT SVTS	220	66	11	150
TBTS	B1 220/66KV TRANS AT TBTS	220	66	11	150
TBTS	B2 220/66KV TRANS AT TBTS	220	66	11	150
TBTS	B3 220/66KV TRANS AT TBTS	220	66	11	150
TGTS	B1 220/66KV TRANS AT TGTS	230	67.5	22.5	150
TGTS	B2 220/66KV TRANS AT TGTS	230	67.5	22.5	125
TSTS	B1 220/66KV TRANS AT TSTS	220	66	11	150
TSTS	B2 220/66KV TRANS AT TSTS	220	66	11	150
TSTS	B3 220/66KV TRANS AT TSTS	220	66	11	150
TTS	B1 220/66KV TRANS AT TTS	220	66	11	150
TTS	B2 220/66KV TRANS AT TTS	220	66	11	150
TTS	B3 220/66KV TRANS AT TTS	220	66	11	150
TTS	B4 220/66KV TRANS AT TTS	220	66	11	150
TTS	B5 220/66KV TRANS AT TTS	220	66	11	150
WBTS	B1 220/66KV TRANS AT WBTS	230	67.5	22.5	150
WBTS	B2 220/66KV TRANS AT WBTS	230	67.5	22.5	150
WETS	B1 220/66KV TRANS AT WETS	230	67.5	22.5	70
WETS	B2 220/66KV TRANS AT WETS	230	67.5	22.5	70
WMTS	B2 220/66KV TRANS AT WMTS	220	66	11	225
WMTS	B3 220/66KV TRANS AT WMTS	220	66	11	225
WMTS	B4 220/66KV TRANS AT WMTS	220	66	11	150
WMTS	L1 220/22KV TRANS AT WMTS	215	22	10.9	165
WMTS	L3 220/22KV TRANS AT WMTS	215	22	10.9	165
WOTS	X1 330/66/22KV TRANS AT WOTS	345	66	22.5	75
WOTS	X2 330/66/22KV TRANS AT WOTS	345	66	22.5	75
YPS	AUX D 220/22KV TRANS AT YPS	220	22	11	30
YPS	AUX E 220/22KV TRANS AT YPS	220	22	11	30
YPS	NO.5 GROUP 220/11KV TRANS AT YPS	230	11		54

6 Project deliverability

Projects are delivered through a Stage Gate process as shown below:



The purpose of stage gates on a project or program is to provide management the opportunity to:

- Review quality and progress
- Track funding/resources
- Attain confidence that the project is being delivered as planned
- Confirm the project remains in line with business strategies and will achieve the benefits expected
- Determine whether to continue, slowdown or stop the project

Gate	High-Level Description
Gate 1 (G1)	**Stage Gate 1** is a business owned gate when a project has a higher degree of certainty in regard to scope, timing and cost.
Gate 2 (G2)	By applying for **Stage Gate 2** approval, it is expected that the project has been created in SAP and the Idea Phase is complete. Gate 2 is used to validate that SAP has been setup correctly, the project is aligned with business expectations and it is suitable for selection into a portfolio for development of a Business Case. Following Gate 2 approval, Initiators will hand over projects to the allocated Project Manager. The PM will take the project through development for Business Case scoping and estimating.
Gate 3 (G3)	By applying for **Stage Gate 3** approval, it is expected that the Business Case has been approved and the Business Case Stage under the Project Lifecycle

	has been completed. Gate 3 is used to validate that the Business Case is approved in accordance with delegations and key information in SAP is identical to the approved Business Case.
Gate 4 (G4)	By applying for **Stage Gate 4** approval, it is expected that the Design Stage under the Project Lifecycle has been completed to the extent that site construction can commence. In submitting Gate 4, the following requirements must be met: - Project design must be complete to a point that allows site construction to commence - A Project Management Plan must be active and endorsed by stake-holders - Equipment records must be established in SAP for all new equipment These activities and deliverables must be completed prior to transition into the Build phase. Where applicable, a P90 Control cost estimate should be completed and loaded in SAP, or a date for completion nominated by the Project Manager.
Gate 5 (G5)	Gate 5 is used to inform stakeholders that the project has achieved practical completion, and that only close activities remain. By proceeding to Stage Gate 5, it is expected that the Build Phase under the project lifecycle has been completed. All the assets in the scope of works are in service and have been handed over to operations, and equipment records have been updated in SAP. **Upon approval of Stage Gate 5 the project will progress to the Close phase and only minor works and administrative actions remain.**
Gate 6 (G6)	By proceeding to Stage Gate 6, it is expected that the Close Phase under the project lifecycle and all activities associated with the project have been completed. Gate 6 is used to validate that the project is ready for formal closure. **Upon approval of Stage Gate 6 the project will be officially closed in SAP-PPM and PS.**

7 Appendix: Replacement Capital Expenditure Modelling

RIN Table 2.6	The CAPEX non-network expenditure (Table 2.6.1 CAPEX) was calculated for Motor Vehicles, Buildings and Property, and other expenditure. This was calculated from the expenditure forecasted over the next TRR period 2023-2027 on the following basis. The basis of preparation for categories stated in are as follows: Motor Vehicles: It is assumed that the average number of kilometres travelled per passenger vehicle is 15,000kms annually. The asset life of a passenger vehicle is 160,000kms. Light commercial vehicle (LCV) average 18,000kms annually and the asset life of a LCV is 5-7 years. Heavy commercial vehicle (HCV) average 5,000kms annually and the asset life of a HV asset is 10 years. Buildings, Property and other: The expenditure was calculated on the basis of 5-year average expenditure
RIN Table 3.7	Table 3.7.1: Terrain factors were calculated using the historic annual RINs and using a rolling five -year average. Table 3.7.2: Network route line length and total number of spans were calculated using the historic annual RINs and using a rolling five-year average.