

# Appendices

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## A Risk Register

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
Full Supply Outage - Transpower Transmission Network Failure	Transpower Transmission Network Failure	Elect	The inability of the Transpower transmission network assets to safely convey electricity within the supply regulations, through the loss of key equipment at the Blenheim GXP or multiple transmission line failures.	Moderate	Considerable
Full Supply Outage - Retailer Major Generation Failure	Retailer Major Generation Failure	Elect	Major generation failure causing the unavailability of electricity within the supply regulations to the Marlborough region.	Moderate	High
Partial Supply Only - Transpower Transmission Network Failure	Transpower Transmission Network Failure	Elect	The inability of the Transpower transmission network assets to safely convey electricity within the supply regulations, due to the loss of transmission assets i.e. a supply constraint (above the Blenheim GXP).	Moderate	Moderate
Partial Supply Only - Retailer Major Generation Failure	Retailer Major Generation Failure	Elect	Major generation failure causing diminished supply availability of electricity (within the supply regulations) to the Marlborough region.	Moderate	Considerable
Multiple 33kV circuits on single structure	MLL Distribution Network Failure	Elect	Waihopai and Redwoodtown feeders along Murphys Road	Moderate	Moderate
Major Earthquake Damage to MLL Distribution Assets	Natural Environment Impact on MLL Distribution Assets	Env	Major natural environment impact on MLL distribution assets causing the unavailability of electricity supply to part or all of the Marlborough region.	Moderate	Considerable
Price Path Threshold Regime Breach	Commerce Commission Threshold Regime Breach	Bus	Price Path threshold regime breach, leading to investigation and possible targeted control of MLL (price setting)	Moderate	Considerable

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
MLL Staff Injury / Incident	MLL Distribution Network Access and Control Breakdown	Bus	A network incident or personnel injury, due to the breakdown of the MLL network access and control systems.	Some	Considerable
Quality Threshold Regime Breach	Commerce Commission Threshold Regime Breach	Bus	Quality threshold regime breach, leading to investigation and possible targeted control of MLL (price setting)	Some	Considerable
33kV Overhead Line Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - high wind speed activity or snow loading.	Some	Moderate
Lightning Storm Damage to MLL Distribution Assets	Natural Environment Impact on MLL Distribution Assets	Env	A lightning storm resulting in damage to MLL distribution assets causing the unavailability of electricity supply to part or all of the Marlborough region.	Low	Moderate
Contractor Injury / Incident	MLL Distribution Network Access and Control Breakdown	Bus	A contractor incident or personnel injury, due to the breakdown of the MLL network access and control systems.	Low	Moderate
Public Injury / Incident	MLL Distribution Network Access and Control Breakdown	Bus	A member of the public has an incident or personnel injury, due to the breakdown of the MLL network access and control systems.	Low	Some
ABS & HV Fuse Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - lightning or high wind speed activity.	Low	Moderate
Ring Main Unit Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - earthquake or flood activity.	Low	Some

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
High Winds Causing Damage to MLL Distribution Assets	Natural Environment Impact on MLL Distribution Assets	Env	Natural environment impact on MLL distribution assets causing the unavailability of electricity supply to part or all of the Marlborough region.	Low	Moderate
Switching structures	MLL Distribution Network Failure	Elect	An entire switching structure is compromised and all switching structure switches are inoperable	Low	Moderate
Fault Security Constraint at Havelock Zone Sub	MLL Distribution Network Failure	Elect	100% of the time this sub only has a "n" fault security level, meaning any fault issues at this sub would definitely result in a network outage.	Low	Some
11kV Cable Failure	MLL Distribution Network Failure	Elect	11kV cable failure causing the inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - earthquake activity.	Low	Some
11kV Overhead Line Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - high wind speed activity or snow loading.	Low	Moderate
33kV UG Cable Failure Due to 3rd Party (excavation) Damage	MLL Distribution Network Failure	Elect	33kV UG cable failure causes the loss of supply to MLL distribution network assets and therefore the loss of a subtrans circuit or a zone substation.	Low	Moderate
Power TX Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - earthquake activity.	Low	Considerable
Fault Security Constraint at Rai Valley Zone Sub	MLL Distribution Network Failure	Elect	100% of the time this sub only has a "n" fault security level, meaning any fault issues at this sub would definitely result in a network outage.	Low	Some

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
400V UG Cable Failure Due to 3rd Party (excavation) Damage	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations.	Low	Some
Single 33kV Supply to Linkwater Zone Sub	MLL Distribution Network Failure	Elect	The single 33kV supply to Linkwater zone sub means that a failure in this line or the equipment that connects it to the wider network, will result in a zone substation outage.	Low	Some
Landslide Damage to MLL Distribution Assets	Natural Environment Impact on MLL Distribution Assets	Env	Natural environment impact on MLL distribution assets causing the unavailability of electricity supply to part or all of the Marlborough region.	Low	Some
Single 33kV Supply to Rai Valley Zone Sub	MLL Distribution Network Failure	Elect	The single 33kV supply to Rai Valley zone sub means that a failure in this line or the equipment that connects it to the wider network, will result in a zone substation outage.	Low	Some
Single 33kV Supply to Ward Zone Sub	MLL Distribution Network Failure	Elect	The single 33kV supply to Ward zone sub means that a failure in this line or the equipment that connects it to the wider network, will result in a zone substation outage.	Low	Some
33kV Cable Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - earthquake activity.	Low	Moderate
Single 33kV Supply to Leefield Zone Sub	MLL Distribution Network Failure	Elect	The single 33kV supply to Leefield zone sub means that a failure in this line or the equipment that connects it to the wider network, will result in a zone substation outage.	Low	Some

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
Vegetation Clearance from MLL Overhead Distribution Assets	Vegetation Control	Elect	Failure to maintain clearance reduces network reliability, would breach a statutory requirement (tree regs 2003), incurs significant 'catch up' costs and may present a serious safety risk to staff & general public.	Very low	Moderate
Availability of Roothing Network	MLL Distribution Network Failure	Elect	Analysis and past experience has revealed that restoration of power supply during civil defence emergencies is very dependant on the availability of the rooothing network for access.	Very low	Low
11kV UG Cable Failure Due to 3rd Party (excavation) Damage	MLL Distribution Network Failure	Elect	11kV UG cable failure causes the loss of supply to MLL distribution network assets and therefore the loss of an 11kV circuit or a feeder.	Very low	Some
Indoor Switchgear Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - earthquake activity.	Very low	Moderate
Transformer Oil Spill (In-Situ or in Transit)	MLL Distribution Assets Impact on Natural Environment	Env	Major natural environment impact caused by transformer oil contaminating soil, waterways or stormwater drains, etc.	Very low	Moderate
Network Asset (or related) Site Security	Vandalism and Public Nuisance	Bus	Disruption to the operation of MLL electricity distribution network through acts of vandalism and public nuisance.	Very low	Moderate
Poor Workmanship Faults	MLL Distribution Network Failure	Elect	Poor workmanship faults resulting in the inability of the MLL distribution network assets to safely convey electricity within the supply regulations.	Very low	Some

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
400V Overhead Line Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - high wind speed activity or snow loading.	Very low	Some
Land Access Difficulties	Land Access Difficulties	Reg	MLL is unable to access land to site its equipment or get access across to construct existing assets	Very low	Moderate
Multiple 33kV circuits on single structure	MLL Distribution Network Failure	Elect	Picton 1 and 2 Feeders between O'Dwyers Road and Tuamarina, especially a pole on SH1 north of Wairau River bridge	Very low	Some
Multiple 11kV circuits on single structure	MLL Distribution Network Failure	Elect	Talleys and Renwick Feeders along Old Renwick Road	Very low	Some
Pole Mounted TX Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - lightning or earthquake activity.	Very low	Some
Ground Mounted TX Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - earthquake activity or flood.	Very low	Some
Fault Security Constraint at Riverlands Zone Sub	MLL Distribution Network Failure	Elect	20% of the time this sub only has a "n" fault security level, meaning any fault issues at this sub during this time would definitely result in a network outage.	Very low	Low
Fault Security Constraint at Seddon Zone Sub	MLL Distribution Network Failure	Elect	10% of the time this sub only has a "n" fault security level, meaning any fault issues at this sub during this time would definitely result in a network outage.	Very low	Very low

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
Maintenance Security Constraint at Havelock Zone Sub	MLL Distribution Network Failure	Elect	35% of the time this sub only has a "n" maintenance security level, meaning any maintenance activity during these times would definitely involve a shutdown. Maintenance security achieved by 11kV tie.	Very low	Very low
Car versus Pole or Equipment	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - high traffic density, access constricted areas and poor network design.	Insignifcant	Moderate
Access Track Clearance	Vegetation Control	Elect	Constant effort is required to keep tracks clear so that assets can be accessed in the Marlborough Sounds. Failure to do so makes the network less reliable and increases network fault repair/response times.	Insignifcant	Some
Land Access Difficulties	Land Access Difficulties	Reg	MLL is unable to access land to site its equipment or get access across to service / inspect / upgrade existing assets or vegetation.	Insignifcant	Moderate
Micro Generation Interconnection	Disruptive Technologies	Bus	The impact disruptive technologies on the MLL network supply quality, voltage regulation, etc.	Insignifcant	Moderate
Unlawful or Unsafe Network Connection	MLL Distribution Network Access and Control Breakdown	Elect	The inability of the MLL distribution network to safely convey electricity within the supply regulations, due to the breakdown of the MLL network access and control systems i.e. unlawful or unsafe network connection	Insignifcant	Moderate
Multiple 33kV circuits on single structure	MLL Distribution Network Failure	Elect	Redwood Pass and Dashwood Pass lines south of Riverlands and again north of Seddon	Insignifcant	Some



<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
Multiple 33kV circuits on single structure	MLL Distribution Network Failure	Elect	Two branches of Rai Valley feeder along floor of Kaituna Valley	Insignificant	Some
Adequate Fuel Supply	MLL Distribution Network Failure	Elect	Analysis and past experience has revealed that restoration of power supply during civil defence emergencies is very dependant on the availability of adequate fuel supplies.	Insignificant	Some
Multiple 11kV circuits on single structure	MLL Distribution Network Failure	Elect	Renwick and Kaituna feeders along Anglesea St	Insignificant	Low
Multiple 11kV circuits on single structure	MLL Distribution Network Failure	Elect	Waikawa and Buller Street feeders along Canterbury Street	Insignificant	Low
Inadequate emergency stock	Stores	Elect	MLL does not have adequate stock on hand to repair faults in the network	Insignificant	Low
Ripple signal failure	MLL Distribution Network Failure	Elect	A problem at system control that causes 1 or more injection cells to fail to send a ripple signal	Insignificant	Low
MI Asset or Equipment Obsolescence	MI Asset or Equipment Obsolescence	Bus	Assets or equipment owned by MLL becomes obsolete due to business requirements	Insignificant	Some
400V Box Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - vehicle damage or flood.	Insignificant	Some
Distributed Generation - Fuel Cells	Disruptive Technologies	Bus	Disruptive technologies have the potential to lower MLL revenues and hence asset value (i.e. island networks that only need back up supply therefore line charge but no delivery charge)	Insignificant	Moderate
400V Cable Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - earthquake activity.	Insignificant	Very low
Communications failure	Communications	Elect	Unavailability of MLL voice data (radio) network	Insignificant	Very low

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
Multiple 11kV circuits on single structure	MLL Distribution Network Failure	Elect	Dashwood and Seaview feeders north of Seddon, Grassmere and Richmond Brook feeders south of Seddon	Insignificant	Low
Open point failure	MLL Distribution Network Failure	Elect	Failure of a switch at an open point between two feeders	Insignificant	Some
Resource Management Act Issues	Resource Management Act Issues	Reg	MLL is unable to progress a network expansion project due to RMA issues.	Insignificant	Some
Site Access Control	Health & Safety Issues (staff and general public)	Reg	Situations or events in relation to the MLL electricity distribution network construction program which lead to health and safety issues for MLL staff and the general public	Insignificant	Moderate
Flooding Causing Damage to MLL Distribution Assets	Natural Environment Impact on MLL Distribution Assets	Env	Natural environment impact on MLL distribution assets causing the unavailability of electricity supply to part or all of the Marlborough region.	Insignificant	Some
Multiple 11kV circuits on single structure	MLL Distribution Network Failure	Elect	Vernon and Cloudy Bay feeders around Montana	Insignificant	Low
Communications failure	Communications	Elect	Unavailability of cell phone network	Insignificant	Very low
Latent Material Defects	MLL Distribution Network Failure	Elect	Material defects resulting in the inability of the MLL distribution network to safely convey electricity within the supply regulations.	Insignificant	Some
Lack of Maintenance Related Network Failure	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations.	Insignificant	Moderate
Maintenance Security Constraint at Picton Zone Sub	MLL Distribution Network Failure	Elect	When one transformer is out of service there is only 1 33kV line supplying the substation due to the lack of a 33kV bus coupler	Insignificant	Very low

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
High Load Damage to Lines and Equipment	MLL Distribution Network Failure	Elect	The inability of the MLL distribution network assets to safely convey electricity within the supply regulations. Highest risk - unescorted loads.	Insignificant	Some
MLL Asset Design	MLL Distribution Assets Impact on Natural Environment	Env	Poor design leading to a negative impact on the environment surrounding MLL substation assets i.e. control of SF6 gas, assets not blending into the environment, poor noise control.	Insignificant	Some
Electricity Complaints	Electricity Complaints	Reg	Complaints resulting in reputational damage to MLL	Insignificant	Some
Vandalism at the Blenheim GXP	Vandalism and Public Nuisance	Bus	Disruption to the operation of MLL electricity distribution network through acts of vandalism at the Blenheim GXP.	Insignificant	Considerable
Construction Site Security	Vandalism and Public Nuisance	Bus	Disruption to the operation of MLL electricity distribution network through acts of vandalism and public nuisance at network construction sites.	Insignificant	Moderate
Skill Gaps	Knowledge Management	Bus	Skill gaps relating to the MLL asset base i.e. either equipment becomes technically obsolescent (no one can maintain it) or MLL can't attract the skills it need in the marketplace.	Insignificant	Very low
Fire Damage to Buildings and Equipment	Fire Damage to Buildings and Equipment	Bus	Damage to MLL buildings and equipment (network and support infrastructure) caused by fire.	Insignificant	Low
Chemical Spray (use and storage)	MLL Distribution Assets Impact on Natural Environment	Env	Major natural environment impact caused by the use of chemical sprays i.e. overspray drift, on-site mixing polluting waterways, unsafe storage or transit (fume inhalation).	Insignificant	Moderate

<b>Risk Name</b>	<b>Risk Category</b>	<b>Type</b>	<b>Risk Description</b>	<b>Rating</b>	<b>Pre-treatment Rating</b>
Resource Management Act Issues	Resource Management Act Issues	Reg	MLL is unable to progress network maintenance or upgrade work due to RMA issues.	Insignificant	Very low
Loss of Tacit Institutional Knowledge	Knowledge Management	Bus	The loss of detailed background data (often uncodified) relating to the MLL asset base i.e. how to access equipment, likely fault locations, etc.	Insignificant	Some
Data Record Unavailability	Data Management and Record Access	Bus	Issues relating to the availability and accuracy of MLL network data (assets and asset performance / condition).	Insignificant	Moderate
Extended Recovery From Network Outage	MLL Distribution Network Access and Control Breakdown	Elect	Longer than necessary outage, due to the breakdown of the MLL network access and control systems	Insignificant	Moderate
Full Supply Outage - Transpower Transmission Network Failure	Transpower Transmission Network Failure	Elect	The inability of the Transpower transmission network assets to safely convey electricity within the supply regulations, through the loss of key equipment at the Blenheim GXP or multiple transmission line failures.	Moderate	Considerable
Full Supply Outage - Retailer Major Generation Failure	Retailer Major Generation Failure	Elect	Major generation failure causing the unavailability of electricity within the supply regulations to the Marlborough region.	Moderate	High



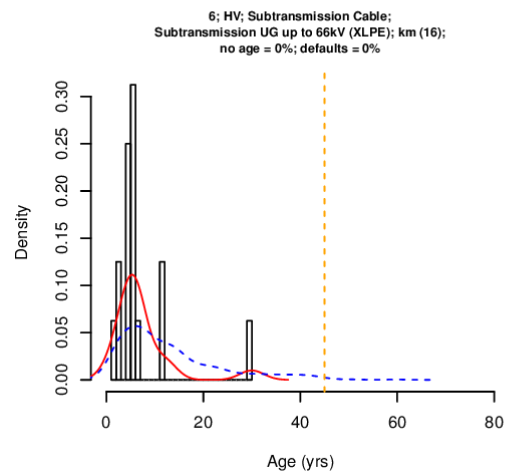
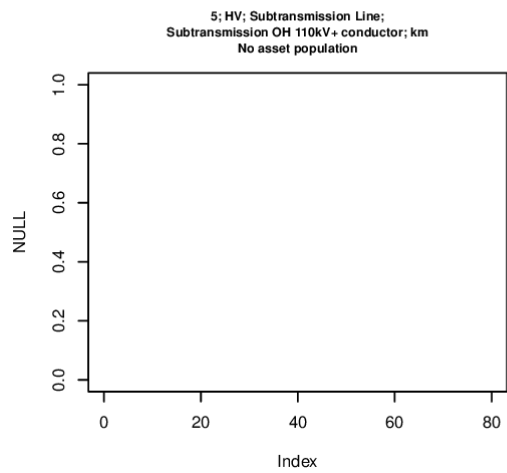
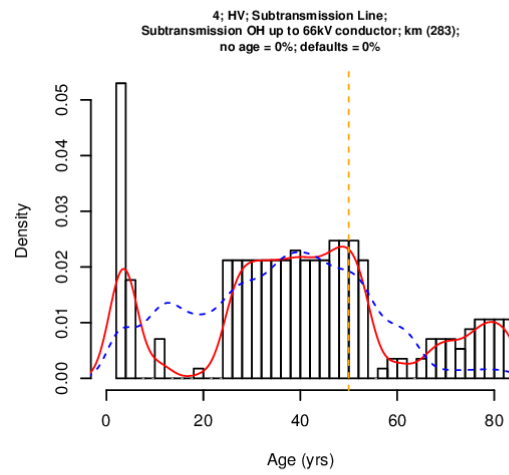
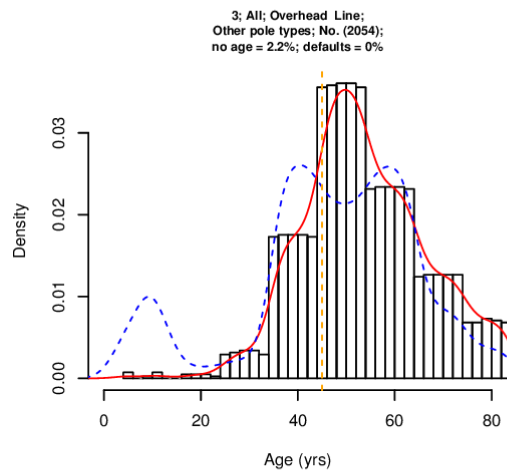
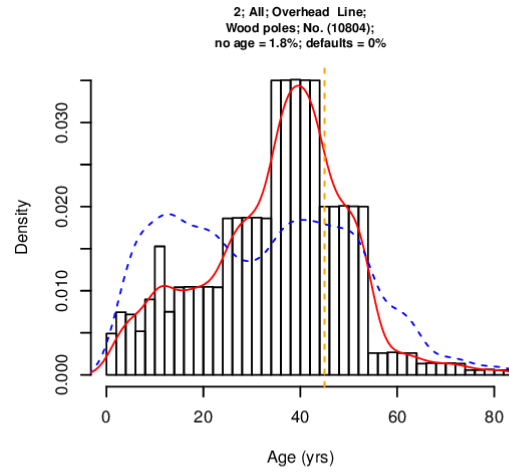
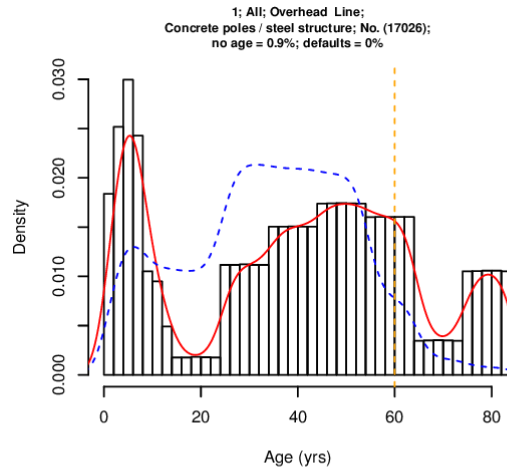
## B Asset Renewal Performance Evaluation

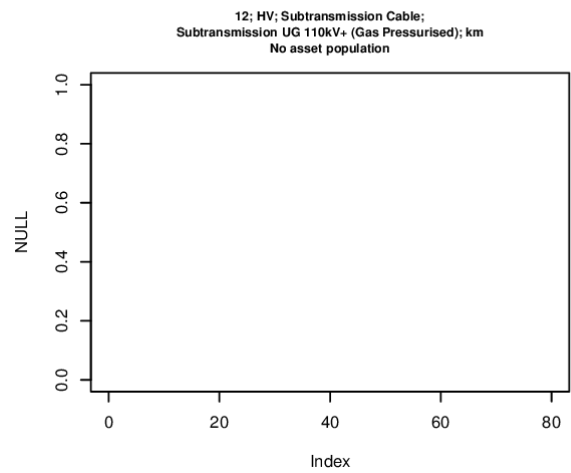
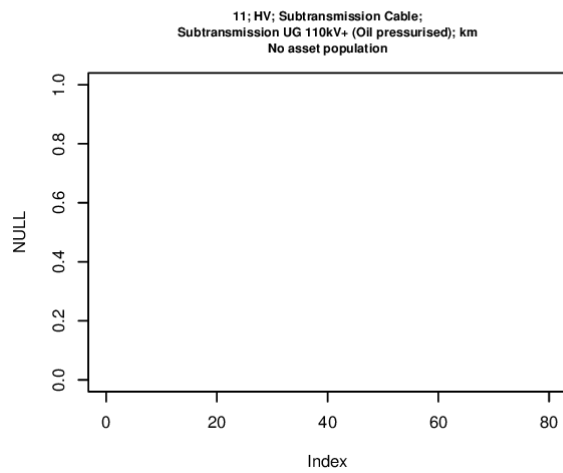
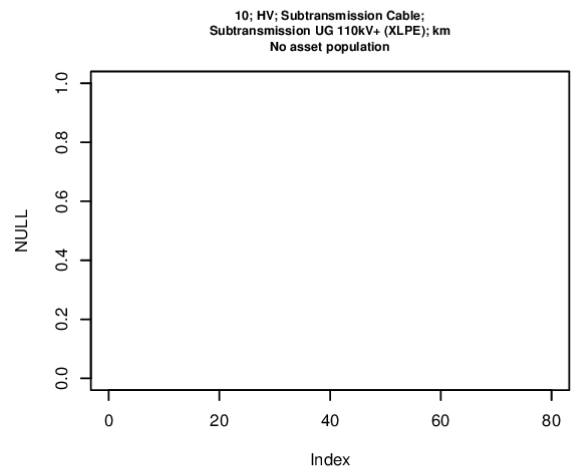
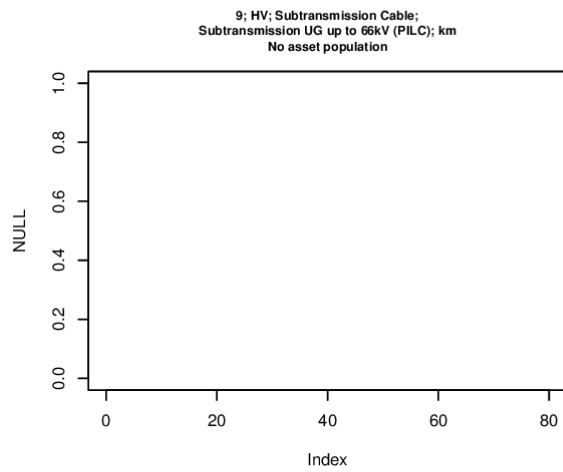
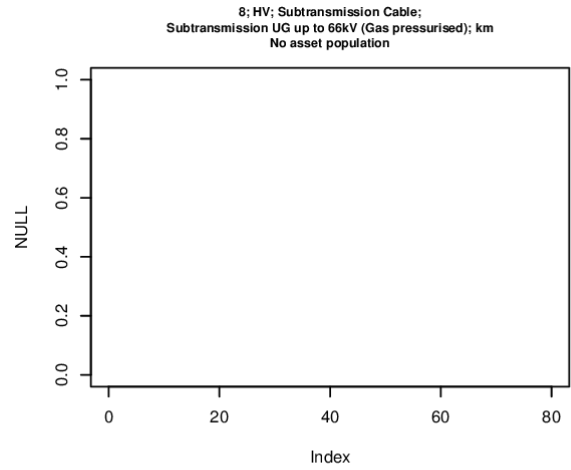
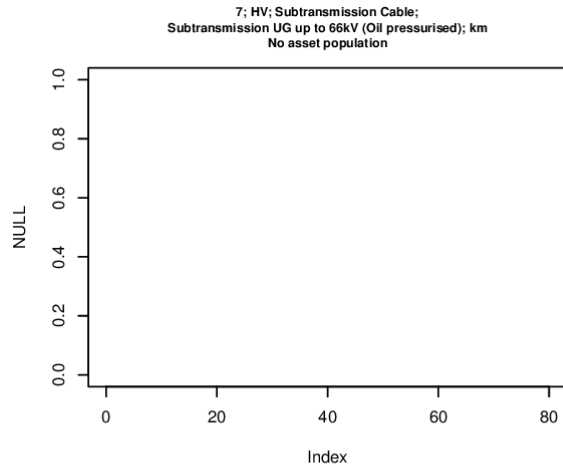
This appendix supports the capital replacement section of the comparative performance evaluation. It sets out MLL's disclosed age profile charts under each of 51 regulatory asset categories and compares these to the age profile for the same asset category derived from combining all New Zealand electricity distribution businesses' disclosures. In these charts:

- the vertical bars are the MLL disclosed age profile (FY2013);
- the red curve is a smoothed fitting to the age profile;
- the blue dashed curve is the NZ-wide smoothed age profile; and
- the yellow vertical line is the (approximate) regulatory life.

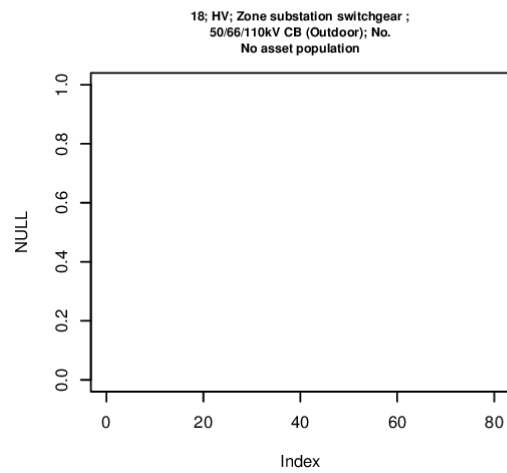
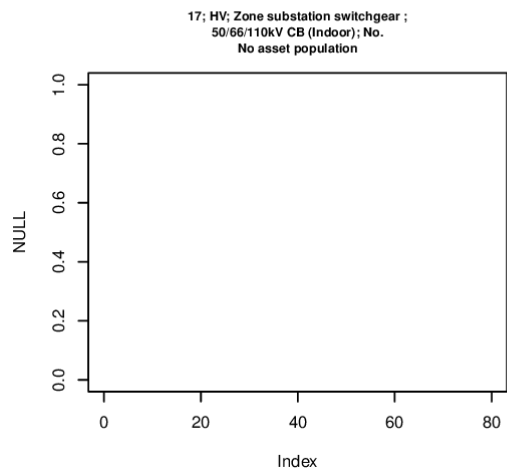
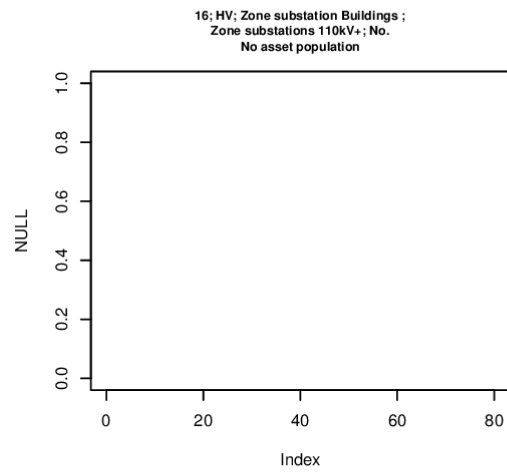
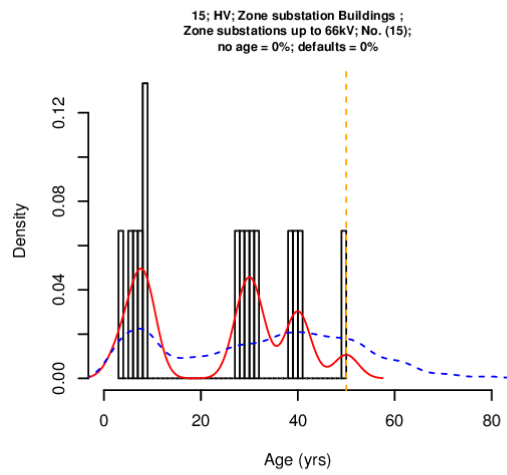
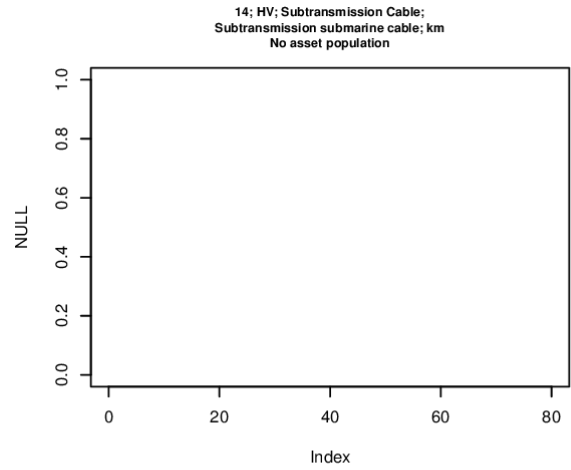
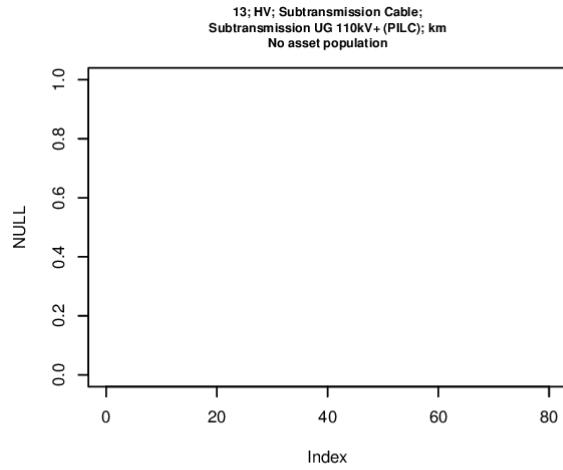
Blank charts indicate MLL has no assets of that regulatory category.

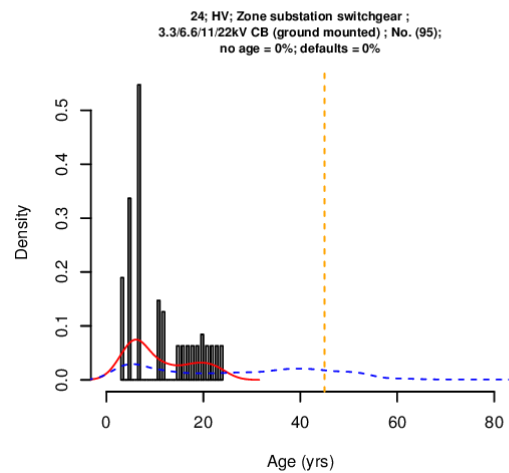
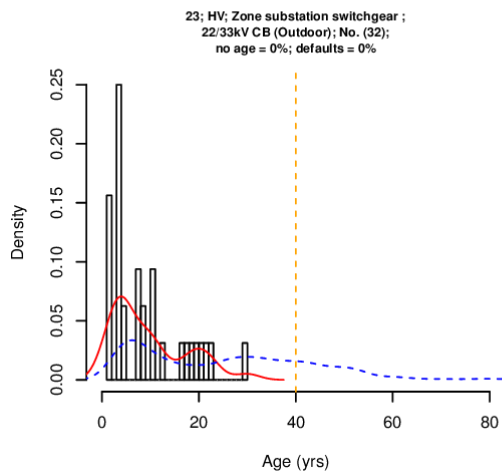
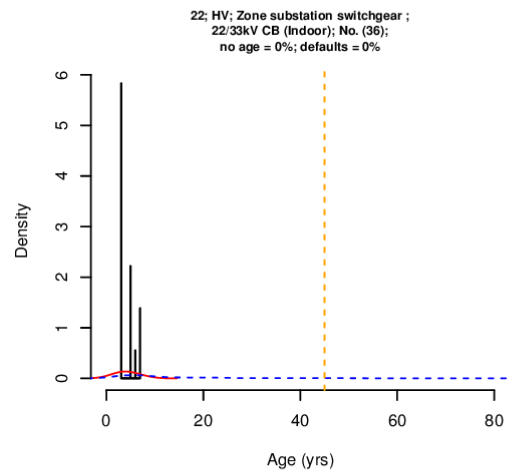
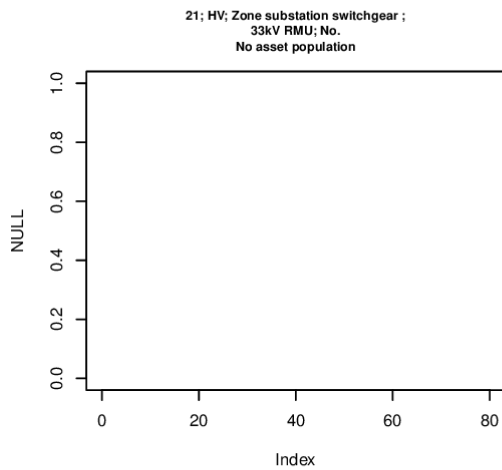
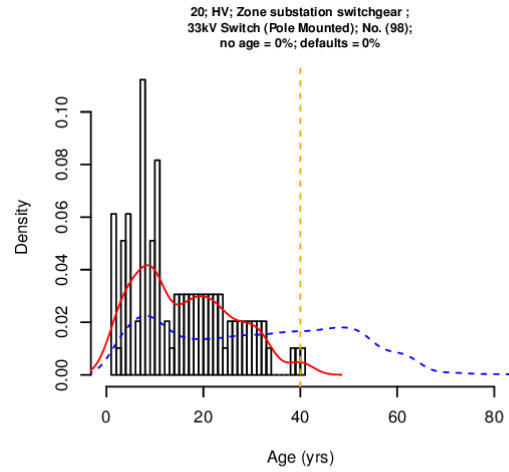
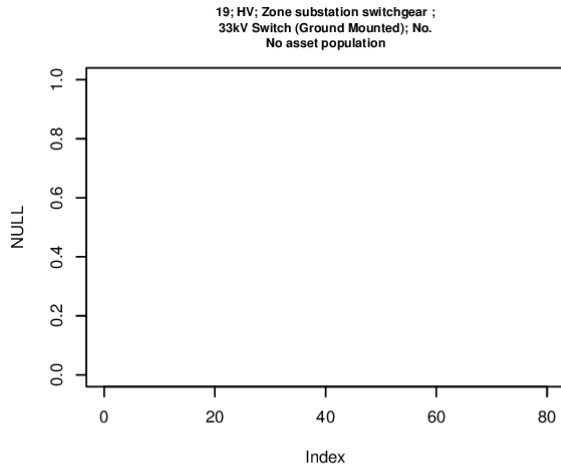
The chart titles also give the percentages for the age disclosures where the ages are not known or where default ages are assumed. For the no-age percentages, the age profiles have been adjusted through allocation into ages in the upper quartile of the disclosed ages but high percentages of either no-age or default age values should indicate that the age profiles may be inaccurate.

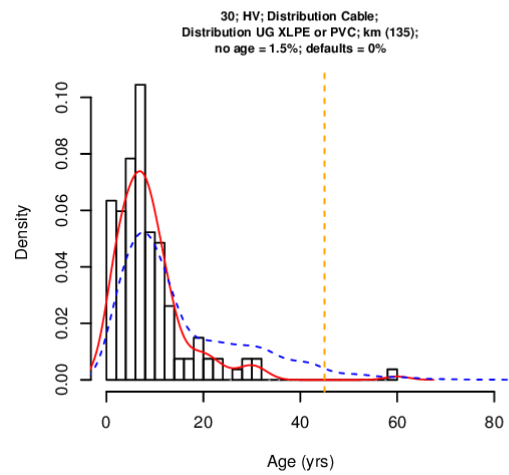
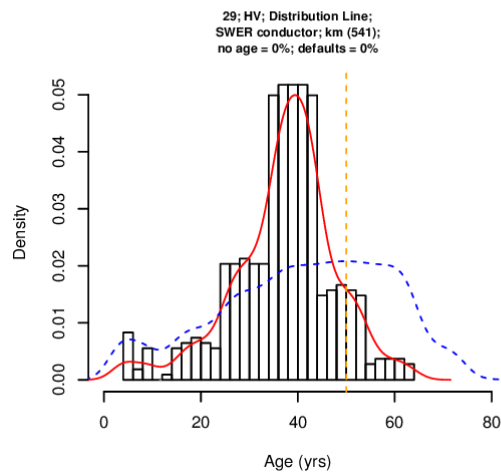
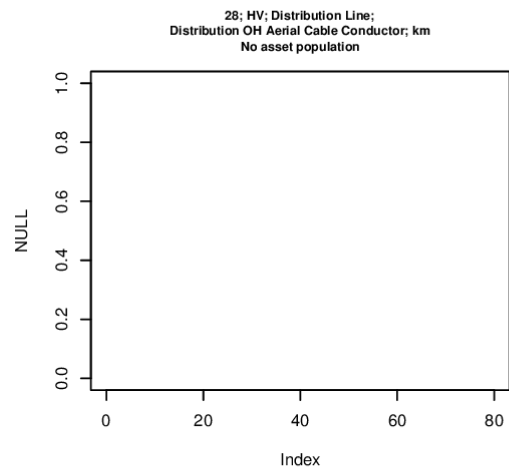
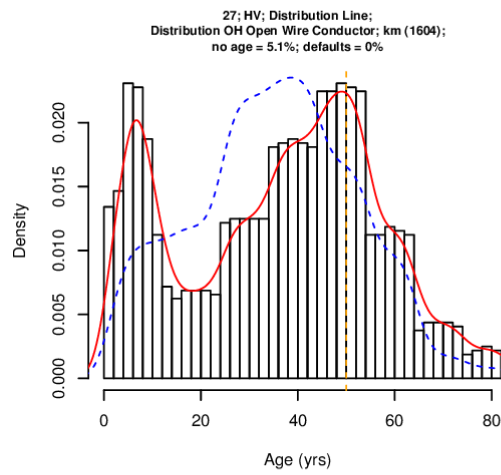
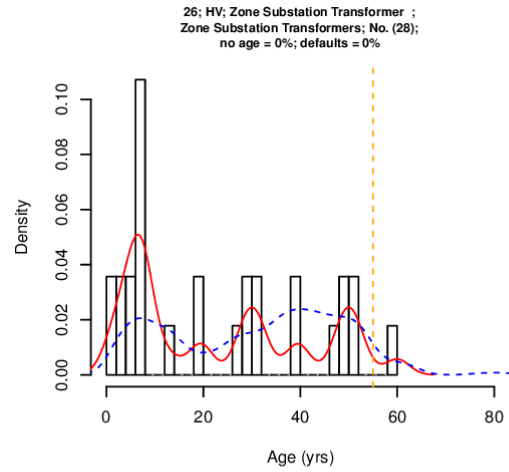
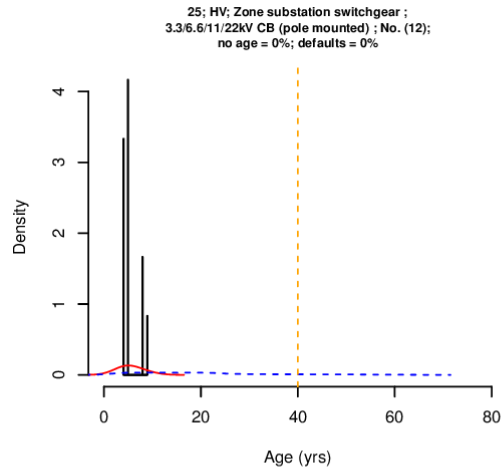


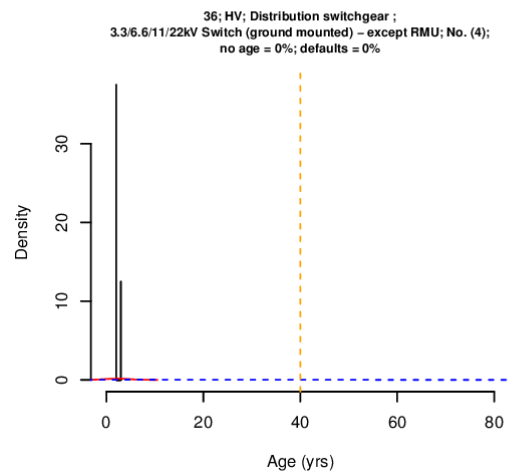
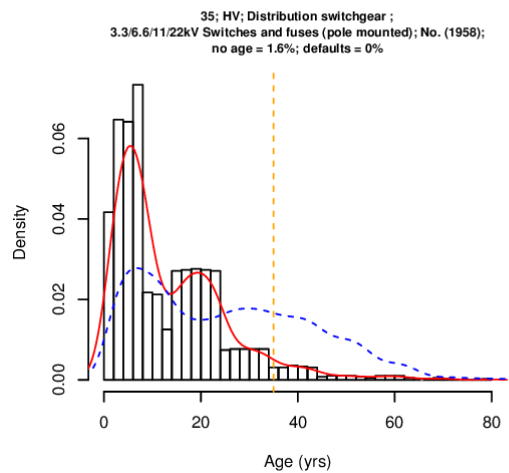
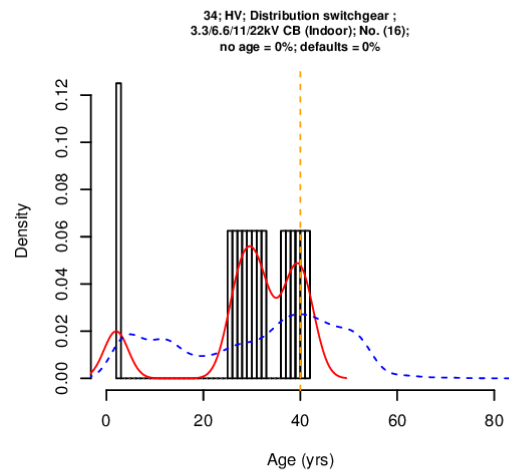
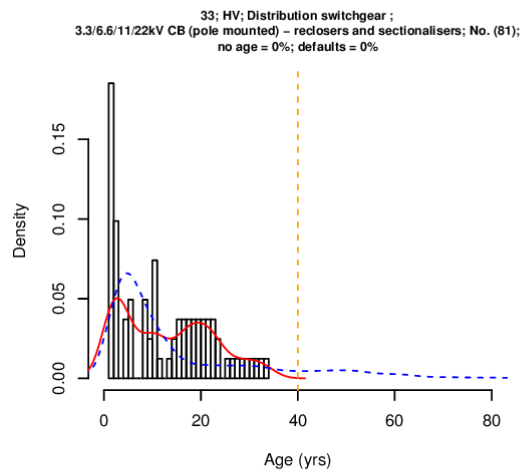
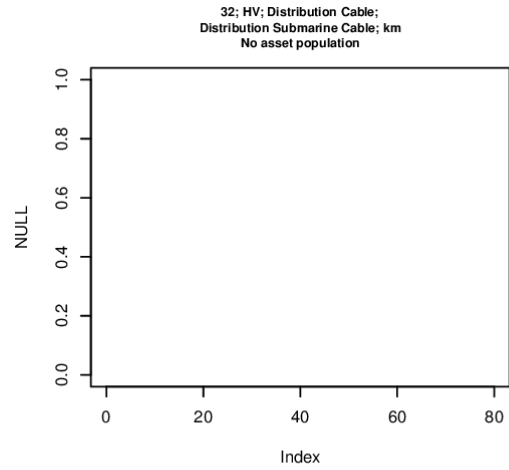
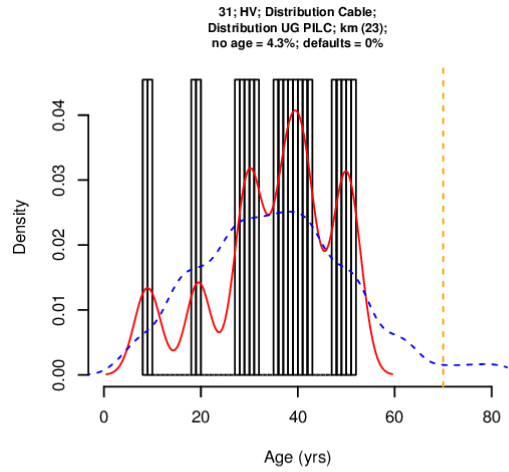


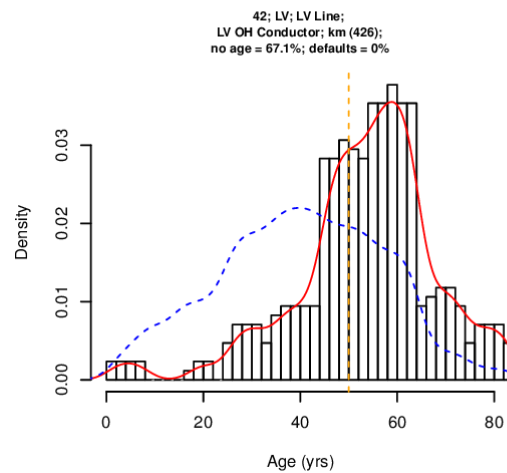
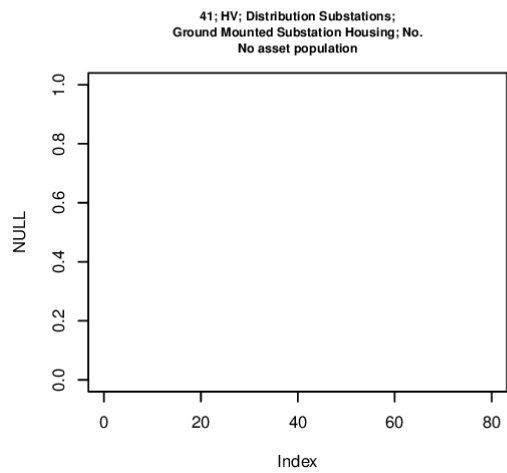
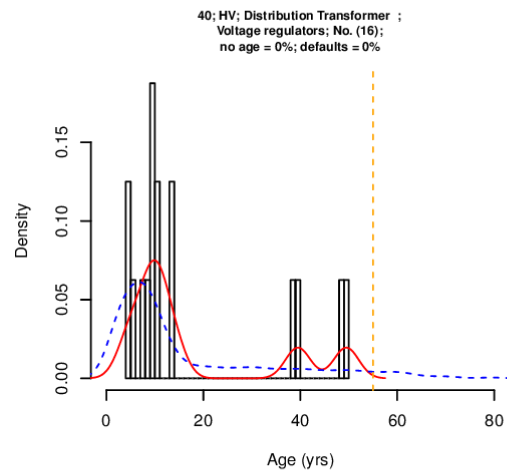
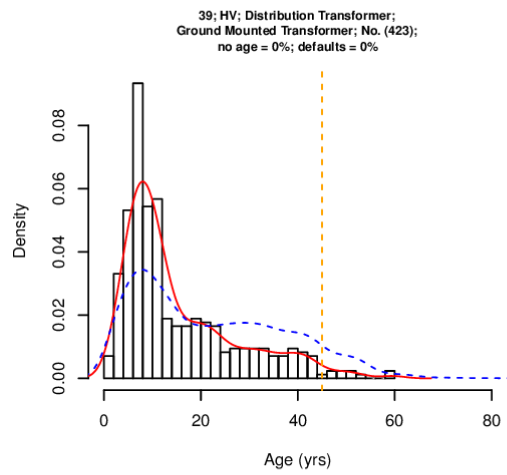
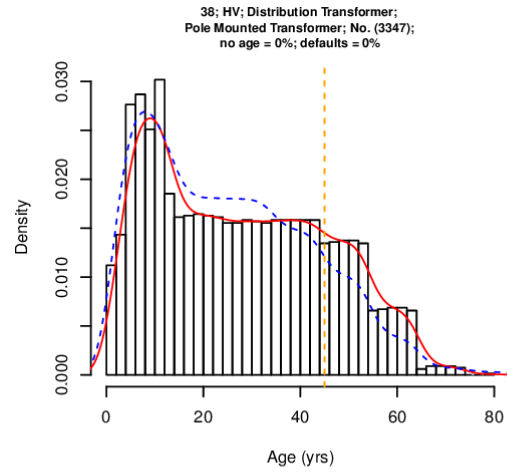
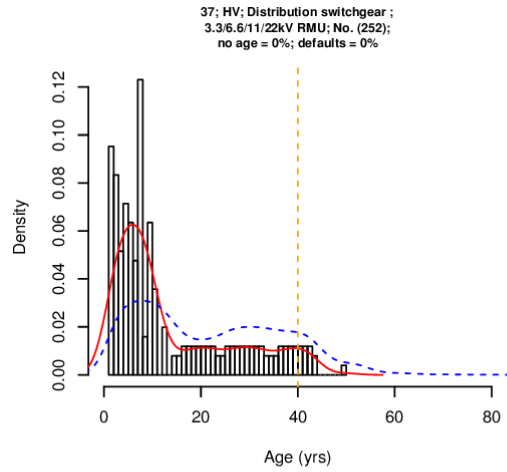


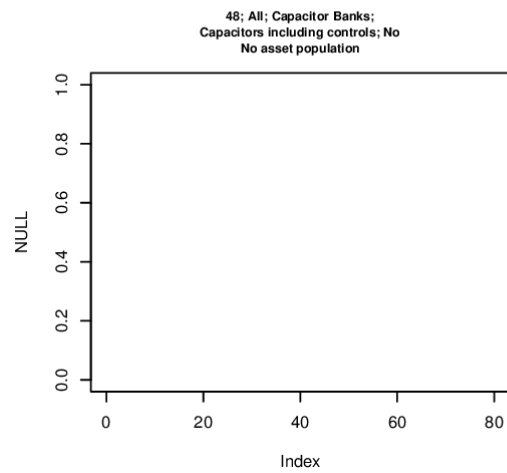
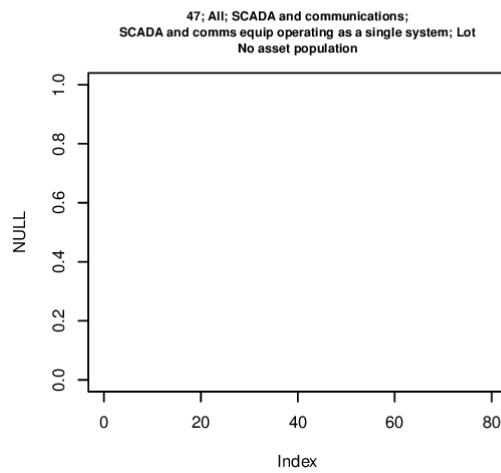
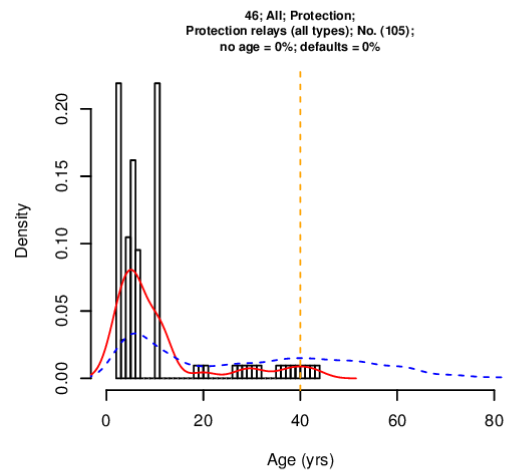
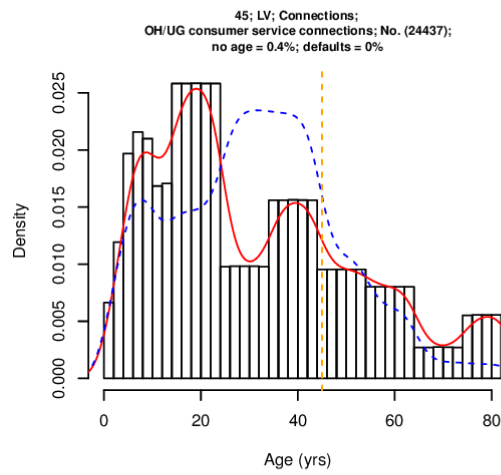
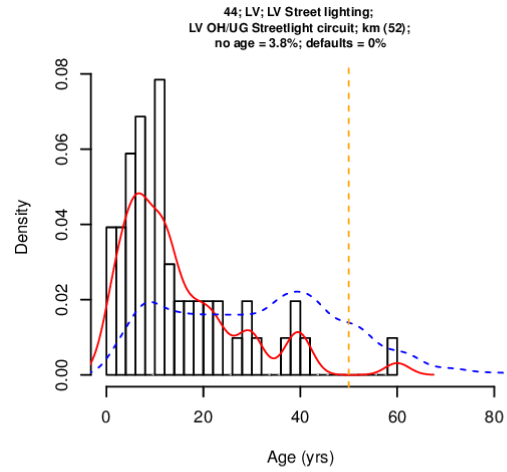
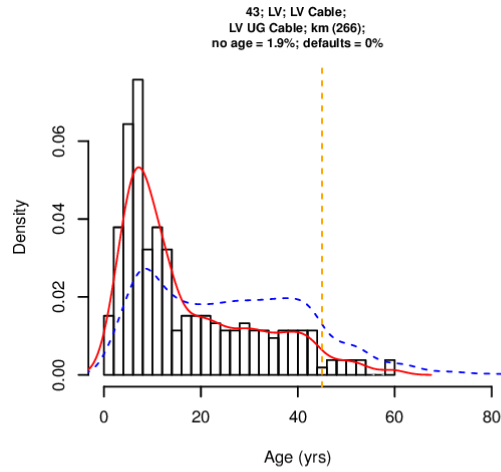


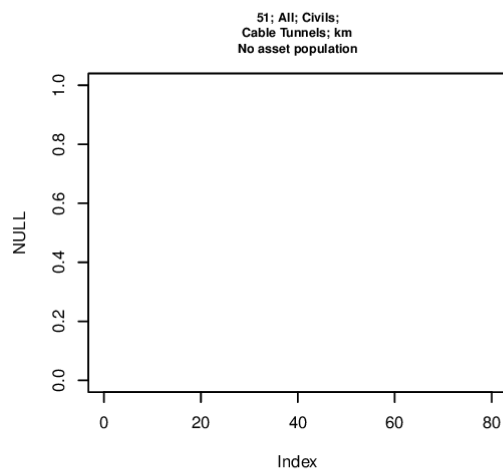
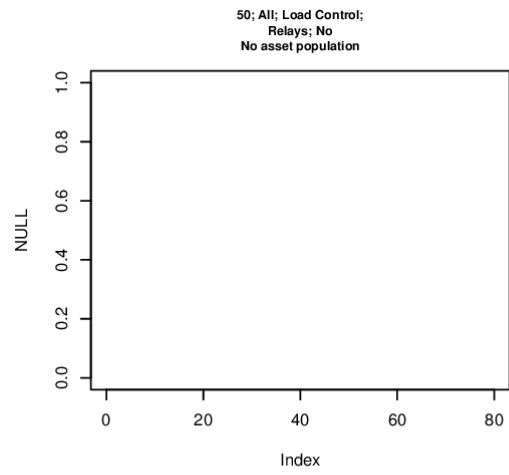
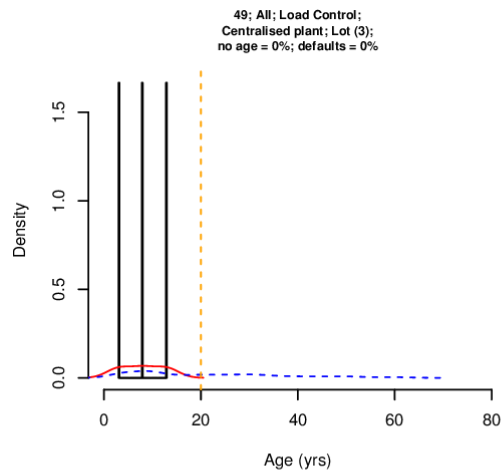












## C Disclosure Schedules

This appendix contains schedules 11 to 13 of the EDB Information Disclosure Requirements in accordance with Decision No. NZCC 22 Electricity Distribution Information Disclosure Determination 2012. Note the information in this schedule is also available as an excel spreadsheet on our website at <http://www.marlboroughlines.co.nz/About-us/Disclosures/Asset-Management.aspx>



Company Name **Marlborough Lines Ltd**  
 AMP Planning Period **1 April 2015 – 31 March 2025**

### SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)  
 EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).  
 This information is not part of audited disclosure information.

sch ref		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
9	<b>11a(i): Expenditure on Assets Forecast</b>	<b>\$000 (in nominal dollars)</b>										
10	Consumer connection	160	200	203	206	209	212	215	219	222	225	229
11	System growth	180	-	-	-	-	-	162	164	166	169	172
12	Asset replacement and renewal	5,255	6,155	6,212	4,378	6,065	6,501	6,033	7,217	7,880	7,998	8,118
13	Asset relocations	205	185	206	2,266	993	1,486	1,508	656	222	225	229
14	Reliability, safety and environment:											
15	Quality of supply	2,250	3,198	2,462	2,292	2,091	1,380	1,454	1,148	1,165	1,183	1,201
16	Legislative and regulatory	50	50	52	52	52	53	54	55	55	56	57
17	Other reliability, safety and environment	340	220	917	690	779	791	1,163	1,093	555	563	572
18	<b>Total reliability, safety and environment</b>	<b>2,640</b>	<b>3,468</b>	<b>3,431</b>	<b>3,034</b>	<b>2,923</b>	<b>2,224</b>	<b>2,672</b>	<b>2,296</b>	<b>1,776</b>	<b>1,802</b>	<b>1,829</b>
19	<b>Expenditure on network assets</b>	<b>8,440</b>	<b>10,008</b>	<b>10,052</b>	<b>9,885</b>	<b>10,190</b>	<b>10,423</b>	<b>10,590</b>	<b>10,552</b>	<b>10,266</b>	<b>10,420</b>	<b>10,576</b>
20	Non-network assets	3,385	1,929	1,545	1,391	1,569	1,433	1,616	1,640	1,665	1,690	1,715
21	<b>Expenditure on assets</b>	<b>11,825</b>	<b>11,937</b>	<b>11,597</b>	<b>11,276</b>	<b>11,759</b>	<b>11,855</b>	<b>12,206</b>	<b>12,192</b>	<b>11,931</b>	<b>12,110</b>	<b>12,291</b>
22												
23	plus Cost of financing			-	-	-	-	-	-	-	-	-
24	less Value of capital contributions	100	102	103	105	106	108	109	111	113	114	116
25	plus Value of vested assets			-	-	-	-	-	-	-	-	-
26												
27	<b>Capital expenditure forecast</b>	<b>11,725</b>	<b>11,835</b>	<b>11,494</b>	<b>11,171</b>	<b>11,653</b>	<b>11,748</b>	<b>12,096</b>	<b>12,081</b>	<b>11,818</b>	<b>11,995</b>	<b>12,175</b>
28												
29	Value of commissioned assets	11,825	11,937	11,597	11,276	11,759	11,855	12,206	12,192	11,931	12,110	12,291
30												
		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
32		<b>\$000 (in constant prices)</b>										
33	Consumer connection	160	200	200	200	200	200	200	200	200	200	200
34	System growth	180	-	-	-	-	-	150	150	150	150	150
35	Asset replacement and renewal	5,255	6,155	6,030	4,250	5,800	6,125	5,600	6,600	7,100	7,100	7,100
36	Asset relocations	205	185	200	2,200	950	1,400	1,400	600	200	200	200
37	Reliability, safety and environment:											
38	Quality of supply	2,250	3,198	2,390	2,225	2,000	1,300	1,350	1,050	1,050	1,050	1,050
39	Legislative and regulatory	50	50	50	50	50	50	50	50	50	50	50
40	Other reliability, safety and environment	340	220	890	670	745	745	1,080	1,000	500	500	500
41	<b>Total reliability, safety and environment</b>	<b>2,640</b>	<b>3,468</b>	<b>3,330</b>	<b>2,945</b>	<b>2,795</b>	<b>2,095</b>	<b>2,480</b>	<b>2,100</b>	<b>1,600</b>	<b>1,600</b>	<b>1,600</b>
42	<b>Expenditure on network assets</b>	<b>8,440</b>	<b>10,008</b>	<b>9,760</b>	<b>9,595</b>	<b>9,745</b>	<b>9,820</b>	<b>9,830</b>	<b>9,650</b>	<b>9,250</b>	<b>9,250</b>	<b>9,250</b>
43	Non-network assets	3,385	1,900	1,500	1,350	1,500	1,350	1,500	1,500	1,500	1,500	1,500
44	<b>Expenditure on assets</b>	<b>11,825</b>	<b>11,908</b>	<b>11,260</b>	<b>10,945</b>	<b>11,245</b>	<b>11,170</b>	<b>11,330</b>	<b>11,150</b>	<b>10,750</b>	<b>10,750</b>	<b>10,750</b>
45												
46	<b>Subcomponents of expenditure on assets (where known)</b>											
47	Energy efficiency and demand side management, reduction of energy losses											
48	Overhead to underground conversion											
49	Research and development											

Company Name **Marlborough Lines Ltd**  
 AMP Planning Period **1 April 2015 – 31 March 2025**

### SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)

EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

sch ref

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
		\$000										
57												
58												
59	<b>Difference between nominal and constant price forecasts</b>											
60	Consumer connection	-	-	3	6	9	12	15	19	22	25	29
61	System growth	-	-	-	-	-	-	12	14	16	19	22
62	Asset replacement and renewal	-	-	182	128	265	376	433	617	780	898	1,018
63	Asset relocations	-	-	6	66	43	86	108	56	22	25	29
64	Reliability, safety and environment:											
65	Quality of supply	-	-	72	67	91	80	104	98	115	133	151
66	Legislative and regulatory	-	-	2	2	2	3	4	5	5	6	7
67	Other reliability, safety and environment	-	-	27	20	34	46	83	93	55	63	72
68	<b>Total reliability, safety and environment</b>	-	-	101	89	128	129	192	196	176	202	229
69	<b>Expenditure on network assets</b>	-	-	292	290	445	603	760	902	1,016	1,170	1,326
70	Non-network assets	-	28	45	41	69	83	116	140	165	190	215
71	<b>Expenditure on assets</b>	-	29	337	331	514	685	876	1,042	1,181	1,360	1,541
72												
73		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5					
74		31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20					
75	<b>11a(ii): Consumer Connection</b>											
76	Consumer types defined by EDB*	\$000 (in constant prices)										
77	all	160	200	200	200	200	200					
78												
79												
80												
81	*Include additional rows if needed											
82	<b>Consumer connection expenditure</b>	160	200	200	200	200	200					
83	less Capital contributions funding consumer connection											
84	<b>Consumer connection less capital contributions</b>	160	200	200	200	200	200					
85	<b>11a(iii): System Growth</b>											
86	Subtransmission	180										
87	Zone substations											
88	Distribution and LV lines											
89	Distribution and LV cables											
90	Distribution substations and transformers											
91	Distribution switchgear											
92	Other network assets											
93	<b>System growth expenditure</b>	180	-	-	-	-	-					
94	less Capital contributions funding system growth											
95	<b>System growth less capital contributions</b>	180	-	-	-	-	-					

Company Name **Marlborough Lines Ltd**  
 AMP Planning Period **1 April 2015 – 31 March 2025**

### SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)

EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

sch ref

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20
103							
104							
105	<b>11a(iv): Asset Replacement and Renewal</b>	<b>\$000 (in constant prices)</b>					
106	Subtransmission	1,500	1,475	800	1,500	600	600
107	Zone substations	75	1,100	100	600	950	900
108	Distribution and LV lines	3,000	2,575	3,235	1,575	2,650	2,775
109	Distribution and LV cables	280	50	600	100	750	450
110	Distribution substations and transformers	400	475	875	75	400	575
111	Distribution switchgear		480	420	400	450	825
112	Other network assets						
113	<b>Asset replacement and renewal expenditure</b>	<b>5,255</b>	<b>6,155</b>	<b>6,030</b>	<b>4,250</b>	<b>5,800</b>	<b>6,125</b>
114	less Capital contributions funding asset replacement and renewal						
115	<b>Asset replacement and renewal less capital contributions</b>	<b>5,255</b>	<b>6,155</b>	<b>6,030</b>	<b>4,250</b>	<b>5,800</b>	<b>6,125</b>
116	<b>11a(v):Asset Relocations</b>						
117	<i>Project or programme*</i>						
118	Underground conversions	125	150	200	2,200	950	1,400
119	Roadway Authority Relocations	-	-	-	-	-	-
120	Forestry Relocations	80					
121	Other relocations		35				
122							
123	<i>*Include additional rows if needed</i>						
124	All other asset relocations projects or programmes						
125	<b>Asset relocations expenditure</b>	<b>205</b>	<b>185</b>	<b>200</b>	<b>2,200</b>	<b>950</b>	<b>1,400</b>
126	less Capital contributions funding asset relocations						
127	<b>Asset relocations less capital contributions</b>	<b>205</b>	<b>185</b>	<b>200</b>	<b>2,200</b>	<b>950</b>	<b>1,400</b>
128							
129	<b>11a(vi):Quality of Supply</b>						
130	<i>Project or programme*</i>						
131	SCADA	250	340	340	200	200	200
132	Network Automation	1,250	1,098	1,000	1,275	1,250	800
133	Digital Radio Network	700	650	650	250	-	-
134	Alternative Supplies		1,110	400	500	550	300
135	Generators	50	-	-	-	-	-
136	<i>*Include additional rows if needed</i>						
137	All other quality of supply projects or programmes						
138	<b>Quality of supply expenditure</b>	<b>2,250</b>	<b>3,198</b>	<b>2,390</b>	<b>2,225</b>	<b>2,000</b>	<b>1,300</b>
139	less Capital contributions funding quality of supply						
140	<b>Quality of supply less capital contributions</b>	<b>2,250</b>	<b>3,198</b>	<b>2,390</b>	<b>2,225</b>	<b>2,000</b>	<b>1,300</b>
141							
142	<b>11a(vii): Legislative and Regulatory</b>						
143	<i>Project or programme*</i>						
144	General	50	50	50	50	50	50
145							
146							
147							
148							
149	<i>*Include additional rows if needed</i>						
150	All other legislative and regulatory projects or programmes						
151	<b>Legislative and regulatory expenditure</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>
152	less Capital contributions funding legislative and regulatory						
153	<b>Legislative and regulatory less capital contributions</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>

Company Name **Marlborough Lines Ltd**  
 AMP Planning Period **1 April 2015 – 31 March 2025**

### SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)

EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

sch ref

	Current Year CY for year ended 31 Mar 15	CY+1 31 Mar 16	CY+2 31 Mar 17	CY+3 31 Mar 18	CY+4 31 Mar 19	CY+5 31 Mar 20
<b>11a(viii): Other Reliability, Safety and Environment</b>						
<i>Project or programme*</i>	<b>\$000 (in constant prices)</b>					
Earthing (NERs and Resonant)	250	-	500	450	500	500
Tee Joint Removal	90	100	150	100	125	125
SWER Reinsulation		120	240	120	120	120
<i>*Include additional rows if needed</i>						
All other reliability, safety and environment projects or programmes						
<b>Other reliability, safety and environment expenditure</b>	340	220	890	670	745	745
<i>less</i> Capital contributions funding other reliability, safety and environment						
<b>Other reliability, safety and environment less capital contributions</b>	340	220	890	670	745	745
<b>11a(ix): Non-Network Assets</b>						
<b>Routine expenditure</b>						
<i>Project or programme*</i>						
Test Equipment	210	50	50	50	50	50
Plant and Tools	440	280	250	300	250	300
Vehicles	1,250	240	500	250	500	250
Land, Buildings and office equipment	435	110	300	350	300	350
IT Computers	1,050	820	400	400	400	400
<i>*Include additional rows if needed</i>						
All other routine expenditure projects or programmes						
<b>Routine expenditure</b>	3,385	1,500	1,500	1,350	1,500	1,350
<b>Atypical expenditure</b>						
<i>Project or programme*</i>						
Building Earthquake resilience		400				
<i>*Include additional rows if needed</i>						
All other atypical projects or programmes						
<b>Atypical expenditure</b>	-	400	-	-	-	-
<b>Non-network assets expenditure</b>	3,385	1,900	1,500	1,350	1,500	1,350

Company Name

Marlborough Lines Ltd

AMP Planning Period

1 April 2015 – 31 March 2025

**SCHEDULE 11b: REPORT ON FORECAST OPERATIONAL EXPENDITURE**

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms.

EDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

sch ref		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
		for year ended 31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25
9	<b>Operational Expenditure Forecast</b>	<b>\$000 (in nominal dollars)</b>										
10	Service interruptions and emergencies	900	914	927	941	955	970	984	999	1,014	1,029	1,044
11	Vegetation management	2,140	2,456	2,493	2,531	2,568	2,607	2,646	2,686	2,726	2,767	2,809
12	Routine and corrective maintenance and inspection	2,650	2,741	2,782	2,823	2,866	2,909	2,952	2,997	3,042	3,087	3,133
13	Asset replacement and renewal	210	218	221	225	228	232	235	239	242	246	250
14	<b>Network Opex</b>	5,900	6,329	6,423	6,520	6,618	6,717	6,818	6,920	7,024	7,129	7,236
15	System operations and network support	1,900	1,954	1,983	2,013	2,043	2,074	2,105	2,136	2,168	2,201	2,234
16	Business support	3,500	3,553	3,606	3,660	3,715	3,770	3,827	3,884	3,943	4,002	4,062
17	<b>Non-network opex</b>	5,400	5,506	5,589	5,673	5,758	5,844	5,932	6,021	6,111	6,203	6,296
18	<b>Operational expenditure</b>	11,300	11,835	12,012	12,193	12,375	12,561	12,750	12,941	13,135	13,332	13,532
21		<b>\$000 (in constant prices)</b>										
22	Service interruptions and emergencies	900	900	900	900	900	900	900	900	900	900	900
23	Vegetation management	2,140	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420	2,420
24	Routine and corrective maintenance and inspection	2,650	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700
25	Asset replacement and renewal	210	215	215	215	215	215	215	215	215	215	215
26	<b>Network Opex</b>	5,900	6,235	6,235	6,235	6,235	6,235	6,235	6,235	6,235	6,235	6,235
27	System operations and network support	1,900	1,925	1,925	1,925	1,925	1,925	1,925	1,925	1,925	1,925	1,925
28	Business support	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
29	<b>Non-network opex</b>	5,400	5,425	5,425	5,425	5,425	5,425	5,425	5,425	5,425	5,425	5,425
30	<b>Operational expenditure</b>	11,300	11,660	11,660	11,660	11,660	11,660	11,660	11,660	11,660	11,660	11,660
31	<b>Subcomponents of operational expenditure (where known)</b>											
32	Energy efficiency and demand side management, reduction of											
33	energy losses											
34	Direct billing*											
35	Research and Development											
36	Insurance	230	230	230	230	230	230	230	230	230	230	230
37	* Direct billing expenditure by suppliers that direct bill the majority of their consumers											
41	<b>Difference between nominal and real forecasts</b>	<b>\$000</b>										
42	Service interruptions and emergencies	-	13	27	41	55	70	84	99	114	129	144
43	Vegetation management	-	36	73	111	148	187	226	266	306	347	389
44	Routine and corrective maintenance and inspection	-	40	82	123	166	209	252	297	342	387	433
45	Asset replacement and renewal	-	3	6	10	13	17	20	24	27	31	35
46	<b>Network Opex</b>	-	94	188	285	383	482	583	685	789	894	1,001
47	System operations and network support	-	29	58	88	118	149	180	211	243	276	309
48	Business support	-	52	106	160	215	270	327	384	443	502	562
49	<b>Non-network opex</b>	-	81	164	248	333	419	507	596	686	778	871
50	<b>Operational expenditure</b>	-	175	352	533	715	901	1,090	1,281	1,475	1,672	1,872

Company Name

Marlborough Lines Ltd

AMP Planning Period

1 April 2015 – 31 March 2025

**SCHEDULE 12a: REPORT ON ASSET CONDITION**

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a. All units relating to cable and line assets, that are expressed in km, refer to circuit lengths.

sch ref

8	Asset condition at start of planning period (percentage of units by grade)										
	Voltage	Asset category	Asset class	Units	Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
9											
10	All	Overhead Line	Concrete poles / steel structure	No.	0.01%	0.74%	77.63%	12.83%	8.79%	3	2.00%
11	All	Overhead Line	Wood poles	No.	0.20%	2.60%	85.91%	4.99%	6.30%	3	10.00%
12	All	Overhead Line	Other pole types	No.	0.16%	2.76%	74.98%	0.70%	21.40%	2	10.00%
13	HV	Subtransmission Line	Subtransmission OH up to 66kV conductor	km		0.10%	89.15%	10.75%		3	
14	HV	Subtransmission Line	Subtransmission OH 110kV+ conductor	km						N/A	
15	HV	Subtransmission Cable	Subtransmission UG up to 66kV (XLPE)	km			92.20%	7.80%		3	
16	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Oil pressurised)	km						N/A	
17	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Gas pressurised)	km						N/A	
18	HV	Subtransmission Cable	Subtransmission UG up to 66kV (PILC)	km			100.00%			3	
19	HV	Subtransmission Cable	Subtransmission UG 110kV+ (XLPE)	km						N/A	
20	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Oil pressurised)	km						N/A	
21	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Gas Pressurised)	km						N/A	
22	HV	Subtransmission Cable	Subtransmission UG 110kV+ (PILC)	km						N/A	
23	HV	Subtransmission Cable	Subtransmission submarine cable	km						N/A	
24	HV	Zone substation Buildings	Zone substations up to 66kV	No.			44.00%	56.00%		4	
25	HV	Zone substation Buildings	Zone substations 110kV+	No.						N/A	
26	HV	Zone substation switchgear	22/33kV CB (Indoor)	No.			34.90%	65.10%		4	
27	HV	Zone substation switchgear	22/33kV CB (Outdoor)	No.			58.00%	42.00%		4	
28	HV	Zone substation switchgear	33kV Switch (Ground Mounted)	No.						N/A	
29	HV	Zone substation switchgear	33kV Switch (Pole Mounted)	No.			85.00%	15.00%		4	
30	HV	Zone substation switchgear	33kV RMU	No.			100.00%			4	
31	HV	Zone substation switchgear	50/66/110kV CB (Indoor)	No.						N/A	
32	HV	Zone substation switchgear	50/66/110kV CB (Outdoor)	No.						N/A	
33	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (ground mounted)	No.			72.00%	28.00%		4	
34	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (pole mounted)	No.			31.00%	69.00%		4	

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**SCHEDULE 12a: REPORT ON ASSET CONDITION**

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a. All units relating to cable and line assets, that are expressed in km, refer to circuit lengths.

sch ref

Asset condition at start of planning period (percentage of units by grade)											
	Voltage	Asset category	Asset class	Units	Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown	Data accuracy (1-4)	% of asset forecast to be replaced in next 5 years
42							87.00%	13.00%		4	
43						0.90%	92.80%	6.30%		3	9.00%
44										N/A	
45	HV	Zone Substation Transformer	Zone Substation Transformers	No.							
46	HV	Distribution Line	Distribution OH Open Wire Conductor	km							
47	HV	Distribution Line	Distribution OH Aerial Cable Conductor	km							
48	HV	Distribution Line	SWER conductor	km		2.80%	95.60%	1.60%			3
49	HV	Distribution Cable	Distribution UG XLPE or PVC	km			86.00%	14.00%			3
50	HV	Distribution Cable	Distribution UG PILC	km			100.00%				3
51	HV	Distribution Cable	Distribution Submarine Cable	km						N/A	
52	HV	Distribution switchgear	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	No.			58.00%	42.00%			4
53	HV	Distribution switchgear	3.3/6.6/11/22kV CB (Indoor)	No.			88.00%	12.00%			4
54	HV	Distribution switchgear	3.3/6.6/11/22kV Switches and fuses (pole mounted)	No.			77.00%	23.00%			3
55	HV	Distribution switchgear	3.3/6.6/11/22kV Switch (ground mounted) - except RMU	No.			100.00%				4
56	HV	Distribution switchgear	3.3/6.6/11/22kV RMU	No.			75.00%	25.00%			4
57	HV	Distribution Transformer	Pole Mounted Transformer	No.		0.80%	92.60%	6.60%			3
58	HV	Distribution Transformer	Ground Mounted Transformer	No.			91.00%	9.00%			4
59	HV	Distribution Transformer	Voltage regulators	No.			93.00%	7.00%			4
60	HV	Distribution Substations	Ground Mounted Substation Housing	No.						N/A	
61	LV	LV Line	LV OH Conductor	km		3.00%	96.00%	1.00%			3
62	LV	LV Cable	LV UG Cable	km			89.00%	11.00%			3
63	LV	LV Streetlighting	LV OH/UG Streetlight circuit	km			84.00%	16.00%			3
64	LV	Connections	OH/UG consumer service connections	No.		3.00%	93.20%	3.80%			4
65	All	Protection	Protection relays (electromechanical, solid state and numeric)	No.			64.00%	36.00%			4
66	All	SCADA and communications	SCADA and communications equipment operating as a single system	Lot			90.00%	10.00%			3
67	All	Capacitor Banks	Capacitors including controls	No.						N/A	
68	All	Load Control	Centralised plant	Lot			100.00%				4
69	All	Load Control	Relays	No.						N/A	
70	All	Civils	Cable Tunnels	km						N/A	

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Marlborough Lines Ltd

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**SCHEDULE 12b: REPORT ON FORECAST CAPACITY**

This schedule requires a breakdown of current and forecast capacity and utilisation for each zone substation and current distribution transformer capacity. The data provided should be consistent with the information provided in the AMP. Information provided in this table should relate to the operation of the network in its normal steady state configuration.

sch ref

**12b(i): System Growth - Zone Substations**

Existing Zone Substations	Current Peak Load (MVA)	Installed Firm Capacity (MVA)	Security of Supply Classification (type)	Transfer Capacity (MVA)	Utilisation of Installed Firm Capacity %	Installed Firm Capacity +5 years (MVA)	Utilisation of Installed Firm Capacity + 5yrs %	Installed Firm Capacity Constraint +5 years (cause)	Explanation
Leefield	1.1	5	n	1	22%	5	25	No constraint within +5 years	
Linkwater	3.7	5	n	1	74%	5	74	No constraint within +5 years	
Havelock	4	5	n-1	2	80%	5	80	No constraint within +5 years	
Nelson St	14.7	15	n-1	7.5	98%	15	98	No constraint within +5 years	
Picton	6.7	15	n-1	0	45%	15	44	No constraint within +5 years	
Rai Valley	1.9	3	n-1	1	63%	4	64	No constraint within +5 years	
Redwoodtown	10.3	15	n-1	7.5	69%	15	69	No constraint within +5 years	
Renwick	9.5	10	n-1	5	95%	10	104	Transformer	Open point may need moving
Riverlands	9.6	10	n-1	7.5	96%	10	112	Transformer	Open point may need moving
Seddon	5.3	10	n-1	1	53%	10	72	No constraint within +5 years	
Spring Creek	4	5	n-1	5	80%	5	88	No constraint within +5 years	
Springlands	10.4	15	n-1	10	69%	15	69	No constraint within +5 years	
Ward	1.7	2	n	1	85%	2	95	No constraint within +5 years	will need reviewing, Transformers are 56 years old.
Waters	6.8	15	n-1	10	45%	15	45	No constraint within +5 years	
Woodbourne	7.7	10	n-1	5	77%	10	84	No constraint within +5 years	
Cloudy bay	4.2	15	n-1	5	28%	15	33	No constraint within +5 years	Some load to be moved from Riverlands
					-				
					-				
					-				
					-				

<sup>1</sup> Extend forecast capacity table as necessary to disclose all capacity by each zone substation

**12b(ii): Transformer Capacity**

	(MVA)
Distribution transformer capacity (EDB owned)	314
Distribution transformer capacity (Non-EDB owned)	18
<b>Total distribution transformer capacity</b>	<b>332</b>
 Zone substation transformer capacity	 302



Company Name	Marlborough Lines Ltd
AMP Planning Period	1 April 2015 – 31 March 2025

**SCHEDULE 12C: REPORT ON FORECAST NETWORK DEMAND**

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b and the capacity and utilisation forecasts in Schedule 12b.

sch ref

**12c(i): Consumer Connections**

Number of ICPs connected in year by consumer type

	Current Year CY	CY+1	Number of connections		CY+4	CY+5
	31 Mar 15	31 Mar 16	CY+2	CY+3	31 Mar 19	31 Mar 20
for year ended	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20

Consumer types defined by EDB\*

Domestic	21,100	21,200	21,300	21,400	21,500	21,600
Small Commercial	3,280	3,280	3,280	3,280	3,280	3,280
Large Commercial/Industrial	116	116	117	117	118	119
Irrigation	340	350	360	370	380	390
<b>Connections total</b>	<b>24,836</b>	<b>24,946</b>	<b>25,057</b>	<b>25,167</b>	<b>25,278</b>	<b>25,389</b>

\*Include additional rows if needed

**Distributed generation**

Number of connections

Installed connection capacity of distributed generation (MVA)

90	144	230	323	452	632
1	1	1	2	3	4

**12c(ii) System Demand****Maximum coincident system demand (MW)**

	Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20
for year ended	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20
GXP demand	71	71	71	71	71	71
plus Distributed generation output at HV and above	2	2	2	2	2	2
<b>Maximum coincident system demand</b>	<b>73</b>	<b>73</b>	<b>73</b>	<b>73</b>	<b>73</b>	<b>73</b>
less Net transfers to (from) other EDBs at HV and above	-	-	-	-	-	-
<b>Demand on system for supply to consumers' connection points</b>	<b>73</b>	<b>73</b>	<b>73</b>	<b>73</b>	<b>73</b>	<b>73</b>

**Electricity volumes carried (GWh)**

Electricity supplied from GXPs

less Electricity exports to GXPs

plus Electricity supplied from distributed generation

less Net electricity supplied to (from) other EDBs

Electricity entering system for supply to ICPs

less Total energy delivered to ICPs

Losses

Load factor

Loss ratio

371	375	378	382	386	390
-	-	-	-	-	-
14	14	14	14	14	14
-	-	-	-	-	-
385	389	393	396	400	404
360	364	367	371	374	378
25	25	26	26	26	26
60%	61%	61%	62%	63%	63%
6.5%	6.5%	6.5%	6.5%	6.5%	6.5%

Company Name	Marlborough Lines Ltd
AMP Planning Period	1 April 2015 – 31 March 2025
Network / Sub-network Name	

SCHEDULE 12d: REPORT FORECAST INTERRUPTIONS AND DURATION

This schedule requires a forecast of SAIFI and SAIDI for disclosure and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumed impact of planned and unplanned SAIFI and SAIDI on the expenditures forecast provided in Schedule 11a and Schedule 11b.

sch ref			Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
8		for year ended	31 Mar 15	31 Mar 16	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20
9								
10	SAIDI							
11	Class B (planned interruptions on the network)		80.0	70.0	70.0	70.0	70.0	70.0
12	Class C (unplanned interruptions on the network)		115.0	115.0	105.0	100.0	95.0	90.0
13	SAIFI							
14	Class B (planned interruptions on the network)		0.40	0.40	0.40	0.40	0.40	0.40
15	Class C (unplanned interruptions on the network)		1.30	1.27	1.25	1.17	1.14	1.10

Company Name

Marlborough Lines Ltd

AMP Planning Period

1 April 2015 – 31 March 2025

Asset Management Standard Applied

PAS55/ISO55001

**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY**

This schedule requires information on the EDB'S self-assessment of the maturity of its asset management practices .

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/documented Information
3	Asset management policy	To what extent has an asset management policy been documented, authorised and communicated?	2	MLL has published a concise Asset Management Policy within the 2013 AMP. The policy is communicated through the publicity of the AMP. The AMP as a whole has been authorised by top-tier management, in turn authorising the AM policy.		Widely used AM practice standards require an organisation to document, authorise and communicate its asset management policy (eg, as required in PAS 55 para 4.2 i). A key pre-requisite of any robust policy is that the organisation's top management must be seen to endorse and fully support it. Also vital to the effective implementation of the policy, is to tell the appropriate people of its content and their obligations under it. Where an organisation outsources some of its asset-related activities, then these people and their organisations must equally be made aware of the policy's content. Also, there may be other stakeholders, such as regulatory authorities and shareholders who should be made aware of it.	Top management. The management team that has overall responsibility for asset management.	The organisation's asset management policy, its organisational strategic plan, documents indicating how the asset management policy was based upon the needs of the organisation and evidence of communication.
10	Asset management strategy	What has the organisation done to ensure that its asset management strategy is consistent with other appropriate organisational policies and strategies, and the needs of stakeholders?	2	The 2013 AMP includes an AM Strategy that describes how the AM Policy is to be implemented taking into consideration key stakeholder requirements. The AMP indicates alignment between the Vision, Mission, AM Policy and the AM Strategy. The AM strategy has been authorised by top level management.		In setting an organisation's asset management strategy, it is important that it is consistent with any other policies and strategies that the organisation has and has taken into account the requirements of relevant stakeholders. This question examines to what extent the asset management strategy is consistent with other organisational policies and strategies (eg, as required by PAS 55 para 4.3.1 b) and has taken account of stakeholder requirements as required by PAS 55 para 4.3.1 c). Generally, this will take into account the same policies, strategies and stakeholder requirements as covered in drafting the asset management policy but at a greater level of detail.	Top management. The organisation's strategic planning team. The management team that has overall responsibility for asset management.	The organisation's asset management strategy document and other related organisational policies and strategies. Other than the organisation's strategic plan, these could include those relating to health and safety, environmental, etc. Results of stakeholder consultation.
11	Asset management strategy	In what way does the organisation's asset management strategy take account of the lifecycle of the assets, asset types and asset systems over which the organisation has stewardship?	2	The AMP sets out the key asset lifecycle phases of distribution assets, with particular attention given to those classes that are potentially declining condition as they approach predicted end-of-life. Key asset management activities include rigorous inspection and maintenance schedules.		Good asset stewardship is the hallmark of an organisation compliant with widely used AM standards. A key component of this is the need to take account of the lifecycle of the assets, asset types and asset systems. (For example, this requirement is recognised in 4.3.1 d) of PAS 55). This question explores what an organisation has done to take lifecycle into account in its asset management strategy.	Top management. People in the organisation with expert knowledge of the assets, asset types, asset systems and their associated life-cycles. The management team that has overall responsibility for asset management. Those responsible for developing and adopting methods and processes used in asset management	The organisation's documented asset management strategy and supporting working documents.
26	Asset management plan(s)	How does the organisation establish and document its asset management plan(s) across the life cycle activities of its assets and asset systems?	2	The AMP includes significant content on the sourcing, installation and operation of major distribution asset classes through to end-of-life. The AMP includes a description of the testing and inspection regimes for key asset classes such as zone substations, distribution substations and oil switches.		The asset management strategy need to be translated into practical plan(s) so that all parties know how the objectives will be achieved. The development of plan(s) will need to identify the specific tasks and activities required to optimize costs, risks and performance of the assets and/or asset system(s), when they are to be carried out and the resources required.	The management team with overall responsibility for the asset management system. Operations, maintenance and engineering managers.	The organisation's asset management plan(s).

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Asset Management Standard Applied

PAS55/ISO55001

**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
3	Asset management policy	To what extent has an asset management policy been documented, authorised and communicated?	The organisation does not have a documented asset management policy.	The organisation has an asset management policy, but it has not been authorised by top management, or it is not influencing the management of the assets.	The organisation has an asset management policy, which has been authorised by top management, but it has had limited circulation. It may be in use to influence development of strategy and planning but its effect is limited.	The asset management policy is authorised by top management, is widely and effectively communicated to all relevant employees and stakeholders, and used to make these persons aware of their asset related obligations.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
10	Asset management strategy	What has the organisation done to ensure that its asset management strategy is consistent with other appropriate organisational policies and strategies, and the needs of stakeholders?	The organisation has not considered the need to ensure that its asset management strategy is appropriately aligned with the organisation's other organisational policies and strategies or with stakeholder requirements. OR The organisation does not have an asset management strategy.	The need to align the asset management strategy with other organisational policies and strategies as well as stakeholder requirements is understood and work has started to identify the linkages or to incorporate them in the drafting of asset management strategy.	Some of the linkages between the long-term asset management strategy and other organisational policies, strategies and stakeholder requirements are defined but the work is fairly well advanced but still incomplete.	All linkages are in place and evidence is available to demonstrate that, where appropriate, the organisation's asset management strategy is consistent with its other organisational policies and strategies. The organisation has also identified and considered the requirements of relevant stakeholders.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
11	Asset management strategy	In what way does the organisation's asset management strategy take account of the lifecycle of the assets, asset types and asset systems over which the organisation has stewardship?	The organisation has not considered the need to ensure that its asset management strategy is produced with due regard to the lifecycle of the assets, asset types or asset systems that it manages. OR The organisation does not have an asset management strategy.	The need is understood, and the organisation is drafting its asset management strategy to address the lifecycle of its assets, asset types and asset systems.	The long-term asset management strategy takes account of the lifecycle of some, but not all, of its assets, asset types and asset systems.	The asset management strategy takes account of the lifecycle of all of its assets, asset types and asset systems.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
26	Asset management plan(s)	How does the organisation establish and document its asset management plan(s) across the life cycle activities of its assets and asset systems?	The organisation does not have an identifiable asset management plan(s) covering asset systems and critical assets.	The organisation has asset management plan(s) but they are not aligned with the asset management strategy and objectives and do not take into consideration the full asset life cycle (including asset creation, acquisition, enhancement, utilisation, maintenance decommissioning and disposal).	The organisation is in the process of putting in place comprehensive, documented asset management plan(s) that cover all life cycle activities, clearly aligned to asset management objectives and the asset management strategy.	Asset management plan(s) are established, documented, implemented and maintained for asset systems and critical assets to achieve the asset management strategy and asset management objectives across all life cycle phases.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.

Company Name

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AMP Planning Period

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Asset Management Standard Applied

PAS55/ISO55001

**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/document Information
27	Asset management plan(s)	How has the organisation communicated its plan(s) to all relevant parties to a level of detail appropriate to the receiver's role in their delivery?	3	The AMP is publicly available on the MLL website, is sent to the regulator annually, and is submitted to the BoD for authorisation. Key staff are aware of the contents of the AMP. Key documents referred to within the AMP such as Network Design and Construction Standards and Emergency Procedure Plans		Plans will be ineffective unless they are communicated to all those, including contracted suppliers and those who undertake enabling function(s). The plan(s) need to be communicated in a way that is relevant to those who need to use them.	The management team with overall responsibility for the asset management system. Delivery functions and suppliers.	Distribution lists for plan(s). Documents derived from plan(s) which detail the receivers role in plan delivery. Evidence of communication.
29	Asset management plan(s)	How are designated responsibilities for delivery of asset plan actions documented?	3	The AMP clearly defines the functions of all executive level staff. The long-term asset management responsibilities of the Engineering Manager and the short-term responsibilities of the Operations Manager are clearly distinguished between. MLL's ISO system has defines the responsibilities of each individual job description, including staff roles involved		The implementation of asset management plan(s) relies on (1) actions being clearly identified, (2) an owner allocated and (3) that owner having sufficient delegated responsibility and authority to carry out the work required. It also requires alignment of actions across the organisation. This question explores how well the plan(s) set out responsibility for delivery of asset plan actions.	The management team with overall responsibility for the asset management system. Operations, maintenance and engineering managers. If appropriate, the performance management team.	The organisation's asset management plan(s). Documentation defining roles and responsibilities of individuals and organisational departments.
31	Asset management plan(s)	What has the organisation done to ensure that appropriate arrangements are made available for the efficient and cost effective implementation of the plan(s)?  (Note this is about resources and enabling support)	3	The continuance of strong cash flows from operation has resulted in sufficient resources for the company to adequately perform its asset management practices. Significant OpEx and CapEx tasks are prioritised during the formation of annual budgets. Relatively constant asset management works have resulted in a resource base that is readily available. Comprehensive Design and Construction Standards		It is essential that the plan(s) are realistic and can be implemented, which requires appropriate resources to be available and enabling mechanisms in place. This question explores how well this is achieved. The plan(s) not only need to consider the resources directly required and timescales, but also the enabling activities, including for example, training requirements, supply chain capability and procurement timescales.	The management team with overall responsibility for the asset management system. Operations, maintenance and engineering managers. If appropriate, the performance management team. Where appropriate the procurement team and service providers working on the organisation's asset-related activities.	The organisation's asset management plan(s). Documented processes and procedures for the delivery of the asset management plan.
33	Contingency planning	What plan(s) and procedure(s) does the organisation have for identifying and responding to incidents and emergency situations and ensuring continuity of critical asset management activities?	3	The AMP includes a high level risk register that identifies most electrical, environmental, business and regulatory risks that MLL is exposed to, as well as highlighting high-impact low-probability risks. The 'Emergency Preparedness Plan' and 'Management of Planned and Unplanned Outages' internal publications act as an in-depth procedure for risk response and risk management following an event with significant detrimental impact to the network.		Widely used AM practice standards require that an organisation has plan(s) to identify and respond to emergency situations. Emergency plan(s) should outline the actions to be taken to respond to specified emergency situations and ensure continuity of critical asset management activities including the communication to, and involvement of, external agencies. This question assesses if, and how well, these plan(s) triggered, implemented and resolved in the event of an incident. The plan(s) should be appropriate to the level of risk as determined by the organisation's risk assessment methodology. It is also a requirement that relevant personnel are competent and trained.	The manager with responsibility for developing emergency plan(s). The organisation's risk assessment team. People with designated duties within the plan(s) and procedure(s) for dealing with incidents and emergency situations.	The organisation's plan(s) and procedure(s) for dealing with emergencies. The organisation's risk assessments and risk registers.

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Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
27	Asset management plan(s)	How has the organisation communicated its plan(s) to all relevant parties to a level of detail appropriate to the receiver's role in their delivery?	The organisation does not have plan(s) or their distribution is limited to the authors.	The plan(s) are communicated to some of those responsible for delivery of the plan(s). OR Communicated to those responsible for delivery is either irregular or ad-hoc.	The plan(s) are communicated to most of those responsible for delivery but there are weaknesses in identifying relevant parties resulting in incomplete or inappropriate communication. The organisation recognises improvement is needed as is working towards resolution.	The plan(s) are communicated to all relevant employees, stakeholders and contracted service providers to a level of detail appropriate to their participation or business interests in the delivery of the plan(s) and there is confirmation that they are being used effectively.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
29	Asset management plan(s)	How are designated responsibilities for delivery of asset plan actions documented?	The organisation has not documented responsibilities for delivery of asset plan actions.	Asset management plan(s) inconsistently document responsibilities for delivery of plan actions and activities and/or responsibilities and authorities for implementation inadequate and/or delegation level inadequate to ensure effective delivery and/or contain misalignments with organisational accountability.	Asset management plan(s) consistently document responsibilities for the delivery of actions but responsibility/authority levels are inappropriate/ inadequate, and/or there are misalignments within the organisation.	Asset management plan(s) consistently document responsibilities for the delivery actions and there is adequate detail to enable delivery of actions. Designated responsibility and authority for achievement of asset plan actions is appropriate.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
31	Asset management plan(s)	What has the organisation done to ensure that appropriate arrangements are made available for the efficient and cost effective implementation of the plan(s)?  (Note this is about resources and enabling support)	The organisation has not considered the arrangements needed for the effective implementation of plan(s).	The organisation recognises the need to ensure appropriate arrangements are in place for implementation of asset management plan(s) and is in the process of determining an appropriate approach for achieving this.	The organisation has arrangements in place for the implementation of asset management plan(s) but the arrangements are not yet adequately efficient and/or effective. The organisation is working to resolve existing weaknesses.	The organisation's arrangements fully cover all the requirements for the efficient and cost effective implementation of asset management plan(s) and realistically address the resources and timescales required, and any changes needed to functional policies, standards, processes and the asset management information system.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
33	Contingency planning	What plan(s) and procedure(s) does the organisation have for identifying and responding to incidents and emergency situations and ensuring continuity of critical asset management activities?	The organisation has not considered the need to establish plan(s) and procedure(s) to identify and respond to incidents and emergency situations.	The organisation has some ad-hoc arrangements to deal with incidents and emergency situations, but these have been developed on a reactive basis in response to specific events that have occurred in the past.	Most credible incidents and emergency situations are identified. Either appropriate plan(s) and procedure(s) are incomplete for critical activities or they are inadequate. Training/ external alignment may be incomplete.	Appropriate emergency plan(s) and procedure(s) are in place to respond to credible incidents and manage continuity of critical asset management activities consistent with policies and asset management objectives. Training and external agency alignment is in place.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.

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**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/document Information
37	Structure, authority and responsibilities	What has the organisation done to appoint member(s) of its management team to be responsible for ensuring that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s)?	3	Marlborough Lines management staff who are responsible for planning, operations and works delivery report directly to the Managing Director. Management personnel who ensure asset management practices are carried out have been appointed based on their experience and industry qualifications.		In order to ensure that the organisation's assets and asset systems deliver the requirements of the asset management policy, strategy and objectives responsibilities need to be allocated to appropriate people who have the necessary authority to fulfil their responsibilities. (This question, relates to the organisation's assets eg, para b), s 4.4.1 of PAS 55, making it therefore distinct from the requirement contained in para a), s 4.4.1 of PAS 55).	Top management. People with management responsibility for the delivery of asset management policy, strategy, objectives and plan(s). People working on asset-related activities.	Evidence that managers with responsibility for the delivery of asset management policy, strategy, objectives and plan(s) have been appointed and have assumed their responsibilities. Evidence may include the organisation's documents relating to its asset management system, organisational charts, job descriptions of post-holders, annual targets/objectives and personal development plan(s) of post-holders as appropriate.
40	Structure, authority and responsibilities	What evidence can the organisation's top management provide to demonstrate that sufficient resources are available for asset management?	2	Sufficient levels of planning staff are employed to meet demand. Principal contractors ensure staffing levels are adequate to meet annual AM requirements and can vary external work if required. Funding constraints for the performance of AM tasks are minimal.		Optimal asset management requires top management to ensure sufficient resources are available. In this context the term 'resources' includes manpower, materials, funding and service provider support.	Top management. The management team that has overall responsibility for asset management. Risk management team. The organisation's managers involved in day-to-day supervision of asset-related activities, such as frontline managers, engineers, foremen and chargehands as appropriate.	Evidence demonstrating that asset management plan(s) and/or the process(es) for asset management plan implementation consider the provision of adequate resources in both the short and long term. Resources include funding, materials, equipment, services provided by third parties and personnel (internal and service providers) with appropriate skills competencies and knowledge.
42	Structure, authority and responsibilities	To what degree does the organisation's top management communicate the importance of meeting its asset management requirements?	2	The importance of meeting performance targets is communicated through the publication of the MLL Annual report and AMP, both of which declare AM goals, AM expenditure, and annual performance against those targets.		Widely used AM practice standards require an organisation to communicate the importance of meeting its asset management requirements such that personnel fully understand, take ownership of, and are fully engaged in the delivery of the asset management requirements (eg, PAS 55 s 4.4.1 g).	Top management. The management team that has overall responsibility for asset management. People involved in the delivery of the asset management requirements.	Evidence of such activities as road shows, written bulletins, workshops, team talks and management walk-about would assist an organisation to demonstrate it is meeting this requirement of PAS 55.
45	Outsourcing of asset management activities	Where the organisation has outsourced some of its asset management activities, how has it ensured that appropriate controls are in place to ensure the compliant delivery of its organisational strategic plan, and its asset management policy and strategy?	3	The circulation of Network Design & Construction Standards and associated drawings specify minimum standards for all works. All contractors who perform work on the network guarantee performance against these standards. Upon completion of line work, as-built drawings are scrutinized for adherence to issued work packs.		Where an organisation chooses to outsource some of its asset management activities, the organisation must ensure that these outsourced process(es) are under appropriate control to ensure that all the requirements of widely used AM standards (eg, PAS 55) are in place, and the asset management policy, strategy objectives and plan(s) are delivered. This includes ensuring capabilities and resources across a time span aligned to life cycle management. The organisation must put arrangements in place to control the outsourced activities, whether it be to external providers or to other in-house departments. This question explores what the organisation does in this regard.	Top management. The management team that has overall responsibility for asset management. The manager(s) responsible for the monitoring and management of the outsourced activities. People involved with the procurement of outsourced activities. The people within the organisations that are performing the outsourced activities. The people impacted by the outsourced activity.	The organisation's arrangements that detail the compliance required of the outsourced activities. For example, this this could form part of a contract or service level agreement between the organisation and the suppliers of its outsourced activities. Evidence that the organisation has demonstrated to itself that it has assurance of compliance of outsourced activities.

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**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
37	Structure, authority and responsibilities	What has the organisation done to appoint member(s) of its management team to be responsible for ensuring that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s)?	Top management has not considered the need to appoint a person or persons to ensure that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s).	Top management understands the need to appoint a person or persons to ensure that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s).	Top management has appointed an appropriate people to ensure the assets deliver the requirements of the asset management strategy, objectives and plan(s) but their areas of responsibility are not fully defined and/or they have insufficient delegated authority to fully execute their responsibilities.	The appointed person or persons have full responsibility for ensuring that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s). They have been given the necessary authority to achieve this.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
40	Structure, authority and responsibilities	What evidence can the organisation's top management provide to demonstrate that sufficient resources are available for asset management?	The organisation's top management has not considered the resources required to deliver asset management.	The organisations top management understands the need for sufficient resources but there are no effective mechanisms in place to ensure this is the case.	A process exists for determining what resources are required for its asset management activities and in most cases these are available but in some instances resources remain insufficient.	An effective process exists for determining the resources needed for asset management and sufficient resources are available. It can be demonstrated that resources are matched to asset management requirements.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
42	Structure, authority and responsibilities	To what degree does the organisation's top management communicate the importance of meeting its asset management requirements?	The organisation's top management has not considered the need to communicate the importance of meeting asset management requirements.	The organisations top management understands the need to communicate the importance of meeting its asset management requirements but does not do so.	Top management communicates the importance of meeting its asset management requirements but only to parts of the organisation.	Top management communicates the importance of meeting its asset management requirements to all relevant parts of the organisation.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
45	Outsourcing of asset management activities	Where the organisation has outsourced some of its asset management activities, how has it ensured that appropriate controls are in place to ensure the compliant delivery of its organisational strategic plan, and its asset management policy and strategy?	The organisation has not considered the need to put controls in place.	The organisation controls its outsourced activities on an ad-hoc basis, with little regard for ensuring for the compliant delivery of the organisational strategic plan and/or its asset management policy and strategy.	Controls systematically considered but currently only provide for the compliant delivery of some, but not all, aspects of the organisational strategic plan and/or its asset management policy and strategy. Gaps exist.	Evidence exists to demonstrate that outsourced activities are appropriately controlled to provide for the compliant delivery of the organisational strategic plan, asset management policy and strategy, and that these controls are integrated into the asset management system	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.



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## SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/documented Information
48	Training, awareness and competence	How does the organisation develop plan(s) for the human resources required to undertake asset management activities - including the development and delivery of asset management strategy, process(es), objectives and plan(s)?	2	MLL Network and Contracting maintain competency registers to ensure all staff have suitable skills required for AM performance and continue with professional development. Job descriptions declare required competencies in order to suitably perform each role. Regular recruitment of trainees/graduates in contracting and management roles ensures staffing levels are maintained. MLL provides training for both contracting and management staff in return for agreed service contracts.		There is a need for an organisation to demonstrate that it has considered what resources are required to develop and implement its asset management system. There is also a need for the organisation to demonstrate that it has assessed what development plan(s) are required to provide its human resources with the skills and competencies to develop and implement its asset management systems. The timescales over which the plan(s) are relevant should be commensurate with the planning horizons within the asset management strategy considers e.g. if the asset management strategy considers 5, 10 and 15 year time scales then the human resources development plan(s) should align with these. Resources include both 'in house' and external resources who undertake asset management activities.	Senior management responsible for agreement of plan(s). Managers responsible for developing asset management strategy and plan(s). Managers with responsibility for development and recruitment of staff (including HR functions). Staff responsible for training. Procurement officers. Contracted service providers.	Evidence of analysis of future work load plan(s) in terms of human resources. Document(s) containing analysis of the organisation's own direct resources and contractors resource capability over suitable timescales. Evidence, such as minutes of meetings, that suitable management forums are monitoring human resource development plan(s). Training plan(s), personal development plan(s), contract and service level agreements.
49	Training, awareness and competence	How does the organisation identify competency requirements and then plan, provide and record the training necessary to achieve the competencies?	3	Competency requirements are maintained through the ISO9001 system. This highlights competency requirements for each position, regular training requirements, levels of staff competency, and required refresher training dates. All AM staff are trained to generally accepted New Zealand Standards.		Widely used AM standards require that organisations to undertake a systematic identification of the asset management awareness and competencies required at each level and function within the organisation. Once identified the training required to provide the necessary competencies should be planned for delivery in a timely and systematic way. Any training provided must be recorded and maintained in a suitable format. Where an organisation has contracted service providers in place then it should have a means to demonstrate that this requirement is being met for their employees. (eg, PAS 55 refers to frameworks suitable for identifying competency requirements).	Senior management responsible for agreement of plan(s). Managers responsible for developing asset management strategy and plan(s). Managers with responsibility for development and recruitment of staff (including HR functions). Staff responsible for training. Procurement officers. Contracted service providers.	Evidence of an established and applied competency requirements assessment process and plan(s) in place to deliver the required training. Evidence that the training programme is part of a wider, co-ordinated asset management activities training and competency programme. Evidence that training activities are recorded and that records are readily available (for both direct and contracted service provider staff) e.g. via organisation wide information system or local records database.

50	Training, awareness and competence	How does the organization ensure that persons under its direct control undertaking asset management related activities have an appropriate level of competence in terms of education, training or experience?	3	Competency requirements are maintained through the ISO9001 system. This highlights competency requirements for each position, regular training requirements, levels of staff competency, and required refresher training dates. All AM staff are trained to generally accepted New Zealand Standards.		A critical success factor for the effective development and implementation of an asset management system is the competence of persons undertaking these activities. organisations should have effective means in place for ensuring the competence of employees to carry out their designated asset management function(s). Where an organisation has contracted service providers undertaking elements of its asset management system then the organisation shall assure itself that the outsourced service provider also has suitable arrangements in place to manage the competencies of its employees. The organisation should ensure that the individual and corporate competencies it requires are in place and actively monitor, develop and maintain an appropriate balance of these competencies.	Managers, supervisors, persons responsible for developing training programmes. Staff responsible for procurement and service agreements. HR staff and those responsible for recruitment.	Evidence of a competency assessment framework that aligns with established frameworks such as the asset management Competencies Requirements Framework (Version 2.0); National Occupational Standards for Management and Leadership; UK Standard for Professional Engineering Competence, Engineering Council, 2005.
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**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
48	Training, awareness and competence	How does the organisation develop plan(s) for the human resources required to undertake asset management activities - including the development and delivery of asset management strategy, process(es), objectives and plan(s)?	The organisation has not recognised the need for assessing human resources requirements to develop and implement its asset management system.	The organisation has recognised the need to assess its human resources requirements and to develop a plan(s). There is limited recognition of the need to align these with the development and implementation of its asset management system.	The organisation has developed a strategic approach to aligning competencies and human resources to the asset management system including the asset management plan but the work is incomplete or has not been consistently implemented.	The organisation can demonstrate that plan(s) are in place and effective in matching competencies and capabilities to the asset management system including the plan for both internal and contracted activities. Plans are reviewed integral to asset management system process(es).	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
49	Training, awareness and competence	How does the organisation identify competency requirements and then plan, provide and record the training necessary to achieve the competencies?	The organisation does not have any means in place to identify competency requirements.	The organisation has recognised the need to identify competency requirements and then plan, provide and record the training necessary to achieve the competencies.	The organisation is the process of identifying competency requirements aligned to the asset management plan(s) and then plan, provide and record appropriate training. It is incomplete or inconsistently applied.	Competency requirements are in place and aligned with asset management plan(s). Plans are in place and effective in providing the training necessary to achieve the competencies. A structured means of recording the competencies achieved is in place.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.

50	Training, awareness and competence	How does the organization ensure that persons under its direct control undertaking asset management related activities have an appropriate level of competence in terms of education, training or experience?	The organization has not recognised the need to assess the competence of person(s) undertaking asset management related activities.	Competency of staff undertaking asset management related activities is not managed or assessed in a structured way, other than formal requirements for legal compliance and safety management.	The organization is in the process of putting in place a means for assessing the competence of person(s) involved in asset management activities including contractors. There are gaps and inconsistencies.	Competency requirements are identified and assessed for all persons carrying out asset management related activities - internal and contracted. Requirements are reviewed and staff reassessed at appropriate intervals aligned to asset management requirements.	<p>The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.</p> <p>The assessor is advised to note in the Evidence section why this is the case and the evidence seen.</p>
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## SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/document Information
53	Communication, participation and consultation	How does the organisation ensure that pertinent asset management information is effectively communicated to and from employees and other stakeholders, including contracted service providers?	3	The issue and acknowledged receipt of the Network Design & Construction Standards ensure asset management information is suitably communicated to AM staff and external contractors. Regular planned meetings between the asset management, contracting and operations staff are held to plan and review annual AM activities.		Widely used AM practice standards require that pertinent asset management information is effectively communicated to and from employees and other stakeholders including contracted service providers. Pertinent information refers to information required in order to effectively and efficiently comply with and deliver asset management strategy, plan(s) and objectives. This will include for example the communication of the asset management policy, asset performance information, and planning information as appropriate to contractors.	Top management and senior management representative(s), employee's representative(s), employee's trade union representative(s); contracted service provider management and employee representative(s); representative(s) from the organisation's Health, Safety and Environmental team. Key stakeholder representative(s).	Asset management policy statement prominently displayed on notice boards, intranet and internet; use of organisation's website for displaying asset performance data; evidence of formal briefings to employees, stakeholders and contracted service providers; evidence of inclusion of asset management issues in team meetings and contracted service provider contract meetings; newsletters, etc.
59	Asset Management System documentation	What documentation has the organisation established to describe the main elements of its asset management system and interactions between them?	3	The MLL AMP provides descriptions of major elements within the MLL AM system. The ISO9001 system provides an overall process map of how these systems inter-relate with one another.		Widely used AM practice standards require an organisation maintain up to date documentation that ensures that its asset management systems (ie, the systems the organisation has in place to meet the standards) can be understood, communicated and operated. (eg, s 4.5 of PAS 55 requires the maintenance of up to date documentation of the asset management system requirements specified throughout s 4 of PAS 55).	The management team that has overall responsibility for asset management. Managers engaged in asset management activities.	The documented information describing the main elements of the asset management system (process(es)) and their interaction.
62	Information management	What has the organisation done to determine what its asset management information system(s) should contain in order to support its asset management system?	3	The recent implementation of EAM asset management software has called for a thorough review of asset management information requirements. This has been performed through regular planning meetings, consultation with AM software development companies, and cleansing of data stored in legacy systems.		Effective asset management requires appropriate information to be available. Widely used AM standards therefore require the organisation to identify the asset management information it requires in order to support its asset management system. Some of the information required may be held by suppliers.  The maintenance and development of asset management information systems is a poorly understood specialist activity that is akin to IT management but different from IT management. This group of questions provides some indications as to whether the capability is available and applied. Note: To be effective, an asset information management system requires the mobilisation of technology, people and process(es) that create, secure, make available and destroy the information required to support the asset management system.	The organisation's strategic planning team. The management team that has overall responsibility for asset management. Information management team. Operations, maintenance and engineering managers	Details of the process the organisation has employed to determine what its asset information system should contain in order to support its asset management system. Evidence that this has been effectively implemented.

63	Information management	How does the organisation maintain its asset management information system(s) and ensure that the data held within it (them) is of the requisite quality and accuracy and is consistent?	3	MLL employ a number of staff whose key responsibility is to manage the collection and processing of asset management data. Asset inspections are performed regularly based on asset class, location and condition. IT systems are in place for the automated population of databases		<p>The response to the questions is progressive. A higher scale cannot be awarded without achieving the requirements of the lower scale.</p> <p>This question explores how the organisation ensures that information management meets widely used AM practice requirements (eg, s 4.4.6 (a), (c) and (d) of PAS 55).</p>	The management team that has overall responsibility for asset management. Users of the organisational information systems.	The asset management information system, together with the policies, procedure(s), improvement initiatives and audits regarding information controls.
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Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
53	Communication, participation and consultation	How does the organisation ensure that pertinent asset management information is effectively communicated to and from employees and other stakeholders, including contracted service providers?	The organisation has not recognised the need to formally communicate any asset management information.	There is evidence that the pertinent asset management information to be shared along with those to share it with is being determined.	The organisation has determined pertinent information and relevant parties. Some effective two way communication is in place but as yet not all relevant parties are clear on their roles and responsibilities with respect to asset management information.	Two way communication is in place between all relevant parties, ensuring that information is effectively communicated to match the requirements of asset management strategy, plan(s) and process(es). Pertinent asset information requirements are regularly reviewed.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
59	Asset Management System documentation	What documentation has the organisation established to describe the main elements of its asset management system and interactions between them?	The organisation has not established documentation that describes the main elements of the asset management system.	The organisation is aware of the need to put documentation in place and is in the process of determining how to document the main elements of its asset management system.	The organisation in the process of documenting its asset management system and has documentation in place that describes some, but not all, of the main elements of its asset management system and their interaction.	The organisation has established documentation that comprehensively describes all the main elements of its asset management system and the interactions between them. The documentation is kept up to date.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
62	Information management	What has the organisation done to determine what its asset management information system(s) should contain in order to support its asset management system?	The organisation has not considered what asset management information is required.	The organisation is aware of the need to determine in a structured manner what its asset information system should contain in order to support its asset management system and is in the process of deciding how to do this.	The organisation has developed a structured process to determine what its asset information system should contain in order to support its asset management system and has commenced implementation of the process.	The organisation has determined what its asset information system should contain in order to support its asset management system. The requirements relate to the whole life cycle and cover information originating from both internal and external sources.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.

63	Information management	How does the organisation maintain its asset management information system(s) and ensure that the data held within it (them) is of the requisite quality and accuracy and is consistent?	There are no formal controls in place or controls are extremely limited in scope and/or effectiveness.	The organisation is aware of the need for effective controls and is in the process of developing an appropriate control process(es).	The organisation has developed a controls that will ensure the data held is of the requisite quality and accuracy and is consistent and is in the process of implementing them.	The organisation has effective controls in place that ensure the data held is of the requisite quality and accuracy and is consistent. The controls are regularly reviewed and improved where necessary.	<p>The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.</p> <p>The assessor is advised to note in the Evidence section why this is the case and the evidence seen.</p>
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Asset Management Standard Applied

PAS55/ISO55001

## SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/document Information
64	Information management	How has the organisation's ensured its asset management information system is relevant to its needs?	3	An in depth review of the asset management information system needs has recently occurred through the implementation of new AM software. All systems used within MLL are typical to those used in other EDBs and have been selected based on their abilities to fulfil the identified needs of MLL. The AMP		Widely used AM standards need not be prescriptive about the form of the asset management information system, but simply require that the asset management information system is appropriate to the organisations needs, can be effectively used and can supply information which is consistent and of the requisite quality and accuracy.	The organisation's strategic planning team. The management team that has overall responsibility for asset management. Information management team. Users of the organisational information systems.	The documented process the organisation employs to ensure its asset management information system aligns with its asset management requirements. Minutes of information systems review meetings involving users.
69	Risk management process(es)	How has the organisation documented process(es) and/or procedure(s) for the identification and assessment of asset and asset management related risks throughout the asset life cycle?	3	Both the AMP and Emergency Preparedness plan develop a risk register and strategies to remove or reduce that risk across the lifecycle of the asset. Asset construction, maintenance and operation practices adhere to internal standards and recognised NZ standards to minimise risk.		Risk management is an important foundation for proactive asset management. Its overall purpose is to understand the cause, effect and likelihood of adverse events occurring, to optimally manage such risks to an acceptable level, and to provide an audit trail for the management of risks. Widely used standards require the organisation to have process(es) and/or procedure(s) in place that set out how the organisation identifies and assesses asset and asset management related risks. The risks have to be considered across the four phases of the asset lifecycle (eg, para 4.3.3 of PAS 55).	The top management team in conjunction with the organisation's senior risk management representatives. There may also be input from the organisation's Safety, Health and Environment team. Staff who carry out risk identification and assessment.	The organisation's risk management framework and/or evidence of specific process(es) and/or procedure(s) that deal with risk control mechanisms. Evidence that the process(es) and/or procedure(s) are implemented across the business and maintained. Evidence of agendas and minutes from risk management meetings. Evidence of feedback in to process(es) and/or procedure(s) as a result of incident investigation(s). Risk registers and assessments.
79	Use and maintenance of asset risk information	How does the organisation ensure that the results of risk assessments provide input into the identification of adequate resources and training and competency needs?	2	Risk treatment/mitigation strategies are developed in the AMP, which in turn determines resources required to perform. This is a key driver in determining the key resources, training and competencies for MLL staff.		Widely used AM standards require that the output from risk assessments are considered and that adequate resource (including staff) and training is identified to match the requirements. It is a further requirement that the effects of the control measures are considered, as there may be implications in resources and training required to achieve other objectives.	Staff responsible for risk assessment and those responsible for developing and approving resource and training plan(s). There may also be input from the organisation's Safety, Health and Environment team.	The organisations risk management framework. The organisation's resourcing plan(s) and training and competency plan(s). The organisation should be able to demonstrate appropriate linkages between the content of resource plan(s) and training and competency plan(s) to the risk assessments and risk control measures that have been developed.
82	Legal and other requirements	What procedure does the organisation have to identify and provide access to its legal, regulatory, statutory and other asset management requirements, and how is requirements incorporated into the asset management system?	3	Top level management staff have regular communication with ComCom, EEA and ENA as well as receiving various publications from consultants. Existing legislation and legislative changes are key drivers in AM planning.		In order for an organisation to comply with its legal, regulatory, statutory and other asset management requirements, the organisation first needs to ensure that it knows what they are (eg, PAS 55 specifies this in s 4.4.8). It is necessary to have systematic and auditable mechanisms in place to identify new and changing requirements. Widely used AM standards also require that requirements are incorporated into the asset management system (e.g. procedure(s) and process(es))	Top management. The organisations regulatory team. The organisation's legal team or advisors. The management team with overall responsibility for the asset management system. The organisation's health and safety team or advisors. The organisation's policy making team.	The organisational processes and procedures for ensuring information of this type is identified, made accessible to those requiring the information and is incorporated into asset management strategy and objectives

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Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
64	Information management	How has the organisation's ensured its asset management information system is relevant to its needs?	The organisation has not considered the need to determine the relevance of its management information system. At present there are major gaps between what the information system provides and the organisations needs.	The organisation understands the need to ensure its asset management information system is relevant to its needs and is determining an appropriate means by which it will achieve this. At present there are significant gaps between what the information system provides and the organisations needs.	The organisation has developed and is implementing a process to ensure its asset management information system is relevant to its needs. Gaps between what the information system provides and the organisations needs have been identified and action is being taken to close them.	The organisation's asset management information system aligns with its asset management requirements. Users can confirm that it is relevant to their needs.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
69	Risk management process(es)	How has the organisation documented process(es) and/or procedure(s) for the identification and assessment of asset and asset management related risks throughout the asset life cycle?	The organisation has not considered the need to document process(es) and/or procedure(s) for the identification and assessment of asset and asset management related risks throughout the asset life cycle.	The organisation is aware of the need to document the management of asset related risk across the asset lifecycle. The organisation has plan(s) to formally document all relevant process(es) and procedure(s) or has already commenced this activity.	The organisation is in the process of documenting the identification and assessment of asset related risk across the asset lifecycle but it is incomplete or there are inconsistencies between approaches and a lack of integration.	Identification and assessment of asset related risk across the asset lifecycle is fully documented. The organisation can demonstrate that appropriate documented mechanisms are integrated across life cycle phases and are being consistently applied.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
79	Use and maintenance of asset risk information	How does the organisation ensure that the results of risk assessments provide input into the identification of adequate resources and training and competency needs?	The organisation has not considered the need to conduct risk assessments.	The organisation is aware of the need to consider the results of risk assessments and effects of risk control measures to provide input into reviews of resources, training and competency needs. Current input is typically ad-hoc and reactive.	The organisation is in the process ensuring that outputs of risk assessment are included in developing requirements for resources and training. The implementation is incomplete and there are gaps and inconsistencies.	Outputs from risk assessments are consistently and systematically used as inputs to develop resources, training and competency requirements. Examples and evidence is available.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
82	Legal and other requirements	What procedure does the organisation have to identify and provide access to its legal, regulatory, statutory and other asset management requirements, and how is requirements incorporated into the asset management system?	The organisation has not considered the need to identify its legal, regulatory, statutory and other asset management requirements.	The organisation identifies some its legal, regulatory, statutory and other asset management requirements, but this is done in an ad-hoc manner in the absence of a procedure.	The organisation has procedure(s) to identify its legal, regulatory, statutory and other asset management requirements, but the information is not kept up to date, inadequate or inconsistently managed.	Evidence exists to demonstrate that the organisation's legal, regulatory, statutory and other asset management requirements are identified and kept up to date. Systematic mechanisms for identifying relevant legal and statutory requirements.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.

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**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/document Information
88	Life Cycle Activities	How does the organisation establish implement and maintain process(es) for the implementation of its asset management plan(s) and control of activities across the creation, acquisition or enhancement of assets. This includes design, modification, procurement, construction and commissioning activities?	3	The Network Design & Construction Standards sets minimum standards for the selection of design concepts, detail design features, selection of materials, and construction. ML Store procurement policies highlight preferred suppliers that have met acceptable standards for specified materials, thus eliminating the risk of non-compliant equipment or components. <i>Business activities such as</i>		Life cycle activities are about the implementation of asset management plan(s) i.e. they are the "doing" phase. They need to be done effectively and well in order for asset management to have any practical meaning. As a consequence, widely used standards (eg, PAS 55 s 4.5.1) require organisations to have in place appropriate process(es) and procedure(s) for the implementation of asset management plan(s) and control of lifecycle activities. This question explores those aspects relevant to asset creation.	Asset managers, design staff, construction staff and project managers from other impacted areas of the business, e.g. Procurement	Documented process(es) and procedure(s) which are relevant to demonstrating the effective management and control of life cycle activities during asset creation, acquisition, enhancement including design, modification, procurement, construction and commissioning.
91	Life Cycle Activities	How does the organisation ensure that process(es) and/or procedure(s) for the implementation of asset management plan(s) and control of activities during maintenance (and inspection) of assets are sufficient to ensure activities are carried out under specified conditions, are consistent with asset management strategy and control cost, risk and performance?	2	Almost all of MLL's maintenance work is performed in-house, in adherence to MLL standards. MLL is in the process of developing a Maintenance Standard which declares the required maintenance periods and maintenance tasks per asset type across its lifecycle.		Having documented process(es) which ensure the asset management plan(s) are implemented in accordance with any specified conditions, in a manner consistent with the asset management policy, strategy and objectives and in such a way that cost, risk and asset system performance are appropriately controlled is critical. They are an essential part of turning intention into action (eg, as required by PAS 55 s 4.5.1).	Asset managers, operations managers, maintenance managers and project managers from other impacted areas of the business	Documented procedure for review. Documented procedure for audit of process delivery. Records of previous audits, improvement actions and documented confirmation that actions have been carried out.
95	Performance and condition monitoring	How does the organisation measure the performance and condition of its assets?	3	Asset performance and condition is monitored through regular inspections and testing (where applicable). This is performed by both ML Contracting and external contractors. Failure of in-service assets is monitored through the control room, with serious failures/faults assessed by engineering staff to identify causes of failure and act accordingly.		Widely used AM standards require that organisations establish implement and maintain procedure(s) to monitor and measure the performance and/or condition of assets and asset systems. They further set out requirements in some detail for reactive and proactive monitoring, and leading/lagging performance indicators together with the monitoring or results to provide input to corrective actions and continual improvement. There is an expectation that performance and condition monitoring will provide input to improving asset management strategy, objectives and plan(s).	A broad cross-section of the people involved in the organisation's asset-related activities from data input to decision-makers, i.e. an end-to end assessment. This should include contactors and other relevant third parties as appropriate.	Functional policy and/or strategy documents for performance or condition monitoring and measurement. The organisation's performance monitoring frameworks, balanced scorecards etc. Evidence of the reviews of any appropriate performance indicators and the action lists resulting from these reviews. Reports and trend analysis using performance and condition information. Evidence of the use of performance and condition information shaping improvements and supporting asset management strategy, objectives and plan(s).

99	Investigation of asset-related failures, incidents and nonconformities	How does the organisation ensure responsibility and the authority for the handling, investigation and mitigation of asset-related failures, incidents and emergency situations and non conformances is clear, unambiguous, understood and communicated?	2	The control room/dispatch staff are the first level of response to an asset related failure, and are responsible for making the situation safe/repair where possible. The AMP declares responsibility for the handling and investigation of asset failures, incidents and emergency situations. These are clearly understood by all AM staff at MLL.		Widely used AM standards require that the organisation establishes implements and maintains process(es) for the handling and investigation of failures incidents and non-conformities for assets and sets down a number of expectations. Specifically this question examines the requirement to define clearly responsibilities and authorities for these activities, and communicate these unambiguously to relevant people including external stakeholders if appropriate.	The organisation's safety and environment management team. The team with overall responsibility for the management of the assets. People who have appointed roles within the asset-related investigation procedure, from those who carry out the investigations to senior management who review the recommendations. Operational controllers responsible for managing the asset base under fault conditions and maintaining services to consumers. Contractors and other third parties as appropriate.	Process(es) and procedure(s) for the handling, investigation and mitigation of asset-related failures, incidents and emergency situations and non conformances. Documentation of assigned responsibilities and authority to employees. Job Descriptions, Audit reports. Common communication systems i.e. all Job Descriptions on Internet etc.
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**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
88	Life Cycle Activities	How does the organisation establish implement and maintain process(es) for the implementation of its asset management plan(s) and control of activities across the creation, acquisition or enhancement of assets. This includes design, modification, procurement, construction and commissioning activities?	The organisation does not have process(es) in place to manage and control the implementation of asset management plan(s) during activities related to asset creation including design, modification, procurement, construction and commissioning.	The organisation is aware of the need to have process(es) and procedure(s) in place to manage and control the implementation of asset management plan(s) during activities related to asset creation including design, modification, procurement, construction and commissioning but currently do not have these in place (note: procedure(s) may exist but they are inconsistent/incomplete).	The organisation is in the process of putting in place process(es) and procedure(s) to manage and control the implementation of asset management plan(s) during activities related to asset creation including design, modification, procurement, construction and commissioning. Gaps and inconsistencies are being addressed.	Effective process(es) and procedure(s) are in place to manage and control the implementation of asset management plan(s) during activities related to asset creation including design, modification, procurement, construction and commissioning.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
91	Life Cycle Activities	How does the organisation ensure that process(es) and/or procedure(s) for the implementation of asset management plan(s) and control of activities during maintenance (and inspection) of assets are sufficient to ensure activities are carried out under specified conditions, are consistent with asset management strategy and control cost, risk and performance?	The organisation does not have process(es)/procedure(s) in place to control or manage the implementation of asset management plan(s) during this life cycle phase.	The organisation is aware of the need to have process(es) and procedure(s) in place to manage and control the implementation of asset management plan(s) during this life cycle phase but currently do not have these in place and/or there is no mechanism for confirming they are effective and where needed modifying them.	The organisation is in the process of putting in place process(es) and procedure(s) to manage and control the implementation of asset management plan(s) during this life cycle phase. They include a process for confirming the process(es)/procedure(s) are effective and if necessary carrying out modifications.	The organisation has in place process(es) and procedure(s) to manage and control the implementation of asset management plan(s) during this life cycle phase. They include a process, which is itself regularly reviewed to ensure it is effective, for confirming the process(es)/ procedure(s) are effective and if necessary carrying out modifications.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
95	Performance and condition monitoring	How does the organisation measure the performance and condition of its assets?	The organisation has not considered how to monitor the performance and condition of its assets.	The organisation recognises the need for monitoring asset performance but has not developed a coherent approach. Measures are incomplete, predominantly reactive and lagging. There is no linkage to asset management objectives.	The organisation is developing coherent asset performance monitoring linked to asset management objectives. Reactive and proactive measures are in place. Use is being made of leading indicators and analysis. Gaps and inconsistencies remain.	Consistent asset performance monitoring linked to asset management objectives is in place and universally used including reactive and proactive measures. Data quality management and review process are appropriate. Evidence of leading indicators and analysis.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.

99	Investigation of asset-related failures, incidents and nonconformities	How does the organisation ensure responsibility and the authority for the handling, investigation and mitigation of asset-related failures, incidents and emergency situations and non conformances is clear, unambiguous, understood and communicated?	The organisation has not considered the need to define the appropriate responsibilities and the authorities.	The organisation understands the requirements and is in the process of determining how to define them.	The organisation are in the process of defining the responsibilities and authorities with evidence. Alternatively there are some gaps or inconsistencies in the identified responsibilities/authorities.	The organisation have defined the appropriate responsibilities and authorities and evidence is available to show that these are applied across the business and kept up to date.	<p>The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.</p> <p>The assessor is advised to note in the Evidence section why this is the case and the evidence seen.</p>
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**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

Question No.	Function	Question	Score	Evidence—Summary	User Guidance	Why	Who	Record/document Information
105	Audit	What has the organisation done to establish procedure(s) for the audit of its asset management system (process(es))?	2	MLL undergoes regular internal and external auditing for all major compliance standards that the company has been accredited with (ISO 9001, ISO 14001, ISO 18001 and NZS 7901) which include AM systems. The SCI is approved by the trust and is a major accountability mechanism.		This question seeks to explore what the organisation has done to comply with the standard practice AM audit requirements (eg, the associated requirements of PAS 55 s 4.6.4 and its linkages to s 4.7).	The management team responsible for its asset management procedure(s). The team with overall responsibility for the management of the assets. Audit teams, together with key staff responsible for asset management. For example, Asset Management Director, Engineering Director. People with responsibility for carrying out risk assessments	The organisation's asset-related audit procedure(s). The organisation's methodology(s) by which it determined the scope and frequency of the audits and the criteria by which it identified the appropriate audit personnel. Audit schedules, reports etc. Evidence of the procedure(s) by which the audit results are presented, together with any subsequent communications. The risk assessment schedule or risk registers.
109	Corrective & Preventative action	How does the organisation instigate appropriate corrective and/or preventive actions to eliminate or prevent the causes of identified poor performance and non conformance?	3	All network faults are managed by the control room, and appropriate measures taken to restore the network to normal as fast as possible. Each fault is investigated to identify the cause of failure and findings are reported to engineering staff. Significant concerns or recurring trends are then investigated further to remove the risk of future failure. Network reliability is a key driver in AM planning.		Having investigated asset related failures, incidents and non-conformances, and taken action to mitigate their consequences, an organisation is required to implement preventative and corrective actions to address root causes. Incident and failure investigations are only useful if appropriate actions are taken as a result to assess changes to a businesses risk profile and ensure that appropriate arrangements are in place should a recurrence of the incident happen. Widely used AM standards also require that necessary changes arising from preventive or corrective action are made to the asset management system.	The management team responsible for its asset management procedure(s). The team with overall responsibility for the management of the assets. Audit and incident investigation teams. Staff responsible for planning and managing corrective and preventive actions.	Analysis records, meeting notes and minutes, modification records. Asset management plan(s), investigation reports, audit reports, improvement programmes and projects. Recorded changes to asset management procedure(s) and process(es). Condition and performance reviews. Maintenance reviews
113	Continual Improvement	How does the organisation achieve continual improvement in the optimal combination of costs, asset related risks and the performance and condition of assets and asset systems across the whole life cycle?	2	Asset performance, associated risk and operational costs are the major considerations during network planning. Attention is given to the maintenance on a condition basis as opposed to time based. Annual customer surveys are performed to ensure network performance is aligned with consumer expectations. Continual improvement is a core element of ISO9001.		Widely used AM standards have requirements to establish, implement and maintain process(es)/procedure(s) for identifying, assessing, prioritising and implementing actions to achieve continual improvement. Specifically there is a requirement to demonstrate continual improvement in optimisation of cost risk and performance/condition of assets across the life cycle. This question explores an organisation's capabilities in this area—looking for systematic improvement mechanisms rather than reviews and audit (which are separately examined).	The top management of the organisation. The manager/team responsible for managing the organisation's asset management system, including its continual improvement. Managers responsible for policy development and implementation.	Records showing systematic exploration of improvement. Evidence of new techniques being explored and implemented. Changes in procedure(s) and process(es) reflecting improved use of optimisation tools/techniques and available information. Evidence of working parties and research.

115	Continual Improvement	How does the organisation seek and acquire knowledge about new asset management related technology and practices, and evaluate their potential benefit to the organisation?	3	AM staff regularly attend industry conferences and tradeshow to witness and review recent industry developments. Subscription to industry publications as well as regular interaction between MLL and other EDBs, assist in acquiring knowledge of improved technology and practices relating to Asset Management.		One important aspect of continual improvement is where an organisation looks beyond its existing boundaries and knowledge base to look at what 'new things are on the market'. These new things can include equipment, process(es), tools, etc. An organisation which does this (eg, by the PAS 55 s 4.6 standards) will be able to demonstrate that it continually seeks to expand its knowledge of all things affecting its asset management approach and capabilities. The organisation will be able to demonstrate that it identifies any such opportunities to improve, evaluates them for suitability to its own organisation and implements them as appropriate. This question explores an organisation's approach to this activity.	The top management of the organisation. The manager/team responsible for managing the organisation's asset management system, including its continual improvement. People who monitor the various items that require monitoring for 'change'. People that implement changes to the organisation's policy, strategy, etc. People within an organisation with responsibility for investigating, evaluating, recommending and implementing new tools and techniques, etc.	Research and development projects and records, benchmarking and participation knowledge exchange professional forums. Evidence of correspondence relating to knowledge acquisition. Examples of change implementation and evaluation of new tools, and techniques linked to asset management strategy and objectives.
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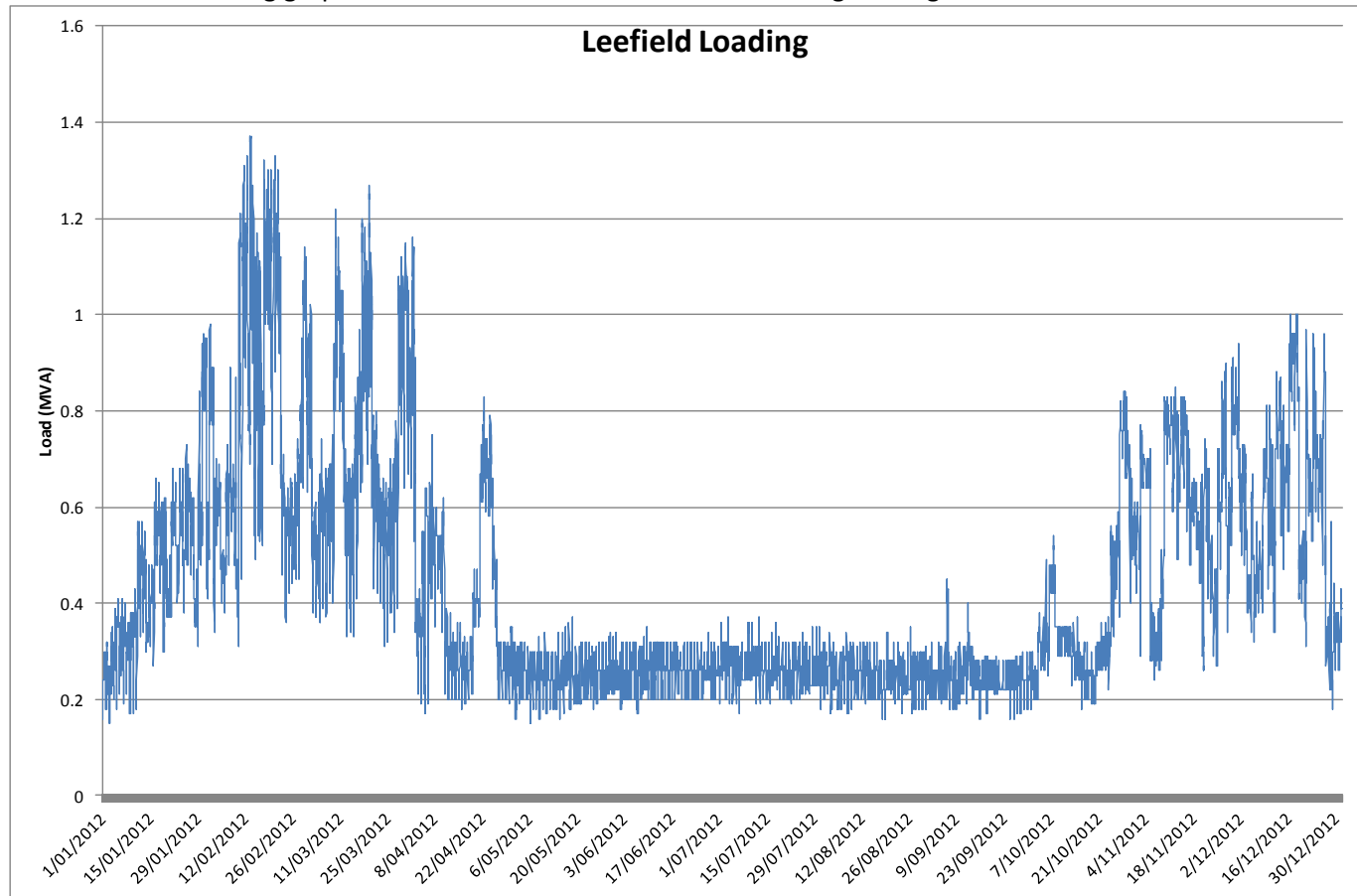
**SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY (cont)**

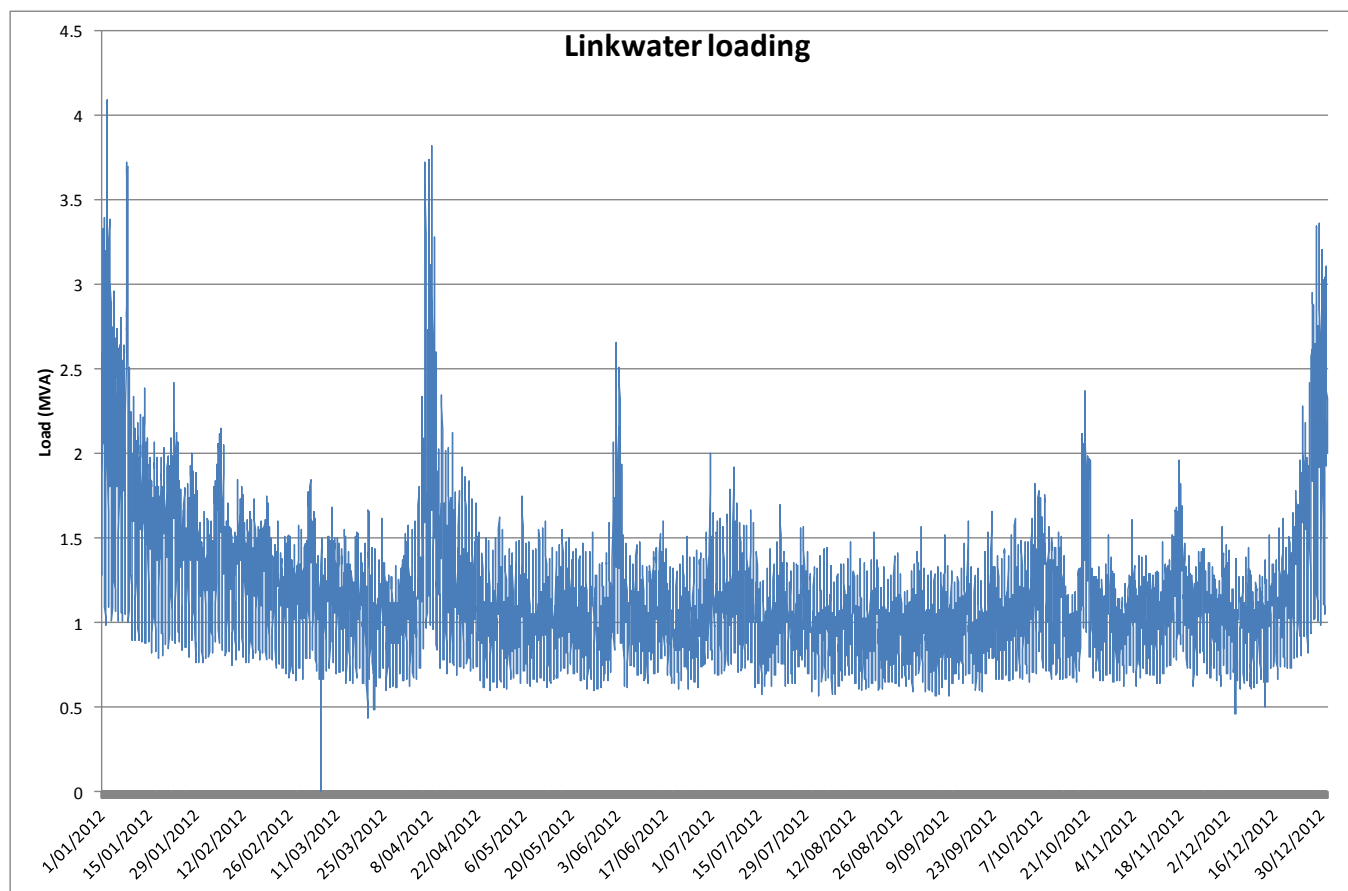
Question No.	Function	Question	Maturity Level 0	Maturity Level 1	Maturity Level 2	Maturity Level 3	Maturity Level 4
105	Audit	What has the organisation done to establish procedure(s) for the audit of its asset management system (process(es))?	The organisation has not recognised the need to establish procedure(s) for the audit of its asset management system.	The organisation understands the need for audit procedure(s) and is determining the appropriate scope, frequency and methodology(s).	The organisation is establishing its audit procedure(s) but they do not yet cover all the appropriate asset-related activities.	The organisation can demonstrate that its audit procedure(s) cover all the appropriate asset-related activities and the associated reporting of audit results. Audits are to an appropriate level of detail and consistently managed.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
109	Corrective & Preventative action	How does the organisation instigate appropriate corrective and/or preventive actions to eliminate or prevent the causes of identified poor performance and non conformance?	The organisation does not recognise the need to have systematic approaches to instigating corrective or preventive actions.	The organisation recognises the need to have systematic approaches to instigating corrective or preventive actions. There is ad-hoc implementation for corrective actions to address failures of assets but not the asset management system.	The need is recognized for systematic instigation of preventive and corrective actions to address root causes of non compliance or incidents identified by investigations, compliance evaluation or audit. It is only partially or inconsistently in place.	Mechanisms are consistently in place and effective for the systematic instigation of preventive and corrective actions to address root causes of non compliance or incidents identified by investigations, compliance evaluation or audit.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.
113	Continual Improvement	How does the organisation achieve continual improvement in the optimal combination of costs, asset related risks and the performance and condition of assets and asset systems across the whole life cycle?	The organisation does not consider continual improvement of these factors to be a requirement, or has not considered the issue.	A Continual Improvement ethos is recognised as beneficial, however it has just been started, and or covers partially the asset drivers.	Continuous improvement process(es) are set out and include consideration of cost risk, performance and condition for assets managed across the whole life cycle but it is not yet being systematically applied.	There is evidence to show that continuous improvement process(es) which include consideration of cost risk, performance and condition for assets managed across the whole life cycle are being systematically applied.	The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.  The assessor is advised to note in the Evidence section why this is the case and the evidence seen.

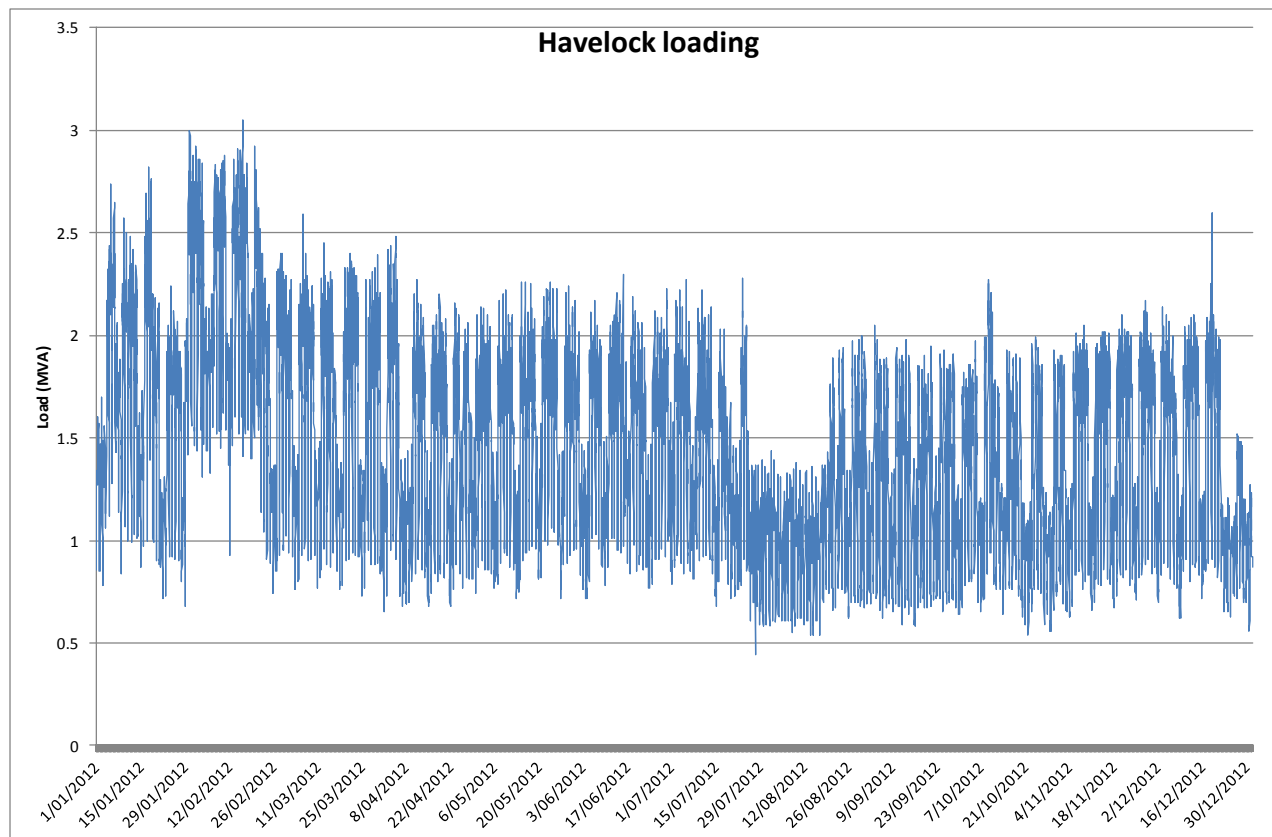
115	Continual Improvement	How does the organisation seek and acquire knowledge about new asset management related technology and practices, and evaluate their potential benefit to the organisation?	The organisation makes no attempt to seek knowledge about new asset management related technology or practices.	The organisation is inward looking, however it recognises that asset management is not sector specific and other sectors have developed good practice and new ideas that could apply. Ad-hoc approach.	The organisation has initiated asset management communication within sector to share and, or identify 'new' to sector asset management practices and seeks to evaluate them.	The organisation actively engages internally and externally with other asset management practitioners, professional bodies and relevant conferences. Actively investigates and evaluates new practices and evolves its asset management activities using appropriate developments.	<p>The organisation's process(es) surpass the standard required to comply with requirements set out in a recognised standard.</p> <p>The assessor is advised to note in the Evidence section why this is the case and the evidence seen.</p>
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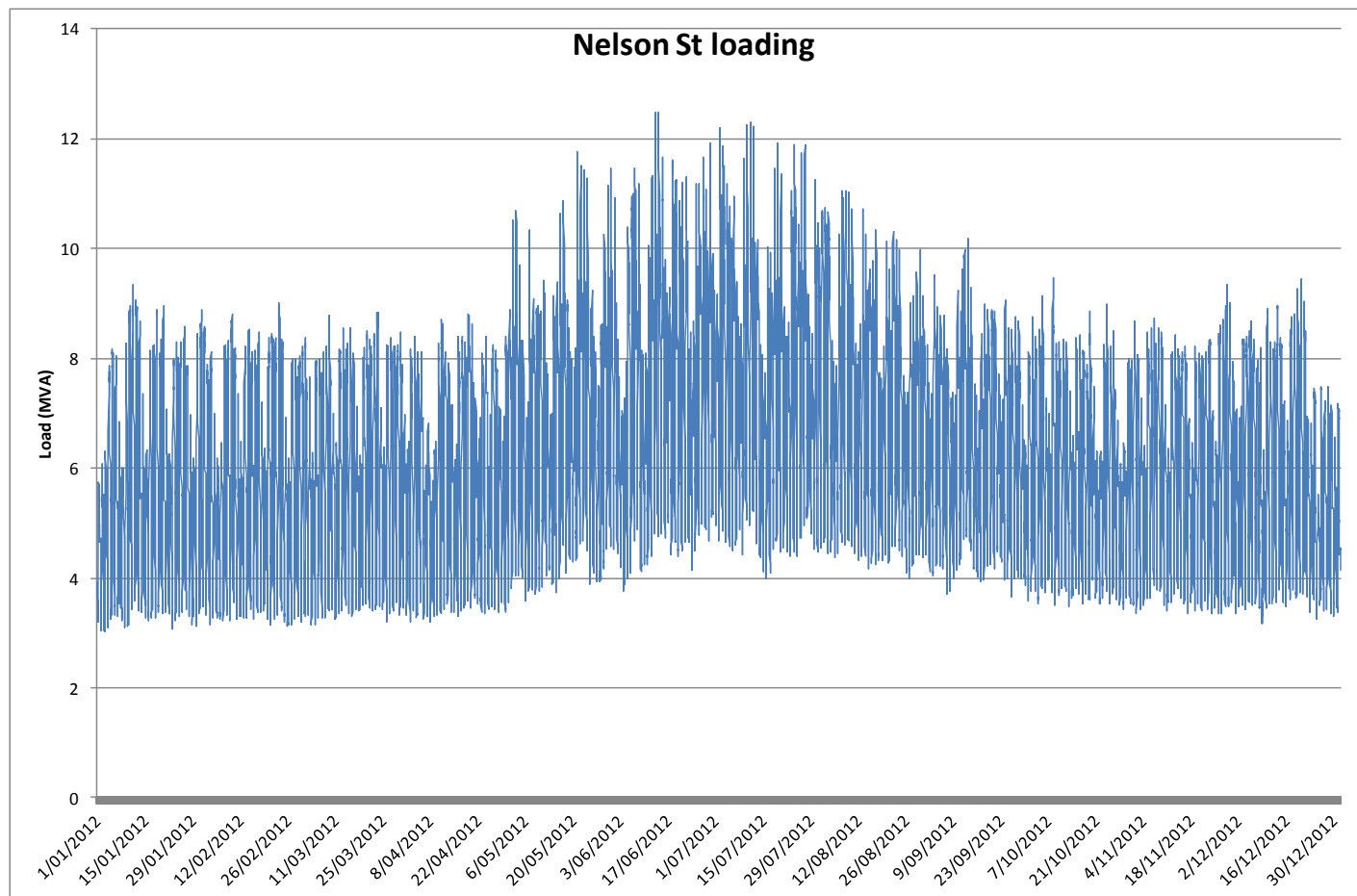
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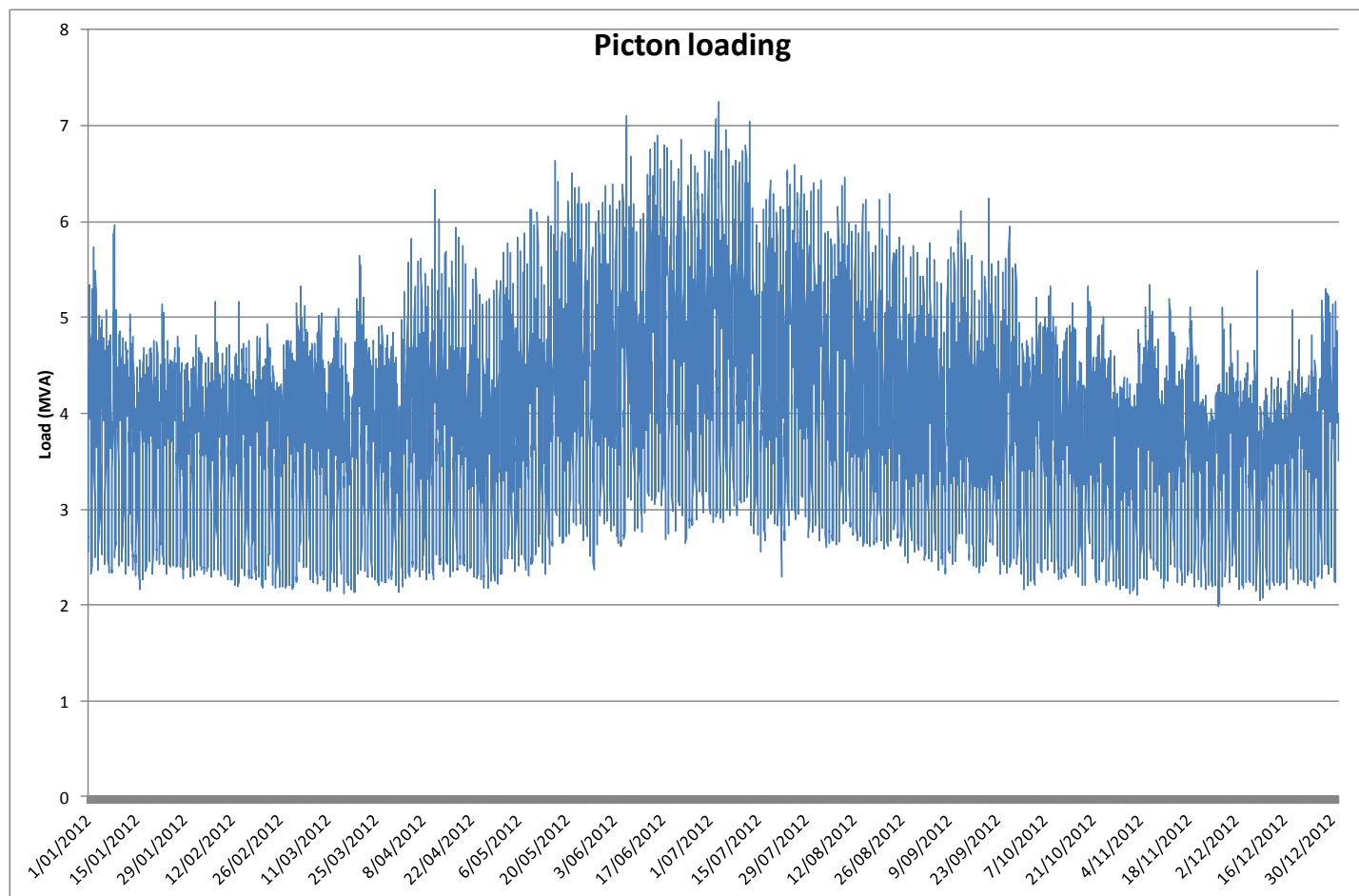
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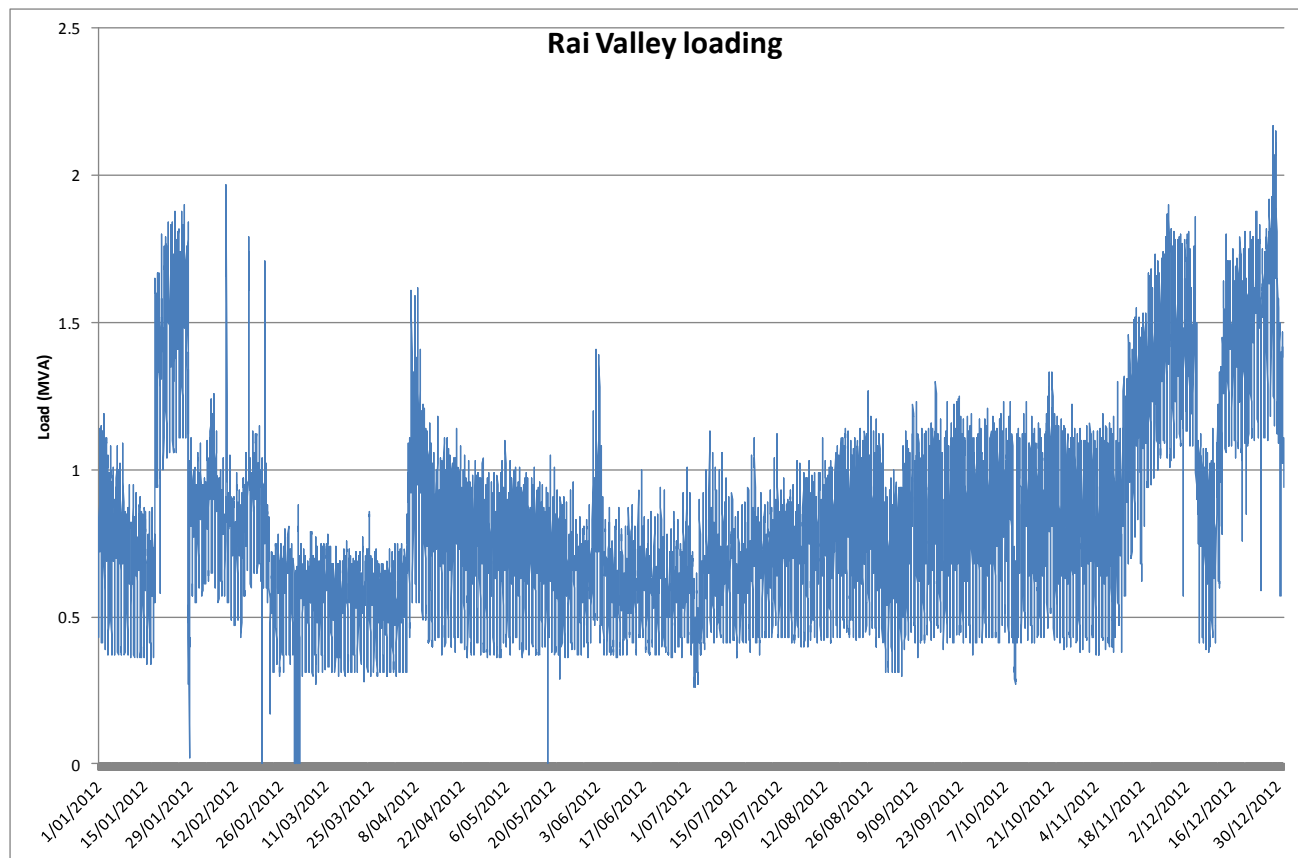




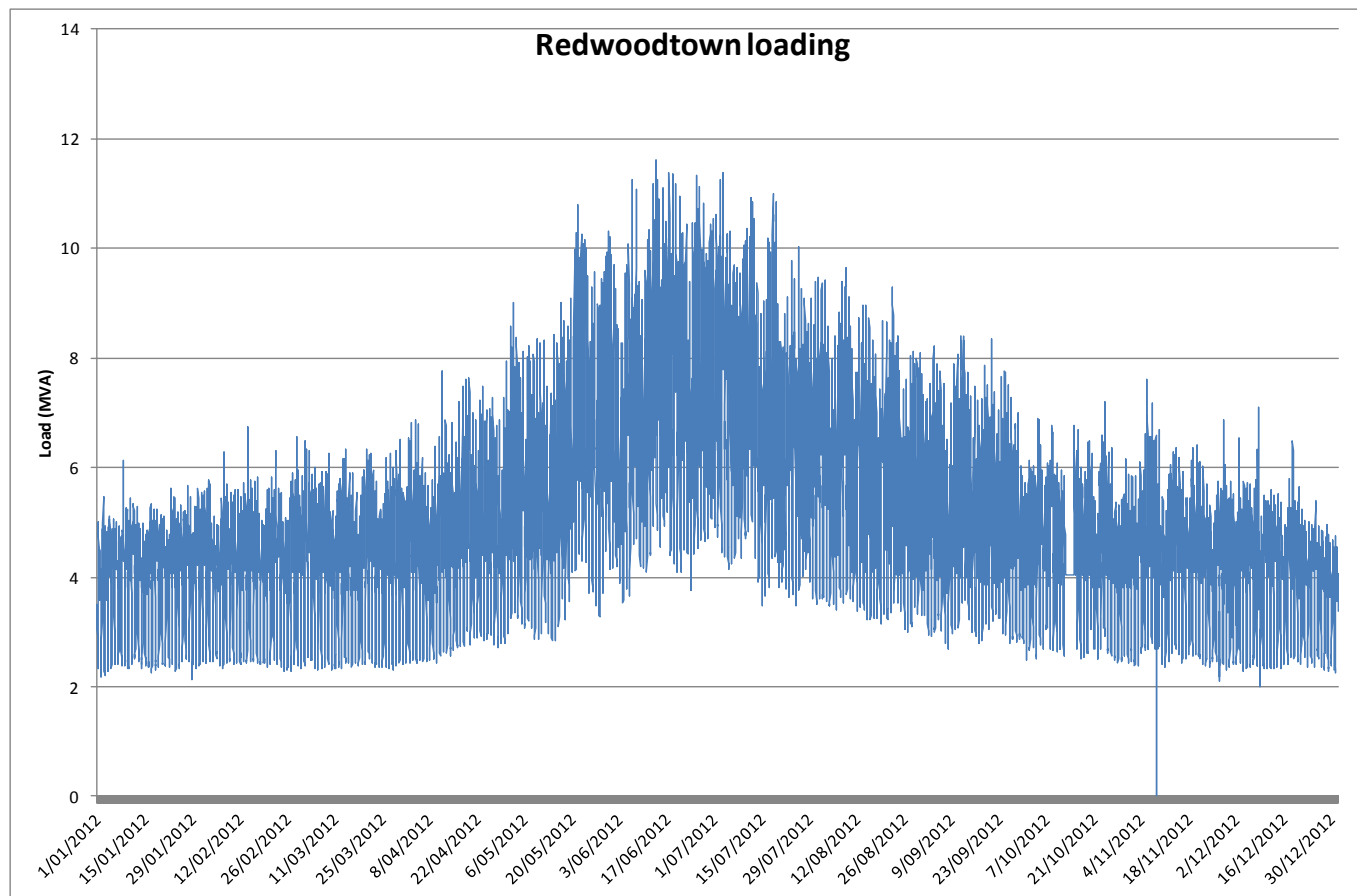


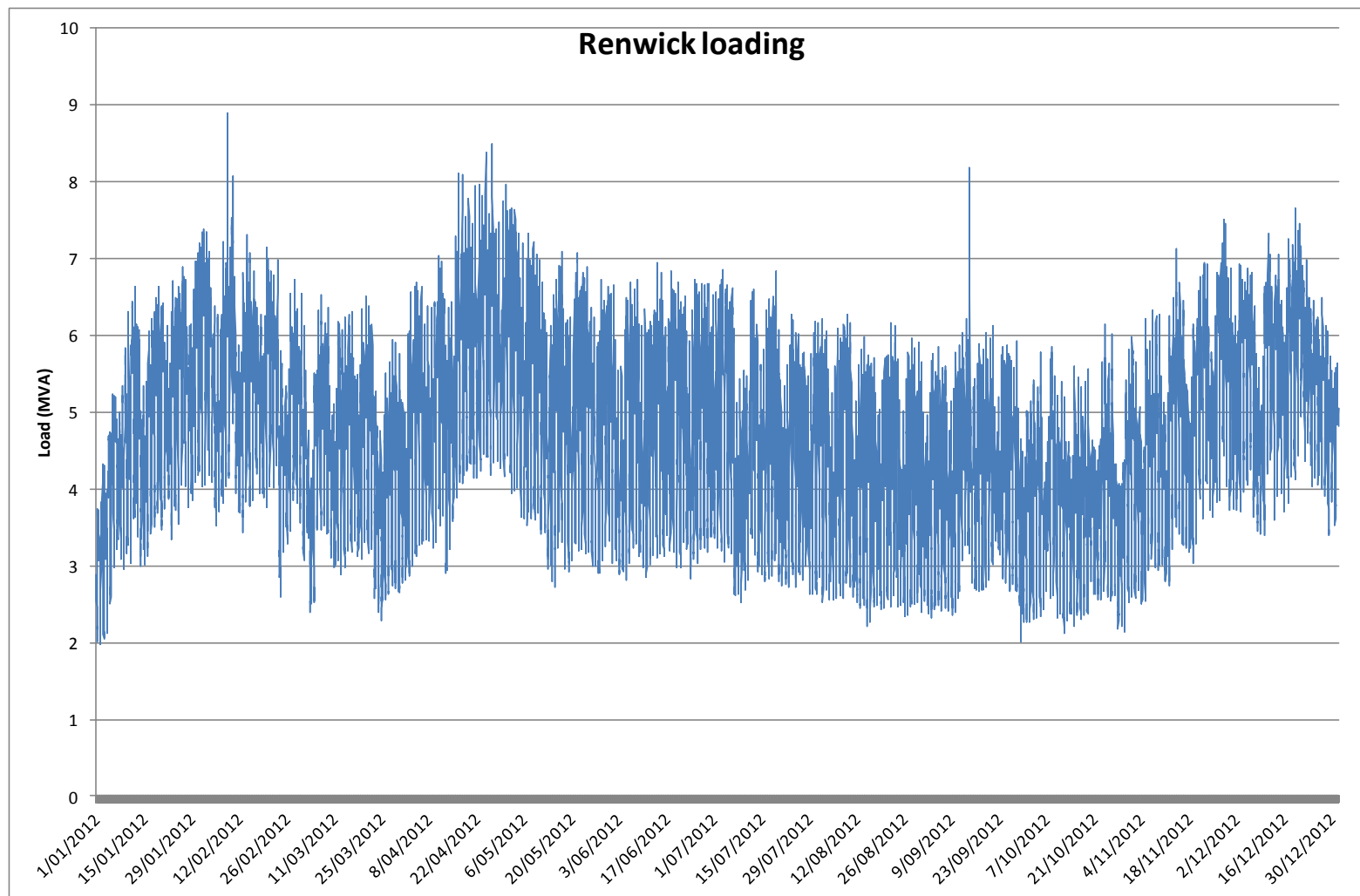


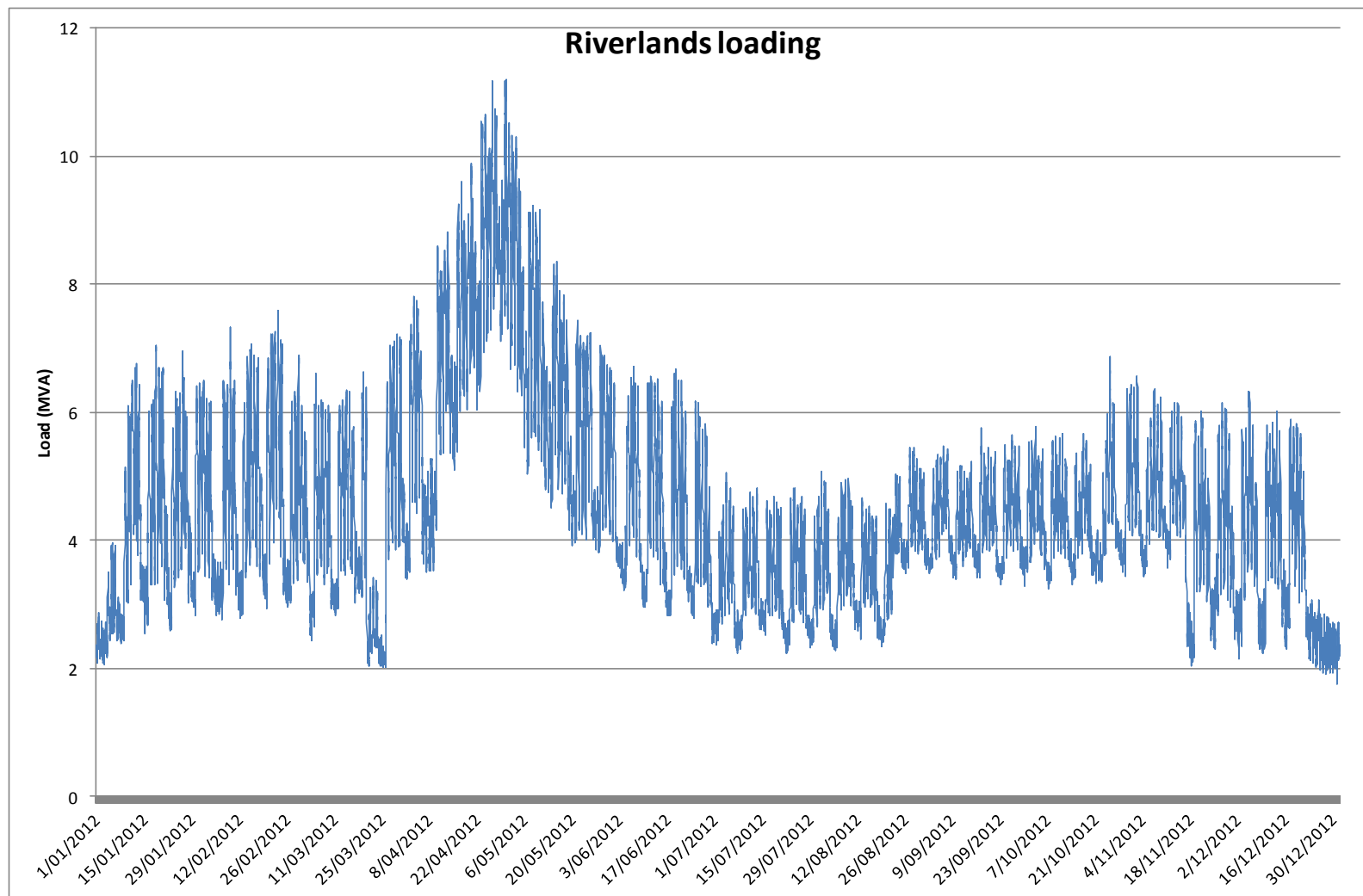


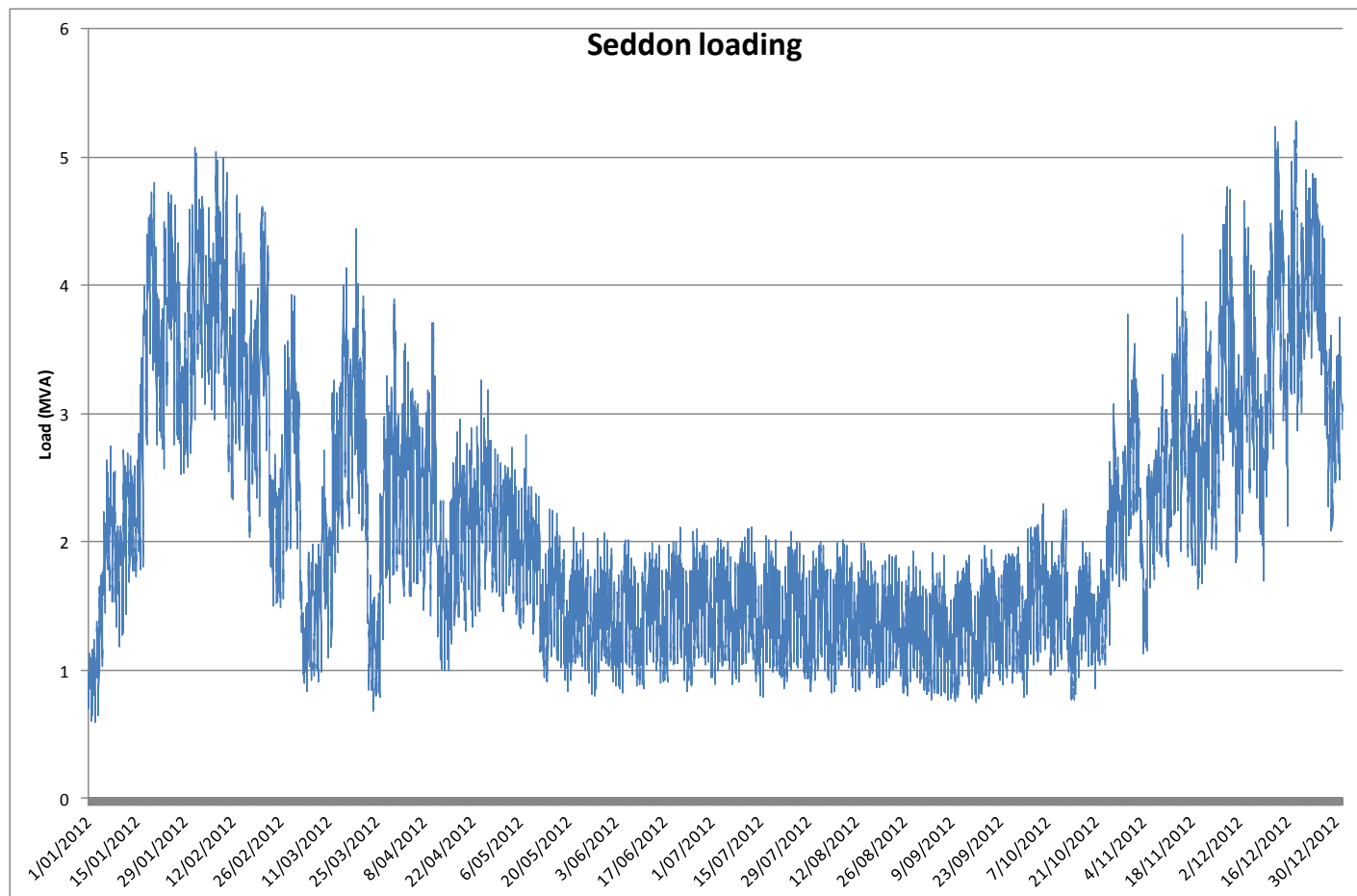


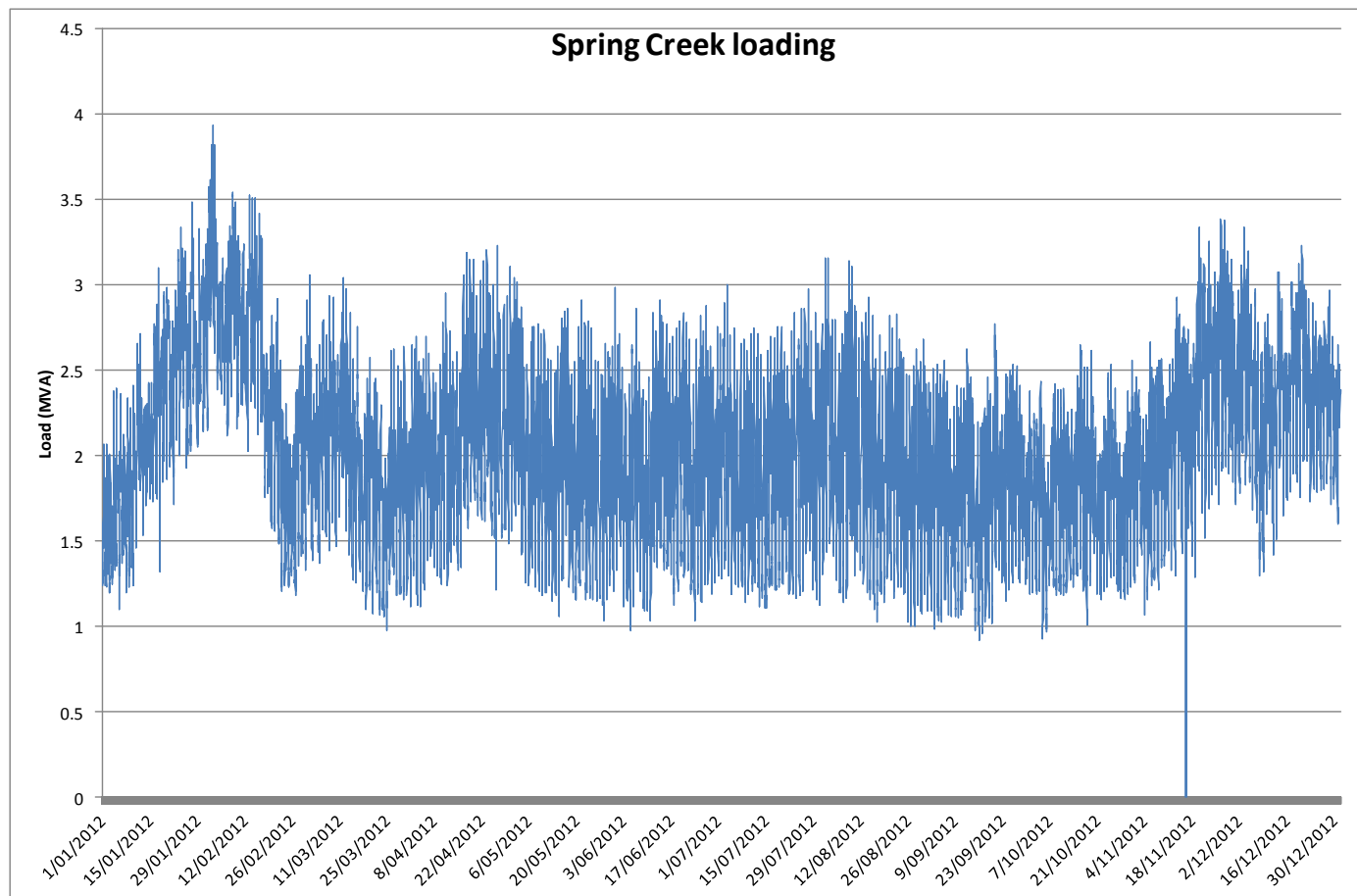


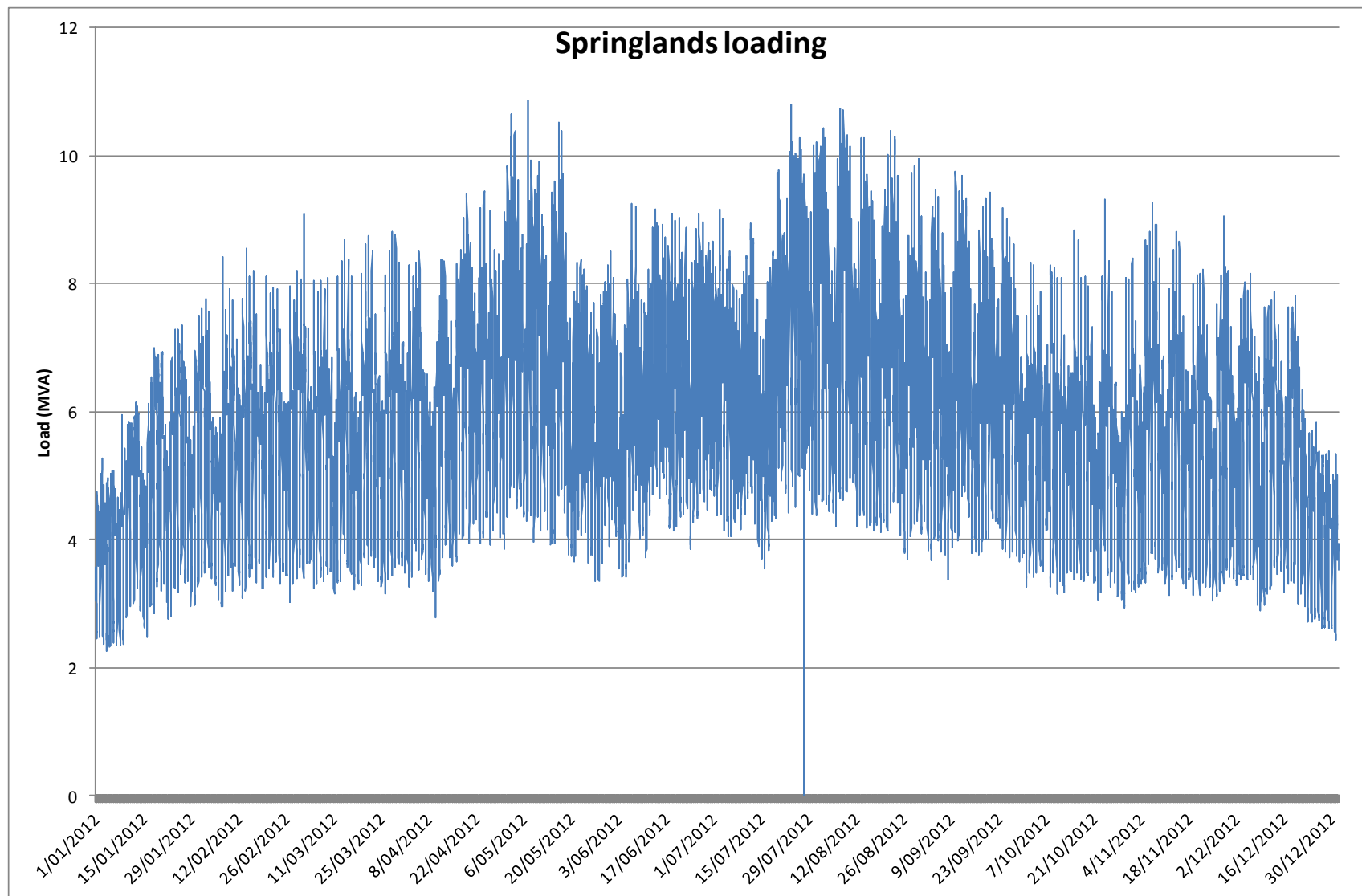


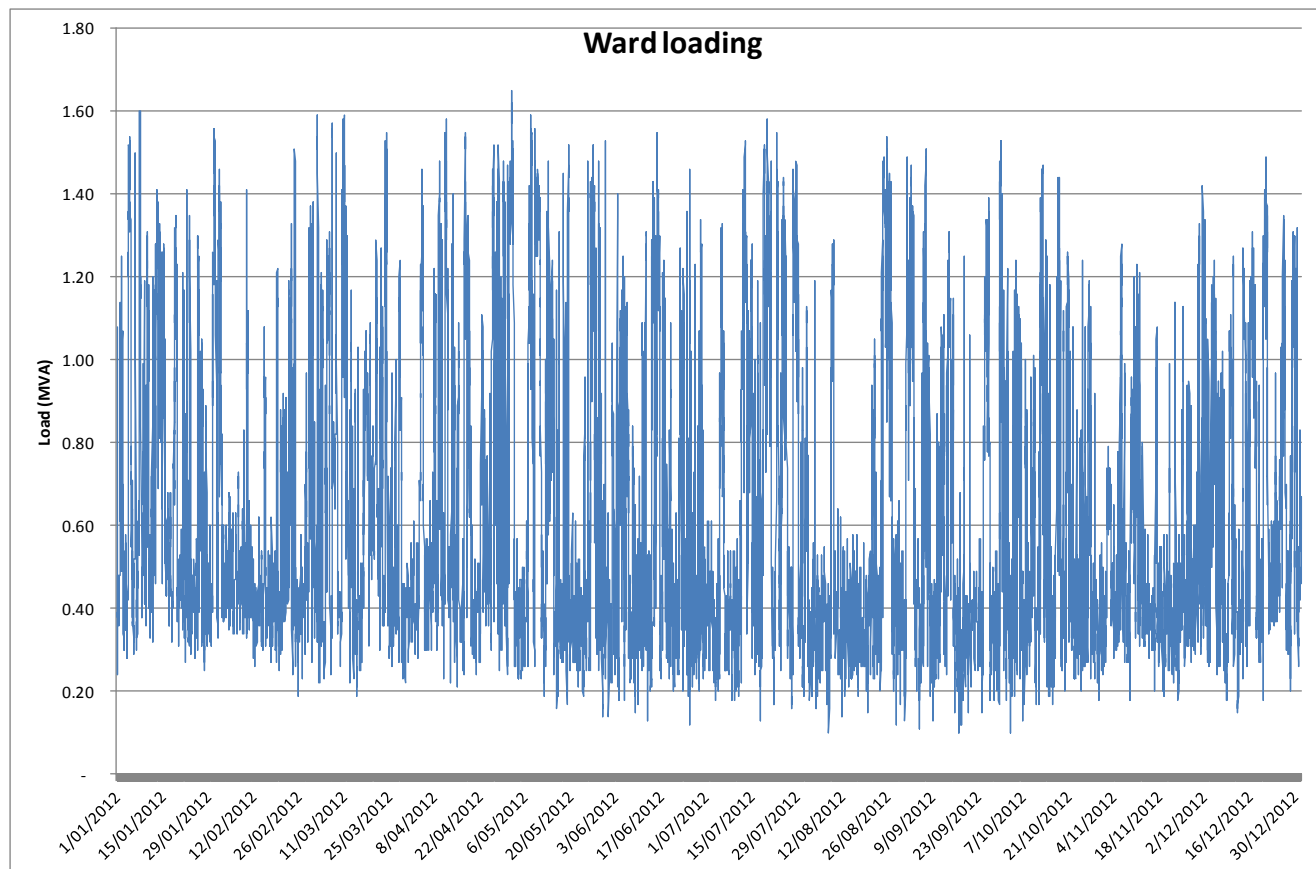


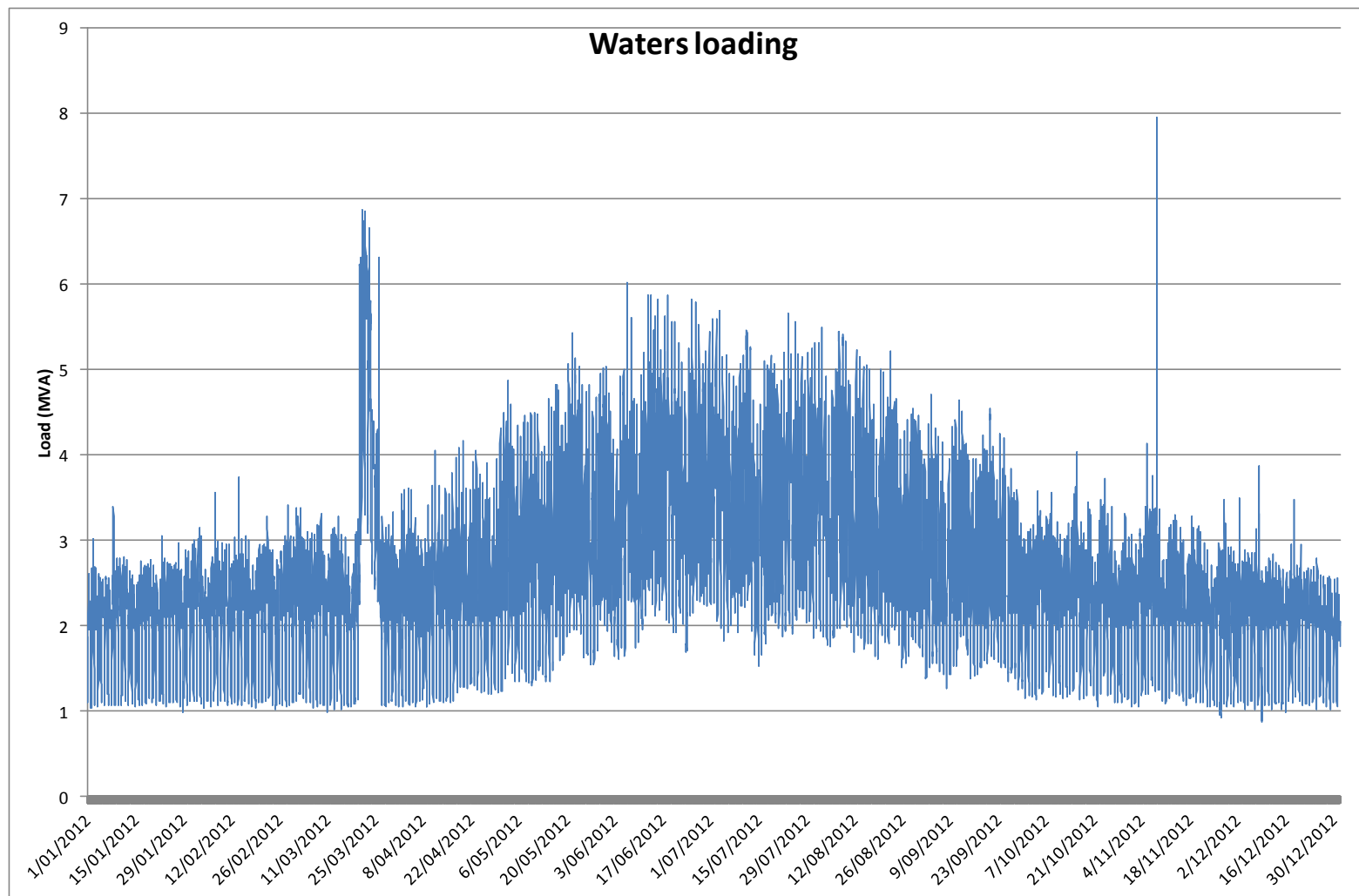




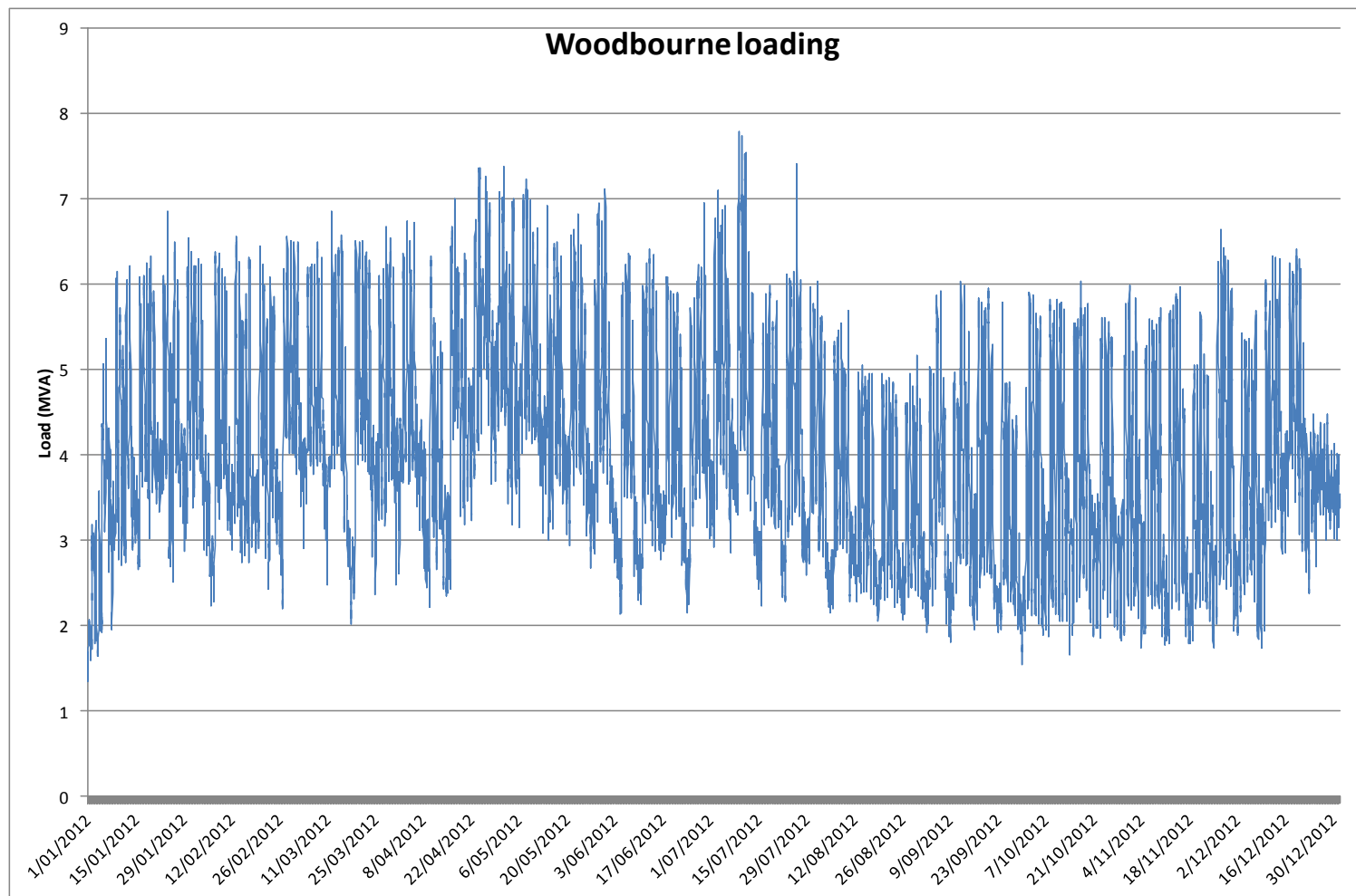












## E General Network Policies

### E.1 Non-asset Solutions

The most appropriate solution for a given problem depends on a variety of factors e.g. cost, benefits, risks and technical appropriateness. In determining whether a non-asset solution is the best option, it is necessary to consider its use in terms of how it relates to our overall objective of operating as a successful business. In general, non-asset solutions are the preferred option where they:

- Are lower than overall cost or provide a better return than the best asset based solution; and
- Provide similar functionality to the asset based solution.

For example, the Kenepuru feeder from Linkwater substation supplies some 1084 installations of which many are bachs with only occasional occupancy. The 11kV feeder is generally lightly loaded, except for a few days each year when the bachs are occupied. In the event of substantial development in this area, there are a number of possible solutions.

The asset based solution is to upgrade part of the main line to 33 kV and install a small package zone substation in the Kenepuru area. There are some substantial costs associated with such a proposal. A possible non-asset solution is to provide each installation with ripple control on its water-heater (traditionally this has not been provided) and create a special channel for this area. This could provide substantial relief as the major loadings occur when bach owners all arrive at the beginning of holiday periods and turn on the heater, the water heater, and cook at the same time. This is common at the beginning of the Easter period. The use of a 'Kenepuru' ripple channel would allow deferment of the capital required for a full upgrade, and as such is likely to be a viable non-asset solution.

The implementation of the new 217Hz ripple injection plant is allowing shedding of controllable load by areas. This, together with the solution proposed above will reduce some of the MD constraints.

Non-asset options broadly fit into two classes:

#### *E.1.1 True Non-asset Solutions*

This class of solutions aims to avoid or defer demand growth through the following means:

- Adopting tariff structures that signal costs to consumers, such as time periods or undesirable asset configurations (e.g. large motors without power factor correction). This can be difficult to implement because retailers may distort pricing information by repackaging line tariffs.
- Using load control to reduce peak demand. Current demand on cold mornings and evenings can exhaust all controllable hot water load. A combination of increasing use of load control combined with an increasing amount of load with little contribution to winter loadings (e.g. wine/dairy industry) has seen the system's maximum demand remain relatively

unchanged for the last few years, despite large increases in installed capacity and substation maximum demands.

- Promoting conservation and efficiency incentives. MLL has a consumer advisory service which advises consumers on energy efficiency e.g. house insulation, hot water temperature settings etc.

#### *E.1.2 Partial Non-asset Solutions*

This class of solutions aims to accommodate demand growth principally through increasing the rating of existing assets, e.g.:

- Installing forced cooling on ONAN transformers.
- Installing additional instrumentation so that assets can be more closely monitored and hence operated closer to maximum ratings.
- Recognising that older equipment often included generous design margins that can be exploited.

## **E.2 Distributed Generation**

MLL recognises that distributed generation potentially provides value in the following ways:

- Reduction of peak demand at Transpower GXP's, with subsequent savings of upstream investment (including generation).
- Reducing the effect of existing network constraints.
- Avoiding investment in additional network capacity.
- Making better use of local primary energy resources thereby avoiding line losses.
- Avoiding the environmental impacts associated with large scale power generation.

However MLL also recognises that distributed generation can have the following undesirable effects:

- Increased fault levels, requiring protection and switchgear upgrades.
- Increased line losses if surplus energy is exported through a network constraint.
- Stranding of assets, or part of an asset's capacity.
- Altering power flows which requires re-setting and recalibration of protection and controls.
- Adding very large point injections at lightly loaded points on the network.

MLL encourages the development of distributed generation that will benefit both the generator and Marlborough. MLL does however note that the requirement to pass avoided transmission costs derived from distributed generation through to connected users is a major disincentive for distributed generation i.e. MLL incurs costs but cannot capture a margin on the benefits arising from those costs.

For further information on the connection of Distributed Generation, please see the Distributed Generation information on our website <http://www.marlboroughlines.co.nz>

### **E.3 Redeployment of Existing Assets**

Assets that are removed from service may be redeployed where it is economic to do so and at least a further 20 years of life is possible. MLL routinely redeploys transformers and switchgear in this manner after they have been refurbished. Thorough inspection, testing and maintenance must be undertaken on all such equipment. The standards required for equipment to be connected to the Network are maintained within MLL' ISO 9001:2000 quality assurance system and the Network standards. Contractors may only install second-hand equipment with specific approval from Network and should provide a minimum of a 10-year guarantee that the equipment is fit for purpose and free from defects.

Assets that are removed from service because they are uneconomic will not generally be redeployed. Assets removed from service because they are unsafe will not be redeployed nor will they be on-sold for further use.

### **E.4 Upgrade of Existing Assets**

MLL requires all upgrades of existing assets to meet approved investment criteria, the principal criteria being that an appropriate commercial return can be achieved for the capital deployed.

If the cost of capital cannot be recovered, there must be other compelling reasons for the upgrade such as public safety or regulatory compliance.

### **E.5 Installation of New Assets**

All extensions or enhancements to the MLL' Network are required to meet approved investment criteria, the principal criteria being that an appropriate commercial return can be achieved.

Where a new extension to the MLL' Network or an enhanced supply is requested by a consumer, then the consumer requesting the extension or enhancement is responsible for the costs of installing the new assets.

MLL may contribute to that investment subject to the following conditions:

- An economic assessment of the likely additional line revenue must demonstrate that MLL's cost of capital can be met.
- The extension or enhancement is built to MLL's technical and engineering standards.
- The extension or enhancement will vest in MLL and the vestor will cease to have any interest in the extension or enhancement. In particular, MLL may connect other consumers to the extension or enhancement at its sole discretion.
- Any necessary easements are completed on MLL' s standard terms and conditions.

## **E.6 Adoption of New Technology**

Unproven Technology will not be used in any location where its reliability might adversely impact on the reliability of supply or reduce safety. The Network will not be used as a test area for unproven technologies.

MLL keeps a close watch on new technologies and best industry practice by reviewing technical publications, membership of industry groups and by active participation in industry initiatives. Where new technologies or work practices, including asset management techniques, can improve operational efficiency, increase performance, reduce costs, improve safety or otherwise provide benefits to MLL or its stakeholders, they will be thoroughly investigated and, if appropriate, adopted.

## **E.7 Disposal of Existing Assets**

MLL reviews the cost benefit of maintenance, environmental effects, safety, reliability and operational improvements before deciding to dismantle, dispose or replace existing assets. Any disposal of materials such as oil or lead will be undertaken by suitably accredited contractors.

## **E.8 Safety**

MLL is committed to providing a safe environment for staff, customers and the public. Minimum standards are set by the relevant legislation: the Electricity Act 1992, the Electricity Regulations 2003, the Health and Safety in Employment Act 1992 and the Health and Safety in Employment regulations 1995.

One key area within the ISO 9001:2000 and ISO 14001:1996 quality and environment systems, is safety. Procedures have been developed to cover hazard management, fire evacuation, oil spill, accidents, and earthquakes. Operational procedures cover additional areas such as Hiab and EPV operation, construction blasting, traffic management and ladder testing.

MLL has been recognised by the Department of Labour as successfully implementing all of the management systems promoted in the Department's Achiever programme. In addition, MLL has now achieved Tertiary level status for the ACC Work Place Safety Management Practices program.

MLL has systems in place to ensure all persons undertaking work on Network assets have appropriate qualifications, training and experience for the work being undertaken. Authorisation Holders Certificates document each person's competencies. All practical steps are taken to provide all employees and all contractors' employees with good, safe working conditions.

## **E.9 Tangata Whenua**

MLL is committed to Te Tiriti o Waitangi/Treaty of Waitangi and recognises the unique role of tangata whenua as kaitiaki of the country's natural environment. Where appropriate, consultation will be held on any matters that affect Maori. In particular MLL recognises the need for consultation on Wahi Tapu sites or areas. MLL has an accidental discovery protocol and recognises the need to safeguard NZ's archaeological sites.

MLL has an ongoing relationship with Marlborough Iwi.

## **E.10 Easements**

To protect the viability of the Network, easements are required in the following circumstances:

- **Relocation of existing assets:** Where a landowner requests that a line or other asset owned by MLL that supplies other customers or crosses other owners property is moved, an easement, of acceptable form to and in favour of MLL is required prior to relocation of the line.
- **New Assets where ownership is to be transferred to MLL:** Where ownership of new assets is to be transferred to MLL, an easement of acceptable form to, and in favour of, MLL is required.

Easements are recommended, but not mandatory where the assets are:

- of the voltage at which the consumer takes supply (generally 230/400V); and
- supply a single installation only; and
- are entirely located on a single title; and
- the landowner is the person responsible for their construction.

Easements must be provided before any future installation can be connected.

MLL monitors subdivision resource consent applications and recommends easements as part of the subdivision. This policy reduces the cost of establishing electricity supply, but does impose some risk on future landowners. Should subdivision occur without easements, it is possible that a future person may require the assets to be removed, thereby removing supply.

**New Subdivisions:** Whenever practical any transformer required to supply the subdivision is installed on a small section that is converted to legal road as part of the subdivision completion. Whenever Network assets are to be located on private land, easements for these are obtained at the developer's cost as part of the final survey of the subdivision.

Where required, easements must be surveyed, signed, and ready for registration before connection to the Network will be allowed.

## **E.11 Capital Repayments**

Where customers wish to connect to recently constructed assets, and where those assets were funded in part or whole by the existing customers, capital repayments to the original customers are due. These vary according to the value of the original works, and the percentage of the original work being used by the new connection. Repayments will be made for up to five years after construction.

The value of the original works is determined by using the ODV handbook published by the Commerce Commission. Repayments are based on the number of parties sharing the assets. A new connection is charged an equal share of the value of the assets and this is distributed to the parties with an interest in the assets.

## **E.12 Sounds Contribution**

As a result of past Government policies and legislation, MLL and its predecessors, Marlborough Electric and the Marlborough Electric Power Board have contributed considerable amounts of capital to establishing and maintaining supply into the Marlborough Sounds. In order to provide MLL with a small return on the capital put into this area, all new connections must pay a connection fee to MLL. In addition to this fee, some new connections require capital repayments to the customers who originally contributed to the cost of installing the works.

## **E.13 Network Enhancement Contribution**

A contribution to the cost of providing the Network may be charged for new connections. The contribution is based on the area, the distance from the 33/11kV substation and the connected capacity.

## **E.14 Mobile Generators**

Marlborough Lines has a number of mobile generators available to reduce interruptions in the Network. At its sole discretion MLL will use mobile generators to provide supply where:

- More than 20 customers can be supplied
- One or more group 4 customer can be supplied
- For hospitals, schools and or/rest homes.

Provided that the load is sufficient to load the generator to more than 15% of its rating and the interruption is 2 hours or longer.

Aside from customers identified above, generators will not be generally supplied to individual customers. Where Marlborough Lines are undertaking work as part of a shutdown, Marlborough Lines will connect and disconnect customer supplied generators, subject to reasonable notice and sufficient information and access being provided.

## **E.15 Live Line Work**

Live Line work assists in reducing interruptions of supply. Within the Network, Live Line techniques have been utilised for:

- Line taps for spur lines and/or transformer connections
- Cross-arm changes
- Bird-spike installation
- Air break switch changing
- Pole changing
- Insulator changing
- Hardware tightening
- Tree cutting

In general, Live Line techniques are more costly than conventional shutdowns, if the costs of non-supply to customers are ignored. MLL uses Live Lines techniques when:

- It is practical and safe to do so (i.e. earth blocks are available and appropriate procedures exist); and
- Costs are less than for a conventional shutdown; or
- More than 100 customer hours would be lost during a shutdown; or
- Major customers would be shutdown.
- It is not practical to use mobile generators.

## **E.16 Maintenance**

Maintenance is undertaken in order to preserve the function of existing assets. When considering maintenance, aspects including safety, capacity, security of supply and reliability are considered. Reviews of the condition assessment information, coupled with fault and reliability data enable maintenance to be directed into areas where maximum benefit can be gained. MLL recognises the legislative requirement to maintain all existing supplies, and appropriate levels of maintenance are provided.

## **E.17 Line Charges**

The current line charging structure is ICP based, under Interposed Use of System Agreements with retailers. With this structure of charges, retailers are billed line charges for individual ICPs connected to the Network.

## **E.18 Access on to Private Property**

MLL's Network has many kilometres of line located on private property. Where the lines were constructed before 1993, MLL is authorised by the Electricity Act 1992 to enter the property to undertake maintenance. Where lines have been constructed after 1993, easements are essential to protect the ability of MLL to provide supply to customers further down the line.

Existing lines can only be upgraded with the consent of the landowner or if the land is not affected. Unfortunately if this is not possible, it may lead to the Network being unable to maintain good supplies and/or accept further expansion in outlying areas.

At all times, MLL is aware of the need to take care when entering private property, to protect the landowner's rights to use and enjoy their properties.

## **E.19 Access to Network**

Retailer Access to the Network is provided via a Use of System Agreement. This is available to any Retailer.

Access for work is available to contractors who hold Authorised Holder Certification for MLL Network. This essentially requires that the contractor is appropriately qualified, has competent staff and appropriate safety systems. Further details on the Authorised Holder Certification system are available from the Operation Manager. Approval is required prior to any work being commenced and notification of all completed works must be given.



## **E.20 22kV Construction**

With the increasing loads in the rural areas and the low marginal cost of using 22kV insulated equipment, the company has introduced a requirement that all new construction to be connected to the 11kV Network in rural areas must be insulated to 22kV levels.

## **E.21 Pole Types**

Due to problems with the quality of timber poles, all new construction must use pre-stressed concrete poles, except where specific conditions exist and approval is obtained from MLL.

## **E.22 Ownership of Assets**

For the ownership and therefore maintenance responsibilities for any new assets to be transferred to MLL, the following must occur:

- The assets must be constructed of suitable materials and in accordance with good industry practice; and
- Easements must be established if required; and
- The contractor must warrant that the work is free from defects and provide suitable guarantees to repair any defects arising from poor workmanship or sub-standard materials that occur within the first ten years after construction.

## **E.23 Overhead or Underground Construction**

Overhead construction is much lower cost than underground construction (typically 1/6 to 1/3 of the cost of underground). Overhead lines tend to have higher maintenance costs, although faults in an underground system can be difficult to locate and expensive to repair. Marlborough District Council District planning requirements require all new construction in the urban areas to be underground. Elsewhere, overhead construction is preferred because of the lower costs.

Most of the central business district in Blenheim, Picton, Renwick and Havelock is reticulated by way of underground cabling. The Company, in conjunction with the Marlborough District Council has converted most of the reticulation on the main roads leading into Blenheim to underground.

Further underground conversions will only be undertaken in areas where the Territorial Authorities require the overhead reticulation to be removed and costs are met. The value restrictions of the ODV valuation criteria are such that the full cost of underground reticulation cannot be included in the ODV. Until this unsatisfactory situation is addressed, further overhead to underground reticulation will not be undertaken.

## **E.24 Stores**

The items held in stock in the MLL Store include, emergency spares for the Network, stock for work due to proceed, and stock for contracting purposes. Items that do not fall into one of these categories are not required to be maintained in the Store and will be scrapped or sold as appropriate.

Operation of the Store adheres to the ISO 9001:2000 quality assurance system. Procedures are in place to control the way products are purchased and stored. The stock is comprehensive and stored in purpose-built, alarmed, secure buildings. The total inventory is recorded within MLL's accounting computer system. This includes programs for purchase, storage and issue of goods, and gives real-time indication of stock status. The system provides for stock-out notification to ensure that products are replaced as needed and to ensure that adequate emergency stock levels are maintained.

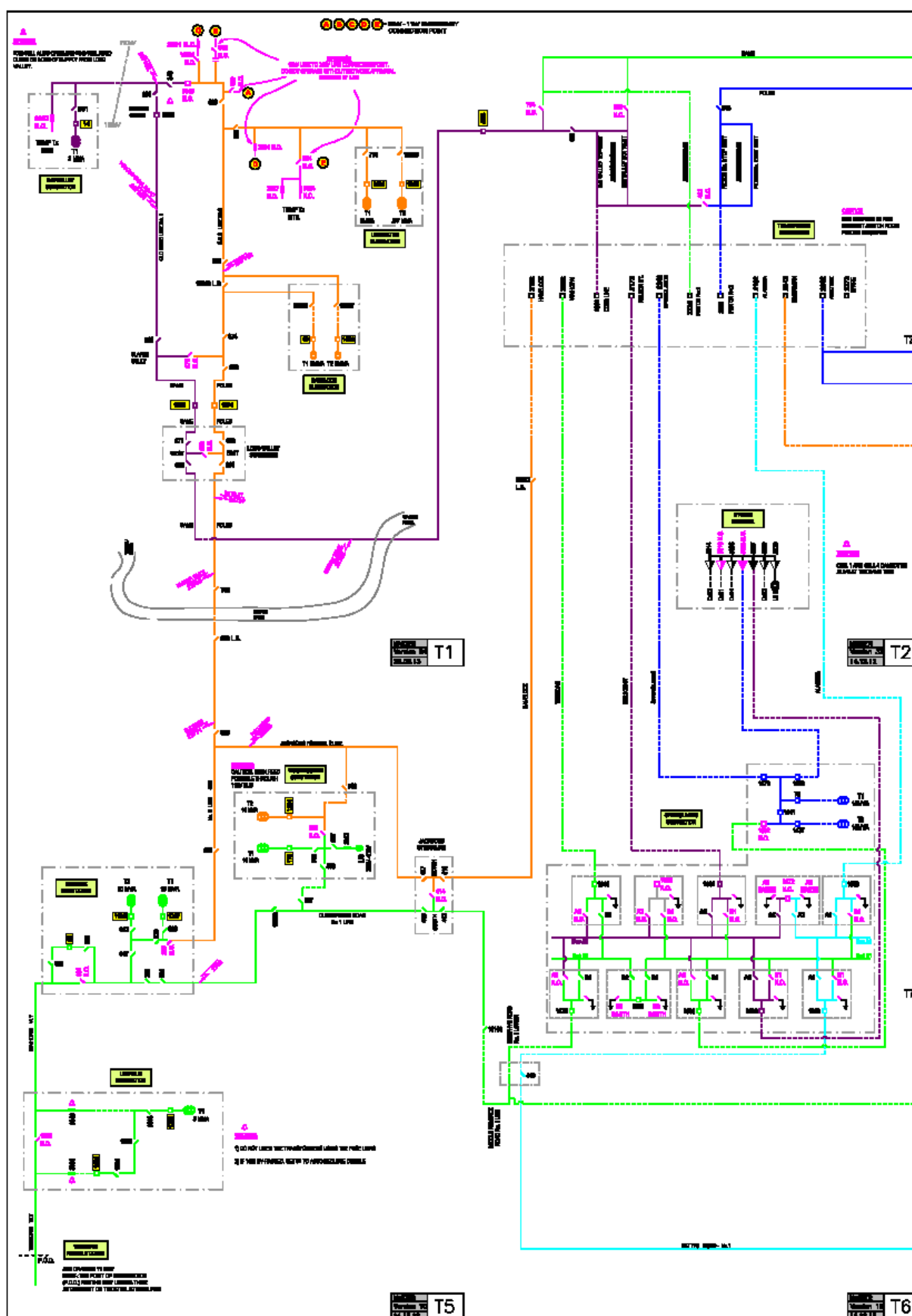
Where appropriate, backup supply of some items has been arranged with key suppliers. For example, concrete poles are held both in our own storage area and with the local manufacturer. The Store is manned during normal working hours and emergency staff have access outside these hours.

Most items contained in the Store stock are laid out in sequential bays with descriptions on each bin and computer inventory numbers. Details such as suppliers and stock movements are recorded in a database to allow quick access to information on the various components used within the Network.

## **E.25 Fault Service**

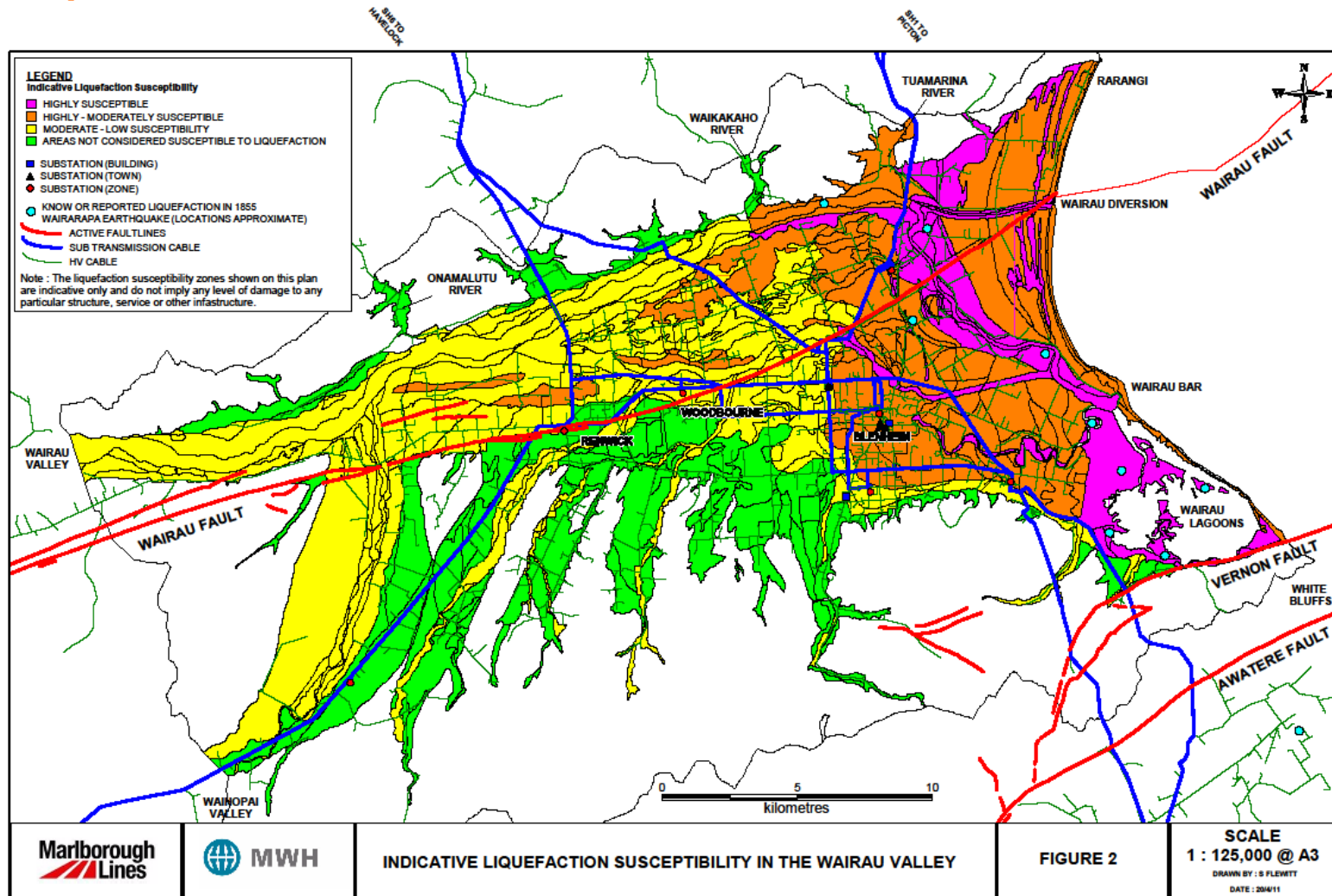
MLL operates a 365 day, 24 hr a day fault service. Repairs to Network equipment are carried out at no cost to affected customers. Where any person damages Network equipment, the full cost of repair will be sought from the person causing the damage. Where repairs are required within the customer's installation, all work is chargeable to the customer.

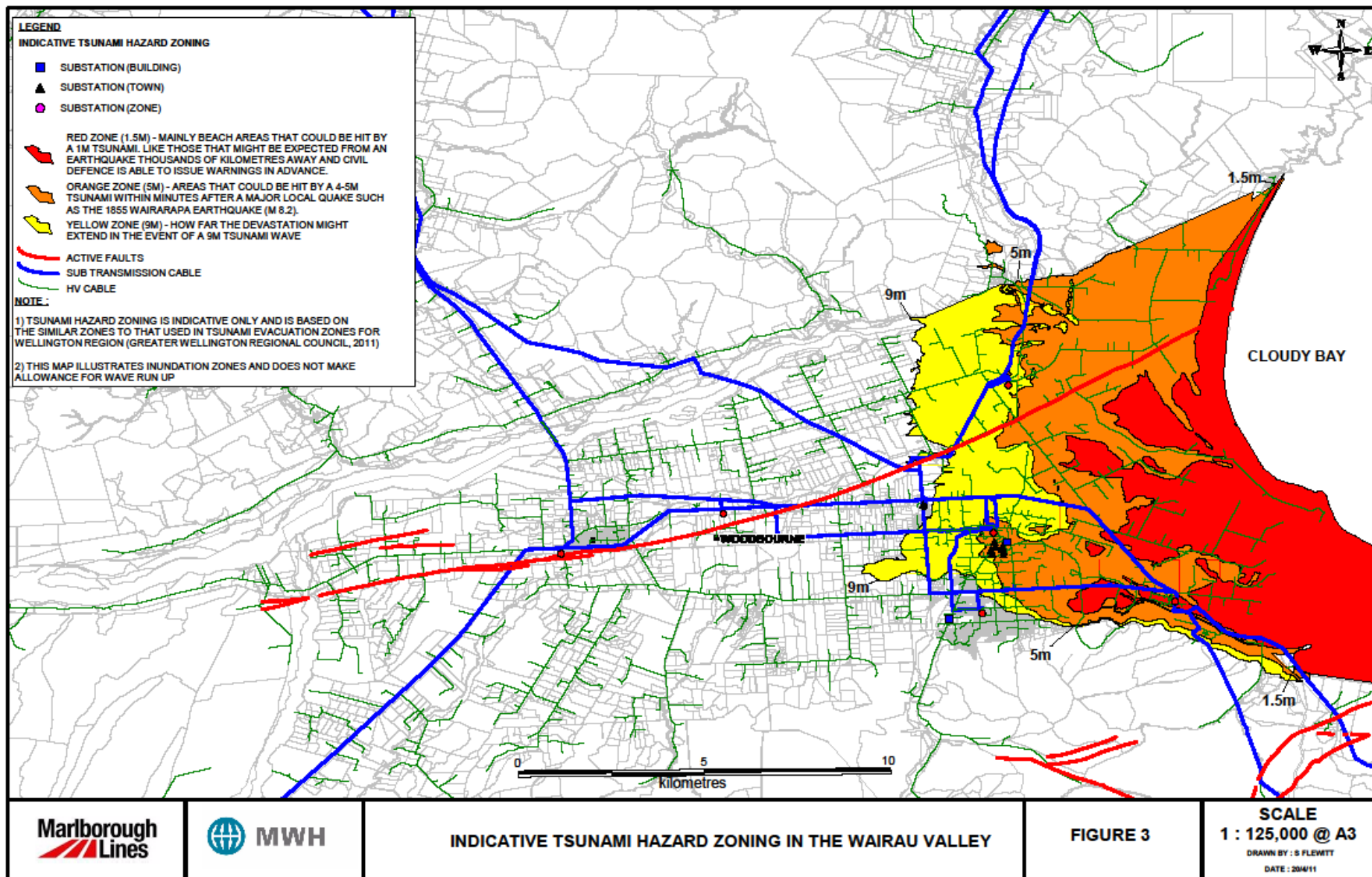
## F Single Line Diagrams





## G Liquefaction and Tsunami Zones





## H Glossary of Terms

<b>AAAC</b>	All aluminium alloy conductor.
<b>ABS</b>	Air Break Switch – used in the 33kV and 11kV Networks.
<b>ACR</b>	Asset Critically, a measure of important of asset for providing service.
<b>AMP</b>	Asset Management Plan.
<b>GAAP</b>	Generally Accepted Accounting Principles.
<b>GIS</b>	Geographic Information System – a way of storing information in a computer such that the location of the equipment is also stored and various maps/views can be produced.
<b>GPS</b>	Global Positioning System. Receivers utilise satellites to accurately locate themselves on the earth's surface. This information is then used to locate items such as power poles.
<b>CAIDI</b>	<p>For the Total of All Interruptions (Customer Average Interruption Duration Index).</p> <p>CAIDI is the average duration of an interruption of supply for consumers who experienced an interruption of supply in the period. The CAIDI for the total of all interruptions is the sum obtained by adding together the interruption duration factors for all interruptions <i>divided by</i> the sum obtained by adding together the number of electricity consumers affected by each of those interruptions.</p> $\text{CAIDI} = \frac{\text{Sum of [No. of Interrupted Consumers x Interruption Duration]}}{\text{Sum of [No. of Interrupted Consumers]}}$ <p><i>in minutes/consumer interrupted</i></p>
<b>CDMA</b>	Data system provided by Telecom, uses Cell Network, MLL uses this for some SCADA communications.
<b>DOC</b>	Department of Conservation.
<b>EPV</b>	Elevating Platform Vehicle – Used in Live Line work and for ease of maintenance on various assets.
<b>GFC</b>	Global Financial Crisis.
<b>GXP</b>	Grid Exit Point, connection between Distribution Network and National Grid.
<b>Hiab</b>	Trade Name for truck mounted hydraulic crane.
<b>kVA</b>	10 <sup>3</sup> VA. Measure of apparent power.
<b>kWh</b>	10 <sup>3</sup> Wh measure of energy.
<b>Live Line</b>	Various techniques for working on the Network with the power on. Procedures range from connection of transformers to complete pole replacement.
<b>MapInfo.</b>	GIS software currently used by MLL.
<b>MDC</b>	Marlborough District Council.
<b>MLL</b>	Marlborough Lines Limited.
<b>MVA</b>	<p>10<sup>6</sup> VA. Measure of apparent power.</p> <p>N level security, any one failure causes loss of supply.</p> <p>N-1 level security, two failures required before loss of supply.</p>
<b>Number of Faults per 100km of Prescribed Voltage</b>	This is a measure of the number of faults in relation to the total length of the network 6.6kV and above. Lower frequency for line related faults, than for a similar line business, would suggest more effective line maintenance, though a very low figure



<b>Line</b>	could indicate over investment.
<b>NZTA</b>	New Zealand Transport Agency.
<b>ODV</b>	Optimised Deprival Value, a method of valuing assets laid down in regulations.
<b>PSTN</b>	Public Switched Telephone Network, i.e. standard telephone system.
<b>Ripple Control</b>	System which uses frequencies >50Hz to transmit information across power system. Mainly used to control water heating/night store loads and street lighting.
<b>SAIDI</b>	<p>For Total of Interruptions (System Average Interruption Duration Index).</p> <p>SAIDI is the average total duration of interruptions of supply that a customer experiences in the period. The SAIDI for the total of interruptions is the sum obtained by adding together the interruption duration factors for all interruptions <i>divided by</i> the total customers.</p> $\text{SAIDI} = \frac{\text{Sum of [No. of Interrupted Consumers x Interruption Duration]}}{\text{Total Number of Connected Consumers}}$ <p><i>in minutes/connected consumer/year</i></p>
<b>SAIFI</b>	<p>For the Total Number of Interruptions (System Average Interruption Frequency Index).</p> <p>SAIFI is the average number of interruptions of supply that a consumer experiences in the period. The SAIFI for the total number of interruptions is the sum obtained by adding together the number of electricity consumers affected by each of those interruptions <i>divided by</i> the total consumers.</p> $\text{SAIFI} = \frac{\text{Sum of [No. of Interrupted Consumers]}}{\text{Total Number of Connected Consumers}}$ <p><i>in interruptions/connected consumer/year</i></p>
<b>SCADA</b>	Supervisory Control and Data Acquisition, computer and communications system to monitor and control equipment in the Network, e.g. circuit breakers.
<b>SCI</b>	Statement of Corporate Intent. Standard NZ Voltages, 230V/400V. Transformers output 240V/415V to allow for voltage reduction along lines/cables.
<b>SWER</b>	Single Wire Earth Return. A system which uses a single wire (compared with two for convectional single phase or three for three phase) to transmit power. MLL uses this system at 11 kV.
<b>TCR</b>	Task Critically, a measure how urgently maintenance or repair is required.
<b>Thermovision</b>	Using infra-red technologies to locate hot spots/faults in Network Assets.
<b>VHF</b>	Very High Frequency, radio frequency used by MLL primarily for voice communications.
<b>WASP</b>	Asset management and works management software from EMS Solutions Ltd.



## I Reader Survey Form

We hope that you have found this document useful and informative. To assist us in refining the document or in reviewing our asset management practices we would welcome your feedback. Please complete any relevant sections of the form below and return it to us:

<b>Name</b>	
<b>Company (if applicable)</b>	
<b>Address</b>	
<b>Phone</b>	
<b>Fax</b>	
<b>Email</b>	

### **Suggestions for improving the report**

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### **Suggestions for improving our asset management practices**

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