
Asset Management Plan Update

APRIL 2015 – MARCH 2025

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ASSET MANAGEMENT PLAN UPDATE 2015

1 Introduction

This Asset Management Plan (AMP) Update has been completed pursuant to clause 2.6.4 of the Electricity Distribution Information Disclosure Determination 2012. It provides details of material changes to sections 2-6 of the AMP disclosed by Aurora Energy Limited in March 2014 and should be read in conjunction with that document.

2 Objectives of the Asset Management Plan (AMP)

The primary purpose of our Asset Management Plan (AMP) is to provide the interested person with a comprehensive overview of how Aurora is going to protect, enhance and operate its electricity distribution network. The AMP is the corner-stone of Aurora's asset management framework and is an important tool for improving our planning, understanding the needs of the business, its owners, its stakeholders and the communities in which Aurora operates.

The secondary purpose of the AMP is to fulfil our regulatory responsibilities under the Electricity Distribution Information Disclosure Determination 2012 (EDIDD 2012). The regulatory purpose of the Asset Management Plan disclosure by Electricity Distribution Businesses (EDB) is covered by clause 2.6.2 of the EDIDD 2012. The focus is:

- provision of sufficient information for an interested person to assess whether assets are being managed for the long term;
- the required level of performance is being delivered;
- costs are efficient;
- performance efficiencies are being achieved and
- to document the basis for the ongoing assessment of asset-related risks.

This AMP Update has been prepared primarily with this second purpose and aimed at:

- Identifying any material changes to the network development plans disclosed in the last AMP;
- Identifying any material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last AMP;
- Providing the reasons for any material changes to the previous disclosures in the Report on Forecast Capital Expenditure and Report on Forecast Operational Expenditure; and
- Identifying any changes to the asset management practices of the EDB that would affect a Schedule 13 Report on Asset Management Maturity disclosure.

2.1 Interpretation of 'material changes' for AMP Update

For the purpose of this AMP Update, material changes referred to in clause 2.6.4 are defined as significant deviations from the 2014 AMP. Significant deviations include:

- Changes to critical processes, the adoption of new technologies and development of IT systems.
- Adding, removing or rescheduling a project is considered material where the value of the change between our AMP 2014-2024 and the current plan is more than \$250k.

3 Risk Management

Aurora Energy is committed to providing a safe reliable network. Since the disclosure of our 2014 AMP we have taken a number of important steps to minimise risk to the community, our employees and our contractors.

3.1 Public and Employee Safety

3.1.1 Vegetation Management

Vegetation in close proximity to power networks has a profound impact on network risk. Trees touching power lines are our most frequent cause of outages as a result of physical impact between the conductor and the vegetation. In such situations, arcing erodes the conductor until its mechanical strength is no longer able to withstand the tension. Vegetation also poses a major hazard by conducting electricity, with the potential to cause injury or death as a result of earth potential rise.

Vegetation was comprehensively assessed (in 2011) for proximity to Aurora's lines using a rating of 0-7, with zero being vegetation that represents an immediate danger to person or property through to a rating of 7 that represents complete removal of vegetation. Substantial effort has been undertaken to identify vegetation issues and prioritise the removal of vegetation. As at February 2015 there are 4,543 condition 0 sites (down from 5,400 disclosed in our last AMP) and nearly 1566 Condition 1 sites (within the growth limit zone).

Safety remains our top priority within our 2015-2025 maintenance plan for vegetation, which sustains a major uplift in tree cutting programmes and improvements in productivity:

- Refinement of the mobile solution developed in 2014 to provide more robust and timely risk assessments.
- Implementation of Improvements to the way vegetation work is planned and assigned; and
- Increased funding of \$453K over the life of the plan to target vegetation growth around distribution substations which has become an emerging issue in Central Otago.

3.1.2 **Protection Upgrades**

In response to a number of incidents on the 6.6kV network where protection systems have failed to clear low fault current faults, a detailed investigation of electrical protection options was conducted to help eliminate or mitigate the risk associated with "conductor down" events. Key actions arising from this investigation included:

- Enabling earth fault monitoring alarms for all telemetered auto-reclosers on the Dunedin network
- Review of settings for feeders where "conductor down" events have not initiated protection trips
- Pilot implementation of sensitive earth fault protection via "arc-sense technology" within SEL relays. This functionality has been enabled on Roxburgh Feeders where modern SEL relays are installed, with projects initiated for priority feeders Port Chalmers 3 and Andersons Bay 9.

In addition to the action above Aurora is exploring other technologies for detection of low earth fault current faults that may have future potential including:

- Distribution Fault Anticipation (DFA), which uses waveform analysis and pattern recognition to analyse distribution system faults
- Utilisation of consumer smart devices, including smart-meters or end of line voltage detection relays, for reliable detection of voltage issues associated with downed conductors.

3.1.3 **Pole Safety**

Work on any poles or pole structures can only be carried out after an assessment has determined that the pole or structure is actually safe to work on. Poles found to be unsafe either as a result of a preclimb test or condition assessment are tagged with a Red "Do Not Climb" tag.

Aurora has recently introduced a Blue "Do Not Operate" tag, providing staff with additional information about non-structural defects that are present on our overhead structures.

3.1.4 **Low Span Line Corrective Maintenance**

New Zealand Electrical Code of Practice 34 (NZECP 34:2001) deals with electrical safe distances including safe distances of conductors from the ground and water. In the last 5 years Aurora has recorded an increasing number of non-compliant line heights which pose a risk of harm to the public.

This plan includes an additional \$1.95m over the life of the plan to inspect and address non-compliant line heights.

3.1.5 **Seismic Works at Zone Substations**

Delta has completed an assessment of the seismic strength of Aurora's substation assets involving the inspection and evaluation of 29 zone substations. The assets vary in age and, as might be expected, the newer assets generally have better seismic strength.

After evaluation of legislative requirements and industry practice, Aurora has adopted Importance Level 3 (IL3) for the seismic design and assessment of substation buildings and equipment. Although unoccupied buildings could be designed for IL2 based on NZS1170, the Civil Defence and Emergency Management Act implies that Lifelines Utilities (such as power distribution companies like Aurora) design to a higher level than for normal structures.

Aurora has also decided to adopt IL3 as a seismic policy for existing general structures and substation equipment. For new construction the marginal cost of adopting IL4, rather than IL3 is minimal and therefore this higher level will be adopted for design of new buildings and for critical structures.

While there has been no material change to our forecast there has been significant refinement of the timing of these works to align them with zone substation refurbishments to minimise disruption and costs.

4 Material Changes to Lifecycle Asset Management Plans

Lifecycle asset management is designed to maximise the economic return on physical assets over their life by achieving desired performance outcomes, while effectively managing the risks inherent in owning, managing and operating a large asset base.

Aurora's lifecycle activities span the following five stages as reflected in Figure 4-1:

1. Planning
2. Creation, acquisition or enhancement
3. Operations and maintenance
4. Repair /Renewal
5. Disposal

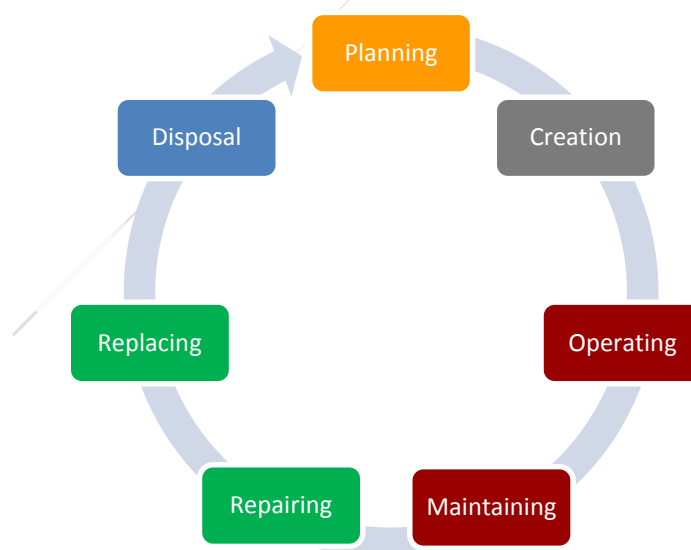


Figure 4-1 Lifecycle Asset Management

Lifecycle management plans for overhead asset structures have changed since the publication of our 2014 AMP with the primary driver being the introduction of new technology.

4.1 Pole Lifecycle Management in 2015/2016 and Beyond

The primary indicators for pole asset health are age and condition. Pole assets are assessed according to a condition rating (0 – 5), where Condition 0 indicates the highest urgency for renewal. Most poor condition poles in the fleet are old hardwood poles (90%) that tend to rot just below ground level, reducing section area to a point where the structure cannot reliably carry design (Condition 1) or normal loads (Condition 0). Analysis of our pole population indicates that 3.75% of our pole fleet is due for imminent replacement based on remaining useful life.

As at the end of February 2015 there were nominally 1,131 condition zero poles and an additional 1,047 Condition 1 poles which require replacement. Aurora is committed to reducing the risks associated with deteriorating pole condition and from 2015/2016 we have altered our lifecycle management plans to incorporate Devar Technology, pole reinforcement techniques and a new mobile solution upon which our condition monitoring platform is implemented.

Pole replacement /reinforcement expenditure has been increased by a further \$3.0M over the first 3 years of the plan.

4.1.1 Devar Technology

An enhanced pole condition monitoring technology for wooden poles was evaluated and selected in 2014 – the Devar MPT40. Devar employs a chain at the pole base plus a portable hydraulic arm that leverages off the chain to apply a mechanical bending moment on the pole approximately 1.5 metres above the ground line. Instruments affixed to the pole record the bending moment during the application and removal of the applied force and provide an objective estimate of remaining life based on an algorithm built into the software.

The introduction of Devar Technology has coincided with the development of a mobile solution to enable more efficient and less subjective structured condition assessment. The overall impact has been a refinement of our condition assessment programme associated with distribution line structures, foundations, conductors and hardware. Combined with the use of the Devar system, these assessments will increasingly provide us with detail in near real time enabling us to optimise the replacement, reinforcement or repair of overhead structures.

Aurora currently has approximately 33,000 wooden poles on the network and our aim is to test 60% of them with the Devar System over the next 5 years in order to inform and optimise our replacement and reinforcement programs.

This planning round allows for an increase of \$458K over the life of the plan to fully incorporate new technologies into our inspection regime.

4.1.2 Pole Reinforcement

Pole reinforcement refers to the practice of reinforcing a pole which has reached its end of life due to below ground deterioration by incorporating a range of vertical beams and connectors to form a new composite pole. This technology will be introduced from 2015/2016.

New Zealand based evidence suggests that pole reinforcement is significantly less expensive than pole replacement and can achieve a life extension of between 10 to 20 years. Our modelling suggested that by combining reinforcing, Devar technology and our mobile platform we can effectively improve the risk profile of the overhead network.

4.1.3 *Treatment of Pole Mounted Distribution Transformers*

It is acknowledged that in addition to inherently higher failure risks, the replacement of poles with transformers mounted on them is more complex, involving either ground mounting the transformer or reinstatement on an overhead structure.

Aurora has approved a design which allows for pole mounted transformers up to and including 200kVA three phase transformers (1020kg) or 200kVA dual ratio three phase transformer (1275kg) to be remounted on a new hardwood timber or pre-stressed concrete pole throughout Dunedin City Council, Central Otago District Council and Queenstown Lakes District Council territories.

Typically the replacement of transformers is based on their condition. However transformers which have previously been mounted on pole and a half or two pole structures will generally require ground mounting.

This plan allows an additional \$2.0M, primarily in years 1-3, for the accelerated replacement of pole mounted transformers as a result of design criteria and the condition of existing support structures.

5 *Material Changes to Network Development Plan*

Our network development plans have changed since the publication of the 2014 AMP. These changes primarily entail the rephasing of projects driven by load growth and the timing of land use consents in the Upper Clutha region.

5.1 **Background**

5.1.1 *Central*

In the early 2000s, the focus in Central Otago was investment in the sub transmission infrastructure around the Queenstown/ Frankton Area and the Wanaka area (urban areas). This consisted of new substations in Queenstown and conversion to 66kV in the Upper Clutha region to meet the growing Wanaka demand. The economic downturn of recent years has slowed growth, with notable point load exceptions (e.g. the new developments at Remarkables Ski Field). Large point loads have a significant impact on the network at a local level.

More recently, rapid irrigation growth in the rural areas of the Upper Clutha (Tarras, Hawea) and more the Manuherikia Valley (Omakau) has dominated forecasts. The resultant increase in summer peak loads has required significant network investment. We have employed a different design philosophy for this growth by installing multiple single transformer 7.5MVA substations with redundancy provided by mobile substations.

5.1.2 *Dunedin*

Growth in the Dunedin area has been minimal. This is due to both economic conditions and increased energy efficiency (e.g. Heat Pumps and more efficient lighting). Population growth is expected to remain relatively static in Dunedin over the next 10-20 years. Growth in electrical demand is therefore expected to average between 0% and 1%, but there may be localised areas where growth will exceed this. Capital expenditure in the Dunedin area will therefore mainly be driven by the replacement of ageing assets and reliability improvements.

The key developments and material changes to our network plans are discussed below.

5.2 Zone Substations

5.2.1 Maungawera

Maungawera substation is running at its maximum capacity as a result of an increase in irrigation load in the area. The use of voltage regulators has allowed load in the area to be supported by Wanaka substation while the new 7.5 MVA Camp Hill Road substation is completed. Delays in the consenting process mean the new substation is now scheduled to be commissioned in early 2015.

5.2.2 Queensberry

As a result of delays in commissioning Camp Hill substation, the network development plan has been adjusted to accelerate the development of a new 7.5MVA zone substation in the Lindis Crossing area. This will also reduce the loading on the Queensberry 3MVA transformer. Fans have now been added to this transformer to increase its rating to 4MVA, and the mobile substation has been installed over the summer period to provide for the shortfall in capacity.

The financial impact associated with Lindis and Camphill projects over the life of the plan is \$4.58M.

5.2.3 Omakau

The electricity demand at the existing Omakau Substation experienced an increase of 11.7% between 2013 and 2014. Using new connection requests as an indicator of load growth it is expected an increase in peak demand of 29.3% will be experienced this year. As an interim measure we have uprated the existing Omakau transformer from 3MVA to 3.6MVA via installation of cooling fans.

We predict that in the summer of 2015/2016 the load that can be reliably supplied by the existing Omakau substation will be exceeded. To ensure electrical supply is maintained to the area, commercial loads will be controlled via a ripple control signal. This will allow peak demands to be managed without negatively impacting existing customers. New commercial connections will have their supply controlled during times of constraint. In the summer of 2015/2016, the mobile substation will be installed during peak load times to reduce loading applied to the existing Omakau transformer. The construction of the new Omakau substation will be advanced into the 2015-2018 period.

The new substation, sub transmission extension and feeder reinforcement surrounding the substation has an impact of \$3.15M over the life of the plan.

5.2.4 Outram

The construction of a new substation at Outram has been deferred until approximately 2018. Recent condition assessments of the Outram transformers and switchgear indicate that they are in better condition than previously thought. Our intention is to utilise the transformer ordered for Outram at Omakau with a resultant \$475K increase in the cost of this project offsetting the saving at Omakau.

5.2.5 Clyde-Earnsclough

Peak loads in the Clyde-Earnsclough area have been somewhat erratic over the last few years. The peak load on this substation has been historically driven by orchard frost fighting. This has reduced slightly over the last few years but more recently the load has increased again with the establishment of the gold-mining operation on Earnsclough Road. This goldmine is now shortly expected to close, which may again cause a drop in the peak load supplied by this substation.

An irrigation proposal (Dairy Creek) on the Clyde side of the river has the potential to significantly increase the load in this area. New substation requirements are heavily dependent on the timing and eventual size of the Dairy Creek irrigation scheme. At this stage the proposed plan for the area is to install a 33kV circuit breaker on T2, and to improve the earthing at this site with some deep drives. This plan anticipates the need for upgrade of the zone substation in 2016/17 at a cost of \$4M.

6 Material Changes to Expenditure Forecasts

6.1 Summary of Forecast changes to OPEX and CAPEX expenditure

The total capital expenditure proposed over the 10 year planning period is expected to rise compared to the 2014 AMP (\$244.6M compared to \$238.1M), with significant increases in growth related expenditure in the early years of the 2015 AMP planning period. Operating expenditure is forecast to increase by \$4.8M to \$127.2M, the majority of which is to improve network reliability. Figures 6-1 to 6-3 provide further information on forecast expenditure increases. Material changes to our forecast are summarised in Table 1 below.

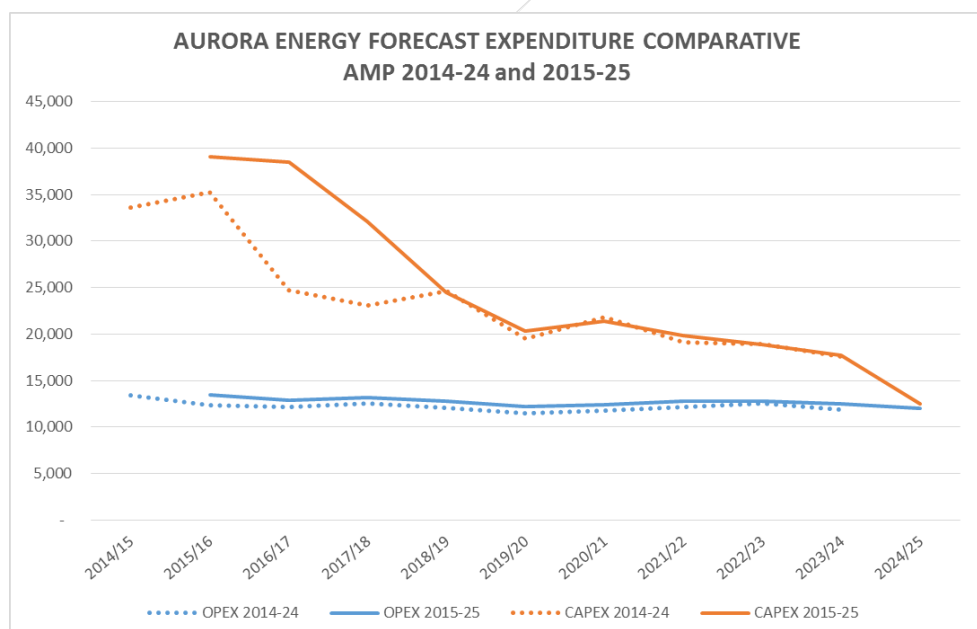


Figure 6-1: Aurora Energy CAPEX and OPEX forecast 2015-2025

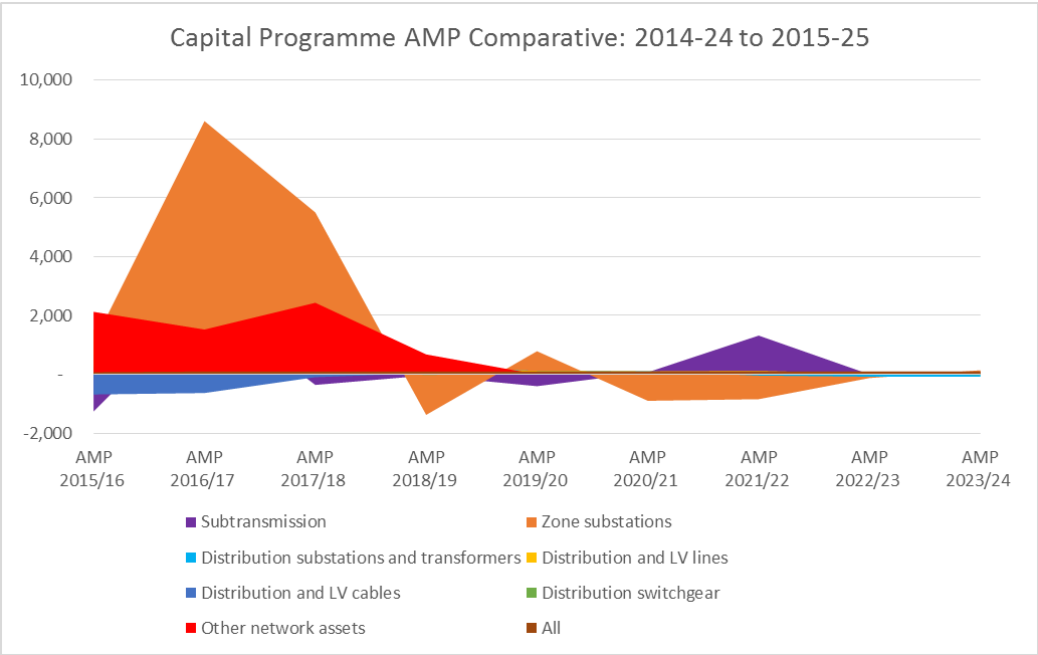


Figure 6-2 Capital Programme Comparative 2014-2024 to 2015-2025

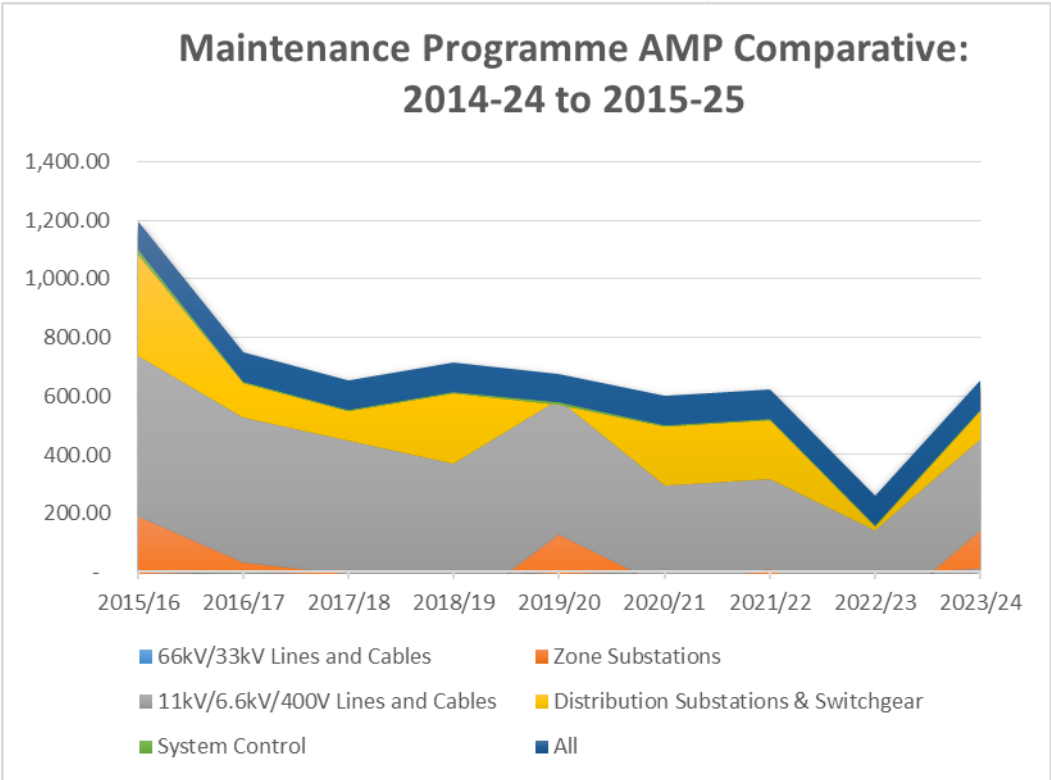


Figure 6-3 Operating Expenditure Programme Comparative 2014-2024 to 2015-2025

6.2 Other Material Changes

6.2.1 *System Control, Communication, Protection (SCCP) Upgrade*

The SCCP system includes equipment to provide monitoring, control, communication, protection and automation functions (also known as secondary assets). Most of these systems are running continuously 7 days, 24 hours and are used for network operation, safety control, equipment protection and decision making.

The SCCP project contains eight sub-projects that include new control room arrangements, new SCADA (supervisory, control and data acquisition) systems incorporating distribution and outage management systems (DMS and OMS), new communication links between control rooms and substations, new RTUs (remote terminal unit) at each substation, new load control equipment, sub transmission circuit protection equipment and direct communication links between Aurora and Transpower through ICCP (inter control communication protocol).

Delays in several elements of the SCCP programme, including finalisation of the contract for the SCADA/ADMS subproject, and the inclusion of all contingent sums (omitted from the previous plan), has resulted in \$6.0M of expenditure moving into the current planning period.

6.2.2 *SCCP Associated Works*

The detailed design of the SCCP project identified a number of associated refurbishment works. These include a project to allow improved connectivity between Transpower and Aurora at the Half Way Bush GXP. This plan incorporates \$1.5M for refurbishment and upgrade work associated with the SCCP project.

6.2.3 *Non Structural Pole Defects*

Other than the poles themselves, a run to failure strategy has effectively been in place for other components of overhead structures to date. As a result, defects associated with the wood or galvanised steel cross arms, insulators and supporting brackets have typically been addressed reactively. Fault statistics and differential failure rates suggest this strategy is no longer appropriate.

As a result of key health and safety and reliability performance drivers, an additional \$2.5M over the life of the plan has been budgeted to proactively address pole top hardware failures. This programme will be supported by the detailed condition assessments enabled by our overhead structure inspection regime.

6.2.4 *Oil Filled Switchgear*

A programme of removal of deteriorating high risk oil filled Ring Main Unit (RMU's) on the network commenced in 2014. The programme has been expanded with five replacements scheduled for next year at an impact of \$560K.

6.2.5 *Overhead to Underground*

The main motivation for the undergrounding of existing overhead lines is to improve the visual appeal of streets. Our stakeholder Territorial Authorities are the appropriate organisations to set priorities and contribute funding for this work.

While underground conversion does have some benefits, including reduced maintenance costs, longer asset life and positive impacts on road safety, it remains expensive when compared to

overhead provision. This plan anticipates a reduction in the appetite for undergrounding in the short to medium term.

The budgeted contribution from Aurora to undergrounding projects has been reduced by \$2.050M over the planning period.

6.2.6 Minor Corrective Maintenance

Corrective maintenance is a task initiated as a result of the observed or measured condition of an asset before or after functional failure. Corrective maintenance can be carried out in response to an unplanned instantaneous event, an incident that impairs the normal operation of network assets or as part of our planned program of work. Dealing to minor corrective maintenance issues in a timely manner is a proven strategy for improving network reliability and improving staff morale.

The extent to which maintenance provisions have adequately catered for unplanned instantaneous events that cause interruptions to supply was reviewed in 2014. As a result, this AMP update provides a further \$2M to proactively address minor corrective maintenance, offset by a reduction of \$1M in expected reactive fault costs over the life of the plan.

6.2.7 Earth Testing

Improvement in earth testing procedures has enabled a more comprehensive programme of works to be compiled from 2015 onwards. Provisions for increased test coverage in the early part of the plan has a resultant impact of \$409K.

6.2.8 Underground Substation Inspections

Previous programmes to monitor underground substations have relied on external contractors in a desire to minimise the number of people exposed to these confined spaces. The AMP 2015-2025 includes an allowance of \$1M over the period of the plan to perform quarterly inspections and undertake Dissolved Gases Analysis (DGA) of the transformers at critical central business district (CBD) underground substations.

6.2.9 Underground Substation Inspections

Previous programmes to monitor underground substations have relied on external contractors in a desire to minimise the number of people exposed to these confined spaces. The AMP 2015-2025 includes an allowance of \$1M over the period of the plan to perform quarterly inspections and undertake Dissolved Gases Analysis (DGA) of the transformers at critical central business district (CBD) underground substations.

Table 1: Material Changes to Capital Expenditure Forecasts

Project Number	Title	Reason for Change	Impact in 2015/2016 \$000	Impact over life of plan \$000
System Growth				
6184	Clyde Earnscleugh Substation	Uplift in load growth expected from 2017 in support of Dairy Creek development over and above baseline projected demand growth.	0	4,000
6032	Omakau Zone Substation	Load growth has been quicker than expected and this plan reflects changes in scope to develop a new zone substation site for Omakau including 11kV feeder changes and a 33kV sub transmission extension.	3,866	3,154
4864/4213	Lindis Crossing Zone Substation	Accelerated program of work for completion in 2014/2015 which is offset by increases in Camp Hill.	(701)	(701)
4865/4161	Camp Hill Substation Build	Increase reflects the deferral of expenditure from 2014/2015 and price increases relating changes to land purchase and designations, civil and electrical contracting. Deferral or expenditure relates to delays in obtaining consent.	4,066	5,282
3016/3022	Riverbank Road Switching Station and associated works	Increase driven in part by contingency added to original project plan totalling \$622k as well as change in scope following detailed engineering assessment.	(2,588)	1,139
5333	Remove London Street Statter Switchgear and Create Intertie	Driven by Otago University load growth in the vicinity of Frederick Street.	309	412
3048	Create 66kV Switching Station at Queensberry	Updated scope relating to other works in the area.		(375)
3019	Arrowtown Zone Substation	Installation of larger transformers to accommodate growth which has exceeded the planned maximum capacity.	155	820

SECTIONS 2-6



Project Number	Title	Reason for Change	Impact in 2015/2016 \$000	Impact over life of plan \$000
Asset Replacement and Renewal				
6000	Pole replacement /reinforcement	Acknowledges the need to reduce the strategic risk posed by deteriorating pole condition substantially quicker than last year's plan.	1,000	3,000
3031	Ground Mounting of Pole Distribution Substations	Accelerated replacement associated with the removal of Condition 0 poles.	563	2,012
5123	Neville Street 33kV Gas Filled Cables	Updated cost following advice on revised cable routes, completion of detailed design and consideration of night works and traffic management.	(61)	813
3211	Replace Pacific Fuses in Central	Replacement of aging assets.	0	255
3053	Alexandra 33kV Line Breakers	Replacement of aging assets.	234	297
6029	Green Island Substation Rebuild	Rephasing and scope.	0	(625)
6030	Mosgiel ZS Transformer Replacement	Rephasing and scope.	0	(500)
4179	Outram Zone Substation	The transformer planned for Outram has been redirected to Omakau to minimise cost and delays.	(2,625)	475
	SCCP (Projects 1-8)	Deferred expenditure from prior years due to delay in signing the contract and inclusion of the Board-approved contingency which was not included in the previous plan.	1,872	6,003
	SCCP Associated Works	Allow improved connectivity between Transpower and Aurora at the Half Way Bush GXP.	0	1,550
6180	Minor Corrective Maintenance	Establishment of a program as a result of an improved understanding of the issues on the network and the impact they have on reliability. Funds will enable timely resolution of ICAM investigation actions (e.g. replacement of a specific Earth Fault Detector).	75	1,000

SECTIONS 2-6



Project Number	Title	Reason for Change	Impact in 2015/2016 \$000	Impact over life of plan \$000
Asset Relocations				
	Overhead to Under Ground	Anticipated decrease in related party funding.	(535)	(2,050)
Reliability, Safety, Environment				
5264	Replacement of Oil-Filled Switchgear	Acceleration of the program which increases the number of replacement from 2 to 5. An increasing number of the oil-filled RMU switchgear is aging and showing an associated deterioration in condition.	210	560
3428	Install New HV Feeder in Cromwell to Leitrum Street	Replacement of RMU to enable offloading to an under-utilised feeder occurring in 2014/2015 followed by new feeder works in 2018.	0	360

Table 2: Material Changes to Operational Expenditure Forecasts

Project Number	Title	Reason for Change	Impact in 2015/2016 \$000	Impact over life of plan \$000
System Growth				
140010-1101 140510-1101	Low Span Line Renewal	Identification, assessment and prioritisation based on availability of new condition data. 50 non-compliant line heights currently recorded in our issues database and the number is growing.	315	1,945
140510-1102 140010-1103 140510-1102 140510-1103	Pole Inspections	Methodology for assessing poles has materially changed since 2014-2024 Plan and now includes the use of Deuar MPT and mobile integration.	113	458
140010-1202 140510-1102	Non-Structural Pole Defects	Identification, assessment and prioritisation based on availability of new condition data. Expectation is this funding will be used to replace rotten cross-arms, insulators sets and repair split heads and broken brackets.	281	2,529
	Minor Corrective Maintenance	Establishing budget to deal with minor issues not related to faults (interruption to supply).	100	900
140010-2103 140510-2103	Faults	Reduction as a result of increased focus on timely addressing of corrective maintenance issues.	(89)	(947)
Distribution Substations and Transformers				
140000-1207 140500-1207	Vegetation Management	Increase targets vegetation growth around distribution substations which is particularly bad in Central.	53	453
14000-1105 140500-1105	Condition Inspections	Previously only cursory inspections of our underground substations were undertaken. This funding provides for quarterly inspections and includes DGA testing of transformers.	100	900

SECTIONS 2-6



2.012+

Project Number	Title	Reason for Change	Impact in 2015/2016 \$000	Impact over life of plan \$000
140005-1103 140505-1103	Earth Testing	Improvements in identifying and assessing earth testing requirements has enabled a more comprehensive programme of works to be compiled using electronic as opposed to paper records.	191	409

7 Asset Management Maturity

An independent review of the maturity of our asset management practices was undertaken in January 2015, using the *Commerce Commission Asset Management Maturity Assessment Tool*.

Key outcomes of the assessments are:

- The overall asset management maturity score has increased from 2.3 to 2.6 as a result of the changes implemented in 2014/15, with improvement in 14 of the 31 functional assessment areas.
- A reduction in maturity in 3 areas has been partly technical and partly as a result of a recalibration of our expectations.
- The gap to attaining Level 3 maturity across all functional areas is considered small, with improvement opportunities recognised and action plans to realise those improvements in place or underway.

The results of the AMMAT assessments undertaken since 2012 are illustrated in Figure 7.1.

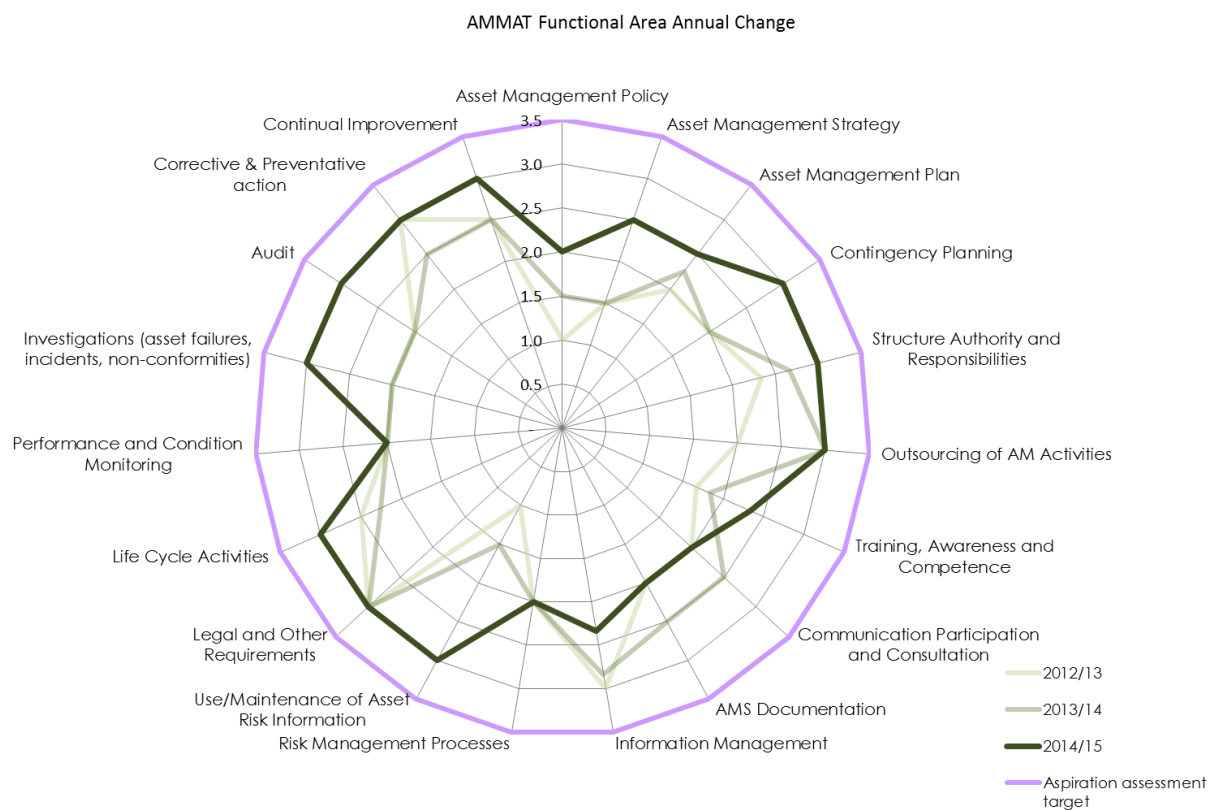


Figure 7.1 – Asset Management Maturity Assessment results (2012-2015)

8 Schedules

Schedule 11a: Report on Forecast capital Expenditure

Schedule 11b: Report on Operational Expenditure

Schedule 12a: Report on Asset Condition

Schedule 12b: Report on Forecast Capacity

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