Scanpower Limited

Asset Management Plan Update

1st April 2015 – 31st March 2025

Period Covered	1 April 2015 – 31 March 2016
Version	Approved for Release
Date	31 March 2015

TABLE OF CONTENTS

1. ASSET MANAGEMENT PLAN UPDATE

1.1 TERMS OF REFERENCE

Date Completed and Period Covered

This Asset Management Plan Update relates to the period 1 April 2015 to 31 March 2025. It was completed in March 2015 and approved by Scanpower's Board of Directors on 20 March 2015, prior to public disclosure on 31 March 2015.

This Update is publicly disclosed as an alternative to a full revision of the Asset Management Plan, as permitted under section 2.6.3 (4) of the Electricity Distribution Disclosure Determination 2012.

2. REVIEW OF AMP STRATEGIES

The Network's prime asset management performance indicator is SAIDI. Our objective is to minimise SAIDI which specifically means minimising high voltage ("HV") outages (planned or unplanned) on the core network (SAIDI excludes low voltage ("LV") outages and single customer/service line outages).

Scanpower's asset management strategy targets the three main drivers (described below) of SAIDI on the Network. These drivers have been determined by analysing our outage statistics and the composition of underlying causes. They have been further refined by weighting them according to a set of risk factors on a feeder by feeder basis. The methodology and analysis is fully documented in the Asset Management Plan 2013-2023.

2.1 THE PERFORMANCE OF OUR PROTECTION AND AUTOMATION

A five year programme of installing "Fuse Savers" as sectionalising equipment and defusing the HV network has proven successful for the first two years of the programme. This involved the deployment of a "Fuser Saver" scheme on the Weber Feeder (the largest and most remote feeder) and North/Norsewood feeder/sub-feeder. Results to date indicate that "Fuse Savers" are operating as intended by clearing transient faults that would have otherwise blown fuses making the outage permanent until they are reset. The entire protection system is being progressively simplified and consequently protection coordination will be improved. The capital expenditure budget therefore assumes that this programme will continue as forecast for the next 3 years. This year's programme (2015-2016) covers the Ormondville sub-feeder on the North Feeder area of the Network.

2.2 POLE CONDITION MANAGEMENT

Pole inspections are carried out using a robust and repeatable test method involving ultrasonic scanning. This allows Scanpower to target poles in the worst condition more accurately, thereby reducing the frequency of "in service" pole failures and improving the average remaining service life of the poles not requiring urgent replacement.

We expect to find 10% of the poles inspected in a condition that requires their replacement within the current year and we budget to be able to extend the margin to include the worst 20%. The standard deviation on pole failure, once they have reached their nominal 50 year service life, is about 10 years. Fewer customer outage minutes are now being lost to HV wooden pole failures.

However, in regard to the LV network, which does not contribute to SAIDI, its condition and performance has deteriorated to a more critical level. LV assets are therefore closer to the end of their optimum economic service life and, as such, the cost of keeping them operational is increasing; that is, we are well into the failure phase of their life cycle. It is therefore planned, now that we are on top of HV pole replacements, to shift resources towards pole replacement in the LV network until we have restored the optimum steady state.

From a budgeting perspective, to recognise that we are ahead of the worst condition poles, we have spread the programme out by another 5 years (from 8 to 13 Years) which reduces the forecast pole quantities and cost of replacement by 25 poles per annum. This may be reviewed again if "in service" pole failures trend up again. The practice of scanning poles will continue for another year by which time the entire hardwood pole population will have been assessed.

2015 will therefore roll the 2014 strategy on for another year. In addition to condition driven spot replacements total completion of HW pole replacements are programmed for the townships of Ormondville and Woodville, and Adelaide Rd in Dannevirke.

2.3 VEGETATION MANAGEMENT

The cutting of trees that have the potential to impact on main HV lines (and therefore cause the highest level of customer minutes lost) is in hand such that we now incur very few outages, even during storm events. Outages caused by tree issues are now mostly forestry related or on customer service lines. The Network does not have an obligation to manage trees on services lines and they do not affect outage statistics. Accordingly this chargeable work is left to Treesmart (Scanpower's approved vegetation management contractors) to manage.

Treesmart has a crew dedicated to trimming programmes on the Network. This level of Network funded resource is proving adequate, however trees burning in lines have a heightened safety management obligation that the Network will address via live line emergency cutting by its line crews if necessary. Treesmart's crews can then follow up with more appropriate arbour care, fitting the work into their programmes more efficiently.

No changes are planned to the annual vegetation management budget. The strategy is to continue shifting Network based work programmes towards chargeable work initiated by tree owners as a matter of routine. However the effectiveness of the cutting programme is to be reviewed in 2015. This may result in changes to the work program but will not alter budget allocation materially.

3. LIFECYCLE ASSET MANAGEMENT

3.1 ASSET EXPENDITURE FORECASTS

The asset management strategies adopted have continued to prove effective in 2014/15 and therefore it is intended to continue with budgets as forecast in the Asset Management Plan 2013-2023. These budgets are relatively level over the immediate 5 year timeframe, with the Maintenance Budget at approx. $470,000 per annum (excluding tree cutting) and the Routine Capital Budget at approx. $1m per annum. “Routine” refers to sustaining the replacement and upgrade of the existing asset base, not significant new load developments or investments.

The Maintenance Budget for 2015/16 is $460,000 compared to the 2013/14 forecast of $468,000. This a 2% variation over two years and attributed to some minor adjustments to unit costs reflecting changes in policy during 2013; for example, it is now Scanpower’s policy to replace all 3 phases of service fuse base replacements when one is found faulty.

Capex on the RAB has been constrained to $1.6M reflecting the fact that we are limiting pre-emptive upgrades and driving assets harder to live within declining network revenues from energy volume decline – Scanpower has universally applied the low fixed charges to domestic consumer’s supplies. Actual expenditure to date for 2015, relative to budget, reflects that growth has been largely in existing installations not requiring more costly green field builds.

3.2 OTHER RESOURCES

An Engineering Cadet will be engaged in 2015 to assist in the Control Room and Drawing Office. An additional Engineer may be engaged in the Network Field Services section as the incumbent is nearing retirement and may be seconded to a Smart Meter deployment program being planned by a retailer. These actions are the result of succession planning.

The Network’s vehicle fleet has been reviewed and a new 4WD crane truck and 4WD EWP truck have been ordered. These will be leased vehicles replacing older Scanpower owned vehicles.

3.3 SERVICE LINES

As with the LV network, service lines (those owned by the consumer) are also displaying performance traits that indicate they are approaching or past their economic service life. They are prone to damage during weather events, and responding to such events is now disrupting

work programmes on Scanpower's assets; three events during the spring of 2013 resulted in approximately three months of attending to remedial service line work.

It is estimated that 5% of our fault repair work relates to the HV network, 30% to LV network, and 65% to service line and installation issues. We significantly under-recover costs for service line repairs and this work is not contributing to the condition or value of Scanpower's Regulatory Asset Base (RAB).

This is also an expensive way of achieving renewal for the consumer; a more systematic replacement approach would better deliver on least cost / high service ideals. Furthermore, Scanpower has some regulatory responsibility with regard the Electricity Safety Regulations and associated Public Safety Management to ensure consumer owned assets connected to our network meet safety and quality compliance.

Scanpower believes it can better deliver on a safe, reliable, low cost power supply for the community by initiating a programme of service line inspections, maintenance, and/or upgrade that operates on a cycle that matches the failure period of these assets (about 10 years for those that achieve their forty-five year nominal service life), prioritising privately owned rural LV pole lines. Inspection work will be Network funded (to maintain oversight on quality, safety, and consistency) but the remainder is a chargeable service that will be performed by customers' contractors. This work is undertaken by the Contracting Division and appears in their revenues. The Network division does not carry resources or budget for service line upgrade. Consequently, the AMP does not record this work as it is outside the regulatory business model of an Electricity Lines Business (ELB).

Scanpower is currently averaging two to three service line upgrade issues per week. There are approximately seven hundred LV rural service lines in each decade aged grouping of the asset population, so we expect to see this trend for another five years before it declines to a steady state of seventy connections per annum.

4. NETWORK DEVELOPMENT PLAN

4.1 RECALIBRATION OF NDP FORECASTS

The Network Development Plan (NDP) forecasts load growth to determine when the trigger points will occur for network upgrades necessary to sustain capacity and service standards. It then determines what solutions might be best to deliver a development path that is efficient and sustainable.

Scanpower's network is voltage constrained and therefore our strategy for upgrade involves creating more interconnection/bussing points and voltage correction in preference to increasing conductor size and building new lines. This process is fully documented in the Asset Management Plan 2013-2014.

The NDP is necessarily optimistic about where and when new load will connect in order to demonstrate that there is a planned response for every possibility. The reality however is that some developments may not eventuate, some may not have been captured, and/or the timings may shift, changing the order in which sequential developments are needed. The ten year action plan in the NDP is therefore adjusted annually.

The NDP expenditure forecast has now been adjusted in light of the following:

- A local wool spinning plant (previously one of Scanpower's larger customers) cancelled a planned expansion at Dannevirke in favour of a site purchased in Oamaru. As a consequence the development of a substation at the south end of town has been deferred for 4 years and its assumed scope reduced by a third. This has allowed short term relief of voltage issues being experienced Kiwi Lumber by shifting their load onto the East feeder. This is a short term measure while Kiwi Lumber addresses the poor power factor at their site. The longer term solution will be the interconnection of the Weber and Pacific feeders to allow the two branches of the Weber feeder to be permanently split across two feeders. In 2015 the overhead of section of this tie will be reconductored i.e. 2 stage of a 3 year development.

- In a similar design philosophy to the above, the Victoria St rebuild (25 HV/LV poles) has been extended to include the upgrade of an existing transformer, the addition of an intermediate transformer, LV interconnection between these transformers and King St, and replacement of pole mounted HV switchgear and fusing with ground mounted equipment to address the ferro-resonance issues associated with larger transformers and cables. This work is currently in progress but scheduled to end 31 March 2015.

- Growth on the remaining feeders supplying Dannevirke has been strong, resulting in the addition of three 500kVA distribution substations in 2014 and an additional three 300kVA are in progress and scheduled for completion before winter 2015. These have increased the density and interconnection of the urban LV network, and in turn this growth has eroded contingent capacity constraints and voltage. The North and Adelaide feeders have reached their 3MW constraint and therefore the proposed switching station and sub-feeder development at the north end Dannevirke will proceed in 2015. This will balance load across 4 feeders leaving approximately 0.5MW of headroom on each.

- Further development at Oringi Business Park (a local industrial facility) is now certain and the expected loadings are significant, thereby requiring an upgrade plan for both HV and LV reticulation. The Oringi site has three 2x1MVA distribution substations. These will require various upgrades to adapt to the new loads and to address age/technical obsolescence issues. A 6 year upgrade path has been determined. If growth materialises at a faster pace the programme can be shortened accordingly. Total expenditure over six years at Oringi is estimated at $925,000 to deliver a 5MW voltage corrected supply with enhanced security. The previous NDP provisioned $391,000 expenditure at Oringi which is the network related component of the upgrade. Consumer specific upgrades will be negotiated as part of their lease agreements as they develop their businesses. At a regulatory level this site is a Network connected consumer and therefore not fully part of the Regulatory Asset Base (RAB) nor included in Schedule 11.

4.2 NON-NETWORK ASSETS

Total expenditure in the NDP budget for 2015 is $540,000. This excludes expenditure considered non-core and therefore is more discretionary than demand driven network development. It covers

- Further development of Scanpower's radio network.
- Smart grid technologies
- Distributed Generation embedded in consumer installations

Project proposals are not sufficiently advanced at this time to commit to specific solutions. Accordingly forecast figures in the NDP are only tentative.

4.3 ALTERNATIVE SOLUTIONS

Some expenditure is expected on the following, but more detailed scoping has not yet been completed and formally incorporated into the Corporate Strategic Plan. This work currently sits in the Network Division's brief but should it be implemented with any scale it will potentially shift into a business unit of its own:

- Research & Development – specifically distributed generation technologies, photovoltaic micro-generation and battery storage at distribution scale. A proposal to install a 1250kVA diesel unit at Oringi utilising the Cool Stores storage capacity has been developed and is waiting for appropriate business investment conditions.
- Uneconomic Lines; Franklin Road has been identified as a pilot site. It has 2 ICPs fed from a line running through 6km of forestry. We are currently in discussion with Chorus about their repeater site located in the vicinity. Further farmland has been converted to forestry so the scope of this work is increasing.
- The last 2.3km of line at Te Uri is also being investigated for more economic alternative supply. This line also passes through forestry which is now completely inaccessible.

5. ASSET MANAGEMENT MATURITY ASSESSMENT TOOL

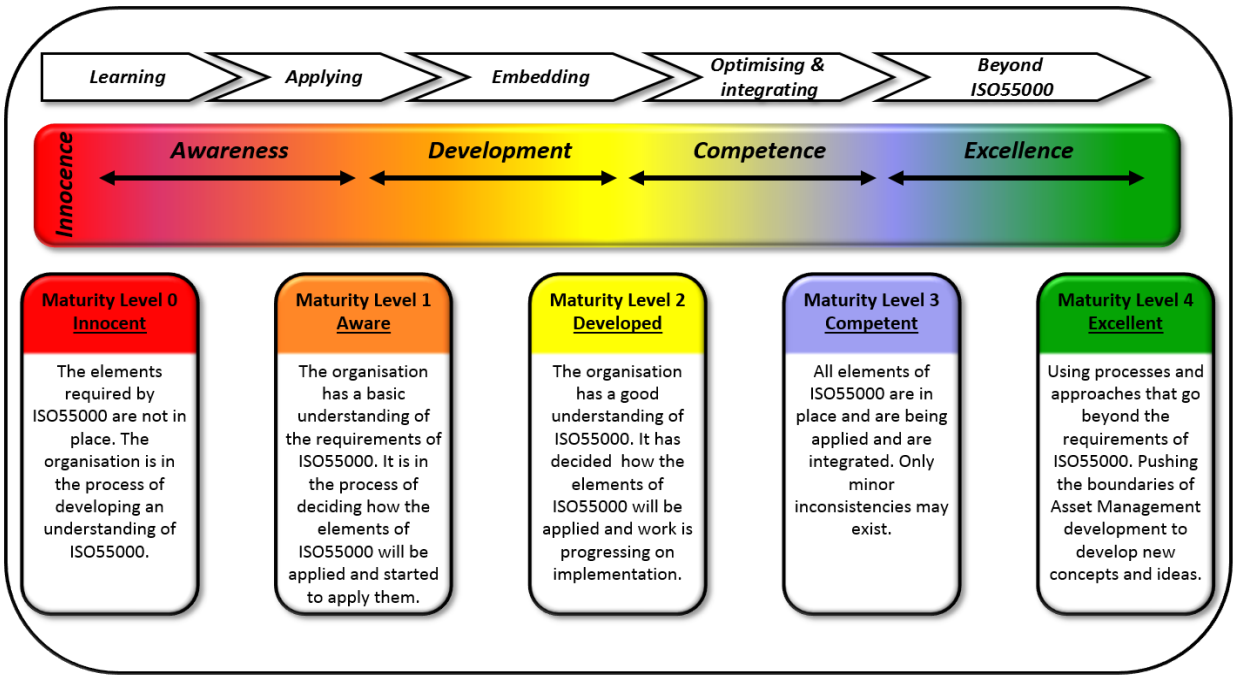
5.1 RESPONSE TO FIRST DISCLOSURE OF 2013

Schedule 13 of the Information Disclosures requires a self-assessment of the maturity of Scanpower's asset management processes and systems. Such assessment and subsequent continuous improvement programmes are consistent with the ISO55000 best practice standard for Asset Management (PAS55).

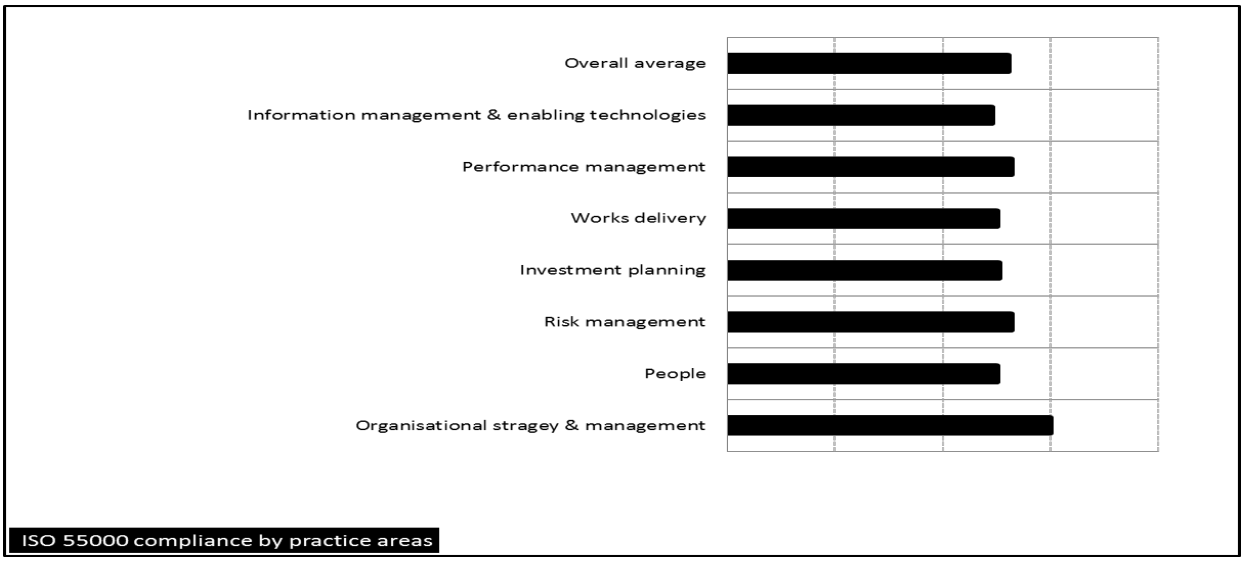
2013/14 was the first year this Information Disclosure requirement was made. Consequently there is variance in the interpretation of assessment guidelines across Electricity Line Businesses (ELBs). This has prompted an industry workshop lead by the Electricity Engineers' Association to better develop guidelines.

During 2014 Scanpower had its Asset Management Systems maturity externally audited and assessed against the ISO55000 standard. This assessment provides Scanpower with a benchmark for development of its AMS towards ISO55000 accreditation. This is a more detailed assessment than the prescribed AMMAT – the results are provided below and included a cross-reference to AMMAT.

ISO55000 assesses maturity level in accordance with the following chart.



Scanpower's current compliance status by practice area is illustrated below. Maturity is currently siting between Level 2 Developed and Level 3 Competent.



The ISO 55000 elements align approximately with the AMMAT elements as follows…

ISO 55000 element	Abbreviation	AMMAT questions
Organisational strategy & management	OSM	Q3, Q10, Q11, Q26, Q27, Q42, Q53
People	P	Q29, Q37, Q40, Q48, Q49, Q50
Risk management	RM	Q33, Q69, Q79, Q82, Q88, Q91
Investment planning	IP	Q31, Q45, Q59, Q82, Q88, Q91
Works delivery	WD	Q45, Q91
Performance management	PM	Q64, Q82, Q95, Q99, Q105, Q109, Q113, Q115
Information management & enabling technology	IMET	Q62, Q63, Q64

5.2 CAPABILITY IMPROVEMENTS IMPLEMENTED IN 2014

A number of asset management process improvements have been achieved in 2014:

1. Work has been initiated on a process of standardisation of structures, minimisation of materials inventory, and associated quality standards.

2. Quality and safety audits have been introduced as part of the project sign-off process.

3. A Network ESR 5 year inspection program has been implemented.

4. The Disaster Recovery Plan was updated and an inventory of critical spares established.

5. Project Management processes were enhanced including Project Charters and Expenditure Sanctions.

6. The “Orange Umbrella” safety culture programme has resulted in development and documentation of Control Room operations.

7. Public Safety Management improvements targeted improvement of the Close Approach approval process including running a series of safety awareness training course for contractors and associated public education.

5.3 PLANNED INITIATIVES FOR 2015

Scanpower will continue to improve its safety management systems; as these are in fact Total Quality systems they overlap with, and drive, good practice in asset management systems such as quality, risk, training, compliance, and continual improvement systems.

Specifically in 2015 Scanpower is planning the following initiatives:

1. Capture data with regard to customer service lines to support a campaign of inspection and upgrade of customer assets urgently requiring age related upgrades.

2. Introduction of Safety Plans to the project management process and a set of Safe Operating Practices/procedures for temporary working earths.

3. Develop customised libraries for the CATAN line design tool

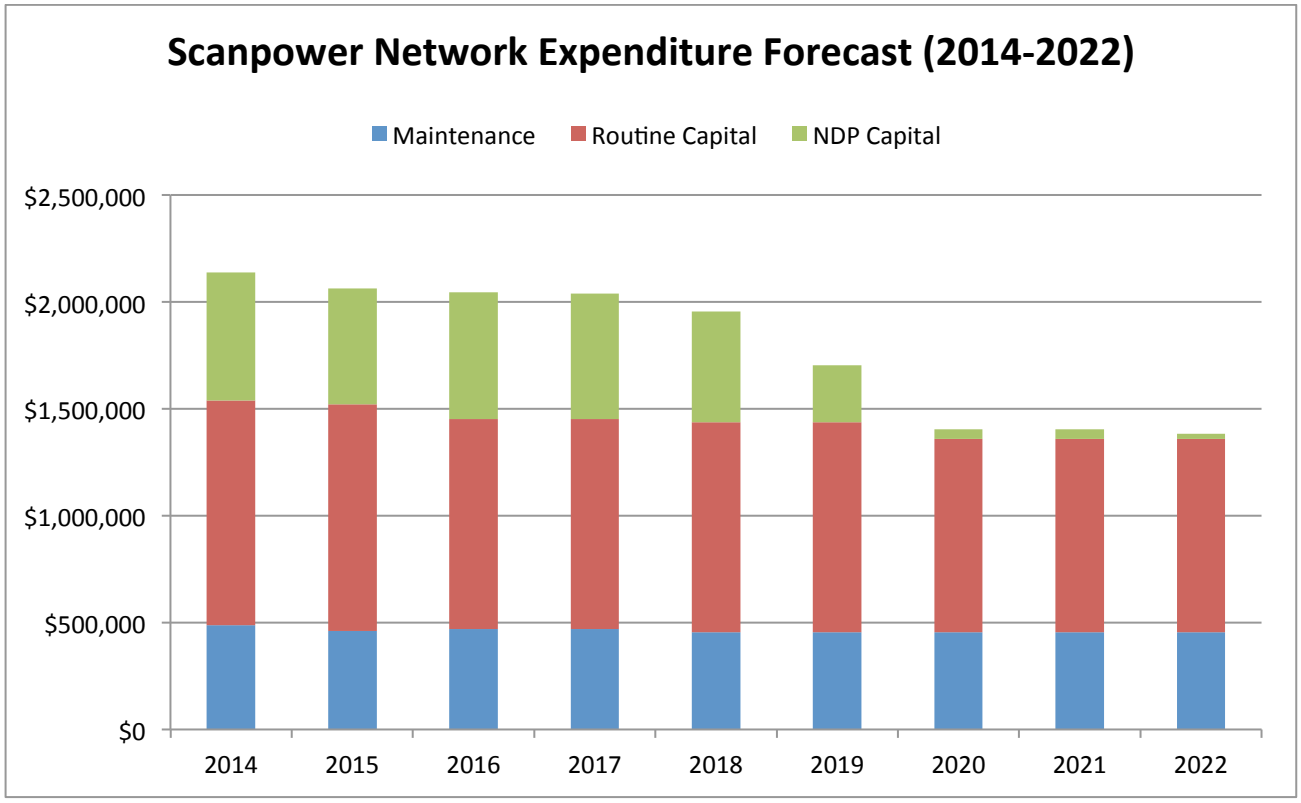
4. Complete developments necessary to achieve ISO55000 accreditation. This is primarily documenting the Asset Management System itself and the process controls around the operation of the system. The project involves responding to the recommended system improvements following external assessment/audit.

5. Employ an Engineering Cadet in accordance with Succession Planning.

6. SUMMARY EXPENDITURE FORECASTS

The following table and graphs show the revised forecast expenditure for the remaining nine years of the ten year period described in the Asset Management Plan 2013-2014.

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Maintenance	$486,580	$460,240	$468,580	$468,580	$454,880	$454,880	$454,880	$454,880	$454,880
Routine Capital	$1,051,423	$1,061,400	$983,423	$983,423	$983,423	$983,423	$903,423	$903,423	$903,423
NDP Capital	$598,430	$541,000	$593,430	$586,430	$517,230	$264,730	$44,730	$44,730	$23,730
Total	**$2,136,433**	**$2,062,640**	**$2,045,433**	**$2,038,433**	**$1,955,533**	**$1,703,033**	**$1,403,033**	**$1,403,033**	**$1,382,033**



Cumulated total budget variance after two years equates to a reduction of 3% i.e. $55,593. This is not considered material and reflects the level of optimism in the original forecast. This aggregate forecast figure includes the following variances:

1. Maintenance expenditure in 2015/16 is budgeted at 2% ($8,340) below forecast. This is just minor variance in the planned work program from year to year.

2. The Routine Capital expenditure budget is 8% ($77,977) higher than originally forecast – actual expenditure is driven by the pole replacement program which varies from year

to year in regard to how many poles are found with urgent condition related issues requiring spot replacement and how many structures involve a transformer replacement. Switchgear replacement can also be lumpy and vary from year to year.

3. The NDP expenditure planned for 2015/16 is 19% lower than originally forecast. This one year results from the deferrals and timing adjustments previously discussed. This expenditure rolls off significantly towards the end of the forecast period because forecasting is constrained by foresight with regard to economic development and meaningfulness of extrapolation too far into the future.