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11 March 2024

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Emerging capex framework for DPP4

Introduction

The Lines Company Limited (TLC) thanks the Commerce Commission (Commission) for the opportunity to submit on the Commission's *Emerging capex framework for DPP4* discussed at the DPP4 capex framework design workshop on 26 February 2024. The Commission is seeking views on the questions raised in the capex workshop slide pack, or on other matters relevant to the capex framework.

TLC's submission

TLC's submission focuses on areas where TLC was an outlier in the presentation and may fall under further scrutiny by the Commission, acknowledging that the Commission has not made any decisions yet. We have done this to assist the Commission in understanding our rationale for movements between our Asset Management Plan (AMP) 2023 and our AMP 2024 Update, to be published toward the end of March 2024.

A key issue that TLC wishes to impress upon the Commission is that many capital expenditure items often have several drivers at their core, and for TLC, resilience being ever present. Accordingly, TLC's forecasts do not consider resilience as an emerging, uncertain driver, with resilience expenditure being more certain than uncertain i.e. we have actively flagged uncertain expenditure and updated as appropriate e.g. Hangatiki upgrade discussed on pages 9 and 10.

Summary

We hope this submission helps – if the Commission has any queries, please contact Craig G. Donaldson, Pricing & Regulatory Specialist, at [redacted].

Yours sincerely

Kyla Johansen
Pricing, Regulatory and Commercial Manager
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1. Contents

2. Introduction

This submission aims to further inform and assist the Commission when making decisions about the capital expenditure framework for DPP4. We provide analysis and commentary from our Asset Management Plan Update 2024 (*yet to be director certified*).

3. Section 53ZD – 2025 DPP reset: Issued November 2023

3.1 Section 53ZD

The Commission issued a section 53ZD notice in November 2023 to assist in the reset of the default-price path for distributors from 1 April 2025. The table below details the information that we provided, detailing updates from TLC's AMP 2023 to the soon to be published AMP 2024 Update.

Capital expenditure category	a $000	b $000	c $000	x % variance	5% threshold?	Variance threshold test	Variance threshold?	Additional information?
Consumer connection	10,325	10,825	(500)	(4.6)%	Yes	(8%)>x>15%	No	No
System growth	8,925	26,450	(17,525)	(66.3)%	Yes	(8%)>x>15%	Yes	Yes
Asset replacement and renewal	63,176	59,507	3,669	6.2%	Yes	(3%)>x>10%	No	No
Asset relocations	300	300	0	0.0%	No	(8%)>x>15%	No	No
Quality of supply	15,635	6,024	9,611	159.5%	Yes	(3%)>x>10%	Yes	Yes
Other reliability, safety, and environment	12,375	3,790	8,585	226.5%	Yes	(3%)>x>10%	Yes	Yes
Non-network assets	8,892	11,762	(2,870)	(24.4)%	Yes	(8%)>x>15%	Yes	Yes
Total	**119,628**	**118,658**	**969**	**0.8%**				

Table 1: Forecast expenditure variances between 2023 AMP and most up to date information

We needed to provide additional information for four capital expenditure categories as they were captured within the threshold and variance tests set by the Commission:

1. System growth;
2. Quality of supply;
3. Other reliability, safety, and environment; and
4. Non-network assets.

We provided brief information in the Excel workbook, but we provide substantive details later in this document to assist the Commission early in this DPP4 reset process.

3.2 Summary of changes in capital expenditure

The movements in the ten-year forecast for major AMP2024 capex category movements are detailed in the graphs below.

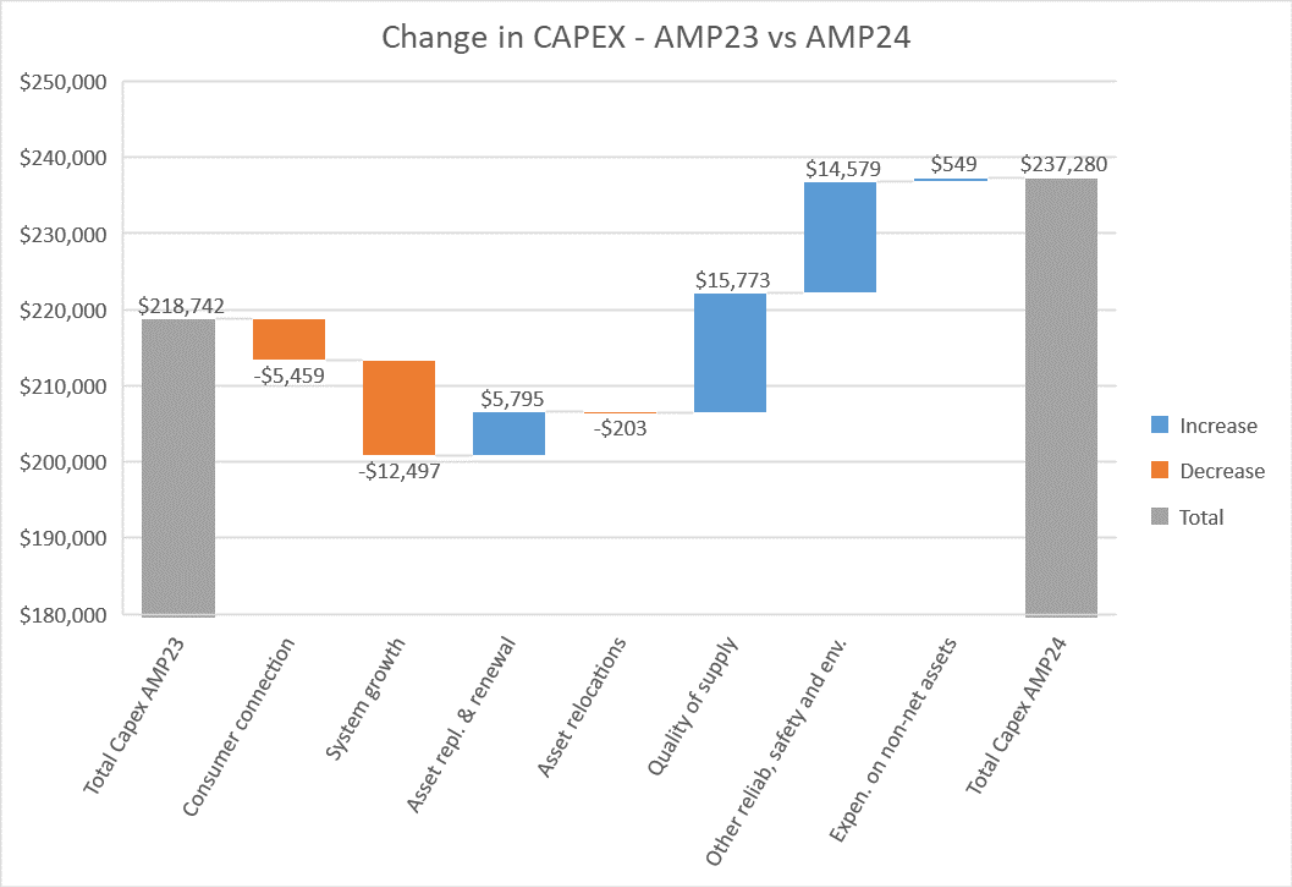

Figure 1: Changes in capital expenditure from the AMP2023 vs AMP2024

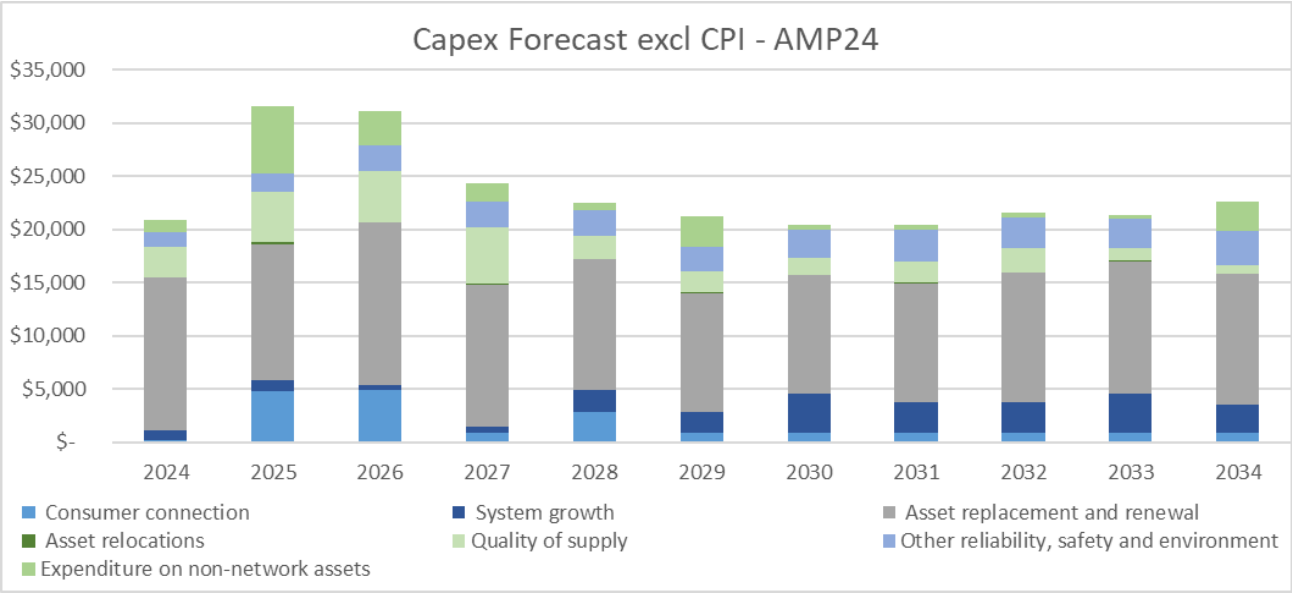

Figure 2: Summary of Total Capital Expenditure

AMP24	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
Consumer connection	227	4,765	4,865	865	2,865	865	865	865	865	865	865	
System growth	870	1,072	500	600	2,100	2,020	3,705	2,900	2,885	3,670	2,651	
Asset replacement and renewal	14,416	12,816	15,327	13,324	12,260	11,070	11,194	11,151	12,219	12,409	12,357	
Asset relocations	0	150	0	150	0	150	0	150	0	150	0	
Quality of supply	2,866	4,765	4,751	5,256	2,186	1,921	1,521	1,936	2,241	1,216	746	
Other reliability, safety and environment	1,325	1,743	2,450	2,390	2,390	2,400	2,745	2,950	2,925	2,700	3,200	
Expenditure on non-network assets	1,140	6,255	3,187	1,804	722	2,800	379	501	447	396	2,827	
Total Expenditure on Assets	20,844	31,566	31,080	24,389	22,524	21,226	20,409	20,453	21,582	21,406	22,645	237,280
Less Capital Contributions	0	3,800	4,000	0	2,000	0	0	0	0	0	0	
Expenditure on Assets - excl Capital Contributions	20,844	35,366	35,080	24,389	24,524	21,226	20,409	20,453	21,582	21,406	22,645	247,080

Table 2: AMP2024 Capex forecasts

4. Workshop - Capital expenditure framework design

TLC attended the Commission's workshop and found it very informative. The slide deck[1] sets out the Commission's analysis and emerging Commission staff views about key components of the capex framework.

The Commission's focus is on setting capex allowances which are consistent with the long-term benefit of consumers. TLC agrees that allowing EDBs to set their own capex forecasts without review or challenge may create a risk of inflated forecasts, investments that are needed but might not be delivered, and excessive prices for consumers.

However, TLC is cognisant that distributors are likely to be in a good position to understand what their customers' requirements are and this will help ensure the long-term benefit of our communities.

TLC notes that the Commission has preliminarily categorised resilience as an emerging driver (as opposed to a traditional driver) and that resilience provides for a great level of uncertainty. The Commission indicates that more uncertain expenditure could be sought by reopeners rather than setting allowances to cater for this expenditure.

TLC is unsure whether that classification is accurate – TLC has long considered resilience in our forecasting, as our network is exposed to a wide range of natural hazards due to its proximity to active volcanoes and exposure to inundation risk from coastal storm surge and significant weather events (e.g., Cyclones Hale and Gabrielle). Along with weather-related risk, climate change is increasingly impacting our network. We are seeing more regular and more severe storm events and increased vegetation as farmland is converted to carbon sequestration forests.

We note that TLC featured as an outlier in the Commission's slide deck, as capital expenditure relates to traditional versus emerging drivers, and growth in maximum coincident peak demand. TLC addresses matters from the workshop where TLC was highlighted for clarity including:

1. Resilience;
2. Material changes to expenditure from AMP 2023 to AMP 2024 Update;
3. Deliverability.

5. TLC's Asset Management Plan Update 2024

Our 2024 AMP Update investment plan reflects TLC's commitment to standards set by the Commerce Commission. The plan focuses on identified areas that have caused contraventions in the past such as vegetation and climate change risks together with a continuous focus on overhead lines, security of supply and public safety.

[1] Emerging capex framework for DPP4: Online workshop 26 February 2024

Our updated strategy has been incorporated into the AMP with specific focus areas driving key initiatives:

- Resilience;
- Vegetation Management;
- Digital Utility; and
- Security of Supply.

5.1 Resilience

AMP2024 has assigned a specific capex investment of $2.2M pa from RY2026 to improve resilience associated with High Impact Low Probability (HILP) type environmental events by hardening the network to mitigate the impacts of climate change. These initiatives will include the relocation of overhead assets in forestry blocks (in partnership with forestry owners), undergrounding and others mitigating the impact of coastal erosion, flooding, earthquake, fire etc.

In addition, a further $60k pa of OPEX has been allocated to work through the process of identifying the key risks and finalising the resilience roadmap. Armed with the learnings from the quality contraventions over the 2017-2020 period, a strong focus for AMP2024 is on finding solutions to address vegetation risk specifically associated with out-of-zone trees. Accordingly, we are in active conversation with these forest block owners and identifying the opportune areas to do this work.

5.2 Vegetation Management

Improvements to the management of vegetation have been included in AMP2024. In addition to the traditional opex-related activity, a capex allocation has been included to support the management of vegetation as part of capital renewal works.

AMP2024 has $16M of opex and a further $6M of capex allocated to vegetation initiatives in addition to the resilience expenditure mentioned earlier. TLC has also worked with a supplier to develop/trial an innovative technique to manage in-zone vegetation using a Heli-Saw. This initiative will improve overall efficiency and help reduce the risk of impact from vegetation.

5.3 Digital Utility

The investment in the Digital Utility Program aims to provide a greater focus on customers, to enable seamless operations (by using advanced and integrated systems), to create smarter tools for managing assets and to enable new technologies, such as artificial intelligence that will become integral in future asset management. AMP2024 has allocated $4.8M of non-network capex for the digital utility programme, and a further $1.25M p.a. in opex to support the new systems that will be put in place.

5.4 Security of Supply

With the initiatives proposed, only a smaller section of the circuit directly impacted by a fault will be exposed to the total repair time. The supply to the remaining circuit can be restored reasonably quickly (isolation time) thereby improving customer experience and reducing SAIDI. Twelve initiatives have been forecast to address “N-1” security in AMP2024, at a total cost of around $16.6M.

6. AMP2024 focus area: Resilience

Our network is exposed to a wide range of natural hazards due to its proximity to active volcanoes and exposure to inundation risk from coastal storm surges and significant weather events (e.g. Cyclones Hale and Gabrielle). Along with weather-related risks, climate change is increasingly impacting our network. We are seeing more regular and more severe storm events and increased vegetation as farmland is converted to carbon-sequestration forests.

The risks imposed depend on the type of hazard, our exposure to it and the vulnerability of our assets to each hazard. For example, assets near coastal areas are more greatly exposed to the risk of sea level rise.

We will link this back into the Electricity Engineers Association (EEA) resilience framework and the work Electricity Networks Aotearoa (ENA) is undertaking to develop a common resilience standard for electricity distributors. This will also link in with the work that we are doing with NiWA and an external consultancy we are engaging to support our resilience planning. In combination we will make use of both forecasted weather prediction information and historical climatology data to inform our decisions and actions in line with the resilience framework.

In July 2023 we completed a self-assessment using the EEA RMMAT resilience framework and submitted to the ENA who combined all the responses into an EDB view. Figure 1 shows the outcome of our assessment, which we will use to cross reference the ENA combined assessment outcome to develop a resilience improvement roadmap for TLC.

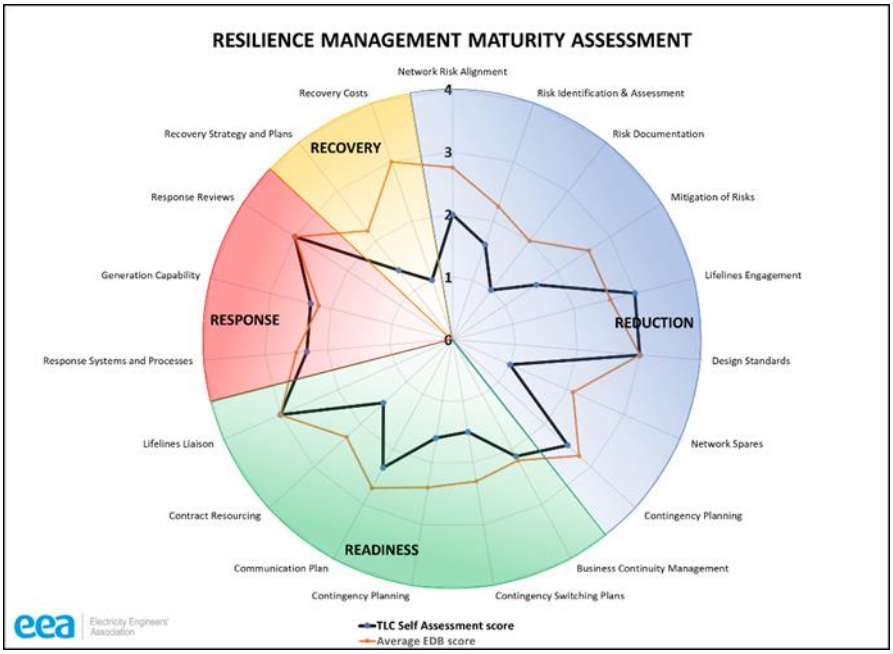

Figure 3: Resilience Self-Assessment – TLC and EDB average July 2023

In the coming year we will refine the specific areas that will add most value to our business to address resilience maturity improvement. The key areas for the TLC Resilience framework strategy in the short term will include:

- Reduction - Risk Identification & Assessment;
- Reduction - Network Spares;
- Recovery - Recovery Strategy & Plans.

This programme of work will span the next few years and follow a route of discovery, exposure and vulnerability assessment, utilising weather, and other climatology data. The outcome of this will be used to identify the risks and finalise the resilience roadmap. An opex budget allowance for this resilience work of $60k per annum over the next 4 years has been included in the 2024 AMP investment plan.

To strengthen the recovery actions TLC will be working with Marae, local community and councils and civil defence to identify locations on the network to install generator inlets at key community facilities, which will allow the local community to easily connect mobile generators in the event of extended outages.

In addition to the foregoing, AMP2024 signals a renewed focus on resilience, especially relating to environmental risk, with capex investments of $1M p.a. covering all assets, $0.6M p.a. specifically targeted at overhead lines and $0.6M p.a. targeting zone substations, forecast from RY2026.

The investment in resilience will focus on environmental impacts and consider exposure to climate change risk. The overhead element will look to address specific segments of the network at risk (e.g. areas impacted by coastal erosion, severe weather, etc.) by considering a range of potential mitigation activities including relocation, undergrounding, reconductoring with aerial bundle conductor or the installation of covered conductors.

The zone substation element will proactively address risks associated with flooding, earthquakes, etc.

The investment for all assets will aim to address the increasing environmental risks driven by climate change. Examples of these are risks associated with fire, severe weather, lightning, landslides etc.

An extended program of work will be developed, and the associated project details identified.

7. Material changes in expenditure

The major changes in AMP2024 are the result of volatility associated with customer-initiated projects as well as TLC improvements to its asset management practice with a strong focus on network resilience.

We have continued to build on the work started in 2017 ensuring appropriate levels of investment are targeted at areas of the network to address current or emerging network performance issues. Quality contraventions in 2017-2020 period have driven increased focus in the areas impacting most on reliability performance.

From 2017 our vegetation budget has increased from:

- $0.9M to $1.2M in 2020;
- $1.4M in 2022; and
- $1.6M in 2024 which made a difference addressing vegetation issues within the Growth Limit Zones (GLZ).

Currently circa 90% of vegetation-related issues are caused by trees outside the GLZ. To address these out-of-GLZ tree issues material capex budget changes are forecasted in the resilience and security of supply budgets where the focus will be on either re-routing lines out of commercial forestry blocks (in partnership with forestry companies) or other resilience measures such as undergrounding or design changes to make the lines more resilient to tree fall damage.

To address pole top defects, a pole top Failure Mode and Effect Analysis (FMEA) was conducted which led to the investment reflected in AMP2024 to conduct aerial pole top condition inspections five yearly starting RY2024. This will provide a full pole top condition snapshot and ensure targeted investment in areas of the network that are at risk of unplanned outages.

Additional capex spending to improve the security of supply following outages, by creating back-feed options and automation to assist with faster restoration times have also been forecasted.

7.1 CAPEX - Material changes in each category

We have outlined the material changes in each expenditure category. All figures are in 000s and in constant values (i.e. they have not been adjusted for CPI).

7.1.1 Consumer Connection

7.1.1.1 Driver

The primary drivers for step change continue to be larger industrial customers (new and changing demand) and utility-scale generation. Initiatives in both these elements have varying degrees of certainty driven by their commercial viability. Since AMP2023, a significant contributor to forecast growth at Hangatiki GXP has become insolvent, resulting in the need to change forecast investments.

Regionally, other organic growth and decarbonisation initiatives also continue, but at a steady pace.

7.1.1.2 Material changes in our AMP expenditure forecasts

RY2025

- Industrial growth initiatives for an iron ore mining company ($3.8M) continue as planned, but a milk processing plant ($1M) will not.
- Organic and other decarbonisation growth remains.

RY2026-2030

- Generation - Utility scale embedded generation of 45.8MVA is forecast for this period, with an associated cost of around $6M.
- A $1m reduction in 2028 due to the milk processing plant as above not proceeding.
- Organic and other decarbonisation growth remains.

RY2031-2034

- Organic and other decarbonisation growth remains.

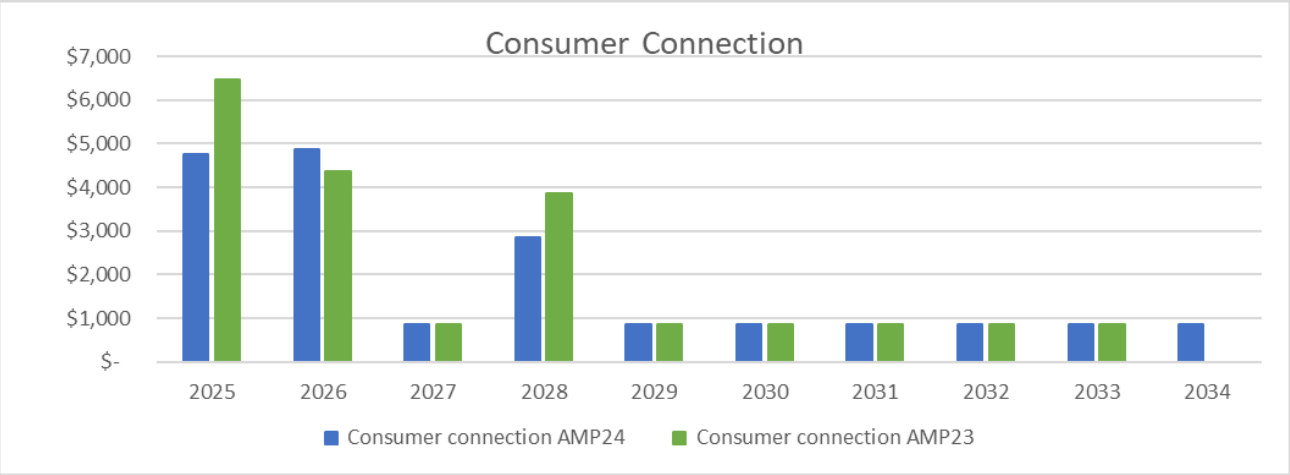

Figure 4: Consumer connection expenditure

7.1.2 System Growth

7.1.2.1 Drivers

As with consumer connections on the TLC network, System Growth is primarily influenced by large industrial customers and utility scale generation. TLC has also taken an improved approach to assess security of supply constraints. TLC continues to work closely with our customers to balance affordability and reliability to ensure they are not unduly burdened.

7.1.2.2 Material changes in our AMP expenditure forecasts

RY2026-2030

- TLC has taken a pragmatic approach to defer the impact of the growth forecast at Hangatiki GXP. Now that the new milk processing plant is not going ahead, the growth for the iron ore mining company will be accommodated by developing commercial terms and the associated system controls to restrict available

capacity under constrained conditions. We will also explore options to increase the contingent capacity of the existing transformers with Transpower. This has allowed TLC to defer the need for immediate investment at Hangatiki GXP ($12M).

RY2031-2034

- It is now clear the Hangatiki GXP will exceed its firm capacity in normal operating conditions within the AMP2024 planning period, but not as soon as expected in AMP2023. These changes will have regional implications and TLC has begun engagement with both Transpower and other regional networks to develop an appropriate solution. Once these forecasts are established, they will then be presented in a future AMP.

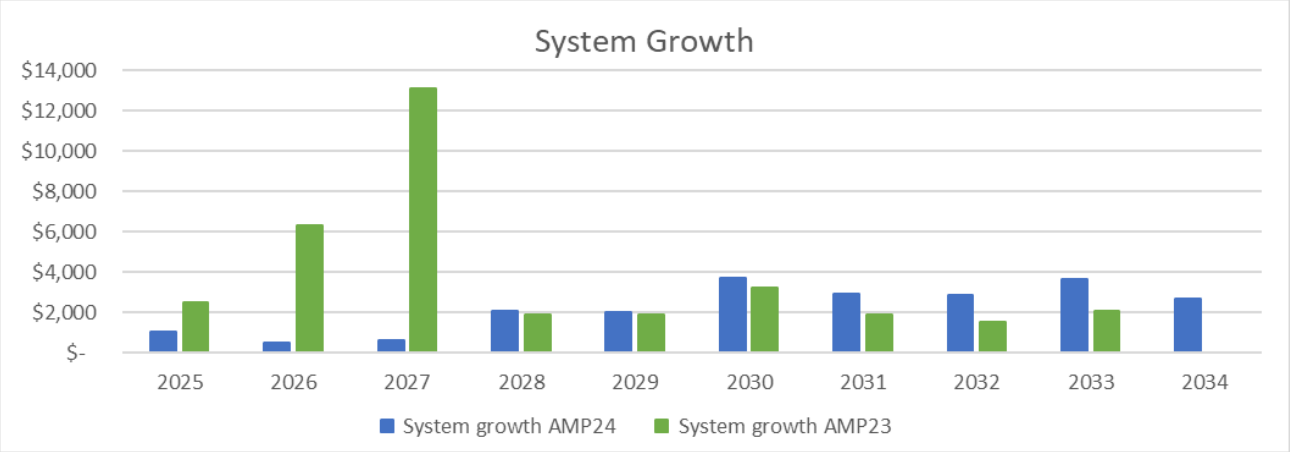

Figure 5: System growth expenditure

7.1.3 Asset Replacement and Renewal

7.1.3.1 Drivers

The forecast for asset replacement and renewals has been built bottom-up taking a whole of life view of the assets. These forecasts were designed to be able to manage known risks and criticality.

The forecast program has also been designed to allow TLC to establish longer term planning horizons to support the ability to contract accordingly. These renewal programs include Steel Rail, L Shaped Concrete and Larch poles. This will help maintain the balance between reliability, affordability, and deliverability for TLC.

7.1.3.2 Material changes in our AMP expenditure forecasts

Despite the changes in approach and planning mentioned above, the forecast investment profile aligns closely with that from AMP2023.

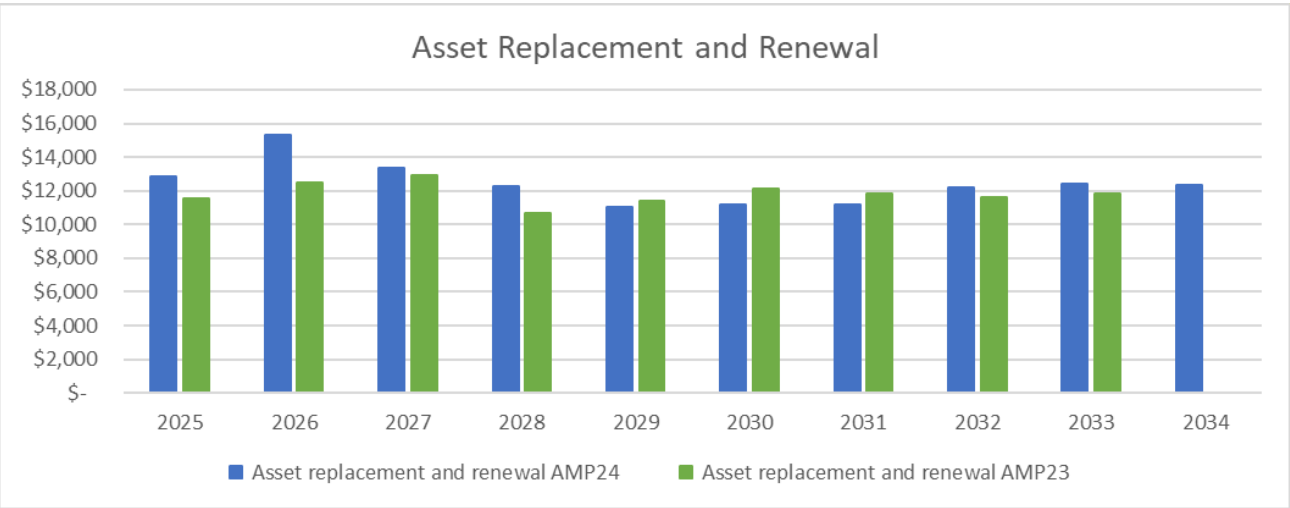

Figure 6: Asset renewal expenditure

7.1.4 Quality of supply, reliability safety and environment

7.1.4.1 Drivers

The key drivers are resilience, security of supply, reliability, and automation. These initiatives are critical to managing our customers' expectations as well as ensuring compliance with SAIDI and SAIFI thresholds.

A program of work has been developed to focus specifically on the security of supply with the objective being to address all known constraints at "N" security as well as making a material impact on improving the ability to restore supply in the event of a single event ("N-1"). Initiatives addressing "N-1" constraints are at both feeder and zone substations.

Resilience also has a specific focus with increased investment forecast in the period from RY2026 to RY2034. The pragmatic drive to install new automation also continues to improve reliability.

7.1.4.2 Material changes in our AMP expenditure forecasts

RY2025

- There is a step change of investment in this category across the AMP2024 planning period. RY2025 includes some carryover projects from RY2024 which include projects that could not be delivered due to delays in Iwi negotiations and discussions with third parties. The increase also includes multi-year project seed funding for several initiatives planned in the periods after.

RY2026-2030

- A strong focus on resilience initiatives with investment of $2.2M pa across the TLC network. This will include initiatives like increased undergrounding, aerial bundle conductor, covered conductors, elevation of infrastructure prone to flooding etc.
- A non-network solution to providing "N-1" security is being proposed for the Mokau feeder, by likely permanently installing end-of-feeder generation.
- Several security of supply projects are forecast to commence in this period.

RY2031-2034

- Continued focus on resilience from the RY2026 to 2030 period ($2.2M pa).
- Continued focus on the security of supply initiatives.

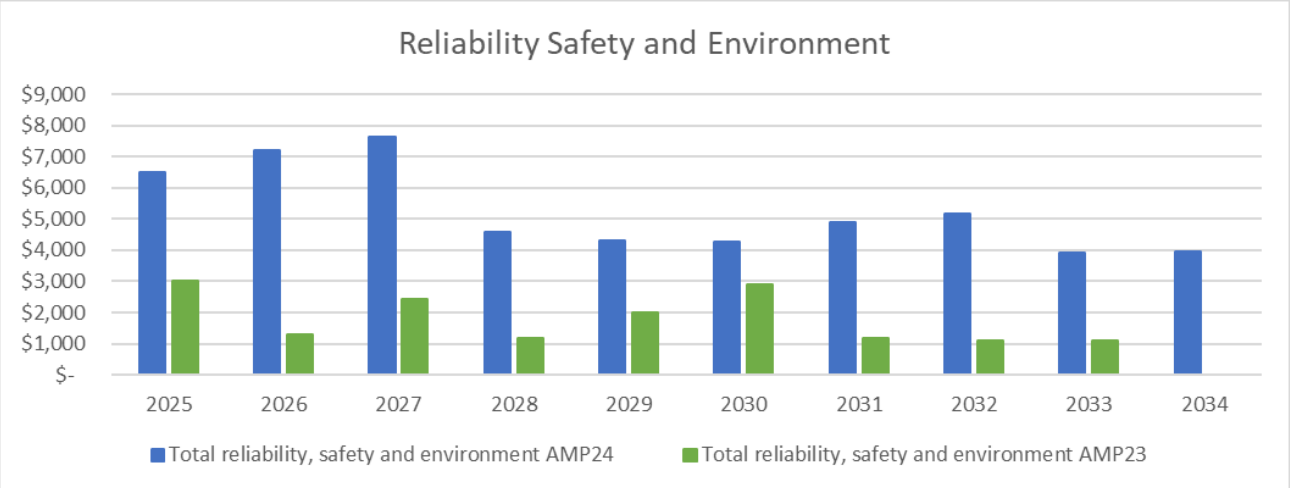

Figure 7: Quality of supply plus reliability, safety, and environment expenditure

7.1.5 Non-network assets

7.1.5.1 Drivers

Non-network investments support the primary networks business, improve efficiency, and enable business improvements. The key drivers for AMP2024 are identified below. There have been increases or changes in timing from AMP2023.

1. Digital Utility Project to upgrade TLC asset systems to streamline and digitise our asset management processes.
2. Improvements to renew and improve TLC offices.
3. Development and implementation of improved overhead inspections
    a. Aerial pole top inspections
    b. Aerial acoustic surveys
    c. Aerial LiDAR survey

7.1.5.2 Material changes in our AMP expenditure forecasts

RY2025

- The Digital Utility Project and improvements to TLC corporate offices get underway with an investment of $1.7M in RY2025.
- RY2025 includes carryover $1.4M made up primarily of pole top inspection and digital utility expenditure.

RY2026-2030

- The Digital Utility Project continues with further investment of $2.5M.
- Additional investment of $3.5M on development of capability including the capture and management of aerial inspection data.

RY2031-2034

- Ongoing investment of $2.26M for the development of capability together with capture and management of aerial inspection data.

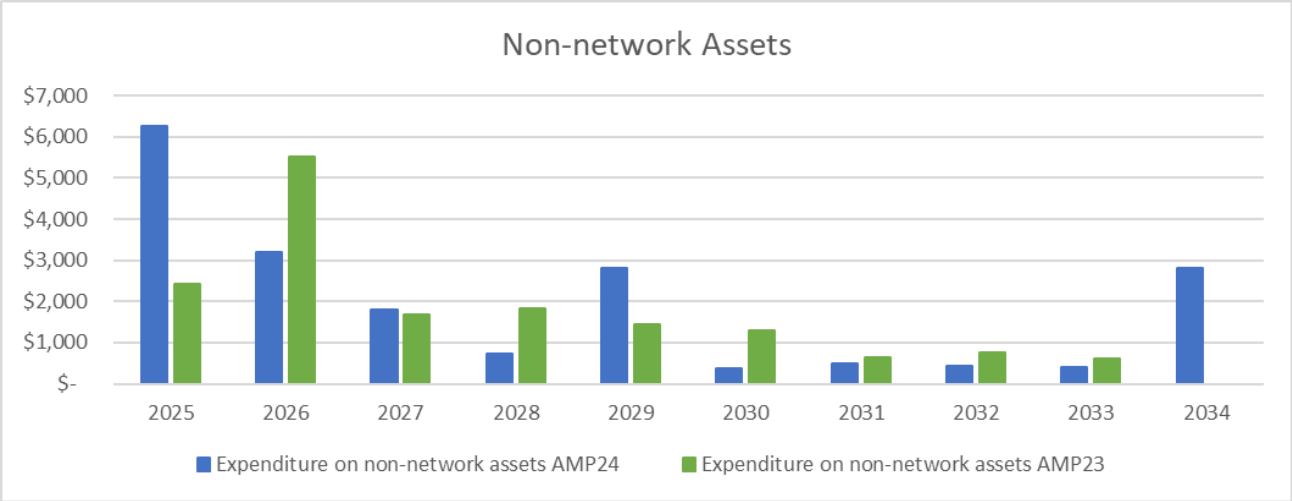

Figure 8: Non network asset expenditure

8. Delivering our strategy

The 2023 year presented some major challenges for our network as we recovered from the impacts of cyclone Gabrielle and other severe weather events resulting in delays to planning and project delivery in RY2024. However, despite these challenges, investment in our network has continued with delivery of twenty-eight line-renewal projects, the installation of five electric vehicle charging stations across the network to support New Zealand's decarbonisation targets, and further investment in security of supply.

Each year TLC matures in its asset management capabilities and continuously adjusts its expenditure profile to improve quality performance standards as set by the Commerce Commission. Significant changes to our asset management approach and investment have occurred over the past seven years and we will continue to develop and improve these processes addressing issues following the quality performance standards contraventions in RY2017 to RY2019. We have made the following changes in our planning process for the 2024 AMP opex and capex expenditure forecasts.

- **Our CAPEX allocation has been more defined over the full 10-year program**

The CAPEX plan has been built using a bottom-up approach for all the asset types for the next 10 years based on current condition data, known issues and basic end-of-life analysis.

In RY2025 we will complete a full network helicopter and drone-based inspection of our line assets, which will be conducted on a five-yearly basis moving forward. This will materially improve our asset data quality and allow improved condition assessment and renewal planning for our major asset groups.

Figure 9: Expenditure plans were developed for each asset class for the AMP2024

The overhead line renewal program has undergone a major programme of works review to ensure that at-risk poles from a certain material and/or construction are proactively replaced over the next two decades, based on known risks and criticality.