



Eastland
Network

2020 Asset Management Plan Update



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1 Executive summary

Introductory comments

This 2020 Asset Management Plan (AMP) Update identifies material changes from our 2019 AMP. This AMP is a departure from our previous AMPs and has been issued as the first step in improving our communication with stakeholders on our key network drivers, the direction we are heading, and the key decisions and judgements that impact how we manage the assets. We hope that stakeholders will benefit from this approach.

As this AMP Update is a “first step” it necessarily focuses on the context of the business. We considered it is important to share how the business got to where it is, as this is the foundation upon which our newly prepared asset management policy and strategy have been formed. In this AMP we have been open with the issues and challenges facing the business, and we will be equally open with the solutions that we are considering to address these challenges.

The key focus of this plan is to outline our policy and strategy for managing the electricity network assets, and to provide our roadmap for improvements to our asset management practices.

Whilst this AMP is only an update, it contains information that will inform the preparation of our full AMP, which will be published in March 2021.

Context

Our historical focus has been on delivering a high level of service, in a cost effective manner, to one of the lowest socio-economic regions of New Zealand. This focus has influenced the network characteristics, our investment in assets, and the adoption of lower cost alternatives to provide network security.

Like many distribution businesses across New Zealand we are experiencing an ageing of our assets, and mitigating the risks of age related failures will be an important focus for the business over the coming decade.

Our network is increasingly being impacted by adverse weather events and vegetation related outages, and increasing the network’s resilience to these impacts is an area for near-term focus.

Eastland Network is part of Eastland Group, and over the last decade we have benefited from the economies of scope of the wider group, which has kept our overhead cost well below other comparable distribution businesses.

Looking ahead, there is the potential for material new industrial load within the region and for material increases in the uptake of solar PV, and we are looking to prepare the network to respond positively to these changes.

Asset management policy and strategy

At the heart of our asset management policy is our commitment to delivering sustainable returns for our shareholders, provide services that meet customers’ needs, and supporting the growth and

prosperity of the Tairāwhiti and Wairoa regions. Effective asset management is the foundation upon which we will meet this commitment.

Our asset management strategy sets the direction for managing our electricity network assets. The seven initiatives that comprise the strategy have been developed to address the current and future issues facing the business, and enable us to achieve our policy commitments.

Improvements to our asset management practices and asset information

We have developed an asset management roadmap to lift the quality of the management and stewardship of our electricity network assets. The objective of the roadmap is to transition Eastland Network to a fully proficient asset manager over the next three years. A key part of the roadmap is the implementation of a new geographical information system (GIS) and enterprise resource planning (ERP) system, which is planned for completion late this year.

Material changes to our quality targets

We have amended our quality targets for FY2021 to FY2026 to match the quality limits that were set for Eastland Network as part of the 2020 default price path (DPP) reset. We have separate targets for planned and unplanned outages, with targets for planned outages increasing (meaning a higher allowance for planned outages to undertaken work on the network), and overall targets for unplanned outages reducing (meaning an overall lower level of unplanned outages).

Material changes to our plans and expenditure forecasts

As part of this update we have reviewed a number of aspects that drive our capital expenditure, which has resulted in a \$2.5m (2.5%) increase in capital expenditure over the next 10-years. Our spend on system growth projects has reduced by \$2.4m as lower growth in some areas means that capacity augmentation work is not yet required. We have reviewed the asset health and renewal requirements for a number of asset classes, which has resulted in a lower assessed health for wood poles, pole mounted transformers, switches and fuses (and higher health assessed for conductor and ground mounted switchgear). The overall outcome is a \$1.1m increase in renewal capex over the next 10-years. The other material change is a \$2.6m increase in vested assets in response to a forecast increase in subdivision activity in Gisborne as existing subdivision and infill lots become full.

Over the next 10-years we are forecasting operational expenditure to reduce by \$2.8m (2.2%) as a result of lower spend on our 110kV line assets, a reduction in the costs we pay Eastland Generation for generation security support, and lower corporate charges from Eastland Group due to the increasing economies of scope of the wider group.

These changes to capital and operational expenditure are shown in Figure 1 and Figure 2 below.



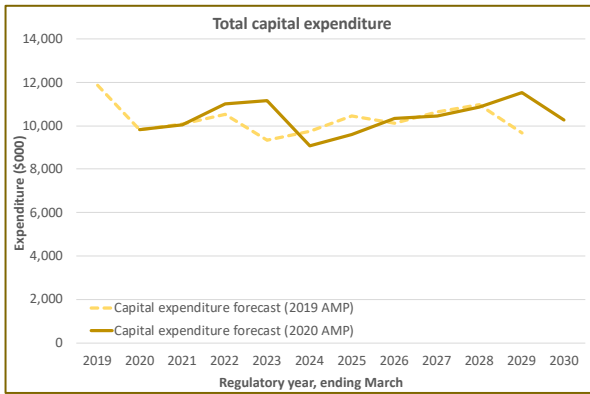


Figure 1: Total capital expenditure forecast

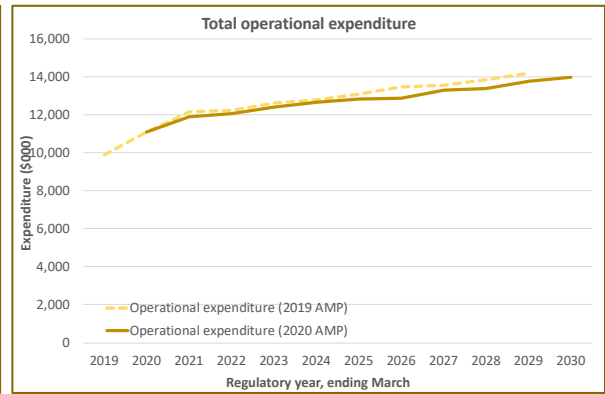


Figure 2: Total operational expenditure forecasts

2 Introduction

2.1 Purpose of this update

This Asset Management Plan (AMP) Update describes the material changes to our 2019 AMP that affect our electricity network and our asset management practices.

During 2019 we commenced a review of our asset management performance and practices, and undertook a review of our asset management policy and strategy. The new asset management policy and strategy presented in this update provides the direction for the material revision to our full AMP that will be published in March 2021.

The purpose of this AMP Update is to communicate with our stakeholders by:



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- Presenting the operating context and performance drivers for the network;
- Presenting our revised asset management and policy and strategy;
- Outlining our roadmap for improvements to our asset management practices and information;
- Presenting our revised quality (reliability) targets;
- Identifying the material changes to the network development plans disclosed in the 2019 AMP;
- Identifying the material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the 2019 AMP;
- Providing the reasons for any material changes to the previous disclosures in the Report on Forecast Capital Expenditure set out in Schedule 11a and the Report on Forecast Operational Expenditure set out in Schedule 11b.

This AMP Update signals a new approach to communicating on asset management, where we now focus on highlighting the key issues, direction, and decisions. We have also sought to present greater evidence in support of our direction and judgements, and this will increase with subsequent releases of our AMP. We hope that stakeholders will benefit from a greater focus on key matters.

2.2 Period covered by this plan

This plan covers a ten-year period from 1 April 2020 to 31 March 2030 (financial years 2021 to 2030 – the planning period). As with any long-term plan, the details tend to be more accurate in the earlier years as it is easier to predict the near-term state of our assets and required actions, plans and expenditure.

2.3 Approval of this plan

This Asset Management Plan was approved by the Eastland Network Board of Directors on 18th March 2020.



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3 Operating context and network issues

3.1 Overview

As mentioned in the introduction, this AMP Update presented a revised asset management policy and strategy. The operating context and network issues are important matters that shape our policy and strategy. Said another way, our policy and strategy need to respond to, and be consistent with, the context of Eastland Network.

In this section we have covered these important contextual issues, including:

- Our historical focus on delivering a high level of service, in a cost effective manner, to one of the lowest socio-economic regions of New Zealand;
- The network characteristics, and how these reflect the low customer density typical of a large rural supply area;
- How the network business benefits from the economies of scope of Eastland Group;
- The ageing of subtransmission and distribution assets;
- The increasing impact of weather events, vegetation outages, and the reduction in headroom in our regulatory quality targets;
- The potential for material new industrial load, which could be well in excess of our current capacity;
- The relatively low quality of our network asset information.

3.2 Eastland Network delivers a high level of service, at relatively low cost, to one of the lowest socio-economic regions of New Zealand

Other than Gisborne and Wairoa, Eastland Network supplies a remotely populated region of the East Coast of the North Island. As a result Eastland's consumer density is amongst the lowest in New Zealand (refer Figure 3). Low density networks typically require a higher level of assets per consumer than would be the case in higher density networks (refer Figure 11).

Eastland Network also supplies one of the lowest social-economic regions¹ (refer Figure 4), which means that consumers ability to pay high electricity prices is limited. At the same time, Eastland's consumers face one of the highest retail electricity prices in New Zealand (refer Figure 5).

The average consumption by Eastland Network consumers is amongst the lowest in the country, reflecting the low socio-economic circumstances for consumers, and the absence of a large industrial consumer base. Large industrial consumers typically carry a large proportion of subtransmission costs, hence in our case, the burden of subtransmission assets falls on small commercial and domestic consumers.

¹ This was measured based on the deprivation index. The dark red areas in Figure 4 represent the most deprived areas.

Given these factors, historically Eastland Network has sought to minimise its investment in subtransmission assets that provide redundancy (i.e. network security); rather, we have provided subtransmission security through lower cost generation alternatives, which we discuss later in Section 3.3. Investment in distribution security has also been kept as low as possible. The consequence of this practice has been that Eastland has maintained reasonable line charges (refer Figure 6) on a per consumer basis despite its very low customer density.

Lastly, consumers are generally happy with the level of service that they receive from us, with most consumers rating service between good and excellent (refer Figure 7).

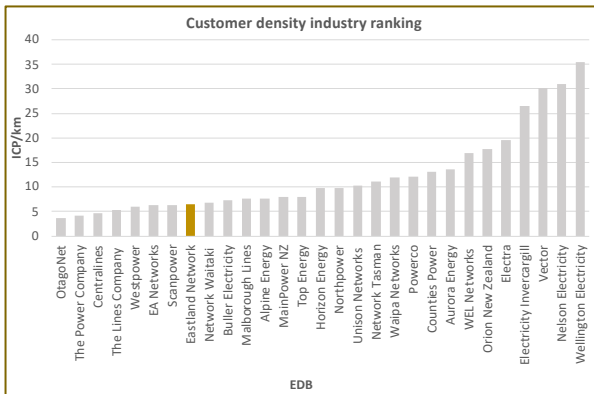


Figure 3: Customer density industry ranking (Source: 2019 IDs)

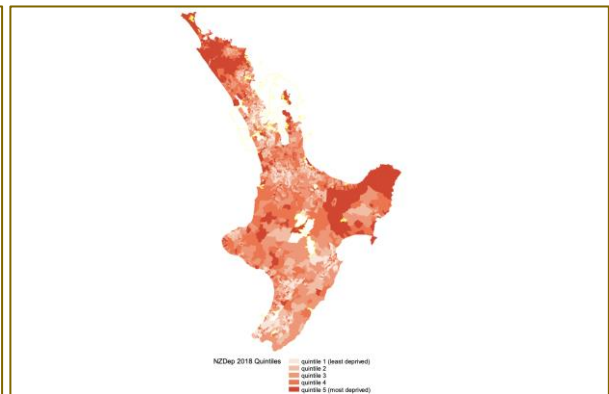


Figure 4: NZ regional deprivation profile (Source: Department of Public Health, University of Otago, Wellington, 2018)

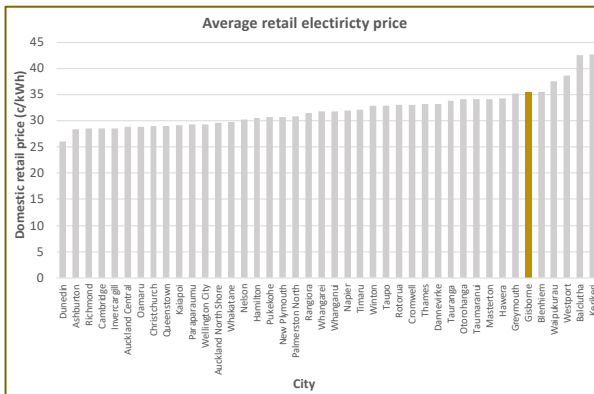


Figure 5: Electricity retail prices (Source: MBIE Electricity Price Monitoring, November 2019)

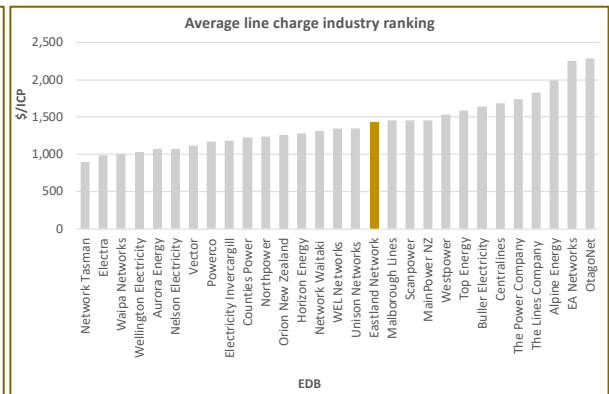


Figure 6: Line charge industry ranking (Source: 2019 IDs)

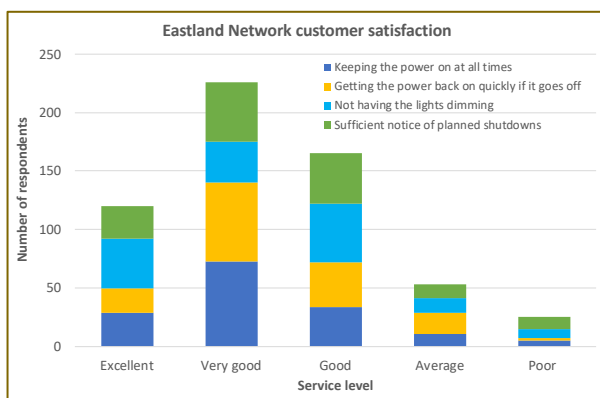


Figure 7: Eastland customer satisfaction (Source: Eastland)

3.3 Eastland’s network characteristics reflect its low customer density and large rural supply areas

Gisborne is the only significant load centre where over 50% of consumers are located (refer Figure 8). As a consequence of the disbursed nature of nearly half of our consumers, most of the network consists of overhead lines (refer Figure 9). The high proportion (90%) of overhead lines increases the exposure to outages caused by adverse weather and vegetation.

Due to Eastland Network’s low customer density, the network is afforded with relatively low subtransmission N-1 security (which is typical of higher density networks). Only 30% of customers are supplied by zone substations with N-1 security, however a further 60% of customers are supplied by substations with N-1 generator and N-1 switched security (refer Figure 10).² The adoption of these alternative approaches to subtransmission security (the use of generation and automated switching), and the use of lower cost overhead construction techniques has afforded the network a modest level of assets per consumers when compared to other low density networks (refer Figure 11).³

Importantly, the use of generator support has avoided, on average, 350 SAIDI minutes over the past three years (refer Figure 12). That is, Eastland’s reliability performance would have been significantly worse in the absence of the generators.

All of Eastland Network’s 11kV distributions feeders are configured radially. As is often the case for a long rural network, reclosers and sectionalisers are installed to minimise the impact of outages.

Presently, Eastland has not adopted the use of reclosers and sectionalisers to the same extent as other rural networks (refer Figure 13).

² In terms of security standards, N-1 means that the loss of a single subtransmission line or zone substation transformer will not result in the interruption of supply. That is, there is redundancy within the supply system. N-1 Generator means that supply will be briefly interrupted while the generator starts and comes on-line. N-1 Switches means supply will be briefly interrupted while supply is switched to an alternative source (typically an adjacent substation). N security means supply will be interrupted and not restored until repairs are made.

³ The similarly low density networks are OtagoNet, The Power Company, Centralines, The Lines Company, Westpower, EA Networks, Scanpower, Marlborough Lines, Mainpower, and Top Energy. Almost all of these companies have a higher level of assets employed per consumer than Eastland Network.

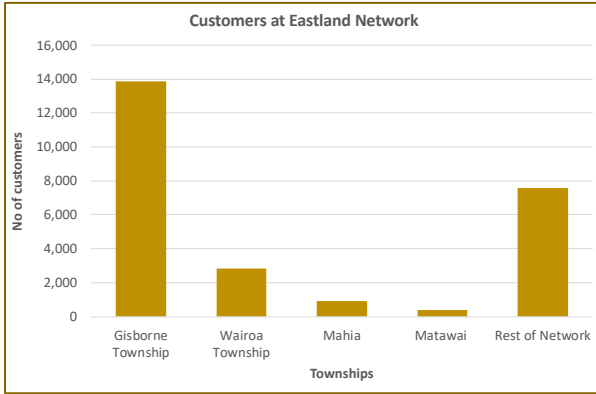


Figure 8: Distribution of Eastland's customers (Source: 2019 IDs)

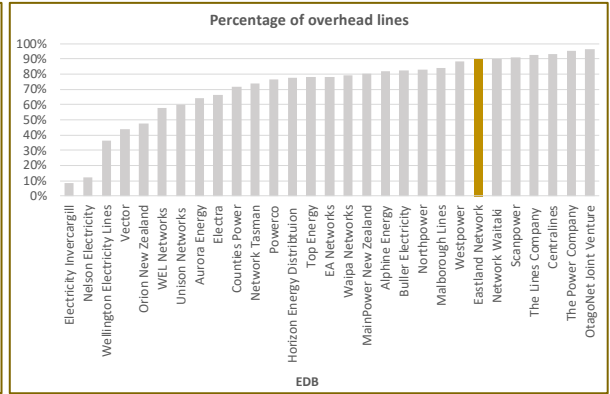


Figure 9: Overhead lines industry ranking (Source: 2019 IDs)



Figure 10: Customer substation security ranking (Source: Eastland analysis)

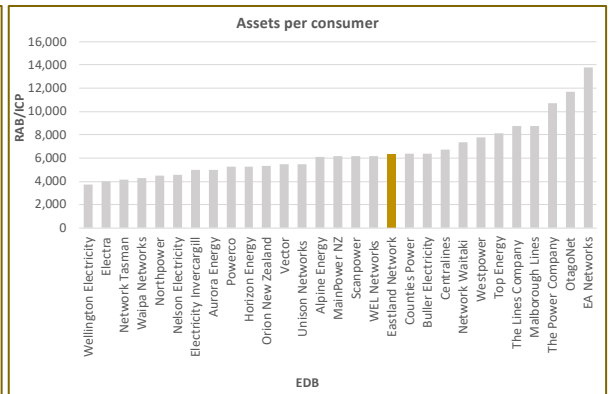


Figure 11: Industry assets per consumer ranking (Source: 2019 IDs)

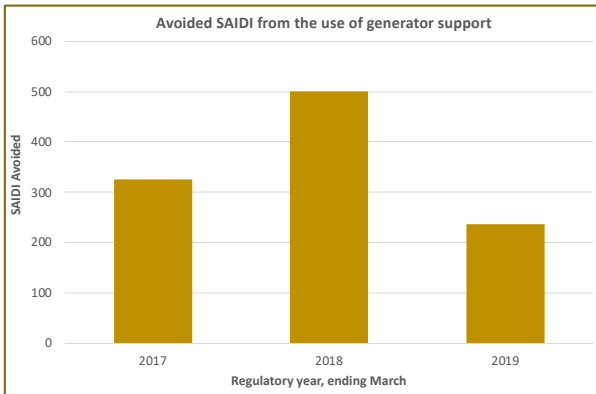


Figure 12: Eastland generation usage (Source: Eastland analysis)

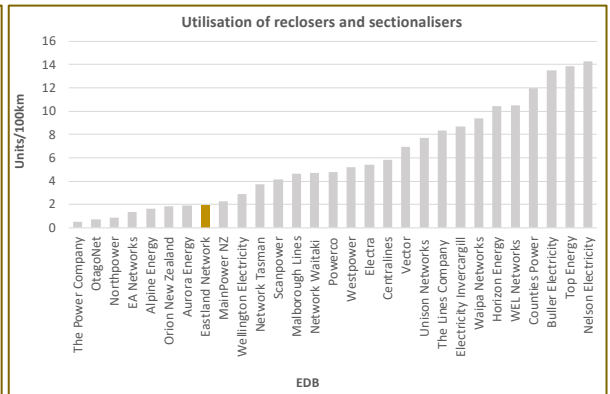


Figure 13: Industry recloser and sectionaliser density ranking (Source: 2019 IDs)



3.4 The benefits of the economies of scope of Eastland Group

Eastland Network, and its consumers, enjoy significant benefits from the economies of scope that have resulted from the growth of Eastland Group. Figure 14 illustrates that Eastland Network's overhead costs⁴ are amongst the lowest when compared to similar or larger companies⁵. When compared to our closest neighbours, Eastland's consumers benefit by between \$63 and \$67 per annum due to being part of Eastland Group, and upwards of \$100 per annum when compared to similar sized companies.

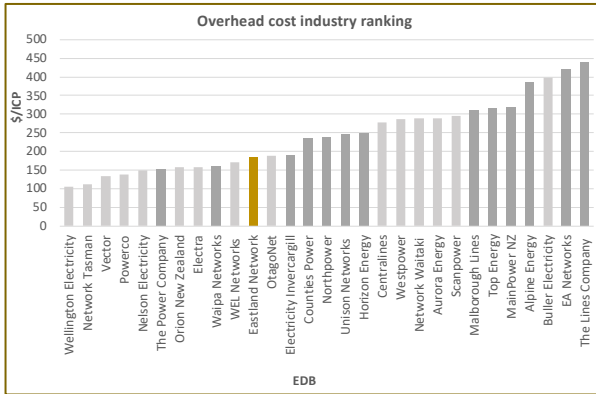


Figure 14: Overhead cost, industry rankings (Source: 2019 IDs)

3.5 The increasing age of subtransmission and distribution assets

Not unlike most distribution businesses in New Zealand, Eastland Network's assets are ageing. That is, large quantities of assets that were installed in the 1960's and 1970's are approaching end-of-life and an increasing risk of failure due to end-of-life issues.

For Eastland Network, the aging asset fleet is more apparent across wood poles, conductor, zone substation transformers, distribution overhead switchgear, and distribution transformers (Refer Figure 15 to Figure 21). Presently, the aging asset fleet is not resulting in high failure rates and material impact on reliability (refer Figure 21 in relation to defective equipment contribution to total SAIDI). However, with that said, managing our ageing asset fleet is an important focus for the business going forward.

⁴ System Operations and Network Support and Business Support Costs.

⁵ Those shaded in darker grey in Figure 14.

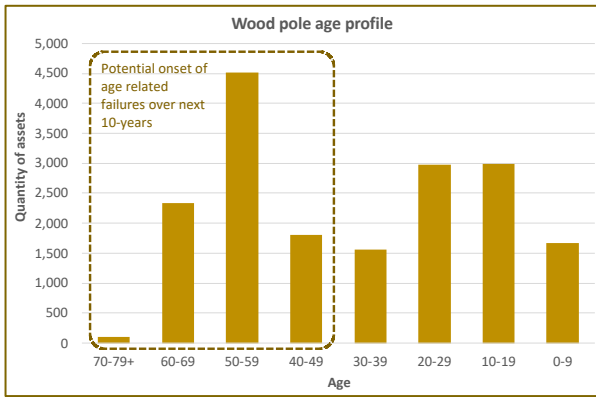


Figure 15: Wood pole age profile (Source: 2019 IDs)

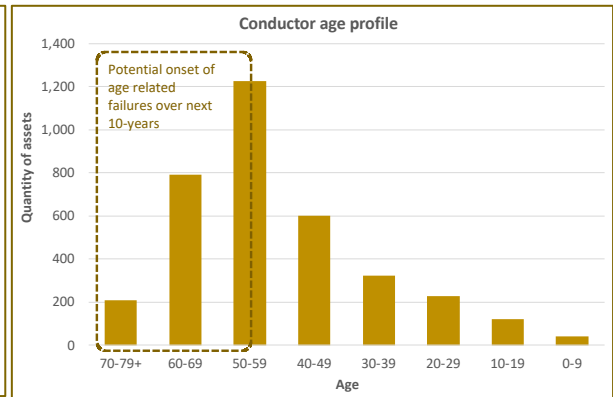


Figure 16: Conductor age profile (Source: 2019 IDs)

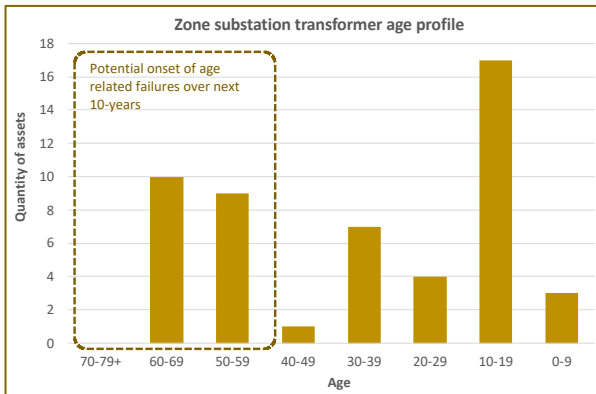


Figure 17: Zone transformer age profile (Source: 2019 IDs)

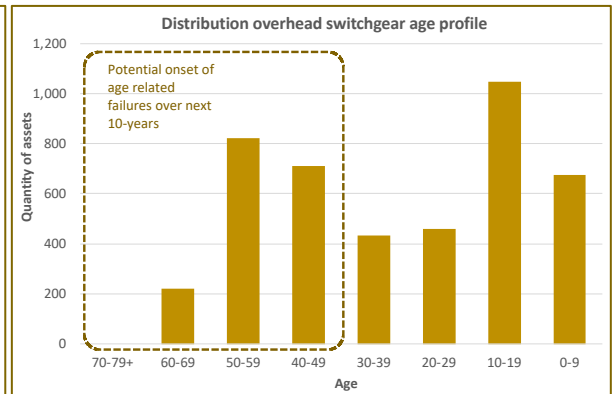


Figure 18: Distribution overhead switchgear age profile (Source: 2019 IDs)

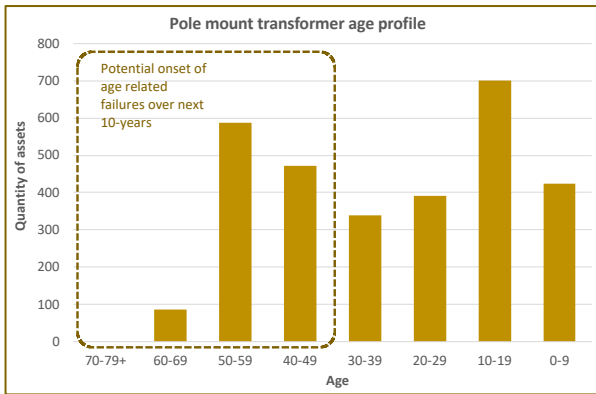


Figure 19: Pole mount distribution transformer age profile (Source: 2019 IDs)

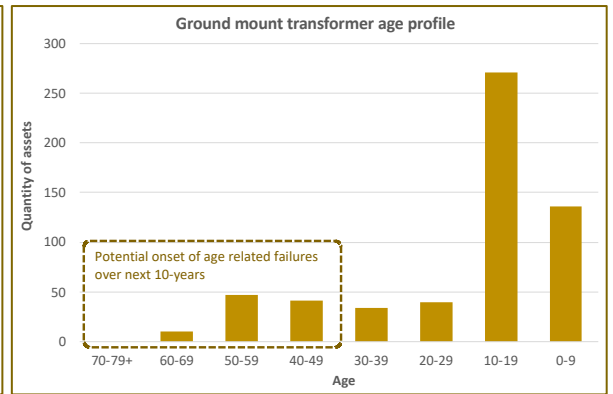


Figure 20: Ground mount distribution transformer age profile (Source: 2019 IDs)

3.6 The increasing impact of weather events, vegetation outages, and the reduction in headroom in our regulatory quality targets

Eastland Network is increasingly being impacted by adverse weather and vegetation related outages (refer Figure 21). These two causes of outages accounted for 61% of SAIDI, and 32% of SAIDI over the last 7 years.

Adverse weather events have been increasing and are an increasing source of major event days (MEDs)⁶. In FY2018 and FY2019 we experienced a total of six MEDs due to whether events. This is up from one weather related MED across FY2013 and FY2014.

While the underlying level of vegetation outages has remained largely constant, the extent of vegetation outages is increasingly being impacted by weather events (refer Figure 22). This situation is being exacerbated due to reliance on generators to support subtransmission security (which means that while vegetation outages are restored quickly using generators, a small outage occurs, which has a negative impact on the number of outages per customers⁷).

A contributing factor to the extent of vegetation related outages is that the network has material exposure to forestry plantations with around 7% of subtransmission lines and 10% of distribution lines pass through forestry areas.

Compounding the issue, the 2020 default price path reset has recently been completed and the quality (reliability) limits applicable to the network have been reset. The consequence of the reset is that our headroom to the regulatory limits has reduced for both SAIDI and SAIFI.

The combination of these factors has increased the risk of a quality path breach over the coming five years, which is a matter that requires near-term focus.

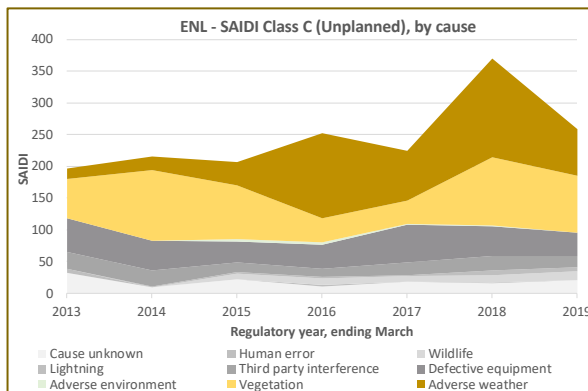


Figure 21: Eastland cause of unplanned outages (Source: 2013 to 2019 IDs)

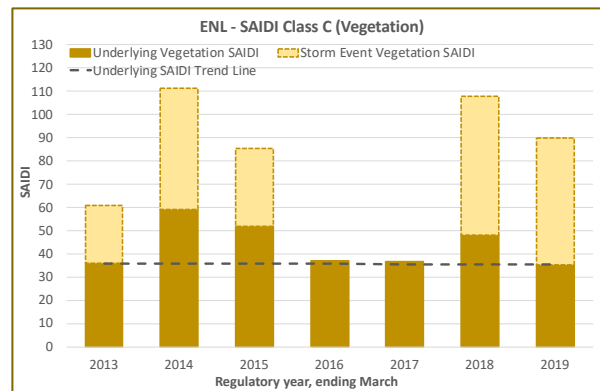


Figure 22: Eastland vegetation outage performance (Source: 2013 to 2019 IDs)

⁶ Major event days are days where the network experiences events that result in SAIDI and SAIFI above a set boundary limit. For Eastland Network this limit is 13.1 SAIDI and 0.177 SAIFI (from FY2021). The purpose of the MEDs is to limit the impact of these major events.
⁷ The SAIFI regulatory measure.

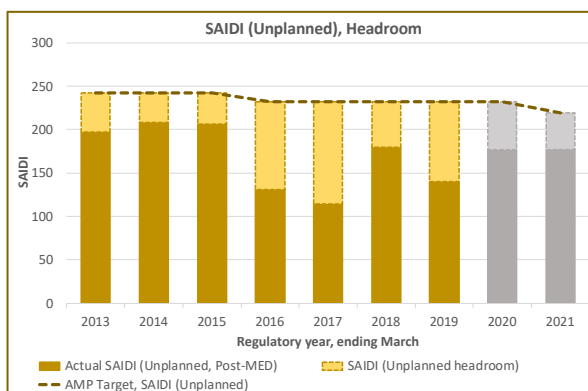


Figure 23: SAIDI Unplanned outage headroom

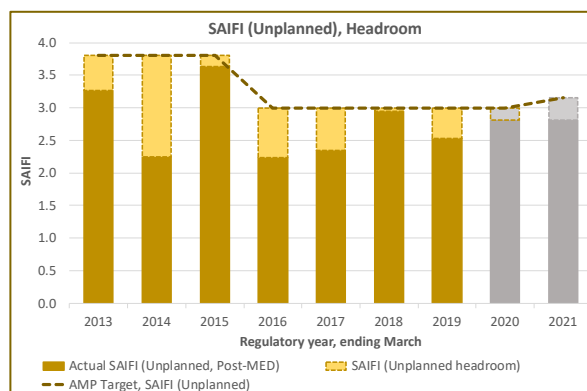


Figure 24: SAIFI Unplanned outage headroom

3.7 Catering for step-change growth in industrial load

The existing 110kV lines supplying Gisborne are currently rated at 59MW, with current peak demand close to 50MW.⁸ The current spare capacity is sufficient for organic growth, however the potential exists for material new industrial load that would be well in-excess of the remaining spare capacity.

The load requirements, and whether the new industrial consumer will choose Eastland for its site, are still in the scoping phase. However, it is prudent for Eastland Network to be prepared for large scale industrial load growth to ensure it can support regional economic growth.

3.8 The quality of network asset information, and its use in asset management

As part of our information disclosure requirements we have been reporting low data accuracy in relation to asset age and asset condition.⁹ For all but one asset category, we have assessed the data accuracy as 1 (meaning that good quality data is not available for any of the assets in the category and estimates are likely to contain significant error).

The data accuracy has been informed by prior work undertaken to assess the completeness and accuracy of asset data, which is included in our previous AMPs¹⁰. Our own data assessment covers completeness (that is, whether we have accurately recorded that an asset exists), and the accuracy (that is, the level of confidence we have in the attribute information).

The translation between our data assessment and the requirements for data accuracy in the ID schedules is interpretative and we consider that our disclosure of the data accuracy has been conservative to reflect the uncertainty associated with the accuracy of asset attribute data. At this stage we have not updated our interpretation of data accuracy, however, we intend to review the data accuracy and properly align our interpretation as part of the preparation for the

⁸ Winter line rating and winter peak demand.

⁹ In relation to the ID and AMP schedules 9a, 9b and 12a.

¹⁰ Eastland Network 2019 AMP, at page 43.

2021 AMP. This will allow us the benefit of the new asset management system (refer to Section 5.3).

3.9 Future increase in the uptake of solar PV and battery usage by consumer

Other regions in New Zealand are experiencing an increasing uptake in solar PVs. This is likely to be a lead indicator of an increase in uptake across the Eastland region. We have not considered the impact of an increasing uptake in this AMP update, however, this will be considered in more detail in our 2021 AMP.



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4 Revised asset management policy and strategy

4.1 Overview

In this section we have outlined our revised asset management policy and strategy.

The purpose of our asset management policy is to set out our principles that will guide the direction and approach for managing the electricity network to achieve the Eastland Group's overall corporate strategy. The policy is also our pledge of stewardship for our assets.

The purpose of our asset management strategy¹¹ is to set out our initiatives that will enable us to meet our corporate strategy. Our strategy has been established in response to the operating context and network issues outlined in Section 3. These initiatives will guide the specific programmes and projects within our asset management plan.

4.2 Eastland Group strategy

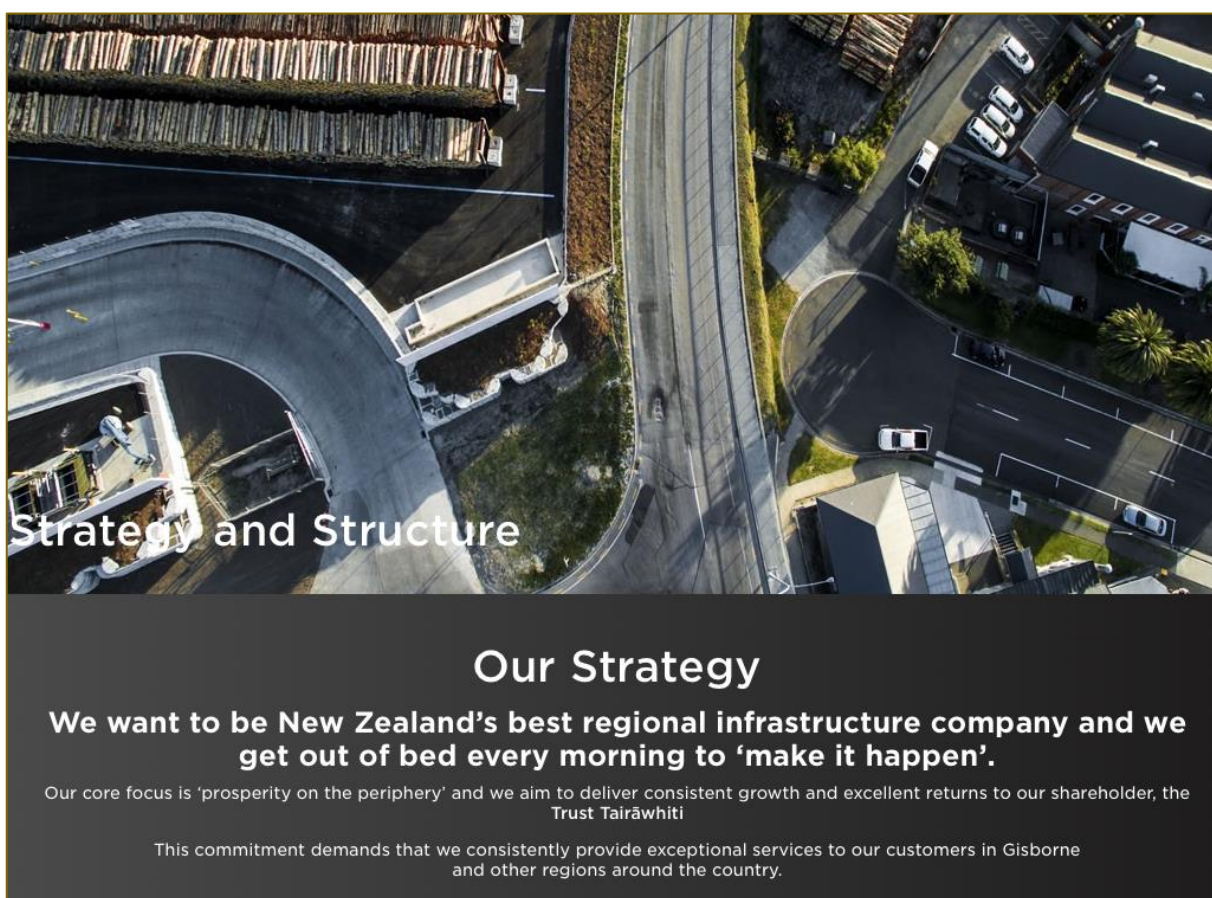


Figure 25: Eastland Group strategy

¹¹ In ISO 55001, these are referred to as objectives.

4.3 Asset management policy

We have revised our asset management policy to reflect the current context for Eastland Network. The policy was approved by the Board on 18th March 2020.

Asset management policy

To support the Eastland Group strategy, Eastland Network is committed to delivering sustainable returns for its shareholders, providing services that meet customers' needs and supporting the growth and prosperity of the Tairāwhiti and Wairoa regions.

Effective asset management is the foundation upon which we will meet this commitment, and at all levels of the organisation we will work to:

- Ensure the safety of the public, our staff, and contractors;
- Develop, renew, and maintain our network in a way that meets the current and evolving needs of our customers;
- Recognise the socio-economic diversity of our customers and deliver a cost-effective service;
- Ensure that our asset management decisions are based on the evaluation of options that take into account life cycle costs, benefits, and risks;
- Report proactively and transparently on our investment plans, service performance, and risks, including consulting with stakeholders where appropriate;
- Implement effective asset management systems and processes, including the capture and retention of information on our assets;
- Operate in an environmentally sustainable and ethical manner;
- Meet all statutory and regulatory obligations;
- Continually improve our asset management system;
- Develop our resources and capabilities, both internally and externally to deliver our plans.

4.4 Asset management strategy

In light of the key issues facing the network and the direction established by the asset management policy, we have developed a strategy to shape our asset management activities over the next decade. The strategy will be reviewed and refined over the coming year as we undertake a comprehensive review of our asset management activities leading to the publication of a full AMP in March 2021.

Our asset management strategy sets the direction for managing our electricity network assets. It has been developed with particular attention to:

- Describing the key objectives and initiatives that will be pursued to achieve our asset management policy over time;

- Delivering service that is in compliance with our regulated quality thresholds;
- Drives our continuous improvement programme to ensure we continue to be an efficient and effective network business.

Our asset management strategy consists of seven initiatives:

| Initiative | Description |
|---|---|
| 1. Improve network resilience | The resilience of the network to weather events will be enhanced through a combination of ENL's vegetation management plan and its distribution network automation and security enhancements |
| 2. Enhance vegetation management activities | Develop and implement ENL's vegetation management plan, which includes: <ul style="list-style-type: none"> • Optimising expenditure in high priority areas • Intensive subtransmission vegetation management • Forestry owner engagement to achieve acceptable plantation fall zone clearances and harvesting clearances • Early detection of vegetation hazards through SCADA monitoring of earth fault pick-up (pre-trip) • Improving maintenance of existing line corridors |
| 3. Enhance asset fleet plans | We will develop enhanced asset fleet plans for our key assets to ensure we effectively manage the performance of our ageing network assets. Our initial focus will be |
| 4. Increase the level of automation, protection, and distribution back-up | We will pursue a range of initiatives to enhance the security of the network. This will include: <ul style="list-style-type: none"> • Develop SAIDI/SAIFI improvement model to evaluate potential security/reliability enhancements • Increase the use of network automation (sectionalisers and reclosers) to minimise the impact of outages • Review of distribution protection discrimination to ensure it is operating effectively • Review areas of the network where extension may be feasible to enhance 11kV back-up on key feeders |
| 5. Developing solutions to cater for | To prepare for step-change growth we will develop network solutions to increase network capacity into Gisborne and support Eastland |

| Initiative | Description |
|--|---|
| step-change industrial growth | <p>Group's development of non-network solutions to provide capacity within the region.</p> <p>We will develop options for 110kV line and substation capacity augmentation that can be deployed to meet industrial customer demands. We will also develop plans for enabling infrastructure required for the connection of generating capacity as an alternative to major subtransmission and transmission upgrades into the Gisborne region.</p> |
| 6.Improve our asset management practices and asset information | <p><u>Improving asset management practices</u></p> <p>We are targeting to lift our asset management maturity assessment score from 2.3 (out of 4) to 3.0 by the end of 2023.</p> <p>Over the next 12 months our focus is on:</p> <ul style="list-style-type: none"> • Having a well-defined asset management policy and strategy; • Developing the tools for enhancing our life-cycle asset planning; • Ensuring quality condition information is captured through our inspection and testing programs. <p>For 2022, our focus will turn to making network performance improvements on the back of better analysis, continuing to build the quality of our AMP, and embedding a new structure and competencies. By 2023 we will be focusing on continuous improvement.</p> <p><u>Implementing a new ERP and GIS</u></p> <p>An essential part of this initiative is the implementation of the new ERP and GIS. These systems are tightly integrated and are being implemented concurrently with a forecast completion date of November 2020.</p> <p>The ERP will be delivered through the SAP system and the GIS will be delivered through an ESRI solution.</p> <p>The SAP and ESRI projects provide information and functionality to support the improvement in our asset management processes. The functionality provided includes: asset management, works management, project management, field mobility, consolidated asset registers, and geospatial mapping and analysis.</p> |
| 7.Be prepared to respond to technology change | <p>Looking further ahead, we also foresee a need to respond to the increasing solar PV and battery uptake. We presented an initial view of</p> |

| Initiative | Description |
|------------|---|
| | the impact of technology change in our 2019 AMP, and this will be enhanced in our 2021 AMP. |

4.5 Targeted improvement in performance

At this stage we have only prepared specific improvement targets in relation to initiative two, as the work on improving our vegetation management activities is suitably advanced to have confidence in setting a realistic target. The development of specific goals and targets for the other initiatives will be progressed in parallel with our work on the specific programmes and project. We are planning to publish these targets in the 2021 AMP.

5 Improvements to our asset management practices and asset information

5.1 Introduction

In this section we present an outline of our roadmap for improvement in our asset management practices, and the impact that the roadmap will have on our expenditure forecasts. We also discuss the impact of increasing economies of scope within Eastland Group.

5.2 Improvements in asset management practices

Drivers for change

We have developed an asset management roadmap to lift the quality of the management and stewardship of our electricity network assets. Presently our asset management maturity assessment scores at 2.3 (out of 4), meaning we are aware of good practices and have commenced work in applying those practices.

Figure 26 illustrate ENL’s 2019 asset management maturity (by key assessment areas) and compares this to the 2018/2019 industry average and 75th percentile. As can be seen, ENL’s maturity is below the industry average and is well behind the upper quartile.

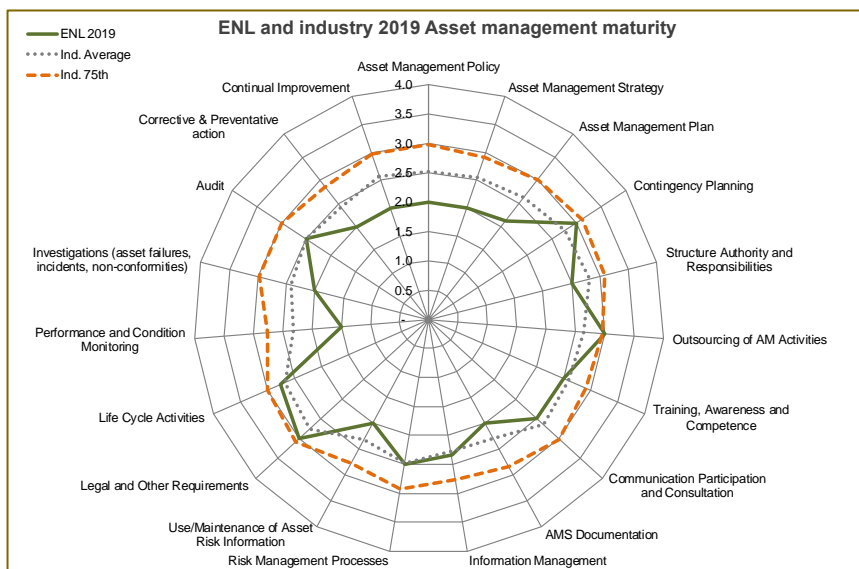


Figure 26: ENL asset management maturity (2019)¹²

¹² Source: 2018 and 2019 AMPs. Note: AMMAT assessments are not necessary for AMP Updates, hence were no AMMAT was provided in the 2019 AMP we used the 2018 AMP assessment.

Asset management improvement roadmap

The objective of the roadmap is to transition Eastland Network to a fully proficient asset manager over the next three years. We will measure our success through improvement in our asset management maturity that is disclosed as part of our AMP, and also through achievement of a series of measurable goals.

The objective of the asset management roadmap is to transition Eastland Network to a fully proficient asset manager by the end of FY2023

| Goals | Due Date |
|---|--|
| (a) To ensure that there is suitable information to support asset management decision making | October 2020* October 2021 ⁺ |
| (b) To prepare a comprehensive 2021 AMP that fully addresses the identified asset management issues and strategies | March 2021 |
| (c) To have a robust system to provide assurance to the Board over the effectiveness of AM activities and compliance with regulations | March 2021 |
| (d) To have a systematic, and evidence-based asset management process | March 2022 |
| (e) Develop the key elements of an asset management system consistent with ISO 55000, which are appropriate for ENL | March 2022 |
| (f) Achieve an overall assessment management maturity of 3, being a fully competent asset manager | March 2023 |

* For key assets classes of wooden poles, concrete poles, steel structures, distribution lines, and subtransmission lines.

⁺ Other material asset classes.

We are targeting to achieve a score of 3.0 by the end of FY2023, which means we will have implemented the main elements of ISO 55000 in a coordinated manner. We consider that targeting a maturity level of 3 is appropriate and consistent with current regulatory expectations for the industry. We selected a three year timeframe to allow sufficient time to build the necessary IT, information, and organisational capabilities that are required for level 3 maturity.

For FY2021 our focus will be on:

- Having a well-defined asset management policy and strategy;
- Having well defined life-cycle fleet plans for key asset classes;
- Improvements to asset information on the back of the SAP and GIS project;
- Ensuring quality condition information is captured.

For FY2022, our focus will turn to making network performance improvements on the back of better analysis, continuing to build the quality of our AMP, and embedding a new structure and competencies. By FY2023 we will be focusing continuous improvement.

Targeted improvement in asset management maturity

The benefits of this work will support Eastland Network to realise value from its electricity network assets aligned to the Group’s objectives. Good asset management supports the realisation of value while balancing financial, environmental and social costs, risk, quality of service, and performance related to assets.¹³ We believe that the benefits will materialise through a better understanding of our assets, more effective risk management, and a more optimal mix of expenditure and service levels. Importantly, we will be seen as a competent asset manager by the Commerce Commission, which is important given their increasing focus on asset management.

In terms of our asset management maturity, our targeted improvement over the next three years is shown in Figure 27 below.

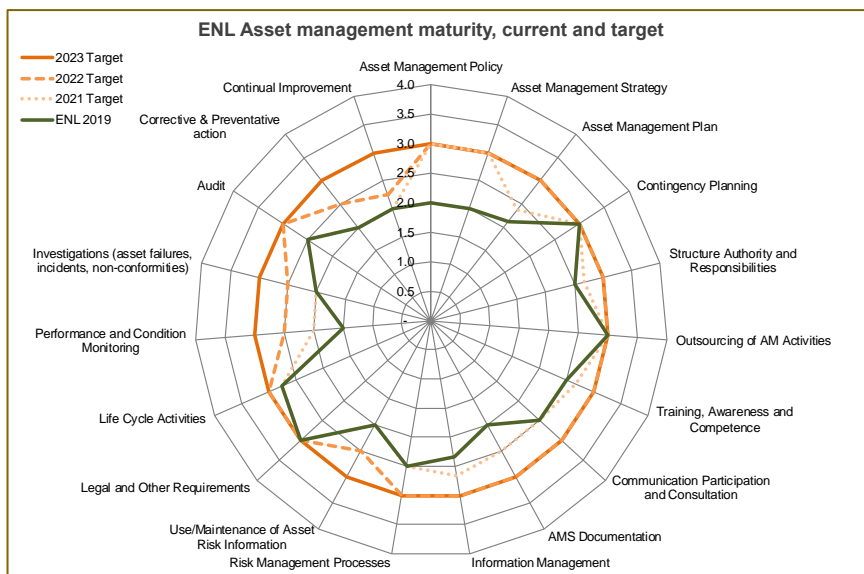


Figure 27: Target improvement in asset management maturity

Impact on expenditure forecasts

Implementing the roadmap is expected to increase system operations and network support (SONS) costs through a combination of an increase in staff costs and a modest increase in consultancy support.

SONS costs are also increasing due to higher easement procurement costs and additional consultancy work in relation to specialist engineering work (i.e. Seismic assessments).

¹³ Refer ISO 55000, at Section 2.2.

Overall, SONS costs are forecast to increase by \$2.8m (over the comparable planning period).¹⁴

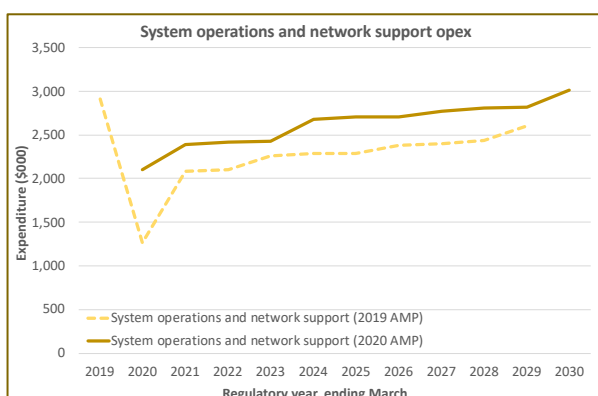


Figure 28: Changes in system operations and network support forecasts

5.3 ERP and GIS implementation projects

Drivers for change

Eastland Group has grown significantly over the last 10 years. The current IT systems are a consequence of the significant organic growth of the company. Whilst many of the IT systems and business processes have served Eastland Network and the wider Eastland Group well, they now carry a high level of operational risk, and are not fit for purpose to support the Eastland Group over the next decade.

Eastland Network’s existing geographical information system (GIS) is end-of-life and uses siloed data; while capabilities support data transaction and basic mapping they are unable to provide deeper insights and are not scalable across the Eastland Group.

Given the increasing risk in relation to end-of-life software, and benefits available from implementing best-practice processes embedded within modern enterprise resource planning (ERP) software, the Eastland Group Board approved a group wide implementation of SAP ERP system. Eastland Group has also committed to implementing the ESRI GIS in parallel with the ERP implementation.

Project overview

The scope of the ERP and GIS projects are shown in Table 1 below. The go-live date for these systems is 01 November 2020.

Table 1: ERP and GIS Implementation

| SAP Scope | GIS Scope |
|--|--|
| <ul style="list-style-type: none"> Asset management | <ul style="list-style-type: none"> Eastland Group are currently in the design stage of ESRI GIS across all business sectors |

¹⁴ The increase of \$2.8m reflects the increase after correcting for an understatement of FY20 SONS in the 2019 AMP of c.\$0.9m.

| SAP Scope | GIS Scope |
|--|---|
| <ul style="list-style-type: none"> • Works management • Project management • Materials management and purchasing • HR timesheeting to support asset management • Finance • Business intelligence and reporting • Field mobility for contracting teams • Consolidation of asset registers | <p>with success predicated on the successful implementation of a new ERP. The implementation intends to provide data access, optics, mapping and geospatial analysis across and within business sectors</p> |

The project budget for the ERP system is \$3.8m, and the current estimate for GIS is \$0.5m (which is subject to final design approval).

Targeted improvement in information quality and asset management analytical support

A key outcome of the ERP and GIS projects is to improve the business processes, information quality, and analytical support for asset management. The key improvements being targeted are:

- All key asset management processes will be supported by the ERP, including the field capture of information;
- Data accuracy for the asset register, asset age, and asset condition¹⁵ will improve from 1 to above 3¹⁶ for key asset classes;
- Advanced asset management and expenditure analysis will be possible across the ERP and GIS.

Impact on expenditure forecasts

The ERP and GIS projects are group wide projects, and as a result Eastland Group will be recovering the costs associated with these systems through changes in its corporate IT charges. The corporate charges from Eastland Group to the network business are not currently expected to change materially.

5.4 Impact of greater economies of scope within Eastland Group

The scope and scale of Eastland Group continues to improve as a result of growth in its port, airport, and generation businesses. Eastland Group's corporate services (which also support Eastland Network) have not increased at the same rate, resulting in greater economies of scope, and a

¹⁵ These improvements will be observable in AMP schedule 12a, ID schedule 9a and 9b.

¹⁶ A Data quality score of 1 means "which indicates that means that good quality data is not available for any of the assets in the category and estimates are likely to contain significant error", a data quality score of 3 means "that data is available for all assets but includes a level of estimation where there is understood to be some poor quality data for some of the assets within the category", and a data quality score of 4 means "means that good quality data is available for all of the assets in the category."

reduction in corporate changes to Eastland Network of \$3.0m over the comparable forecast period (refer Figure 29).

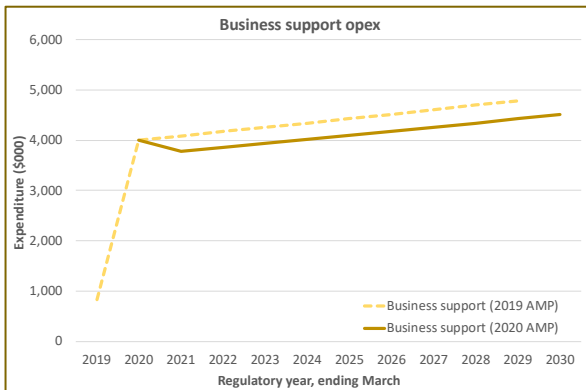


Figure 29: Changes in business support forecasts

5.5 Billing system replacement, building earthquake strengthening and refurbishment work

The Eastland Network team currently reside in outdated office areas that were originally part of the Power Board depots. The offices in Gisborne and Wairoa are due for refurbishment and earthquake strengthening, which has resulted in a \$320k increase in non-network capex across FY2021 to FY2023.

Eastland Network’s Gentrack billing system is also end-of-life and needs to be replaced to mitigate operational and end-of-life risks. The project has not yet been fully scoped, but a provision of \$200k has been included in 2022 for this project.

Overall, non-network capex has increased by c.\$450k (over the comparable planning period).

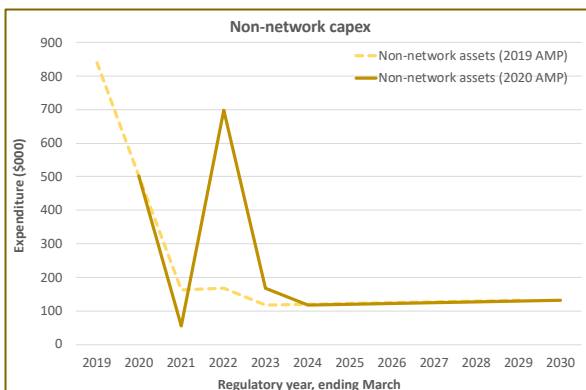


Figure 30: Changes in non-network capex forecasts



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6 Material changes to quality target

6.1 Drivers for change in quality targets

We have amended our quality targets for the FY2021 to FY2026 to match the quality limits that were set for Eastland Network as part of the 2020 default price path (DPP) reset.

The 2020 DPP reset set separate targets for planned and unplanned outages. The reset methodology has resulted in a material increase in planned outage targets to remove the incentive to reduce planned work to comply with the quality threshold. The methodology also now comprises an annual assessment (i.e. exceeding the reliability cap in any one year results in a contravention of the price-quality path, which can result in an investigation and enforcement action), as opposed to a two-out-of-three year assessment.

We have reviewed the quality targets against our customer survey results (refer to Figure 7) and consider that overall, the changes will not have a materially adverse effect on customer service outcomes.

6.2 Targets for unplanned outages on the network

The 2020 DPP reset has resulted in a reduction to our unplanned (Class C) SAIDI target, and a minor increase in our unplanned (Class C) SAIFI target (refer Figure 31 and Figure 33).

Based on a forward view of our possible reliability outcomes, our reliability “headroom” has reduced (refer Figure 32 and Figure 34).¹⁷ The reduction in headroom, coupled with the increasing impact of weather and vegetation is a key risk to service/reliability going forward (refer Section 3.6).

Addressing this risk is the focus of initiatives 1, 2, 3, and 4 included in our asset management strategy. As we develop programmes and projects under these initiatives we expect to reflect the outcomes of this work in an increase in our reliability headroom in subsequent AMPs.

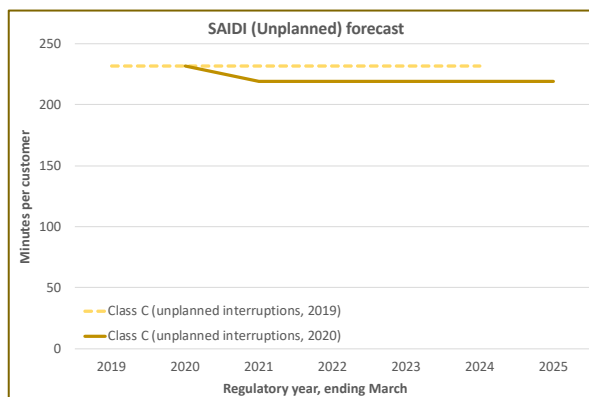


Figure 31: SAIDI Unplanned outage target

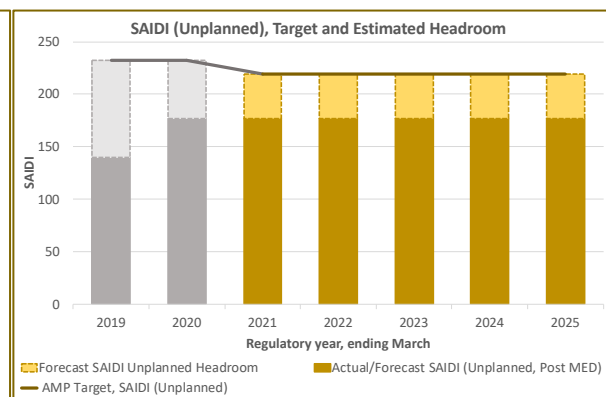


Figure 32: SAIDI Unplanned outage headroom

¹⁷ The possible reliability outcomes reflect a simple projection of historic average performance, post-MED adjustment. The “headroom” represents the difference between possible outages and the target).

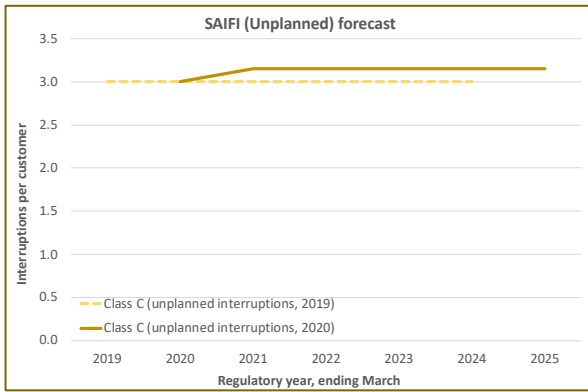


Figure 33: SAIFI Unplanned outage target

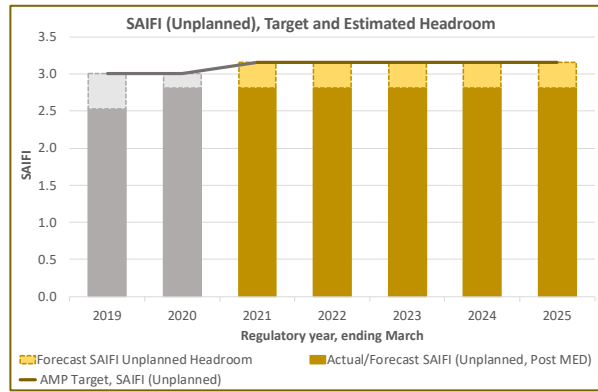


Figure 34: SAIFI Unplanned outage headroom

6.3 Targets for planned outages on the network

As mentioned, our targets for planned outages has increased materially, consistent with the change in 2020 DPP quality targets (refer to Figure 35 and Figure 37).

Previously we have not always been able to undertake planned work within our internal targets for planned SAIDI and SAIFI. This will no longer be the case, and the reliability headroom available no longer presents a risk to our planned work programmes (refer to Figure 36 and Figure 38).

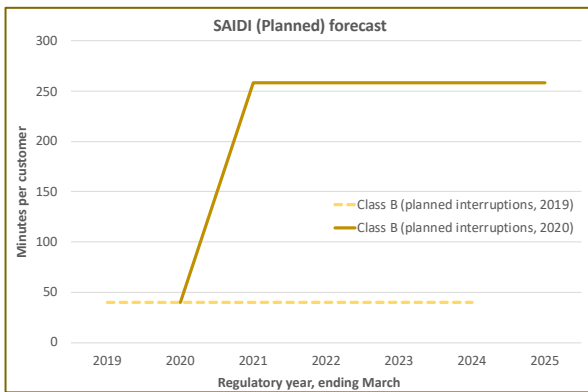


Figure 35: SAIDI Unplanned outage target

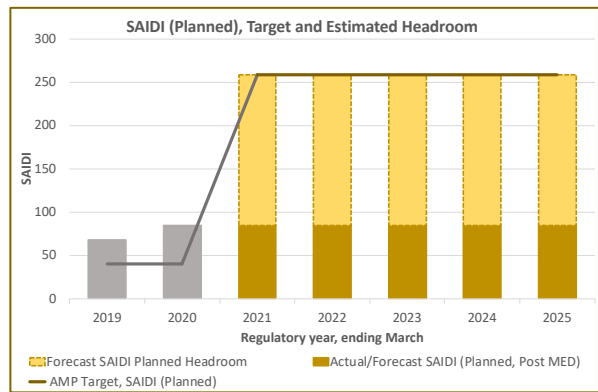


Figure 36: SAIDI Unplanned outage headroom

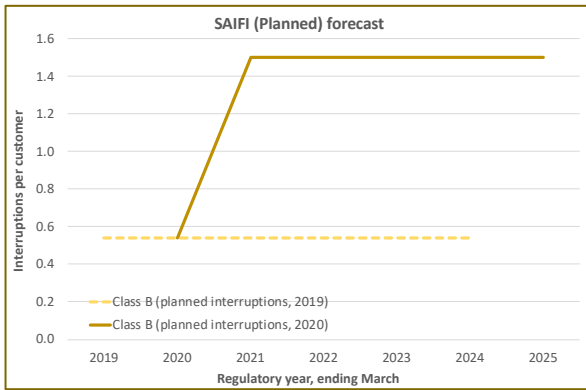


Figure 37: SAIFI Unplanned outage target

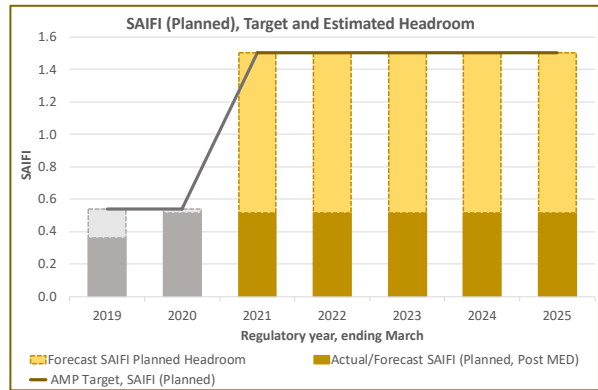


Figure 38: SAIFI Unplanned outage headroom

7 Material changes to the network development plans

7.1 Growth projection have not changed

We have not made any changes to our customer connections, maximum demand, or consumption forecasts in preparing this AMP Update. As we noted in Section 3.7, we are currently developing plans to cater for step-change industrial growth in the region. As the potential load increases are not yet fully certain, and our options are not yet fully formed, we have decided not to include this step-change growth in our baseline forecasts. We intend to provide more clarity on the likely increase in demand, and the options and plans to cater for this growth in our 2021 AMP.

In terms of customer connections, the level of growth is tracking close to recent historic levels, hence we do not consider that there is a basis for change on the forecasts.

7.2 Optimisation of system growth projects

Drivers for change

We have undertaken a review of our system growth projects which has resulted in a number of material changes:

- A \$1.2m reduction in the provision for new distribution transformer (>100kVA) over the forecast period due to the expectation of fewer large connections being required;
- Deferral of \$1.0m of feeder capacity augmentation projects within Gisborne. The projects include the city feeder cable upgrade, Kahutia Street feeder upgrade, Wainui Link to Sponge Bay, Stanley Rd Link to ANZAC/Innes. These projects have been deferred beyond the planning period due to lower growth requirements in the relevant area.

The optimisation of these projects and programmes represents our current view of the development needs of the network, based on the baseline growth forecasts.

Impact on expenditure forecasts

Overall, system development capex has decreased by c.\$2.4m (over the comparable planning period).

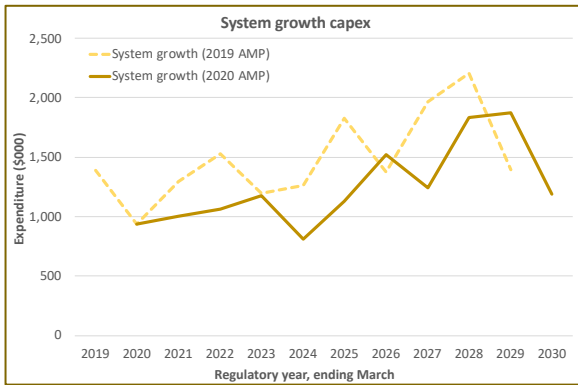


Figure 39: Changes to system growth capex forecasts

7.3 Changes to mix of network extensions and subdivisions

Drivers for change

In recent years new connections have been predominately located within existing subdivisions and infill lots within existing areas. Existing subdivisions are close to capacity and we are expecting the next tranche of connections to require new subdivision developments and associated new electricity reticulation. This work is expected to be materially more expensive than the recent infill connections. Under Eastland Network's connection policy the reticulation of new subdivisions is recognised as vested assets, and we are forecasting materially higher vested assets over the remainder of the planning period. There is no expected change to the number of new connections.

Impact on expenditure forecasts

As a result of these changes, vested assets has decreased by c.\$2.6m (over the comparable planning period).

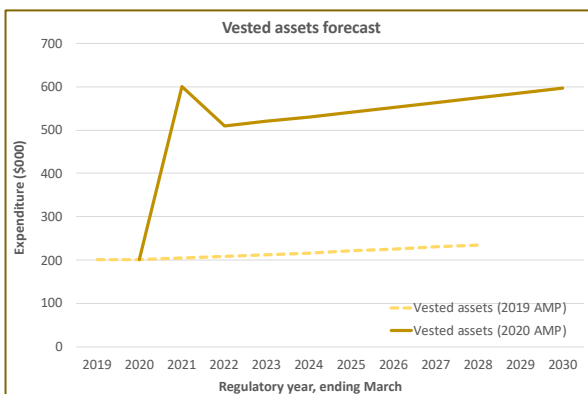


Figure 40: Changes to vested asset forecasts

There are no material changes to our consumer connection capex.

7.4 Future work on network development plans

Implementation of our asset management strategy will result in future changes to our network development plans. In our 2021 AMP we expect to provide details on the how we are progressing strategic initiatives 4 and 5 (being “increasing the level of automation, protection, and distribution network back-up” and “developing solutions to cater for step-change industrial growth”).



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8 Material changes to the lifecycle asset management (maintenance and renewal) plans

8.1 Changes to forecast asset health and asset renewal forecasts

Drivers for change

We have reviewed the asset health and forecast renewals for a number of key asset classes (refer Table 2). The outcome of the review has resulted in changes in the percentage of assets with an asset health of H1 and H2¹⁸, and the percentage of the asset classes that is forecast for replacement over the next five years (refer Figure 41 and Figure 42).

Table 2: Summary of key changes in asset health and renewal assessment

| Asset class | Basis for change in asset health | Impact on forecast renewal |
|---|--|--|
| Wood poles | <ul style="list-style-type: none"> We reduced our view of expected life for wood poles as a result of a high level review of condition from recent aerial line surveys. This has resulted in c.3,750 poles moving from H3 to H2. | <ul style="list-style-type: none"> As a consequence we have increased our forecast renewal of wood poles over the next five years, and we now plan to replace 3,840 wood poles over the next five years, which accounts for 48% of the total H1 and H2 classified asset. We have not increased the renewal rate to match the total H1 and H2 classified poles as we will be undertaking more advanced analysis this year. We will refine the health assessment and renewal rating in the 2021 AMP. |
| Subtransmission OH up to 66kV conductor | <ul style="list-style-type: none"> We have increased our view of the expected life for conductor as a result of the low failure rates and a high level review of condition from recent aerial line surveys. This has resulted in 950km of conductor moving from H1 and H2 to H3. Leaving c.170km of conductor with H1 and H2 health. | <ul style="list-style-type: none"> As a consequence we have reduced our forecast renewal of conductor to c.43km over the next 5 years. This remains below the level indicated by the quantity of H1 and H2 assets. We consider our assessment of expected life to still be conservative, hence we have not yet increased the quality of renewal. Determining conductor life expectancy is an industry wide issue and will we be refining our health assessment and |
| Subtransmission OH 110kV+ conductor | | |
| Distribution OH open wire conductor | | |

¹⁸ H1 means replacement recommended and H2 means end of life drivers for replacement present, high asset related risk.

| Asset class | Basis for change in asset health | Impact on forecast renewal |
|---|--|--|
| | | renewal forecasts as a consensus forms on health assessment and expected life. |
| 3.3/6.6/11/22kV Switches and fuses (pole mounted) | <ul style="list-style-type: none"> We have reduced our view of expected life for pole mounted fuses and switches as a result of increasing failures being experienced with this asset fleet; and the inability to effect maintenance repairs for some types of fuses and switches (as no spares are available). This has resulted in a material increase in the quantity of H1 and H2 asset to 2250. | <ul style="list-style-type: none"> At this stage we have only made a minor increase in our forecast renewal of pole mounted fuses and switches (to 325 over the next five years). Presently we consider the updated assessment to be conservative and we need to undertake further assessment of type specific failure and repair or replacement options. We will be looking to refine these forecasts further over the coming year. |
| 3.3/6.6/11/22kV RMU | <ul style="list-style-type: none"> We have increased our view of the expected life for RMUs to reflect the significant maintenance undertaken on this asset fleet over recent years (much of which was warranty replacement of internal mechanics). This has resulted in 104 RMUs moving from H1 and H2 to H3 and H4. | <ul style="list-style-type: none"> As a consequence of the reduction in H1 and H2 assets we have materially reduced our forecast renewal of RMUs. However, due to the risks associated with these assets, we are forecasting to replace 30 RMUs over the next five years, which is significantly higher than the current quality of H1 and H2 assets. |
| Pole mounted transformer | <ul style="list-style-type: none"> We have reduced our view of expected life for pole mounted transformers as a result of a high level review of condition from recent aerial line surveys. This has resulted in a material increase in the quantity of H2, and smaller increase in H1 assets. The total quantity of H1 and H2 assets is now estimated at 980 transformers. | <ul style="list-style-type: none"> We have made a small increase in the forecast renewal of these assets, to 250 over the next five years. This represents a significant shortfall in renewals based on the reassessment. Presently we consider the updated assessment to be conservative and we will be looking to refine this forecasts further over the coming year. |

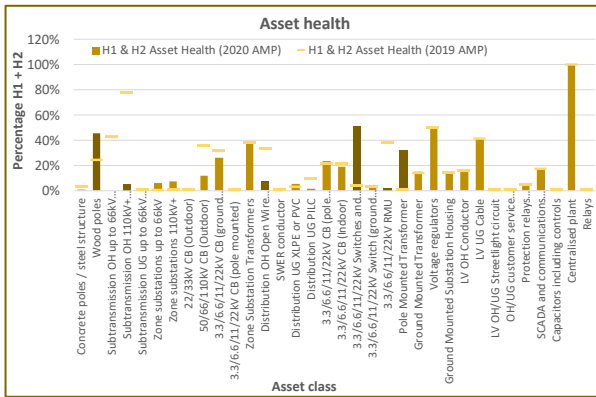


Figure 41: Asset health assessment

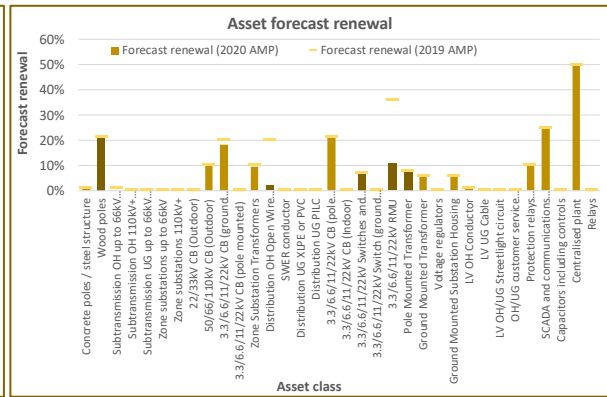


Figure 42: Forecast asset renewals

Impact on capital expenditure forecasts

The review of asset health resulted in an increase in forecast renewal for some asset classes, and a reduction for other asset classes. Overall asset replacement and renewal capex has increased by c.\$1.1m (over the comparable planning period), with some changes in project timing. (refer to Figure 43).

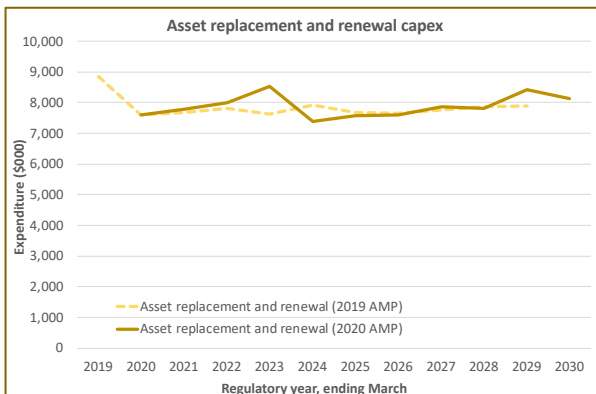


Figure 43: Asset replacement and renewal capex forecast

8.2 Changes to inspection and maintenance programmes

Drivers for change

We have reviewed our approach to inspection and maintenance in for a number of asset classes. The majority of the reduction relates to the 110kV line assets acquired from Transpower in 2015. Our previous inspection and maintenance program was based on Transpower budgets and schedule, and a review of costs and assets since we have owned the assets indicates that the work can be undertaken more cheaply than the Transpower estimates. We also made a number of minor changes to budgets and schedules in relation to a number of other assets to reflect recent costs.



We have also reviewed the value of the avoided cost of distribution (ACOD) that Eastland Network pays Eastland Generation for generator security support. The benefits for this support remain unchanged (in that the generators continue to avoid a range of subtransmission and zone substation upgrade projects), however the cost to supply those services has reduced (largely due to the reducing cost of capital for the generation business), and this has been reflected in lower asset replacement and renewal costs.

Impact on opex forecasts

The review of inspection, maintenance, and asset replacements has resulted in a \$1.1m reduction in routine and corrective maintenance and inspection and a \$2.0m reduction in asset replacement and renewal opex (over the comparable planning period).

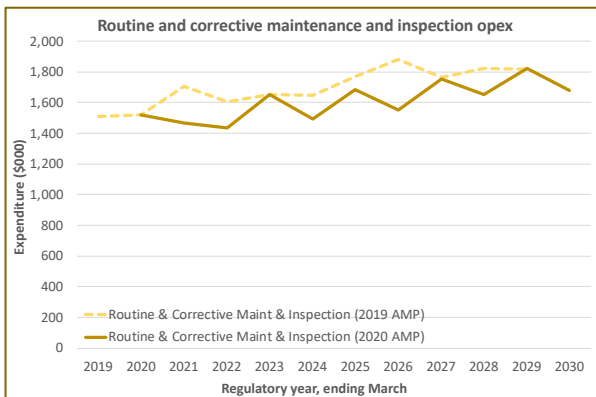


Figure 44: Routine and corrective maintenance and inspection opex forecast

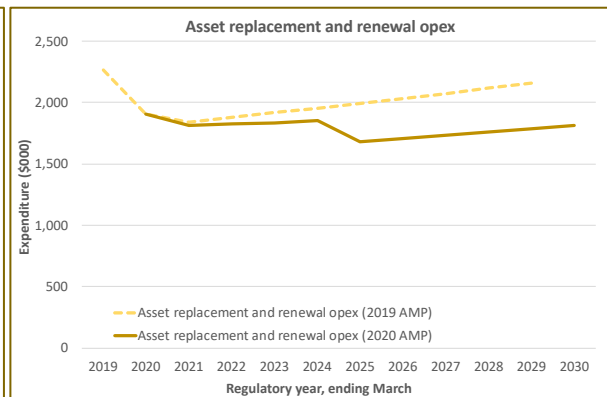


Figure 45: Asset replacement and renewal opex forecast

8.3 Enhanced vegetation management activities

Drivers for change

As noted in Section 3.6, while the underlying level of vegetation outages has remained largely constant, the extent of vegetation outages is increasingly being impacted by extreme weather events. This situation is being exacerbated due to reliance on generators to support subtransmission security (which means that while vegetation outages are restored quickly using generators, a small outage occurs, which has a negative impact on the number of outages per customers¹⁹).

The enhancement of vegetation management activities is recognised as a key initiative in our asset management strategy.

¹⁹ The SAIFI regulatory measure.



Details of our planned vegetation management activities

We have commenced work on a comprehensive vegetation management plan that comprises five key initiatives (refer Table 3). It is intended that the plan is completed over the coming few months; given the importance of vegetation management on network reliability we considered it appropriate to share these key initiatives with stakeholders prior to the completion of the plan. A number of these initiatives have been implemented already, and some are planned for completion in future years.

Table 3: Planned vegetation management initiative

| Initiative | Description |
|---|--|
| Optimise expenditure in high priority areas | <ul style="list-style-type: none">• Our analysis indicates that additional expenditure is required in the Wairoa region as two of the top three worst performing feeders for vegetation are in the Wairoa region.• We have increased vegetation management expenditure in the Wairoa region from FY2021. |
| Intensive subtransmission vegetation management | <ul style="list-style-type: none">• Eastland's subtransmission vegetation management is a continuation of an existing program which is based on annual aerial inspections, identification of vegetation hazards, and remediation. |
| Forestry owner engagement to achieve acceptable plantation fall zone clearances and harvesting clearances | <ul style="list-style-type: none">• Forestry owner engagement is also an ongoing program and has its foundation in building strong relationships and communication with forestry owners. We continue to pursue agreements with forestry owners in relation to line clearance and harvesting |
| Early detection of vegetation hazards through SCADA monitoring of earth fault pick-up (pre-trip) | <ul style="list-style-type: none">• Over the past two years Eastland has commenced work to add earth fault pickup alarms to SCADA. This information allows us to respond to indicators that something may be contacting conductors. Staff analyse this information and initiate line inspections to identify potential tree/clashing issues (or emerging insulator failure) early. This mechanism allows line inspections to be undertaken before faults/tripping has occurred. Work to provide these alarms on all relevant feeders is continuing and is expected to be completed by the end of FY2022. |
| Improving maintenance of existing line corridors | <ul style="list-style-type: none">• We are investigating ways to improve the effectiveness and cost of line clearances in existing line corridors. This includes a review of the environmental impacts of spraying, improving access track maintenance, and utilisation of bulldozers for clearance work. |

Impact on performance targets

Our current view is that these initiatives will result in a 10% improvement in vegetation outage SAIDI between FY2021 and FY2023 as a result of these initiatives when compared to the FY2019 performance. (refer Figure 46 and Figure 47)²⁰. We are targeting improvements in both underlying performance and in storm events. No forecast improvement in SAIFI is currently planned as we consider SAIFI improvement will be primarily driven by changes in network security and/or network automation.

These forecasts are draft, and will be finalised when we finalise the vegetation management plan over the coming months. These forecasts do not reflect the significant level of volatility as a result of storm events, hence we will be monitoring our performance against these targets over the long-term.

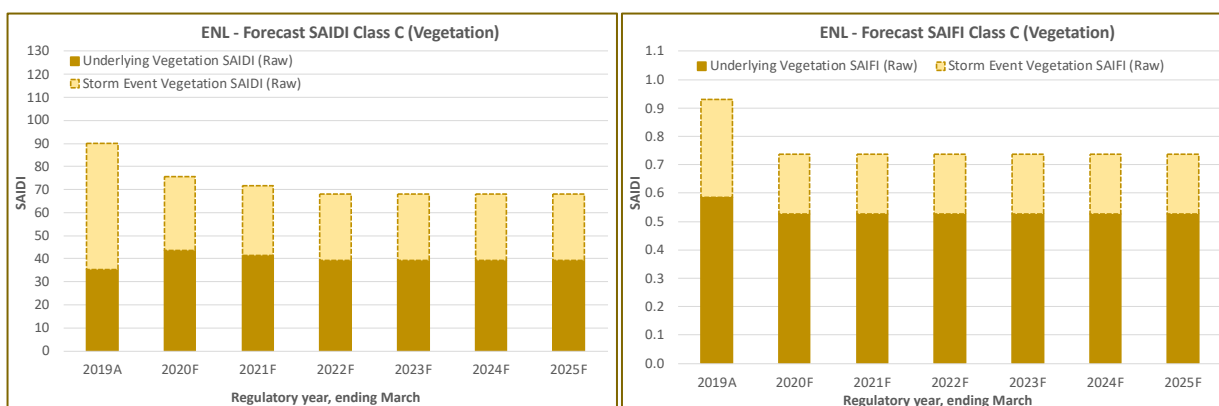


Figure 46: ENL Vegetation SAIDI forecast (2020 to 2025)²⁰ Figure 47: ENL Vegetation SAIFI forecast (2020 to 2025)²¹

Impact on opex forecasts

We have increased expenditure in relation to vegetation management by \$500k over the next 10 years. This is reflected in a \$30k p.a. increase in our vegetation management forecasts, and a \$20k p.a. increase in our service interruptions and emergencies forecasts (in relation to fault and unplanned vegetation management).

8.4 Other forecast changes

In relation to our legislative and regulatory forecasts, we have delayed the automatic under-frequency load shedding (AUFLS) project from FY2021 to FY2023. The timing continues to meet our regulatory requirements.

²⁰ These are “raw” forecasts, and hence prior to any MED adjustment and relate to unplanned outages only.

²¹ SAIFI forecasts are based on the application of the new SAIFI methodology as applied in our 2019 IDs.

8.5 Future work on lifecycle asset plans

Implementation of our asset management strategy will result in future changes to our lifecycle asset plans. In our 2021 AMP we expect to provide details on the how we are progressing strategic initiatives 1 and 3 (being “improving network resilience” and “enhancing asset fleet plans”). Importantly, we will be developing enhanced asset fleet plans for our key assets to ensure we effectively manage the performance of our ageing network assets.



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9 Attachments

The following schedules are included as part of this AMP Update:

- Schedule 11a: Report on forecast capital expenditure
- Schedule 11b: Report on forecast operational expenditure
- Schedule 12a: Report on asset condition
- Schedule 12b: Report on forecast capacity
- Schedule 12c: Report on forecast network demand
- Schedule 12d: Report on forecast interruptions and duration
- Schedule 14a: Mandatory Explanatory Notes on Forecast Information

Note: The report on asset management maturity (Schedule 13) has not been included as it has not changed since being disclosed in March 2019.



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Directors Certificate

CERTIFICATE FOR YEAR-BEGINNING DISCLOSURES

Asset Management Plan Update

Clause 2.9.1

We, *Tony Gray* and *Jon Nichols*, being directors of Eastland Network Limited certify that, having made all reasonable enquiry, to the best of our knowledge-

- a) the following attached information of Eastland Network Limited prepared for the purposes of clause 2.6.1, 2.6.3, 2.6.6 and 2.7.2 of the Electricity Distribution Information Determination 2012 in all material respects complies with that determination.
- b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.
- c) The forecasts in Schedules 11a, 11b, 12a, 12b, 12c and 12d are based on objective and reasonable assumptions which both align with Eastland Network Limited's corporate vision and strategy and are documented in retained records.

Dated this 18th day of March 2020

Anthony Trevor Gray
Director Name

[Signature]
Director Signature

Jon Edmund Nichols
Director Name

[Signature]
Director Signature