Electricity Invercargill Ltd

Spey Street Substation

Asset Management Plan Update 2022 - 2032

Publicly disclosed in April 2022

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Enquiries

Enquiries, submissions, or comments about this Asset Management Plan (AMP) can be directed to:

General Manager: Asset Management ***OR*** Engineering Manager (Networks)
PowerNet Limited,
PO Box 1642,
Invercargill, 9840

Phone (03) 211 1899
Fax (03) 211 1880

Email amp@powernet.co.nz

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The information and statements made in this AMP are prepared on assumptions, projections, and forecasts. It represents Electricity Invercargill's intentions and opinions at the date of issue (31 March 2022).

The worldwide Covid-19 pandemic caused by new strains of the coronavirus is still a risk to the company. This has an impact on EIL's supply chain and it may influence the resources available to execute this asset management plan. This AMP assumes that the pandemic will be controlled and that it will not have a significant effect on the availability of skills, equipment, and material. Should this not be the case, the plan will be subject to change.

Due to the current global uncertainties, assumptions and forecasts in the AMP may prove to be wrong, events may occur that were not predicted and Electricity Invercargill could decide to take different actions than planned. Electricity Invercargill may also change any information in this document at any time. EIL accepts no liability for any action, inaction, or failure to act based on this AMP.

Executive Summary

Introduction

The introductory section focuses on planning assumptions and implications. Planning is based on the expectation that the most likely scenario will occur, except for ongoing but sporadic (typically reactive) work. This philosophy is used to minimise variation to financial performance targets. The standard life of assets is based on the Commerce Commission's Optimised Deprival Valuation (ODV) asset life, with actual replacement done based on condition, economic life, and work efficiency.

The most significant variation factors that specifically influence this AMP is the impact of the Covid-19 pandemic.

Most challenges related to Covid-19 are being addressed, but there were cost and schedule implications.

The EIL Business Environment

A change in the composition of the Board occurred during 2021/22.

The Network and Asset Base

The key change in the 2021/22 financial year was the completion of the Southern Substation.

Risk Management

The following significant risks (company-wide) has materialised and are described in Section 4 of the AMP update.

- COVID-19 pandemic - Loss of key service providers; business operations disrupted, increase in cost.
- Cyber Security - Events were detected but intentional damage was prevented by the IT security systems. Notable is the increase in electronic security events.

The risks related to asset management are provided in Section 4. The projects and actions described in this AMP are intended to mitigate these risks.

The biggest impacts are due to:

- Unavailability of critical spares
- Loss of key critical service provider

Equipment risks to the electricity system are related to the following assets or network.

- 33kV Oil Filled Cables.
- Underground Substations.
- Ring Main Units.

Service Levels

- There has been no change in service levels.

Asset Management Strategy

The fleet plans for all asset classes are under development. The 10 most important asset classes' fleet plans will be implemented in Maximo from April 2022.

Capital Expenditure

Capital Expenditure (CAPEX) is required to increase the capacity of assets or networks, to extend the life of assets, to install new assets for safety or reliability purposes or to replace aging assets. CAPEX is categorised according to the following ComCom requirements.

- Consumer Connection.
- System Growth.
- Asset Replacement and Renewal.
- Asset Relocations.
- Reliability, Safety and Environment.

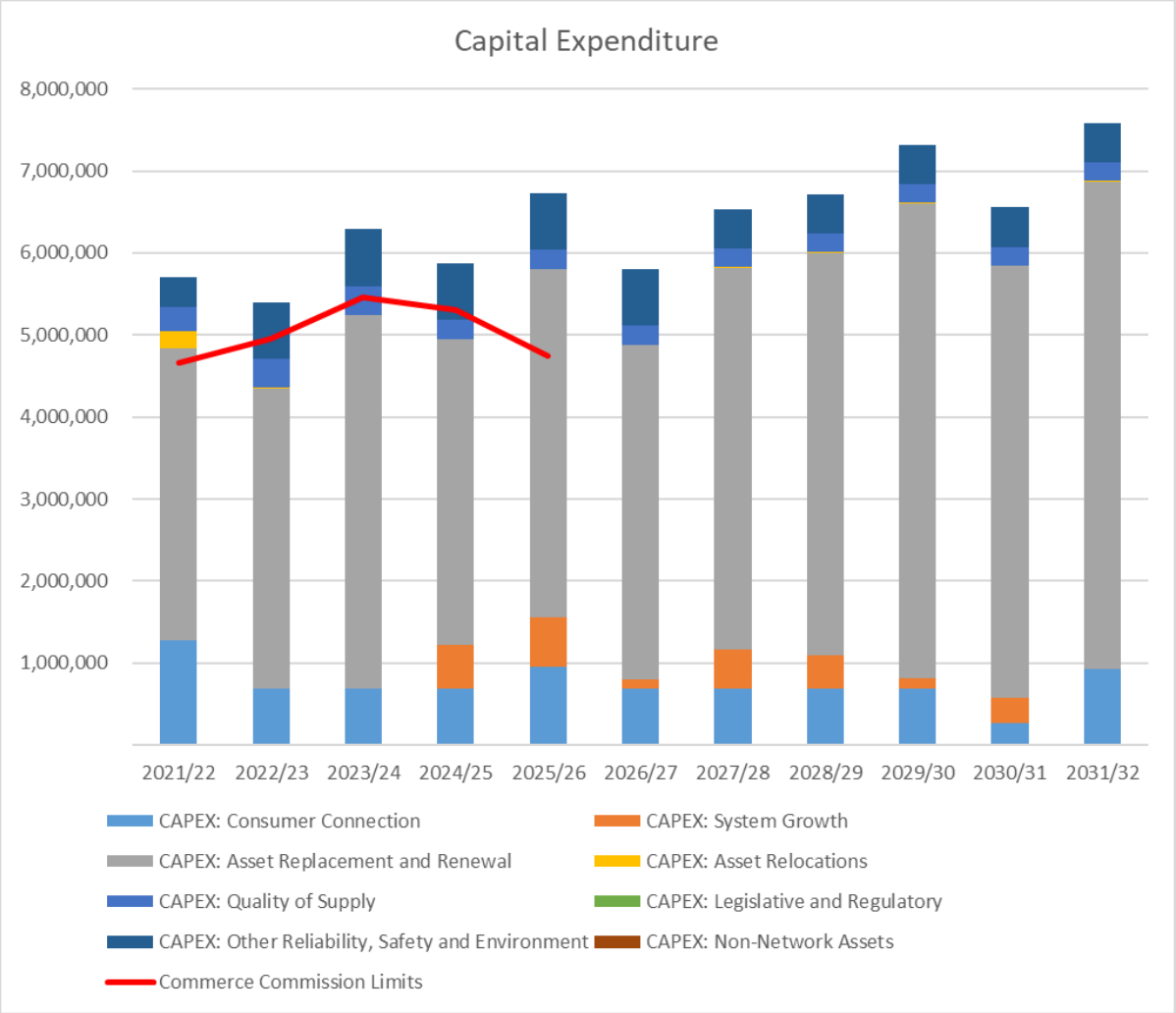
The proposed Capital Expenditure is reflected in the next table and figure.

Table 1 Proposed Capital Expenditure ($000)

	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
CAPEX: Consumer Connection	688	691	691	955	691	691	691	691	499	685
CAPEX: System Growth			515	602	106	463	405	119	317	
CAPEX: Asset Replacement and Renewal	3,649	4,523	3,707	4,232	4,068	4,649	4,882	5,765	5,228	5,930
CAPEX: Asset Relocations	6	6	6	6	6	6	6	6	6	6
CAPEX: Quality of Supply	353	344	230	230	230	230	230	230	230	230
CAPEX: Legislative and Regulatory										
CAPEX: Other Reliability, Safety and Environment	688	707	691	691	691	478	478	478	478	478
Total Network CAPEX	5,385	6,271	5,841	6,717	5,793	6,518	6,694	7,290	6,759	7,331

Values Fully Marked Up, No Inflation, Base Year dollars.

Figure 1: Capital Expenditure per ComCom categories.



The envisaged Capital Expenditure is higher than the Commerce Commission allowance due to the unanticipated increase in inflation, especially the cost of material and equipment.

Operating Expenditure

Operating Expenditure (OPEX) is required to operate and maintain EIL's networks. OPEX is categorised according to the following ComCom requirements.

- Asset Replacement and Renewal.
- Vegetation Management.
- Routine and Corrective Maintenance and Inspection.
- Service Interruptions and Emergencies.

The following risks are addressed through operating expenditure and detailed in Section 8.

- Maintaining asset health.
- Operating the assets.
- Service Interruptions.
- Public and employee safety.
- Business continuity.

The proposed operating expenditure is displayed in the following table and figure.

Table 2: Proposed Operating Expenditure

	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
OPEX: Asset Replacement and Renewal	232	215	215	157	157	157	157	157	157	157
OPEX: Vegetation Management	7	2	2	2	2	2	2	2	2	2
OPEX: Routine and Corrective Maintenance and Inspection	1,463	1,588	1,368	1,413	1,392	1,392	1,392	1,392	1,392	1,392
OPEX: Service Interruptions and Emergencies	517	517	517	517	517	517	517	517	517	517
Operational Expenditure Total	2,220	2,322	2,102	2,088	2,068	2,068	2,068	2,068	2,068	2,068

Values Fully Marked Up, No Inflation, Base Year dollars.

Figure 2: Operating Expenditure per ComCom categories.

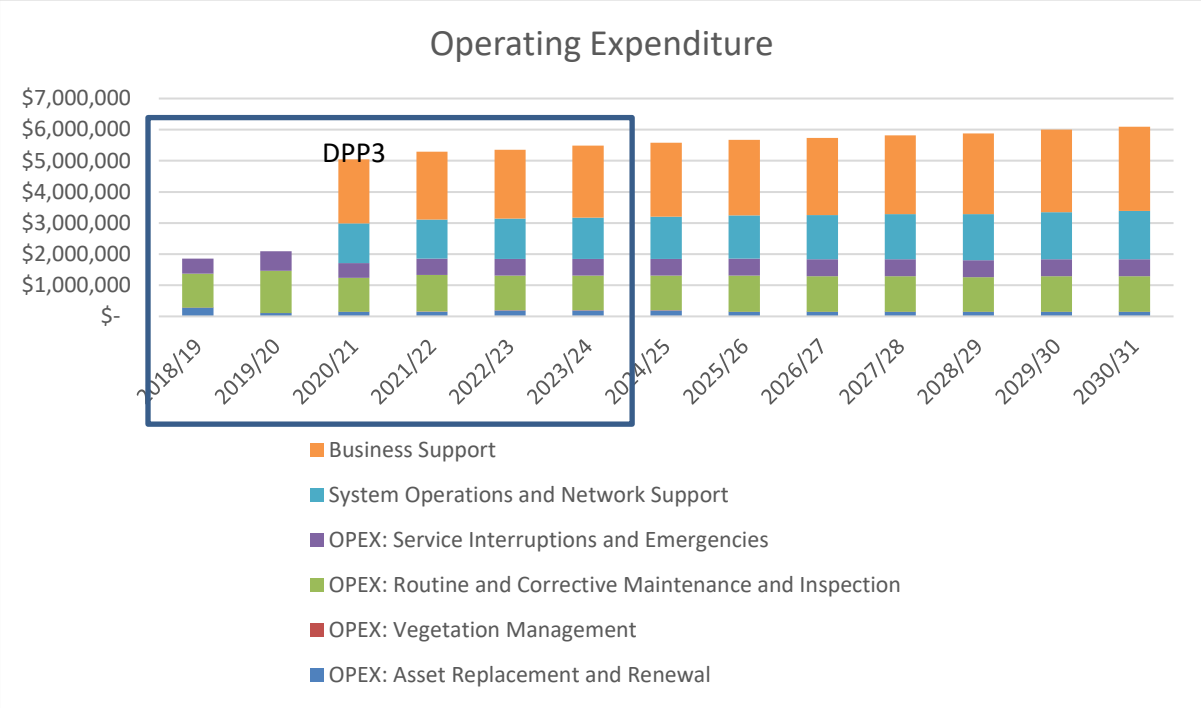


Table 3: Proposed Total Expenditure ($000)

	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Operational Expenditure Total	**2,220**	**2,322**	**2,102**	**2,088**	**2,068**	**2,068**	**2,068**	**2,068**	**2,068**	**2,068**
System Operations and Network Support	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255
Business Support	2,181	2,149	2,187	2,187	2,187	2,187	2,187	2,187	2,187	2,187
AMP Total Operational Expenditure	**5,655**	**5,726**	**5,544**	**5,530**	**5,510**	**5,510**	**5,510**	**5,510**	**5,510**	**5,510**
Grand Total Capital and Operational Expenditure	**11,040**	**11,998**	**11,385**	**12,247**	**11,302**	**12,028**	**12,204**	**12,799**	**12,268**	**12,840**

Execution Capacity

It remains problematic to obtain the required numbers of appropriately skilled resources. This applies to all levels of staff, but particularly to technical and field staff.

Evaluation of Performance

Total expenditure was 20% higher than expected mainly due to material increases and some roll-over on capital from Covid delayed projects in 2020/21.

	Financial Year ending 31 March 2021			
Works Program	**Forecast**	**Budget**	**Variance**	
Capital	**$5,616,496**	**$4,386,155**	**($1,230,341)**	**(28%)**
Operating	**$1,888,426**	**$1,842,682**	**($45,743)**	**(2%)**
Total Network Opex and Capex Expenditure	**$7,504,921**	**$6,228,837**	**($1,276,084)**	**(20%)**

(Negative figures indicate an over-expenditure against budget)

Network reliability was within the Commerce Commission limits.

Benchmarking performance against other utilities shows that EIL is still one of the top performing utilities in the country on almost any measure.

1 Introduction

1.1 Assumptions

The assumptions as per the 2021-31 AMP are still mostly valid. The exceptions are shown in Table 4: Assumptions and Implications. The assumption changes and potential impacts are discussed further in section 4 Risk Management

Table 4: Assumptions and Implications

Assumption	Discussion & Implications
Resourcing is sufficient for projected works programme	Considerable effort has been made to ensure work volumes are deliverable by our key providers. However, unanticipated labour constraints may cause works to be delayed, and/or labour costs to rise. Covid-19 community infections may be significant in this respect.
Change in safety & work practice regulations	Increases in health & safety requirements will have corresponding increases in cost and duration of works. Examples are more onerous traffic control measures required at worksites on public roadsand the Tree Regulations.
Inflation for electricity industry input costs going forward track close to expected CPI forecasts by Treasury, where specific forecasts unavailable)	Covid-19 has led to significant equipment and material cost increases (almost 20% weighted average). This has affected the amount of work that could be executed within the available funding. Deviation from expected material, labour, overhead input costs, has resulted in increased costs to works programmes. The projected treatment of network constraints changed, depending on the specific changes to each input cost factor. The assumption is that these cost increases will stabilise and become more predictable.
Decarbonisation of heating will cause localised changes over the next 5 years, necessitating local network upgrades.	The decarbonisation initiatives in EIL are limited mostly to the conversion of space heating systems currently using coal fired boilers to heat water which is then circulated through radiators. These systems are being upgraded either through electrification of the boilers or by installing heat pumps. This may trigger localised upgrades of transformers and MV and LV distribution cables earlier than currently envisaged. The cost of these upgrades are generally carried by the customer.
Step changes in underlying growth are considered unlikely based on historical trending over a long period. The EIL supply area has limited potential for industrial growth, Population growth for sizing of equipment is based on the high projection.	Lower population growth may result in some equipment being oversized. Likely impact on total project cost is minor. Higher than envisaged population growth due to industries being established in adjacent EDB supply areas may initiate capacity improvement works earlier than currently envisaged.

1.2 Potential Variation Factors

The following factors have the potential to cause significant variation between the forecasts in this AMP and the actual information that will be included in future disclosures.

Table 5: Variation Causes and Implications

Cause of Variation	Implications
Cost and time estimate inaccuracies	Project cost increase. Timing may vary, resulting in lower work efficiencies. These may trigger review of project approval if variations are sufficiently large.
Variation in inflation rates and exchange rates	Higher input costs than forecast, less work being done for the same amount of money.
Staffing resource losses or inability to recruit as required	Higher cost to be able to meet staffing level required to complete works. This may be coupled with deferment of investment programme, or outright cancellation of certain works if issues become ongoing.
Equipment delivery	The Covid-19 pandemic is causing delays in material delivery form overseas suppliers. There are two reasons for this, factory shutdowns in countries where the equipment is manufactured and shipping delays, mainly caused by port congestion due to Covid-19 containment measures.
Conceivable closure of smelter at Tiwai Point	Potential reduction in the number of residents due to staff relocations may reduce revenue. This would partially be offset by higher load due to decarbonisation initiatives. The specific feeder loading will change and may lead to a requirement for local upgrades.

Issues related to this edition of the AMP are based on actual and potential impact of the Covid-19 pandemic.

Impact of the Covid-19 pandemic

The Covid-19 pandemic has spread around the world and several new strains of the coronavirus are appearing. Countries are in various stages of lockdown and social distancing. This is affecting the EIL supply chain and it may have an effect on the resources available to execute this AMP.

Some challenges are listed below.

- Social distancing protocols, vaccination requirements and restrictions on access to customer sites means that certain types of work have become more difficult and costly due to the longer times required to execute.
- International suppliers and manufacturers of equipment are moving in and out of lockdown. This created difficulty in obtaining certain equipment and material.
- Offshore equipment delivery is disrupted, leading to delays in work execution.
- As Covid-19 spreads through the community, periods of staff shortages may occur in certain locations, affecting fault response and the ability to execute planned work.

Most challenges are being addressed, but there are cost and project schedule implications. It is assumed that negative effects of Covid-19 will be continuously managed during this financial year and will not have a significant impact on EIL's ability to execute this AMP.

2 The EIL Business Environment

2.1 Business Role-players

The changes that occurred during the previous financial year are as below.

EIL (as at 31 March 2022) has five directors:

- R D Jamieson (Chair) (new);
- E J Ihaia (new)
- S P Lewis;
- S V Young (new); and
- P M Kiesanowski.

2.2 Commerce Commission Determination – Financial Impact

DPP3 introduced a revenue allowance as opposed to the previous price cap.

The result for EIL was allowable revenue in 2020/21 ($m) of $12.26 million.

Directly related to the revenue targets are the expenditure targets. The allowable OPEX for 2020-2025 is $27.24 million and it is distributed as follows.

2020/21	2021/22	2022/23	2023/24	2024/25
5.18	5.31	5.45	5.59	5.72

The allowable CAPEX for 2020-2025 is $25.98 million and it is distributed as follows.

2020/21	2021/22	2022/23	2023/24	2024/25
4.66	5.05	5.57	5.58	5.13

3 The Network and Asset Base

EIL owns and operates two separate electrical networks that are both supplied by the Grid Exit Point (GXP) at Invercargill. The Bluff network comprises two 11kV feeders supplied by TPCL zone substation situated just west of Bluff Township. EIL also owns interconnectors to TPCL Otatara and Seaward Bush 33kV lines that provide alternative supplies to the Leven Street and Southern zone substations respectively.

3.1 Network Configuration

Zone Substations

EIL owns and operates four zone substations in Invercargill. The network area in Bluff takes an 11kV supply from a TPCL owned substation. The change from the 2021-31 AMP is the completion of the Southern Substation upgrade as provided in Table 6.

Table 6: Zone Substations

Substation	Nature of load	Description
Southern	Urban Residential, Light Industrial	Southern Substation has been upgraded to a two transformer substation by moving the old transformer from Doon Street to the substation and installing new 33kV and 11kV switchgear. The building was seismically strengthened and the old concrete structures removed as they were no longer required due to the undergrounding of the feeders.

Customer Connections

EIL provides a connection to the network via sixteen retailers which convey electricity over the network. Customer connections generally involve assets ranging in size from a simple fuse on a pole or in a suburban distribution pillar to dedicated lines and transformer installations supplying single large customers. On 31 January there were 17,497 customer connections for which revenue is earned. In most cases the fuse forms the demarcation point between EIL's network and the customer's assets (the "service main") and this is usually located at or near the physical boundary of the customer's property.

4 Risk Management

EIL is exposed to a wide range of risks and utilises risk management techniques to keep risk within acceptable levels. This section describes the changes in the risk profile between 2021 and 2022.

4.1 Company related risks (general)

Significant company related risks that were identified are described in the next paragraphs.

COVID pandemic - Loss of key service providers; business operations disrupted

This risk manifested during 2020 when the COVID-19 virus caused a worldwide pandemic. The probability of this risk occurring was deemed "*Rare*", but it happened. The risk is now a "*Critical*" risk. However, in line with Central Government guidelines, Electricity Distribution is an essential service and work needs to continue. The following treatment responses are being implemented and followed.

- Adhere to government guidelines.
- Regularly update the PowerNet pandemic plan to be in line with government guidelines and ensure staff and contractors work to it.
- Supply chain management.
    - Continuously monitor critical suppliers and manufacturers to pre-empt any supply side issues.
    - Ensure sufficient stock levels of critical items and consumables, including safety equipment such as masks and disposable gloves.
    - Identify key contractors and negotiate availability agreements.
- Pre-order materials to meet delivery dates and hedge against further price increases.
- Contact tracing.
- Vaccination requirements

The mitigation measures mostly worked during the previous financial year, although lockdowns caused some delays in major projects and maintenance work. Major projects were delayed by the difficulties in getting imported equipment into New Zealand. Non-critical but nevertheless essential maintenance was postponed and the resultant backlog has not been fully cleared.

Cost increases

Increase in raw material costs

Markets have seen significant increases in the raw materials used to manufacture the equipment we use on the electricity distribution networks. This is shown in the following graphs:

Figure 3: International copper price.

(Reference:https://markets.businessinsider.com/commodities/copper-price)

Oct 2020 6727 US$/ton
Oct 2021 9660 US$/ton
Increase: 43%

Figure 4: International aluminium price.

(Reference: https://markets.businessinsider.com/commodities/aluminum-price)

Oct 2020 1870 US$/ton
Oct 2021 3063 US$/ton
Increase: 64%

The plastics used as isolating material have followed similar trends. Steel increased significantly between October 2020 and August 2921 but has since dropped back to 2% above 2020 prices.

This has led to suppliers implementing the following price increases:

Table 2: Supplier Increases

		Forecast Annual increase
AHH Wood	X-Arms	4%
BUSCK	Poles	10%
Transnet	Poles & O/Head Product	7%
ETEL	Transformers	16%
Copper Cable/Conductor		32%
Aluminium Cable/Conductor		28%
MV Switchgear		10%
Earthing		26%
LV Switchgear		10%
LUGS/LINKS/CONNECTORS		7%
Weighted Average Material Cost Increase[1]		17%

1. Weighted by the value of equipment purchased

Increase in shipping costs and delays in shipping

In addition to the increase in cost due to raw material, the cost of shipping has also increased by between 15% and 45%, depending on the origin and destination of equipment. Covid-19 restrictions at ports and in supplier countries are causing delays, equipment that would normally take 6 weeks to deliver, now has 6 a months delivery time. This is not only due to shipping restrictions, but as lockdown levels change in supplier countries, it affects production as factories are shut down and re-opened regularly.

The delays in getting imported material into New Zealand may have an effect on the timing of projects and may lead to a further restructure of the expenditure budgets.

Cyber Security

Cyber security events were detected and intentional damage was prevented by the IT security systems. There is however a notable increase in these types of events.

Industry and Regulation

Possible events pertaining to industry and regulation and that may have an increased impact from that anticipated in 2021 have been identified as the following.

Table 7: Industry and Regulation Risks and Responses

Event	Likelihood	Consequence	Potential Consequences and Responses
Unanticipated levels of inflation	Likely	Major	• Cut cost to a level where reliability of supply will not materially deteriorate but will also not improve. • The material cost increases together with the unanticipated higher than planned labour and fuel cost increases necessitates cutting down on the physical amount of work to be done to stay within regulatory allowances. This will have a long term detrimental effect on quality of supply. This is being mitigated by increased inspection and maintenance of assets as per section 6 of the document.
Regulatory breaches	Possible	High	• Continue to contract PowerNet to meet regulatory requirements. • Ensure PowerNet has and operates to a Business Continuity Plan. • Implement ComplyWith to advise staff of compliance requirements
Inadequate Resource to execute required work	Possible	High	• PowerNet utilises internal staff allowing effective planning and management of recruitment, training and retention of skilled staff. • Endeavour to provide a reasonably constant stream of work for key external contractors to assist in their continued viability. • A Covid-19 outbreak may cause a short to medium term staff shortage. A vaccination policy and a Covid-19 response framework has been developed to reduce both the consequence and the Likelihood of such an event occurring.

4.2 Asset Management Risks

The following risks specifically relating to Asset Management are materialising or have already materialised.

Table 8: Asset Management Risks

Category	Risk Title	Risk Cause	Worst Case Scenario	Treatment Plan Summary
Operational Performance	**Unavailability of critical spares**	Supply chain disruptions and factory shutdowns due to Covid-19	Inability to repair or maintain networks	Pre-order equipment Alternative suppliers Assist local suppliers to register as critical organisations
Operational Performance	**Loss of key critical service provider**	Major health event/pandemic has now materialised	Inability to build or maintain assets Service providers unable to service existing contracts	Improved identification of critical service providers Identify alternative service providers Diversify the workforce Train and grow internal workforce

Category	Risk Title	Risk Cause	Worst Case Scenario	Treatment Plan Summary
Operational Performance	**Major event triggering storm gallery activation**	Increased frequency of wind, storm events	Delayed or limited provision of power to consumers Loss of ability to provide power to customers for extended periods	Develop improved contingency plans for network events
Financial	**Change to EDB Environment**	Equipment, fuel and labour cost increases directly or indirectly attributable to the Covid-19 pandemic	Insufficient funding to execute critical upgrades and maintenance	Increase testing of equipment and move more categories of equipment to a condition based maintenance or replacement regime

Health and Safety

Health and safety risk changes that were identified are listed below with treatment responses indicated in Table 9.

Changes in Regulations:

- The Tree Regulations as well as Traffic Management Regulations has become more complex to execute, leading to cost increases

Table 9: Health and Safety Risks

Event	Likelihood	Consequence	Responses
Changes in Safety Regulations	Certain	Major	• Outsource Vegetation Management • Outsource Traffic Management

4.3 System Risks

Changes in existing risks to the electricity system are described in the following sections.

Distribution Network

Switchgear

There are operating restrictions on some ring main units (RMUs) equipment. This is to prevent risks and to manage hazards associated with oil filled switchgear (as identified by incidents occurring in the wider industry). In addition, operating restrictions have also been placed on a specific batch of vacuum switchgear that have had some issues in a number of utilities.

Fault Indicators

To assist in locating faults on the underground network, additional fault indicators are being installed. These fault indicators are communications enabled so they send information to the SCADA system. This mitigates the risk of exceeding SAIDI limits.

4.4 Impact of decarbonisation initiatives

The NZ government has introduced initiatives to assist in the decarbonisation of the country. One of these initiatives is the Government Investment in Decarbonising Industry (GIDI) fund. This fund can be utilised for upgrading of electricity distribution networks where there is not enough capacity in the networks to support conversion from fossil fuel to electricity. The use of GIDI funding, together with the uncertainty about price and availability of biomass, has changed the economic feasibility of a number of projects. Electrification of plant has become more viable than conversion to biomass.

The EIL supply area has limited potential for industrial growth, and few industries in the EIL supply area use process heat. Decarbonisation initiatives and higher population growth may initiate capacity improvement works earlier. The main decarbonisation impact will likely be for space heating at facilities currently using coal boilers and hot water radiators. These load increases will typically be in the 100kVA to 700kVA range with possibly some larger installations. Distribution infrastructure and Low Voltage networks may require localised upgrading. This will lead to an increase in planned interruptions and in the short term there may be localised capacity constraints that may lead to overloading of the network and unplanned outages.

Higher than anticipated population growth may eventuate if some of the initiatives in The Power Company Limited's supply area materialises, as Invercargill would be the logical residential location of choice for employees.

Decarbonisation initiatives and higher population growth may initiate capacity improvement works earlier.

EIL shares Transpower infrastructure with The Power Company Limited and the growth in its customer base and loading may affect the reliability and quality of supply from Transpower.

4.5 Asset Criticality

The EEA Asset Criticality Guide defines Criticality as "A measure reflecting the relative seriousness of the Credible Consequences of Failure". The EEA guidelines are being operationalised within EIL.

The EEA guideline indicates that the plausible consequence of an asset failure next to a school or public facility is the same as when the same asset would be installed somewhere in a paddock. However the credible consequence of the asset failure in the first location is much higher than the credible consequence of the asset failing in the second location, so more intensive risk mitigation measures will be applied to the first asset.

To assist with classifying equipment in terms of criticality, a new layer has been incorporated into the GIS system that easily allows identification of critical equipment. This criticality is being incorporated into the Asset Management Information System.

5 Service Levels

No change

6 Asset Management Strategy

The implications of the higher than anticipated inflation, as well as the "Fleet Plan" approach, is likely to result in EIL spending above its Capital Allowance for the DPP3 in order for it to meet the "no material deterioration" position. This has significant financial implications for EIL. . EIL has moved to a Fleet Plan approach which allows a better view of actual work volume requirements and the associated costs.

6.1 Fleet Plans

A Fleet Plan is a description of how a specific asset or type of asset will be managed over its entire lifecycle. For each asset the material cost and time required to execute the following activities, need to be determined.

- Installation of the asset.
- Execution of each type of maintenance action, as well as the time interval between the activities.
- Decommissioning and disposal of the asset.

Through the development of Fleet Plans, EIL can:

- determine capital funding requirements for the next 10-20 years;
- establish the number of people required, their skill levels and equipment needed to operate and maintain the electricity networks for the next 10-20 years;
- determine operational expenditure requirements for the next 10-20 years; and
- plan for accessing all network assets within a reasonable period for testing and maintenance.

These requirements are aggregated across the Annual Works Program for each CAPEX and OPEX category, allowing a "bottom-up" evaluation of the budgets. Detailed Fleet Plans for the ten most critical equipment categories have now been developed and will be live in the Asset Management Information System from April 2022. The other 80 fleet plans will be rolled out during the 2022/23 year.

6.2 Fleet Plan Implications

The higher than anticipated inflation necessitates a change in the way we manage the network assets. There are significant financial implications of the inflationary pressure, resulting in EIL to be spending above the Capital Allowance for DPP3, in order to meet "no material deterioration". The weighted average of material and equipment costs as used by EIL has increased by approximately 20% since March 2021. General inflation, affecting labour cost, has been more than 5% over the same period. These two factors combined leads to an increase in the average cost of work done of 12.5-15%, with a larger increase of 15-17% in capital works and an increase of 12.5% on maintenance work. To stay within the regulatory allowances, the volume of work done under both of these categories need to decrease, however, even decreasing the volume of work to a minimum requirement, still pushes the cost over the Commerce Commission allowance.

The completed Fleet Plans and more accurate inspection results are giving us a better view of the actual work requirements, both in terms of volumes and cost. The analysis of the required work shows that there is an under expenditure on asset replacement and renewal developing, mainly due to the higher than anticipated increase in equipment and material costs since January 2021. In addition, there is very little capital expenditure allowance for network improvements. The implications of this can already be seen in the SAIDI and SAIFI graphs shown in Chapter 10. Although we are still managing to hold unplanned SAIDI and SAIFI to below regulatory limits, we are exceeding the projected targets.

To optimise the financial situation, the strategy adopted in the AMP is to increase the focus on maintenance and condition monitoring while decreasing the volume of capital work done. Some planned replacement of ageing equipment is deferred but the focus on testing and monitoring is increased to ensure that decisions become more risk based and emphasises the actual asset health. However, the level of capital expenditure would need to increase over the DPP4 period to prevent a capital expenditure bow wave developing which eventually cannot be funded under a normal regulatory allowance.

7 Capital Expenditure

The proposed capital expenditure is higher than the Commerce Commission allowance, due to the higher than anticipated inflation. The expenditure increases above the Commerce Commission allowance, even though the volume of work related to this expenditure decreases. This level of expenditure is required to address the "no material deterioration" concept on which the DPP3 allowances were based.

7.1 Capital Expenditure Forecast

The capital expenditure forecast is presented in Table 10 and provided in the Information Disclosure Schedule 11a.

Table 10: Capital Expenditure Forecast ($000 - constant 2021/22 terms)

CAPEX	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Customer Connections (≤ 20 kVA)	66	66	66	66	66	66	66	66	66	66
Customer Connections (21 to 99 kVA)	58	58	58	58	58	58	58	58	58	58
Customer Connections (≥ 100 kVA)	132	132	132	132	132	132	132	132	132	132
Distributed Generation Connection	3	3	3	3	3	3	3	3	3	3
New Subdivisions	429	433	433	697	433	433	433	433	241	195
Bluff LV Service Lines										231
CAPEX: Consumer Connection	**688**	**691**	**691**	**955**	**691**	**691**	**691**	**691**	**499**	**685**
CAPEX: System Growth	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**
Doon Street Reconfiguration			515							
New SOU CB11 & 11kV feeder to Rockdale Subdivision				602	106	463	405	119	317	
CAPEX: System Growth			**515**	**602**	**106**	**463**	**405**	**119**	**317**	
CAPEX: Asset Replacement and Renewal	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**
Link Box Replacement	95	95	95	95	95	95	95	95	95	95
Racecourse Road Switchboard Replacement	282	2,009	740							
Seismic Remedial Distribution	84	84	84	84						
Zone Substation Minor Replacement	9	9	9	9	9	9	9	9	9	9
Transformer Replacement - City	533	357	357	794	713	794	633	633	633	633
Transformer Replacement - Bluff	57	57	57	230	230	230	230	230	230	230
RMU Replacements	1,859	882	1,299	1,617	1,617	1,617	,617	1,323	1,617	1,617
Reactive 11 kV Cable Replacement	35	35	35	35	35	35	35	35	35	35
Planned 11 kV Cable Replacement		590	590	901	901	901	901	901	901	901
General Technical Replacement										
General Dist Replacement - City	31	31	31	31	31	31	31	31	31	31
General Dist Replacement - Bluff	161	161	161	225	225	225	225	225	225	225
LV Board Replacement	33	33	33	33	33	33	33	33	33	33
Pillar Box Replacement	78	78	78	78	78	78	78	78	78	78
LV Cable Replacement	119	37	74	37	37	37	37	37	37	37
Unspecified Asset Replacement & Renewal Projects						501	501	63	501	501
Bluff Conductor Replacement	64	64	64	64	64	64	64	64	64	64

Leven St Substation Roof Replacement	210									
Leven St 11kV Switchboard Replacement							394	2,009	740	
Power Transformer Replacement - Southern Substation T2										1,442
CAPEX: Asset Replacement and Renewal	**3,649**	**4,523**	**3,707**	**4,232**	**4,068**	**4,649**	**4,882**	**5,765**	**5,228**	**5,930**

CAPEX: Asset Relocations	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**
Asset Relocation Projects	6	6	6	6	6	6	6	6	6	6
Stead St StopBank										
CAPEX: Asset Relocations	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**

CAPEX: Quality of Supply	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**
Supply Quality Upgrades - City	14	14	14	14	14	14	14	14	14	14
Supply Quality Upgrades - Bluff	1	1	1	1	1	1	1	1	1	1
Network Automation Projects	156	147	34	34	34	34	34	34	34	34
Fault Indicator project	181	181	181	181	181	181	181	181	181	181
CAPEX: Quality of Supply	**353**	**344**	**230**	**230**	**230**	**230**	**230**	**230**	**230**	**230**

CAPEX: Legislative and Regulatory	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**

CAPEX: Other Reliability, Safety and Environment	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**
Earth Upgrades - City	391	270	270	270	270	57	57	57	57	57
Earth Upgrades - Bluff	9	9	9	9	9	9	9	9	9	9
Pillar Box Lid Upgrade	127	127	127	127	127	127	127	127	127	127
Oil-Filled Cable Work	66	260								
LV Tie Point Disconnectors	53		244	244	244	244	244	244	244	244
Fibre Installation	41	41	41	41	41	41	41	41	41	41
CAPEX: Other Reliability, Safety and Environment	**688**	**707**	**691**	**691**	**691**	**478**	**478**	**478**	**478**	**478**

Total Network CAPEX	**5,385**	**6,271**	**5,841**	**6,717**	**5,793**	**6,518**	**6,694**	**7,290**	**6,759**	**7,331**

CAPEX: Non-Network Assets	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**

Values Fully Marked Up, No Inflation, Base Year dollars.

This differs from the previous year AMP as follows:

Table 11: Capital Expenditure Forecast ($000 – difference from March 2021 to March 2022)

Proposed Future Capital Expenditure - Difference Mar 21 to Mar 22								
	2022/23	2022/24	2022/25	2022/26	2022/27	2022/28	2022/29	2022/30
CAPEX: Consumer Connection	177	440	440	90	60	60	60	60
CAPEX: System Growth			88	76	15	68	55	17
CAPEX: Asset Replacement and Renewal	528	572	404	442	-22	487	537	731
CAPEX: Asset Relocations	-163	1	1	1	1	1	1	1
CAPEX: Quality of Supply	190	198	183	183	183	183	183	183
CAPEX: Legislative and Regulatory								
CAPEX: Other Reliability, Safety and Environment	235	255	239	239	239	26	26	26
Total Network CAPEX	967	1,465	1,355	1,030	475	825	862	1,017

Values Fully Marked Up, No Inflation, Base Year dollars. A positive figure indicates an increase

8 Operating Expenditure

Vegetation Management

EIL has entered into a vegetation management contract that outsources the cutting of trees to private contractor. This contract will be in place from 1 April 2022.

8.1 Asset Maintenance

Operational Expenditure Forecast

The operational expenditure forecast is presented in Table 12 and provided in the Information Disclosure Schedule 11b.

Table 12: Operating Expenditure Forecast ($000 - constant 2021/22 terms)

OPEX	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Distribution Replacement & Renewal - City	39	39	39	39	39	39	39	39	39	39
Distribution Replacement & Renewal - Bluff	26	26	26	26	26	26	26	26	26	26
Zone Substation Replacement & Renewal	19	19	19	19	19	19	19	19	19	19
Distribution Substation Replacement & Renewal	90	74	74	74	74	74	74	74	74	74
Locks and Security	58	58	58							
OPEX: Asset Replacement and Renewal	**232**	**215**	**215**	**157**	**157**	**157**	**157**	**157**	**157**	**157**
OPEX: Vegetation Management	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**
Vegetation Management - City	1	1	1	1	1	1	1	1	1	1
Vegetation Management - Bluff	6	1	1	1	1	1	1	1	1	1
OPEX: Vegetation Management	**7**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
OPEX: Routine and Corrective Maintenance and Inspection	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**
Distribution Routine Inspections - City	94	94	94	94	94	94	94	94	94	94
Distribution Routine Inspections - Bluff	51	51	51	51	51	51	51	51	51	51
Technical Routine Inspections - City	96	96	96	96	96	96	96	96	96	96
Technical Routine Inspections - Bluff	6	6	6	6	6	6	6	6	6	6
Distribution Routine Maintenance - City	31	31	31	31	31	31	31	31	31	31
Distribution Routine Maintenance - Bluff	52	52	52	52	31	31	31	31	31	31
Technical Routine Maintenance - City	372	372	372	410	410	410	410	410	410	410
Technical Routine Maintenance - Bluff	13	13	13	14	14	14	14	14	14	14
Distribution Corrective Maintenance - City	69	69	69	69	69	69	69	69	69	69
Distribution Corrective Maintenance - Bluff	21	21	21	23	23	23	23	23	23	23
Technical Corrective Maintenance - City	164	164	164	164	164	164	164	164	164	164
Technical Corrective Maintenance - Bluff	10	10	10	10	10	10	10	10	10	10
Zone Substation Routine Maintenance	131	256	35	35	35	35	35	35	35	35
Distribution Substation Routine Maintenance	42	42	42	46	46	46	46	46	46	46

Earth Testing - City combined with Dist Routine Inspection										
Earth Testing -Bluff combined with Dist Routine Inspection										
Partial Discharge Survey	38	38	38	38	38	38	38	38	38	38
Infra-red & Corona Surveys	10	10	10	10	10	10	10	10	10	10
Supply Quality Checks - City	2	2	2	2	2	2	2	2	2	2
Supply Quality Checks - Bluff	1	1	1	1	1	1	1	1	1	1
Spares Checks and Minor Maintenance	1	1	1	1	1	1	1	1	1	1
Customer Connections	18	18	18	18	18	18	18	18	18	18
Seismic Checks										
OPEX: Routine and Corrective Maintenance and Inspection	**1,463**	**1,588**	**1,368**	**1,413**	**1,392**	**1,392**	**1,392**	**1,392**	**1,392**	**1,392**
OPEX: Service Interruptions and Emergencies	**2022/ 23**	**2023/ 24**	**2024/ 25**	**2025/ 26**	**2026/ 27**	**2027/ 28**	**2028/ 29**	**2029/ 30**	**2030/ 31**	**2031/ 32**
Incident Response - Distribution - Unplanned - City	338	338	338	338	338	338	338	338	338	338
Incident Response - Distribution - Unplanned - Bluff	117	117	117	117	117	117	117	117	117	117
Incident Response - Technical - Unplanned - City	43	43	43	43	43	43	43	43	43	43
Incident Response - Technical - Unplanned - Bluff	2	2	2	2	2	2	2	2	2	2
Incident Response - Technical - Fixed Fee - City	13	13	13	13	13	13	13	13	13	13
Incident Response - Technical - Fixed Fee - Bluff	3	3	3	3	3	3	3	3	3	3
OPEX: Service Interruptions and Emergencies	**517**	**517**	**517**	**517**	**517**	**517**	**517**	**517**	**517**	**517**
Operational Expenditure Total	**2,220**	**2,322**	**2,102**	**2,088**	**2,068**	**2,068**	**2,068**	**2,068**	**2,068**	**2,068**

Values Fully Marked Up, No Inflation, Base Year dollars.

This differs from the previous year AMP as follows:

Table 13: Operating Expenditure Forecast ($000 – difference between March 2021 and March 2022)

Proposed Future Operational Expenditure - Difference Mar 21 to Mar 22								
-								
	2022/ 23	**2023/ 24**	**2024/ 25**	**2025/ 26**	**2026/ 27**	**2027/ 28**	**2028/ 29**	**2029/ 30**
OPEX: Asset Replacement and Renewal	37	20	20	9	9	9	9	9
OPEX: Vegetation Management	6	1	1	1	1	1	1	1
OPEX: Routine and Corrective Maintenance and Inspection	346	471	251	251	251	251	281	251
OPEX: Service Interruptions and Emergencies	-14	-14	-14	-30	-30	-30	-30	-30
Operational Expenditure Total	375	478	258	231	231	231	261	231

Values Fully Marked Up, No Inflation, Base Year dollars. A positive figure indicates an increase.

This brings the total expenditure to:

Table 14: Total Expenditure Forecast ($000 - constant 2021/22 terms)

	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Operational Expenditure Total	**2,220**	**2,322**	**2,102**	**2,088**	**2,068**	**2,068**	**2,068**	**2,068**	**2,068**	**2,068**
System Operations and Network Support	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255
Business Support	2,181	2,149	2,187	2,187	2,187	2,187	2,187	2,187	2,187	2,187
AMP Total Operational Expenditure	**5,655**	**5,726**	**5,544**	**5,530**	**5,510**	**5,510**	**5,510**	**5,510**	**5,510**	**5,510**
Total Network CAPEX	**5,385**	**6,271**	**5,841**	**6,717**	**5,793**	**6,518**	**6,694**	**7,290**	**6,759**	**7,331**
Grand Total Capital and Operational Expenditure	**11,040**	**11,998**	**11,385**	**12,247**	**11,302**	**12,028**	**12,204**	**12,799**	**12,268**	**12,840**

Values Fully Marked Up, No Inflation, Base Year dollars.

9 Execution Capacity

The core of EIL's asset management activities lies within the detailed processes and systems that reflect EIL's thinking, manifest in EIL's policies, strategies and processes and ultimately shape the nature and configuration of EIL's fixed assets.

9.1 People, Culture and Leadership

People related constraints

It remains problematic to obtain the required numbers of appropriately skilled resources. This applies to all levels of staff, but particularly to technical and field staff. The lower South Island is not a first choice for people to work and stay, especially younger people. We generally have around 20 vacancies for field and technical staff. PowerNet has appointed 15 trainee linesman to try and alleviate the shortage, but it will take time to get them to the required level of competency to be fully productive.

The COVID-19 pandemic has assisted somewhat in obtaining engineering staff, as young engineers that may have travelled overseas after graduating are now New Zealand bound and some Tiwai staff want more certainty around their future. This has brought some competencies to market, but the specific experience and skills on the EIL underground network remains scarce, especially now that overseas recruitment has become almost impossible.

10 Evaluation of Performance

10.1 Progress against Plan

The performance between estimated expenditure and actual expenditure is described in Table 15.

Table 15: Variance between Expenditure Forecast and Actual Expenditure

	Financial Year ending March 2022		
Works Program	**Forecast**	**Budget**	**Variance**
EIL Network Inspections Maintenance	$74,000	$224,803	$150,803
EIL Distribution & Connections Maintenance	$646,302	$687,947	$41,645
EIL Distribution & Connections Capital	$2,070,641	$1,249,593	($821,047)
EIL Projects Capital	$1,424,362	$1,365,770	($58,592)
EIL Technical Maintenance	$1,164,207	$926,015	($238,192)
EIL Technical Capital	$2,121,493	$1,770,791	($350,702)
EIL Arborists Maintenance	$3,917	$3,917	$0
Total Network Opex and Capex Expenditure	**$7,504,921**	**$6,228,837**	**($1,276,084)**

(Negative figures indicate an over-expenditure against budget)

The variances were mainly caused by:

- Customer connections – Unplanned developments in Avenal, Regent and Rannoch Streets.
- Customer connections – Expenditure for the new CBD Hotel, Mall developments and SIT Creative Centre connections.
- Distribution capital – New cables in the CBD development area to make use of the ICC trenches and road upgrades.
- Technical Maintenance – increased maintenance of the ABB Ring Main Units and Magnefix units following the March 2021 equipment failures.
- Technical Capital – refurbishing of RMU stands. Some of the over-expenditure was offset by equipment delivery delays affecting replacing of Ring Main Units
- Asset relocations – Increase in the scope and value of the Stead Street stopbank project.

10.2 Service Level Performance

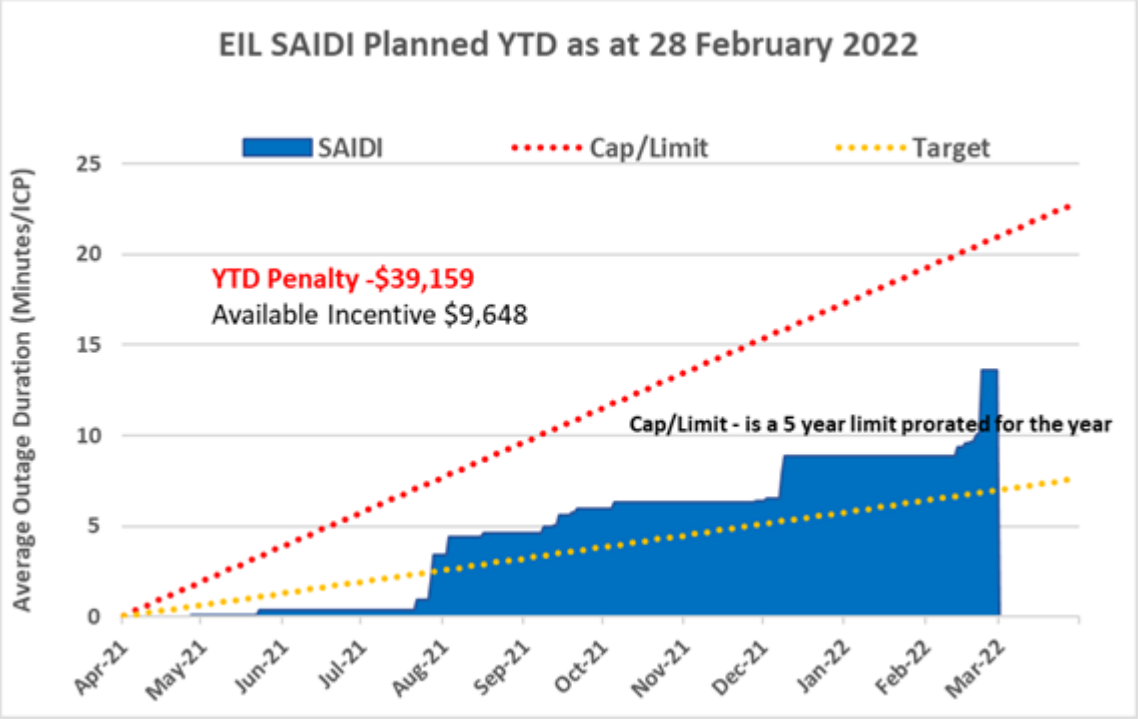
Reliability

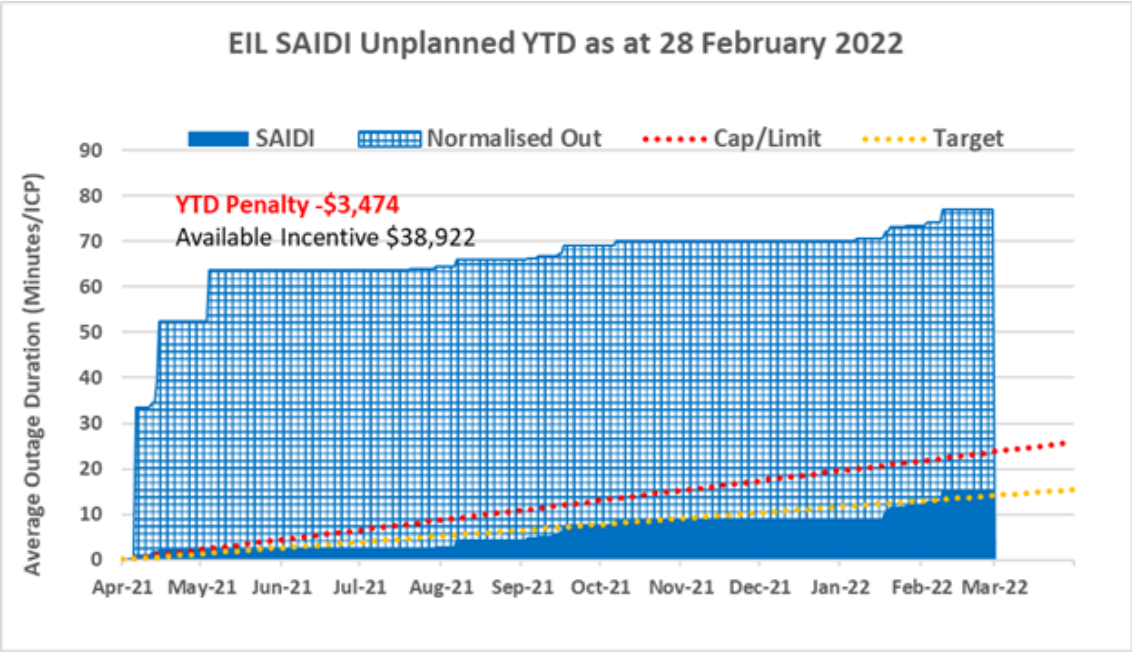
Table 164: SAIDI & SAIFI KPI Reporting Targets and Figure 5: Planned and unplanned SAIDI and SAIFI displays the target versus actual reliability performance on the network.

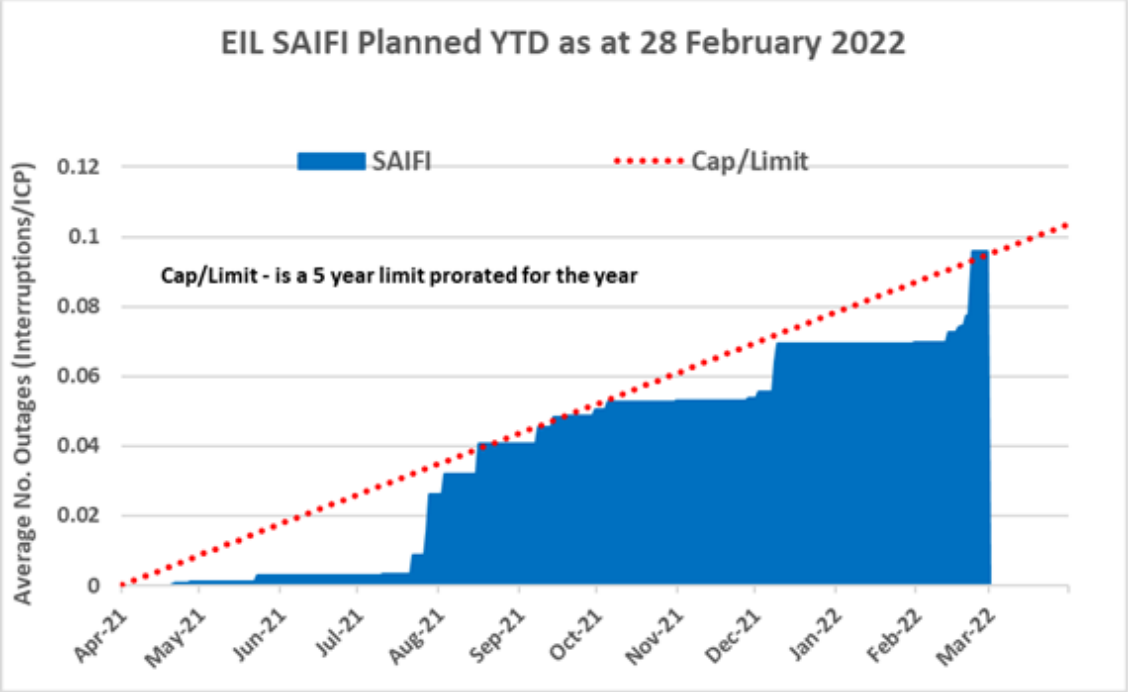
Table 164: SAIDI & SAIFI KPI Reporting Targets

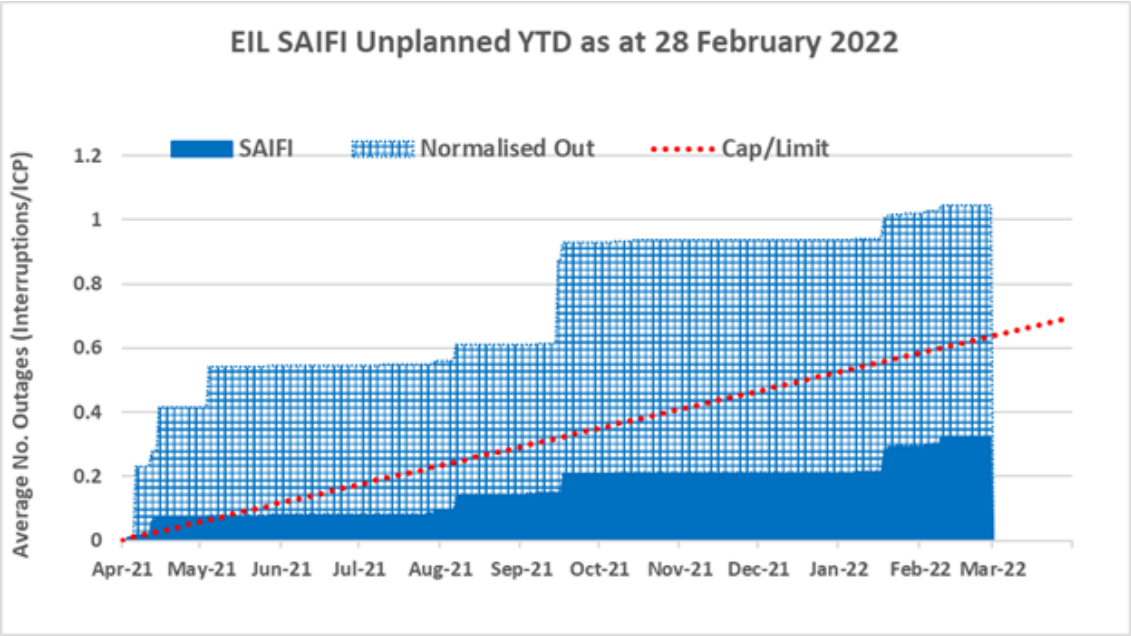
SAIDI & SAIFI KPI Reporting Targets	Forecast	Limit
SAIDI Planned - EIL (mins per customer)	13.61	20.95
SAIFI Planned - EIL (interruptions per customer)	0.0958	0.0949
SAIDI Unplanned - EIL (mins per customer)	15.34	23.66
SAIFI Unplanned - EIL (interruptions per customer)	0.3231	0.6365

Figure 5: Planned and unplanned SAIDI and SAIFI




EIL SAIDI Unplanned YTD as at 28 February 2022
SAIDI
Normalised Out
Cap/Limit
Target
YTD Penalty -$3,474
Available Incentive $38,922
Average Outage Duration (Minutes/ICP)
90
80
70
60
50
40
30
20
10
0
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-22
Mar-22


EIL SAIFI Planned YTD as at 28 February 2022
SAIFI
Cap/Limit
Cap/Limit - is a 5 year limit prorated for the year
Average No. Outages (Interruptions/ICP)
0.12
0.1
0.08
0.06
0.04
0.02
0
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-22
Mar-22



Targets are based on average performance since 1 April 2004 and due to the reliability of the network, have been set very low. The implication is that single events can impact significantly on reliability performance. Due to the relatively small footprint, high customer density and the underground network any interruption will affect a higher percentage of the customer base than in an overhead network.

The information was prepared consistently with previous disclosures, successive interruptions originating from the same cause were recorded as single interruptions.

Annexure 3 – Disclosure Schedules

Schedule 11a. – Capital Expenditure Forecast

Company Name	Electricity Invercargill Limited	
AMP Planning Period	1 April 2022 – 31 March 2032	

SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

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

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

This information is not part of audited disclosure information.

sch ref			Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
8		for year ended	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27	31 Mar 28	31 Mar 29	31 Mar 30	31 Mar 31	31 Mar 32
9		**11a(i): Expenditure on Assets Forecast**	$000 (in nominal dollars)										
10		Consumer connection	1,276	688	713	732	1,036	766	783	800	818	604	847
11		System growth	-	-	-	545	652	117	524	469	140	383	-
12		Asset replacement and renewal	3,555	3,649	4,663	3,925	4,588	4,508	5,265	5,651	6,819	6,320	7,327
13		Asset relocations	218	6	7	7	7	7	7	7	8	8	8
14		Reliability, safety and environment:											
15		Quality of supply	292	353	354	244	249	255	261	266	272	278	284
16		Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
17		Other reliability, safety and environment	367	688	729	732	750	766	542	554	566	578	591
18		**Total reliability, safety and environment**	659	1,041	1,083	976	999	1,021	803	820	838	856	875
19		**Expenditure on network assets**	5,708	5,384	6,466	6,185	7,282	6,419	7,382	7,747	8,623	8,171	9,057
20		Expenditure on non-network assets	-	-	-	-	-	-	-	-	-	-	-
21		**Expenditure on assets**	5,708	5,384	6,466	6,185	7,282	6,419	7,382	7,747	8,623	8,171	9,057
22													
23	*plus*	Cost of financing											
24	*less*	Value of capital contributions	467	137	142	146	207	153	156	160	163	120	169
25	*plus*	Value of vested assets											
26													
27		**Capital expenditure forecast**	5,241	5,247	6,324	6,039	7,075	6,266	7,226	7,587	8,460	8,051	8,888
28													
29		Assets commissioned	1	4,883	6,064	5,634	6,310	5,565	6,219	6,406	7,059	6,546	5,683
30			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
31		for year ended	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27	31 Mar 28	31 Mar 29	31 Mar 30	31 Mar 31	31 Mar 32
32			$000 (in constant prices)										
33		Consumer connection	1,276	688	692	692	956	692	691	691	691	499	685
34		System growth	-	-	-	515	601	105	463	405	119	317	-
35		Asset replacement and renewal	3,555	3,650	4,522	3,707	4,231	4,067	4,649	4,882	5,765	5,228	5,930
36		Asset relocations	218	6	6	6	6	6	6	6	6	6	6
37		Reliability, safety and environment:											
38		Quality of supply	104	171	162	49	49	49	230	230	230	230	230
39		Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
40		Other reliability, safety and environment	367	687	707	691	691	691	478	478	478	478	478
41		**Total reliability, safety and environment**	471	858	869	740	740	740	708	708	708	708	708
42		**Expenditure on network assets**	5,520	5,202	6,089	5,660	6,534	5,610	6,517	6,692	7,289	6,758	7,329
43		Expenditure on non-network assets	-	-	-	-	-	-	-	-	-	-	-
44		**Expenditure on assets**	5,520	5,202	6,089	5,660	6,534	5,610	6,517	6,692	7,289	6,758	7,329
45													
46		**Subcomponents of expenditure on assets (where known)**											
47		Energy efficiency and demand side management, reduction of energy losses	-	-	-	-	-	-	-	-	-	-	-
48		Overhead to underground conversion	-	-	21	-	-	-	-	-	-	-	-
49		Research and development	-	-	-	-	-	-	-	-	-	-	-

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
for year ended		31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27	31 Mar 28	31 Mar 29	31 Mar 30	31 Mar 31	31 Mar 32
Difference between nominal and constant price forecasts		$000										
Consumer connection		-	-	21	40	80	74	92	109	127	105	162
System growth		-	-	-	30	51	12	61	64	21	66	-
Asset replacement and renewal		-	(1)	141	218	357	441	616	769	1,054	1,092	1,397
Asset relocations		-	-	1	1	1	1	1	1	2	2	2
Reliability, safety and environment:												
Quality of supply		188	182	192	195	200	206	31	36	42	48	54
Legislative and regulatory		-	-	-	-	-	-	-	-	-	-	-
Other reliability, safety and environment		-	1	22	41	59	75	64	76	88	100	113
Total reliability, safety and environment		188	183	214	236	259	281	95	112	130	148	167
Expenditure on network assets		188	182	377	525	748	809	865	1,055	1,334	1,413	1,728
Expenditure on non-network assets		-	-	-	-	-	-	-	-	-	-	-
Expenditure on assets		188	182	377	525	748	809	865	1,055	1,334	1,413	1,728

	Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
for year ended	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27
11a(ii): Consumer Connection						
*Consumer types defined by EDB**	$000 (in constant prices)					
Customer Connections (≤ 20 kVA)	235	66	66	66	66	66
Customer Connections (21 to 99 kVA)	55	58	58	58	58	58
Customer Connections (≥ 100 kVA)	807	132	132	132	132	132
Distributed Generation Connection	3	3	3	3	3	3
New Subdivisions	176	429	433	433	697	433
**include additional rows if needed*						
Consumer connection expenditure	1,276	688	692	692	956	692
less Capital contributions funding consumer connection	45	138	104	52	52	138
Consumer connection less capital contributions	1,231	550	588	640	904	554
11a(iii): System Growth						
Subtransmission	-	-	-	-	-	-
Zone substations	-	-	-	515	120	21
Distribution and LV lines	-	-	-	-	-	-
Distribution and LV cables	-	-	-	-	361	63
Distribution substations and transformers	-	-	-	-	-	-
Distribution switchgear	-	-	-	-	120	21
Other network assets	-	-	-	-	-	-
System growth expenditure	-	-	-	515	601	105
less Capital contributions funding system growth	-	-	-	-	-	-
System growth less capital contributions	-	-	-	515	601	105

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27
11a(iv): Asset Replacement and Renewal		$000 (in constant prices)					
Subtransmission		-	-	-	-	-	-
Zone substations		1,498	501	2,018	749	9	9
Distribution and LV lines		181	255	255	255	319	319
Distribution and LV cables		823	154	662	699	973	973
Distribution substations and transformers		196	708	532	532	1,140	976
Distribution switchgear		741	1,859	882	1,299	1,617	1,617
Other network assets		116	173	173	173	173	173
Asset replacement and renewal expenditure		3,555	3,650	4,522	3,707	4,231	4,067
less Capital contributions funding asset replacement and renewal		-	-	-	-	-	-
Asset replacement and renewal less capital contributions		3,555	3,650	4,522	3,707	4,231	4,067

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27
11a(v): Asset Relocations							
*Project or programme**		$000 (in constant prices)					
Asset Relocation Projects		6	6	6	6	6	6
Stead St StopBank		212	-	-	-	-	-
*include additional rows if needed							
All other project or programmes - asset relocations		-	-	-	-	-	-
Asset relocations expenditure		218	6	6	6	6	6
less Capital contributions funding asset relocations		-	115	115	-	-	-
Asset relocations less capital contributions		218	(109)	(109)	6	6	6

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27
11a(vi): Quality of Supply							
*Project or programme**		$000 (in constant prices)					
Supply Quality Upgrades - City		10	14	14	14	14	14
Supply Quality Upgrades - Bluff		1	1	1	1	1	1
Network Automation Projects		93	156	147	34	34	34
*include additional rows if needed							
All other projects or programmes - quality of supply		-	-	-	-	-	-
Quality of supply expenditure		104	171	162	49	49	49
less Capital contributions funding quality of supply		-	-	-	-	-	-
Quality of supply less capital contributions		104	171	162	49	49	49

			Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
		for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
	11a(vii): Legislative and Regulatory							
	*Project or programme**		**$000 (in constant prices)**					
	**Legislative and regulatory expenditure*		-	-	-	-	-	-
	less Capital contributions funding legislative and regulatory							
	Legislative and regulatory less capital contributions		-	-	-	-	-	-
			Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
		for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
	11a(viii): Other Reliability, Safety and Environment							
	*Project or programme**		**$000 (in constant prices)**					
	Earth Upgrades - City		118	391	270	270	270	270
	Earth Upgrades - Bluff		18	9	9	9	9	9
	Pillar Box Lid Upgrade		192	127	127	127	127	127
	Spey St Fibre Chamber/Cable		-	66	260	-	-	-
	LV Tie Point Disconnectors			53	-	244	244	244
	Fibre Installation		34	41	41	41	41	41
	Locks and Security		5	-	-	-	-	-
	include additional rows if needed							
	All other projects or programmes - other reliability, safety and environment		-	-	-	-	-	-
	Other reliability, safety and environment expenditure		367	687	707	691	691	691
	less Capital contributions funding other reliability, safety and environment		-	-	-	-	-	-
	Other reliability, safety and environment less capital contributions		367	687	707	691	691	691
			Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
		for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
	11a(ix): Non-Network Assets							
	Routine expenditure							
	*Project or programme**		**$000 (in constant prices)**					
	include additional rows if needed							
	All other projects or programmes - routine expenditure							
	Routine expenditure		-	-	-	-	-	-
	Atypical expenditure							
	*Project or programme**							
	include additional rows if needed							
	All other projects or programmes - atypical expenditure							
	Atypical expenditure		-	-	-	-	-	-
	Expenditure on non-network assets		-	-	-	-	-	-

Company Name	**Electricity Invercargill Limited**
AMP Planning Period	**1 April 2022 – 31 March 2032**

SCHEDULE 11b: REPORT ON FORECAST OPERATIONAL EXPENDITURE

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

sch ref												
7		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
8	for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**	**31 Mar 28**	**31 Mar 29**	**31 Mar 30**	**31 Mar 31**	**31 Mar 32**
9	**Operational Expenditure Forecast**	**$000 (in nominal dollars)**										
10	Service interruptions and emergencies	532	517	533	547	560	573	585	598	611	625	639
11	Vegetation management	2	7	2	2	2	2	2	2	3	3	3
12	Routine and corrective maintenance and inspection	1,087	1,463	1,637	1,448	1,532	1,542	1,576	1,611	1,646	1,682	1,719
13	Asset replacement and renewal	149	232	222	228	170	174	178	182	186	190	194
14	**Network Opex**	1,770	2,219	2,394	2,225	2,264	2,291	2,341	2,393	2,446	2,500	2,555
15	System operations and network support	1,280	1,255	1,294	1,328	1,360	1,390	1,421	1,452	1,484	1,517	1,550
16	Business support	2,056	2,181	2,216	2,316	2,372	2,424	2,477	2,532	2,587	2,644	2,702
17	**Non-network opex**	3,336	3,436	3,510	3,644	3,732	3,814	3,898	3,984	4,071	4,161	4,252
18	**Operational expenditure**	5,106	5,655	5,904	5,869	5,996	6,105	6,239	6,377	6,517	6,661	6,807

19		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
20	for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**	**31 Mar 28**	**31 Mar 29**	**31 Mar 30**	**31 Mar 31**	**31 Mar 32**
21		**$000 (in constant prices)**										
22	Service interruptions and emergencies	532	517	517	517	517	517	517	517	517	517	517
23	Vegetation management	2	7	2	2	2	2	2	2	2	2	2
24	Routine and corrective maintenance and inspection	1,087	1,463	1,588	1,368	1,413	1,392	1,392	1,392	1,392	1,392	1,392
25	Asset replacement and renewal	149	232	215	215	157	157	157	157	157	157	157
26	**Network Opex**	1,770	2,219	2,322	2,102	2,089	2,068	2,068	2,068	2,068	2,068	2,068
27	System operations and network support	1,280	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255	1,255
28	Business support	2,056	2,181	2,149	2,187	2,187	2,187	2,187	2,187	2,187	2,187	2,187
29	**Non-network opex**	3,336	3,436	3,404	3,442	3,442	3,442	3,442	3,442	3,442	3,442	3,442
30	**Operational expenditure**	5,106	5,655	5,726	5,544	5,531	5,510	5,510	5,510	5,510	5,510	5,510
31	**Subcomponents of operational expenditure (where known)**											
32	Energy efficiency and demand side management, reduction of											
33	energy losses	125	125	125	125	125	125	125	125	125	125	125
34	Direct billing*	-	-	-	-	-	-	-	-	-	-	-
35	Research and Development	-	-	-	-	-	-	-	-	-	-	-
36	Insurance	138	149	149	149	149	149	149	149	149	149	149
37	** Direct billing expenditure by suppliers that direct bill the majority of their consumers*											
38												

39		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
40	for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**	**31 Mar 28**	**31 Mar 29**	**31 Mar 30**	**31 Mar 31**	**31 Mar 32**
41	**Difference between nominal and real forecasts**	**$000**										
42	Service interruptions and emergencies	-	-	16	30	43	56	68	81	94	108	122
43	Vegetation management	-	-	-	-	-	-	-	-	1	1	1
44	Routine and corrective maintenance and inspection	-	-	49	80	119	150	184	219	254	290	327
45	Asset replacement and renewal	-	-	7	13	13	17	21	25	29	33	37
46	**Network Opex**	-	-	72	123	175	223	273	325	378	432	487
47	System operations and network support	-	-	39	73	105	135	166	197	229	262	295
48	Business support	-	-	67	129	185	237	290	345	400	457	515
49	**Non-network opex**	-	-	106	202	290	372	456	542	629	719	810
50	**Operational expenditure**	-	-	178	325	465	595	729	867	1,007	1,151	1,297

Company Name	**Electricity Invercargill Limited**
AMP Planning Period	**1 April 2022 – 31 March 2032**

SCHEDULE 12a: REPORT ON ASSET CONDITION

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

sch ref						Asset condition at start of planning period (percentage of units by grade)							
8	Voltage	Asset category	Asset class	Units	H1	H2	H3	H4	H5	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
10	All	Overhead Line	Concrete poles / steel structure	No.	-	0.13%	21.00%	58.00%	20.87%	-	3	1.00%
11	All	Overhead Line	Wood poles	No.	0.10%	3.62%	54.00%	38.00%	4.28%	-	2	9.00%
12	All	Overhead Line	Other pole types	No.	N/A	N/A	N/A	N/A	N/A	N/A	3	-
13	HV	Subtransmission Line	Subtransmission OH up to 66kV conductor	km	-	-	-	100.00%	-	-	3	-
14	HV	Subtransmission Line	Subtransmission OH 110kV+ conductor	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	HV	Subtransmission Cable	Subtransmission UG up to 66kV (XLPE)	km	-	-	70.00%	-	30.00%	-	2	-
16	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Oil pressurised)	km	-	-	100.00%	-	-	-	2	-
17	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Gas pressurised)	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	HV	Subtransmission Cable	Subtransmission UG up to 66kV (PILC)	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	HV	Subtransmission Cable	Subtransmission UG 110kV+ (XLPE)	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Oil pressurised)	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
21	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Gas Pressurised)	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22	HV	Subtransmission Cable	Subtransmission UG 110kV+ (PILC)	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
23	HV	Subtransmission Cable	Subtransmission submarine cable	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	HV	Zone substation Buildings	Zone substations up to 66kV	No.	25.00%	10.00%	15.00%	15.00%	35.00%	-	4	15.00%
25	HV	Zone substation Buildings	Zone substations 110kV+	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
26	HV	Zone substation switchgear	22/33kV CB (Indoor)	No.	N/A	N/A	N/A	N/A	N/A	N/A	3	-
27	HV	Zone substation switchgear	22/33kV CB (Outdoor)	No.	N/A	N/A	N/A	N/A	N/A	N/A	3	100.00%
28	HV	Zone substation switchgear	33kV Switch (Ground Mounted)	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	HV	Zone substation switchgear	33kV Switch (Pole Mounted)	No.	45.00%	9.00%	18.00%	28.00%	-	-	3	45.00%
30	HV	Zone substation switchgear	33kV RMU	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
31	HV	Zone substation switchgear	50/66/110kV CB (Indoor)	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	HV	Zone substation switchgear	50/66/110kV CB (Outdoor)	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
33	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (ground mounted)	No.	13.00%	14.00%	42.00%	-	31.00%	-	3	27.00%
34	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (pole mounted)	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

					Asset condition at start of planning period (percentage of units by grade)							
	Voltage	Asset category	Asset class	Units	H1	H2	H3	H4	H5	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
39	HV	Zone Substation Transformer	Zone Substation Transformers	No.	-	17.00%	33.00%	17.00%	33.00%	-	4	-
40	HV	Distribution Line	Distribution OH Open Wire Conductor	km	21.24%	29.00%	41.00%	3.00%	5.76%	-	2	19.00%
41	HV	Distribution Line	Distribution OH Aerial Cable Conductor	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
42	HV	Distribution Line	SWER conductor	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
43	HV	Distribution Cable	Distribution UG XLPE or PVC	km	0.94%	2.00%	12.00%	73.00%	12.06%	-	3	0.50%
44	HV	Distribution Cable	Distribution UG PILC	km	1.13%	6.00%	69.00%	20.00%	3.87%	-	3	1.50%
45	HV	Distribution Cable	Distribution Submarine Cable	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
46	HV	Distribution switchgear	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	No.	N/A	N/A	N/A	N/A	N/A	-	3	-
47	HV	Distribution switchgear	3.3/6.6/11/22kV CB (Indoor)	No.	21.14%	67.00%	-	-	11.86%	-	3	33.00%
48	HV	Distribution switchgear	3.3/6.6/11/22kV Switches and fuses (pole mounted)	No.	39.00%	2.00%	16.00%	14.00%	29.00%	-	2	39.00%
49	HV	Distribution switchgear	3.3/6.6/11/22kV Switch (ground mounted) - except RMU	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50	HV	Distribution switchgear	3.3/6.6/11/22kV RMU	No.	14.21%	31.00%	13.00%	31.00%	10.79%	-	3	12.00%
51	HV	Distribution Transformer	Pole Mounted Transformer	No.	19.00%	13.00%	24.00%	28.00%	16.00%	-	2	15.00%
52	HV	Distribution Transformer	Ground Mounted Transformer	No.	4.81%	15.00%	41.00%	29.00%	10.19%	-	3	5.00%
53	HV	Distribution Transformer	Voltage regulators	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
54	HV	Distribution Substations	Ground Mounted Substation Housing	No.	N/A	N/A	N/A	N/A	N/A	-	2	6.00%
55	LV	LV Line	LV OH Conductor	km	8.00%	11.00%	59.00%	19.00%	3.00%	-	2	10.00%
56	LV	LV Cable	LV UG Cable	km	0.76%	15.00%	60.00%	22.00%	2.24%	-	2	0.50%
57	LV	LV Streetlighting	LV OH/UG Streetlight circuit	km	7.00%	6.00%	79.00%	7.00%	1.00%	-	1	2.00%
58	LV	Connections	OH/UG consumer service connections	No.	5.62%	4.00%	85.00%	2.00%	3.38%	-	2	0.50%
59	All	Protection	Protection relays (electromechanical, solid state and numeric)	No.	37.02%	-	-	60.00%	2.98%	-	3	40.00%
60	All	SCADA and communications	SCADA and communications equipment operating as a single system	Lot	20.00%	-	-	80.00%	-	-	3	20.00%
61	All	Capacitor Banks	Capacitors including controls	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
62	All	Load Control	Centralised plant	Lot	N/A	N/A	N/A	N/A	N/A	N/A	3	-
63	All	Load Control	Relays	No.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
64	All	Civils	Cable Tunnels	km	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Company Name	**Electricity Invercargill Limited**
AMP Planning Period	**1 April 2022 – 31 March 2032**

SCHEDULE 12b: REPORT ON FORECAST CAPACITY

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

sch ref

12b(i): System Growth - Zone Substations

Existing Zone Substations	Current Peak Load (MVA)	Installed Firm Capacity (MVA)	Security of Supply Classification (type)	Transfer Capacity (MVA)	Utilisation of Installed Firm Capacity %	Installed Firm Capacity +5 years (MVA)	Utilisation of Installed Firm Capacity + 5yrs %	Installed Firm Capacity Constraint +5 years (cause)	Explanation
Spey Street	28	36	N-1	40	79%	36	70%	No constraint within +5 years	
Leven Street	14	23	N-1	25	62%	21	72%	No constraint within +5 years	Short interruption for changeover (Normally Open supply from alternate GXP, via TPCL owned subtransmission circuits). Growth in surrounding areas will erode subtransmission backfeed capability.
Racecourse Road	12	-	N	12	-	-	-	No constraint within +5 years	No firm capacity
Southern	15	-	N-1	9	-	23	65%	No constraint within +5 years	Upgrade to N-1 security by 2022; limited transfer capacity for extended periods. Further transfer of load will result in poorer network reliability. Utilisation projected to increase with planned feeder tie-point shifts from Racecourse Rd to Southern substation in post substation upgrade
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				
					-				

[1] *Extend forecast capacity table as necessary to disclose all capacity by each zone substation*

Company Name	**Electricity Invercargill Limited**
AMP Planning Period	**1 April 2022 – 31 March 2032**

SCHEDULE 12C: REPORT ON FORECAST NETWORK DEMAND

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

sch ref

12c(i): Consumer Connections

Number of ICPs connected in year by consumer type

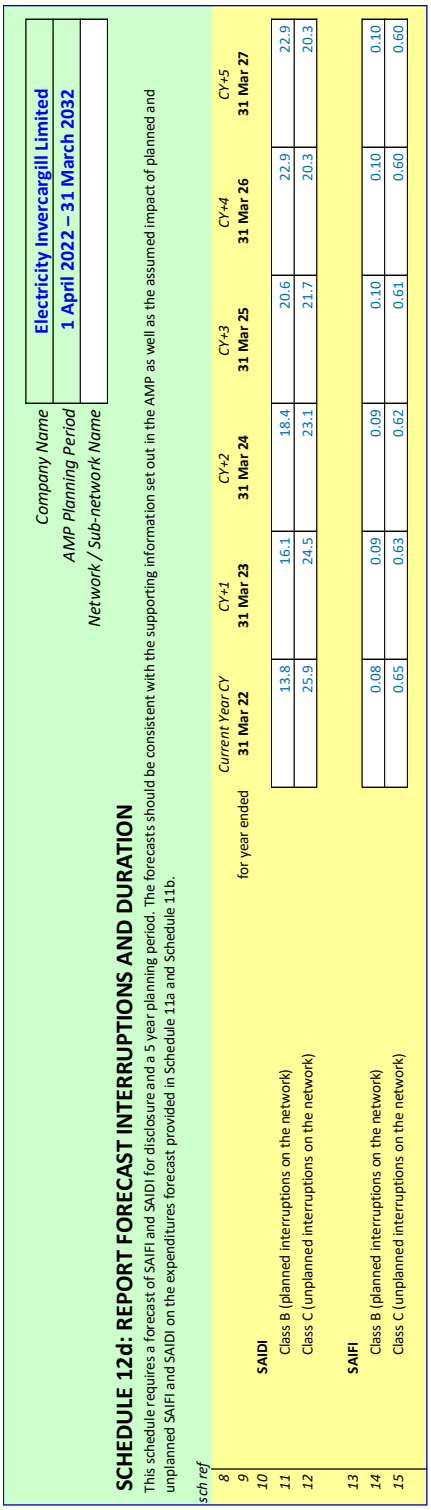
		Number of connections					
		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
	*Consumer types defined by EDB**						
	Customer Connections < 20 kVA	57	50	40	40	40	40
	Customer Connections 21-99 kVA	15	5	5	5	5	5
	Customer Connections > 100 kVA	2	3	2	2	2	2
	Connections total	74	58	47	47	47	47
	**include additional rows if needed*						
	Distributed generation						
	Number of connections	9	10	15	15	15	15
	Capacity of distributed generation installed in year (MVA)	0.1	0.1	0.2	0.2	0.2	0.2

12c(ii) System Demand

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	Maximum coincident system demand (MW) for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
	GXP demand	63	64	64	65	65	65
plus	Distributed generation output at HV and above	-	-	-	-	-	-
	Maximum coincident system demand	63	64	64	65	65	65
less	Net transfers to (from) other EDBs at HV and above	1	1	1	1	1	1
	Demand on system for supply to consumers' connection points	62	63	63	64	64	64
	Electricity volumes carried (GWh)						
	Electricity supplied from GXPs	254	258	261	263	263	263
less	Electricity exports to GXPs	-	-	-	-	-	-
plus	Electricity supplied from distributed generation	0	-	-	-	-	-
less	Net electricity supplied to (from) other EDBs	(13)	(13)	(13)	(13)	(13)	(13)
	Electricity entering system for supply to ICPs	267	271	274	276	276	276
less	Total energy delivered to ICPs	254	258	261	262	263	263
	Losses	13	14	14	14	14	14
	Load factor	50%	50%	50%	50%	50%	50%
	Loss ratio	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Schedule 12d. – Reliability Forecast

Note: These forecasts are presented using the SAIDI/SAIFI calculation method detailed in the Electricity Distribution Services Default Price-Quality Path Determination 2020. As such they correlate with the Compliance Statement and most publications in the public domain, but do not correlate with Schedule 10 of year-end disclosures. A rough correlation with Schedule 10 may be obtained through multiplying the Class B figures in rows 11 and 14 by a factor of 2.



Company Name **Electricity Invercargill Limited**
AMP Planning Period **1 April 2022 – 31 March 2032**
Network / Sub-network Name

SCHEDULE 12d: REPORT FORECAST INTERRUPTIONS AND DURATION

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

sch ref	for year ended	*Current Year CY* 31 Mar 22		*CY+1* 31 Mar 23		*CY+2* 31 Mar 24		*CY+3* 31 Mar 25		*CY+4* 31 Mar 26		*CY+5* 31 Mar 27	
8													
9	**SAIDI**												
10	Class B (planned interruptions on the network)	13.8		16.1		18.4		20.6		22.9		22.9	
11	Class C (unplanned interruptions on the network)	25.9		24.5		23.1		21.7		20.3		20.3	
12													
13	**SAIFI**												
14	Class B (planned interruptions on the network)	0.08		0.09		0.09		0.10		0.10		0.10	
15	Class C (unplanned interruptions on the network)	0.65		0.63		0.62		0.61		0.60		0.60	

Schedule 13. – Asset Management Maturity Assessment Tool

SCHEDULE 13: REPORT ON ASSET MANAGEMENT MATURITY

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

Q No.	Function	Question	Score Mar 2019	Maturity Level Description
3	Asset management policy	To what extent has an asset management policy been documented, authorised and communicated?	2.2	The organisation has an asset management policy, which has been authorised by top management, but it has had limited circulation. It may be in use to influence development of strategy and planning but its effect is limited.
10	Asset management strategy	What has the organisation done to ensure that its asset management strategy is consistent with other appropriate organisational policies and strategies, and the needs of stakeholders?	2.2	All linkages are in place and evidence is available to demonstrate that, where appropriate, the organisation's asset management strategy is consistent with its other organisational policies and strategies. The organisation has also identified and considered the requirements of relevant stakeholders.
11	Asset management strategy	In what way does the organisation's asset management strategy take account of the lifecycle of the assets, asset types and asset systems over which the organisation has stewardship?	2.4	The long-term asset management strategy takes account of the lifecycle of some, but not all, of its assets, asset types and asset systems.
26	Asset management plan(s)	How does the organisation establish and document its asset management plan(s) across the lifecycle activities of its assets and asset systems?	1.8	The organisation is in the process of putting in place comprehensive, documented asset management plan(s) that cover all lifecycle activities, clearly aligned to asset management objectives and the asset management strategy.
27	Asset management plan(s)	How has the organisation communicated its plan(s) to all relevant parties to a level of detail appropriate to the receiver's role in their delivery?	2.3	Communicated to those responsible for delivery is either irregular or ad-hoc.
29	Asset management plan(s)	How are designated responsibilities for delivery of asset plan actions documented?	1.8	Asset management plan(s) consistently document responsibilities for the delivery of actions but responsibility/authority levels are inappropriate/ inadequate, and/or there are misalignments within the organisation.

31	Asset management plan(s)	What has the organisation done to ensure that appropriate arrangements are made available for the efficient and cost-effective implementation of the plan(s)? (Note this is about resources and enabling support)	2.4	The organisation's arrangements fully cover all the requirements for the efficient and cost-effective implementation of asset management plan(s) and realistically address the resources and timescales required, and any changes needed to functional policies, standards, processes and the asset management information system.
33	Contingency planning	What plan(s) and procedure(s) does the organisation have for identifying and responding to incidents and emergency situations and ensuring continuity of critical asset management activities?	2.7	Most credible incidents and emergency situations are identified. Either appropriate plan(s) and procedure(s) are incomplete for critical activities or they are inadequate. Training/ external alignment may be incomplete.
37	Structure, authority and responsibilities	What has the organisation done to appoint member(s) of its management team to be responsible for ensuring that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s)?	1.9	The appointed person or persons have full responsibility for ensuring that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s). They have been given the necessary authority to achieve this.
40	Structure, authority and responsibilities	What evidence can the organisation's top management provide to demonstrate that sufficient resources are available for asset management?	2.0	A process exists for determining what resources are required for its asset management activities and in most cases these are available but in some instances resources remain insufficient.
42	Structure, authority and responsibilities	To what degree does the organisation's top management communicate the importance of meeting its asset management requirements?	1.8	Top management communicates the importance of meeting its asset management requirements to all relevant parts of the organisation.
45	Outsourcing of asset management activities	Where the organisation has outsourced some of its asset management activities, how has it ensured that appropriate controls are in place to ensure the compliant delivery of its organisational strategic plan, and its asset management policy and strategy?	1.8	Evidence exists to demonstrate that outsourced activities are appropriately controlled to provide for the compliant delivery of the organisational strategic plan, asset management policy and strategy, and that these controls are integrated into the asset management system
48	Training, awareness and competence	How does the organisation develop plan(s) for the human resources required to undertake asset management activities - including the development and delivery of asset management strategy, process(es), objectives and plan(s)?	1.8	The organisation has developed a strategic approach to aligning competencies and human resources to the asset management system including the asset management plan but the work is incomplete or has not been consistently implemented.
49	Training, awareness and competence	How does the organisation identify competency requirements and then plan, provide and record the training necessary to achieve the competencies?	1.7	The organisation is the process of identifying competency requirements aligned to the asset management plan(s) and then plan, provide and record appropriate training. It is incomplete or inconsistently applied.
50	Training, awareness and competence	How does the organisation ensure that persons under its direct control undertaking asset management related activities have an	2.2	The organisation is in the process of putting in place a means for assessing the competence of person(s) involved in asset management

		appropriate level of competence in terms of education, training or experience?		activities including contractors. There are gaps and inconsistencies.
53	Communication, participation, consultation	How does the organisation ensure that pertinent asset management information is effectively communicated to and from employees and other stakeholders, including contracted service providers?	2.1	The organisation has determined pertinent information and relevant parties. Some effective two-way communication is in place but as yet not all relevant parties are clear on their roles and responsibilities with respect to asset management information.
59	Asset Management System documentation	What documentation has the organisation established to describe the main elements of its asset management system and interactions between them?	2.3	The organisation in the process of documenting its asset management system and has documentation in place that describes some, but not all, of the main elements of its asset management system and their interaction.
62	Information management	What has the organisation done to determine what its asset management information system(s) should contain in order to support its asset management system?	2.2	The organisation has developed a structured process to determine what its asset information system should contain in order to support its asset management system and has commenced implementation of the process.
63	Information management	How does the organisation maintain its asset management information system(s) and ensure that the data held within it (them) is of the requisite quality and accuracy and is consistent?	1.8	The organisation has developed information controls that will ensure the data held is of the requisite quality and accuracy and is consistent and is in the process of implementing them.
64	Information management	How has the organisation ensured its asset management information system is relevant to its needs?	2.3	The organisation has developed and is implementing a process to ensure its asset management information system is relevant to its needs. Gaps between what the information system provides and the organisations needs have been identified and action is being taken to close them.
69	Risk management process(es)	How has the organisation documented process(es) and/or procedure(s) for the identification and assessment of asset and asset management related risks throughout the asset lifecycle?	2.5	The organisation is in the process of documenting the identification and assessment of asset related risk across the asset lifecycle but it is incomplete or there are inconsistencies between approaches and a lack of integration.
79	Use and maintenance of asset risk information	How does the organisation ensure that the results of risk assessments provide input into the identification of adequate resources and training and competency needs?	2.4	The organisation is in the process ensuring that outputs of risk assessment are included in developing requirements for resources and training. The implementation is incomplete and there are gaps and inconsistencies.
82	Legal and other requirements	What procedure does the organisation have to identify and provide access to its legal, regulatory, statutory and other asset management requirements, and how is requirements incorporated into the asset management system?	2.2	The organisation has not considered the need to identify its legal, regulatory, statutory and other asset management requirements.

88	Lifecycle Activities	How does the organisation establish implement and maintain process(es) for the implementation of its asset management plan(s) and control of activities across the creation, acquisition or enhancement of assets? This includes design, modification, procurement, construction and commissioning activities?	2.2	The organisation is in the process of putting in place process(es) and procedure(s) to manage and control the implementation of asset management plan(s) during activities related to asset creation including design, modification, procurement, construction and commissioning. Gaps and inconsistencies are being addressed.
91	Lifecycle Activities	How does the organisation ensure that process(es) and/or procedure(s) for the implementation of asset management plan(s) and control of activities during maintenance (and inspection) of assets are sufficient to ensure activities are carried out under specified conditions, are consistent with asset management strategy and control cost, risk and performance?	2.4	The organisation is in the process of putting in place process(es) and procedure(s) to manage and control the implementation of asset management plan(s) during this lifecycle phase. This include confirming the process(es)/procedure(s) are effective and if necessary, carrying out modifications.
95	Performance and condition monitoring	How does the organisation measure the performance and condition of its assets?	1.8	The organisation is developing coherent asset performance monitoring linked to asset management objectives. Reactive and proactive measures are in place. Use is being made of leading indicators and analysis. Gaps and inconsistencies remain.
99	Investigation of asset-related failures, incidents and nonconformities	How does the organisation ensure responsibility and the authority for the handling, investigation and mitigation of asset-related failures, incidents and emergency situations and non-conformances is clear, unambiguous, understood and communicated?	2.3	The organisation understands the requirements and is in the process of determining how to define them.
105	Audit	What has the organisation done to establish procedure(s) for the audit of its asset management system (process(es))?	1.8	The organisation is establishing its audit procedure(s) but they do not yet cover all the appropriate asset-related activities.
109	Corrective & Preventative action	How does the organisation instigate appropriate corrective and/or preventive actions to eliminate or prevent the causes of identified poor performance and non-conformance?	2.4	The need is recognized for systematic instigation of preventive and corrective actions to address root causes of non-compliance or incidents identified by investigations, compliance evaluation or audit. It is only partially or inconsistently in place.
113	Continual Improvement	How does the organisation achieve continual improvement in the optimal combination of costs, asset related risks and the performance and condition of assets and asset systems across the whole lifecycle?	2.7	Continuous improvement process(es) is set out and include consideration of cost risk, performance and condition for assets managed across the whole lifecycle but it is not yet being systematically applied.
115	Continual Improvement	How does the organisation seek and acquire knowledge about new asset management related technology and practices, and evaluate their potential benefit to the organisation?	1.9	The organisation actively engages internally and externally with other asset management practitioners, professional bodies and relevant conferences. Actively investigates and evaluates new practices and evolves its asset management activities using appropriate developments.

Schedule 14a - Mandatory Explanatory Notes on Forecast Information

Company Name	Electricity Invercargill Limited
For Year Ended	31 March 2022

(In this Schedule, clause references are to the Electricity Distribution Information Disclosure Determination 2012 – as amended and consolidated 3 April 2018.)

1. This Schedule requires EDBs to provide explanatory notes to reports prepared in accordance with clause 2.6.6.

2. This Schedule is mandatory—EDBs must provide the explanatory comment specified below, in accordance with clause 2.7.2. This information is not part of the audited disclosure information, and so is not subject to the assurance requirements specified in section 2.8.

Commentary on difference between nominal and constant price capital expenditure forecasts (Schedule 11a)

3. In the box below, comment on the difference between nominal and constant price capital expenditure for the current disclosure year and 10 year planning period, as disclosed in Schedule 11a.

Box 1: Commentary on difference between nominal and constant price capital expenditure forecasts

Inflationary assumptions were used to calculate the nominal prices in the forecast. Nominal Prices are based on NZ Treasury's economic forecasts, as published in the Half Year Economic and Fiscal Update released December 2021.

	2022/23	2023/24	2024/25	2025/26	2026/27
Inflator CAPEX	5.100%	3.100%	2.700%	2.400%	2.200%

In addition to the general inflation, material costs have increased by a weighted average of 17% in 2021. This 17% was included in the CAPEX forecasts for 2022 onwards.

Forecasts are in line with the business plan projections and explanations outlined in the Asset Management Plan

Commentary on difference between nominal and constant price operational expenditure forecasts (Schedule 11b)

4. In the box below, comment on the difference between nominal and constant price operational expenditure for the current disclosure year and 10 year planning period, as disclosed in Schedule 11b.

Box 2: Commentary on difference between nominal and constant price operational expenditure forecasts

Nominal Prices are based on NZ Treasury's economic forecasts, as published in the Half Year Economic and Fiscal Update released December 2021.

	2022/23	2023/24	2024/25	2025/26	2026/27
Inflator OPEX	5.100%	3.100%	2.700%	2.400%	2.200%

In addition to the general inflation, material costs have increased by a weighted average of 17% in 2021. This 17% was included in the CAPEX forecasts for 2022 onwards.

Forecasts are in line with the business plan projections and explanations outlined in the Asset Management Plan

Annexure 4 - References

Ref #	Description
1	Electricity Distribution Information Disclosure Determination 2012 (consolidated April 2018), ISSN 1178-2560, Project no. 16104: 16275, Publication date: 3 April 2018, Commerce Commission New Zealand
2	EIL's Strategic Plan.
3	ISO 31000:2009 Standard: Risk Management - Principles and Guidelines.
4	Health and Safety at Work Act 2015.
5	Electricity (Safety) Regulations 2010
6	Electricity (Hazards from Trees) Regulations 2003.
7	Maintaining safe clearances from live conductors (NZECP34 or AS2067).
8	EEA Guide to Power System Earthing Practice 2009
9	http://www.comcom.govt.nz/regulated-industries/electricity/performance-analysis-and-data-for-distributors/
10	Commerce Commission New Zealand :Trends in local lines company performance - published December 2020

Annexure 5 - Directors Approval

We, Robert Datema Jamieson

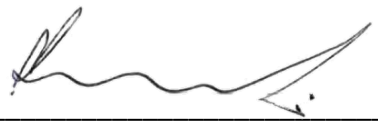
and Paul Michael Kiesanowski, being directors of Electricity Invercargill Limited certify that, having made all reasonable enquiry, to the best of our knowledge-

a) The attached information of Electricity Invercargill Limited prepared for the purposes of clauses 2.6.1 and 2.6.6 of the Electricity Distribution Information Disclosure 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, 12d and 14a are based on objective and reasonable assumptions which both align with Electricity Invercargill Limited corporate vision and strategy and are documented in retained records.

Robert Datema Jamieson



Paul Michael Kiesanowski