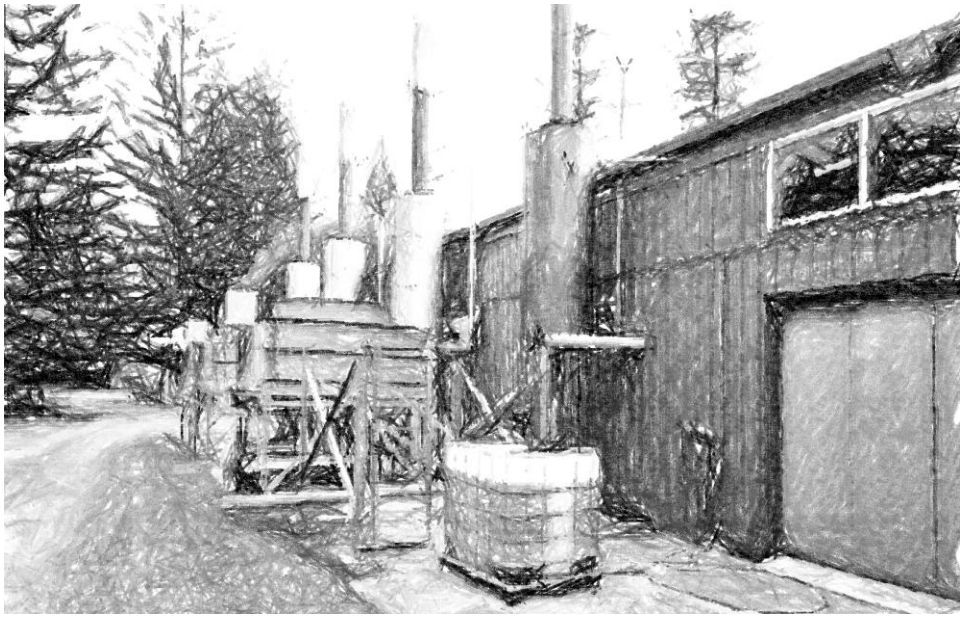
TABLED AT 27 MAY 2026 MEETING

NORFOLK ISLAND Regional Council

ASSET MANAGEMENT PLAN

Electricity

Draft for Review



May 2026

Document Control	Electricity Asset Management Plan				
Rev No	**Date**	**Revision Details**	**Author**	**Reviewer**	**Approver**
1.0	26/5/26	Updated Draft for Consultation	Jason Natoli	Simon Bently	

Contents

1.0 EXECUTIVE SUMMARY

1.1 Background and Purpose

The major purpose of this Asset Management Plan (AMP) is to deliver on the requirements of the NSW Integrated Planning and Reporting (IP&R) framework from the requirement to clearly identify the assets that makes up the Norfolk Island Regional Council (NIRC) Electricity network. Up until 2024 the asset data was disparately captured in the AssetFinda register, the corporate geographic information system (GIS) as a result the NIRC records failed to identify the true quantum of network infrastructure including the various plant and equipment elements which are critical to the operation of the network.

For example, only 8 assets were included for the Power Station in the AssetFinda register. The new data contains over 50 critical elements to the operation of the Power Station. These were not documented nor managed formally under a standalone AMP which led to underinvestment in renewal and maintenance. Such shortfalls in asset management could result in catastrophic consequences in the event of failure of any or all these components.

A major first step in the development of this AMP was to also distinguish the inventory of assets related to Electricity services from other Assets in the former financial classification "Other Infrastructure". This previous financial class was a conglomeration of a variety of different assets with various functions (e.g parks infrastructure, fuel handling etc). Separation of assets and re-classification of Electricity assets in the Outvye® PPE Asset Register was a strategic change, carried out in parallel to the development of the AMP's. Other critical Electricity operational assets are contained in Plant and Equipment and Buildings financial classes, and they will remain grouped in the financial register for that purpose but extracted for use in the overall Electricity AMP.

To facilitate this outcome a specific modification of the Outvye® PPE system has now been finalised to deal with the variance between how assets are captured and managed in the financial register and how they are linked and used in AMP's. This is to overcome the logic which may prevail in grouping and classing like asset on financial basis in the Outvye® PPE register vs the practicalities of managing a network of integrated assets. This allows for Financial Register and the AMP to work seamlessly side by side for each purpose using the same base data.

This AMP aims to systematically address both the short-term prioritised issues of renewal and maintenance and the long-term asset interventions to assist in tackling the backlog of work within the budget limitations to ensure reliable electricity supply meeting current and future demands.

2.2 Asset Description

The AMP is built upon the latest significant update on asset data which was part of the May 2024 comprehensive revaluation and physically captured in GIS from QTR 1-3 2024. Further the asset movements in the 24/25 year to June 30 have been accounted. Table 1-1 shows a breakdown of the current replacement cost by asset sub class, as documented in the revaluation process.

It is important to note that at the time of the 2024 comprehensive revaluation some major components of the network where not individually captured in the GIS including additional network switches, EDO's, underground low and high voltage lines and property meters. The various bodies of work were run in parallel and so where this misalignment was identified (e.g power poles) the valuers provided an aggregated value for these asset components. The GIS captured additional assets have now been documented in the corporate GIS and within the Outvye® PPE register as found assets. It is contemplated these will be individually valued at the time of the next comprehensive revaluation process or through reconciliation against work orders in the future financial years.

Table 1-1: Current Replacement Cost by Asset Sub-type 24/25 FY

Asset Sub-Class	Category	Sub-Category	Sum of Gross Carrying Amount
Distribution	**Concrete Poles**	HV Power Pole	$46,514.28
		HV-LV Power Pole	$116,285.70
	Distribution Substation	Distribution Box	$36,163.62
		Pillar	$86,154.52
		Pit	$6,381.82
	Infrastructure	Coil Pit	$0.00
	Meter Box	Meter	$0.00
	Power Line	Overhead High Voltage	$2,318,446.68
		Overhead Low Voltage	$1,254,331.93
		Underground High Voltage	$10,882,611.26
		Underground Low Voltage	$4,137,388.74
	Switches	Air Brake	$72,800.00
		EDO Fuse	$0.00
		Knife	$0.00
		SD	$67,200.00
	Timber Poles	HV Power Pole	$1,595,989.08
		HV-LV Power Pole	$3,191,978.14
		LV Power Pole	$2,102,034.42
		Transformer Pole	$583,898.44
	Transformer	DC Step-Up	$832,000.00
		Pad Transformer	$1,674,400.00
		Pole Transformer	$1,301,100.00
	Network	Upgrade	$1,365,055.01
		Voltage Regulation	$1,359,527.61
	EV	EV Charge Station	$76,319.95
Fleet	**Heavy Duty Equipment**	Access	$372,531.90
		Truck	$138,476.30
	Light Commercial Vehicles	Ute	$189,037.00
	Passenger Vehicle	Motorbike	$27,407.88
Generation	**Generator**	Air Compressor	$0.00
		Mechanical and Electrical	$3,149,767.97
		Radiator	$353,860.03
	Infrastructure	Bunding	$70,000.00
		Diesel Tank	$225,000.00
		Fuel Pump	$60,000.00
		Load Bank	$85,000.00
		Overhead Crane	$0.00
		Platform	$15,000.00
		Switchboard	$1,523,970.52
	Photovoltaic	Inverter	$599,940.00

Asset Sub-Class	Category	Sub-Category	Sum of Gross Carrying Amount
		Rooftop Collector Panel	$1,241,562.51
	Transformer	ZigZag	$15,000.00
Specialised	**Access Equipment**	Scaffold	$49,819.08
	Power Generation	Generator	$95,780.26
Storage	**Battery**	Network Supply Battery	$2,394,436.06
		On Premise Battery	$2,009,048.76
Electricity Supply	**Shed**	Shed	$1,264,955.00
		Shed-Plant	$1,247,789.60
Land	**Freehold Land**	Power House	$250,000.00
?? Electricity	**?? Electricity**	Generator	$8,803.00
Store	**Meter Box**	Smart Meter	$1,079,233.02
Grand Total			**$49,573,000.08**

1.2 Levels of Service

Average condition of assets is at a "fair" level (with a rating of 2.2/5) however critical assets such as the Power Station would be considered 'poor'. Planning and execution renewal program would help to bring the overall condition of the asset to a "good" level, which would result in improvement across reliability aspects of the service as well. There's also a requirement to gather data on some key factors such as detailed condition assessment and criticality to monitor service performance to ensure more robust planning and execution of interventions to deliver a better service to the community.

1.3 Future Demand

This Asset Management Plan and budgeting for Norfolk Island's electricity services heavily relies on the current condition and operational situation of the network and its assets. It is crucial that the plan for asset renewal and upgrades considers technological trends that can have an impact on consumer behaviours. Changes such as the growing trend towards PV systems and electric vehicle use, supported by charging stations can have a significant impact on the demand load. While seen as a positive change, the roll out of PV and battery storage can have significant impacts on the current network in respect of operations and risks to aging infrastructure. Careful consideration of network management and required improvements across the generation and distribution network needs to be planned and budgeted in future revisions of this AMP.

1.4 Lifecycle Management Plan

Lifecycle management plan has been developed with assessment of works within the scope of:

- operations and maintenance,
- renewal / replacement, and
- new /upgrades.

It is important that, long term financial planning and budgeting review addresses the proposed asset management interventions. This process which will require iteration from Council on an ongoing basis as new information are gathered on the Electricity assets.

Summary of projected average budget requirement for the next 10 years is provided in Table 1-2. This table intends to provide a high-level overview of the budgetary requirement across asset base, but the actual figures and details of each year may vary and are provided in the section 6 and corresponding appendices of this report.

Table 1-2: 10 Year expenditure Profile by Purpose

New Acquisitions	O&M	Renewals	Disposals	Total 10 Year Spend	Average Annual Spend
$8,387,500	$8,198,477	$20,458,918	$1,022,946	**$38,067,841**	**$3,806,784.11**

1.5 Condition Assessment

1.5.1 Asset condition

Condition is currently monitored in an ad-hoc manner given the prior lack of systems and process to hold and analyse that data for meaningful asset planning and budgeting. Notwithstanding, condition assessment was noted in the recent 2024 comprehensive revaluation which is supplemented by field assessment of some critical assets and about 50% coverage of the circa 700 power poles. There is also a clear operational technical assessment that the majority of power station components are well beyond their useful lives leading to risk of failure and workplace hazards. Network transformers (pole and pad mount) have a spectrum of condition from good to very poor with a number of these being impacted by PV feed in current which has unbalanced some of the fleet, putting them at higher risk of failure.

Work has been carried out in 24/25 to introduce metering at each transformer to track performance and to improve the management of the PV load onto these assets.

Condition is measured using a 0 – 5 grading system[1] as detailed in Table 1-3. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the AM plan results are translated to a 1 – 5 grading scale for ease of communication with 0 signifying no assessment.

Table 1-3 Condition Grading System

Condition Grading	Description of Condition
0	**Not assessed:** no formal assessment is available at this time.
1	**Very Good**: free of defects, only planned and/or routine maintenance required
2	**Good**: minor defects, increasing maintenance required plus planned maintenance
3	**Fair**: defects requiring regular and/or significant maintenance to reinstate service
4	**Poor**: significant defects, higher order cost intervention likely
5	**Very Poor**: physically unsound and/or beyond rehabilitation, immediate action required

Figure 1-1 Condition Assessment depicts the current condition on a rating of 0-5 of assets by Asset Type and aggregated value. The graph illustrates a high proportion of assets which are not provided with a Condition rating and the overall condition on average being below average for a typical electrical network.

[1] IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

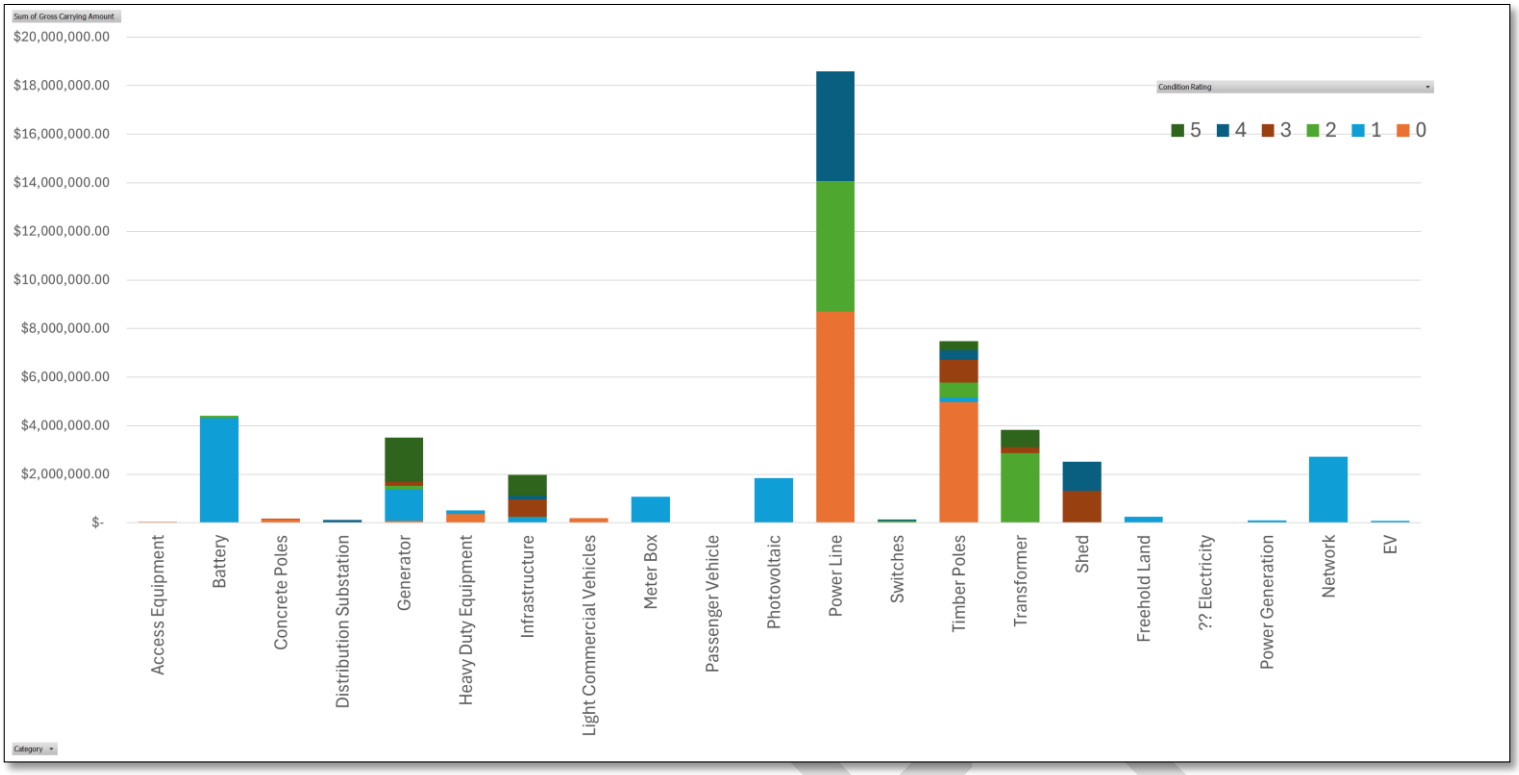


Figure 1-1 Condition Assessment of Asset Type by Value

1.6 Financial Summary

Table 1-4 provides a detailed summary of the replacement value of assets grouped by both the Asset Management Class and the Financial Class held in the asset register Outvye® PPE.

Table 1-4 Financial Summary by Asset Type – 24/25 FY

Asset Class	Asset Sub-Class	Category	Sum of Gross Carrying Amount
Electricity	**Distribution**	Concrete Poles	$162,799.98
		Distribution Substation	$128,699.96
		Infrastructure	$0.00
		Meter Box	$0.00
		Power Line	$18,592,778.61
		Switches	$140,000.00
		Timber Poles	$7,473,900.07
		Transformer	$3,807,500.00
		Network	$2,724,582.62
		EV	$76,319.95
	Generation	Generator	$3,503,628.00
		Infrastructure	$1,978,970.52
		Photovoltaic	$1,841,502.51
		Transformer	$15,000.00
	Storage	Battery	$4,403,484.82
	Store	Meter Box	$1,079,233.02
Plant and Equipment	**Fleet**	Heavy Duty Equipment	$511,008.20
		Light Commercial Vehicles	$189,037.00

		Passenger Vehicle	$27,407.88
	Specialised	Access Equipment	$49,819.08
		Power Generation	$95,780.26
	?? Electricity	?? Electricity	$8,803.00
Buildings	**Electricity Supply**	Shed	$2,512,744.60
Land	**Land**	Freehold Land	$250,000.00
Grand Total			**$49,573,000.08**

1.7 Monitoring and Improvement Program

The Asset Management Plan (AMP) outlines various metrics to gauge asset management and service performance, adhering to electricity industry standards. However, there is a need to develop data capture processes that can comprehensively gather information on these key metrics as practically as possible. Improvements in data collection will enable more informed decision-making in the future.

Additionally, the Table 8-1 summarises specific improvement actions aimed at boosting capabilities in expenditure tracking, asset condition assessment, and skill development. These actions are designed to enhance the overall efficiency and effectiveness of asset management apparatus within Norfolk Island Regional Council.

2.0 Introduction

2.1 Background

As electricity assets deliver a critical service to the community, efficient management of these assets is of paramount importance to ensure reliable service delivery and meeting changing needs tied with reduced reliance on diesel and move to PV and electrification. This AMP outlines strategic approaches to optimise asset utilisation, enhance reliability, and align organisational objectives with customer expectations.

It is clear that more work will need to be carried out to develop a clear transition plan for the future electricity network on Norfolk Island and its needs. This AMP will assist in that through the deployment of tactical interventions on the network to replace and upgrade assets in line with the broader strategic goals and funding capacity to deliver change.

This AM Plan is to be read in conjunction with Council's Asset Management Strategy and with reference to the current versions of the following key planning documents:

- Community Strategic Plan
- Long Term Financial Plan
- Operational Plan including the annual budget.

2.2 Key Stakeholders

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 2-1.

Table 2-1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Norfolk Island Community and tourists	■ Primary consumers of the services provided by the assets
Council Administrator and General Manager	■ Endorse the AM Plan ■ Ensure resources to meet planning objectives in providing services while managing risks, ■ Ensure services are sustainable.
Audit and Risk Management Committee	■ Independent assurance and assistance to Council on Council's risk, control and compliance frameworks, and external accountability.
Executive Management	■ Support the objectives of the AM Plan, ■ Provide strategic and operational input and support, ■ Project manage the design and implementation of renewal, upgrade and new construction of infrastructure assets. ■ Allocate and manage the necessary resources to support the implementation of the AM Plan.
Corporate and Finance	■ Ensure the integrity of financial data relevant to the implementation of the AM Plan
Engineers, technical officers and tradesman	■ Provide technical input and support, ■ Prepare and update works programmes, ■ Delivery of works programmes,

Key Stakeholder	Role in Asset Management Plan
	■ Update and maintain the integrity of assets and the related network data.

2.3 Objectives

Objectives of asset management extends throughout the lifecycle of assets and connects to the Council's overarching vision to improve asset management maturity. This AMP intends to attain following objective by taking a long-term planning approach.

- Minimise lifecycle costs associated with acquiring, maintaining, and decommissioning of electricity assets while maximizing their value to the organization and to the wider Norfolk community.
- Promote frameworks and information systems that increase asset visibility and tracking by maintaining accurate records of all assets, including their location, configuration, and usage, to enable better decision-making and resource allocation.
- Create evidence base for decision making and priority setting to make decision on the asset management interventions.
- Identify and mitigate risks such as compliance issues, and equipment failures, to ensure uninterrupted service delivery along with long-term asset stewardship.
- Comply with regulatory requirements, standards, and licensing requirements to avoid legal penalties and regulatory fines and to avoid adverse impact on the community.
- Monitor the performance to identify areas for improvement and optimize efficiency, reliability, and quality of overall service delivery.
- Ensure disaster recovery, and continuity of business and community's lifestyle, by building disaster preparedness to enable quick recovery from disasters or disruptions, minimizing downtime.

3.0 Risk Management

3.1 Risk Context

A primary goal of risk management within the context of Asset Management Planning, is to lessen the negative effects of asset failure due to age and typical wear and tear. This is to avoid the inability to achieve the desired asset performance due to shortcomings in the asset management fleet and the risk associated with delivering required level of services with growing needs for the services.

It is acknowledged that NIRC's financial and staffing limitations present inherent underlying risks in the asset management process. It is expected that those key concerns are addressed within a broader strategic outlook of the organisation, drawing from the risk treatments and broader recommendations and improvement directions provided in this report. It is also important to recognise, like other remote communities, the challenges of meeting the basic services provision with a limited number of customers and related revenues.

Within the scope of this AMP, a Risk Management Framework has been established to identify and control the various risks related to asset management or the absence of it. This includes business risks, operational risks, financial risks, reputational risks, and health and safety risks. The Framework is designed to apply a uniform and methodical approach to managing these risks in the specified environment.

Furthermore, a risk evaluation of the Electricity assets has been conducted generally following the typical Risk Management framework approach. It is essential to maintain and regularly update the risk register associated with this document. The register should be used as a tool to systematically identify, monitor, and address risks to reduce their potential negative effects (and benefit from positive effects).

Risk Assessment is one of the important approaches to strategically plan asset-related interventions amongst the other lenses for planning interventions such as considering the current condition of the assets, their functional performance, and their capacity or usage levels.

3.2 Risk assessment summary.

Table 3-1 summarises the outcome of the risk assessment in relation to asset management.

Table 3-1: Summary of Risk Assessment

Priority	Risk Source and Type	Key Risks - Description	Likelihood	Consequence	Consequence Description	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs (Preliminary Estimate only)
Generation									
1	Operational - Main Power station Switchboard	***Current Issue*** Capacity and Age of Switchboard installed in 1972 and is well past useful life with aged, hard to source components. High levels of day-to-day management of loading to ensure reliable supply. Failure of Low-voltage switches in the main board results in a complete inability to disconnect and successfully reconnect the low voltage to the external switchyard and network. Long lead times to design, procure, ship and install new infrastructure. ***Emerging issue*** Additionally, the overall capacity and loading will change significantly if there is a change to the current 20Amp/dwelling restrictions. There is insufficient capacity of switchboard (2 feeds @ 3,000 Amps/feed) to supply power from	Certain	Catastrophic	Long-term loss of power to the island with no ability to quickly reestablish supply.	Extreme	Replacement of Switchboard including consideration overall capacity and contingency for HV rating change (i.e 6.6 to 11 kV). Consequential changes to power station and switchyard.	Low	$2.25M

Priority	Risk Source and Type	Key Risks - Description	Likelihood	Consequence	Consequence Description	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs (Preliminary Estimate only)
		battery storage and generators to external network to allow for universal take up of additional current. Overload to main board busses resulting in catastrophic board failure.							
1	HV Step Up Transformers - Operational	Given age and condition there is a high likelihood of failure. Given switching issues the managed replacement of these is not possible to maintain power supply to island. • 3 x HV step up transformers were installed in 1972 and are leaking oil and have degraded and corroded components. All well beyond useful life. • 1 x HV step transformer installed in 2006 and reaching end of useful life. Procurement of these items is challenging as they are not a stock item. Transformers will need to be fabricated to a specification.	Very Likely	Catastrophic	Long-term loss of power to large sections of the island.	Extreme	Replace transformers in a configuration that provides for the current 6.6kV and allows for future growth and rating change.		$2.0M
1	HV Switching of Step-up Transformers - Operational	Arcing out or collapse of switches. Older mechanical HV switching of output from Step up transformers to HV feeders. The switch has a high probability of failure which given proximity of tradesman during switching has serious WHS risk. This limits the safe isolation of the HV feed to the various network feeders on island. does not allow for remote switching.	Possible	High	Loss of power to the major feeders on the network. Inability to quickly procure and replace switches. Supply from Power Station to HV Step up transformers cannot be isolated	Extreme	Replacement of HV Switches, enclosure and hardstand.	Low	Included with HV Step Transformer cost above.

Priority	Risk Source and Type	Key Risks - Description	Likelihood	Consequence	Consequence Description	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs (Preliminary Estimate only)
					requiring all of network to be taken out to allow for HV switch change over.				
1	Generation Management - Operational	Overgeneration of power during peak PV output leading to impacts on power station and wasted energy from network. The PV production is highly variable without storage to absorb the incoming current and makes management of the PowerStation a more challenging task given current aged equipment. Lost revenue sources and increased production cost from lack of storage Inability to deploy alternative stored power source for during upgrade works or in times of emergency failures in plant.	Certain	Major	Increase change of failure of power station components given loadings. Lost energy leading to higher cost of production (given need to waste electricity to load banks and then deploy diesel generators rather than storage to meet load demand.)	High	Install more bulk storage at power station to capture the peak generation. Given solar PV production a 3.5Mw battery would be optimal at this stage Takes pressure of the management of the powerhouse and the impact of the PV.	Low	$4.0M
1	Operational	Water ingress and penetration to Main PowerStation Switchboards through failures in subfloor ducting impacting on switchboard	Almost certain	Catastrophic	Loss of network to island for extended time >6months	Extreme	Major Upgrade to PowerStation Building and Drainage Systems	Low	$1.0M for refurbishment of Power Station Structure refer to Acquisitions and Upgrades

Priority	Risk Source and Type	Key Risks - Description	Likelihood	Consequence	Consequence Description	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs (Preliminary Estimate only)
2	Operational	New Private PV systems and meters - Optimal use is being impacted by communication issues to allow for proper network control and ant ingress	Almost certain	Major	Loss of energy being produced in private PV systems entering the network in a productive and efficient manner	High	Need to address the SIM card and mobile network issues and retrofit changes to eliminate ant issues.	Moderate	$250k
2	Operational	Power export imbalance on phases back feeding into transformers because of increased PV and domestic battery storage	Almost certain	Major	Loss of Transformers from imbalance on phases driven by High PV production days and low usage	High	Need to investigate high load LV Circuits and confirm sharing and loading over phases	Low	$1.5k per transformer
2	Compliance	WHS - Lack of tradesmen impacting on compliance with having enough crew when working on live works.	Almost certain	Major	Non- compliance with SWMS, legislation and risk management framework. Higher impacts when staff on leave.	High	Engage 1-2 more experienced Linesmen	Low	$100-200k per annum
2	Health & Safety	Risk of injury or death	Possible	Catastrophic	Issues with tradesmen working alone or shorthanded because of limited staff and extensive workload including emergency work and services to NIRC generally.	High	Manage work undertaken which is limited by staff availability. Engage more tradesmen as set out above.	Low	as above
3	Operational	Lack of inventory and lead times to supply. Issues with searching and ordering inventory.	Likely	Major	A lack of specialised equipment and network components for repairs or renewals	High	Need for rectification of stores management and ordering procedures to ensure adequate stocks of plant, equipment,	Low	$10k and attention from Finance

Priority	Risk Source and Type	Key Risks - Description	Likelihood	Consequence	Consequence Description	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs (Preliminary Estimate only)
					will have major consequence in supplying electricity to all or parts of the network.		materials and components.		
1	Financial	Lack of access to specialised equipment creates workplace risk and inhibits efficiency in network maintenance.	Likely	Major	Access to specialised equipment is necessary to ensure: equipment is within compliance periods delivery of safe work practices to limit workplace injury and accidents; improved productivity to renew major sections of the network ability to maintain the network efficiently efficient use of human resources.	High	Provision of elevated work platforms and pole boring/crane machine to electrical specification to target the largest scale of effort in the network renewals and maintenance.	Low	$3.65M for new equipment
3	Operational	Increasing Storm and Cyclone Damage as intensities increase.	Possible	Major	Downed lines, loss of capacity, fire risk - high risk of network failure in high winds or storm events	High	Need to ensure integrity of infrastructure from failure and to remove strike hazards such as trees (refer below) and other objects where feasible.	Medium	$75,000/annum

Priority	Risk Source and Type	Key Risks - Description	Likelihood	Consequence	Consequence Description	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs (Preliminary Estimate only)
	Operational	Tree strike on conductors	Likely	Major	Downed lines, loss of capacity, fire risk - high risk of network failure in high winds or storm events	High	Tree trimming program to remove ongoing risk from tree strike.	Medium	$95,000/annum
2	Operational	Failing Cross Arms Hardware	Almost certain	Moderate	Given the similar age and condition of most poles it is likely that the rate of failure will increase significantly with potential loss of power and hazard risk to public.	High	Program to inspect and replace all kingbolts and check durability of crossarms and insulators	Low	$40,000/annum
2	Operational	Collapsing Power poles	Possible	Major	"Falling poles may impact vehicles or other property including people. Creates an electrical hazard causing injury death. Need for immediate reactive Acton to reinstate supply via generators and initiative replacement poles and associated repairs."	High	Ned to replace all condition 5 poles and greater and initiate ongoing pole rot inspection program.	Low	$35,000/annum

Priority	Risk Source and Type	Key Risks - Description	Likelihood	Consequence	Consequence Description	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment Costs (Preliminary Estimate only)
2	Financial	Consequential loss and insurance claims	Possible	Catastrophic	Payout for personal and business losses and as part of mass power outage.	Extreme	Undertake Risk Management Actions including capital renewal and reinstatement of necessary maintenance programs to reduce or eliminate risk.	Low	As noted above
3	Legal	Assess Risk to maintain or replace network assets located on or traversing private land relying only on way-leaves or handshake agreements.	High	Significant	Inability to make safe, repair or replace network items which are on private land.	High	Options include: • Establish formal easements over land to allow access. • Review and refine laws to provide right of entry to maintain. • Reroute network out of private property where formal easements can not be established.	Low	Unknown

4.0 Levels of Service

Service Levels for various asset categories have been articulated within the context of local government asset management, representing a holistic integration of community expectations and values, with technical indicators. These Service Level benchmarks are outlined within the framework of the Norfolk Island Regional Council's asset management strategy, ensuring alignment with statutory mandates and the broader strategic goals for asset stewardship.

4.1 Assessment of Customer expectations and values

The process of defining Service Levels is underpinned by a methodology that incorporates professional judgement alongside active community engagement and feedback mechanisms. This allows a practical approach to ensure that the Service Levels resonate with both technical metrics and the aspirations of the community.

At present there are no documented customer expectations and values. The residents of Norfolk are highly pragmatic when it comes to the performance of the electricity network given self-generation and the limitation on high current devices. As more generation comes into the network through PV and battery “on premise” storage this is likely to change expectations without understanding some of the broader technical limitations of the network.

Given the scale and scope of asset renewal that are in the forward estimates particularly in the next 20 years it would be prudent to fully assess the restructuring of the network to allow for greater PV and storage and to explore the increase from 6.6.kV to 11kV. Any renewals that are undertaken in the short-term including major renewal at the power station should ensure flexibility where possible for this HV change and ensure no regrets investment moving forward.

This is essentially being considered through the current scope of renewals and upgrades which is being supported by additional technical reviews of the network, its configuration, risks and future demand.

4.2 Strategic and Corporate vision and mission

The community’s vision and the Council’s mission are set down in the Operational Plan.

Our vision is:
“Norfolk Island – the Best Small Island in the World”

Our mission is:
“The Norfolk Island Regional Council will provide local civic leadership and governance through good decision making, accountability and transparency.

We will protect and enhance our unique culture, heritage, traditions, and environment for the Norfolk Island People. We will do this through promoting a healthy and sustainable lifestyle, by looking after our community assets, and by fostering a prosperous economy”.

A key part of the economic prosperity and to maintain the principles of good governance for Norfolk Island includes this AMP as a support to improved decision making.

4.3 Customer Values

Electricity supply customers see value in:

- secure reliable electricity supply,
- supply with a diminishing need to rely on expensive fossil fuel for generation; and
- reducing the overall cost of electricity.

4.4 Legislative Requirements

As a territory of Australia, provision of electricity is within the oversight of the Federal Government, although the Norfolk Island Regional Council operates under an applied version of NSW Local Government legislation, the Local Government Act 1993 (NSW)(NI). The key legislative requirements that influence the electricity asset class are outlined in Table 4-1. In case where Norfolk legislation gets replaced with Australian mainland legislation, it may have some impact on the level of service which would need to be documented in future revision of the electricity AMP. For example, application of the Australian Standards may require upgrades to various components of the network or additional protection being put in place all with capital and operational consequences.

Table 4-1: Legislation Requirements

Legislation	Requirement
Local Government Act 1993 (NSW) (NI)	Sets out the role, purpose, responsibilities, and powers of the Norfolk Island Regional Council including the preparation of a long-term financial plan supported by asset management plans for sustainable service delivery.
Electricity Supply Act 1985	Legal framework for NIRC to deliver electricity services to the island
Employment Act 1988 (NI)	Part 4, Safe Working Practices, sets out employer and employee obligations to prevent a person's death, injury, or illness from being caused by a workplace, by a relevant workplace area, by work activities, or by machinery or substances for use at a relevant place.
Environment Act 1990 (NI)	To prevent, so far as is practicable, the degradation and destruction of the natural environment and landscape beauty of Norfolk Island.
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	To protect and manage unique plants, animals, habitats, and places. This includes heritage sites and the Norfolk Marine Park.
Australian Accounting Standards (AAS)	The Local Government Act 1993 (NSW) (NI) requires Council to comply with AAS. Standard AASB 116, Property Plant and Equipment stipulates requirements on the recognition, valuation, depreciation, and disposal of assets.

5.0 Future Demand

To adequately assess the demand for the purpose of asset management, the impact on providing electricity services is assessed based on the demand drivers. Table 5-1 contains a list of key demand drivers and a description of their impact on the service. Demand assessment mainly affects the planning for upgrades and new asset acquisition. It must be noted that there are interdependencies between demand drivers, hence the future upgrades and expansions requirement would be most likely to have a resultant effect of combination of demand drivers. Further assessment on these aspects may be necessary to once the budgeting framework and fully set up covering modes of asset interventions.

Table 5-1: Demand Assessment

Demand Drivers	Projection	Impact on Services
Population Growth	Norfolk Island has a population of 2,188 (ABS 2021), this compares with a population of 1,748 (ABS 2016) and 1,796 in 2011 (Norfolk Island Government Census). There are no foreseeable significant changes to the population that will act as drive for the demand growth.	Minimal
Tourism Growth	Annual tourism arrival is expected to be steady with the maximum arrivals accounted in 2022-23 financial year at 32,232. Potential for decline in services as target demographic market. Promotional activities underway may see new mark segments emerge.	Minimal
Electric substitution of machinery and equipment	Demand can also see increase with electrical substitution for currently fuel powered plant and equipment.	Moderate
Legislative and policy decisions	Net zero targets to gradually reduce emission may have moderate impact on the demand projections in the next 10 years given gains already made in 22/23 and 23/24	Moderate
Expansion of Sewerage Network	Demand will increase as additional areas are sewered to reduce water quality impacts from on-site treatment processes. As has been evidenced in KAVHA the installation of pressure sewerage systems and major pumped transfer mains will see an increase in number of pumps in the network and the frequency of pump starts (max current draw), and pump run times on existing pumps. The rehabilitation of the sewage treatment plant will also see an increase in demand from the re-establishment of failed electrical equipment operating on a 24/7 basis.	High
Consumer Choice and Demand	By far the greatest change will come from consumers expectations and demand to lift the current restriction on electrical appliances in homes. This could include electrical appliances such as air conditioning, electric induction cooktops and hot water in line with mainland trends. This could see a rapid rise in overall generation requirements and particularly impacting on the current 6.6kV HV network capacity.	High
Electric Vehicles	Growth the electric vehicle usage where local markets emerge.	High

5.1 Demand side management

Demand Side Management (DSM) provides a suite of strategic non-asset solutions designed to lower the demand on the electrical supply infrastructure. These solutions yield considerable benefits in terms of cost savings, environmental protection, and enhanced system reliability.

Arguably Norfolk Island has one of the most efficient demand management systems in place given the controls on appliance use to ensure the 6.6 kV system is providing sufficient power to all aspects of the islands premises. A key aspect of the current demand management is the high success of limiting energy use by ensuring that high amperage devices are limited or restricted from the network. These includes the domestic use of 3 phase appliances and high current draw cooling and heating equipment (AC, hot water, induction cooking).

Should this change to an 11 kV system then implementing demand side management campaign based on an energy audit is a common strategy that has proved to be effective. It pinpoints specific areas within the community where energy efficiency can be significantly optimised. Such campaigns typically lead to practical improvements in energy use, community-focused demand response recommendations, smart grid technology deployment, and effective load shifting and management practices.

6.0 Lifecycle Management Plan

6.1 Background

Table 6-1 gives high level overview of the asset hierarchy and the valuation data.

Table 6-1: Summary of Assets by Asset Sub-Type – 24/25 FY

Asset Sub-Class	Sub-Category	Useful Life (Years)	Sum of Gross Carrying Amount
Distribution	Air Brake	60	$72,800.00
	Coil Pit	60	$0.00
	DC Step-Up	40	$832,000.00
	Distribution Box	30	$36,163.62
	EDO Fuse	60	$0.00
	HV Power Pole	60	$1,642,503.36
	HV-LV Power Pole	60	$3,308,263.84
	Knife	60	$0.00
	LV Power Pole	60	$2,102,034.42
	Meter	20	$0.00
	Overhead High Voltage	60	$2,318,446.68
	Overhead Low Voltage	60	$1,254,331.93
	Pad Transformer	30	$1,674,400.00
	Pillar	30	$86,154.52
	Pit	30	$6,381.82
	Pole Transformer	30	$1,301,100.00
	SD	60	$67,200.00
	Transformer Pole	60	$583,898.44
	Underground High Voltage	60	$10,882,611.26
	Underground Low Voltage	60	$4,137,388.74
	Upgrade	60	$1,365,055.01
	Voltage Regulation	30	$1,359,527.61
	EV Charge Station	30	$76,319.95
Fleet	Access	10	$372,531.90
	Motorbike	10	$27,407.88
	Truck	15	$138,476.30
	Ute	8	$189,037.00
Generation	Air Compressor	40	$0.00
	Bunding	40	$70,000.00
	Diesel Tank	40	$225,000.00
	Fuel Pump	30	$60,000.00
	Inverter	10	$599,940.00
	Load Bank	20	$75,000.00
		80	$10,000.00
	Mechanical and Electrical	8	$39,757.70
		20	$60,010.27
		40	$3,050,000.00
	Overhead Crane	40	$0.00

	Platform	40	$15,000.00
	Radiator	8	$30,360.03
		15	$8,500.00
		40	$315,000.00
	Rooftop Collector Panel	10	$377,250.00
		40	$864,312.51
	Switchboard	15	$16,970.52
		20	$0.00
		30	$92,000.00
		40	$1,415,000.00
	ZigZag	30	$15,000.00
Specialised	Scaffold	10	$49,819.08
	Generator	20	$95,780.26
Storage	Network Supply Battery	5	$12,145.16
		10	$82,290.90
		20	$2,300,000.00
	On Premise Battery	10	$712,580.00
		40	$1,296,468.76
Electricity Supply	Shed	30	$146,577.80
		40	$261,053.60
		50	$843,298.60
		60	$14,025.00
	Shed-Plant	20	$11,879.76
		30	$266,746.08
		40	$106,604.91
		50	$27,675.65
		60	$3,300.00
		75	$831,583.20
Land	Power House	300	$250,000.00
?? Electricity	Generator	10	$8,803.00
Store	Smart Meter	30	$1,079,233.02
Grand Total			**$49,573,000.08**

6.2 Maintenance Plan

The proposed budget for the fiscal year 2025-26 outlines a total expenditure of $333,642for the electricity service maintenance.

NIRC is seeking to significantly improve the documentation of maintenance scopes and budgets both prior to and following major renewals noting such changes will impact on the scope of work to be done. The overall emphasis being to return to a regime of preventative maintenance to ensure the longevity of the asset base.

This will materialise in a suite of Programs and Projects of work to support the network operation and condition. This work is scheduled to occur in the 25/26 year and beyond.

With continuous improvement of the maintenance planning and budget prioritisation and improved support for asset management from business operations it is envisaged that the current short term budget gaps may be reduced in the future Figure 6-1.

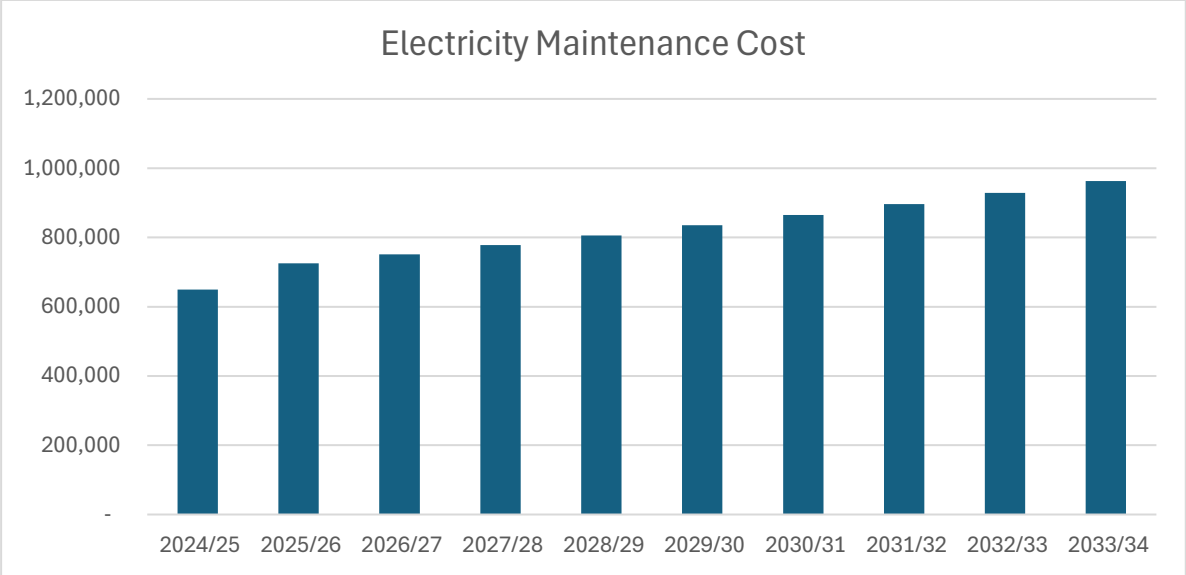


Figure 6-1: Maintenance cost forecast for the next 10 years.

6.3 Renewal Plan

Asset renewal is a capital-intensive process that requires careful planning and prioritisation. The Asset Management Plan incorporates a synthesis of renewal projections, which are derived from Council's current knowledge and are presented as "Determined Renewals." These are defined due to a range of reasons including, assets beyond life, premature degradation, observations of asset failure and identified capacity and functional deficiencies. The determined renewals are a consequence of not having an AMP framework in place along with programs and projects to keep the assets in appropriate condition.

Conversely other renewals are modelled based on the lifecycle of the assets noted in the register (direct renewals) and are prioritised according to the asset's condition and criticality ratings consistent with typical management practices.

The majority of condition ratings are derived from the recent Comprehensive Revaluation process. The criticality ratings, on the other hand, are assigned by considering factors such asset subclass, connectivity hierarchy and location-based factors to ensure that crucial assets are renewed first to maintain service levels and operational reliability.

Going forward more work needs to be done on the condition assessment of the assets to update the current data set improving the evidence base required for proper decision making and prioritisation.

For further details on the criticality ratings, please refer to the Appendix A, where a table lists the ratings according to asset sub-class and asset type. The weighting used for the prioritization of renewals is detailed in Table 6-2, providing a transparent and systematic approach to this essential aspect of asset management.

Table 6-2: Prioritization Criteria for Asset Renewals

Criteria	Weighting
Condition	55%
Criticality	15%
Age	30%
Total	**100%**

The renewal prioritisation modelling within our Asset Management Plan currently relies solely on the available data, specifically the condition and criticality of the assets. It is recommended that additional criteria, such as functionality and capacity/utilization, be systematically recorded as a regular practice. This enhancement will enable a more robust and comprehensive approach for prioritization of renewal actions in future revisions of the AMP.

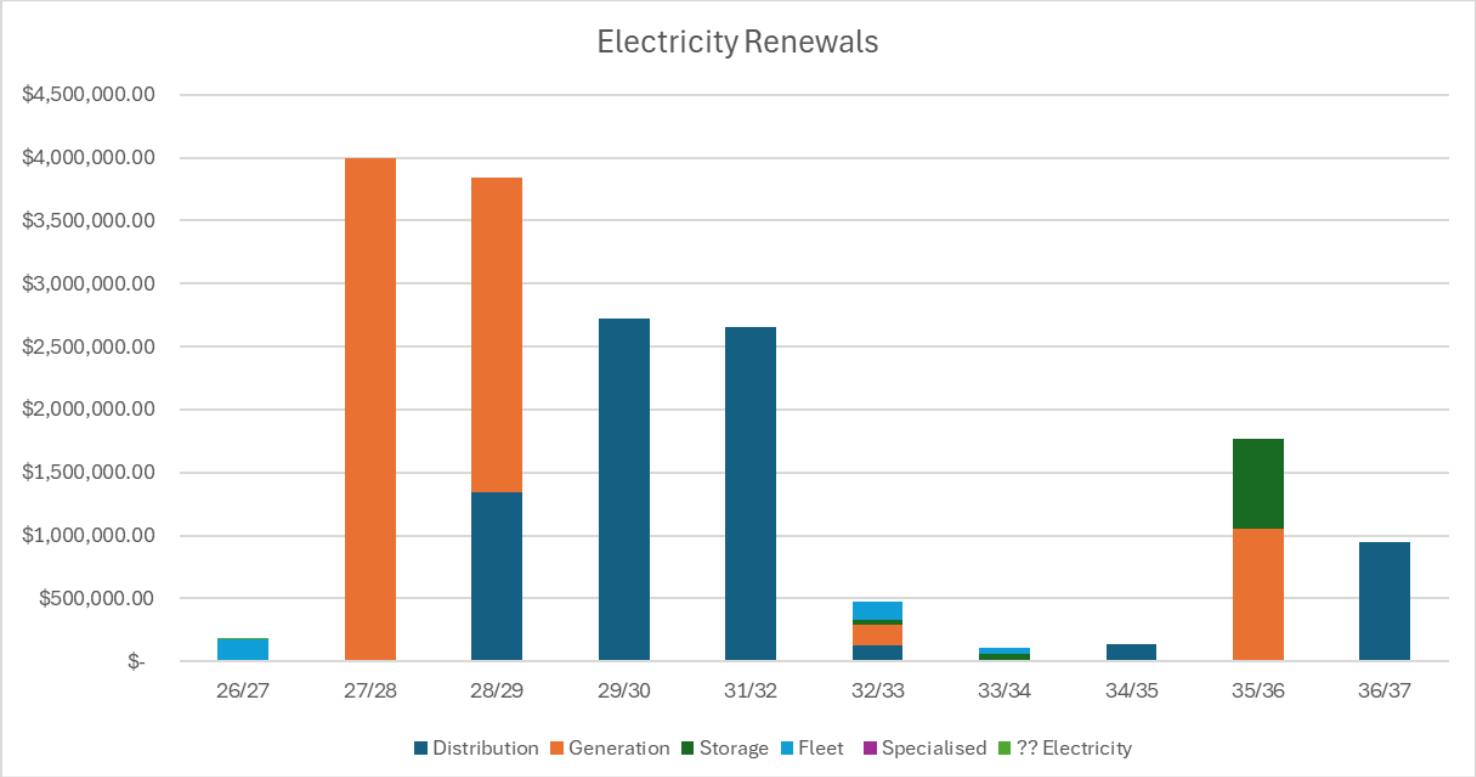


Figure 6-2: Renewal/Replacement cost forecast for the next 10 years.

Moving forward, it is essential that after asset inspections, and any targeted risk assessments or analysis, the criticality score, function score, and capacity and utilization score are recorded and updated in the system. This will ensure a more precise representation of the state of the asset base.

6.4 New Acquisitions

Tables 6-3 to 6-5 illustrates the planned cost of asset acquisition resulting from need to improve service delivery and efficiency. This includes improved management of operations, reduction of losses from generated PV during day and overall improvement in work practices and efficiency in maintenance and renewal through new equipment.

Additional work will come out of current investigation and reporting by specialised electrical consultants on the future configuration and make up of the network which is likely to inform the years beyond 2027.

Asset	Value
Electricity Network Upgrade	1,365,055.01
Batteries, panels and installation	2,160,781.27
Smart Meters	1,079,233.02
Voltage Regulation	1,359,527.61

EV Charging Stations	76,319.95
	6,040,916.86

Table 6-3 Electricity Expenditure in 24/25

Asset	Value
Main Switchboard – Design and Specifications	$250,000
Power House Transformer Replacement	$2,000,000
Elevated Working Platform (EWP) - Fabrication	$813,694
	$3,063,694

Table 6-4 Electricity Expenditure in 25/26

Asset	Value
Elevated Working Platform (EWP) – Delivery and Commissioning	$177,385
Main Switchboard Installation	$2,000,000
Power House Transformer Replacement	$2,000,000
	$4,177,385

Table 6-5 Electricity Expenditure in 26/27

The details of the New Acquisitions and cost estimates are provided in Appendix C.

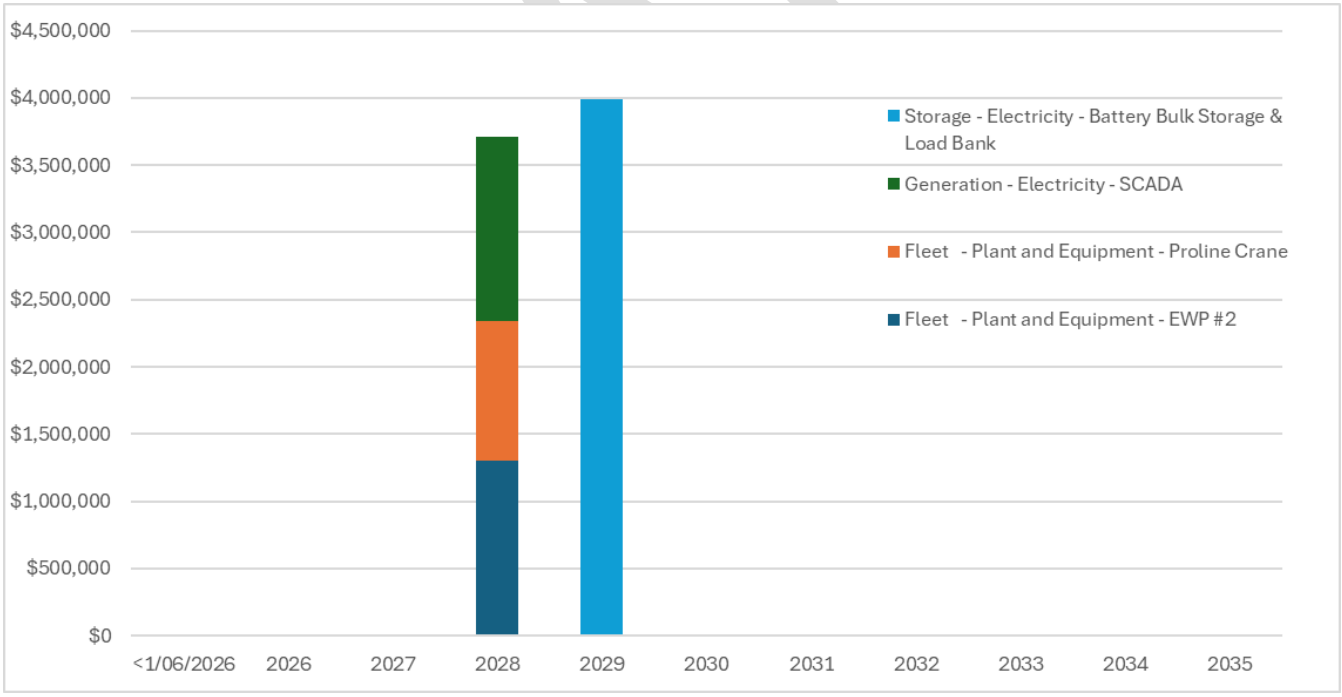


Figure 6-3: Service New Acquisitions forecast for the next 10 years.

6.5 Disposal / Decommissioning

According to AMP, many of the costs associated with asset disposals ascribed to the renewal and replacement of assets. It is estimated that the disposal of each asset will cost an amount equivalent to 5% of its replacement cost, which varies based on the extent of the asset's renewal or replacement. As the asset systems mature more detailed and specific information will inform this process.

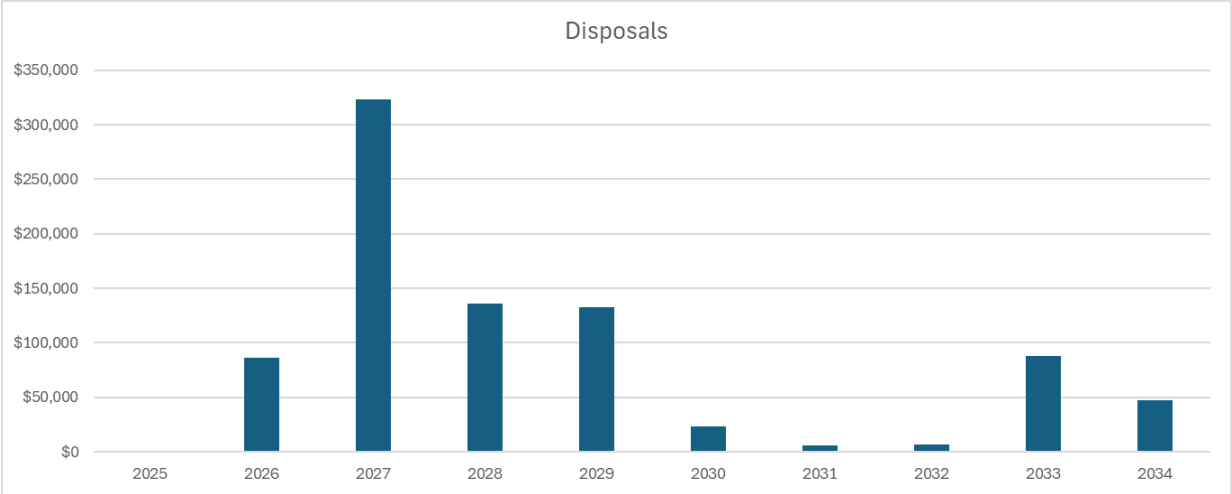


Figure 6-4: Disposal cost forecast for the next 10 years

7.0 FINANCIAL SUMMARY

The financial statement forecast expenditure components – Operations & Maintenance, Renewal, Upgrades - on the current asset base as well as new assets that are planned to be acquired as part of service upgrade or expansion.

Based on the data and confidence level it is estimated that total operation & maintenance cost of electricity asset class is approximately 1.5% of the total replace cost. This is an educated guess that needs to be reviewed when data and expenditure tracking becomes more integrated component within the asset management setup.

7.1 Synthesis of lifecycle expenditure

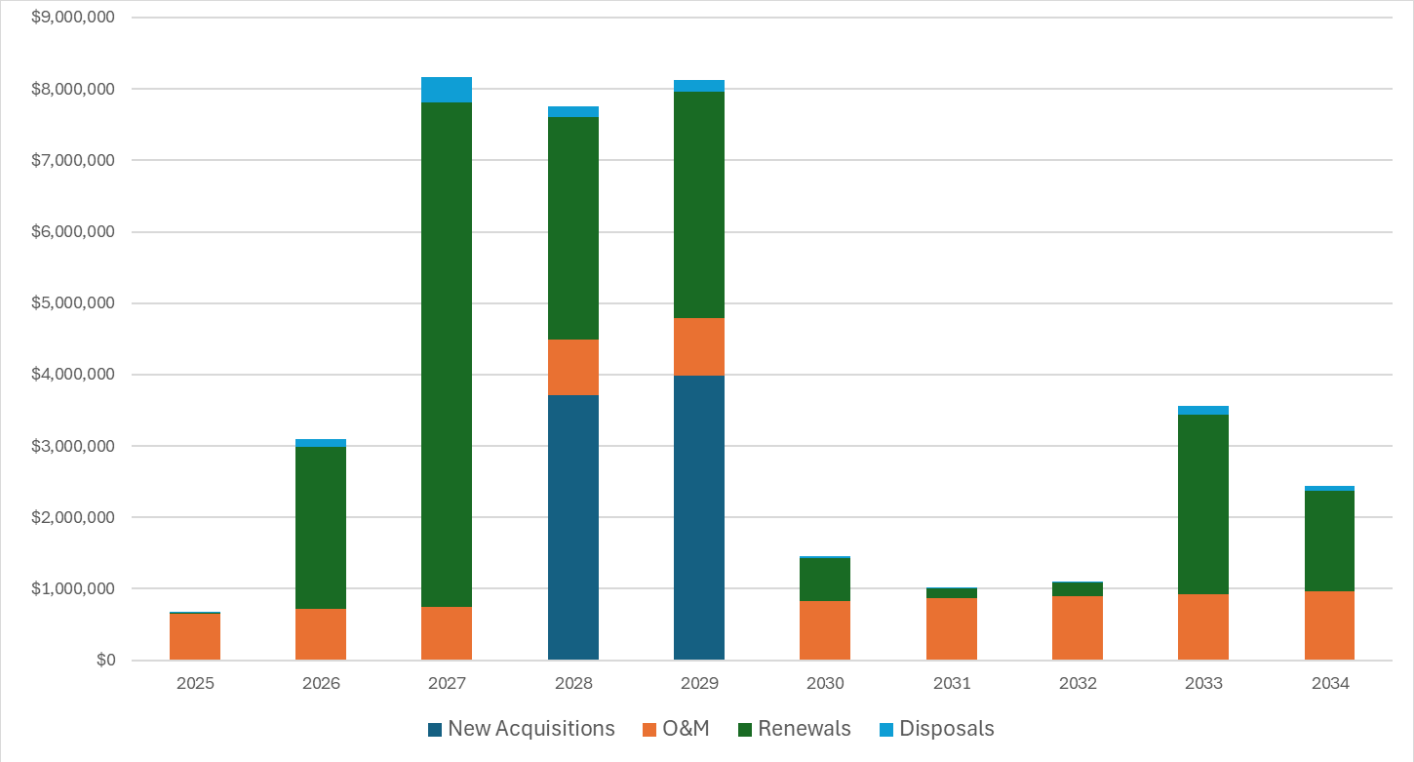


Figure 7-1: Life-cycle cost forecast

7.2 Financial Sustainability and Projections

These can be updated upon final resolution of budget figures and grant funding commitments.

Ratios to be updated with final EOFY Figures.

7.2.1 The Asset Renewal Funding Ratio (ARFR)

This ratio measures the long-term ability of an organization (usually a local council) to fund projected infrastructure asset renewals and replacements compared to what is actually required. It is calculated by dividing planned capital expenditure on asset renewals over a specific period (usually 10 years) by the required (optimal) capital expenditure on renewals over that same 10-year period. The ideal target typically ranges between 0.9 – 1.1.

7.2.2 Asset Consumption Ratio (ACR)

This ratio shows the written down current value of the local government's depreciable assets relative to their "as new" value. It highlights the aged condition of physical assets. It is calculated by written down value divided by current replacement cost. The standard is met if a ratio is between 0.5 and 0.75.

7.2.3 Asset Renewal Ratio (ARR)

This ratio indicates whether there is sufficient future funding available for the renewal and/or replacement of assets. It is calculated by the net present value of planned capital expenditure on renewals over 10 years (in LTFP) divided by the net present value of the required capital expenditure on renewals over the same period (in AMP). The standard is met if the ratio is between 0.95 and 1.05.

7.2.4 Asset Sustainability Ratio (ASR)

This ratio indicates whether a local government is renewing or replacing existing non-financial assets at the same rate that its overall stock of assets is wearing out. It is calculated by measuring capital expenditure on renewal relative to the rate of depreciation of the assets for the same period. The standard is met if a ratio is between 0.9 and 1.1.

7.2.5 Forecast costs (outlays) for the long-term financial plan.

Table 7-1 shows the forecast funding gap within the planning duration of 10 years starting from 2024/25 financial year.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

Forecast costs are shown in current-day dollars (March 2024) These forecast costs were determined through a discussion with the council representative, lifecycle cost modelling and assessing determined renewals and service upgrades planned by NIRC.

Table 7-1: 10-year cost forecast and Funding Requirement

	New Acquisitions	O&M	Renewals	Disposals	Total 10 Year
2025	$0	$649,834	$17,939	$897	$668,670
2026	$0	$724,940	$2,263,470	$113,174	$3,101,584
2027	$0	$750,978	$7,055,464	$352,773	$8,159,216
2028	$3,712,500	$777,991	$3,108,766	$155,438	$7,754,695
2029	$3,987,500	$806,015	$3,168,209	$158,410	$8,120,135
2030	$0	$835,091	$590,944	$29,547	$1,455,582
2031	$0	$865,260	$144,688	$7,234	$1,017,182
2032	$0	$896,564	$185,408	$9,270	$1,091,242
2033	$0	$929,047	$2,509,680	$125,484	$3,564,212
2034	$0	$962,757	$1,414,349	$70,717	$2,447,824
TOTAL	**$7,700,000**	**$8,198,477**	**$20,458,918**	**$1,022,946**	**$37,380,341**

7.3 Funding Strategy

This AMP represents the first asset management plan for Electricity class, one of the key intentions is to evaluate and present the required expenditure for the next 10 years. This AMP will provide insights into the asset base and its condition and performance to determine the different funding levels for each intervention category.

Ideally, the Electricity network will fund its operations & maintenance, renewals and disposal costs through its revenue stream. However, it would require some improvement on asset management maturity and tracking of at

least 80% of operational expenditure and capital expenditure over a period to enable optimisation against the set objectives. This may result in a revision of user charges and/or supplementary funding based on capacity to pay assessment.

The former shortfalls in budget allocations of renewals and new acquisitions must change with evidence shown in this AMP, in terms of determined renewals and lifecycle modelled renewals highlighting a requirement of approximately $3.8M per annum. However, the peak capital spend in years 1-5 represents 80% of the current 10-year forecast with on 20% being delivered in years 6-10.

7.4 Key assumptions made in financial forecasts.

In compiling this AM Plan, it was necessary to make some assumptions given the significant level of found assets. This section details the key financial assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key financial assumptions made in this AM Plan are:

- Data Recorded is the asset register as the most accurate data that can be obtained for analysis and financial forecasting, despite the known deficiencies recognised.
- Current replacement costs have been taken from recent valuations and in some cases assessment of current market cost to provide the asset on island.
- Operations and Maintenance cost of assets that are planned to be acquired in the future, follow the same approach to determine the likely interventions and to operate and maintain the existing pool of assets.

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Asset management and financial data source

This AM Plan utilises Asset management and financial data sourced from council's asset register being the AssetFinda product supplied and maintained by Univerus software solutions. This has also been supported using the Outvye® system which is developed and maintained by Integran Infrastructure Management. Both systems are being utilised in the transition from AssetFinda to Outvye®.

8.2 Improvement Plan

It is important that an entity recognise areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in Table 8-1.

Table 8-1: Improvement Plan

Task #	Task	Responsibility / resources	Timeline	Funding Source	Cost Estimate (Preliminary Estimate only subject to detailed assessment)
1	Undertake data analysis and consultation with all key stakeholders to produce annual AMP ahead of budget planning. Include improved assessment of operations and maintenance activities both pre and post major renewal program	NIRC/Consultant	Annually	Internal Budget	$20,000
2	Set up annual budgets for Operations, Programs and Projects to integrate with the AMP and Work Orders	NIRC/Consultant	Annually	Internal Budget	$5000
3	Undertake comprehensive condition rating of vulnerable assets	NIRC	2024-25	Internal Budget	$5,000
4	Build Operations, Maintenance and Renewal Models to allow for the optimisation of asset management and budgeting. Pre and post major renewals as per Appendix B	Consultant	2024-25	Internal Budget	$15,000

8.3 Monitoring and Review Procedures

This AMP will be reviewed in time for the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets because of budget decisions.

The AM Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget will be incorporated into the Long-Term Financial Plan once complete

9.0 APPENDICES

9.1 Appendix A

Asset Subclass	Asset category	Criticality Rating
Generation & Storage System	NIRC Solar PV	2
	NIRC Inverter	2
	NIRC Site Battery	2
	Diesel Generators	5
	Battery	5
	Switchboards and Transformers	5
	Power Station Switchgear	5
	Fuel Tank	5
Distribution System	HV Distribution - Overhead	4
	Transformers – Pole and Pad Mount	4
	HV Distribution - Underground	4
	HV Distribution Switchgear	4
	LV Distribution - Overhead	3
	LV Distribution - Underground	3
	Customer Assets	1

9.2 Appendix B: 10-year Operations and Maintenance Summary

Management Tasks

Task #	Task	Responsibility / resources	Timeline	Status	Funding Source	Cost Estimate (Preliminary Estimate only subject to detailed assessment)
1	Undertake load monitoring of the network at each transformer to understand impacts of PV's inc. Finalisation of new smart meters to the network including transformers.	NIRC	2024-25	Completed	Internal Budget	$90,000
2	Audit of all Network and Power Station equipment, condition and load ratings to improve accuracy and reliability of GIS data to underpin	Consultant	2025-26	Completed	Internal Budget	$30,000
3	Audit PV Connections - phase connection, Panel Kw and Inverter Details improved GIS capture for modelling and management.	Contractors	2024-25	Completed	Internal Budget	$15,000
4	Undertake investigation and planning of switchboard including replacement of low voltage isolator in main switchboard for LV supply to external step-up transformers	Consultant	2024-25	Completed	Internal Budget	$60,000
5	Undertake investigation and planning to replace all step up transformers once isolation issues are resolved	Consultant	2025-26	Completed	Internal Budget	$30,000
6	Undertake Planning and Design of Power Station Building Upgrade including: • Cladding and guttering including cyclone rating and tie-down. • New awnings to entrances and overload banks • Additional space and capacity for switchboard change over. • Rooftop extraction fan replacement • Acoustic screening to power station • Inground drainage upgrades • New external ducts cover to limit water ingress. • Protection to in floor cable ducts • General repairs and painting to balance	Contractors	2026-27	Not Scheduled	Internal Budget	$45,000
7	Develop a network model and strategy for upgrades or replacements to both Power station and network - Current Incite Scope	Consultant	2024-25	Not Scheduled	Commonwealth Grant	$35,000

Task #	Task	Responsibility / resources	Timeline	Status	Funding Source	Cost Estimate (Preliminary Estimate only subject to detailed assessment)
8	Investigate the extent of HV lines which run over private property and plan extent of diversion works to provide same level of service within road or public reserves.	Consultant	2026-27	Not Scheduled	Internal Budget	$25,000
9	Engage Civica to resolve the main store and ordering system which is impacting on ability to undertake maintenance and to parts at hand for emergency repairs.	Contractors	2026-27	Not Scheduled	Sponsored / Special	$5,000
10	Introduce for 'in field' billing data to allow improved capture and information for invoices to customers for completed works.	Consultant	2026-27	Not Scheduled	Internal Budget	$30,000
11	Conduct and energy audit and run a demand side campaign	Consultant	2026-27	Not Scheduled	Internal Budget	$40,000
12	Undertake Detail Design and Contract Documentation on Network and Power station Renewal	Consultant	2025-26	Completed	Commonwealth Grant	$250,000

Non-Capital Maintenance

Task #	Task	Responsibility / resources	Timeline	Funding Source	Cost Estimate (Preliminary Estimate only subject to detailed assessment)
1	Pole Cross Arm Inspect and Key Maintenance assume 100/annum	NIRC	Annually	Internal Budget	$40,000.00
2	Tree Trimming 2 days/week	NIRC	Annually	Internal Budget	$95,000.00
3	Servicing of Generators (Filters, Fluids, etc)	NIRC	Annually	Internal Budget	$8,000.00
4	Check operation of power station and generators	NIRC	Annually	Internal Budget	$0.00
5	Weed spraying, mow grass, fence repair	NIRC	Annually	Internal Budget	$3,500.00
6	Pole Ground Rot Investigation 100/annum	NIRC	Annually	Internal Budget	$35,000.00
7	Spray and slash around Pad Mount Transformers	NIRC	Annually	Internal Budget	$10,000.00

Capital Maintenance

Task #	Task	Responsibility / resources	Timeline	Funding Source	Cost Estimate (Preliminary Estimate only subject to detailed assessment)
1	Major Pole Hardware Component Replacement	NIRC	Annually	Internal Budget	$75,000.00

9.3 Appendix B: 10-year Renewal Forecast

Direct and Determined Renewals

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
Distribution	**2026**	DC Step-Up	Power House - Transformer	106153	$208,000.00
		HV Power Pole			$155,706.25
		HV-LV Power Pole			$68,121.48
		LV Power Pole			$107,048.05
		Transformer Pole	Timber Pole on Captain Quintal Drive		$9,731.64
			Timber Pole on Mill Road		$9,731.64
			Timber Pole on Rocky Point Road		$9,731.64
			Timber Pole on Taylors Road		$9,731.64
	2028	HV Power Pole			$1,165,652.97
		HV-LV Power Pole			$2,307,884.07
		LV Power Pole			$1,216,455.12
		Transformer Pole	Timber Pole east of Anson Bay Road		$19,463.28
			Timber Pole near Bullocks Hut Road		$9,731.64
			Timber Pole near Poverty Lane		$19,463.28
			Timber Pole on Allendale Drive		$9,731.64
			Timber Pole on Anson Bay Road		$19,463.28
			Timber Pole on Bullocks Hut Road		$19,463.28
			Timber Pole on Bumbora Road		$9,731.64
			Timber Pole on Captain Cook Road		$9,731.64
			Timber Pole on Cascade Road		$29,194.92
			Timber Pole on Christians Lane	105265	$9,731.64
			Timber Pole on Collins Head Road		$19,463.28
			Timber Pole on Country Road		$9,731.64
			Timber Pole on Cutters Corn Road		$9,731.64
			Timber Pole on Driver Christian Road		$9,731.64

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
			Timber Pole on Fletcher Christian Road		$9,731.64
			Timber Pole on Harpers Road		$9,731.64
			Timber Pole on Harpers Road and Prince Phillip Drive Junction	105313	$9,731.64
			Timber Pole on J E Road		$9,731.64
			Timber Pole on Mill Road		$19,463.28
			Timber Pole on Mission Road		$29,194.92
			Timber Pole on Mount Pitt Road		$19,463.28
			Timber Pole on New Cascade Road		$19,463.28
			Timber Pole on New Farm Road		$9,731.64
			Timber Pole on Queen Elizabeth Avenue and John Adams Road Junction	105364	$9,731.64
			Timber Pole on Rocky Point Road		$9,731.64
			Timber Pole on Rooty Hill Road		$9,731.64
			Timber Pole on Stockyard Road		$19,463.28
			Timber Pole on Stockyard Road (b)		$9,731.64
			Timber Pole on Taries Lane		$9,731.64
			Timber Pole on Two Chimneys Road		$19,463.28
			Timber Pole to Flagstaff		$9,731.64
	2029	HV Power Pole			$58,389.85
		HV-LV Power Pole			$165,437.96
		LV Power Pole			$136,242.96
		Transformer Pole	Timber Pole on Cutters Corn Road		$9,731.64
			Timber Pole on Stockyard Road		$19,463.28
	2030	Distribution Box	Low Voltage Distribution Substation		$36,163.62
		Pillar	Low Voltage Distribution Substation		$86,154.52
		Pit	Low Voltage Distribution Substation		$6,381.82
	2034	HV Power Pole			$194,632.81
		HV-LV Power Pole			$406,749.64
		LV Power Pole			$301,680.86
		Transformer Pole	Timber Pole east of Anson Bay Road		$9,731.64

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
			Timber Pole on George Hunn Nobbs Lane		$9,731.64
			Timber Pole on Headstone Road		$9,731.64
			Timber Pole on Martins Road		$9,731.64
			Timber Pole on Rocky Point Road		$9,731.64
	2036	Air Brake	Switch (Air brake, Burnt Pine feeder)	106019	$5,600.00
				106021	$5,600.00
				106022	$5,600.00
				106023	$5,600.00
				106028	$5,600.00
		HV Power Pole			$68,121.48
		HV-LV Power Pole			$301,680.84
		LV Power Pole			$214,096.10
		Overhead High Voltage	Overhead High Voltage from PP_0045 Stockyard Rd & Two Chimmneys Rd Junction to PP_0238 TR 45	104638	$38,949.51
			Overhead High Voltage from PP_0049 TR 46 to PP_0220 Stockyard Rd & Taries Ln Junction	104637	$58,548.30
			Overhead High Voltage from PP_0075 Cascade Rd & Christians Ln Junction to PP_0277 TR 39	104624	$32,995.44
			Overhead High Voltage from PP_0080 Cascade Rd & Mill Rd Junction to PP_0091 Cascade Rd & New Cascade Rd Junction	104630	$31,672.32
			Overhead High Voltage from PP_0081 EDO 12 to PP_0085 TR 64	104626	$26,379.82
			Overhead High Voltage from PP_0091 Cascade Rd & New Cascade Rd Junction to PP_0309 TR 84	104632	$37,791.77
			Overhead High Voltage from PP_0122 EDO 15 to PP_0001 Collins Head Rd & Cutters Corn Rd Junction	104603	$26,627.90
			Overhead High Voltage from PP_0140 Collins Head Rd & Driver Christian Rd Junction to PP_0142 TR 74	104582	$13,727.43
			Overhead High Voltage from PP_0220 Stockyard Rd & Taries Ln Junction to PP_0230 TR 54	104636	$15,960.20

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
			Overhead High Voltage from PP_0238 TR 45 to PP_0247 TR 72	104588	$33,408.92
			Overhead High Voltage from PP_0266 TR 76 to PP_0075 Cascade Rd & Christians Ln Junction	104623	$3,390.51
			Overhead High Voltage from PP_0268 Christian Lane EDO 28 to PP_0271 TR38	104577	$10,915.79
			Overhead High Voltage from PP_0277 TR 39 to PP_0080 Cascade Rd & Mill Rd Junction	104625	$3,803.99
			Overhead High Voltage from PP_0286 TR 80 to PP_0293 TR 55	104628	$21,831.57
			Overhead High Voltage from PP_0324 TR 31 to PP_0319 TR 32	104633	$42,588.10
			Overhead High Voltage from PP_0330 TR 71 to PP_0324 TR 31	104634	$27,785.64
			Overhead High Voltage from PP_0353 EDO 1 to PP_0358 TR 53	104578	$15,712.12
			Overhead High Voltage from PP_0375 Underground to Overhead at Queen Elizabeth Avenue to PP_0372 TR 78	104622	$13,727.43
			Overhead High Voltage from PP_0390 TR 18 to PP_0376 Underground to Overhead at Taylors Road	104677	$46,970.96
			Overhead High Voltage from PP_0393 Taylors Rd & Country Rd Junction to PP_0395 TR 19	104620	$22,493.13
			Overhead High Voltage from PP_0395 TR 19 to PP_0398 EDO 7	104619	$38,205.25
			Overhead High Voltage from PP_0410 Grassy Rd & Burglars Ln Junction to PP_0421 Grassy Rd & George Hunn Nobbs Ln Junction	104654	$19,102.63
			Overhead High Voltage from PP_0421 Grassy Rd & George Hunn Nobbs Ln Junction to PP_0426 TR 48	104596	$17,696.80
			Overhead High Voltage from PP_0421 Grassy Rd & George Hunn Nobbs Ln Junction to PP_0437 Grassy Rd& Mission Rd Junction	104655	$43,415.06

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
			Overhead High Voltage from PP_0437 Grassy Rd& Mission Rd Junction to PP_0438 TR 69	104656	$4,465.55
			Overhead High Voltage from PP_0457 TR 9 to PP_0466 TR 85	104657	$40,355.33
			Overhead High Voltage from PP_0466 TR 85 to PP_0477 TR 65	104658	$42,918.88
			Overhead High Voltage from PP_0477 TR 65 to PP_0480 Mission Road	104659	$3,886.68
			Overhead High Voltage from PP_0480 Mission Road to PP_0515 TR 86	104660	$18,689.15
			Overhead High Voltage from PP_0490 TR 83 to PP_0497 TR 17	104597	$30,431.89
			Overhead High Voltage from PP_0515 TR 86 to PP_0519 TR 10	104661	$18,027.59
			Overhead High Voltage from PP_0519 TR 10 to PP_0524 TR 70	104662	$18,441.06
			Overhead High Voltage from PP_0544 EDO 23 to PP_0534 TR 5	104668	$22,079.66
			Overhead High Voltage from PP_0549 Bulock Hut Rd & Captain Cook Rd Junction to PP_0569 TR 4	104618	$7,277.19
			Overhead High Voltage from PP_0549 EDO 29 to PP_0560 TR 3	104669	$36,882.12
			Overhead High Voltage from PP_0569 TR 4 to PP_0580 Bullocks Hut Road	104673	$36,799.43
			Overhead High Voltage from PP_0579 Bullocks Hut Road to PP_0591 Bullocks Hut Rd & Anson Bay Rd Junction	104674	$22,823.92
			Overhead High Voltage from PP_0580 EDO 27 to PP_0582 TR 2	104583	$7,856.06
			Overhead High Voltage from PP_0591 Bullocks Hut Rd & Anson Bay Rd Junction to PP_0739 TR 1	104675	$21,831.57
			Overhead High Voltage from PP_0621 EDO 21 to PP_0638 JE Road	104663	$37,378.30

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
			Overhead High Voltage from PP_0623 Selwyn Road to PP_0621 EDO 21	104667	$8,352.23
			Overhead High Voltage from PP_0780 Underground to Overhead at Grassy Road to PP_0410 Grassy Rd & Burglars Ln Junction	104653	$2,894.34
			Overhead High Voltage from PP0348 TR 29 to PP_0101 New Cascade Rd & Works Depot Rd Junction	104587	$43,911.23
		SD	Switch (SD, Burnt Pine feeder)	106046	$5,600.00
				106048	$5,600.00
				106049	$5,600.00
				106050	$5,600.00
				106052	$5,600.00
		Transformer Pole	Timber Pole on Collins Head Road		$9,731.64
			Timber Pole on Middlegate Road		$9,731.64
		Underground High Voltage	Underground High Voltage from Country Rd & Longridge Rd Junction to TR 20	104824	$143,865.11
			Underground High Voltage from Power Station to TR 79	104860	$623,870.02
			Underground High Voltage from Power Station to TR 87	104839	$447,959.13
			Underground High Voltage from PP_0062 Overhead High Voltage to Underground at Rooty Hill Road to TR 27 no.7 Quality Row	104821	$619,097.24
			Underground High Voltage from PP_0101 New Cascade Rd & Works Depot Rd to TR 30	104861	$25,227.53
			Underground High Voltage from PP_0773 Overhead to Underground at Martins Road to TR 43	104825	$297,957.59
			Underground High Voltage from PP_0779 Overhead to Underground at Cobby Robins Road to TR 51	104826	$139,774.16
			Underground High Voltage from SSD_003 to TR 16	104823	$107,046.55
			Underground High Voltage from Taylors Rd & Queen Elizabeth Av Junction to TR 36	104857	$236,593.33

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
			Underground High Voltage from TR 26 to TR 27	104829	$387,276.69
			Underground High Voltage from TR 36 to TR 89	104827	$244,093.41
			Underground High Voltage from TR 79 to TR 28	104832	$124,092.18
			Underground High Voltage from TR 87 to TR 82	104830	$306,139.49
		Underground Low Voltage	Underground Low Voltage from TR 27 to Emily Bay	104887	$150,001.53
Fleet	**2026**	Access	Elevated Work Platform 17-EWP-TL Platform is erected on a vehicle - Reg. No. 55	103188	$372,531.90
	2028	Ute	Isuzu Dmax SX 4x4 space cab - electricity	103162	$50,609.00
				103163	$50,609.00
				103164	$50,609.00
			Isuzu MU-X LSM 4x4 SUV - Electricity	103173	$37,210.00
	2030	Motorbike	Light Fleet Vehicles Motorbike	103141	$9,135.96
				103142	$9,135.96
				103143	$9,135.96
Generation	**2032**	Overhead Crane	Crane Overhead Gantry c/w monorails, busbar, trave	105878	$0.00
		Switchboard	Power Logic ION7550	105839	$16,970.52
	2033	Inverter	Bicentennial - SC50HV BESS Inverter	105792	$140,300.00
			Bicentennial - SG30CX PV Inverter	105790	$4,200.00
			ES Building - SC50HV BESS Inverter	105796	$140,300.00
			ES Building - SG30CX PV Inverter	105794	$4,200.00
			Grid-Connected Hybrid Inverter Sungrow SH10RT	105806	$6,980.00
			Grid-Connected Hybrid Inverter Sungrow SH10RT #A23	105804	$6,980.00
				105805	$6,980.00
			Rawson Hall - SC50HV BESS Inverter	105788	$140,300.00
			Rawson Hall - SG30CX PV Inverter	105786	$4,200.00
			Waste Management Building - SC50HV BESS Inverter	105800	$140,300.00
			Waste Management Building - SG50CX PV Inverter	105798	$5,200.00

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
		Load Bank	Old Manual Load Bank	105854	$75,000.00
		Rooftop Collector Panel	Bicentennial - HiKu6 Mono PERC - 415W	105789	$47,800.00
			ES Building - HiKu6 Mono PERC - 415W	105793	$81,900.00
			Rawson Hall - HiKu6 Mono PERC - 415W	105785	$36,200.00
			Solar Panels x96 - Anson Bay Earth Station	105803	$15,250.00
			Waste Management Building - HiKu6 Mono PERC - 415W	105797	$196,100.00
	2035	Fuel Pump	Diesel Pump System comprising 2x Pumps, Pipework,	105883	$60,000.00
		Load Bank	Stainless Load Bank	105855	$10,000.00
		Mechanical and Electrical	Cummins Model C80D5 80KVA, S/N: 300891	105874	$60,010.27
Specialised	**2031**	Scaffold	Scaffolding	103126	$49,819.08
Storage	**2030**	Network Supply Battery	Generator and Battery	105875	$12,145.16
				105877	$21,794.66
	2031	Network Supply Battery	Generator and Battery	105876	$60,496.24
	2033	On Premise Battery	Bicentennial - ST129CP Battery	105791	$130,300.00
			ES Building - ST129CP Battery	105795	$100,500.00
				105802	$100,500.00
			Rawson Hall - ST129CP Battery	105787	$130,300.00
			Rechargeable Li-ion Battery System Sungrow SBR128	105807	$16,660.00
				105808	$16,660.00
				105809	$16,660.00
			Waste Management Building - ST129CP Battery	105799	$100,500.00
				105801	$100,500.00
Electricity Supply	**2027**	Shed-Plant	Electricity - Power House	100242	$11,879.76

Asset Sub-Class	Years (End of Life)	Sub-Category	Name	Component ID	Sum of Gross Carrying Amount
	2029	Shed-Plant	Electricity - Power House	100244	$35,639.28
				100245	$225,715.44
	2031	Shed-Plant	Electricity - Power House	100243	$11,879.76
				100246	$71,278.56
	2032	Shed	Electricity - Mechanical Workshop - Airport	100239	$57,525.00
		Shed-Plant	Electricity - Power House Yard Hut	100255	$5,391.36
	2035	Shed	Electricity - Electrical Workshop - Main	100232	$7,036.80
				100233	$70,368.00
			Electricity - Mechanical Workshop - Airport	100240	$38,350.00
		Shed-Plant	Electricity - Power House Yard Hut	100256	$2,875.39
Grand Total					**$15,939,685.91**

9.4 Appendix C: 10-year New Acquisitions

Asset Sub-Class	Category	Sub-Category	Name	Group Name	GCA	Install Date
Generation	Infrastructure	Control	SCADA	Electricity - SCADA	$1,375,000	30/06/2028
Storage	Battery	Network Supply Battery	Battery Bulk Storage & Load Bank	Electricity - Battery Bulk Storage & Load Bank	$3,987,500	30/06/2029
Fleet	Heavy Duty Equipment	Access	EWP #2	Plant and Equipment - EWP #2	$1,306,250	30/06/2028
Fleet	Heavy Duty Equipment	Crane	Proline Crane	Plant and Equipment - Proline Crane	$1,031,250	30/06/2028
					$7,700,000	

9.5 Appendix D: Asset Rating descriptions

Condition Rating	Description
0	**Unknown**: Assets not yet inspected and graded
1	**Very Good**: free of defects, only planned and/or routine maintenance required
2	**Good**: minor defects, Regular inspection is required, and maintenance might be required
3	**Fair**: defects requiring regular inspection is required, and maintenance might be required
4	**Poor**: significant defects, higher order cost intervention likely
5	**Very Poor**: physically unsound and/or beyond rehabilitation, immediate action required

Capacity Utilization Rating	Description
0	**Underutilized**
1	**Partially utilized**
2	**Moderately utilized**
3	**Mostly utilized**
4	**Fully utilized**

Function Rating	Description
0	**Unknown**
1	**Excellent**
2	**Above standard / LoS**
3	**Adequate**
4	**Below standard/LoS**
5	**Non-functional**

Criticality rating	Description
0	**Undetermined**
1	**Very Low**
2	**Low**
3	**Neutral**
4	**High**
5	**Critical**

10.0 REFERENCES

- IPWEA, 2020, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org
- IPWEA, 2015, 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org
- ISO, 2014, ISO 55000:2014, Asset management overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- Norfolk Island Regional Council, Policy Statement No. 4.04: Asset Management Policy, V2, Draft
- Norfolk Island Community Strategic Plan: 2016-2026
- Norfolk Island Regional Council, Draft Operational Plan 2023-2024
- Norfolk Island Regional Council, Operational Plan 2022-2023
- Norfolk Island Regional Council, Policy Statement No. 3.07: Asset Accounting Policy
- Norfolk Island Regional Council, Strategic Risk Register, 2023
- Australian Bureau of Statistics, Time Series 6427.0, Producer Price Indexes, Australia
- Legislation updates – Norfolk Island, Department of Infrastructure, Transport, Regional Development, Communications and the Arts, https://www.infrastructure.gov.au/
- NORFOLK ISLAND TOURISM STRATEGIC PLAN 2013-2023, (nirc.gov.au)
- NI - Gross Territorial Product (GTP) ,NI - Gross Territorial Product (GTP) – Norfolk Island Regional Council (nirc.gov.au)