January 2021

Nauru Utilities Corporation

Half-yearly report July 2020 to December 2020

Hon. Wawani Dowiyogo, Minister for Utilities

Dear Minister

On behalf of Nauru Utilities Corporation, we are pleased to present to you the corporation's half-yearly report for the period July to December 2020, in accordance with the provisions of section 77 of the *Public Enterprise Act 2019*.

Yours sincerely

Abraham Aremwa

Chair

22 January 2021

Carmine Piantedosi

Chief Executive Officer

22 January 2021

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Statement by the Chairman of the Board of Directors

Tubwa Kor

I am pleased to present this half-yearly report for Nauru Utilities Corporation.

It is great to see NUC's operational performance, safety and work culture improve over this period. It is pleasing to see that our move to a more proactive customer focus and work culture is starting to progress, with all performance indicators showing a significant improvement towards achieving our objectives.

The move towards improved efficiencies and reliability and security of electricity and water supply have reached performance targets that support NUC's goal of placing NUC among the best performing Pacific Island utilities.

Prudent management decisions and a range of sensible efficiency targets in both our operational expenditure and corporate overheads, highlights areas of operational improvement ensuring sufficient revenue to continue to operate the network in a safe and reliable manner.

In closing I would like to thank my fellow Board members for their valuable contributions to Nauru Utilities Corporation and the community which we serve.

On behalf of the Board of Directors I would like to thank the Government of the Republic of Nauru for their support and especially the Minister for Utilities, the Honourable Wawani Dowiyogo MP.

Similarly, I must also thank all NUC staff for their continued dedication to our customers and Nauru community.

Abraham Aremwa

Chairperson of the Board of Directors.

Chief Executive's Report

This half-yearly report for 2020-21 financial year provides an overview to what extent NUC has achieved its business goals as specified in its 5-year Strategic Plan 2015 – 2020 and its Annual Work Plan 2020 - 21.

NUC's financial performance for the period reflected a favorable outcome resulting in a positive financial trend from July to December 2020. NUC's revenue shows that it is able to cover its operating costs including depreciation to date.

This situation has been helped by the Government community service obligations where Government pays NUC based on the lifeline electricity kilowatt hours used, up to 200kWh per customer at $0.25 per kWh capped at $1,388,213.

The reduction in fuel costs in the 6-month period and increase in water sales due to the continued dry spell have both contributed to the financial outcomes for the period.

Operation and maintenance activities on our generation and distribution network ensured sufficient generation capacity to meet the demand each month for energy.

The continued dry spell has impacted on both electricity and water services, where water demand peaked at 1.5 megalitres per day in some months.

The drought has also seen a spike in distribution network interruptions due to pole top wooden crossarm fires. Pollution and salts including high humidity has led to increased incidents, however NUC continues to carry out preventive maintenance on the network.

Total electricity generated from renewable energy solar PV's was 2,132,693 kWh for the 6-month period with 1,778,613 or 83% exported to the grid. This accounted for 11% of energy delivered to our customers.

Carmine Piantedosi

Chief Executive Officer

This Report

Purpose of the Report

The purpose of this half-yearly report is to meet the obligations of Nauru Utilities Corporation (NUC) as contained within the *Public Enterprise Act 2019*, namely section 77 whereby a public enterprise must submit to the Responsible Minister and Accountable Minister a half-yearly report of the operations of the public enterprise for the first half of the financial year to which it relates.

NUC is required to submit its half-yearly report to the Responsible Minister and Accountable Minister not later than 2 months after the end of the first half of the financial year.

This half-yearly report states to what extent NUC has achieved the business goals specified in its statement of corporate intent for the current financial year and includes other matters that the Responsible Minister, after consultation with the Accountable Minister, has directed NUC to include.

Objective of the Report

The objective of this report is to inform the Government of Nauru, as the owner and sole shareholder of Nauru Utilities Corporation, our stakeholders, and our customers, of:

- NUC's primary services and responsibilities.

- Significant activities for the July to December period of 2020 financial year, highlighting major projects, key achievements and outcomes, as they relate to the strategic objectives of the corporation contained in the 2015-2020 Strategic Plan.

- Financial management and performance of the corporation during the period July to December 2020, pursuant to the *Public Enterprise Act 2019*.

Nauru Utilities Corporation (NUC) provides services to the community of Nauru across the entire water and electricity supply chains, in addition to our legislative obligations as the power system controller and water operator.

OUR BUSINESS

Water Production

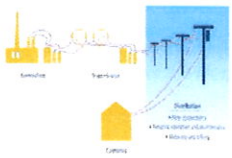
163,786,400 litres produced

Water Storage

4,349,256 litres in storage

Water Despatch and Delivery

133,444,500 litres delivered



Electricity Generation

Diesel Generation: 19,304,798kWh

Renewable Energy Generation: 2,132,693kWh

Electricity Customers

3566 Customers comprising:
3066 Domestic Customers
413 Commercial Customers
30 Industrial Customers
57 Government Customers

Water Customers

1594 Customers comprising:
1569 Domestic Customers
25 Commercial Customers
30 Industrial Customers
57 Government Customers

Vision

"Makur Dogin Naoero"

Makur Dogin Naoero meaning "Work for Nauru" appeals to the heart of employees, to give meaning to their work and to inspire exceptional performance.

In order to be a high performing organisation, one that delivers exceptional service to the people of Nauru our vision encapsulates that our people are working for their fellow Nauruans, for their families, especially their children, grandchildren and for future generations.

Mission

In line with the vision, the mission of the NUC is:

For **N**auru we will **A**chieve, with a **U**nited effort and doing things **R**ight first time, **U**topia: providing safe, reliable, affordable, secure and sustainable electricity and water supply.

Core Values

In pursuit of its mission, NUC continues to be guided by the following six (6) core values - defining its desired corporate culture:

Core Value	Description
Impartiality	NUC staff shall treat all customers, stakeholders and each other with fairness. NUC provides safe, reliable, affordable and sustainable electricity and water supply to its customers.
Morality	NUC staff shall ensure they uphold standards of right and good conduct.
Professionalism	NUC staff shall perform their duties with the highest degree of competence and skills.
Accountability	NUC staff shall perform their duties in a manner that shows readiness to take full accountability and responsibility for their actions.
Consistency	NUC staff shall ensure uniformity, predictability and coherence in accordance with our Code of Conduct and Core Values.
Transparency	NUC staff shall operate in a fair and open manner and without prejudice in delivering safe, reliable, affordable and sustainable electricity and water services.

Motto

In line with its core values – NUC uses the following motto to rally employees, consumers, suppliers, and stakeholders, in general, behind its vision and mission:

"Safe reliable, affordable and sustainable services with positive IMPACT"

Business Objectives and Implementation Plan

During the half year period from 1 July to 31 December 2020, NUC through its Strategic and Annual Work Plan 2020 pursued the following five (5) Business Objectives:

- Customer Focus: NUC implemented strategies to shift from an "operational" focus to a customer centric organisation. NUC is committed to improving our service delivery to benefit our customers and stakeholders. Underpinning our approach are our fundamental commitments which lay the foundation for our strategic priorities and initiatives.

  They are:
  - Delivering Safe, Reliable, Affordable and Sustainable Electricity and Water Services
  - Communicating and Engaging with Customers and Stakeholders
  - Delivering Customer Outcomes
  - A High Performing Organization

- Human Resources: NUC continued to develop and up-skill leaders and staff to ensure enhanced operational safety, improved operational performance and customer service outcomes.

- Environment: NUC ensured sustainable use and management of the environment and natural resources for the benefit of present and future generations.

- Safety: An integral part of delivering electricity and water services to our customers was ensuring that it is carried out in a safe and sustainable way. The health, safety and well-being of our staff and customers are paramount.

  NUC staff continuously identify hazards, report incidents and learn from mistakes, making changes to operations to ensure safety of personnel and the public. It will become a way of life.

- Operational Performance: Ensuring a safe reliable, affordable and sustainable provision of electricity and water services in Nauru is a central objective of Government. An efficient electricity and water utility play a primary role in ensuring this objective is met.

  NUC utilised a range of performance measures and indicator to assess its operational performance. These include, among other things:
  - core indicators such as operating cost per connection;
  - performance scores based on production or cost estimates;
  - benchmarking; and
  - customer survey benchmarking by identifying customer perceptions.

The half-yearly report has translated each strategic objective into key outputs and outcomes, Key Performance Indicators (KPIs) as well as operational activities. Accordingly, detailed operational activity schedule have been presented in this report including:

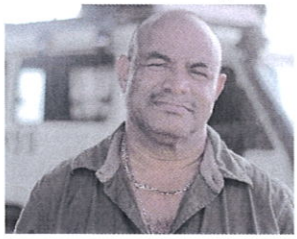
- Summary of Program of Work (Appendix 1)
- Operational Performance Parameters (Appendix 2)
- Current Electricity and Water Charges (Appendix 3)
- Financial Projections (Appendix 4)

Nauru Utilities Corporation Board

Chairperson
Mr. Abraham Aremwa

Deputy Chairperson
Mr. Tim Aingimea

Director
Mr. Leo Scotty



Director
Mr. John Tagamoun

Director
Mrs. Ivy Cook

The Nauru Utilities Corporation (NUC) was established under the *Nauru Utilities Act 2011* (the Act) and commenced operations on 1 August 2011. NUC succeeded the Nauru Utilities Authority.

The Act sets out the functions of the Corporation with respect to electricity and water services.

In relation to electricity our functions are:

(a) to generate, acquire, exchange, transport, distribute, market and otherwise supply electricity;
(b) to undertake, maintain and operate any works, system, facilities, apparatus or equipment required for any function mentioned in paragraph (a); and
(c) to do anything that the Corporation determines to be conducive or incidental to the performance of a function mentioned in paragraph (a) or (b).

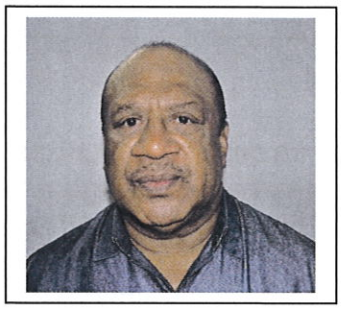
In relation to water our functions are:

(a) to acquire, store, treat, distribute, market and otherwise supply water for any purpose;
(b) to undertake, maintain and operate any works, system, facilities, apparatus or equipment required for any purpose mentioned in paragraph (a); and
(c) to do anything that the Corporation determines to be conducive or incidental to the performance of a function mentioned in paragraph (a) or (b).

Nauru Utilities Corporation Leadership Team

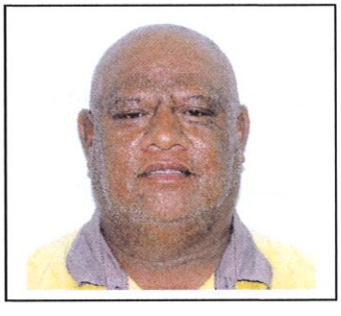










COVID-19 Pandemic

In developing this half-yearly report, regard has been given to the current pandemic and its impact on our organisation.

The Asian Development Bank forecast that developing Asia will contract by 0.7% this year, its first contraction in six decades, however growth will rebound to 6.8% in 2021.

According to ADB, the downturn is broad-based—three-fourths of the region's economies are expected to contract this year with the exception of the People's Republic of China (PRC).

ADB has indicated that depressed demand and low oil prices have offset supply disruptions, keeping regional inflation at 2.9% in 2020, and trimming it to 2.3% in 2021.

The threat of a prolonged COVID-19 pandemic is the main risk to our outlook. A return to more stringent containment measures could slow or even derail recovery and possibly trigger financial turmoil.

There remains uncertainty around the cost impact of the pandemic and it is not clear whether those costs could be mitigated by NUC. In addition, NUC is concerned about the adverse effect that the pandemic may have on future prices faced by customers.

COVID-19 has delayed implementation of some planned RE and other systems in Nauru. It has severely damaged some Pacific Island Countries' economies, particularly those highly dependent on tourism, and caused considerable financial stress to some power utilities (as customers cannot easily pay their bills) and to Pacific national airlines.

The longer-term impacts could include a lower 'normal' level of tourism generally, government and aid resources diverted from energy to other sectors, and potentially global recurrences of other pandemics, with serious effects on our economy and the ability to finance investments, including the energy sector.

The COVID-19 pandemic potentially affects all of our operations in NUC and all of our customers. It has become clear that the impacts of COVID-19 are substantial, and further consideration will need to be made during the 2020 – 21 period.

A balanced treatment of all the impacts of the pandemic will require NUC to undertake adequate consultation with affected stakeholders.

Outlook (Source ADB Website)

	2019	2020			2021		
		April	June	Sept	April	June	Sept
Pacific	3.5	-0.3	-4.3	-6.1	2.7	1.6	1.3
Nauru	1.0	0.4	-1.7	-1.7	1.1	0.8	0.5

GDP Growth Rate (% per year). Inflation rate for 2020 is set at 2.9% while 2021 is forecast to be 2.3%

Achievements against Key Performance Targets

Workplace Health and Safety

As NUC moves to a proactive safety culture, this performance is an indicator of our progress on that journey. While our accident and incident indicator are impressive with zero incidents reported during the half year period, it is evident that we will need to focus on improving leadership, behaviour and personal responsibility. In addition, we are raising awareness of critical risks through behavioural based safety initiatives and continued improvements to our work health and safety procedures.

The introduction of our staff Workplace Occupational Health and Safety Committee with representatives from the various business units within NUC supports our safety objectives.

The Lost Time Injury (LTI) for the six-month period was zero and days lost due to an incident and /or injury are also zero. However, a serious near miss incident was reported involving inadvertent breach of safety clearance from the 3.3kV bus resulting in electric shock to the employee.

Staff training and awareness was conducted in relation to working on or near live installations without proper access and safety clearances and approvals.

The following table summarises the number of hazards identified and actioned including non-compliances noted during the period July to December 2020.

Month	Hours Worked	No. of Hazards	Incidents Reported	Accidents Reported	LTI	Non-Compliance
July	34,425	0	1	0	0	24
August	34,468	1	0	0	0	7
September	34,798	5	1	1	0	33
October	37,434	15	0	0	0	45
November	37,243	38	0	0	0	34
December	36,252	10	0	0	0	41

There were two incidents reported this period and 1 accident however, no serious injuries or lost time incidents were recorded.

Non-compliance activity included failure to wear appropriate personal protective equipment within the workplace.

Weekly team meetings are held to report on potential hazards and enforce compliance requirements with workplace safety obligations.

Monthly safety committee meetings were held with various representatives from different departments. The committee comprises both male and female representatives. The committee reviews OH&S reports and provides updates and communications to all staff on the various safety and security concerns to be addressed on an ongoing basis with NUC management.

People and Culture

Our culture is a vital and unique part of our organization. It's what makes people decide to join our team and is the biggest reason employees choose to stay or leave. It's the key to gaining (and maintaining) a truly high performing organization—one that makes work a place people want to be.

NUC's desired corporate culture is one characterised by autonomy, where employees are empowered to innovate and work autonomously, without micro-managing or hand-holding where staff have ownership in their work.

Secondly, NUC's corporate culture is one that values outputs (the quality of work produced) rather than inputs (the number of hours logged).

The number of employees at the end of December 2020 is 162 a decrease to date of 14 from 2019 financial year. The employee profile at December 2020 compared to 2019 financial year is shown below.

	2019		2020 (at 31 December)	
Category	**Number**	**(%)**	**Number**	**(%)**
Male	144	82	130	80
Female	32	18	32	20
Expatriate (inclusive)	24	13	14	9
Total Number of Employees	176	100	162	100

The reduction in 2020 half yearly figures reflect a decrease in expatriate staff from 13% to 9%, and a number of vacancies pending recruitment of additional local staff.

Gender equality and Social Inclusion

NUC has commenced gender inclusive project employment, creating positions for female technicians within the renewable energy business. NUC's participation in Career Open Days at various Schools encourages young women to consider a career path in the technical and engineering fields relating to power and water sectors.

Our review of the Human Resource Management Policies and Procedures including the development of a Gender Strategy which includes actions that support women in leadership and technical positions has also been progressed in this period.

NUC staff turnover from 1 July to 31 December is shown in the following table.

Month	July	August	September	October	November	December
Turnover	4	3	2	3	0	0

Staff turnover reflects the number or percentage of workers who left NUC and were replaced or being replaced with new employees over the period. This KPI is helpful in understanding the reasons for the turnover and assists in estimating the cost-to-recruit for budget purposes.

Employee turnover for the half year 1 July to 31 December remained at 12%.

Capacity Building

Our people are an integral part of NUC's achievements. They are key to our successes and enabling the delivery of electricity and water services to customers in a safe, reliable, affordable and secure way.

The development of our staff is fundamental to NUC's objective of becoming a high performing organisation as a whole. Our staff development and capacity building activities are focussed on improving employee performance. Our training and development plans focus on motivating employees by making them feel valued, and is the responsibility given to all managers.

Capacity building is a critical component of our strategic and annual work program. The number of training person days in the six-month period to 31 December 2020 was 174. This accounts for less than 1% of the total work person days during this period.

The types of training conducted during the half-year period to 31 December was:

Section	Number of participants
Power, Repair & Maintenance & Renewable Engineering	93
Water	36
Finance, Procurement & ICT	42
HR, Administration & Security	13
Fleet & Building	12
General and Safety.	
Total	**165**

Seven employees are currently on long term study leave as follows:

Number of Employee	Study Program	Institution/Sponsor
1	Certificate IV Electrical Engineering	Fiji National University/NUC
1	Certificate IV Electrical Engineering	Fiji National University/NZ MFAT
1	Degree in Management	Fiji National University/ NUC
1	Degree in Management	Toowoomba University/AusAID/NUC
1	Diploma in Accounting	USP Pacific TAFE/NUC
1	Diploma in Mechanical Engineering (Plant Maintenance)	Fiji National University/NZ MFAT
1	Diploma in ICT	USP/ NUC

The organisation's performance is assessed by reviewing and managing a number of key performance indicators.

These include Absent Without Leave (AWOL), Leave Without Pay (LWOP), All Leaves taken (Recreational, Special, Sick, Official, Maternity, Long Service) Attendance, Labour Worked Hours Productive (LWHP), and Labour Paid Hours Productive (LPHP) to manage overtime.

The following table summarizes the Organisations KPI's for the period 1 July to 31 December 2020.

Month	Total No. of Employees	Training Days	LWOP (Hrs.)	AWOL (Hrs.)	Attend (%)	Sick Leave (Hrs.)	Spec. Leave (Hrs.)	Rec. Leave (Hrs.)	LWHP (Hrs.)	LPHP (Hrs.)	(%) O/T
July	164	53	400	1,123	92%	560	736	1,456	27,704	36,837	25%
Aug	160	27	212	652	93%	568	854	1,688	26,472	35,692	26%
Sept	166	33	224	981	93%	584	1060	936	26,771	34,000	22%
Oct	166	31	224	981	92%	476	702	904	26,771	34,000	21%
Nov	162	20	424	764	79%	716	896	1,548	43,419	55,954	23%
Dec	161	10	304	1,108	82%	600	712	1,504	27,107	36,511	26%

Attendance Without Leave (AWOL) accounted for 3.2% of total hours worked while Recreational Leave accounted for 4.5% of actual hours worked for the 6-month period.

For the same period, Special Leave accounted for 2.8% of total hours worked and Sick Leave accounted for 2.0% of total hours worked.

Attendance & Productivity

On-Time-Attendance (OTA) is an KPI used to track improvement in reporting to work on time and completing the required working hours.

OTA for the half year to 31 December 2020 is 88% compared to 92% forecasted for 2020-21 period.

Labour Hours	2019	2020	½ year to date
Hours Worked	374,656	366,732	178,244
Hours Paid	535,694	504,113	232,994
Hours Paid/Hours Worked	1.429	1.375	1.307
Number of employees	172	161	161
Hours worked/employee	2,127	2278	1,107
Hours Paid/employee	3,042	3,131	1,447

Hours worked and hours paid per employee decreased from 31% in 2019 to 28% in 2020. The overtime rate for the half-year to December 2020 was 24%.

Information and Communication Technology (ICT)

The management of corporate information, both paper and electronic form is an important function that NUC is required to undertake for it to meet both legal and operational requirements.

ICT functionality has performed well during the July to December 2020 period with a number of key activities completed to date. These activities included:

- Workstation re-cabling, clean-up and hardware 'health' checks
- Installation and maintenance of CCTV at NUC locations to improve and maintain safety, security and surveillance monitoring. This remains an ongoing program of maintenance works.
- Ensured network connectivity to various departments e.g., Procurements and Contracts, Customer Service Centre and Fleet Section.

Importantly, work has commenced on NUC's Disaster Recovery Planning and Business Continuity Plan, with the aim of completing the plan in the second half of 2020-21.

The ICT Helpdesk received a total of 535 requests for the period July to December 2020 with an average of 90 requests per month. The requests ranged from issues relating to hardware (pc's, printers, servers) and software including network related faults. All requests were attended to with no outstanding open tickets for the period.

Month	Open Tickets	Closed Tickets	Total Number of Tickets
July	0	100	100
August	0	92	92
September	0	83	83
October	0	89	89
November	0	87	87
December	0	84	84

Key services availability was fully operational for the period with zero down time.

SMS Power Top-up for the period NUC received a total of 131,864 SMS averaging around 21,977 SMS's per month.

Month	Total SMS
July	19,070
August	19,905
September	18,521
October	19,770
November	18,597
December	16,935

The NUC network for the Main Power Station Office, Water Unit and Power Station performed at 100% availability during the period.

Electricity Generation

Diesel Generation

The current installation of diesel generation capacity adequately meets the maximum demand with an N-2 security.

The current diesel generating capacity status and availability is summarized in the following table.

Generation Data			Station																
			INSIDE POWER STATION (MEDIUM/LOW SPEED ENGINES)					OUTSIDE HIGH SPEED ENGINES				STANDBY ENGINES AT ESSENTIAL SERVICES							
Set Number	G1	G2	G3	G4	G5	G6	LACKSTAR	G2A	G2B	G3	G5	GON	MENENG	AIRPORT	SIGAMP	RON HOSPITAL		PRISON 1	PRISON 2
Engine Model	Ruston	MAN	MAN	Ruston	Cummins	Ruston	Cummins	Cummins	Cummins	Cummins	Cummins	Cummins	Cummins	Cummins	Cummins	Caterpillar	Caterpillar	Caterpillar	Caterpillar
Installed capacity Kw	2.40	2.85	2.85	3.00	1.00	2.40	1.00	1.00	1.00	1.00	1.00	0.50	0.50	0.50	0.32	0.50	0.50	0.10	0.10
Rated Capacity Kw	2000	2500	2500	2800	850	2000	800	800	800	800	850	450	450	450	300	450	450	100	100

The current available capacity for high-speed diesel generators is 4 MW. The current available capacity of medium speed diesel generators is 15 MW.

The following table provides NUC Power Operations Key Performance measures for the period July to December 2020.

Key Performance Indicators	July	August	September	October	November	December
Generation Capacity						
Total Installed Capacity (MW)	19.7	19.7	19.7	19.7	19.7	19.7
High Speed Installed Capacity (MW)	6.0	6.0	6.0	6.0	6.0	6.0
Medium Speed Installed Capacity (MW)	13.7	13.7	13.7	13.7	13.7	13.7
Total Available Diesel Capacity (MW)	15.75	15.75	15.75	15.75	15.75	15.75
High Speed continuous rated (MW)	4.0	4.0	4.0	4.0	4.0	4.0
Medium Speed continuous rated (MW)	11.75	11.75	11.75	11.75	11.75	11.75
Black-start continuous rated (MW)	0.8	0.8	0.8	0.8	0.8	0.8
Renewable Energy Capacity						
Total Solar PV installed	2.3	2.3	2.3	2.3	2.3	2.456
Total Roof-Top Solar	0.7032	0.7032	0.7032	0.7032	0.7032	0.831
Total Ground mounted	1.625	1.625	1.625	1.625	1.625	1.625
Generator Performance						
Generator Availability (%)	79	88	88	94	94	94
Generator Maintenance Compliance (%)			96	97	98	97
Specific Fuel Consumption (kWh/L)	4.21	4.06	3.94	4.17	4.04	4.02
Specific Lube oil Consumption (kWh/L)	842	1041	1053	709	1004	976
Power Station Auxiliary (% of total energy produced)	1.15	1.20	1.34	1.28	1.34	1.27
Fuel Reports						
Lube oil (MG412) Usage (Litres)	1840	956	1520	2320	1020	1100
Lube Oil (15W40) Usage (Litres)	2257	2022	1361	2319	2075	2315
Diesel Fuel (Litres)	819,835	761,619	770,738	788,931	769,445	829,332
Diesel Price per month ($)	1.02	1.02	0.98	0.98	0.98	0.98
Cost of Diesel Fuel per month ($)	913,602	573,296	784,004	825,530	744,160	740,620
Reliability of Supply						
SAIDI (Planned)	2.23	2.03	75	29	8	73
SAIDI (Unplanned)	110	138	31	39	214	56
SAIFI (Planned)	0.07	0.07	0.57	0.10	0.23	1.09
SAIFI (Unplanned)	1.54	1.76	0.35	0.52	5.19	1.09
SAIDI (Total Customer Minutes)	113	140	106	68	222	129
SAIFI (Total Customer Outages)	1.62	1.83	0.91	0.62	5.42	3.08
Energy Losses (Technical & Non-Technical) (%)	21	15	16	20	21	22

Energy sales in kWh is outlined in the following table.

ELECTRICITY SALES ENERGY REPORT							
		2020					
		July	Aug	Sept	Oct	Nov	Dec
ENERGY SALES	**Units**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**	**Actual**
Residential @ $0.22/kWh - prepaid	kWH	511,828	510,794	517,512	523,620	524,356	535,245
Residential @ $0.47/kWh - prepaid	kWH	806,682	757,225	726,853	771,479	727,023	857,455
Domestic - Postpaid @ $0.48/kWh	kWH	230,745	224,044	186,826	175,679	172,698	214,297
Commercial - Prepaid	kWH	320,049	344,345	307,154	318,239	273,809	361,573
Commercial - Postpaid	kWH	349,737	335,239	331,562	353,322	377,343	414,048
Government - Prepaid	kWH	53,600	50,342	41,589	75,860	36,232	31,732
Government - Postpaid	kWH	376,227	346,677	255,454	356,632	328,639	261,548
Industrial- Prepaid	kWH	9,600	16,572	21,586	19,143	17,715	18,857
Industrial- Postpaid	kWH	59,168	91,048	176,016	179,166	107,809	93,791
Total Domestic	kWH	1,549,255	1,492,063	1,431,191	1,470,778	1,424,077	1,606,997
Total Commercial	kWH	669,786	679,584	638,716	671,561	651,152	775,621
Total Government	kWH	429,827	397,019	297,043	432,492	364,871	293,280
Total Industrial	kWH	68,768	107,620	197,602	198,309	125,524	112,648
Total Energy Sales	kWH	**2,717,636**	**2,676,286**	**2,564,552**	**2,773,140**	**2,565,624**	**2,788,546**
Free issue (staff free top up)	kWH	28,867	28,640	28,413	27,731	27,276	27,276
Board + NUC Minister	kWH	1,800	1,800	1,800	1,800	1,800	1,800
NUC houses	kWH	5,189	5,090	5,037	4,726	4,207	4,069
NUC offices	kWH	10,435	10,290	13,138	9,709	15,539	6,754

The average monthly energy distributed to customers was 2,669,230kWh for the period 1 July to 31 December 2020.

Energy demand per month varied by 8% with the total energy consumption for the period of 16,015,380kWh.

Overall demand for electricity remained steady over the 6-month period.

Non-revenue electricity accounted for 17% of total energy generated in the 6-month period. This included free issue electricity top-up, supply to NUC premises and sites including un-metered public lighting around the island. This excludes technical and non-technical losses such as network losses, electricity theft and meter bypass.

Renewable Energy Generation

New 6 MW Solar Farm

The project includes the construction of a 6MW grid-connected solar power plant and a 2.5MWh, 5MW battery energy storage system to supply continuous power when solar energy is interrupted by cloud cover and to maintain network stability.

The system will be fully automated and integrated with the existing diesel generation system to optimise solar energy use, enable optimal battery energy storage system charging and discharging, and allow optimal shut-off of the diesel engines, which will reduce Nauru's reliance on diesel for power generation and decrease production costs.

The design and development work have commenced on the installation of a 6MW solar power project funded by ADB and Government of Nauru. The project is scheduled for completion by the end of 2022.

Civil works are nearing completion with land levelling and compacting being finalised by NRC. The engagement of a Project Implementation Consultant was finalised in this period with the award of the contract to GHD.

Initial start-up meetings have commenced between NUC and both the PIC and the contractors CHEC/Joint Venture Partners.

The project is expected to strengthen the institutional capacity of the Nauru Utilities Corporation by training staff in the operation and management of the solar plant and the battery energy storage system. It will also support gender-mainstreaming efforts and provide project implementation assistance.

The 6MW Solar Power Project will help boost the capacity of electricity generation from renewable sources from 3.0% to 47%.

Kinetic Power Plant

On 10 September 2020, Cabinet approved the signing of a Power Purchase Agreement between the NUC and Green Pacific Energy (GPE) of Fiji to facilitate the development of a 3MW kinetic power plant in Nauru.

Furthermore, in December approval was granted by Cabinet and the Parliament for a government guarantee required as part of the Power Purchase Agreement signed between NUC and Green Pacific Energy.

The installation and operation of the new generation will enable Nauru to generate the majority if not all of its power from renewable sources. This will significantly decrease NUC's reliance on diesel fuel generation and subsequently reduce fuel costs.

The new kinetic power plant will be producing base load capacity with potential availability of 97%. NUC will need to ensure that the grid is able to accept up to 3 MW of power and establish grid operating procedures to enable the power plant to connect safely to our network.

It is envisaged that a minimum of 23,000 MWH per year of operations. This equates to 87% of the maximum production of the power plant.

The introduction of 100% renewable energy generation with both solar and kinetic power production is estimated to save approximately $2M per year based on fuel price projections.

The total half-yearly result for renewable energy generation from 1 July to 31 December 2020 is set out below.

Renewable Energy Data 1 July to 31 December 2020							Total Half-Yearly Results
Description	July	August	September	October	November	December	
Grid Connected Customers Generation (kWh)	92,384	81,018	81,819	91,617	82,312	94,613	**523,763**
Total Ground Solar Generation (kWh)	242,568	252,859	274,375	261,108	219,858	233,028	**1,483,796**
Non-grid Customers Generation (kWh)	20,640	19,050	22,228	21,185	19,501	22,530	**125,134**
Total Solar Genertion (kWh)	355,592	352,927	378,422	373,910	321,671	350,171	**2,132,693**
Total Exported to Grid (kWh)	291,629	313,683	312,361	306,740	267,711	286,489	**1,778,613**

Grid connected customer produced a total of 523,763 kWh, while non-grid customers produced 125,134 kWh for the same period.

Total generation from NUC ground mounted installations totaled 1,483,786 kWh.

The total solar generation produced was 2,132,693 kWh for the 6-month period with 1,778,613 or 83% exported to the grid.

The total solar energy generated and exported to the grid as a percentage of total energy sales for the period was 11%.

NUC administers an energy efficiency rebate scheme funded by the IUCN which supports customers who wish to purchase energy efficient washing machines, refrigerators and freezers by providing a 30% rebate on the purchase price of the item if it meets the energy efficient set for that particular appliance. Uptake of the scheme has progressed slowly to date.

A total of 21 LCF rebate customer applications were received during the period 1 July to 31 December 2020.

19 applications were processed and approved for rebate, and 2 were declined for non-compliance. For this half year period a total of $10,000 was paid to customers.

The initial LCF grant was $176,035.52 of which $22,252.88 has been paid out to date leaving a balance of $153,782.64.

Total number of electricity customers to 31 December 2020:

TOTAL NUMBER OF CUSTOMERS					
	Dom	**Comm**	**Ind**	**GoN**	**Total**
Post-paid	34	44	5	51	134
Prepaid	3095	372	21	6	3494
Fixed rate	0	0	4	1	5
Removals	0	0	0	0	0
Total	**3129**	**416**	**30**	**58**	**3633**

Distribution Network

The low voltage network (415/240V) supplies the vast majority of household customers throughout Nauru, each with their own distinct level of consumption, and with most low voltage cables and conductors at least 40 years old.

As residential demand for electricity increases over time, the low voltage electrical network will be put under considerable strain. Without considerable investment in the existing networks – or application of smart network management – outages are likely to become more common.

Improving the capacity of the local electricity network, its ability to cope with load issues and being able to quickly identify and reduce outages will be crucial to the success of our electrical future.

With the predicted uptake of additional solar installations or potentially the use of electric vehicles, a key challenge will be creating a robust network with distributed grid connected solar to generate the right amount of power to maintain reliable supply to our customers.

The refurbishment and augmentation of the low voltage network has progressed as funding has been made available. However, rusted steel pole structures still remain and poor design of underground installations and overhead network require further attention.

The current condition of the low voltage conductors, many with broken strands, incorrectly sized conductors and high resistant joints and connections reduce the capacity of the lines and increase technical losses on the network. It is estimated that 22% of energy generated does not earn revenue for NUC due to high losses on the network.

The refurbishment of the LV network would reduce such losses caused by these technical losses i.e., old conductors, poor connections and joints and inferior public lighting system.

Non-technical losses on the low voltage network also contribute to lost revenue for NUC, which include, electricity theft and meter by-pass, billing and accounting errors, or under-estimation of electricity bills.

A detailed program has been developed to determine the full scope of work to upgrade the network to the required standard. The cost of the work is estimated to be $4M spread over the next two years.

There is further opportunity to introduce LV network monitoring to enhance network performance. Improved monitoring of the network would provide for detailed analysis of transformer utilisation, station voltage, voltage unbalance and power factor for parts of the low voltage network, enabling NUC to better respond to voltage fluctuations and customer loading issues.

NUC will need to further investigate the requirement to implement such technologies within the low voltage network.

Public Lighting

NUC aims to achieve the following outcomes through the management of its public lighting infrastructure:

- Provide lighting that enables the safe movement of vehicular and pedestrian traffic.
- Reduce energy costs and NUC's carbon footprint by utilising Light-Emitting Diode (LED) luminaires, wherever possible.
- Install lighting which complements the streetscape, heritage and amenity of the area.
- Ensure new lighting are designed and installed in accordance with relevant Standards and Guidelines.
- Perform energy audits, which monitor energy costs and quantities of CO2 emissions.

The initial focus of NUC's lighting upgrades is the replacement or repair of existing street lights with faulty luminaire types.

The amenity and risk posed to motorists and pedestrians will be considered when prioritising lighting projects including:

- traffic and pedestrian volumes (high night time volumes)
- the road classification (sub-arterial, collector, local streets etc.)
- high transport routes.
- high night-time activity areas.

A total of 242 LED streetlights are installed along the Island ring road.

The total power usage for the 242 lights is approximately 22.79kW.

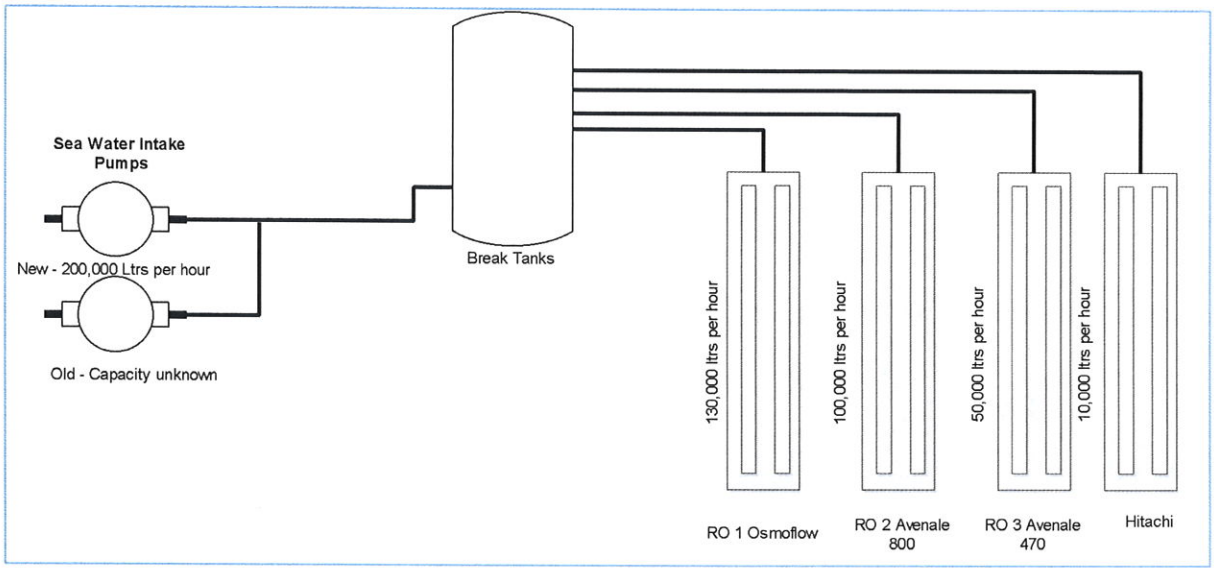
Streetlight Type	Total Installed	Lamp ratings	Power (KW)
LED Units	242	(53*70) (94*120) (94*83)	22.79
Bulkhead Units	0	400W	0.00
Stand-alone Units	66	50W	1.75
Totals	**308**		**24.54**

Water Production and Storage

Reverse Osmosis (RO) Sea Water Piping and Pump Capacities

The four RO plants are fed via sea water intake pumps. A new pump rated at 200 kL per hour has been installed. The current configuration comprises two by 200 kL per hour pumps in parallel as depicted in the following figure. The total intake demand for the RO's is 290 kL per hour.

This installation has been constructed as a temporary arrangement, while the Ports Development Project is being developed. There are plans to re-instate a new sea intake system as part of the Ports Project. This was to be completed by 2020 however due to delays in the Ports development it's planned completion is due end of 2021.



NUC's current maximum desalination treatment capacity is approximately 2350 kl/day or 2.35 megalitres per day. The current capacities of operational RO's are illustrated in the following table.

Plant No.	Plant Manufacturer	Capacity (kL/day)	Status
1	Osmoflo 900	900	Operational
2	Avenale 800	800	Operational
3	Avenale 480	480	Operational
4	Hitachi	120	Operational
5	Meneng Old	50	Operational
6	Meneng Avenale 480	480	Installation in progress

The Meneng Avenale 480 plant, is being progressed, however is subject to a number of constraints which currently delay the completion of the project in 2021. NUC is working through the issues to finalise the project.

The current Meneng (Old) 50 kl/day plant although operational at reduced capacity, will be unable to meet the increasing demand for Meneng Hotel, which is currently around 250kl/month.

Due to a lack of space at the NUC power station site at Aiwo, to accommodate additional RO's NUC has considered a further option to relocate additional RO's to the Meneng hotel site which already has sea water intakes and water storage capacity of 1.2 million litres. This option remains under review and consideration.

The following table sets out NUC water production and delivery key performance measures for the period July to December 2020

Key Performance Indicator	July	August	September	October	November	December
Water Production Unit						
Osmoflow 900 production (Litres)	5,807,400	7,828,300	13,659,400	15,486,100	8,179,800	5,428,300
Avanale 800 production (Litres)	25,421,700	14,620,600	12,866,000	10,952,000	14,567,200	19,584,800
Avanale 480 production (Litres)	0	0	0	0	0	70,200
Hitachi 110 production (Litres)	1,808.000	985,000	145,000	0	0	0
Veolia 45 production (Meneng) (Litres)	1,370,000	1,236,000	1,277,000	1,237,000	1,113,000	1,723,000
Total Water Production (Litres)	34,407,100	21,669,900	26,368,000	27,675,000	23,860,000	26,806,300
Electricity Usage for Water Production (kWh)	135,583	118,365	131,983	128,425	125,595	126,704
Reverse Osmosis Units Availability (%)	87	88	88	88	88	89
Water Delivery Unit						
Water Delivery Ratio (%)	89	91	89	86	89	74
Water Tank Availability (%)	86	82	79	85	77	76
Hired Tanker delivery Ratio (%)	20	19	19	15	26	13
Total Water Deliveries (Litres)	24,367,000	20,418,000	22,369,500	23,667,000	22,010,000	20,613,000
RPC Demand (Litres) (% of total delivered)	7,714,000 (32%)	8,027,000 (39%)	6,838,500 (31%)	5,879,000 (25%)	5,258,000 (24%)	5,409,000 (26%)
NUC Demand (Litres) (% of total delivered)	16,653,000 (68%)	12,391,000 (61%)	15,531,000 (69%)	17,788,000 (75%)	16,752,000 (76%)	15,204,000 (74%)
Total Water Sales ($)	171,587	127,871	132,092	173,481	188,533	179,838
Daily Consumption (per Capita) (Litres)	72	61	66	70	65	61
Water Losses (% of production)	21	14	14	14	11	20

Water Tanks Storage Capacity

The current tank capacities available to NUC are set out below.

Tank (ID)	Capacity (kL)	Operational Status
C1	275	Operational
C2	275	Operational
C3	275	Operational
C4	275	Operational
C5	275	Operational
C6	275	Operational
B13	4,000	Operational
B10	3,000	Installation to be progressed
C7	275	Need to assess condition and viable options for refurbishment
C8	275	Need to assess condition and viable options for refurbishment
C9	275	Need to assess condition and viable options for refurbishment
C10	275	Need to assess condition and viable options for refurbishment
C11	275	Need to assess condition and viable options for refurbishment
C12	275	Need to assess condition and viable options for refurbishment

Tank B13 is constructed of steel and requires regular maintenance and condition monitoring. B10 has been removed and replacement is currently planned with a 3,000kL capacity tank. The project has been delayed due to COVID-19 travel restrictions. This is programmed for completion by 2022.

Tanks C7 to C12 are concrete tanks which require condition assessment to determine viable options for reuse. Increased storage availability provides higher levels of water security as it provides a buffer should a catastrophic failure occur with the RO plants or prolonged power outages.

Donor funding may be required to refurbish tanks C7 to C12 to improve security of supply.

There is additional storage capacity for the Refugee Processing Centres spread over numerous tanks which total approximately 2.5 megalitres.

Water Distribution and Delivery

NUC's current trucking capacity is detailed in the following table.

Vehicle	Capacity (Litres)	Status
Truck 1	4,000	Operating
Truck 2	5,000	Operating
Truck 3	8,000	Operating
Truck 4	8,000	Operating
Truck 5	10,000	Operating
Truck 6	10,000	Operating
Hire Vehicles		
Truck 1	8,000	Operating
Truck 2	7,500	Operating
Truck 3	7,500	Operating
Truck 4	4,500	Operating
Truck 5	5,000	Standby availability for peak demand periods
Truck 6	8,000	Standby availability for peak demand periods

Achievements against Key Program of Work

The following summarises the key project deliverables for the period 1 July to 31 December 2020.

Power Generation

Power generation work that was completed this period included the decommissioning of the Ruston G8 and the top overhaul and relocation to replace the G8 Ruston inside the power station with G7B Cummins engine.

The civil upgrade of the power station floor and battery room ventilation was also completed this period.

Several major projects in power generations have been delayed due to COVID-19 travel restrictions. These projects included our plans to upgrade the SCADA system to reflect all current network augmentations.

The work on major overhaul of G1 – 2.5 MW Ruston and the electrical installation and commissioning of the G4 – 3.0 MW Ruston will be further progressed in the second half of 2020-21 period

Distribution

A number of key projects remain ongoing and will be progressed in the second half. These include:

- Re-routing RMS and HV/LV mains at Antina
- Buada HV security of supply

The following works are yet to commence, due to reprioritisation of our work program. These include:

- Fresh Centre RMU – RMS back feed alterations
- Boe – Poe/D4/D5 Compact Transformer Upgrade

Several low voltage feeder upgrades have been identified for augmentation to improve voltage supply quality and reliability in a number of areas that will need to prioritised in the next period.

Water Operations

Two key projects have been delayed due to COVID-19 travel restrictions. These include:

- 3ML and 300 kL Water Storage and Treatment Tank to be installed at the B13 site
- 300kL treatment tank – Meneng Water Production Site. However, the Meneng Water Production Site has not commenced with the installation of an alternative 480kL reverse osmosis unit to improve water security for Nauru.

Contracts and Procurement

An update of NUC's current tenders and contracts for the period 1 July to 31 December 2020 is set out below.

PROJECT/CONTRACT	CONTRACT SUM	WORKS STATUS
Water Office Building (Ames Construction) – Donor Funded	$285,987.00	Construction of main building underway and in progress
Lavatory Project (Spectrum Construction)	$37,225.95	Construction in progress
Training Room, Finance (Spectrum Construction)	$89, 210.65	Design completed. Construction not commenced.
Parking Lot (Jadhai Construction)	$23,853.50	Contract terminated due to non-performance by Contractor.
Generation office (Rephidim Construction)	$52,645.00	Progressing design and layout. Pending construction.
Warehouse refurbishment & Office building (Aidon Construction)	$32,059.60	Refurbishment work progressing.
Security Services Contract	TBC	Tender evaluation report finalised. All approvals received for issue of contract. Contract to be finalised with successful bidder in January 2021.

Financial Performance

NUC's financial status for Year-to-Date to December 2020 shows net earnings before tax of $371,679.00. For the current December period NUC's net surplus before tax was $170,400.00. A positive financial trend for NUC which demonstrates that it is just able to cover its operating expenses including depreciation to date.

This situation has been helped by the Government community service obligations where Government pays NUC based on the lifeline electricity kilowatt hours used, up to 200kWh per customer at $0.25 per kWh capped at $1,388,213.

An increase in the volume of water sold due to the continued dry spell has also contributed to the positive outcome.

NA6:H44UC PROFIT AND LOSS SUMMARY - FY 2020-21

Description	YTD Dec 2020
Income	
Electricity income	$ 9,365,550
Water income	$ 1,477,044
Other revenue	$ 3,480
Total Income	**$ 10,846,075**
Expenses	
Electricity:	
Staffing (Inc. Expat Housing)	$ 912,362
Fuel & Oil	$ 4,847,041
Repair & Maintenance	$ 351,407
Other	$ 66,598
Total Electricity	**$ 6,177,408**
Water:	
Staffing (Inc. Expat Housing)	$ 265,142
Repair & Maintenance	$ 193,835
Rental vehicle	$ 103,685
Other	$ 71,005
Total Water	**$ 633,667**
Corporate:	
Consultants	$ 47,753
Staffing (Inc. Expat Housing)	$ 558,671
Training	$ 38,423
Repair & Maintenance	$ 43,447
Rental vehicle	$ 1,200
Freight & Duty	$ 137,870
Security expense	$ 436,921
Landlease rental	$ 868,284
Telephone/Fax/Internet	$ 143,610
Doubtful debt reversal	$ -
Other	$ 174,765
Total Corporate	**$ 2,450,944**
Total Operational Expenses	**$ 9,262,019**
EBITDA	**$ 1,584,055**
Depreciation	
Electricity	$ 968,247
Water	$ 108,749
Corporate	$ 135,380
Total Depreciation	**$ 1,212,376**
Total Expenses	**$ 10,474,395**
Add Other income	
Subsidy Income - One Off C-19 Ex Gratia Payment	$ 114,600
Less Other Expenses	
Subsidy Expense - One Off C-19 Ex Gratia Payment	$ 114,600
Profit/(Loss) Before Tax	**$ 371,679**

Appendix 1: Annual Work Plan 2020-2021

The proposed program of work for 2020-2021 is set out below and provides a summary of the scope of works to be performed covering both operational improvement work and new projects.

- The estimated budget allocated to each project scope is slightly uncertain and would require adjustments while approaching implementation of works.
- The implementation of minor projects funded by NUC shall be dependent upon available revenue, cashflow and availability of resources.
- Operational scopes contributing to improvements such that the results would provide additional security and increase or supplement revenue to NUC shall be prioritised.
- Major projects listed would require donor collaboration which some are already in progress with feasibilities undertaken and proposals submitted.

#	Projects	Scope of Work	Target Completion Date	Budget Estimate
A	**Power Distribution**			
1	Re-route RMS HV/LV at Antina	Current HVABC and bare Cu LV is imposing a safety risk to customers, especially to a proposed new building. It is decided the cable be re-routed via underground between the poles at Antina and furthest to the bush. Existing OH to also lay in the same cable trench.	30/09/20	$70000.00
2	Buada HV Security of Supply	Provide additional security of supply via underground & RMU to Buada Customers from Field Feeder terminated to load side of ABS 354	15/09/20	$30000.00
3	Fresh Centre RMU-RMS back feed alterations	Decommissioned U/G to Meneng Hotel and shift cable marked RMS back feed to CB marked Meneng Hotel at Fresh Centre RMU and commission	30/08/20	$1700.00
4	Boe-Poe/D4/D5 Compact Transformer upgrading	Replace existing Trx and LV circuit breakers with compact type switchgears	30/10/20	$45000.00
5	Dedicated supply to Digicel repeater at Meneng	Re-route existing supply as per new design-connect to Meneng RO Trx via OH 3Ph. WASH	15/09/20	$27000.00
6	Buada Hill LV extension	Upgrade existing single phase to 3-phase ready to supply proposed new customers and street lights	30/09/20	$19200.00

7	Buada Low Voltage	Extend existing LVABC (8 spans) to supply customers experiencing low voltage at north ends of Buada	30/10/20	$25000.00
8	Oden Aiwo Substation	Relocate the substation as per new design due to land issues. Extend LV supply to Aiwo customers, Aiwo Town Ace and Street Lights	30/11/20	$15000.00
9	Field Feeder HV Extension	Extend HV to supply RonPhos Crusher, weighbridge and NRC workshop substation and decommissioned existing 3.3KV grid	01/03/21	$45000.00
10	Solar Interconnector Feeder	Cable Terminations and Commissioning	15/12/20	$10000.00
11	Anabar LV Extension	6 spans LV extension to new customers at Anabar	20/07/20	$7700.00
B	**Power Distribution-projects**			
12	LV Refurbishment works	Upgrading of LV Network. Replace all LV line hardware and cables (existing Cu to WASP)	TBD	$250000.00
13	Buada low voltage ring main	Upgrade existing underground supply to 240mm² XLPE or Triplex	TBD	$300000.00
14	Replacement of ABS- Network High Voltage switches	Replace all ABS with ground mounted HV RMU with SCADA integration capabilities	TBD	$289600.00
15	HV Grid Extension to RPC 2	Extend existing HV network to supply RPC 2	30/06/2021	$400000.00
16	Installation of HV Switches at RonPhos Kiln and shoreline substation	Replace existing old switches gears with HV RMUS and HV Metering	TBD	$30000.00
17	RonPhos Kiln substation transformer Upgrading	Service or replace all 4 x 3.3KV/550V transformer at RonPhos Kiln for future increase in demand	TBD	$80000.00
18	Dedicated Feeder to RonPhos Kiln	Existing 3.3KV field feeder to be upgraded as RonPhos Drier Feeder	TBD	$20000.00
19	Ports-Location-RON Ring main	11KV Ports feeder via 240mm² Triplex U/G to Ports substation with option for future extension to Location compound and RON. Ring main (refer design)	31/12/20	$135000.00 (Funds received)
20	Location compound LV upgrading L1-L6	Refurbish L1 to L6 substations	TBD	$200000.00
C	**Power Generation**			
1	G2A & B Cummins Engines	Top-overhaul	30/01/21	$250000.00
2	G5 Cummins Engine	Top-overhaul and reroute LV cable	30/12/20	$125000.00
3	Ruston G8 8RK3C	Decommissioned	31/07/20	$7000.00

4	G7B Cummins Engine	Top-overhaul and relocate to replace G8 Ruston inside Power Station	31/08/20	$150000.00
5	3.3KV bus section CB service	Carryout existing SF6 CB service and tests	31/03/20	$45000.00
6	HV cable tunnel electrical & civil upgrading	Remove all decommissioned cables, switches and accessories Installation of Lights Assess and repair civil components, floors and structures	31/12/20	$30000.00
7	Civil upgrading Power Station floor	Clean & Paint PS floor, demarcation of safety zones	31/12/20	$15000.00
8	Battery room ventilation	Install suction and exhaust fans	31/12/20	$20000.00
9	3.3KV ventilation	Install ceiling fans and leak proof exhaust fans	30/09/20	$20000.00
D	**P/Generation Major Projects**			
10	11KV Bus extension	Bust extension to accommodate • Ports Feeder • Field Feeder • Solar Interconnector Feeder	31/12/20	$80000.00
11	G1-2.5MW Ruston	Major overhaul	31/03/20	$300000.00
12	G4-3.0MW Ruston	Electrical installation and commissioning	31/12/20	$50000.00
13	G6-2.0MW Ruston	Electrical installation and commissioning	31/12/20	$50000.00
14	SCADA upgrading	Upgrade to reflect all current developments	31/12/20	$30000.00
15	Injector Room	Construct New Injector room	31/05/21	$35000.00
16	Hydraulics Room	Construct New hydraulics pump room	31/05/21	$35000.00
17	PS Fuel System upgrading	New Service tanks, purifiers and ring main	31/06/20	$200000.00
18	Relocation of High Speeds to Solar site	Relocate HS units to solar site to provide stability during cloud-covers.	31/06/20	Donor
19	Oil Purifiers-G1, 4 & 6	Install Oil purifiers to all Ruston Engines to enable increase in lubricating systems life	31/12/20	$150000.00
E	**Water Operations**			
1	Water Dispatch revised model	Implementation of Customer Tank ID's, integrated into Navision software	31/09/20	$40000.00
2	Water Tanks Survey	Carryout survey of all customer tanks and prepare database	31/07/20	$4000.00
3	C Storage tanks relining	Carryout epoxy lining of C tanks	31/11/20	$212000.00
4	B13 site dispatch pump	Install and commission a water dispatch pump at B13 site	31/09/20	$11000.00
5	C5 standpipe	Relocate standpipe to allow CHEC carryout road works (refer design)	31/12/20	$8000.00

6	Meneng alternative site 3.2ML concrete tank refurbishment.	3.2ML concrete tank is vulnerable and imposes a risk to fail if refurbishment works are delayed. The risk assessment report identified the tank reinforcements are corroded and exposed, cracks visible near lower portions of the walls. Tank SFL is reduced to 40%.	31/06/21	$150000.00
7	4ML B13 storage tank	Tank assessment carried out in 2017 stipulates the steel thickness have greatly reduced and SFL be reduced to 85%. It is recommended the tank be replaced within 5-7 years from the date of assessment	31/06/21	$700000.00
F	**Water Operations Projects**			
8	3ML & 300KL Water storage and treatment tank	Install and Commission tanks at B13 Dispatch site-Pioneer Tanks. 3ML will replace the decommissioned 3Ml B10 steel tank	31/12/20	$500000.00
9	300KL Treatment Tank-Meneng Water Production Site	Install & Commission tank at Meneng WP site (Both 7 & 8 is executed by Contractor; Pioneer Tanks)	31/12/20	$250000.00
10	Water Office	Complete Construction works and finishing. NUC arranging materials, funded by AusAID	31/12/20	$135000.00
11	Meneng Water production site	Establish alternative water production site as security of supply-install new 480KL Ro unit, relocate Hitachi from the Aiwo Water production site. Install and commission sea water well.	30/09/20	$50000.00
12	RON-Location compound Underground reticulation	Underground fresh water supply to RON Hospital from C Storage tanks, tee-off to Location compound Refer report from BTW-New Zealand	30/06/21	Donor
13	Aiwo underground reticulation	Underground fresh water supply to Customers at Aiwo from B13 and proposed B10 Storage Tanks via gravity feed-prepaid arrangement	30/06/21	Donor
14	Meneng underground reticulation	Underground fresh water supply to Meneng customers from alternative productions site via gravity feed	30/06/21	Donor
G	**Regulatory & Metering (PPM)**			
1	Installation Review	Safety inspection and correction of all customer installations.	31/12/20	$50000.00
2	HV metering	Install and commissioned HV metering to current unmetered	31/12/20	$15000.00

		customers, RonPhos drier, RonPhos shoreline and Cantilever		
3	Remote readings of post-paid customers	Feasibility study and discussions with relevant suppliers, option to integrate to Suprima	31/06/21	$30000.00
H	**Renewable Energy**			
1	6MW Solar Installation & Commissioning	Contract awarded to CHEC & RISEN JV. Commissioning by end of 2022	31/12/21	$22000000.00
2	Grid connected Roof Top Solar	Commissioning of grid connected RT solar at residential customer premises, via by-directional meters and Tariff buy-back policy	Ongoing - NUC	TBD
3	Ports 800KW RT Solar	Coupled with Ports development project-grid connected Roof Top agreement	Donor-ADB	TBD
4	New Prison 300KW RT Solar	Grid connected RT agreement	TBD	TBD
5	Pump Hydro storage	Feasibility-NZMFAT	Feasibility	TBD
6	Kinetic Power Plant	3MW + 1MW spinning reserve KPP-IPP arrangement with Ross Innovations and Green Pacific Energy Fiji.	IPP	TBD
7	Floating solar-Wind Hybrid	Feasibility-arrange possible donor	Donor -ADB	$2000000.00
I	**Other works**			
1	Refurbishment of Customer Service Office	Carryout full internal refurbishment of the office	31/12/20	$40000.00
2	Refurbishment of Fleet workshop	Refurbish the room and convert to training room	Contract awarded	$80000.00
3	Lavatory for staff	Old distribution office shall be converted to lavatory	Contract awarded	$45000.00
4	Welding & Fabrication Workshop	Proper Welding and Fabrication workshop coupled in the Power Station	Scoping	$25000.00
J	**Capacity Building/Training of Staff**			
1	Customer Service	All NUC Staff to undergo refresher training	On-going	$5000.00
2	First Aid	Refresher Training	On-going	$5000.00
3	Fire Fighting	Refresher Training	On-going	$5000.00
4	Counselling & Mentoring Staff	Refresher Training	On-going	$5000.00

Appendix 2: Current Electricity and Water Charges 2020

Electricity & Water Fees and Charges				
	Note	Tariff/ Rate		Unit
Electricity				
Residential Lifeline	A	$	0.22	kWh
Residential Prepaid	A	$	0.47	kWh
Residential Postpaid	A	$	0.48	kWh
Commercial		$	0.70	kWh
Industrial		$	0.70	kWh
Government		$	0.70	kWh
Feed In Tariff	B	$	0.20	kWh
Reconnection Fee		$	15.00	per event
Meter Tampering/ By Pass Fine Residential		$	1,000.00	per meter
Meter Tampering/ By Pass Fine Commercial		$	10,000.00	per meter
Reconnection after Tampering		$	100.00	per meter
Single Phase meter		$	120.00	per meter
Three Phasse meter		$	445.00	per meter
New Single Phase Pole Connection		$	50.00	per connection
New Three Phase Pole Connection		$	100.00	per connection
New Connection Single Phase		$	50.00	per connection
New Connection Three Phase		$	150.00	per connection
Water				
Residential		$	0.0084	Litre
Commercial/ Industrial		$	0.0118	Litre
Government		$	0.01553	Litre
Residential Delivery < 5,000 L		$	5.00	per truck
Residential Delivery > 5,000 L		$	10.00	per truck
Commercial Delivery		$	263.49	per truck
Government Delivery		$	165.00	per truck
Truck Owner Delivery		$	117.25	per truck
Fresh Water Delivery via Pipe		$	0.0118	Litre
Sea Water Delivery via Pipe		$	0.0030	Litre
Corporate				
Cash Power After Hours		$	15.00	per Top Up
Labour Hire		$	15.00	per man hour
Cherry Picker Hire		$	90.00	per hour
Crane Truck Hire		$	100.00	per hour
Excavator Hire		$	90.00	per hour
Fork Lift 3.5T Hire		$	60.00	per hour
Fork Lift 2.5T Hire		$	45.00	per hour
Note A				
Each Residential pre-paid customer is provided 200kWh per month at the residential life line tariff. Usage in excess of 200kWh during the month is charged at the residential tariff.				
Note B				
Feed-In tariff applies to excess energy supplied to the grid by customers who have installed grid connected roof top solar panels.				

Appendix 3: Operational Performance Indicators

Sector	Description	Unit/Measure
Electricity		
Renewable Energy Capacity Factors	Total grid connected solar generated	(%)
	Total government solar energy generated	(%)
	Total solar energy generated exported to grid	(%)
	Total private sector solar energy generated	(%)
	Total private sector energy generated exported to grid	(%)
Energy Sales and Production	Total diesel energy produced	(kWh)
	Total renewable energy produced	(kWh)
	Total renewable energy exported to grid	(kWh)
	Total auxiliary power consumed power station supply	(kWh)
	Total sales	(kWh)
	Total revenue from energy sales	($)
	Total losses	(kWh)
	Losses	Total losses / (total diesel energy and total renewable energy exported to the grid) (%)
Water Production and Delivery	Total produced, stored and delivered (volume)	(Litres)
	Availability of reverse osmoses units	(%)
	Total electricity used for water production	(kWh)
	Production efficiencies	(litres/kWhe)
	SWIRO Availability	% time available for operations
	Water Tanker Availability	% time available for operations
	Vehicle Fleet Availability	% time available for operations
Water sales and deliveries	Water volume sales	(litres)
	Water tank trip sales	(number of deliveries)
	Water losses in litres	(%) Losses = (water loss) / (water production storage)
Financial Performance		
Electricity	Weighted Average Per Unit Cost	(Total Power Exported) / (Energy Sales + Production)
	Weighted Average Per Unit Revenue	(Sales) / (Energy Sales + Production)
Water	Weighted Average Volume Unit Cost	(Total Water Expenses) / (Water Sales + Deliveries)

	Electricity Cost for Water Production and Delivery	0.7 / (Water Production + Storage)
	Total Unit Cost of Water Production and Delivery	(Weighted average volume unit cost) / (Electricity cost for water production and delivery)
	Weighted Average Water Revenue / Litre	(Total Water Income) / Water Sales + Delivery)
	Monitor Assets, Liabilities, equity and Cashflow of the organisation	($)
Network Performance Indicators	System Average Interruption Duration Index (Planned and/or Unplanned)	SAIDI
	System Average Interruption Frequency Index (Planned and/or Unplanned)	SAIFI
Human Resources	Labour Work Hours/Labour Paid Hours	Overtime ratio
	Employee Attendance per section	(%)
ICT	Complaints, outages, internal network faults, system faults	Number resolved, number unresolved,
Procurement	Orders placed, delivered, outstanding and delivery duration	Number of orders, deliveries, outstanding. Delivery duration in days.

The maintenance of key assets is tracked by the following indicators. The maintenance of our assets is a key factor in ensuring reliability and security of electricity and water supply.

Indicator (KPI)	2019	2020	2021	2022	KPI Description
Generator Maintenance Compliance	97	94	95	95	% Compliance to maintenance schedule based on running hours
Generator Availability	94	92	94	94	% time available for operations
SWRO Availability	96	90	95	95	% time available for operations
Water Tanker Availability	78	77	80	80	% time available for operations
Vehicle Fleet Availability	81	83	85	85	% time available for operations

Indicator (KPI)	2019	2020	2021	2022	KPI Description
Specific Fuel Consumption (Diesel)	3.87	3.9	3.9	3.9	kWh per litre diesel fuel
Specific Lubricating Oil Consumption	856	1097	1095	1095	kWh per litre lubricating oil
Electricity Losses	12	18	15	15	% of energy delivered to the grid
Power Station Auxiliary Energy Usage	1.03	1.18	1.05	1.05	% energy generated by diesel engines
NON-Revenue Energy	5	2	2	2	% energy provided not earning revenue
Reverse Osmosis Plant Efficiency	199	194	195	195	Litres per kWh
Water Loss	10	25	12	12	% water produced
Non-Revenue Water	6	3	5	5	% water provided that is not earning revenue. (Excludes losses)

Electricity Network Performance Indicators

The following sets out our key performance indicators for the electricity network measured by how often a customer can expect to experience an outage i.e., System Average Interruption Frequency Index (SAIFI) and the measure of average outage duration per customer, System Average Interruption Duration Index (SAIDI).

Year	2019	2020	2021	2022
SAIDI (Planned and Unplanned)	2235	2410	2000	2000
SAIFI (Planned and Unplanned)	34	30	20	20

The following sets out target measures for the various key performance indicators.

Target	Key Performance Indicators
<2000	System Average Interruption Duration Index
<20	System Average Interruption Frequency Index
>5%	Operating surplus electricity
>5%	Operating surplus water
>2.5%	Operating surplus Corporate
>10%	Revenue increase
<100 days	Debtor days
<30%	Non-revenue energy
>85%	Generator availability
>90%	Generator maintenance compliance
>3.6	Specific fuel consumption
<500	Specific lubricating oil consumption
<25%	Electricity losses
<2%	Power station auxiliary energy usage
<10%	Water losses
>85%	Fleet availability
>80%	Water tanker availability
>85%	Reverse osmosis plant availability
<100	Labour work hours productivity
<130	Labour paid hours productivity
>95%	On time attendance

Appendix 4: Financial Projections 2020-2021

Electricity Demand and Sales

The electricity demand forecast assumes the following:

- reduction in refugees reflecting a reduction in the electricity demand for the Nibok and Ewa refugee camps.
- demand shall remain steady for the remaining customer categories.
- RonPhos activities are expected to be reduced.

Energy Sales		2021	Projected 2020	2019
	Days	365		
Domestic prepaid lifeline	kWh	5,552,852	5,552,852	4,591,928
Domestic prepaid regular	kWh	7,040,711	7,823,012	6,661,502
Total Domestic Prepaid	kWh	12,593,563	**13,375,864**	**11,253,430**
Domestic - Postpaid	kWH	2,122,664	2,358,516	2,367,688
Commercial - Prepaid	kWH	4,156,238	4,156,238	4,501,145
Commercial - Postpaid	kWH	3,994,348	3,994,348	4,549,054
Government	kWH	4,437,760	4,437,760	3,717,647
Industrial- Prepaid	kWH	233,960	233,960	136,244
Industrial- Postpaid	kWH	958,698	1,369,568	826,313
Total Domestic	kWH	14,716,227	15,734,380	13,621,118
Total Commercial	kWH	8,150,586	8,150,586	9,050,199
Total Government	kWH	4,437,760	4,437,760	3,717,647
Total Industrial	kWH	1,192,658	1,603,528	962,557
Total Energy Sales	kWH	28,497,231	**29,926,254**	**27,351,521**

The energy sales forecasted for 2021 is 4% greater than the year 2019 and 5% less than the projection for the year 2020. This reflects the expectations of a slowing economy and impact of the refugee's evacuation from the island. The major factors affecting this forecast are:

- The post-paid industrial sales are reduced by 30% compared to the projection for 2020 and reflects the pessimistic forecast regarding RONPHOS phosphate mining activities.
- Reduction by 10% for pre-paid and post-paid domestic sales. The former as a result of the economic downturn anticipated and the latter includes the impact of the houses rented by NST for refugees and other activities.

The above does not include the demand for RPC1. RPC1 is expected to be maintained in a state ready to be activated to receive refugees at short notice. Plans to connect to the grid are in progress and expectation are that RPC1 will be connected by June 2021.

The forecasted demand for RPC 1 is 1,752,000 kWh for the FY 2021.

The non-revenue energy components are as follows:

Energy Componenets	kwh	%	Tariff	Income
Energy Sales		0%	$/kwh	$
Residential Lifeline	5,552,852	15%	0.25	1,388,213
Residential	9,163,375	25%	0.50	4,581,688
Commercial	8,150,586	22%	0.70	5,705,410
Government	4,437,760	12%	0.70	3,106,432
Industrial	1,192,658	3%	0.70	834,860
RPC1	1,752,000	5%	0.70	1,226,400
Total Energy Sales	**30,249,231**	**82%**	**0.5568**	**16,843,003**
Non Revenue Energy				
NUC Offices	133,632	0.4%		
Staff Top Up Benefits	322,800	1%		
NUC Houses	48,468	0.1%		
Street Lights/ Public Lighting	131,400	0.4%		
Water Production Usage	933,082	3%		
Power Station Auxillaries	420,150	1%		
Total Non-Revenue Energy	**1,989,532**	**5%**		
Energy Losses	4,778,144	13%		
Total Energy Production	37,016,907	100%		

The total Electricity income budgeted for the 2020 – 2021 financial year is $16,843,003.00

Water Demand and Sales

The water demand and sales are assessed in terms of volume sales and delivery trips.

Water Volume Sales

The water volume and delivery sales are sensitive to the rainfall pattern for the period. This sensitivity is caused by customers who harvest rain water off their roofs.

In a high rainfall year demand is reduced while in a drought year demand is increased.

The current financial year is following a demand pattern for a high rainfall year.

This forecast is based on a lower rainfall year than the current year.

The water volume sales forecasted for the 2020 – 2021 financial year is as follows:

Water Sales - Volume	Volume Litres	Rate $/Litre	Income $
Total Domestic	55,312,555	0.0084	464,625.46
Total Commercial	17,427,500	0.0118	205,644.50
Total Government	21,202,500	0.0097	205,664.25
Total Industrial	3,105,000	0.0118	36,639.00
Meneng Hotel Water	13,000,000	0.0118	153,400.00
Total Fresh Water	**110,047,555**	**0.0097**	**1,065,973.21**
Meneng Hotel Sea Water	24,760,000	0.003	74,280.00
Total Water Volume Sales			1,140,253.21

Note: The Meneng Hotel Fresh Water and Sea Water sales are delivered via pipes and so do not incur delivery charges.

Delivery Sales

Most water is delivered to customer water tanks by water tankers. Delivery charges are set based on the customer category and choice of water tanker. Those who wish to use their own water tanker are charged differently from those who chose delivery by NUC tankers.

The delivery income budgeted for 2021 is:

Water Sales - Delivery	Delivery Number	Charges	Income
Domestic Water Deliveries < 5000L	5,004	5.00	25,020.00
Domestic Water Deliveries > 5000L	2,000	10.00	20,000.00
Commercial Water Deliveries	60	263.49	15,809.40
Government Water Deliveries	2,000	217.47	434,940.00
Water Own Uplift	1,000	117.25	117,250.00
Total Delivery Income	**10,064**		**613,019.40**

Total Water Sales

The total Income from water and delivery sales are:

Income from Volume Sales	$ 1,140,253.21
Income from Delivery Sales	$ 613,019.40
Total Income from Water Sales	**$ 1,753,272.61**

Total Income

The total income budgeted for the FY 2021 is

Electricity Income	16,843,003.00
Water Income	1,753,272.61
Other Income	270,000.00
Total	18,866,275.61

Expense Budget

Fuel and Lubricating Oil

The fuel and oil budget are the largest component of the expenses budget. The following table presents the assumptions made and the resulting estimate.

Fuel and Lubricating Oil Budget	
Total Energy Produced (kwh)	36,632,441
Total Renewable Energy produced (kwh)	2,638,162
Total Diesel Energy produced (kwh)	33,994,279
Specific Fuel Consumption (kwh/Litre)	4
Specific Lub. Oil Consumption (kwh/Litre)	1100
Fuel Price ($/Litre)	1.20
Lub Oil Price ($/Litre)	5.00
Fuel Budget ($)	10,198,283.84
Lub. Oil Budget ($)	154,519.45
Total Fuel and Oil Budget ($)	10,352,803.30

Electricity Expense for Water Production

Water production expenses is dominated by the electricity usage. The budget is determined as per table below

Total Fresh Water Sales	L	110,047,555
Total RPC's Water Delivery	L	36,000,000
Total Water Losses	%	15%
	L	21,907,133
Total F/Water Produced	L	167,954,688
RO Effy	L/kwh	180
Electricity Usage	kwh	933,082
Electricity Charges @$0.7/kwh	$	653,157

This expense is treated as an expense to water and an income for electricity as it is an internal transaction between the water and electricity divisions.

Other Operational Expenses

The operational expenses budget summary is set out below.

Summary of Operational Busget Excluding Fuel and Oil	
Section	Amount
Power Operations	225,674.68
Power Station Electrical	341,278.68
Power Station Maintainance	881,549.20
Power Distribution	543,122.00
Metering & Regulations	470,333.00
Renewable Energy	115,781.95
Water Production	319,606.84
Water Delivery	451,946.00
CEO	2,268,817.29
Building & Maintainance	137,680.08
Fleet	152,417.32
Finance	390,440.30
Procurement	443,208.99
ICT	531,355.33
Safety & Security	919,405.00
HR	177,782.66
Planning & Drawing Office	85,699.72
Total	8,456,099.05

Budget Summary

The high-level summary of the Budget proposal is shown in below.

Income from Electricity Sales	**16,843,003**
Income from Water Sales	1,753,273
Income from other activities	270,000
Total Income	**18,866,276**
Fuel & Lubricating Oil Expense	10,352,803
Other Expenses	8,456,099
Total Expenses	**18,808,902**
EBITDA	57,374
Depreciation	2,400,000
NPAT/ (Net Loss)	(2,342,626)
Income Tax Expenses	(584,260)
NPAT/ (Net Loss)	(2,926,886)