



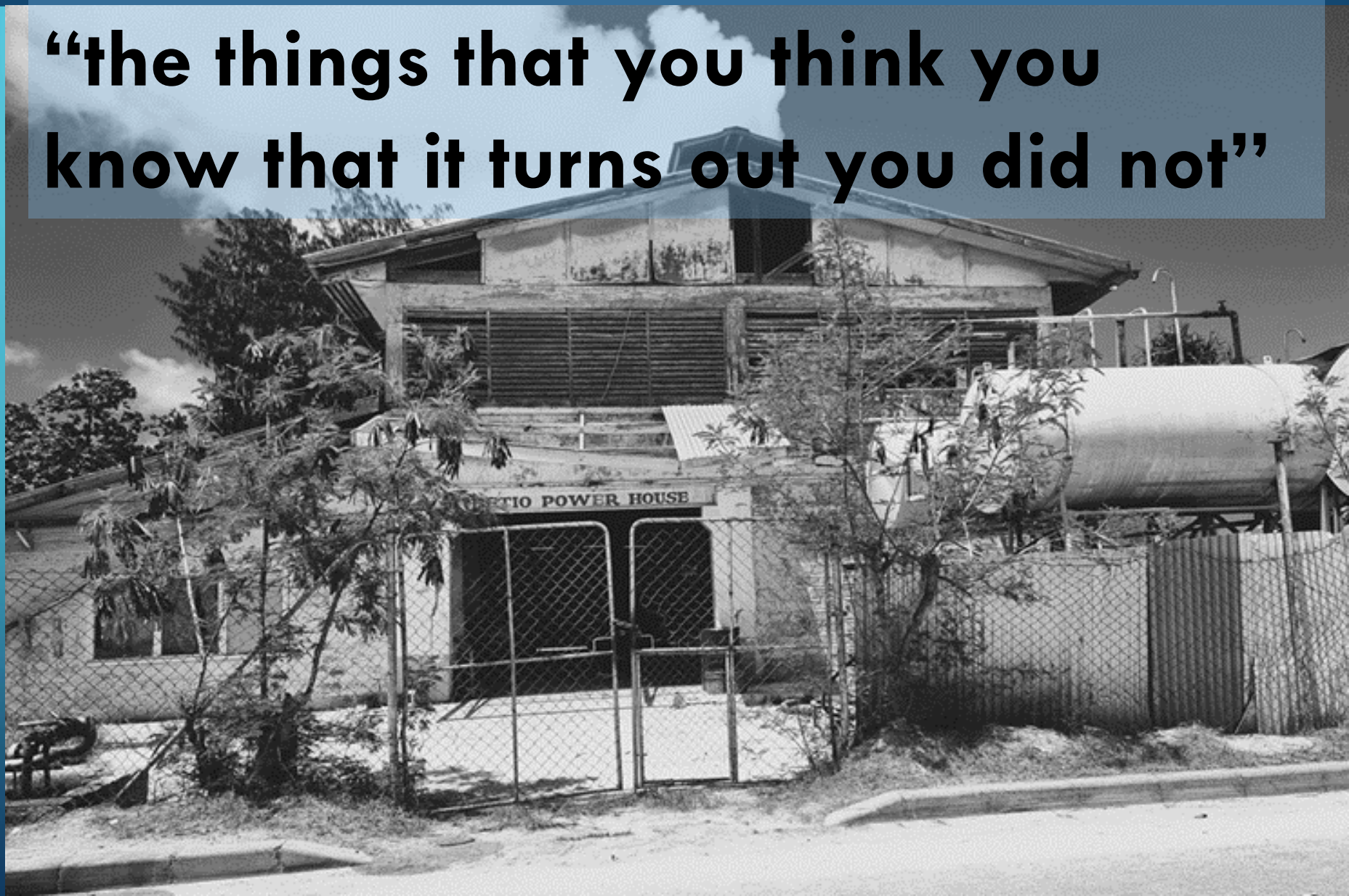
PUBLIC UTILITIES BOARD

# The Unknown Known

**“the things that you think you know that it turns out you did not”**

“...there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns — the ones we don’t know we don’t know.”

— Donald  
Rumsfeld



# KIRIBATI & PUB

PUB provides electricity, water, and sewerage for South Tarawa  
PUB is the Monopoly Water, Sewerage and Power provider since 1977. PUB has approx. 200 staff.

## KEY ECONOMIC DEMOGRAPHIC ISSUES

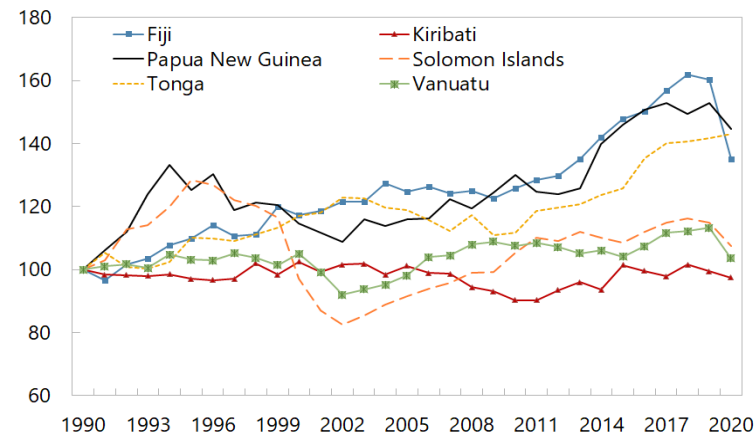
TB/ Leprosy / Diabetes amongst the highest in the world  
Life expectancy— 56 yrs males; 63 females;  
73% of people do not have access to safe drinking water  
Years of loadshedding  
Flat GPD per Capita for the last 30 years (Population Growth & Poor Utility Services)



Around **22%**  
people live below  
the basic needs poverty line\*

\* provisional estimate

Transition of GDP per Capita in Selected Pacific Islands  
(Index, 1990=100)



Source: IMF, World Economic Outlook.



## KEY STATISTICS

**65,000 population approx.**

Total pop'n Sth Tarawa

**5%**

Annual ave pop'n growth - last 30 years on Sth Tarawa

**92.69%?**

Electrification on South Tarawa for 9444 households. 8754 PUB customer connections

**5.59MW?**

Peak demand on record at PUB





# Back-to-Back Best Customer Services Utility in the Pacific?



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## PUBLIC UTILITIES BOARD SERVICES

The principle responsibilities of PUB are to deliver the following services to the population on South Tarawa



### ELECTRICITY

Supplying and distributing electricity to customers from Betio to Nabeina



### WATER SUPPLY

Supplying and distributing water to its customers at Betio to Buota through the water distribution system



### SEWERAGE DISPOSAL

Operating and maintaining the sewerage system existing at the major villages Betio, Bairiki and Bikenibeu only.

# Key Issues

## 1 INSOLVENCY & FINANCIAL MANAGEMENT

Negative Bank Balance, insufficient cash to operate, opaque financial reporting

## 2 WEAK GOVERNANCE AND RISK MANAGEMENT

No internal risk management, poor compliance with legislation and weaknesses at both management and Board level. Keen workforce, without tools, skills or training to properly deliver utility services.

## 3 EXTENSIVE ASSET FAILURE

Unable to meet peak demands, continuous load shedding for years and almost a complete inability to supply water

## 4 ASSET PLANNING

Unknown demand projections, projects that don't link or are impaired on completion (STWSP/STREP)

# Financial Management



Last audited Financial Statements 2019 (Late 2022 – not financial reports have been provided since)

- Unable to verify of fixed asset balances,
- Uncollectable trade debtor balances and inadequate provision for doubtful debts,
- Other receivable balances (including staff debtors) that are uncollectable,
- Verification of prior period items,
- An inaccurate CashFlow statement,
- Incorrect provision for trade creditors,
- Verification of CSO/subsidy received,
- Verification of payroll for specific months,
- Procedures for purchasing and procurement.

“Never in my career have I seen such a complete failure of corporate controls and such a complete absence of trustworthy financial information as occurred here” John Ray III FTX

No reported a profit since 1977

Overdraft facility for at least 10 years -\$500k Balance

20 disconnected excel spreadsheets containing data back to 1977

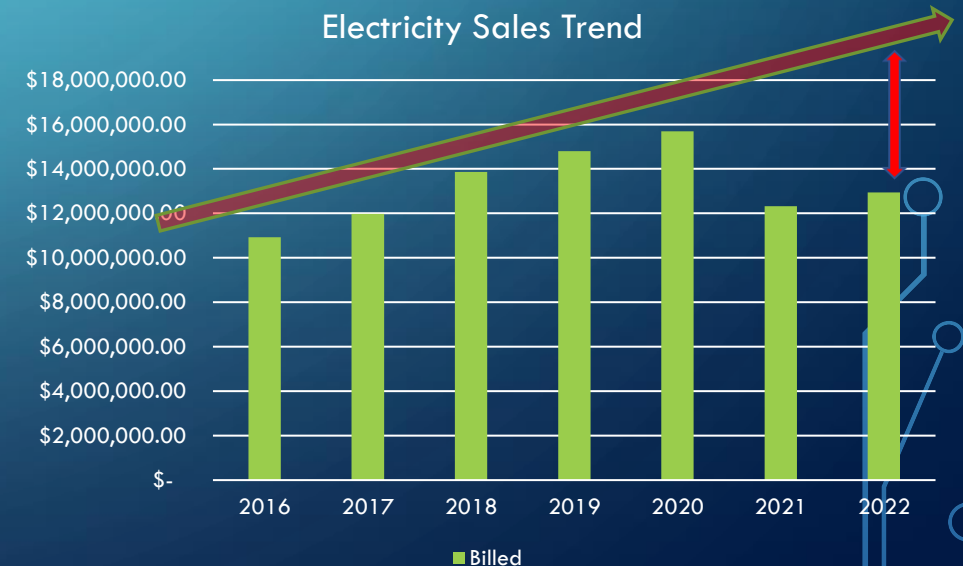
Effort put into Measuring Accumulated Profit/Loss since 1977

Sizeable Government debts to PUB \$4 Million (disputed)

Old Debt provision - \$7 Million and new uncollectable debts

Historical debts to National Oil Company (Koil) of around \$7.2 Million

No Tariff Adjustments since 2016



# Financial Recovery Action Plan (FRAP)

## Bank Accounts tell the truth

- Rebuild cash forecasts from the Bank Account
- Unallocated revenues
- Governance Review – Delegations/Approvals
- Accounting Standards (IFRS)
- Depreciation V Cash Reserves V Debt funding
- Fixed Asset Register – revaluation
- Replacement cost
- Annual Budget for Opex/Capex bottom up

## Capacity & Capability

New International CFO, staff training programme and expert Financial Advisors (TA David Drake, KPMG)

**Tools of trade** - New IMS (Finance, Asset Management, Billing, Prepayment meters)

Review input costs and renegotiate Diesel price

Audited Financial accounts up to date

## Unallocated Revenues

Over statement of Government debts - \$2 Million had been paid to PUB

## Closed Overdraft Facility

Improved profitability and cash position

## New Finance System

Replaces over 20 disconnected spreadsheets

## New Diesel Price – support from GoK

## Creation of Subsidiary for Water business

Water business has largest revenue risks and

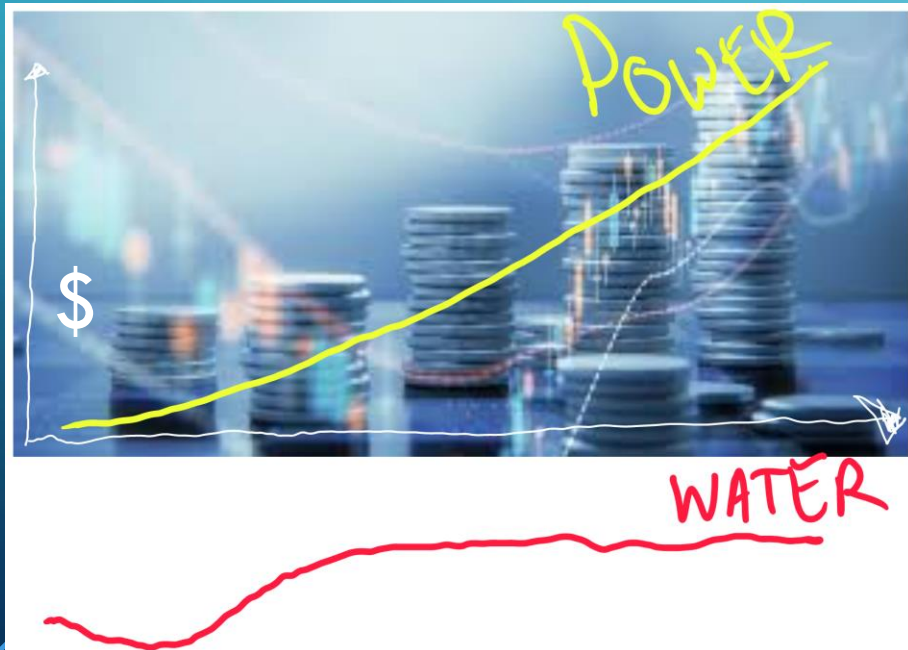
## \$11 Million write down

Located mid-point of the 25km 11kV u/g cables between Bikenibeu PS & Betio PS



# Tariff Structure and Fiscal Performance

Customer	kWh Usage	AUD \$ Per kWh
Domestic	100	0.100
	300	0.400
	Above	0.550
Commercial		0.550
Industrial		0.700
Government		0.700
SOE		0.700



Financial Highlights (\$ '000)	2019	2020	2021	2022	Six Mth To Jun'23
Revenue	16,501	17,306	16,033	16,503	8,334
Net Profit After Tax	(630)	(420)	(1,099)	(226)	529
CSO payments / subsidies / grants	1,282	1,230	1,550	1,449	700
Total Assets	40,860	39,495	38,981	25,333	32,405
Total Liabilities	2,325	2,483	2,021	503	4,202
Shareholders' Equity	38,535	37,012	36,859	24,829	28,203
ROE %	(2%)	(1%)	(3%)	(1%)	2%
ROA %	(2%)	(1%)	(3%)	(1%)	2%
Debt / Equity	neg	neg	neg	neg	neg
Current Assets / Current liabilities	3.4:1	3.4:1	7.5:1	7.5:1	2.5:1

## Tariffs and Revenue

- 80% Customers on lifeline tariff
- Equity a key consideration of tariff structure
- Water/Sewerage runs at considerable loss – subsidized by GoK
- New Water Project (\$85 Million USD) Unknown revenue or collections
- Expected to run at considerable operating loss
- Power business has strong fundamentals
- PUB considering a cheaper day rate for power

# Issues with Asset Planning

## PROPOSED DONOR RE PROJECTS:

### 1. South Tarawa Renewable Energy Project I (STREP I)

**7.5MW** PV power plant with 13.5 MW Battery Energy Storage System (BESS) installed on Bonriki Water Pump Station grounds and connected to the 11kV network.

### 2. South Tarawa Renewable Energy Project II (STREP II)

- 4MW Floating PV installed at Betio
- 33kV subtransmission network with 33/11kV Substations at Betio, Bikenibeu, and Bonriki.

### 3. South Tarawa Water Supply Project (STWSP)

2MW PV power plant with 2.2MW Battery Energy Storage System installed adjacent to STREP I site. \$approx. \$85 Million USD  
6.5MLD Desal

## 6.95MW DIESEL

Installed diesel generation capacity. **Derated capacity of 5.2MW** due to aged assets. 0.75MW at Betio PS and 4.45MW at Bikenibeu PS.

## 1.63MW PV

Installed photovoltaic capacity. **Peak output of 1.24MW**. 500kW at Bonriki Water Pump Station largest installed PV.

## 64.7KM

Total length covered by 11kV distribution underground (u/g) cables on South Tarawa.

## 3MW VR

Located mid-point of the 25km 11kV u/g cables between Bikenibeu PS & Betio PS





## NETWORK REINFORCEMENT:

### 1. Betio Power Station

- 3x 1.5MW diesel generators
- Demolition and reconstruction of power station to house new 5x 1.2MW diesel generators.

### 2. Bikenibeu Power Station

- 1x 1.5MW diesel generator

### 3. 33kV Sub-transmission Network

- 3x 33/11kV Substations - Betio, Bikenibeu, and Bonriki
- 28km of 33kV overhead lines through South Tarawa

## GRID FEATURES

### 6.95MW DIESEL

Installed diesel generation capacity. **Derated capacity of 4.5 MW** due to aged assets. 0.75MW at Betio PS and 4.45MW at Bikenibeu PS.

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## Betio Power Station – March 2024

MFAT Generators 2.4MW September 2023

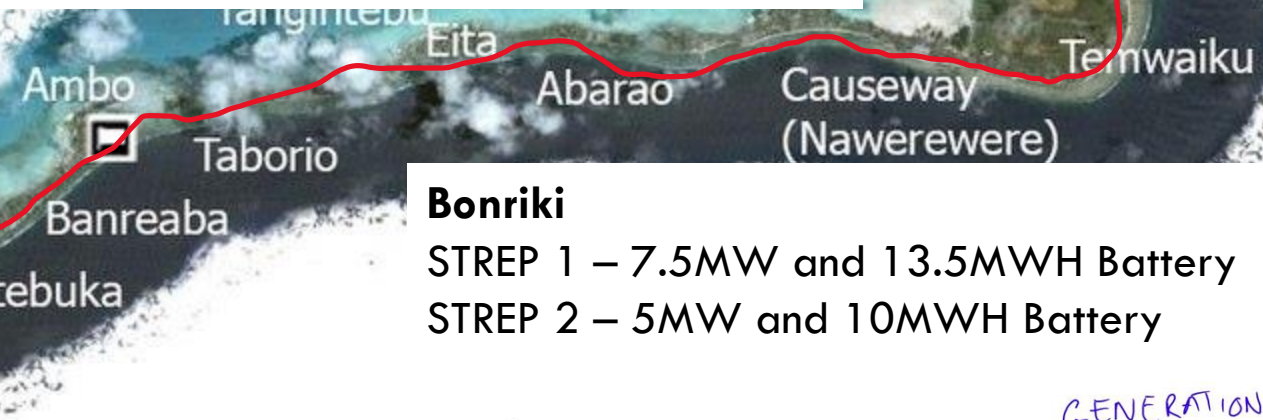
STREP 2: Floating Solar 4MW



## Bikenibeu Power Station

Major Upgrade DG 5 October 2023

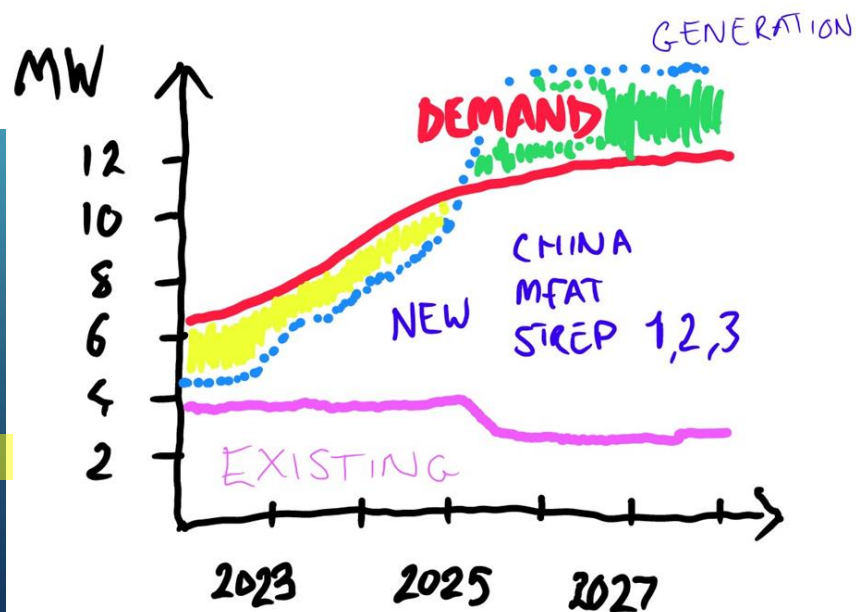
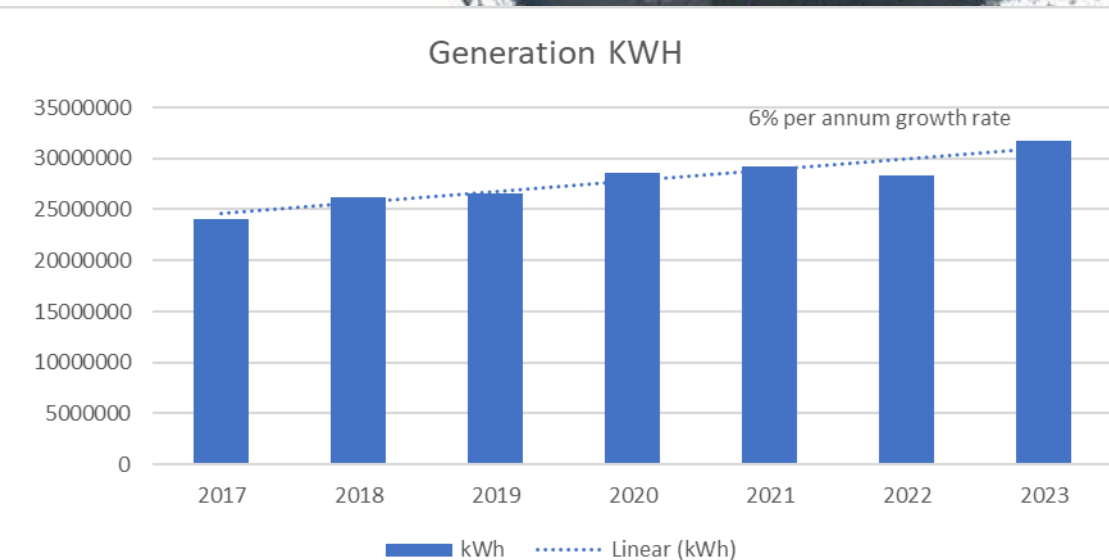
Chinese Generator – Replacement November 2023



## Bonriki

STREP 1 – 7.5MW and 13.5MWH Battery

STREP 2 – 5MW and 10MWH Battery



# Issues with Asset Planning



STWSP – Desal Plans complete 2023/Pipelines complete 2028 – 80% leakage

High Risk that the power network can't accommodate future loads

STREP 1 [7.5MWPV 13.5MWH BESS] (Targeted 44% renewables - come down to around 19% – Forecast growth estimated at 2% : actual rate is > 6%/ 15% for the first half of this year

What is peak demand?

Bring forward projects that were forecast out to 2040

STREP – Voltage limitations in cables impair the asset (3MVA Betio and 1.5MW cable restrictions

33KV upgrade (included in STREP 2 is essential - **45 cents per KW down to around 20 cents**)

**NOT KNOWING OUR OWN PROBLEMS AND MULTIPLE DEVELOPMENT PROJECTS WITHOUT PROPER DUE DILLIGENCE**



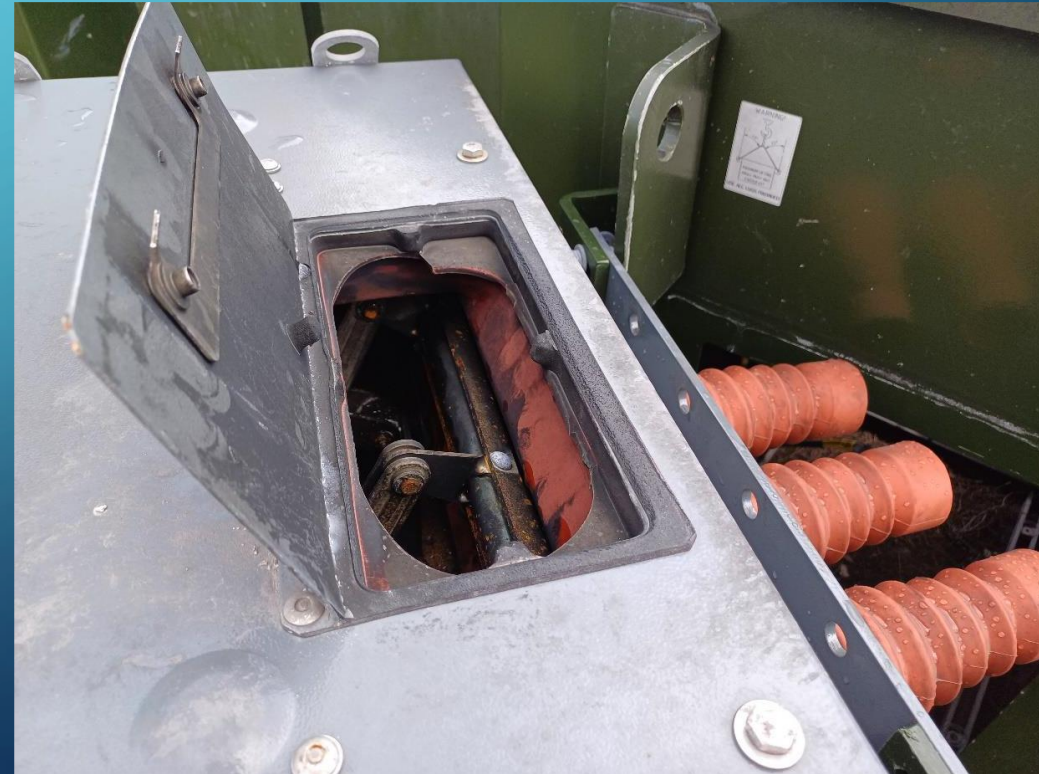
# Governance & Risk Management

Establishment of Risk and Audit Committee  
Board Governance Training  
Board Adoption of Risk Appetite  
**New Energy Act 2022**

National Safety Standards  
Technical Standards  
Established Energy Regulator  
Tariff adjustment mechanism

Safety Policy  
Diversity Policy  
Women Friendly Policy

Example of Failed Schneider 'Ring Master' SF6 RMU – Arc Flash  
Vent Operated.



# Asset Failures

DG No.	Maker	Risk Ranking
3	<b>Daihatsu</b> Installed Capacity: 1400 Derated Capacity: 1000	High Risk
4	<b>Daihatsu</b> Installed Capacity: 1400 Derated Capacity: 1250	High Risk
5	<b>Daihatsu</b> Installed Capacity: 1400 Derated Capacity: 1250	Critical Risk
6	<b>Cummins</b> Installed Capacity: 823 Derated Capacity: 400	Failed
7	<b>TidePower</b> Installed Capacity 1500 Derated 1200	Failed



## Overloaded Transformers

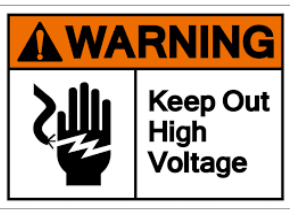
Year	Total Loaded	GREEN	AMBER	RED	Total Overload	GREEN	AMBER	RED	Total Overload
2020	66	49	3	14	25.8%	46	6	14	30.3%
2030	70	43	7	20	38.6%	42	8	20	40.0%
2040	74	34	7	33	54.1%	34	7	33	54.1%

\*Green Zone < 80%, Amber Zone > 80% & <100%, Red Zone > 100%, Total Overload > 80%





# PUB Projects/Planning



- Increased water storage so we can operate at maximum capacity during daylight hrs – using PV
- Connecting our 2 power stations to the 33KV Line
- Capacitor Banks
- 11KV distribution line needs upgrading
- Transformers SF6 Gas
- PowerStation – Battery Bank in Betio 4MW Diesel Generation Capacity
- Self funding – rooftop and batteries to Government buildings and PUB Owning the assets (\$600K AUD – equity issue with 90% customers on lifeline tariff)
- 14000 pre-payment meters and new meter boxes with RCD's
- **Household upgrades in electrical safety**
- Trialing hydrogen injection and biofuel – copra if our diesel gensets
- .Optical Fibre – connection RE & Power stations
- Network protection and breaker switches 11KV





The background is a blue gradient with decorative white circuit-like lines in the corners. These lines consist of straight segments and small circles, resembling a stylized electronic circuit board.

THANK YOU