EQUITY BACKUP CALL-OUT REPORT

16th NOVEMBER 2024

1. Site Details

Site: Equity Bank Sololo Branch

Region: Eastern

Contact: WILIAM - 0717917926

2. Equipment on Site on arrival

Equipment	Quantity	Serial Number	Equity Tag Number	Status
Victron Inverter battery charger(2000w)	1	HQ2044M91FJ	EQ310696	Functional
Victron Inverter (BlueSolar Grid inverter 2800W, 230v)	1	N/A	EQ321481	Functional
Venus GX	1	HQ2042Q8Q5E	N/A	Functional
Lead Acid Batteries (12v 200Ah)	6	N/A	EQ386315 EQ386493 EQ386417 EQ386402 EQ306403 EQ386404	Faulty
Solar Panels (235W)	9	N/A	N/A	Functional
Voltage Regulator (ortea sirius)	1	N/A	N/A	Functional

3. Job Description

Check why the backup system is not providing continuous power during transition from KPLC mains to generator power. Also investigate reported low voltage issues during midday operations.

4. Actions taken and Findings

After a complete check of the power system, here's what was found:

1. The batteries are faulty. Tests show the battery cells have significantly deteriorated, meaning they can't hold charge like they used to. This was noted when the batteries were discharging, where the voltage of a battery drops from 13.8v to 11v in less than a minute.
2. The deterioration noted above is as a result of age and continuous cycling. Since the area experiences poor quality power supply, the batteries are often discharged, hence reducing their life cycles.
3. When the system switches between grid power and generator power, there are noticeable power interruptions. This is because the ability of the batteries to store any charge has diminished.

5. Recommendations

To ensure equipment uptime and reduce reliance on the unreliable grid, the installation of a new backup system is recommended. The solar panels in the branch will be used in the new setup. This setup will be comprised of;

- 9pcs*235W solar panels (existing)
- 8pcs*600W additional Solar Panels
- 2 Growatt 5KW inverters
- 2 Megatank 5KWH lithium batteries
- Suntree 63A AVS.
- Geya 63A ATS.

This system will generate power from the solar panels during the day, ensuring that the connected loads are supported and batteries are adequately charged. The grid and generator will act as backup power options for the system.

6. Photos

Figure 1: Victron multiplus compact inverter

Figure 2: Victron blue solar grid inverter

Figure 3: 235W solar panels connected in series

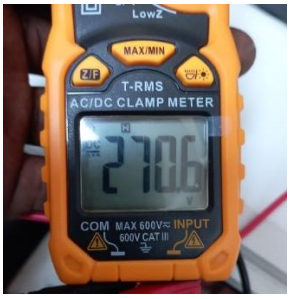

Figure 4: Output voltage of the solar panels

Figure 5: Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 005

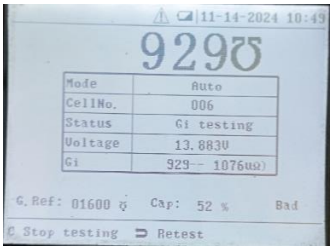

Figure 6: Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 006

Figure 7: Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 004

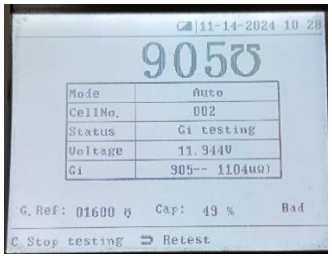

Figure 9: Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 002

Figure 10: Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 001

Figure 11: Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 003

Figure 12: Low voltage reading from the voltage regulator

Figure 8: Current battery setup