

**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**

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| --- | --- | --- | --- | --- |
| 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**

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| Figure : Victron multiplus compact inverter | Figure : Victron blue solar grid inverter |
| Figure : 235W solar panels connected in series | Figure : Output voltage of the solar panels |
| Figure : Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 005 | Figure : Battery Conductance Test Results: Low capacity and degraded performance detected in Cells 006 |
| Figure : 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 : Current battery setup |