

NFE Checkin - August 29th 2026

Agenda

- Fundraising
 - Debt/Asset financing updates - Stanbic
- Q3 goals - Product Goals
 - Metering 2.0
 - Storage 1.0
 - EFRIS integration
- Expanding the team
 - Rajeshwa - Embedded Systems Engineer
 - Chemutai - Accounting
- Customers
 - Pearl Marina - New requirements
 - Lofty Skies -
- PowerAfrica Readiness
- Calin Meters
- Other China Meters

Participants: Aaron Tushabe, Dansturn Kimbowa, Hillary Arinda

1. Power Africa / Nairobi

NFE has received travel support for the upcoming Power Africa/IEEE-related activities in Nairobi. The current support appears to include reimbursement of Uganda-Nairobi bus transport up to **US\$150/person**, accommodation, airport transfers and most meals. The main outstanding question is the approximately **US\$300 conference registration fee**, which was the item NFE had originally hoped would be sponsored.

Aaron's attendance remains tentative because of possible travel restrictions, while Dansturn is expected to attend if possible. The team also discussed the possibility of participating in related activities in Rwanda later in October.

Decision: Continue preparing for Nairobi, but clarify whether registration fees can also be covered.

2. Financing NFE deployments

Aaron reported on his discussion with Stanbic's renewable-energy financing team.

Two financing structures were discussed:

- **Working-capital financing:** requires collateral and is less suitable for NFE's current requirement.
- **Asset financing:** appears substantially better aligned with NFE because the loan can specifically finance solar/battery equipment whose project cash flows repay the loan.

Indicative Stanbic terms are **up to about 15% per annum**, potentially lower for larger transactions, with financing periods potentially extending considerably longer for larger projects.

However, the bank may require:

- audited financial statements;
- evidence of project cash flows;
- project/site due diligence;
- appropriate property/site documentation;
- a qualified/approved EPC or equipment supplier;
- appropriate equipment warranties and maintenance arrangements.

This highlighted an important issue for NFE: procurement, installation and maintenance are currently somewhat separated. For bank-financed projects it may be advantageous to structure these more formally around an EPC relationship with clear manufacturer authorization, installation responsibility and warranties.

For the proposed **~UGX 4 million solar investment at Nansana**, the team estimated repayment at roughly **UGX 190k-200k/month over two years**, depending on the bank's calculation methodology.

The discussion was not simply about obtaining UGX 4 million. The strategic value would be learning the bank's financing process and establishing a financing pathway that could later support much larger deployments such as Pearl Marina.

Dansturn raised the counterargument that debt can encourage progressively larger borrowing and therefore increases risk. Aaron's view was that project-level asset financing can be appropriate where the asset and its project cash flows support the loan and the lender's remedy in a failed project is largely tied to the financed assets.

Working direction: Continue investigating the Stanbic facility rather than dismissing it. The team generally considered 15% potentially workable, although Hillary would prefer a lower rate if one is available.

3. NFE accounting readiness

The financing discussion reinforces the need for NFE's financial records to become audit-ready.

Aaron has started migrating the company's accounting into **Zoho Books** and needs to finish bringing the records up to date before engaging an auditor.

The team also discussed Esther's role supporting the books. Aaron had proposed a **UGX 50,000 monthly stipend**, while Esther asked whether she could receive equity instead.

The existing NFE equity-for-work framework requires roughly **five hours of regular contribution per month**. At the current transaction volume, the bookkeeping work probably does not yet reach that threshold.

Working position: Continue with cash compensation for now rather than allocating equity, while leaving open the possibility of equity if the finance workload grows sufficiently.

4. Nansana battery operation and arbitrage

Hillary raised a concern about whether customer demand could undermine the economics of battery arbitrage.

If customer load exceeds inverter capacity, the inverter may move into bypass/grid operation. This could be particularly important during evening peak periods, when NFE expects battery discharge to reduce grid consumption and improve margins.

The team needs to understand the exact inverter behavior under:

- available grid power;
- available battery energy;
- sufficient battery power capacity;
- but customer instantaneous load exceeding inverter output capacity.

The team also reviewed recent energy summaries and noticed surprisingly little reported battery discharge, despite known instances where the site has operated on battery.

This raises the possibility of a **reporting/algorithm problem rather than an actual absence of discharge**.

Decision: Investigate the battery discharge reporting before relying heavily on the existing daily summaries.

The team also agreed that NFE **does not need to wait for solar installation before testing battery arbitrage**. With grid supply currently relatively stable, this is actually a good opportunity to begin controlled peak-discharge experiments.

5. Phase balancing and low-voltage problem at Nansana

Following the recent phase-balancing work, one customer has reported that high-load appliances such as the microwave/hot plate are not operating properly.

The leading hypothesis is a **loose electrical connection, particularly a neutral connection**, producing acceptable unloaded voltage but excessive voltage drop once significant current flows.

The site technician was expected to visit the site and:

1. tighten/check all relevant terminals;
2. test voltage;
3. have the customer switch on a significant load such as the microwave;
4. verify that voltage remains stable under load.

The recent balancing work has nevertheless significantly improved phase distribution. The approximate phase allocation is now around:

- L1: 28%
- L2: 35%
- L3: 37%

A further meter transfer could potentially move this toward roughly **31/35/34**, but this is not urgent because the current distribution is already substantially better than before.

The additional move requires suitable **16 mm² copper cable**, which is not currently available.

6. Improve the physical meter installation

While reviewing the Nansana installation, the team agreed that the current wiring arrangement is functional but not sufficiently clean or scalable for future commercial deployments.

Particular attention should be given to the RS485/Modbus wiring and the general routing of conductors.

The team discussed developing something more analogous to a **busbar/distribution arrangement** so connections are organized rather than looping and hanging between devices.

Principle: Nansana can remain an experimental installation, but the next installation—particularly Pearl Marina—needs a significantly cleaner and more repeatable hardware design.

7. Pearl Marina engineering proposal

Aaron met with Pearl Marina's engineering/management representatives to understand what would be required for formal approval.

They want a proper engineering proposal showing:

- the purpose of the microgrid;
- locations of batteries;
- proposed solar installation;
- metering architecture;
- electrical integration with existing infrastructure;
- assurance that the installation will not interfere with existing utility equipment;
- assurance that the roof/building will not be damaged.

They also want the proposal and drawings reviewed by a qualified/certified engineering firm.

Multiconsult was mentioned as one firm they already work with and would likely trust.

Dansturn explained that the starting point should be Pearl Marina's existing **as-built electrical/MEP drawings**. These would allow NFE to overlay the proposed system architecture.

For the solar component, NFE also needs the **roof plan**. The roof plan establishes available area, while structural calculations or information from the structural engineer will be needed to determine allowable loading from the proposed panels.

Decision: Prioritize completing the Pearl Marina proposal rather than pursuing the other stalled development immediately.

The second project discussed remains potentially viable but construction has slowed because the developer appears to have funding constraints.

8. Additional embedded-systems engineering support

Hillary described another engineer with skills in:

- C;
- C++;
- embedded systems;
- chip/hardware design.

The team believes this person could be particularly relevant to the IEEE/open-hardware work.

Hillary will introduce him to the material already shared in NFE's IEEE Smart Village collaboration channel, including the previous workshop documentation and NFE's broader **generation/capability roadmap**.

The goal is not merely to have him study individual technical documents, but to understand NFE's direction toward increasingly open, locally maintainable hardware.

9. Calin meters and EnAccess

The team confirmed that NFE no longer has a strong commercial use for the decommissioned Calin meters.

EnAccess is interested in them for MicroPowerManager integration/testing, particularly because Calin meters are apparently used considerably in West Africa.

Decision: NFE is willing to donate the available used meters to EnAccess provided EnAccess covers shipping.

The meters should be clearly described as **used**, and EnAccess should understand that NFE cannot guarantee continued access to Calin's hosted AMI/API.

The broader lesson remains that relying on vendor-hosted APIs creates long-term platform risk. NFE prefers equipment with interfaces that can be accessed directly and independently.

10. Smart Metering Crisis Response opportunity

The team discussed the new OSEA/EnAccess **Smart Metering Crisis Response** initiative following the collapse/distress of major meter providers.

Approximately a quarter-million connections across numerous countries may be affected.

Emergency funding is being used to preserve existing platforms, including attempts to obtain source code and encryption keys so affected operators can continue operating deployed meters.

However, the initiative is also considering what a **long-term, vendor-independent architecture** should look like.

Aaron has already positioned NFE as a potential contributor.

This fits strongly with NFE's Microgrid OS thesis:



Operators should be able to integrate directly with meters through documented interfaces, while the management layer remains open source and self-hostable if necessary.

There may therefore be both a technical collaboration opportunity and potentially access to catalytic funding.

The team should follow the Discord channel and prepare to contribute to the expected September discussions/workshop, potentially in Nairobi.

Q3 progress

The team reviewed the existing Q3 goals and concluded that substantial progress has been made:

- **Metering:** effectively achieved.
- **Outage detection:** operational; NFE can identify when grid power disappears and the system transitions to battery.
- **Battery monitoring/control:** largely operational, although discharge reporting needs investigation.
- **Arbitrage:** technically ready to begin experimental testing.
- **Phase balancing:** substantially improved, with one additional optimization possible.

More operating data is still required before some of these can be considered fully validated.

Action Items

Owner	Action
Aaron	Follow up with Power Africa/IEEE organizers and ask whether the US\$300 conference registration can be sponsored/reimbursed.
Aaron / Dansturn	Continue Nairobi preparations; Dansturn to plan on attending while Aaron's attendance remains tentative.
Aaron	Obtain Stanbic's complete asset-financing requirements/checklist .
Aaron	Finish updating NFE's financial records in Zoho Books .
Aaron	Investigate the requirements/cost of having NFE's accounts audited.

Owner	Action
Aaron	Respond to Esther regarding compensation; current direction is UGX 50k stipend rather than equity at the current workload.
Aaron / Hillary	Investigate the apparent battery-discharge reporting bug in the daily energy summaries.
Hillary / Aaron	Confirm inverter behavior when customer instantaneous demand exceeds inverter output while battery/grid are available.
Hillary / Aaron	Begin planning/testing controlled battery arbitrage / peak discharge without waiting for solar.
Site technician / Dansturn / Hillary	Diagnose the Nansana low-voltage problem: inspect/tighten terminals, especially neutral, and verify voltage under load using the customer's microwave or similar appliance.
Team	Obtain suitable 16 mm² copper cable before completing the remaining phase-balancing move.
Technical team	Develop a cleaner wiring/RS485/bus arrangement for the next-generation meter installation.
Aaron	Request Pearl Marina's as-built electrical/MEP drawings and relevant roof drawings/plans .
Dansturn	Use the Pearl Marina as-built drawings to begin developing the proposed electrical integration drawings once received.
Aaron / Dansturn	Determine what structural information/calculations are required to demonstrate that the Pearl Marina roof can safely carry the solar array.
Aaron	Begin drafting the broader Pearl Marina technical/project proposal around the engineering drawings.
Hillary	Introduce/onboard the embedded-systems engineer to the IEEE/open-hardware work and share relevant workshop/wiki materials plus NFE's generation roadmap.
Hillary	Continue trying to contact the person holding the unused Calin meter inventory.
Aaron	Coordinate donation of the decommissioned Calin meters to EnAccess, with EnAccess covering shipping .
All	Follow the OSEA #smart-metering-crisis-response channel and familiarize yourselves with the initiative before upcoming discussions.
Aaron / team	Develop NFE's position/proposal for how the Microgrid OS/open metering architecture could contribute to the long-term smart-metering crisis response.

Owner	Action
Aaron + Dansturn	Plan an in-person technical working session for Tuesday , including procurement/setup work discussed at the end of the meeting.

Most important priorities before the next weekly meeting

I would reduce the above to **five immediate priorities**: **(1)** resolve the Nansana voltage fault, **(2)** investigate battery discharge reporting and start arbitrage testing, **(3)** get Pearl Marina's as-built/roof drawings and start the proposal, **(4)** obtain Stanbic's financing requirements and make the books audit-ready, and **(5)** develop NFE's concrete contribution to the Smart Metering Crisis Response rather than participating only as an observer.

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