

Finance

How NFE (Watt Works Foundation Limited) manages its money: spending and approval policies, the books in ERPNext, URA tax and VAT, and funding from owners, grants and lenders. Adapted from the GitLab Handbook's Finance section (CC BY-SA 4.0), scaled down for a small team.

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Finance at NFE

Finance at NFE

Owner: Aaron Tushabe · **Last reviewed:** 29 Oct 2026

“ This book is adapted from the [Finance section of the GitLab Handbook](#) (CC BY-SA 4.0), scaled down for a small team. As at GitLab, it describes what we do **now**, not what we hope to do. Anything not yet decided is marked **PROPOSED** or is a stub labelled **Planned**.

Nearly Free Energy (NFE) trades as **Watt Works Foundation Limited**. This page is the front door to NFE's money: who decides, where the numbers live, which rules apply, and where to go next.

Who does what

Area (GitLab equivalent)	At NFE	Who
Accounting and reporting	Books in ERPNext, monthly close	Aaron Tushabe
Review and second approval	Reviews the close; approves Aaron's spending	Hillary Arinda
Tax	EFRIS invoicing and the monthly VAT return	Aaron Tushabe (backup: <i>to be named</i>)
Tax review and year-end	VAT review, annual return, year-end adjustments	External accountant
Investor relations	Funders, grants and owner capital	Aaron Tushabe

Where the numbers live

- **ERPNext** is the system of record for every figure: balances, invoices, fixed assets and profit and loss by site (cost centre). This book holds the rules, decisions and how-tos. It links to ERPNext and **never copies balances**.
- **EFRIS** and **eTax** (URA) hold fiscal invoices and filed returns.

- **Nextcloud, Accounting folder** holds source documents: receipts, bank statements, URA acknowledgements.
- **Open Collective** (opencollective.com/nfe) is history only. It was replaced by ERPNext in Oct 2026; see [the migration record](#).
- TINs, bank account numbers, signatories and logins **never go in the Library**. They're in the password manager.

Financial year

1 July to 30 June, named for the year it ends: **FY27** = 1 Jul 2026 – 30 Jun 2027.

Quarter	FY27 dates
Q1	1 Jul – 30 Sep 2026
Q2	1 Oct – 31 Dec 2026
Q3	1 Jan – 31 Mar 2027
Q4	1 Apr – 30 Jun 2027

Refresh this table each July, when the policy register below is reviewed.

Policy register

Policies are **controlled**: they change only with both owners' sign-off, recorded as a dated line on the page. Every other page in this book is a procedure that whoever does the work can edit.

Policy	Owner	Status	Last reviewed	Next review	Summary
Fixed assets and depreciation policy	Aaron Tushabe	Approved	29 Oct 2026	Jul 2027	What gets capitalised and how it's depreciated (URA rates)
Spending and approvals policy	Aaron Tushabe	Planned	–	–	Who approves what, quotes, receipts, no self-approval
Chart of accounts change control	Aaron Tushabe	Approved	29 Oct 2026	Jul 2027	Who can add accounts and cost centres

Policy	Owner	Status	Last reviewed	Next review	Summary
Access Management Policy (Security)	–	Approved	see page	see page	Who gets access to ERPNext, EFRIS and eTax

Where to send things

You have...	Send it to
A supplier invoice or receipt	Aaron, in the Nextcloud Accounting inbox folder
A customer billing question	Aaron
A request to spend money	An owner, only once it's complete : the quote or receipt, the site (cost centre) and what it's for
A question about a rule in this book	Comment on the page

Transparency

NFE works in the open ([Transparency by Default](#)). Finance pages in this book can be read by all contributors. Personal data and credentials stay out.

What's in this book

- **Policies:** the controlled rules for spending and capitalising money.
- **Accounting:** how the books are kept in ERPNext, the migration record, and the monthly and year-end close.
- **Tax and URA:** EFRIS invoicing, the monthly VAT return, and NFE's other URA obligations.
- **Funding:** funders, term sheets, grant applications, the capital target, and how owner and grant money is recorded.

Related glossaries: [NFE Commercial RPM Finance Glossary](#) and the [Team glossary](#).

About this book

Please improve it: edit any procedure page directly, or ask Claude to update it using the NFE Library skill. To change a policy, propose the change in a page comment and get both owners' sign-off.

Policies

The rules for approving, spending and capitalising NFE money. Changes need both owners' sign-off. Adapted from GitLab's Spending Company Money, Authorization Matrix, Expenses and Capital Assets policies.

Fixed assets and depreciation policy

Fixed assets and depreciation policy

Owner: Aaron Tushabe · **Approved by:** Aaron Tushabe and Hillary Arinda · **Last reviewed:** 29 Oct 2026 · **Next review:** Jul 2027 · **Controlled policy**

Adapted from GitLab's [Capital Assets Policy](#) (CC BY-SA 4.0).

Purpose

To make sure equipment NFE buys for its microgrids is recorded as an asset and depreciated, so the books show what NFE owns and match what URA allows for tax.

Scope

Equipment and works bought by Watt Works Foundation Limited for its sites (Sezibwa Homes, Kyanja Town Homes, Pearl Marina and future customer sites) and for NFE Operations.

Policy

What is capitalised

- **Capitalisation threshold:** UGX 1,000,000 and a useful life over 12 months. Items below the threshold are expensed.
- **Bulk rule:** everything bought for one site build is capitalised together, even if individual items are below the threshold.

- **Costs included:** the purchase price plus everything needed to get the equipment working: installation labour, inspection and connection fees, wiring certificates, and civil works such as equipment shelters.
- **Not capitalised:** testing and prototyping hardware (for example Raspberry Pis and metering samples). These go to 5228 Research and Prototyping.
- **Deposits for goods not yet delivered** aren't assets. They go to **1652 Supplier Deposits Recoverable** until the goods arrive or the money is refunded.

Categories and depreciation rates

NFE follows **URA capital allowance classes**, so the books match the tax return.

ERPNext asset category	What's in it	Method	Rate	URA basis
Microgrid Equipment (URA Class 3)	Inverters, batteries, distribution, wiring, meters	Written Down Value (reducing balance), posted yearly on 30 Jun	20%	Class 3 catch-all. Electricity generation isn't farming, manufacturing or mining, so Class 2 doesn't apply.
Buildings and Shelters (5% straight-line)	Equipment shelters and other civil works	Straight line, 20 years	5%	Industrial building allowance

To confirm with the accountant:

☐ The Class 3 / 20% placement for microgrid equipment. Networked smart meters could arguably be Class 1 (40%).

☐ Whether the shelter qualifies as an industrial building. If it doesn't, it gets no tax allowance, but it's still depreciated in the books.

- First year: ERPNext pro-rates by months in use, while URA gives a full year on assets held at year end. The accountant adjusts the first year on the return.

Sites that aren't live yet

Costs for a site under construction go to **1790 Capital Work in Progress**, under the site's cost centre. On the commissioning date, the balance becomes an asset record and depreciation starts.

Asset records in ERPNext

Every asset record needs: the item (**Microgrid System** or **Equipment Shelter**), the site's cost centre and location, the purchase date, the in-use date, and the supplier. Where there are serial numbers (inverters, batteries) and warranty end dates, add them to the asset's description.

Example: [ACC-ASS-2026-00001](#), Sezibwa Phase 1.

Depreciation posting

ERPNext posts depreciation automatically each 30 Jun from the asset's schedule. Checking that it posted is part of the year-end close.

Disposal and loss

A failed battery, theft or a warranty swap is recorded in ERPNext as a scrap or sale of the asset, with evidence (photo, police report, warranty or insurance claim) attached. Keep asset invoices for as long as the accountant confirms URA requires.

Exceptions

Date	Exception	Approved by
29 Oct 2026	Capitalised the Sezibwa build-out after it was first expensed during the Open Collective migration (see migration record)	Aaron Tushabe

Change log

Date	Change	Who
29 Oct 2026	Capitalisation threshold of UGX 1,000,000 approved (no longer PROPOSED)	Aaron Tushabe and Hillary Arinda
29 Oct 2026	Policy created: URA-based rates, asset categories, CWIP for unbuilt sites, deposits recoverable	Aaron Tushabe

Spending and approvals policy

Spending and approvals policy

“ **Planned: not yet written.** Owner: Aaron Tushabe. Trigger: Aaron and Hillary agree the UGX approval bands, before Kyanja procurement starts.

Will be adapted from GitLab's [Spending Company Money](#) and [Authorization Matrix](#) (CC BY-SA 4.0).

What this page will cover:

- **Approval matrix:** for each type of transaction (purchase or supplier contract, customer agreement, payment release, write-off or credit note, grant or loan application, URA filing, owner withdrawal), who approves it at each UGX band. **PROPOSED bands:** below X, either owner; X to Y, either owner plus a note on the ERPNext document; above Y, both owners.
- **No self-approval (PROPOSED):** Hillary approves Aaron's spending and Aaron approves Hillary's. An owner never approves a transaction they benefit from.
- **Quotes:** 2 or 3 quotes depending on the band, attached in ERPNext. A signed agreement before work starts on site.
- **Receipts and expense claims:** an EFRIS fiscal receipt with the supplier's TIN wherever possible; a note when a receipt is missing.
- **Payments:** pay only real invoices, and phone to confirm any change of supplier bank details.
- **Owner-paid spending:** recorded against Owner's Capital (3110/3120).

Accounting

How NFE keeps its books in ERPNext: the migration record, chart of accounts and cost centres, and the monthly and year-end close. Adapted from GitLab's Accounting and Reporting pages.

Open Collective ? ERPNext migration: decisions and status

Open Collective ? ERPNext migration: decisions and status

Owner: Aaron Tushabe · **Last reviewed:** 29 Oct 2026 · Part of the [Finance book](#) · **Company in ERPNext:** Watt Works Foundation Limited (base currency UGX, financial year 1 Jul – 30 Jun)

This page records how NFE's accounting history moved from Open Collective (opencollective.com/nfe) into ERPNext, and every accounting decision made along the way. Check here before changing any of the migrated entries.

Where things stand

Item	Status
Migrated history	140 journal entries submitted, ACC-JV-2026-00001 to 00140
Watt Works UGX bank account (1220)	1,531,613 UGX at 12 Oct 2026, matching the bank statement exactly
Open Collective Funds clearing account (1210)	0 USD / 0 UGX , cleared at cut-over on 13 Jul 2026
Owner's Capital – Aaron Tushabe (3110)	44,141,363.38 UGX
Owner's Capital – Hillary Arinda (3120)	3,588,210 UGX
Equipment capitalised as fixed assets	14 reclassification entries (ACC-JV-2026-00141 to 00154) and 4 asset records (29 Oct 2026)

Still open:

- ☐ **VAT:** the accountant is reviewing how VAT payments are treated against output VAT. VAT payments are currently debited to the VAT account.

- ☐ **Depreciation for FY 2025-26 (30 Jun 2026):** ERPNext's daily scheduled job should post this. It hadn't posted by 29 Oct 2026. Check Journal Entry → type "Depreciation Entry". If nothing appears, the scheduler may be switched off on the server.
- ☐ **Bank reconciliation:** clearance dates haven't been set in ERPNext yet.
- ☐ **Generator deposit:** chase the supplier for the refund (see decision 4).

Finding a migrated entry

Every migrated journal entry's **User Remark** starts with its source:

Key	Meaning
[OC-<id>]	An Open Collective transaction (its Open Collective ID)
[BANK-<line>]	A UGX bank-statement line with no Open Collective entry
[OWNER-n]	Paid personally by Aaron, in neither Open Collective nor the bank
[CUTOVER-n]	The two 13 Jul 2026 entries that cleared the Open Collective account
[RECLASS-<entry>]	Moves an original expense entry into fixed assets, a deposit or work in progress

ACC-JV-2026-00001 to 00006 were the approved test batch. Their remarks say "TEST" instead of a key.

Source files

These stay with the finance files in Aaron's Accounting folder (Nearly Free Energy drive, Accounting/migration/):

- **OC to ERPNext mapping.xlsx:** every transaction with its account, cost centre, BoU rate and UGX amount, plus the bank reconciliation check and the cut-over sheet.
- **bou_usd_ugx_rates.csv:** the 54 daily Bank of Uganda rates used.
- The Open Collective all-time CSV export and the UGX bank statement CSV (19 Apr – 12 Oct 2026).

Decisions

1. Real money accounts and the Open Collective clearing account

- **Watt Works UGX bank account (1220):** the company's local account. All company cash now sits here.
- **Wise USD account (1230):** stays in use from now on, starting at zero. Before the migration it also carried other business, so its history wasn't used.
- **Open Collective Funds (USD) (1210):** a temporary clearing account. All Open Collective history before 19 Apr 2026 was posted against it. It stood for company money wherever it actually sat.
- **19 Apr 2026, when the bank statement starts:** the bank's opening balance of 3,661,171 UGX moved from the clearing account into the bank account. After that date, anything on the bank statement was posted to the bank at the bank's actual UGX amount, with Open Collective supplying the description and category.
- **Cut-over, 13 Jul 2026.** The Open Collective balance turned out to be in the UGX bank, so the USD 211.75 left in the clearing account didn't correspond to cash anywhere. Two entries cleared it:
 - USD 211.75 (780,043 UGX at BoU 3,683.79) to **5228 Research and Prototyping**, NFE Operations. This is probably testing hardware such as Raspberry Pis that was never recorded in Open Collective.
 - 787,587 UGX to **5219 Exchange Gain/Loss**. This difference built up because USD flows were converted at different daily rates.
- **Expenses Aaron paid personally that Open Collective already counted** as part of his contributions went through the clearing account like everything else. Posting them again against equity would count them twice.

2. Transactions found only on the bank statement

These May–June 2026 payments aren't in Open Collective:

Date	UGX	What	Party	Cost centre
21 May	5,001	Refund of a test "customer" payment (the test inflow is in the 19 Apr opening balance)	Aaron Tushabe	Main (posted to owner's capital)
5 Jun	88,500	UEDCL inspection, new three-phase grid connection	UEDCL	Kyanja Town Homes
6 Jun	1,000,000	Battery/inverter shelter civil works (part payment)	MOTECH Constructions Solutions Limited	Sezibwa Homes
7 Jun	80,000	Electrician's wiring certificate	Hats Engineering Works Limited	Kyanja Town Homes

Date	UGX	What	Party	Cost centre
9 Jun	118,000	UEDCL inspection, new three-phase grid connection	UEDCL	Pearl Marina
11 Jun	500,000	Battery/inverter shelter civil works (final payment)	MOTECH Constructions Solutions Limited	Sezibwa Homes

Other rules for bank-only lines:

- **Transfer charges and fees:** each payment's mobile-money transfer charge and excise duty go to 5221 Bank Charges, under the same cost centre as the payment. The monthly 25,000 UGX management fee and its excise go to NFE Operations.
- **"Contributions from NFE Business"** (Oct 2025 – Jan 2026 in Open Collective) and the bank's monthly inward RTGS deposits are **electricity sales from the Sezibwa Rentals pilot**, NFE's only sales so far. They post to 4110 Sales, Sezibwa.
- **Daphine Nabwami's stipend:** Daphine was the onsite microgrid manager, paid 50,000 UGX/month from Sep 2025 to about Jun 2026, when the onsite work was largely automated. The Sep and Oct 2025 stipends were paid from Aaron's personal account and aren't in Open Collective. They're posted as expense against Aaron's owner's capital.

3. Owner contributions are owner's equity

These go to owner's equity, never to income and never to be repaid:

- **Aaron Tushabe (3110):** the \$10,000 contribution (Dec 2024), the \$1,782.86 contribution (Oct 2025), the \$35 monthly Stripe contributions, and expenses Aaron paid personally that aren't in Open Collective. The 5,001 UGX test refund reduces it.
- **Hillary Arinda (3120):** a \$1,000 contribution (Jul 2025), in a separate account.

Contributions from anyone else, such as Energy IoT Open Source (\$2,800, Apr 2026), are **grant/donation income** (4230 Grants and Donations).

4. Equipment is capitalised and depreciated on URA rates

Decided 29 Oct 2026. This replaced an earlier decision to expense all pilot-site equipment.

What's capitalised. Everything first posted to 5130 Microgrid Equipment and Installation, about 28.7M UGX, has moved out of expenses. That includes installation labour, inspection fees and certificates, because they were needed to get the equipment working. The original entries are unchanged, and a dated [RECLASS-...] entry moves each one:

Asset (ERPNext)	Cost (UGX)	In use from	Category
ACC-ASS-2026-00001-1 Sezibwa Phase 1	9,883,771.96	30 Sep 2025	Microgrid Equipment (URA Class 3)
ACC-ASS-2026-00005 Phase 1 Calin meter installation labour (scrapped 31 Mar 2026)	2,001,841.38	30 Sep 2025	Microgrid Equipment (URA Class 3)
ACC-ASS-2026-00002-1 Sezibwa Phase 2: inverter and batteries	9,209,385.83	31 Jul 2026	Microgrid Equipment (URA Class 3)
ACC-ASS-2026-00003-1 Sezibwa battery/inverter shelter (MOTECH)	1,500,000	31 Jul 2026	Buildings and Shelters (5% straight-line)
ACC-ASS-2026-00004-1 Sezibwa tenant meters (2) DDSU666, Green Volta INV-000057	348,926.03	21 Jan 2026	Microgrid Equipment (URA Class 3)

Changes on 30 Oct 2026. Records 00001–00004 were cancelled and re-issued with -1 names. Phase 2 and the shelter moved from 30 Jun to 31 Jul 2026, when Phase 2 went live. The INV-000057 meters turned out to be tenant meters, so they stay assets and moved to Sezibwa from 31 Mar 2026. The Calin meter installation labour came out of Phase 1: see [Write-off of the Calin meter installation labour \(31 Mar 2026\)](#).

Not assets:

- **Kyanja (168,500) and Pearl Marina (118,000):** those sites aren't live yet, so these costs sit in **1790 Capital Work in Progress**. When a site goes live, move its balance into a new asset record.
- **Perkins 60kVA generator + 10 Wi-Fi smart meters (5,467,711 UGX, Jun 2025):** a partial deposit of about 10%. Nothing was delivered, because NFE dropped diesel to focus on solar, and the supplier hasn't refunded it. It's tracked as **money owed to NFE in 1652 Supplier Deposits Recoverable**. Write it off to expense only if recovery is abandoned.
- **Metering samples and testing hardware** (Raspberry Pis, etc.) stay as expenses (5228 Research and Prototyping).

The rules (what's capitalised, URA-based rates, recording new site equipment) are in the [Fixed assets and depreciation policy](#).

5. Exchange rates

- **Before 19 Apr 2026:** USD transactions were converted at the **daily Bank of Uganda official mid rate** for the transaction date. On weekends and holidays, the last rate

published before that date was used. The rates came from the BoU Data Portal (bou.or.ug → Data → BoU Data Portal → Exchange Rates → Daily).

- **From 19 Apr 2026:** entries that went through the bank use the bank's actual UGX amounts.

ERPNext setup created for the migration

Accounts, cost centres, remark keys and their change log are in [Chart of accounts and cost centres](#)

. VAT questions are tracked in [VAT treatment decisions](#).

Chart of accounts and cost centres

Chart of accounts and cost centres

Owner: Aaron Tushabe · **Last reviewed:** 29 Oct 2026

Adapted from GitLab's [Accounting and Reporting](#) pages (CC BY-SA 4.0).

NFE's books are in **ERPNext** (company: Watt Works Foundation Limited, currency UGX). This page explains how the accounts and cost centres are organised. For balances, open ERPNext; this page never copies them.

Change control

Only Aaron Tushabe (owner) and Hillary Arinda (approver) add or change accounts and cost centres. To request one, comment on this page. Record every change in the change log at the bottom.

Key accounts

Account	Use it for
1220 Watt Works UGX Bank Account	The company's UGX bank account. All company cash.
1230 Wise USD Account	USD held in Wise. Company money only.
1210 Open Collective Funds (USD)	Closed. Clearing account for the Open Collective history; zero since 13 Jul 2026.
1652 Supplier Deposits Recoverable	Deposits paid for goods not yet delivered, or that should be refunded
1711 Microgrid Plant and Equipment	Capitalised microgrid equipment (fixed assets policy)

Account	Use it for
1760 Buildings	Equipment shelters and civil works
1780 Accumulated Depreciation	Built up by ERPNext's depreciation entries
1790 CWIP Account	Capital work in progress: sites not yet live
2160 Customer Advances	Customer deposits received before work is done
VAT	VAT payable and paid
3110 Owner's Capital – Aaron Tushabe	Aaron's contributions, and expenses he paid personally
3120 Owner's Capital – Hillary Arinda	Hillary's contributions
4110 Sales	Electricity sales
4230 Grants and Donations	Grants and donations (not owner money)
5120 Electricity Purchases (UEDCL)	Grid electricity bought from UEDCL
5130 Microgrid Equipment and Installation	Small equipment below the capitalisation threshold
5203 Depreciation	Posted by ERPNext
5219 Exchange Gain/Loss	Currency differences
5221 Bank Charges	Bank, mobile-money and transfer fees, plus excise duty on them
5226 Stipends and Allowances	Stipends, such as the microgrid manager and internet stipends
5227 Software and Subscriptions	Software, domains, hosting
5228 Research and Prototyping	Testing hardware, samples, prototypes

Cost centres

Rule: charge spending to the site or team that owns the outcome.

Cost centre	Use it for
Sezibwa Homes - NFE Pilot	Everything for the Sezibwa microgrid, including its sales, UEDCL bills, fees and equipment
Kyanja Town Homes	The Kyanja site (under construction)
Pearl Marina	The Pearl Marina site (under construction)
NFE Operations	Company-wide operations: registration, software, travel, team costs, monthly bank fees
Main	General: owner contributions and anything not tied to a site

Examples:

- A transfer fee on a payment for a Kyanja inspection goes to **Kyanja Town Homes**, the same as the payment.
- A technician's trip that covers two sites is split between their cost centres in one journal entry.

Remark keys

Journal entries created by a migration or bulk process start their **User Remark** with a key, so they can be searched:

Key	Meaning
[OC-<id>]	Migrated from Open Collective
[BANK-<line>]	Migrated from a bank-statement line
[OWNER-n]	Paid personally by an owner, outside the bank
[CUTOVER-n]	Open Collective cut-over entries
[RECLASS-<entry>]	Moves an earlier entry to a different account

Change log

Date	Change	Why	Who
29 Oct 2026	Added 1652, 1711, the two asset categories, and the Microgrid System and Equipment Shelter items	Capitalising the Sezibwa build-out	Aaron Tushabe
17 Oct 2026	Created bank accounts 1210/1220/1230, owner's capital 3110/3120, 4230, and 5120-5228; cost centres for each site; FY2024-25 and FY2025-26	Open Collective migration	Aaron Tushabe

Month-end close checklist

Month-end close checklist

“ **Planned: not yet written.** Owner: Aaron Tushabe. Trigger: written from the first close of the October 2026 books in ERPNext (early November), alongside the 15 Nov VAT filing.

Will be adapted from GitLab's [Accounting and Reporting](#) pages (CC BY-SA 4.0).

What this page will cover:

- A calendar in working days: invoices and expenses entered, bank and mobile money reconciled, VAT working sent to the accountant, VAT filed by the 15th.
- A reconciliation table: account, who prepares it, and who reviews it (never the same person).
- Closing the period in ERPNext once everything is reconciled.
- A short monthly owners' review: cash, collection rate per site, URA filings on time, and spending against budget per site.
- "Update any Finance page this month changed."

Year-end close and audit readiness (FY2025-26)

Year-end close and audit readiness (FY2025-26)

“ **Planned: not yet written.** Owner: Aaron Tushabe. Trigger: engaging the accountant for the FY2025-26 annual return (due about 31 Dec 2026; confirm the date).

What this page will cover:

- Deadlines, confirmed with the accountant.
- Checking the FY2025-26 depreciation posted on 30 Jun 2026 (still open on the [migration record](#)).
- The Period Closing Voucher in ERPNext.
- Results by site (cost centre), feeding [Surplus Sharing](#).
- What lenders and memberships will ask for (AMDA, bank asset financing), and choosing an auditor.

Write-off of the Calin meter installation labour (31 Mar 2026)

Write-off of the Calin meter installation labour (31 Mar 2026)

Decided and booked 30 Oct 2026. UGX 2,001,841.38 of Green Volta labour for installing the Calin meters came off Sezibwa Phase 1 as at 31 Mar 2026, when those meters were replaced. FY2025-26 expense rose by 1,701,290.95, and FY2026-27 depreciation falls by 340,258.19. This follows on from decision 4 on [the migration decisions page](#).

Why

- The labour was for installing the Calin smart meters at Sezibwa in September 2025. Dansturn paid it, and Open Collective repaid him on 7 Oct 2025: USD 582.00 at 3,439.59 ([ACC-JV-2026-00026](#)). It was capitalised into Phase 1 on 29 Oct 2026 ([ACC-JV-2026-00147](#)).
- At the end of March 2026 the 10 Calin meters were replaced with CHINT DDSU666 meters: the 9 on Green Volta INV-000117 plus one of the INV-000057 pair. The Calin meters are being donated to EnAccess (29 Aug 2026 check-in).
- Under IFRS for SMEs, when part of an asset is replaced, the replaced part's carrying amount comes off and the loss goes to profit or loss (s.17.6, s.17.27–17.30). The [Fixed assets policy](#) has no partial-disposal rule, so this follows the standard.
- Only the labour is affected. The Calin meters themselves were expensed as metering samples on 23 Jun 2025 ([ACC-JV-2026-00012](#), 4,761,522.42 to 5228).

The numbers

UGX, Sezibwa cost centre.

	Before	After	Change
Phase 1 cost in 1711	11,885,613.34	9,883,771.96	–2,001,841.38

	Before	After	Change
FY26 depreciation, Phase 1 (30 Sep 2025–30 Jun 2026)	1,784,470.17	1,483,919.74	–300,550.43
FY26 depreciation, Calin labour (30 Sep 2025–31 Mar 2026)	–	200,732.59	+200,732.59
Loss on disposal, 31 Mar 2026 (5222)	–	1,801,108.79	+1,801,108.79
Total FY26 expense	1,784,470.17	3,485,761.12	+1,701,290.95
FY27 depreciation, 30 Jun 2027	2,020,228.63	1,679,970.44	–340,258.19

Depreciation is 20% a year on the reducing balance (Microgrid Equipment, URA Class 3), with days counted inclusively, the same way ERPNext's schedule works. No cash moved.

What was booked in ERPNext

Step	Record	UGX
Phase 1's original FY26 depreciation cancelled	ACC-JV-2026-00156	1,784,470.17
Phase 1 re-issued without the labour	ACC-ASS-2026-00001-1	9,883,771.96
Calin labour as its own record, scrapped 31 Mar 2026	ACC-ASS-2026-00005	2,001,841.38
Depreciation to 31 Mar 2026 (5203)	ACC-JV-2026-00157	200,732.59
Loss on disposal (5222)	ACC-JV-2026-00158	1,801,108.79
Phase 1 depreciation, 30 Jun 2026	posts on the nightly run of 31 Oct	1,483,919.74

Accountant's answers (30 Oct 2026)

- Derecognise under s.17.6, dated 31 Mar 2026: agreed.
- Method: a separate asset record, then scrapped.
- Tax: add the 1,801,108.79 loss back in the FY2025-26 tax computation. A comment on [ACC-JV-2026-00158](#) says so.
- Auditor note: the Calin meters were expensed as samples in FY2024-25, but they were Sezibwa's production meters from September 2025 to March 2026. This is noted in a comment on [ACC-JV-2026-00012](#).

Approval

Reviewed by Aaron Tushabe. Approved by Hillary Arinda, as relayed by Aaron on 30 Oct 2026.

Hillary: please confirm with a comment on this page so your sign-off is on record.

Tax and URA

How NFE meets its URA obligations: EFRIS invoicing, the monthly VAT return, and the VAT, PAYE, withholding and income tax calendar. Adapted from GitLab's Tax pages.

Monthly URA routine: EFRIS invoices and VAT return

Monthly URA routine: EFRIS invoices and VAT return

Owner: Aaron Tushabe · **Backup:** *to be named* · **Last reviewed:** 29 Oct 2026

Adapted from GitLab's [Tax](#) pages (CC BY-SA 4.0).

Each month NFE issues its electricity bills as fiscal invoices in **EFRIS** and files the **Monthly VAT return** in **eTax**. The return for month M is due on the **15th of month M+1**.

This page is the source of truth for the routine. Claude's `ura-monthly-vat` skill follows it, so to run it with Claude, say "**run the ura-monthly-vat routine**".

Rules

- The taxpayer is **Watt Works Foundation Limited**. "Nearly Free Energy" is the brand only.
- Aaron logs in to EFRIS and eTax himself, and types every CAPTCHA and OTP. Logins are in the password manager.
- Only **one eTax session** at a time. Opening eTax in a second tab logs the first one out.
- Only generate an EFRIS invoice when its gross amount matches the billing PDF total **to within 1 UGX**. If it doesn't, stop and check.
- Aaron submits the VAT return himself.
- Record every FDN (fiscal document number) and the return's acknowledgement number in that month's working notes.

Step 1: Review the month's invoices

Invoices are in the Sezibwa Rentals folder, under `<Month YYYY> Invoices/NFE-YYYY-NNNNN.pdf`. Check each one against the tariff:

Tier	kWh	UGX per kWh, excluding VAT
T1	1-15	250
T2	16-80	779.40
T3	81-150	412
T4	151+	779.40

There's also a service charge of UGX 7,320 a month, and VAT of **18%** on everything. Build a review table (invoice, customer, kWh per tier, taxable amount, VAT, total) and flag anything that doesn't add up.

Step 2: Issue the invoices in EFRIS

In EFRIS, go to Fiscal Document Management → Receipts/Invoices → **Issue**.

1. **Section A:** Branch = Watt Works Foundation Limited; Currency = UGX; Seller's Reference No. = the NFE invoice number.
2. **Section B:** pick the buyer from **Frequent Contacts**. The customer-to-contact mapping is in the working notes. For a new customer, add them as a contact first.
3. **Section C:** add one line per tier, with the kWh from the bill as the quantity, plus the service charge. EFRIS prices include VAT:

Code	Item	Unit	Price incl. VAT
001	First 15 kWh	kWh	295
002	Between 16-80 kWh	kWh	919.69
003	Between 81-150 kWh	kWh	486.16
004	Above 150 kWh	kWh	919.69
005	Service Charge	per month	8,637.60

4. **Section D:** set Payment Mode to **Mobile money**. It defaults to Cash.
5. Check the gross amount against the bill (within 1 UGX), then click **Generate Invoice** and confirm **once**.
6. Note the FDN and verification code.
7. After the last invoice, open **Fiscal Document Inquiry** and confirm the count is right, there are no duplicates, and every invoice is "Valid".

Step 3: File the Monthly VAT return in eTax

1. Go to e-Services → Return → **Monthly Value-Added Tax**. Set the period to the month and choose **Submit Return** (not View Return).
2. eTax prefills sales and purchases from EFRIS **by invoice date**. Invoices issued in month M+1 belong to month M+1's return. **Decision (Sep 2026): file as prefilled**, and never add carried-over invoices by hand.
3. **Sales** tab: set "additional sales to declare?" to **No** (it defaults to Yes). **Purchases** tab: set "dispute prefilled purchases?" to **No** (it defaults to Yes). UEDCL purchase invoices come in from EFRIS automatically.
4. Review Input Tax Allowed, VAT Withholding Credit and the Tax Summary: sales, output VAT, input VAT, net VAT.
5. Aaron submits. Save the acknowledgement (EB...) receipt as `URA_VAT_Return_<Mon><YYYY>_Ack_<ref>.pdf` in that month's Invoices folder.

Step 4: Close out

In that month's working notes, record: the filed figures, the acknowledgement number, the FDNs, which invoices carry over into next month's return, and follow-ups. Then post the VAT payment in ERPNext against the **VAT** account.

Known issues

- ☐ The billing template shows the wrong seller VAT number. It should show the company TIN.
- ☐ Two customers share service address R5.

Other URA obligations

UNVERIFIED: confirm with the accountant.

Obligation	When	Status
VAT return	15th of each month	Filed monthly (this page)
PAYE	15th of each month, once there are salaried staff	Registered Aug 2025; confirm whether returns are due
Withholding tax	When paying suppliers that require it	To confirm
Provisional income tax	During the year	To confirm
Annual income tax return, FY2025-26	About 31 Dec 2026	To confirm with the accountant

Related

- [VAT treatment decisions](#)
- [Roadmap](#): EFRIS integration for billing
- [Battery import cost analysis](#): import VAT and withholding tax (confirm current rates)

VAT treatment decisions

VAT treatment decisions

“ **Planned: not yet written.** Owner: Aaron Tushabe. Trigger: the accountant's VAT review comes back.

A newest-first log of VAT decisions:

Date	Decision	Why	Who
Sep 2026	File the monthly return as prefilled from EFRIS; never add carried-over invoices by hand (routine)	eTax prefills by invoice date	Aaron Tushabe

To be decided with the accountant:

- ☐ How VAT payments made during the Open Collective years are treated against output VAT. They're currently debited to the VAT account.
- ☐ VAT on future commercial tariffs ([Commercial RPMs](#)).
- ☐ Input VAT on site equipment and imports.
- ☐ The VAT position of grants and owner contributions.

Funding

Who funds NFE, on what terms and against what plan: funders tracker, term sheets, grant applications, the capital target, and how owner and grant money is recorded. Adapted from GitLab's Investor Relations and FP&A pages, scaled down.

Fundraising Tracker

Name	Type	Priority	Status	Owner	Remarks
Arinda Family	Recoverable Grant	High	1k Contributed		
Kimbowa Family	Recoverable Grant	High	Offered 1k USD, not yet contributed		
Tushabe Family	Recoverable Grant	High	10k USD Contributed on Dec 1st 2024		Added an addition ~1800 USD in October 2025
Mercy Corp Ventures	Equity	medium	<p>Reviewed the deck in May 2025.</p> <p>While the team liked the community angle, the key concerns were</p> <ol style="list-style-type: none">1. The scalability of the model and2. Tracti on (it's still early) <p>Requested to be added to investor newsletter</p>	Aaron Tushabe	We are no longer pursuing equity funders because as a co-op, we don't have equity to offer.
Energy Sector Management Assistance Program - ESMAP (World bank)	Grant	medium			Co-organises the Global Off-Grid Solar Forum & Expo with GOGLA (see GOGLA row).

Echoing Green Fellowship	Recoverable Grant	high	Submitted on October 7th 2025. Not selected for the 2026 Fellowship.	Aaron Tushabe	2026 Fellows were announced Sept 1, 2026.
EEP Africa (Nordic Development Fund)	Grant	high	Closed for 2025, planning to apply for 2026. Not sure when it opens again Oct 28th 2026: the 2026 call (grants up to €500k, Uganda eligible, applicant registered 6+ months, co-financing required) closed on March 16th 2026 and we missed it. Watch eepafrica.org for the 2027 call, likely early in the year.	Aaron Tushabe	Solarise Africa won a €1M EEP Africa grant for Zambia/Uganda on a similar "reliable power where the grid fails" case (USEA briefing, Oct 20th 2026).
Africa Climate Change Fund	Grant				
African Green Banks (AFBD)	Grant + Debt				
Alliance for Green Infrastructure (AFDB)	Grants + Debt	high	Send an email to info@africa50.com on August 23rd.	Aaron Tushabe	
Beyond the Grid			No open applications yet https://beyondthegrid.africa/funding-rounds/		
US Department of Energy	Grants				

Nithio	Debt		Needs at least 2 years of business to pass loan application	Aaron Tushabe	
Mission 300 (World bank)		low			Focusing on power for remote and off grid communities so no aligned with our early stage objectives
Factor E	Equity				We are no longer pursuing equity funders because as a co-op, we don't have equity to offer.
Kiva.org	Debt				Check back on August 15th
Digital Africa	?		Applied on June 17th 2025. Waiting for Feedback	Aaron Tushabe	
Aquarious Foundation	Grant or Debt		Applied on June 17th 2025. Waiting feedback	Aaron Tushabe	
Start-coop	Grant		Applied on June 18th. We did not qualify because we are not (yet) based in North America	Aaron Tushabe	Expect \$5k to \$50k
LabStart	Grant		Submitted application on July 7th. Not Accepted	Aaron Tushabe	
CataCap	Grant / DAF	medium		Aaron Tushabe	
Mission300	Grant?			Aaron Tushabe	

Energy IoT Open Source	Grant		Pledged 3k by Arila Barnes (founder and CEO)	Aaron Tushabe	Received 2.8k in April 2026
Project Spark EU	Grant	high	Submitted on September 15th 2025 with EnAccess and The Gym Rwanda	Aaron Tushabe	Got feedback on Nov 21st 2025 that we did not meet the eligibility criteria but they didn't elaborate on which criteria
AMAP		medium			
Praxis		High	Submitted on September 20th 2025.	Aaron Tushabe	We did not get in. They thought we were among the top applicants and recommended we apply again next year.
UGEFA		medium		Aaron Tushabe / Dansturn	Requires 2+ years of operations so we would need to apply via green volta
Green Volta	Recoverable Grant	high	Waiting on Budget from NFE to confirm how much they can contribute	Dansturn	
Samuel Tondo	Recoverable Grant	high	Waiting on Budget from NFE to confirm how much they can contribute		

Digital Energy Challenge	Grant	high	Applied to the Tech Accelerator on June 17th 2026 (application 00298). Also started a Partnership application (00076) on June 12th. Followed up with contact@afddigit alenergychallenge.com on Aug 25th; no reply yet. Still no reply in NFE mail as of Oct 28th 2026. Chase again.	Aaron Tushabe	Asked for €150k (€112.5k grant + €37.5k expert support).
D-Prize	Grant	high	Submitted on October 28th 2025. Not selected.	Aaron Tushabe	The 2026 competition is open again (reminder email Oct 12, 2026), so consider reapplying.
MSISV	Grant and Equity	high	Email sent on Oct 16th 2025 to find out when applications will be open again	Aaron Tushabe	
Sunbird AI	Fellowship		They are offering a research program that could help us develop V1 of our autonomous microgrid	Aaron Tushabe	
Sustainable Energy Fund for Africa (SEFA)	Grant	low	No links to getting involved	Aaron Tushabe	
Energy IoT Open Source	Donations	medium	EIoT can service as a fiscal sponsor to receive tax deductible US donations on our behalf.		Need to register a US entity for this
Funding Hope	Crowd funding	medium		Aaron Tushabe	

Develop Ventures	Grant matching	medium	Uganda not eligible right now	Aaron Tushabe	Closes Dec 31 2025
Carbon Credits		low	Initial meeting with Ashaba told us that this is going to be a long lead time option to explore.. at least 7 years before any credits are verified and bankable	Aaron Tushabe	
DRK Foundation		high	Focusses on post pilot, pre-scale. I think we are not yet post pilot	Aaron Tushabe	

IEEE Smart Village (ISV)	Grant (staged seed funding)	high	<p>Intro email sent on Oct 20th 2026 to Abdullateef Aliyu (abdullateef@ieee.org), Africa Regional Working Group, cc smartvillagestaff@ieee.org. Asked whether grid-connected urban microgrids are in scope and requested a call. Waiting for reply; follow up early November if no response.</p>	Aaron Tushabe	<p>First round is usually up to \$25k, with follow-on funding up to \$200k after results. Intake needs a 2-page concept note, lean canvas and 5-year cash flow forecast; the regional group mentors the proposal, then the Project Development Committee reviews it quarterly (6–8 weeks), then a contract is signed (2–4 weeks). Most spend should go to income-generating assets, and the project must cover electricity, education and enterprise. Paid in tranches against progress reports. Met ISV at PowerAfrica Nairobi, Sept 2026.</p>
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GOGLA: Global Off-Grid Solar Forum & Expo (Kigali, Oct 27–29th 2026)	Event / investor matchmaking	high	Dansturn is in Kigali for OSEAS (Oct 26–27th). A free-pass request to Laura Bonilla (l.bonilla@gogla.org, Events), cc Megan Taylor (m.taylor@gogla.org), was drafted on Oct 21st but there's no sign it was sent as of Oct 28th. Full pass is \$1,650 and the expo-only pass is \$50; no budget for either. The local-company investor roundtable is on Oct 29th.	Dansturn / Aaron	Even if we can't attend: sign up for the GOGLA Virtual Pitchbook (seen by investors before and after the forum), and get the 2026 Off-Grid Solar Market Trends Report launched there. GOGLA members get event discounts.
USEA Solar Innovation Challenge & Business Pitch	Pitch / event	medium	Applied on Aug 15th 2026 to pitch the RPM at the USEA National Solar Expo (Aug 26–28th). USEA acknowledged on Aug 20th, but we got no decision despite follow-ups on Aug 20th and 25th.	Aaron Tushabe	Next Expo is Aug 25–27th 2027; ask to be on the pitch list early. Check whether NFE is a USEA member; every weekly briefing pushes membership.
GET.invest Finance Readiness Support	Advisory (technical assistance)	high	Not applied. Runs year-round in rounds; the last round closed on Oct 20th 2026, and feedback comes 6–8 weeks after each round closes.	Aaron Tushabe	Free support for early-stage, locally owned companies: financial model, pitch deck, investor introductions. Apply at apply.get-invest.eu .

EU Delegation to Uganda (Uganda-EU Business Forum)	Investor pitch / EU programmes	medium	The forum ran Oct 20-21st 2026 and we missed the pitch session, which needed a minimum raise of €0.5M. Ministers used it to court EU energy investors.	Aaron Tushabe	Send an intro to Cristina Banuta (Cristina.BANUTA@eeas.europa.eu) framing Garuga plus scale-up as €0.5M+, and ask about EU programmes for Ugandan energy SMEs.
Transforming Energy Access (UK Ayrton Fund)	Grant	medium	No open call found (Oct 2026). The UK extended the Ayrton Fund. Its Beyond-Zero project (locally repairable, expandable storage replacing generators) is led by Acele Africa.	Aaron Tushabe	Watch for calls; explore partnering with Acele Africa.
ASCENT Project Preparation Facility (World Bank / COMESA)	Grant (project preparation) + TA	low	Not eligible yet: needs 3+ years of operations, \$150k+ minigrid revenue, an active financing deal and 20% co-financing. The first cycle closed on Aug 31st 2026.		Grants of \$50k-200k. Revisit in 2027-28.
UECCC Solar Loan Program	Debt (consumer finance via banks)	low	Not explored. Household and business solar credit through participating banks.		Possible way to finance Garuga household connections later.

Recoverable Grant Term Sheet - 50k Example

1. Grantor (Funder):

Green Future Foundation (GFF)

2. Grantee (Recipient):

Nearly Free Energy Co-op (NFE)

3. Purpose of Grant:

To fund the capital expenditure and initial setup of a 20 kW solar microgrid serving 50 households in [Community Name], Uganda.

4. Grant Amount:

\$50,000 USD

5. Disbursement Schedule:

- 40% upfront upon signing agreement
- 30% upon installation of core infrastructure
- 30% upon commissioning and first billing cycle

?? 6. Recoverability Clause (Repayment Terms):

Trigger	Repayment Terms
If the microgrid achieves $\geq$ \$1,000/month in net revenue for 6 consecutive months within 3 years	Grantee repays the full grant amount over 4 years, at 0% interest
If the project is not commercially viable by year 3 (e.g., $<$ \$1,000/month in net revenue)	No repayment is required

Trigger	Repayment Terms
If the grantee secures follow-on grant investment of > \$100,000	Grantee repays full grant or 10% of the investment value, whichever is lower

7. Use of Funds:

- Solar panels, batteries, smart meters, inverters
- Site preparation and installation labor
- Community training and billing setup
- Product development for Microgrid OS

8. Reporting Requirements:

Quarterly reports for 3 years on:

- Energy generated and distributed
- Financial performance
- Number of customers served
- Maintenance issues and resolutions

9. Intellectual Property (IP):

All software or monitoring systems developed under this project must remain open-source and licensed under AGPL or GPL or any other [Free Software license](#)

10. Dispute Resolution:

Mediation first, then arbitration in Uganda under the Uganda Centre for Arbitration and Dispute Resolution (CADER).

Google for Startups Accelerator —Application

1. Applicant Contact Information

1. What is your full name (first and surname)?
 2. Your Business/Company Email Address
 3. What is your role?
 4. Preferred Contact Number
 5. Contact Number Type
-

4. Additional Information

15. Why are you interested in joining this program? How can Google help?

Response:

Nearly Free Energy builds community-owned microgrids to deliver affordable, reliable electricity in underserved communities. Our mission is to lower energy costs while improving resilience through decentralized systems.

As we scale beyond pilots, we are increasingly using software and AI for distribution, forecasting, billing, and reliability. Google can help us accelerate this by enabling scalable microgrid OS development on GCP with advanced analytics and AI.

16. How did you hear about this program?

Response:

LinkedIn startup and AI founder community.

17. If selected, are you interested in participating in possible interviews with local press outlets, as requested?

Response:

Yes.

18. Please list any past accelerator or startup program participation.

Response:

Please list links to any press coverage, awards or nominations.

n/a

<https://enaccess.org/open-source-energy-access-community-showcase-with-aaron-tushabe/>

21. Do you want to receive updates or communication from the Accelerator program about other programs within Google?

Response:

Yes.

5. AI & Technology

22. How is your company primarily leveraging AI?

Response:

We are building AI as an intelligent grid operator for our microgrids—optimizing distribution, forecasting demand, managing battery dispatch, and detecting anomalies. We are also developing agents to automate support, billing, and outage notifications.

23. What are the key 1–3 challenges that your company is facing in adopting AI?

Response:

(1) Limited high-quality real-time energy data; (2) Integrating AI with physical infrastructure and edge devices; (3) Cost-efficient deployment in low-resource environments.

24. What kind of data does your AI model use?

Response:

Energy consumption data; meter readings; system performance data; environmental and load patterns.

25. What data do you use as part of your AI solution?

Response:

Smart meter data, usage logs, battery and solar performance data, and system telemetry.

26. How would you categorize your product?

Response:

AI-enabled energy infrastructure platform.

27. Do you have a dedicated AI team?

Response:

Cross-functional team with growing AI specialization.

28. In 2 sentences, explain what problem you are solving with AI.

Response:

Energy systems lack real-time intelligence to manage distributed supply, storage, and demand, leading to outages and inefficiency. We use AI as a grid operator to optimize distribution, forecast demand, manage storage, and automate customer interactions.

29. AI maturity

Response:

Early production-stage AI with live data pipelines and initial models in deployed microgrids, transitioning toward autonomous operations.

30. What kind of AI does your product use?

Response:

Currently AI-assisted development; roadmap includes predictive analytics, time-series forecasting, and optimization models for demand, dispatch, and anomaly detection.

31. Cloud platform

Response:

Google Cloud Platform (GCP).

33. Which Google products are you using?

Response:

GCP (Compute Engine, Cloud Run, Cloud Storage) and BigQuery.

34. Do you use AI/ML today?

Response:

Yes—AI-assisted development and early data-driven monitoring, with planned rollout of forecasting, optimization, and automated operations.

35. System architecture

Response:

Edge devices (smart meters via RS-485/Modbus) feed data to local controllers, then to GCP (Cloud

Run, Storage). BigQuery supports analytics. We are adding AI for forecasting, anomaly detection, and optimization within a modular microgrid OS.

36. Accelerator goal

Response:

Build an AI-driven microgrid OS that autonomously balances supply/demand, forecasts load, optimizes battery use, and manages operations. This includes agent workflows for forecasting, anomaly response, billing, support, and outage alerts, targeting improvements in uptime, cost/kWh, and customer experience.

6. Traction & Financials

40. Investors

Response:

Founder, friends, and family.

41. MRR

Response:

~\$120-\$150 MRR from a live pilot (~UGX 450,000-550,000/month), with expansion pipeline.

42. Revenue source

Response:

Electricity sales (NFE-owned) plus upcoming SaaS fees and revenue share from partner-owned microgrids.

7. Product & Market

47. Stage

Response:

Live pilot with revenue (10 customers) and active expansion pipeline.

48. Customer

Response:

Primary: developers, landlords, and community operators. End users: residents benefiting from reliable power, automated billing, and improved service.

49. Customers now

Response:

10 paying customers on a live pilot microgrid, with expansion pipeline.

50. Business model

Response:

(1) NFE-owned: revenue from electricity sales; (2) Partner-owned: SaaS fee per connection + % of energy sales; plus maintenance and value-added services.

51. Industry

Response:

Energy / Climate Tech

52. Verticals

Response:

Climate tech; energy infrastructure; smart grids.

53. Company description

Response:

Nearly Free Energy advances energy resilience, reliability, and abundance through community-owned solar and battery-backed smart microgrids. Grid-connected systems improve stability by managing peak load.

54. Problem

Response:

Electricity is unreliable, costly, and lacks real-time intelligence. Peak demand strains grids, while communities lack local control.

55. Solution

Response:

Grid-connected, community-owned microgrids with an AI-driven OS that optimizes distribution, manages peak load, automates operations, and improves reliability and cost.

8. Team

60. Full-time founders

Response:

1

61. Founder

Response: Aaron Tushabe – Co Founder

Hillary Arinda - Co founder

Dansturn Kimbowa - Co Founder

65. Employees

Response: 2

9. Uploads

66. Pitch deck

Response:

[[\]NFE Pitch - Funders.pdf](#)

67. Links

Response:

N/A

68. Photos

[PXL 20251217 100220589~2.jpg](#)

[PENDING]

69. Logo

Response:

[NFE site logo.png](#)

10. Consent

70. Submit

71. Communications

Google.org Impact Challenge: AI for Government Innovation

Nearly Free Energy (NFE) – Draft Application

I. Organization and Submitter Info

1. Organization Name

Nearly Free Energy

2. Country

Uganda (with operations expanding to East Africa and pilot work in the United States)

3. Classification

Social Enterprise

4.a Founded

2024

4.b Annual Budget (USD)

~\$50,000 (early-stage, pilot operations)

4.c Full-time Employees

2

5.a Website

<https://nearlyfreeenergy.com> (or placeholder)

6. Google.org funding before

No

7. Discovery

Social Media (LinkedIn)

8. Primary Contact

Aaron Tushabe – Co-Founder

II. Impact

11. Project Name

AI-Powered Distributed Grid Intelligence for Public Infrastructure

12. Topics

Resilience; Economy (public infrastructure and affordability)

13. Geographic Scope

County / Municipal; National (scalable)

14. Regions

EMEA; North America

15. Stage

Prototype (live pilot with paying users)

16. Problem Statement

16.a

Public electricity systems in rapidly growing urban and peri-urban areas are increasingly unreliable, expensive, and unable to manage real-time demand fluctuations. Utilities lack visibility into distributed consumption and have limited tools to optimize load, leading to frequent outages, inefficient infrastructure investment, and constrained economic activity.

16.b

This project directly affects grid load balancing, demand forecasting, outage response, and infrastructure planning workflows within utilities and regulatory bodies. It introduces real-time decision support and automation into how public electricity systems are monitored, managed, and optimized.

16.c

The challenge is significant and growing at a global scale. In 2013, approximately 1 billion people lacked access to electricity, with another 1 billion connected to unreliable grids. By 2023, global electrification efforts reduced those without access to ~600 million, but the number of people connected to unreliable grids has surged to an estimated 3 billion. In South Africa, recurring load shedding disrupts economic activity and essential services, while in Lagos, Nigeria, widespread reliance on 24/7 diesel generators drives high costs and severe air pollution. These trends highlight a critical gap: expanding access alone is not enough—there is an urgent need to improve reliability

through intelligent, flexible grid systems.

17. Proposed Solution

17.a

We are building an AI-powered distributed grid intelligence platform that serves as a real-time control layer for national electricity systems—turning community-scale microgrids into coordinated assets that improve reliability, reduce peak demand, and expand affordable access.

17.b

The platform integrates smart meter and telemetry data (RS-485/Modbus), edge controllers, and GCP (Cloud Run, BigQuery) with AI models for time-series forecasting, demand optimization, anomaly detection, and agentic workflows. These AI agents continuously analyze grid conditions and autonomously trigger actions such as battery dispatch, demand response, outage alerts, and customer support, enabling dynamic, real-time system optimization.

17.c

We have demonstrated feasibility through a live pilot microgrid with paying users, where we collect real-time energy data and operate a working system that improves uptime, visibility, and load balancing. Early results show smoother demand curves and reduced dependence on unstable grid supply.

17.d

To ensure adoption, we are designing the platform as a government-integrated system with dashboards, APIs, and reporting aligned to utility workflows such as grid planning, outage management, and demand response. We are engaging regulators and utilities to enable distributed energy resources to function as coordinated grid assets within national systems.

18. End Beneficiaries

18.a

Urban and peri-urban households, small businesses, utilities, and regulators.

18.b

We incorporate feedback through pilot deployments, user billing data, and direct engagement with communities and operators.

18.c

Initial reach: hundreds of users, scaling to tens of thousands across multiple deployments over 36 months.

19. Expected Outcomes

19.a

Improved electricity reliability, reduced outages, and more efficient grid utilization.

19.b

Metrics: uptime, cost per kWh, peak load reduction, customer satisfaction.

19.c

Failure signals: no measurable improvement in reliability, low adoption by utilities, or inability to integrate with existing workflows.

19.d

Expected improvements include 20–40% reduction in peak load stress and significant improvements in uptime.

19. Expected Outcomes

19.a

This solution will improve public electricity services by increasing reliability, reducing dependence on diesel generation, and enabling governments and utilities to manage distributed energy resources as coordinated grid assets. It will expand access to clean, affordable, and reliable electricity while improving planning and operational efficiency.

19.b

Key metrics include: number of people with improved reliable electricity access; MWh of distributed energy storage deployed; reduction in peak grid load (%); uptime improvements (%); reduction in diesel generator usage; and number of utilities/regulators actively using platform data for planning.

19.c

Failure indicators include: inability to scale deployments; low adoption by utilities or regulators; no measurable improvement in reliability or peak load reduction; or lack of engagement from DER operators and ecosystem partners.

19.d

Within 12 months, we aim to enable deployment of at least 1 MWh of distributed energy storage across Africa through direct deployments and partner-led adoption. Within 36 months, we target improving access to reliable, clean electricity for at least 1 million people by scaling autonomous microgrids and supporting an open ecosystem of DER operators using our platform.

III. Innovative Use of Technology

21. Why is your proposed solution necessary to address the problem versus currently available alternatives?

Current approaches either expand centralized grid capacity (slow, capital-intensive) or deploy isolated off-grid systems (limited coordination, no grid support). Existing tools lack real-time, system-wide intelligence and cannot integrate distributed energy resources (DERs) into utility operations. Our solution introduces an AI-driven control layer that coordinates microgrids as grid assets—enabling forecasting, automated dispatch, and demand response. This uniquely improves reliability at scale, reduces peak stress without new generation, and provides governments with actionable, real-time planning data.

20. Technologies

GCP (Cloud Run, BigQuery), smart meters, edge computing, time-series AI models, optimization algorithms.

21. Why needed

Existing systems lack real-time intelligence and integration of distributed energy resources.

22. Dataset

Yes

23. Data access

Through smart meters, utility collaboration, and anonymized operational data.

24. Ethics

We use anonymized data, ensure transparency, and align with responsible AI principles.

25. Open source

Yes

26. How might you leverage Google's pro bono technical support and expertise to accelerate project outcomes?

We will leverage Google's AI and cloud expertise to build and scale our distributed grid intelligence platform. Specifically, we seek support in developing robust time-series forecasting and optimization models, designing agentic AI workflows for autonomous grid operations, and optimizing our architecture on GCP (BigQuery, Cloud Run) for real-time data processing at scale. We also aim to learn from Google's experience operating highly reliable, large-scale infrastructure (e.g., data centers) to inform how we design resilient, fault-tolerant energy systems. Additionally, we would benefit from guidance on responsible AI deployment, model evaluation, and integration with public sector data workflows to ensure reliability, scalability, and government adoption. We will leverage Google's AI and cloud expertise to build and scale our distributed grid intelligence platform. Specifically, we seek support in developing robust time-series forecasting and optimization models, designing agentic AI workflows for autonomous grid operations, and optimizing our architecture on GCP (BigQuery, Cloud Run) for real-time data processing at scale. We would also benefit from guidance on responsible AI deployment, model evaluation, and integrating our system with public sector data workflows to ensure reliability, scalability, and government adoption.

IV. Feasibility

27. Why is your organization uniquely positioned to lead this project?

Nearly Free Energy uniquely combines hands-on microgrid deployment with AI-driven software development in emerging markets. We operate a live pilot with real users and data, giving us practical insight into grid constraints, customer behavior, and operational challenges. Our team spans energy systems, embedded hardware, and cloud/AI engineering, enabling end-to-end execution from meters to models. We are also actively engaging regulators and utilities on DER policy and integration, positioning us at the intersection of infrastructure, data, and government adoption—where this problem must be solved.

29. Describe the work you have done to demonstrate the technical feasibility of your approach.

We have deployed a live pilot microgrid with ~10 paying customers, instrumented with smart meters (RS-485/Modbus) and cloud ingestion to GCP (Cloud Run, BigQuery). We collect continuous telemetry (kWh, voltage, load profiles) and run initial analytics for load visibility and anomaly detection. We have tested controlled battery dispatch to smooth peak demand and validated end-to-end data pipelines (edge → cloud → dashboards). Success metrics include sustained data uptime (>95%), accurate load measurement, improved peak smoothing on pilot circuits, and reliable billing/alert workflows. These results demonstrate feasibility of real-time data-driven operations and AI-assisted optimization.

30. Key technical risks, dependencies, maintenance, and mitigation strategies

Key risks include hardware integration variability, intermittent connectivity, data quality gaps, and model performance in low-data environments. Adoption depends on utility/regulatory alignment and integration with existing workflows. Ongoing needs include device maintenance, data pipeline reliability, and model monitoring. Mitigations: modular, standards-based design (Modbus/REST); offline-first edge control with local fallbacks; redundancy and buffering for connectivity; continuous data validation and monitoring; phased model rollout with human-in-the-loop; training and SLAs with partners; and close coordination with regulators/utilities to ensure smooth integration and sustained operations.

31. Policy, administrative, privacy, and logistical risks and mitigation

Policy risk: delays or uncertainty in DER interconnection and PPA frameworks. Mitigation: early engagement with ERA/utility stakeholders, alignment to existing codes, and pilot-based regulatory sandboxes.

Administrative risk: slow procurement/adoption within public entities. Mitigation: lightweight pilots, clear ROI metrics, and integration with existing workflows and reporting.

Privacy/data risk: handling consumer energy data. Mitigation: data minimization, anonymization, role-based access, encryption in transit/at rest, and compliance with local data protection laws.

Logistical risk: installation/maintenance at scale. Mitigation: standardized hardware kits, local

partner installers, remote monitoring, and SLA-driven support.

32. How will public servants be trained, supported, and incentivized to adopt and use this solution as part of their regular workflows?

Government entities are not primary users of the platform; their role is to create enabling regulatory frameworks that build trust in DER operators. We will support regulators through targeted briefings, data-sharing dashboards, and policy workshops that translate system insights into actionable regulation. By providing clear visibility into demand patterns, grid impact, and reliability improvements, we enable regulators to confidently design and enforce DER policies. Incentives for adoption come from improved oversight, better planning data, and the ability to expand reliable electricity access without additional public infrastructure investment.

33. Provide additional detail about 3-5 key project team members, especially those in technical roles.

Microgrid/Energy Systems Engineer – designs and operates DER systems, battery dispatch, and grid integration.

Backend/Cloud Engineer – builds scalable data pipelines and APIs on GCP (Cloud Run, BigQuery).

Data Scientist/ML Engineer – develops forecasting, optimization, and anomaly detection models.

Embedded/IoT Engineer – integrates smart meters (Modbus/RS-485) and edge controllers.

Operations/Deployment Lead – manages field installation, partner coordination, and system reliability at scale.

Policy & Partnerships Lead – drives regulatory engagement (e.g., ERA), supports DER policy development, secures government buy-in, and enables partner operators in new markets to navigate regulation and scale deployments.

VI. Scalability

36. Based on your previous selection, detail how you'd replicate success beyond your initial proposal.

We will scale through a dual approach: direct deployments and an open ecosystem model. We will standardize our microgrid architecture (hardware + AI software) into repeatable deployment kits and publish the platform as open source, enabling local DER operators to adopt and deploy in their markets. We will partner with utilities and regulators to integrate these systems into national grids, creating a coordinated network of distributed assets. As we scale, we will expand our team across engineering, partnerships, and operations to support multi-country deployments and ecosystem growth.

37.a Financial sustainability

Sustained via electricity sales (10–30% gross margins) from NFE-owned microgrids, plus SaaS fees and revenue share from partner-operated systems. As deployments scale, recurring revenues from energy and platform services cover operations, maintenance, and continued expansion without grant funding.

37.b Technical sustainability

Cloud-native architecture on GCP with automated monitoring and CI/CD; offline-capable edge controllers ensure resilience. Open-source platform enables contributions from partners/operators. Standardized hardware kits and SLAs support maintenance, while local partners handle installation and support at scale.

38. What key learnings, datasets, models, codebases, or other artifacts will your project generate, and how will you share them with other organizations to help advance the field?

We will generate real-world energy datasets (anonymized usage, demand response, grid performance), AI models for forecasting and optimization, and an open-source microgrid OS. Our company culture is to work in the open—we already publish our work via our website and public wiki (nearlyfreeenergy.com; bookstack.nearlyfreeenergy.com). We will continue sharing code, documentation, and operator playbooks to enable other DER operators and governments to replicate and build on our approach globally.

VII. Project Budget and Timeline

41. Funding Request

\$2,500,000

42. Personnel & Staffing — \$600,000

Covers salaries for core team: AI/ML engineers, backend/cloud engineers, energy systems engineers, and operations staff. Includes hiring additional technical talent to build forecasting, optimization, and agentic AI systems, as well as project management and field deployment coordination.

43. Technology Development — \$300,000

Development of AI models (forecasting, optimization), software platform (microgrid OS), APIs, dashboards, and data pipelines. Includes costs for software engineering, model training, testing, and integration with edge devices and utility systems.

44. Infrastructure & Deployment — \$1,900,000

Procurement and deployment of smart meters, edge controllers, and battery-integrated systems for pilot and scale-up sites. Battery storage is a primary cost driver, with an estimated requirement of ~1.5 kWh per household at approximately \$450 per kWh deployed. This category covers battery capacity, installation materials, field operations, connectivity, and cloud infrastructure (GCP compute, storage, and data processing).

45. Partnerships & Ecosystem Growth — \$150,000

Government engagement, regulatory workshops, and partnership development with utilities and DER operators. Includes ecosystem-building activities, training sessions, and support for onboarding partners to deploy and operate microgrids using the platform.

46. Monitoring, Evaluation & Overhead — \$50,000

Measurement of impact metrics (uptime, peak reduction, access), reporting, and program evaluation. Includes minimal indirect costs such as administration, coordination, and compliance (kept under 5%).

Funding target: ten Reliable Power Microgrids (Oct 2026)

“ **Provisional, 21 Oct 2026.** Owner: Aaron Tushabe. NFE's working fundraising target for the revised funders' pitch. Nothing here is committed: the allowances are planning figures until site assessments and EPC quotes come in, and the [funders' pitch page](#) stays unchanged until the deployment milestones are set.

The target

US\$500,000 of total programme capital to target **ten new Reliable Power Microgrids** in Uganda over an indicative **18 months**:

- **7 Commercial RPMs** (70%, within the 60–80% commercial mix) and **3 Residential RPMs**
- **US\$315,000** for installations, and **US\$185,000** for monitoring, project preparation, delivery capacity, software, working capital and contingency
- **US\$550,000** if we want room for a fourth residential site while keeping the full contingency

Illustrative portfolio

Deployment type	Number	Indicative battery size	Installed allowance each	Total
Smaller Commercial RPM	3	30–40 kWh	US\$15,000	US\$45,000
Medium Commercial RPM	3	60–80 kWh	US\$25,000	US\$75,000
Large Commercial RPM (Worship Harvest scale)	1	~120 kWh	US\$45,000	US\$45,000
Residential RPM	3	Site-dependent	US\$50,000	US\$150,000
Installations	10			US\$315,000

Deployment type	Number	Indicative battery size	Installed allowance each	Total
Monitoring, preparation, delivery, software, working capital, contingency				US\$185,000
Programme total				US\$500,000

The commercial allowances cover solar, inverters and installation, not just the battery, and average about US\$23,600 per commercial site.

How the figure was reached

Step	Target	What changed
First pass	US\$600,000	7 commercial + 3 residential sites; about US\$430,000 for installations
Checked against NFE's July 2026 SRNE supplier price list	US\$650,000	Equipment for a ~120 kWh / 60 kW / 40 kWp commercial system came to about US\$30,750 before the remaining installation costs, so the plan allowed US\$45,000 per commercial site and US\$50,000 per residential site
Worship Harvest treated as one of the larger sites, not the average (Aaron)	US\$500,000	Commercial sites split into 3 smaller, 3 medium and 1 Worship Harvest-scale; the US\$185,000 non-installation budget kept

Assumptions and caveats

- **Residential scope is the biggest uncertainty.** US\$50,000 per site assumes modest communities with usable existing distribution. Larger communities, extensive new wiring or longer backup would raise it. It needs its own sizing review.
- **Allowances, not quotes.** Every installation figure waits on site assessments and EPC quotations.
- **No offsets assumed.** Customer deposits, future revenue and uncommitted loans are not counted against the requirement.
- **Exchange rate.** The allowances are in dollars, while local quotes come in shillings and the shilling has been volatile ([Macro outlook](#)). For comparison, the Worship Harvest model CAPEX of UGX 120–145m is roughly US\$29–35k at about UGX 4,150 per dollar, so the US\$45,000 allowance leaves room for a complete deployment.

- **Sources of capital.** The draft treats this as total programme capital that could combine grants and project finance. ChatGPT's draft also mentions "patient equity", but the [Fundraising Tracker](#) records that NFE no longer pursues equity funders because, as a co-op, it has no equity to offer. Settle the wording before the pitch goes out.

Draft pitch line

“ NFE is raising US\$500,000 to target ten new Reliable Power Microgrids in Uganda, with 60–80% of deployments serving commercial facilities and the remainder serving residential communities. Over an indicative 18-month programme, this capital will fund customer assessments, microgrid installations, and the software and operating capacity needed to deliver reliable electricity as a service.

ChatGPT's wording, with the figure updated from US\$650,000 to the revised US\$500,000.

Still to settle

- ☐ Deployment milestones for the pitch (needed before the web page changes)
- ☐ Residential site sizing review
- ☐ 7 + 3 sites (US\$500,000) or room for a fourth residential site (US\$550,000)
- ☐ Which sources of capital to name in the pitch
- ☐ Save the final pitch revision (v0.1 is in Aaron's ChatGPT session) here or in Nextcloud, then update the web page

Related: [NFE Commercial Reliable Power Microgrids](#) · [Commercial RPM economics and bankability](#) · [Commercial RPM decision log](#) · [Fundraising Tracker](#)

Source: Aaron's ChatGPT working session "[Commercial RPM Modeling](#)", 21 Oct 2026.

Financial Model Game plan - Q2

? The 3 Goals

1. **Microgrid unit economics model**
 2. **Fundraising narrative**
 3. **Stress test your monetization models (Owned vs Partner)**
-

? Phase 1 (Week 1–2): Build Financial Clarity (Foundation)

1) Microgrid Unit Economics Model

What you're building

A **per-site financial model** that answers:

“If we deploy one microgrid, does it make money?”

Step 1: Define core inputs

Start simple (don't overcomplicate):

Costs (CapEx)

- Battery (e.g., 10kWh setup)
- Inverter
- Installation (+20%)
- Metering hardware
- Any fixed setup costs

Revenue

- Avg monthly revenue per household
- Number of households (e.g., 10 → 100 → 360)
- Tariff (or effective price per kWh)

Operating costs (OpEx)

- Maintenance
 - Staff/ops allocation
 - Platform/software (NFE OS)
 - Losses / non-payment buffer
-

Step 2: Build outputs

You want 5 key metrics:

- Monthly revenue per site
 - Monthly profit
 - Payback period (months)
 - Gross margin (%)
 - Cash flow over time
-

Step 3: Answer key questions

- How long to recover CapEx?
- What happens if:
 - Usage drops 20%?
 - Costs increase 15%?
- What is your **minimum viable scale per site**?

Deliverable

☐ A simple Google Sheet model (I can help you structure this next)

? Phase 2 (Week 2–3): Stress Test Your Two Models

Now apply the model to your two strategies:

Model A: NFE-Owned Microgrid

What to evaluate

- Total capital required per site
- Revenue collected directly
- Payback period
- Cash constraints (how many sites you can deploy)

Key insight you want:

“How fast can we scale before we run out of cash?”

Model B: Partner-Owned Microgrid

What to evaluate

- Your revenue:
 - Flat fee per customer
 - +5% of electricity sales
- Your costs:
 - Ops + maintenance

Key insight:

“Is this a high-margin, low-capex business?”

Compare side-by-side

Metric	NFE-Owned	Partner Model
Capital required	High	Low
Margin	High (long-term)	Lower but steady
Risk	Higher	Lower
Speed of scale	Slower	Faster

Strategic output

You should be able to say:

- “We lead with Partner model to scale fast”
- or
- “We prioritize Owned model for long-term value”

☐ This becomes **core to your pitch**

? Phase 3 (Week 3–4): Build Your Fundraising Narrative

Now turn your numbers into a **story investors understand**

1) Problem (you already do this well)

- Unreliable grids
 - Diesel backup risks
 - Growing urban demand
-

2) Solution (tighten this)

- “Community microgrids that turn backup power into primary infrastructure”
-

3) Business Model (now backed by numbers)

Use your model to clearly show:

- Revenue per site
 - Margin
 - Payback
-

4) Traction

- Pilot (10 homes)
 - Phase 2 (100 homes)
 - Pipeline (360 apartments)
-

5) Scaling Strategy (THIS is key)

From your analysis:

Example:

- Phase 1: Pilot + validate
 - Phase 2: Scale via partner model
 - Phase 3: Selectively own high-value sites
-

6) Use of funds

Your model should let you say:

- “\$300K deploys X sites”
 - “Each site generates \$Y/month”
 - “Break-even in Z months”
-

Deliverable

☐ A clean 8–10 slide pitch (or 1–2 page memo)

? Phase 4 (Week 4–6): Add Financial Discipline

This replaces what a CFO would start doing.

1) Monthly financial tracking

Track:

- Revenue per site
- Cost per site
- Collection rates
- Downtime

2) Define 5 core KPIs

For NFE, I'd suggest:

- Revenue per customer
- Cost per customer
- Payback period per site

- System uptime (%)
 - Collection efficiency (%)
-

3) Cash planning (critical)

Build a simple view:

- Cash today
 - Monthly burn
 - Months of runway
-

?? Critical mindset shift

You're moving from:

“We are building microgrids”

to:

“We are deploying capital into energy assets that must return money”

That shift is what investors care about.

? How this all connects

- **Unit economics** → proves viability
- **Model comparison** → defines strategy
- **Narrative** → unlocks capital
- **Tracking** → sustains growth

Owner's capital, grants and related parties

Owner's capital, grants and related parties

“ **Planned: not yet written.** Owner: Aaron Tushabe. Trigger: the accountant decides how recoverable grants and family contributions are classified, or the next funder disbursement arrives, whichever comes first.

What we already do:

- Owner contributions, and expenses an owner paid personally, go to **Owner's Capital:** 3110 (Aaron Tushabe) and 3120 (Hillary Arinda). They're never income and never repaid.
- Grants and donations from anyone else go to **4230 Grants and Donations.**

What this page will cover:

- Owner loans, kept separate from owner's capital.
- **Recoverable grants** ([Fundraising Tracker](#), [term sheet](#)): are they a liability or income? Still open.
- Restricted funds tracked by site (cost centre).
- An annual related-party declaration, and the rule that a conflicted owner doesn't approve their own transaction.
- A calendar of reporting due to funders.