Open AMI

Open-Source Advanced-Metering-Infrastructure to enable minigrids for electricity access.

Note: This page is actively under construction and will be updated frequently. Last update: Akash Borde, 28 October 2025

Background:

- Power Africa Conference Presentation
- Linux Foundation Conference Presentation

Ongoing:

- There is a weekly meeting actively discussing and shaping this project. This takes places from 6-7am US Pacific Time.
- Contact Product Manager for more details: Akash Borde at borde.akash[at]gmail.com

Weekly Meeting Notes:

October 22nd, 2025:

Follow-ups

- Rahul weekly meeting?
- Stemaco and Donsun relationship?

Vivian hardware access?

Sparkmeter source code access?

Logistics - Akash will make a new email series, including Jude. Agendas will be sent 24 hrs in advance over email.

Whatsapp: - OpenAMI Coms Integration → Inhemeter

Tech Comm and OpenAMI → used for presentations

ISV AMI Subcommittee

Arila is not on Whatsapp

Ask Rajan if he wants the weekly emails 1) Any updates from the crowd – Donsun, Sparkmeter, EarthSpark current state Rahul + Daniel - SparkMeter has been "handed over" to EarthSpark after SparkMeter collapsed. Allison is the president of EarthSpark. She makes the call if/when SparkMeter becomes Open-Sourced. Vivien is the guy leading the open-source effort. Sparkmeter's operating costs are artificially very high. Sparkmeter wraps the cailin's hardware in their own protocol. Worldbank M300 → project from World Bank for electricity reach 300Mill new people in africa Things we need How we're doing vending

Correct timestamps

Information about the grid Proposed solution: take the telemetry from the field, add an additional service (?) and have access to the data via the server infrastructure 4 organizational members: IEEE, EnAccess, NESL, Arila Rahul proposal:

Open AMI server, standardize schema (glenn has started this), called Grid Fabric. Linux foundation project. Not the Hyphae project. * This project takes the logs from the DCU

MicroPowerManager needs a plugin to ingest this data.

Grid Fabric supports 2 protocols, both can be run on DCU * DLMS → MQTT → Vendors are offering the keys to these protocols, not hacking the solutions * Donsun, StemaCo, Inhemeter (not explicitly yet)

Donsun - has offered access to DCU (serial console / Telnet). Busybox linux environment. They have spare CPU cycles we can run other processes in. * The guy who offered the keys is now gone though, and said Donsun is bankrupt

We weren't talking to Donsun directly though.

"Leets" from Donsun

Jude has Nigeran Donsun hardware

StemaCo - service provider * Donsun is one of 6 chinese OEMs that StemaCo will support

If we go through StemaCo – EnAccess - any updates/questions/agenda topics? – Sparkmeter source code access? — Rahul/Enaccess currently have it – Akash-plan/idea to hack the SparkMeter from Sun Gate Solar Rahul has access to code base, but it's "a mess" Jude:

We thought we had commitments to get keys to access hardware. * Inhemeter is now asking for a contract

Sparkmeter - stuck asking Alison (EarthSpark) trying to get opensource access 1 month later * There may be some Google Drive with limited access to see source We Cannot use anything from this drive, legally, without Open-Sourcing it

Rahul - we have pretty good reference of the architecture, but legally we cannot use it till Alison approves. * TAM (AMDA): 1M meters, $20/meter = $20M TAM

Seems unlikely we'll get access for free

Donsun - collapsed mid-conversation

StemaCo - we will probably hit the same wall As of today, we have no keys to any hardware. Only open hardware is our own board. 2) Clarification of problem statements, both short-term and long-term. – Short term will include exit of major metering vendors – Long term will include discussion of software and hardware solutions – We can use the Cairo OpenAMI slide deck (link) to start the discussion.

Don - are we trying to hack existing systems or use the OpenAMI as our own standard?

Last meeting, we found all the OEMs are having the same vulnerability. Don't want to support legacy products of theirs. Question: Should we have this be a software-only solution? – Jude, Akash 3) Hardware discussion – Utility and desires for the MeshEMS gateway – Arila, Jude, Glenn, Akash, Rahul – What if we made our own hardware?

2 major players have already failed

Rajan is skeptical

Vivian - thumbs up. Not for the meters, but maybe for the DCU.

Jude - yes let's talk about this * Lots of donor money available

Roadblocks - local developers/infrastructure

Stemaco, Sparkmeter → were all whitelabeling a few OEMs. Did not make their own hardware (both metering and DCU).

Sparkmeter - was whitelabeling their own meters, but making their own DCUs.

Jude's idea: * AMDA developers have 3 priorities: * Vending

Monitoring ability

Ability to do operations (on/off control)

Vending: * Solved by STS/OpenPay Go

So long as you have the CIU (customer inteface) at the meter level, and the token generation software, you can vend irrespective of the (?)

Monitoring and Operations * This is not yet solved. What if we take this as a standard?

Like STS, we build a comms standard that can be deployed by the OEMs for people that want to go beyond vending.

Maybe this requires an open-source DCU to go with it

Building software that can go on DCUs that lets the data seen in multiple places

Similar to an STS certification, this could be a selling point for new developers to use OEMS that are "OpenAMI" compliant OpenPay Go and STS - similar For talking to the edge meter (supports STS, version 2)

You'd need a key that talks to the STS 4) Blockers / goals for setting up Yaounde lab with Glenn's VPN hardware – Glenn, Jude, Endurance 5) ISV Funding and Project Plan Revisions – Don, Rajan, Jude

Adam- how can we live stream any existing data from villages?

October 15th, 2025:

0) Recap of Oct 8th meeting for folks traveling back from Power Africa (Arila or Daniel)? (5-10 mins)

Nothing major to discuss 1) Akash/Jude: Power Africa Recap (5-10 mins) a. Presentation recap

Discussed with minigrid developers

Sun Moksha - Indian minigrid company that is building smart metering. 3 priorities * Vending - ability to make sales

Manage the energy / assets

Monitoring - what sparkmeter can provide

Sun Moksha agrees on scarcity of metering suppliers / availability

They have a prototype working on this that has solved their problem

Make their own controller that talks between the meters (modbus) and server (wifi mesh), which then talks to the cloud

They are open to share IP with the IEEE community; they've invested a lot of $ and don't have too much incentive to provide

Not open-sourcing, but some sort of license that gives other vendors

They built their own proprietary hardware (with ESP32 equivalent) that they could sell b. Discussion recap / feedback session

Jude: This looks like another locked solution, we would have the risk of being stuck on them

Arila: Is there any openness from the open-source perspective from SunMoksha? * Jude: This was developed for India, they had a sponsored project from India. Was a larger for minigrid developers in India previously, but currently isn't such a big market

Arila: Is there an open solution available on the cloud side?

Akash: * Mou Riiny - interested in OpenAMI, frustrated with Sparkmeter

Shared a sparkmeter to debug (malfunctional)

Sparkmeter * Vivien/Jude might have access to their repos

What's the goal with this one? * Just a test bed for now

Akash to share

Jude may have functional sparkmeters * Nova / Edge Meter

Has some spares c. Akash - will try to make a slide on this 2) Jude: Client/customer's wishlist (5-10 mins) a. Jude's thoughts on the current status of the project b. Include pivots of the direction he would like to take this 3) Inhemeter call - Jude/Michel/Akash (5 mins) a. Recap of call with Sanji from

inhemeter They want a signed document before providing documentation Awaiting on the confidential agreement from Inhemeter ↔ Michel F is working on this b. "Cannot support the Inhe-4000 you got from nigeria" Latest model available is the Inhemeter-5000 c. "Please give us your specs for a new order" Donsun - sales person is no longer at Donsun Donsun is now bankrupt (!) Purchased sample meters through StemaCo Rahul - Sparkmeter Sparkmeter has custom radios, not modbus 485 Need to be on their custom neighborhood network Rahul has access to the codebase and developers → can share answers to the queries Dominant architecture in Africa Radios are working on a certain set of frequencies, these are pretty locked Seems very hard to jailbreak existing sparkmeters based on this Recommends avoid committing to jailbreaking this Maybe easier to do if we are already in contact/customers with them Arila: Was under the impression that there is Modbus Donsun Splitting into 2 One for Africa One for rest of world? Could expect code stubs for AMI potentially Rahul → older conversations \\ 4) Formal roles within volunteer team - Jude a. Product Manager b. Project Manager c. Administrators d. Other roles? 5) Auditing/Changing of project timeline - Akash in place of Don (cannot make it) 6) Techincal debug and setup of REI-Cameroon Lab - Glenn/Endurance/Rahul a. Summarizing status of remote access b. Setup of new hardware / VPN from Glenn Looking forward:

So many meter vendors going bankrupt or not helpful

How do we salvage existing meters/hardware in the field from these bankruptcies? * Specific to REI-Cameroon, * Jude has Sparkmeter and Stemaco (using Donsun) * Sparkmeter has also moved to stop usage of older hardware

Currently has ~800 sparkmeters

Other hardware is at risk too

Rahul: * Would be great if we can support legacy systems. Some vendors (Sparkmeter for example) are not open to being supported

While providing this legacy support, we basically create the support/framework for OpenAMI Vivien:

Sparkmeter has not yet committed to becoming open, but needs help (has a lot of tickets, backlog, etc). Sparkmeter

Allison is the person we need to convince

Rajan has talked, Vivien has talked to them, Jude has also talked to them, AMDA has also talked to them

M300 has given them $ to stay alive, we have about 3-6 months of funding there What do we as OpenAMI focus on in the next 3-6 months?

Rahul: Support on legacy solutions

Jude: Re-formulate the implementation plan * Seems like everyone will be legacy soon

Go back to drawing board

Open-Source Hardware?

Arila: * Open-source meter for EnAccess

Yes - but not available for use though

For next week: * Come with proposals for OpenAMI

Akash - hardware gateway prototype * No progress to report

Is anyone blocked by this yet?

Could be useful for some hardware prototyping

Glenn's hardware * Endurance hasn't been able Follow-ups
- Rahul weekly meeting?

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