

OpenAMI — Technical Pitch for AMDA Members

Open metering interoperability for mini-grid and village energy operators — without buying a full utility AMI stack

THE PROBLEM

"Rural metering stalls when every vendor ships a closed AMI bundle... no single commercial player can credibly write the common contract everyone else must adopt."

— IEEE SMART VILLAGE ISV KNOWLEDGE BASE

The Closed-Bundle Trap

Every AMI vendor ships meters + HES + billing as a locked bundle. Every tender copies utility MDMS boilerplate. Swapping a meter OEM means rewriting billing. Operators either:

- **Over-buy** — utility-grade head-end software they never fully use
- **Under-buy** — manual reads, revenue loss, zero theft visibility

WHAT OPENAMI IS

A geo-asset model + northbound API contract — not a product

Layer	Specifies	Does NOT specify
Asset model	Feeder→pole→meter→customer (GeoJSON)	Database, cloud
Northbound	MQTT topic schema; per-customer read envelope	HES, billing system
VMRS tiers	3 field-validated OEM capability tiers	Which OEM to buy
Gateway norm	Translate vendor frames at edge; publish reads	Gateway hardware

Practical effect: mix OEM fleets on one feeder, swap a vendor without rewriting billing, let integrators bid against a common scope.

WHY IEEE · WHY ISV

Neutral convening — outside every product line

IEEE has no meters to sell, no HES to license, no integration margin to protect. EnAccess, Energy IoT, and individual OEMs all have legitimate roles — none can write the contract the others must accept. **IEEE can.**

ISV's Technology Committee publishes shared practice operators and vendors can point to: northbound MQTT schema, VMRS tiers, vendor benchmark scorecards, POC gap matrices — validated on real deployments, not lab simulations.

WHAT THIS MEANS FOR AMDA MEMBERS

Developer / IPP

Scope procurement from VMRS tier sheet. Avoid MDMS lock-in from day one.

Operator / O&M

Per-customer reads + prepaid billing without a full utility stack. Theft flag in gateway normalisation.

Integrator

Bid against a published contract. Build once, deploy across operators on different OEM fleets.

Policy / DFI

Reference artifacts for technology-neutral procurement language in concession agreements.

NEXT STEPS FOR AMDA

- 1 Map your members' OEM fleet against the VMRS tier matrix — identify which vendors publish parseable DLMS frames.
- 2 Pilot a Street Pole EMS gateway kit on one active feeder using the EPRI DLMS-COSEM stack as the parsing layer.
- 3 Contribute field-derived African OBIS profiles back to ISV — the interoperability data the ecosystem is missing.
- 4 Embed the northbound MQTT contract in AMDA's model procurement annex so future tenders create a multi-vendor market.

EPRI OPEN-SOURCE CODE REUSE

Both repos are BSD-2-Clause — compatible with ISV's open-artifact model. See companion report EMG-TECH-015 for a full code audit.

epri-dev/DLMS-COSEM · Gateway Normalisation

C-language IEC 62056 stack (OBIS resolution, COSEM object parsing, HDLC framing) spoken by most meters deployed in Africa — Calin, Hexing, CHINT, Landis+Gyr, Itron.

Use 1 — Street Pole EMS: Eliminates per-integrator frame parsers. Drop in as the normalisation layer at the gateway edge.

Use 2 — VMRS Benchmarks: Neutral reference codec to score OEM DLMS conformance.

CAVEAT African deployments use non-standard OBIS mappings not in EPRI's default profiles. An OBIS profile registry layer is required on top — ISV's added-value field contribution.

github.com/epri-dev/DLMS-COSEM

epri-dev/IEEE-2030.5-Client · Northbound Transport

C++ SEP 2.0 client with DER messaging, TLS/certificate handling and scheduler. More narrowly applicable; useful at specific northbound integration points.

Use 1 — MirrorUsagePoint codec: Map the SEP 2.0 usage-point envelope onto OpenAMI's MQTT read message without writing a custom XML/EXI parser.

Use 2 — TLS scaffold: Reuse EPRI certificate management for gateways reporting to USAID/DFI donor aggregators.

CAVEAT Adopt *only* the codec + transport layers. The scheduler assumes a US-utility head-end on the other side. SEP 2.0 profile needs adaptation for PAYG mini-grid semantics.

github.com/epri-dev/IEEE-2030.5-Client

RESOURCES

ISV Knowledge Base	overview-solutions.github.io/isv-ai-wiki
EPRI DLMS-COSEM	github.com/epri-dev/DLMS-COSEM
EPRI IEEE 2030.5 Client	github.com/epri-dev/IEEE-2030.5-Client
ISV Wiki Source	github.com/overview-solutions/isv-ai-wiki
AMDA	africamda.org
EPRI Audit (EMG-TECH-015)	sattal.cottonspace.com/reports/epri-dev-software-audit