



EMPOWER A BILLION LIVES

A Global Competition by
IEEE to Crowdsource
Scalable Solutions for
Energy Access

Announcing the new EBL SouthStar track

**Engineer the Future of Energy Access – Develop a Universal
Distributed Energy Access Platform!**



**Are you from one of the world's leading research groups in
power electronics? If so – THIS IS FOR YOU!**

The SouthStar Challenge

For:

**Teams from academia, research labs and
companies**

Develop and demonstrate solutions

**Build units & support pilot/s with 'last mile'
EBL teams.**

**SouthStar is an
opportunity to integrate
fast-moving new
technologies with novel
deployment models to
maximize impact**

**Partner with us as sponsors, technology providers and
component & services suppliers to realize the EBL SouthStar
vision!**



**IEEE POWER
ELECTRONICS SOCIETY**
Powering a Sustainable Future

EBL benefits from the work of 100s of volunteers,
significant financial support from the IEEE Power
Electronics Society and sponsors. To join as a sponsor
email billionlives@ieee.org and to register your team go
to: www.empowerabillionlives.org



Energy Access: Key Learnings from 10 years of EBL

- A majority of competing teams are local entrepreneurs who understand their customers' needs and know how to reach them.
- Most EBL innovations create impact through business models for productive use of energy in agri-food., EBL teams also reach the most vulnerable populations
- EBL teams lack deep technical knowledge and tend to rely on established technology solutions that are fragmented, non-interoperable, expensive, and not scalable.

Enabling Technologies: Power electronics, IoT, Pay-Go, LEDs, motor drives, automation, communications, digital devices, fintech, AI

The Competition

- These findings have led to the creation of a **new track** in the EBL competition series – **the SouthStar Challenge** – that is focused on developing new ***technology-based open-source solutions that provide tech-agnostic scalability and interoperability, and which can be rapidly developed, deployed and validated***
- Empower a Billion Lives is a global prize competition which encourages and nurtures innovative technical and commercial solutions which address the problem of energy poverty. The SouthStar track will run concurrently with the other EBL Tracks. The SouthStar teams that have an awarded proposal will receive Prize money to further develop their solutions to be tested in the field by EBL local entrepreneurs.

The Competition Timeline

DEVELOPMENT: Up to 5 SouthStar Proposals that are approved at IDEAS 2026 will each receive \$10K.

Build Prototype: SouthStar teams will build 10 prototypes and partner with EBL Teams.

Deploy in Field: Work with partner EBL teams to deploy solutions in field, collect data.

EBL Global Final: Separate prize for SouthStar track team that develops the best SouthStar solution. The SouthStar and 'Last-Mile' Collaboration Team will present the solution and results jointly at the EBL Global Final.

Publication of research findings may be considered for an IEEE PELS Special Issue Journal.

To Register a TEAM: www.empowerabillionlives.org

To Sponsor please contact billionlives@ieee.org



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High Level Objectives

Grow with the Need	Provides minimum required capacity (Tier 1-2 MTF) and can scale up to Tier 3-4 as the needs and capabilities of households, small businesses and communities grow.
Catalyze Development	Leverage energy-as-an-enabler for value-stacking and catalyzing broader development , improving business model profitability.
Future-Proof	Is interoperable on the user side (can power appliances of different manufacturers) and on the supply side (can accommodate other existing or future sources).
Stimulate Local Entrepreneurship	Operates autonomously and reliably and can be deployed, installed, and operated with minimum technical know-how, and limited infrastructure (physical and digital), supports flexible business models including build, sell, service, finance.
Affordability/Ability to Pay	Supports mobile payments or in other innovative ways addresses the consumer finance challenge .
Leverage Data	Performance monitoring to improve operations and services, unlock opportunities such as climate financing, public services, or value-adding services.
Harnesses Global Potential	The open-source community provides tech support, design validation, and continued growth of the ideas.

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EMPOWER

A BILLION LIVES

Flexible Affordable Inclusive Resilient (FAIR) Energy Access Platform (Technical Specifications)

Power Sources

Direct Drive with solar PV (24-36V panels) at 0.1 - 1kW – to enable ‘zero cost’ of energy. **Standard ‘energy bricks’** (batterie?) (0.25 - 1kWh at 12-48 VDC (multi-use for residential, commercial, and transport. **Connect to AC grid** when available (optional). Includes power/energy monitoring using IoT principles.

Loads

Standard 12/48VDC loads at up to 100 watts: TV, fans, laptops, cooking, smart loads. **AC (<1kW) loads:** cooking, transport, cold-chain, water pumping, food-processing, welding.

Lights and Mobile

Integrated USB port for LED lights & mobile charging (e.g. 15Wh of internal batteries).

Open Source

Standard power/comms interfaces, reference design with unit samples, design/build support.

Other

Support local entrepreneur/assembly, device fleet commissioning & monitoring, recycling.

Affordability

- Hardware Cost <\$50 in 10,000 volume (excludes PV & batteries)
- Cost of Energy: Enables LCOE of <0.10/kWh

Support

Comms 2/mobile phone; pay-go, anti-theft, battery charging, appliance sales, servicing.