# 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!**

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*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

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# 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

**DEVLOPMENT: 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.empowerabillionlilves.org
Deadline for 3-5 page proposal: October 1, 2026
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

| | |
|---|---|
| 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)<br>• Cost of Energy: Enables LCOE of <0.10/kWh |
| Support | Comms 2/mobile phone; pay-go, anti-theft, battery charging, appliance sales, servicing. |

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