



SUSTAINABLE  
ENERGY FOR ALL

ENERGY ACCESS  
PRACTITIONER NETWORK

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# Energy Efficiency for Energy Access

## Appliance Efficiency in Resource-Constrained Settings

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# THE ENERGY ACCESS GAP

## THE PROBLEM:

**Over 1.1 billion people around the world have no access to electricity**

and the many development benefits it brings – improving health, generating income, enabling education, improving security, and empowering women.

## THE NEED:

The International Energy Agency estimates that **60% of new electricity** needs will have to be met by distributed (mini- & off-grid) solutions.



## THE FRAMEWORK:

The UN-Led Sustainable Energy for All initiative seeks to **achieve universal energy access by 2030** as one of its three goals, the others being doubling the rate of improvement in energy efficiency and doubling the share of renewables in the global energy mix.



UNIVERSAL  
ENERGY ACCESS



RENEWABLE  
ENERGY



ENERGY  
EFFICIENCY

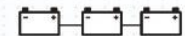
## THE SOLUTIONS:

A range of options exist and are ready for scale for off-grid rural electrification. Energy Access Practitioner Network members are working with technologies including:

### SOLAR PHOTOVOLTAIC (PV) SYSTEMS



### MINI-GRIDS



### BIOMASS



### SMALL HYDRO



### SMALL WIND



*\*Statistics based on responses from the UN Foundation's 2014 annual survey: "Growing the Network: Building Impact"*

# “Ladder” of sustainable energy solutions & services



Photo credits: d.light design, Greenlight Planet

Small stand-alone solutions (solar lanterns)

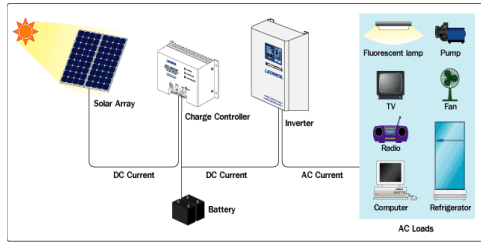


Photo credit: Leonics

Medium stand-alone solutions (solar home systems)

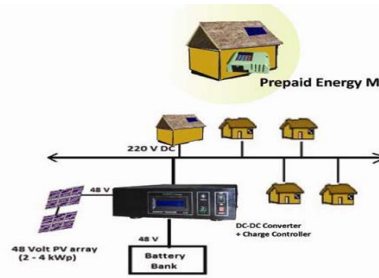


Photo credit: Solaric

Nano-grids

Micro/Mini-grids

Smart Microgrid



Photo credit: Zreyas Technology

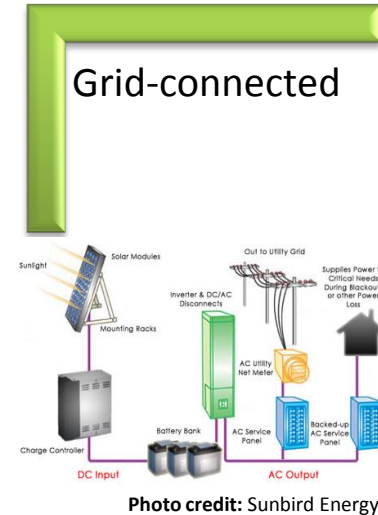


Photo credit: Sunbird Energy

Grid-connected

Tier 1 - Task lighting & phone charging/ radio

Tier 2 – General lighting, television & fan

Tier 3 – Tier 2 & low-power appliances

Tier 4 – Tier 3 & medium-power appliances

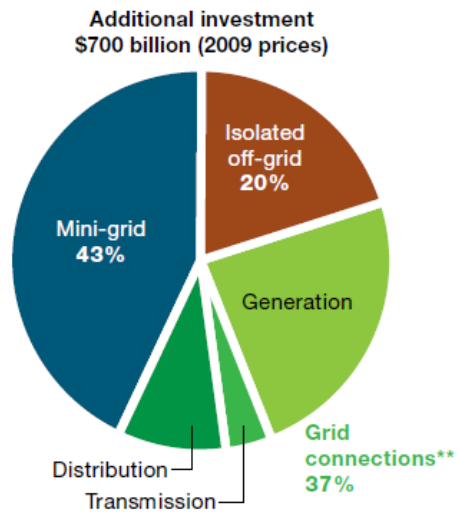
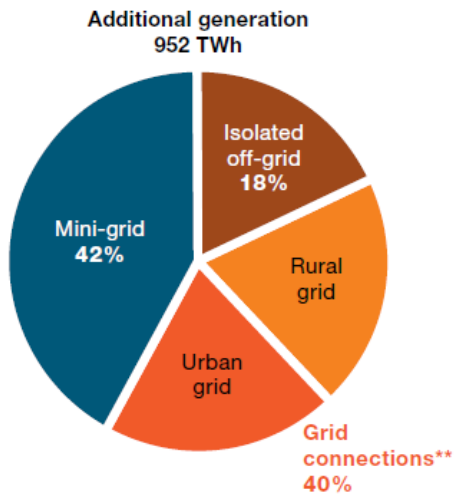
Tier 5 – Tier 4 & high-power appliances



\* Tiers of access are drawn from the Sustainable Energy for All initiative’s Global Tracking Framework.

# Solutions and entry points

Figure 1. Incremental Electricity Generation and Investment in the Universal Modern Access Case\*, 2010-2030



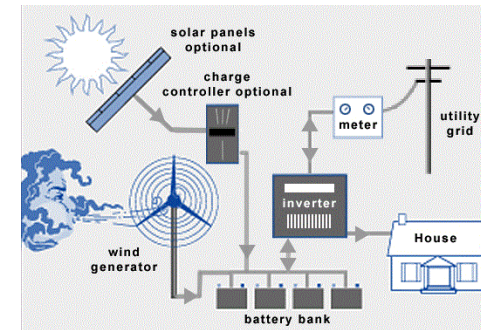
\*Compared with the New Policies Scenario

\*\*includes generation, transmission and distribution for both urban and rural grids

IEA (2010). "World Energy Outlook".



Off-grid Solutions



Hybrid Solutions



Grid Extension

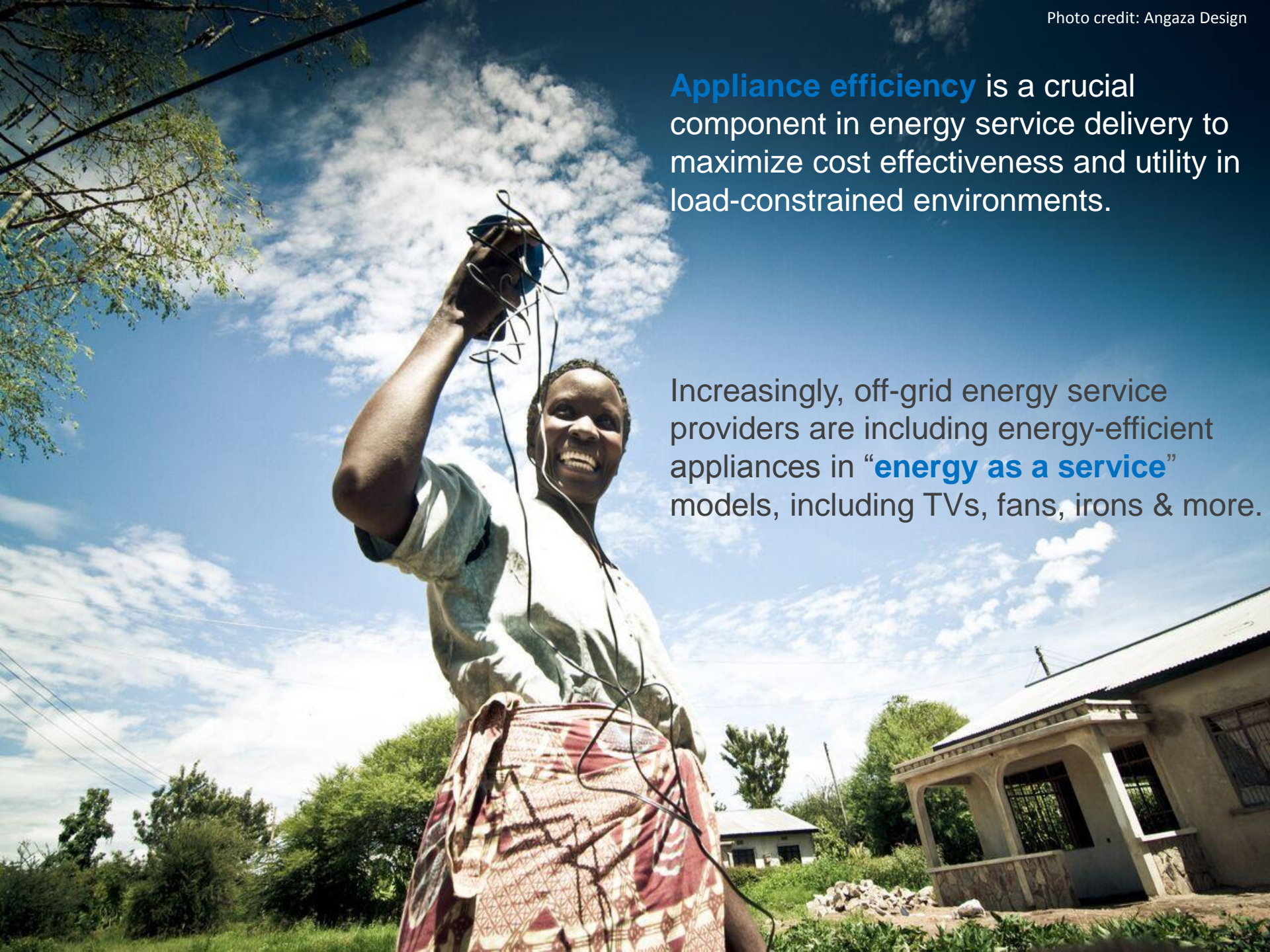


Energy Efficient Equipment



**Appliance efficiency** is a crucial component in energy service delivery to maximize cost effectiveness and utility in load-constrained environments.

Increasingly, off-grid energy service providers are including energy-efficient appliances in “**energy as a service**” models, including TVs, fans, irons & more.



# Role of appliance efficiency in medical settings

## Main services requiring reliable energy:

- refrigeration (vaccine fridge, blood bank)
- light for operating rooms
- ventilation and air conditioning
- medical devices (e.g. Doppler, microscope, ultrasound)
- communication devices and other ICT, including phone charging
- sterilization (autoclave, dry heat sterilizer)
- water supply management

## Energy-efficient medical appliances currently in use:

- direct-drive vaccine fridges (Dulas)
- fetal Doppler (We Care Solar - solar suitcase)
- battery-operated blood glucose monitors
- LED-lit microscopes for tuberculosis diagnosis



Photo credit: We Care Solar



Photo credit: Dulas



# THE ENERGY ACCESS PRACTITIONER NETWORK

## GOALS:

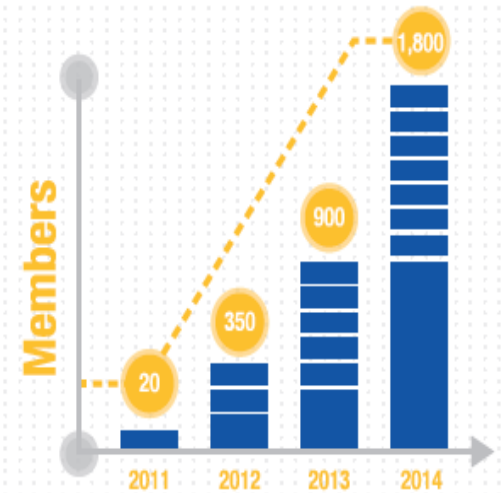
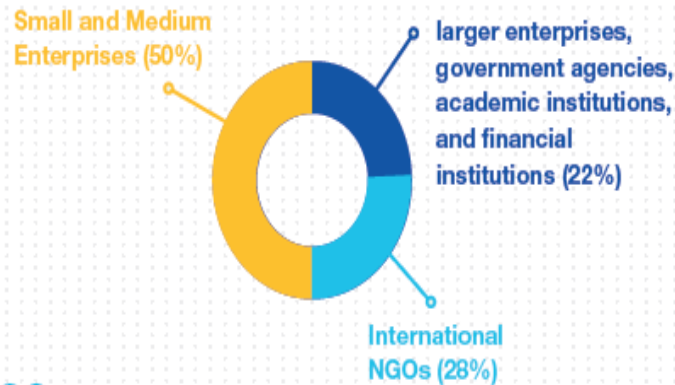
- PROMOTE NEW TECHNOLOGIES AND INNOVATIVE FINANCIAL & BUSINESS MODELS,
- PROVIDE A PLATFORM TO CONVENE AND CONNECT A RANGE OF STAKEHOLDERS AROUND NEW PARTNERSHIPS,
- FACILITATE THE DEVELOPMENT AND ADOPTION OF QUALITY STANDARDS.

## AT A GLANCE

- The Practitioner Network supports primarily market-led decentralized energy applications towards

### ACHIEVING UNIVERSAL ENERGY ACCESS BY 2030.

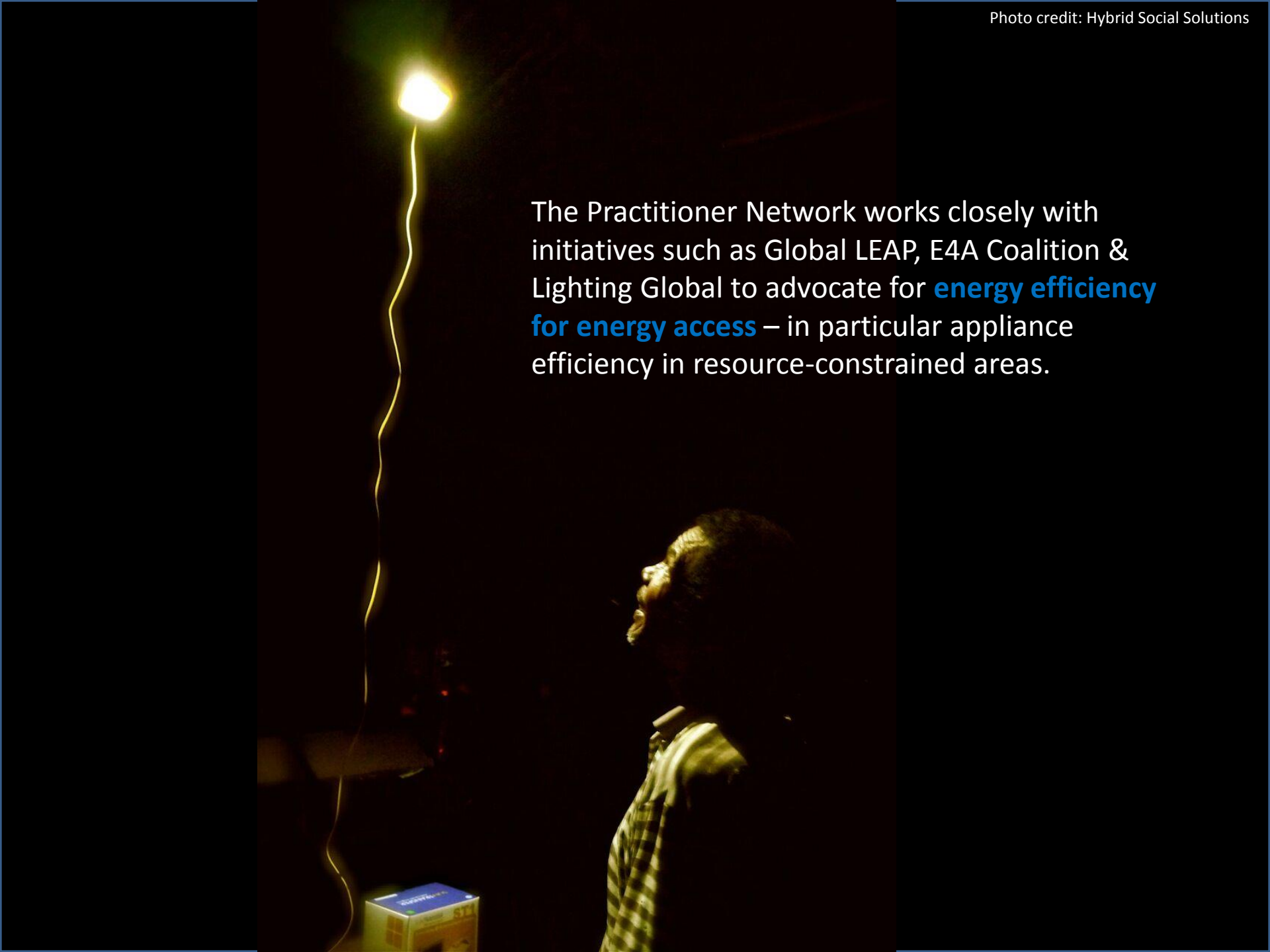
- **OVER 2,000 MEMBERS,**  
**BASED IN 85 COUNTRIES AND**  
**OPERATING IN 170 COUNTRIES.**



## ○ VALUE

**Members value the Practitioner Network for:** information sharing, peer-to-peer learning, networking opportunities, connecting access to finance, enabling partnerships and increased visibility.

*Statistics based on responses from the UN Foundation's 2014 annual survey: "Growing the Network: Building Impact"*

A photograph of a man in profile, looking upwards at a single, glowing light bulb in a dark room. The light bulb is suspended by a thin wire and casts a warm, yellow glow. The man is wearing a checkered shirt. In the foreground, a small box is visible on a surface. The overall scene is dimly lit, emphasizing the single source of light.

The Practitioner Network works closely with initiatives such as Global LEAP, E4A Coalition & Lighting Global to advocate for **energy efficiency for energy access** – in particular appliance efficiency in resource-constrained areas.





PHOTO (C) TERI

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