



**Global Off-Grid Solar**  
FORUM & EXPO



LIGHTING GLOBAL  
Catalyzing markets for modern off-grid energy

AN INNOVATION OF  
**WORLD BANK GROUP**  
THE WORLD BANK IFC International Finance Corporation

Republic of Kenya



# Open solar: a new paradigm to enhance consumer value and drive appliance market growth.

Moderated by Drew Corbyn, GOGLA

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## The interoperability conundrum

Electronics and consumer goods markets show that the “open ecosystem” model is a proven strategy for market growth.

It enables products, services, and information systems to work well together and cost less to build and operate, while enabling specialisation and greater competitiveness.

It offers consumers enhanced choice, experience and value for money.

The off-grid solar sector is a unique beast; energy-limited systems are sold on PAYGo to low-income consumers in complex economies.

An “open ecosystem” market presents risks to consumers and companies alike, with challenges to ensure a quality service for consumers (that drives brand reputation) and avoid increasing payment risk.

# Off-grid solar sales. January – June 2019.



## Global Sales Highlights

**4,11 million**

off-grid solar lighting products sold globally

**3,10 million**

have been sold as cash products for a value of **\$85,34 million**

**1,00 million**

sold via Pay-As-You-Go (PAYGo) for a value of **\$216,85 million**



**2,83 million**

solar lanterns sold globally



**600,000**

multi-light systems sold globally



**680,000**

SHS sold globally

**40,88 MW**

newly installed capacity globally through the off-grid solar lighting products

# Appliance sales. January – June 2019.



## Global Sales Highlights

**730,000**

off-grid solar appliances sold

**535,000**

units have been sold as cash products

**195,000**

units sold via Pay-As-You-Go (PAYGo)



Companies reporting sales data:

- 58 off-grid solar product manufacturers
- 44 off-grid solar appliance manufacturers



**190,000**

TVs sold



**530,000**

fans sold



**3,000**

refrigeration units sold



**3,000**

solar water pumps sold

# EforA Interoperability Roadmap



## “Background and Rationale

Electrical connectivity for AC appliances missed the standardization opportunity:

- IEC TC23 established in 1934; 85 years on: 14 main plug/socket types, 8 voltages, 2 frequencies, governed at national levels.
- 11 pairs of appliance inlets and connectors for globally traded devices.



Electrical connectivity for DC appliances should not do the same.

- DC chaos is worse – chaos by manufacturer’s choice, not national standard.





# EforA Interoperability Roadmap Recommendations



“The off-grid industry should identify a working group of companies to define uniform requirements for:

- Electrical connectivity,
- Connectivity and communication for load management,
- Interfaces and Protocols, including for PAYGo functionality.



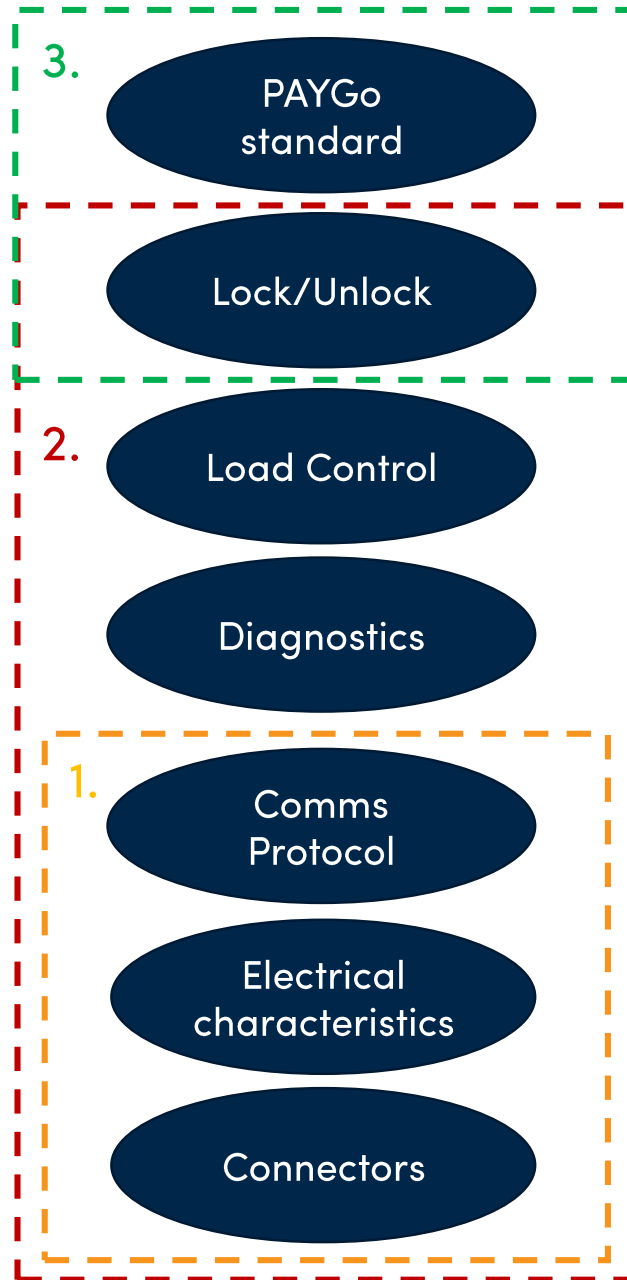
Photo: La Gazel.

# Technical options / opportunities for standardisation and interoperability



2. Standardized messaging to support diagnostics, load management, verify elec. compatibility, PAYGo activation, and power management.

1. The foundation layer: a universal (family of) connectors, electrical compatibility and communications protocol.

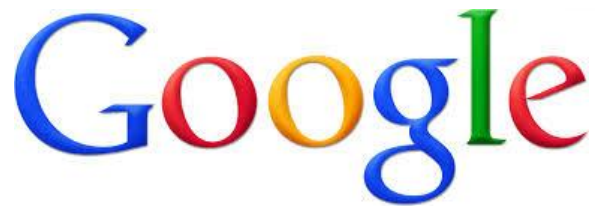


3. A PAYGo standard with protocols (token generation, etc.), software compatibility standards, and PAYGo-enabling hardware.

## Industry interoperability alliances



Project Connected Home over IP



USB Implementers' Forum



*Enabling Connections™*



Open or Closed – Which strategy offers the best opportunity for growth of the off-grid solar sector?

## Open

An “open” model entails a universal connector (and electrical compatibility) with a standard communications protocol.

The consumer is able to use any appliance with the core system

## Closed

A “closed” model entails a brand-specific plug combined with a proprietary communications protocol.

The PAYGo company only enables appliances that are sold with the core system.



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# Open

Thibault Lesueur



Makena Ireri



# Closed

Nigel Preston



Hugh Whalan





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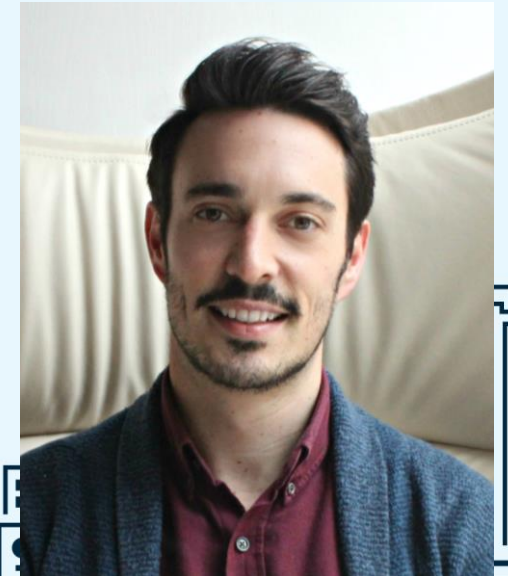
**Hugh Whalan**

CEO  
PAG Africa Ltd



**Thibault Lesueur**

Co-founder & Chief  
Marketing Officer,  
Solaris Offgrid





## A vision for the “open solar” (interoperable) market

We envisage a market in which both “closed ecosystem” and “open ecosystem” models co-exist and compete as part of the commercial landscape.

An “open solar” alliance would entail a group of off-grid solar companies and service providers that see value in collaboration, working together to define and adopt standards to enhance interoperability. It would be entirely voluntary.

GOGLA’s Technology Working Group and the EforA Interoperability Working Group offer platforms to convene the requisite industry players and expertise, and (hopefully) secure financial support from donors.

**We are looking for interested companies and partners.**

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