Productive use appliances for energy access

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Appropriately-designed and highly energy-efficient appliances fundamentally improve the economics of energy access, maximizing the value of every available watt and putting modern energy services within reach of millions worldwide.
Demand & impact rankings (2018)
Relative maturity of selected appliances

Maturity of off-grid appliance technologies in East Africa

- Pico Solar
- SHS Kits
- Fans
- Televisions
- Solar Water Pumps
- Fridges
- Small Handheld Appliances
- Agricultural Processing
- Medical Equipment
- E-Cooking
- Walk-in Coolers
- Laptops, Monitors & IoT
Market for solar agricultural equipment (Africa)

2018 Market Size
USD $732 Million

- Solar Water Pumps: $453M
- Ag Cooling and Refrigeration: $191M
- Agro-processing: $87M

2030 Market Potential
USD $3 Billion

- Solar Water Pumps: $1276M
- Ag Cooling and Refrigeration: $1318M
- Agro-processing: $417M

Source: IFC, Dalberg Advisors
Current activities

**Solar Water Pumps**

- Market, Consumer, and Impacts Research
- Incentives to appliance manufacturers and off-grid solar distributors
- Technology Roadmap
- Global LEAP competition to identify top-performing products through lab testing
- Test method development and market baselining
- Sales Data Collection

**Agricultural Cold Chain**

- Global LEAP competition to identify top-performing products through field testing
- Deploy R&D grants
- Identify segments of refrigeration market that are most ready to scale

**Solar Milling**

- Conduct field trials to measure energy performance & consumer satisfaction for use cases
- Conduct research to size the total addressable market
- Deploy R&D grants
Solar Water Pumps
Market & policy interventions should match readiness

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Solar Water Pumps: Current interventions

- Poor-quality products diminish consumer confidence in off-grid solar & negatively influence markets (longer consumer adoption)
  - Incentivize quality appliances
  - 3rd party testing

- More efficient, affordable appliances made available and targeted at the most “ready” market segments (higher levels of energy access faster)
  - Distributor/manufacture incentives
  - Research

Global LEAP competition to identify top-performing products through field testing

Test method development and market baselining

Conduct field trials to measure energy performance & consumer satisfaction for use cases

Results Based Financing: New window opening in Aug/September 2019

- Sales Data collection
- Sizing the market for SWP
- Socio-economic Impact of SWP on users
- Technology Roadmap
- Deploy R&D grants
- Market, Consumer, & Impacts Research
Global LEAP Awards: An international competition to identify and promote the world’s best off-grid appliances, accelerating market development and innovation.

The 2019 Global LEAP Awards Off-Grid Refrigerator and Solar Water Pump Competitions: received a total of 80 nominations – 38 off-grid refrigerators and 42 solar water pumps – from 21 countries. Announcement of winners and finalists anticipated in July 2019

RBF provides financial incentives to participants in the Global LEAP Awards and off-grid solar distributors that partner to distribute large quantities of award-winning products in key national off-grid markets.

The RBF program has had a substantial impact on the growth of commercial markets for off-grid appliances:

- **Market Scaling for Impact**: Facilitated the procurement of over 245,000 best-in-class off-grid TVs, fans, and refrigerators by 27 companies across East Africa and Bangladesh, supporting the delivery of new or enhanced energy access to over half a million individual beneficiaries to date.

- **Early Stage Market Growth**: Catalyzed the first-ever wholesale procurement of off-grid refrigerators by two of the leading PAYGO solar home system companies and one leading mini-grid developer.

- **Market Diversification**: Increased market share for high-quality, energy efficient off-grid appliances relative to competitor products

- **Consumer Insights**: CLASP surveys samples of RBF customers, generating valuable market intelligence and consumer insights
Recently Published

- **GOGLA Global Off Grid Solar Market Report** – We partnered with GOGLA to collect sales data for TVs, fans, refrigerators, and solar water pumps

- **Off-grid Appliance Performance Testing**: Results and Trends for Early-stage Market Development

- **State of Play and Innovations in Off-grid Refrigeration Technology**: Lessons Learned from Current Initiatives

- **Use and Benefits of Solar Water Pumps** in Kenya, Tanzania and Uganda

- **Solar Water Pump and Off-grid Refrigeration Technology Roadmaps**

- **Tanzania Market Snapshot**: Horticulture Value Chains and Potential for Solar Water Pump Technology

Upcoming Publications

- **State of the Off-grid Appliance Market Report** – Publication in July

- **Solar Water Pump Market Snapshot**: South Asia and Sub-Saharan Africa – Publication in July

- **Bangladesh Off-grid Appliance Market Trends** – Publication in July

- **Use-Case Segmentation for Off-grid Refrigeration Systems** – Publication in August

- **Impacts of Fans** – Publication in August
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