

OFF-GRID RENEWABLES

PRIVATE SECTOR APPROACHES

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Catalyzing markets for modern off-grid energy
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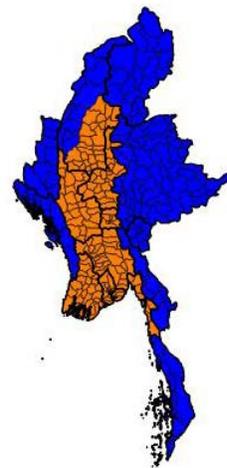
July 2017

Lighting Myanmar

Supporting manufacturers and distributors to build a sustainable commercial market for high-quality off-grid solar in Central Myanmar

IFC-led project launched in June 2016

Part of Lighting Global program, operating in more than a dozen countries

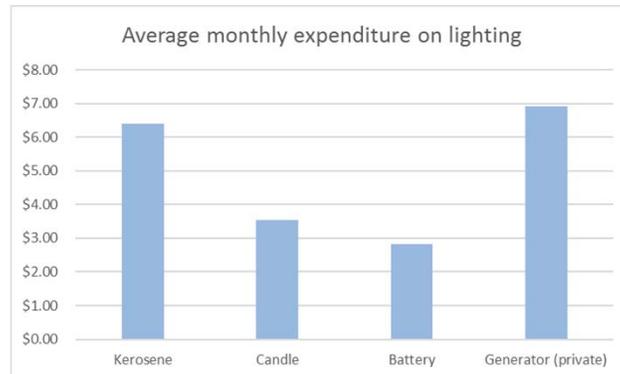


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Current expenditure on lighting

In central Myanmar, the unserved and underserved population is spending an estimated US\$18.5M to \$19.0M per month on lighting



Source: Lighting Myanmar research

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Off-grid solar is a leading driver of electrification

Solar Penetration Data:

- 2014 Census: 945,000 households using solar (8.7%)
- More recent data suggests ~1.7 million households using solar (16%)
- Government programs: around 500,000 free solar systems

Around 1 million people in Myanmar have bought solar from the private market, mostly in the last 5 years.

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Solar Penetration in Myanmar

Solar usage varies widely from region to region:

- Shan: 26.6%
- Magway: 10.1%
- Ayeyarwady: 4.4%

Some townships > 50%, but still large areas with relatively low penetration.



Source: 2014 Census

Option 1: Mini-grids

Mini-grids: Village-scale (or larger) systems with integrated generation and distribution.

- Powered by solar, hydro, diesel, or hybrid depending on location
- Usually limited by number of hours or amount of energy provided each day
- Could be integrated to grid later, if built to grid standard

Challenges:

- More costly per HH?
- Project development can be difficult and time-consuming
- Regulatory uncertainty
- No proven commercial models (yet)



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IFC Study on Mini-grid DESCOs

2016 study, looked at 20 mini-grid companies in 7 countries

Selected findings:

- Converging business models:
 - Build-own-operate model
 - Use of solar-hybrid technologies
 - Growing importance of high-tech monitoring (smart meters)
- Perceived need for strong anchor customer (e.g. ABC model)
- Long payback periods: 5+ years
- Significant reliance on grant funding

Source: "Operational and Financial Performance of Mini-grid DESCOs," January 2017.

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Option 2: Household Solar

Household Solar: Includes a wide range of solutions for individual households, from small lanterns to large solar home systems that can power TVs and fans.

Easily deployed, widely available, and a proven commercial market in many countries.

Challenges:

- Generally lower level of service (though getting better)
- Uncertainty about quality/durability among consumers
- Better quality brings higher up-front costs



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Current Solar Market in Myanmar

Solar is well-known and widespread

- Range of products and systems
- Quality and service is low

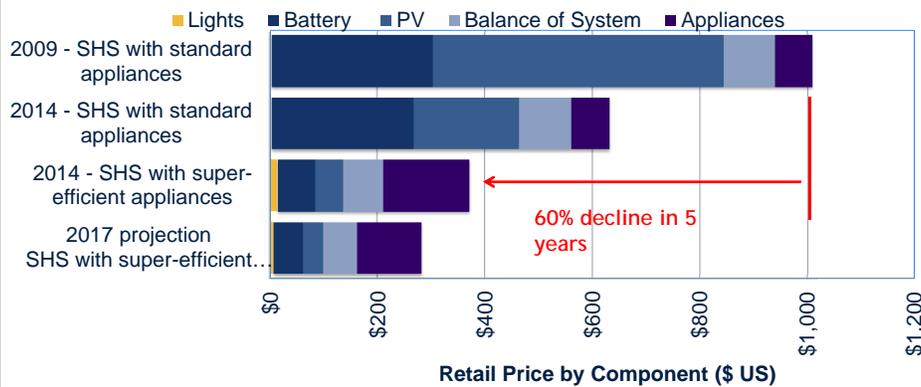


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Move to bigger systems

As the cost of Solar Home Systems has fallen dramatically, they have become a viable alternative to the grid.



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Pay-as-you-go (PAYG)



1
Customer pays small deposit (~10% of cost) to install system

2
Customer pre-pays for energy via mobile money and receives unique usage code via SMS



3
Customer enters code, product unlocks for prepaid time
System automatically shuts off when credit expires

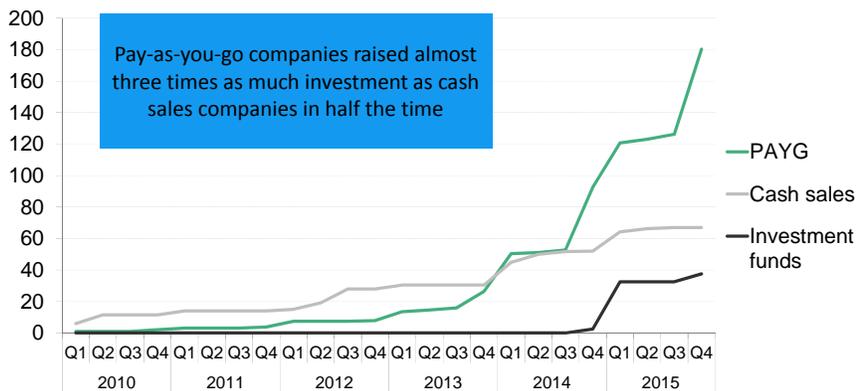
Source: Jacob Winiecki, "Digital Finance+", CGAP.

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PAYG Investment

Investment in off-grid solar by recipient type (million USD cumulative)



Source: Bloomberg New Energy Finance

Note: shown data excludes USD 40m of investments with undisclosed date and \$27m of aggregate data for which the recipient type could not be determined.

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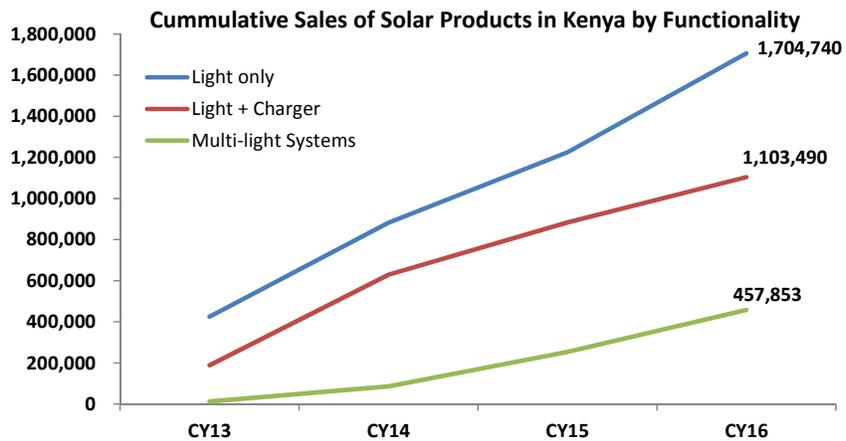


Lighting Global Approach

Working with manufacturers and distributors of high-quality solar products to build the market through 6 areas of activity



Lighting Global market growth in Kenya



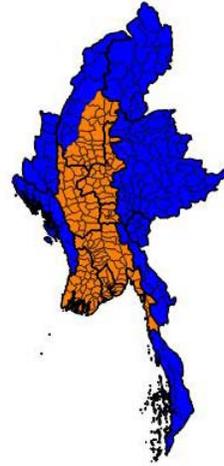
Lighting Myanmar in 2017

Market Intelligence: Research to help companies enter and succeed in the market

Business Development: Partnering international manufacturers with local distributors, retailers, MFIs and other organizations

Consumer Awareness: Launching campaign to promote quality-verified products and companies in Myanmar

Policy and Regulatory: Engaging with government on solar programs, tariffs, and other issues



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Thank You

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