Energy Efficiency for Energy Access

Molly M. Ward
U.S. Department of State

Presented at the Asia Development Bank’s Clean Energy Forum
June 7, 2016
Bureau of Energy Resources

**Energy Diplomacy**
- Managing the geopolitics of the energy economy through reinvigorated energy diplomacy with major energy producers and consumers

**Energy Transformation**
- Stimulate markets that will sustain transformational energy policies in terms of alternative & renewable energy sources, electricity, development, and reconstruction

**Energy Transparency and Access**
- Increase transparency and improve commercially viable and environmentally sustainable energy services

United States Department of State
Over 1 billion people globally lack access to electricity

- Latin America: 20m
- Africa: 600m
- Asia: 500m

...and another billion lack reliable access.
Energy Access Deficit

A large majority of those without energy access are in rural areas.

Data for 2012
Benefits of Access to Modern Energy Services

- Economic
- Health
- Environmental
- Education
- Social

*It is critical to meeting the global Sustainable Development Goals*
Access to electricity enables students to study at night, improving grades and graduation rates.
Access to electricity facilitates irrigation, increasing production, and food security.
Efficient Off-Grid Technologies Enable Increased Energy Services

Global Tracking Framework – Tiers to Count Electricity Access

<table>
<thead>
<tr>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 4</th>
<th>Tier 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task lighting and phone charging</td>
<td>General lighting, and TV, and fan</td>
<td>Tier 2 and any low power appliances</td>
<td>Tier 3 and any medium power appliances</td>
<td>Tier 4 and any high power appliances</td>
</tr>
</tbody>
</table>

(Source: SE4All Global Tracking framework)
Efficient & High Quality Energy Services and Appliances

• Can reduce the total cost of providing off-grid energy by as much as 50%.

• Ensure that un- and under-electrified homes and businesses can make the most out of off-grid energy.

• They are essential to the growth of off-grid markets, as they create demand for off-grid energy systems, and reduce costs and risks for consumers and businesses.

• Are critical to capturing the full potential of off-grid energy by cost-effectively extending the range of energy services.

• Confidence in product quality is essential to the development of the off-grid market.
Super-Efficient Technologies Reduce Costs of Off-Grid Energy Services

SHS Purchase Price Based on Appliance Type

*Systems provide energy for 4 lights, a 19” color TV, a radio, and mobile phone charging
* Appliance use assumption: lights = 4hrs/day, TV = 3hrs/day, radio = 6hrs/day, mobile phone = 1 charge per day

Efficient Off-Grid Appropriate Appliances Spark a Virtuous Circle in Clean Energy Access Markets

1. Improvements in performance and availability of appliances
   Scaling market improves affordability, efficiencies, and value for money, making appliances more accessible

2. Increasing demand for off-grid energy services
   More households demand energy to power improved, high-quality, off-grid appliances

3. Energy becomes more accessible
   Heightened demand for energy helps off-grid businesses diversify revenue streams and scale, improving sector economics

4. This increases the demand for off-grid appliances
   More households demand appliances to take advantage of improving energy access ecosystem.

Critical Barriers Inhibit Off-Grid Appliance Market Growth

The global off-grid clean energy market needs a complementary market of high-quality, super-efficient off-grid appliances to reach its full potential, but significant barriers inhibit that market’s development:

- **Off-Grid Energy Service Companies** struggle to identify and source super-efficient, high-quality, and affordable appliances.

- **Appliance Manufacturers** often are not familiar enough with the off-grid marketplace to design and market their products effectively.

- **Investors & MFIs** lack reliable benchmarks against which to target investment or evaluate and incentivize appropriate appliance procurement.

- **Policymakers** lack the market and product performance data to target and scope market transformation policies or programs.

These barriers inhibit growth in the global off-grid clean energy market and exclude off-grid communities from the socioeconomic, health, and environmental benefits of improved and expanded modern energy services.
Targeted Interventions Will Accelerate Market Development

Global LEAP’s recent market research report identifies the following changes that can help catalyze the off-grid appliance market:

- Continued technology innovation specific to the off-grid market
- Access to enterprise finance.
- New consumer financing solutions
- Stronger distribution partnerships between appliance manufacturers and off-grid energy service providers
- Bundled product offerings
- Improved consumer awareness
- Increased market intelligence
- Product quality assurance frameworks
- Tariff reform
- Targeted incentives for manufacturers
- Performance standards.
Three Objectives by 2030

1. Ensure universal access to modern energy services
2. Double the global rate of improvement in energy efficiency
3. Double the share of renewable energy in the global energy mix
WHAT
E4A Coalition is a global campaign to harness the game-changing power of energy efficiency to drive universal access to enhanced energy services beyond lighting by 2030.

WHY
Super-efficient appliances, equipment, and other end-use technologies increase the affordability of energy services by radically reducing the cost of the required off-grid energy supply.

HOW
E4A is leading a Year of Action in 2016 to mobilize commitments from public- and private-sector partners to (1) raise awareness of EA+EE opportunities (2) support the development and deployment of super-efficient end-use technologies.
Promotes global markets for quality assured off-grid solar lighting and appliances.

Core efforts

• Supporting quality assurance frameworks for off-grid energy products and services
• Enabling the uptake of super-efficient off-grid technologies
• Facilitating programmatic, policy, and research partnerships
2015-16 Global LEAP Awards

Off-Grid Television and Fan Competition Results

**Winners**
- d.light
- NIWA

**Finalists**
- BBOXX
- Bright Renewables
- fosera
- Maks
- Mobisol
- Omnivoltaic
- Super Star Group
- Versa Drives

Detailed information about all 2015-16 Global LEAP Awards Winners and Finalists, including product performance data and sales contact information, is available in the [2016 Global LEAP Awards Buyer’s Guide](GlobalLEAP.org/Awards).
Core Elements for Successful Market Transformation

Leverage partnerships to enable cross-cutting action at the required scale

- Market Research & Intelligence
- Technology Development & Innovation
- Policy Frameworks & Enabling Environments
- Finance
- Industry Engagement & Support
- Consumer Awareness
Thank you

Molly M. Ward
WardMM@state.gov

For further information on Global LEAP or the Efficiency for Access Coalition:
Rose Mutiso – Rose.Mutiso@hq.doe.gov  OR  info@GlobalLEAP.org

Sign up at GlobalLEAP.org