



The State of the Global Off-Grid Appliance Market

New Insights on a Major Emerging Commercial Opportunity



Fans



Televisions



Refrigerators

The global market for off-grid appliances is poised for rapid, significant growth. By 2020, the market for three of the most promising off-grid appliances - fans, televisions, and refrigerators - has the potential to reach \$4.7B per year.



The Next Phase of the Off-Grid Market

Globally, 1.2 billion people live without access to electricity, and another billion have unreliable access.

A vibrant market has emerged for off-grid lighting products and clean energy systems, providing modern energy services to underserved communities around the world. Appliances like fans, televisions, and refrigerators represent the next phase of this market and have the potential to unlock significant additional growth.

Off-grid appliances – if appropriately designed and priced – can unlock a wide range of energy services, providing off-grid households and businesses access to modern communications, cooling, and more for the first time.

Highly energy-efficient off-grid appliances also create and sustain demand for off-grid clean energy systems by offering higher levels of modern energy services while minimizing the cost of supplying off-grid energy.

New research supported by the Global Lighting and Energy Access Partnership (Global LEAP), a U.S. Department of Energy-led initiative of the Clean Energy Ministerial, provides critical insights into this dynamic emerging market.



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**CLEAN ENERGY
MINISTERIAL**

Accelerating the Transition to Clean Energy Technologies

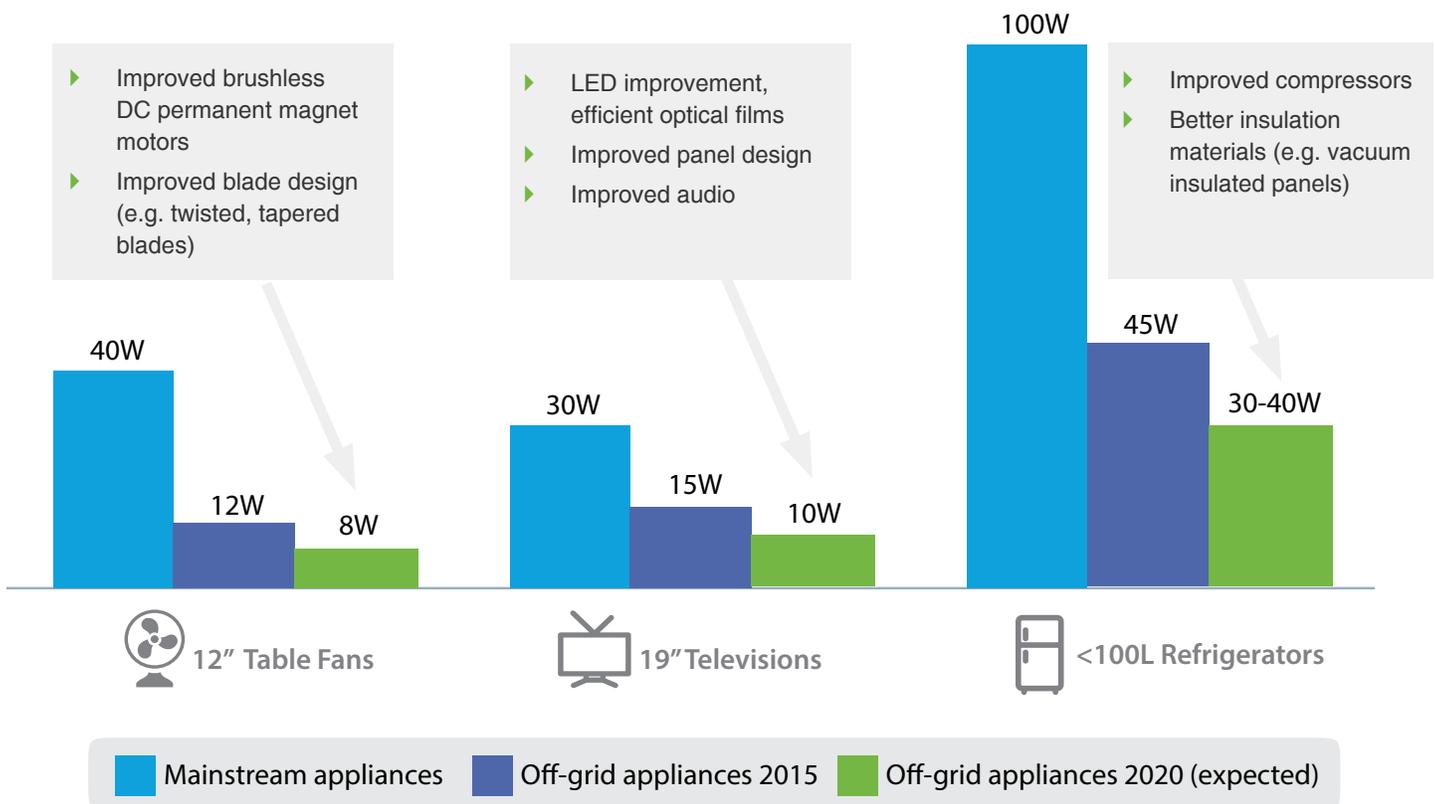
The Importance of Efficiency

Mainstream appliance products can consume over **10 times as much energy** as lighting technology, more than many off-grid clean energy systems are able to supply.

But recent technology advancements and design improvements enable super-efficient off-grid appliances to consume **50-70% less energy** than mainstream appliances today, and by 2020 they are expected

to consume **up to 80% less energy**. This will allow many more consumers to power appliances on off-grid energy systems, enabling increased market penetration and improved energy access outcomes.

Figure 1. Estimated power rating (W) of off-grid appliances, 2015 and 2020

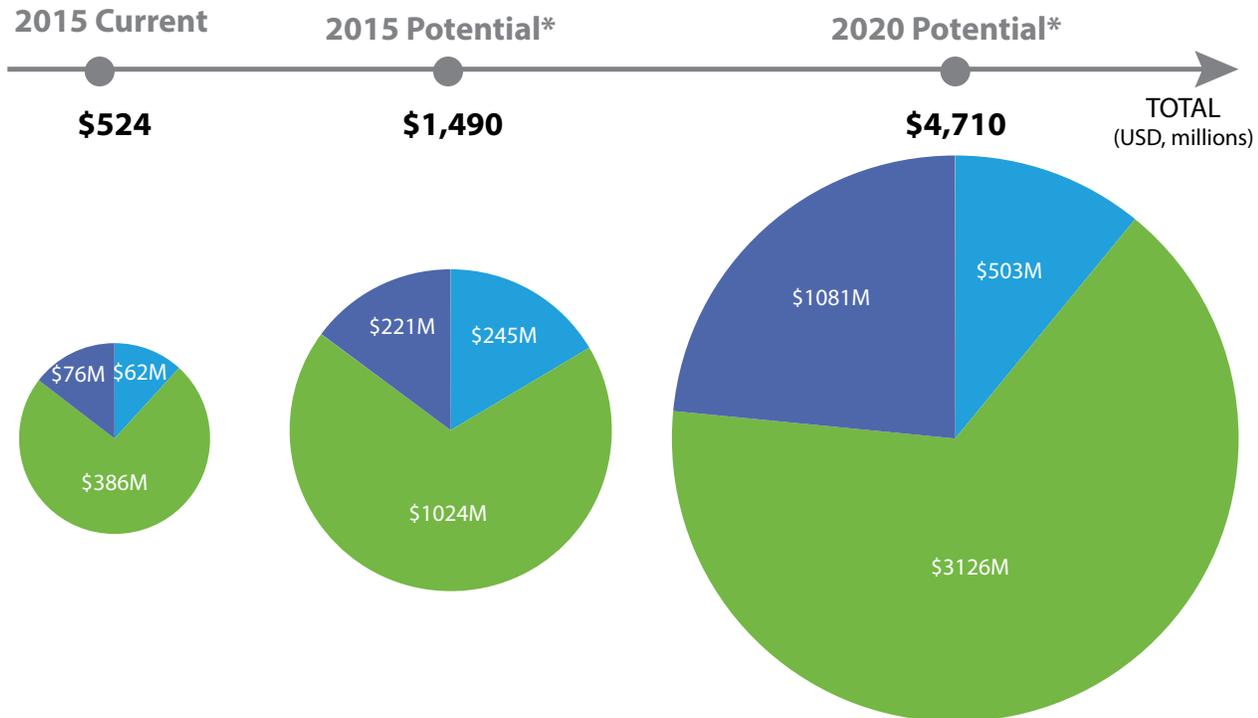


The State of the Global Off-Grid Appliance Market provides detailed analysis of product-specific technology trends and the impact of design and energy efficiency improvements on market potential.

Global Off-Grid Appliance Market Potential

The annual market for off-grid fans, televisions, and refrigerators could grow from an estimated \$524M in 2015 to \$4.7B in 2020, an 800% increase.

Figure 2. Estimated global potential annual spend on target off-grid appliances, 2015 & 2020



Market growth by appliance product category (CAGR, 2015 potential to 2020 potential)

■ Refrigerators (15%)
 ■ Fans (25%)
 ■ Televisions (37%)

*Provided widespread adoption of energy efficiency and design improvements to improve performance while reducing cost, increasing consumer willingness and ability to pay

Figure 3. Product Spotlights



FANS: LOW-HANGING FRUIT

Fans are already within the purchasing power of most off-grid consumers. Improvements in product quality and efficiency will enable market stakeholders to capitalize on robust latent consumer demand.



TELEVISIONS: AN IMMEDIATE OPPORTUNITY

LED flat-panel technology has revolutionized the off-grid television market. Appliance manufacturers should continue to leverage LED technology gains while making strides in the design of off-grid-specific TVs to benefit from this rapidly growing market.



REFRIGERATORS: INVESTMENT IN THE MARKET'S FUTURE

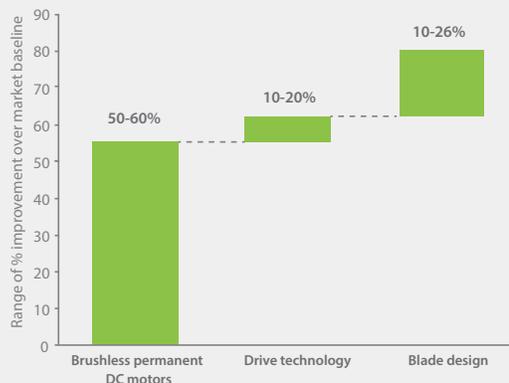
Increased investment in R&D and greater access to finance across the supply chain, from commercial credits for distributors to consumer financing, will be required to unlock the vast potential of off-grid refrigerators.

Technology Trends: Off-Grid Fans

Fans are in high demand in hot, humid climates. The off-grid market is crowded with low-quality, energy-inefficient fans, inhibiting this market’s potential.

An increase in the overall level of product quality and wider adoption of high-impact efficiency improvements, while keeping costs in check, will enable significant growth.

Figure 4. Efficiency Improvement Potential in Off-Grid Fans



Challenges & Opportunities

Global LEAP’s research also points to challenges the market must overcome to achieve its potential. These challenges, similar to what the off-grid lighting and clean energy market faced in its early days, fall into five broad categories: finance, tariffs and taxes, distribution, consumer awareness, and customer service.

Finance is the most commonly cited challenge by off-grid enterprises, from capital investment in R&D to working capital for enterprises further down the value chain and product financing for off-grid customers.

This research will help market stakeholders – including industry, development

institutions, donor organizations, governments, and more – overcome these challenges. The report’s recommendations focus on the need to enhance market intelligence, provide reliable access to finance, and enact favorable policies.



MARKET INTELLIGENCE

- ▶ Product sales, performance, and cost data



ACCESS TO FINANCE

- ▶ Debt finance for manufacturers and distributors
- ▶ Consumer finance for higher-price products



POLICY REFORMS

- ▶ Trade and import tariffs
- ▶ Off-grid appliance quality assurance frameworks, standards, and labeling

Please visit GlobalLEAP.org to download the report.