EFFICIENCY FOR ACCESS

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POLICY BRIEF

PROMOTING HIGH-PERFORMING OFF-GRID APPLIANCES

EXECUTIVE SUMMARY

JUNE 2019

EFFICIENCY FOR ACCESS COALITION

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An exciting new generation of high-performing appliances is being developed for use in off- and weak-grid areas, many of which run on direct current (DC) rather than alternating current (AC) power.[i] The cooling, irrigation and communications benefits of off-grid refrigerators, fans, solar water pumps and televisions have the potential to improve the productivity, livelihoods, education and health of millions worldwide.

Appliance efficiency contributes to energy access by enabling people with limited electricity supply to power more appliances for longer.[ii] Efficiency also enables the use of smaller photovoltaic (PV) modules and batteries, allowing people to access a higher level of service at lower cost. For example, a solar home system (SHS) coupled with super-efficient appliances is up to 35% cheaper than one using conventional appliances to deliver the same level of service.[iii]

Ensuring the quality of efficient appliances is essential to consumer protection, and to the overall health of markets. High-quality, durable products have a larger positive impact on the lives of end-users than low-quality products, which often lack warranties or after-sales service, leaving people exposed to the risk of early product failure.

Standards and labelling initiatives are needed to promote quality and efficiency, as well as to protect consumers. Whilst progress has been made in developing test methods and standards for use in off-grid settings, additional steps are needed at both national and international levels.

As off-grid appliance markets mature, a broader range of test methods and standards will need to be developed and adopted by international standards organisations, such as the International Electrotechnical Commission (IEC). At the national level, governments and aid agencies can use the proven tools outlined below. These tools are especially effective when combined with other market development initiatives, such as consumer awareness campaigns or financing facilities.

- **Test methods** are the foundation of all standards-related policies and programmes. They enable measurement and comparison of the quality and performance of products across markets in a consistent way.

- **Voluntary standards** build on test methods by establishing minimum requirements in areas such as performance, durability, safety, truth-in-advertising or warranty. They can be used to ensure that only products and companies that meet requirements benefit from market development initiatives. When implemented by governments, voluntary standards can act as a stepping stone towards the introduction of mandatory standards or labelling programmes.

- **Mandatory standards** are used to ensure that all products manufactured or imported into a country legally meet minimum requirements, helping to keep poor-quality products out of the market and protect consumers. The benefits of mandatory standards can be significant, especially in countries where poor-quality products are prevalent. The cost of implementing and enforcing compliance with standards can be high. Markets must be mature enough, and sales volumes high enough, for benefits to outweigh costs. Similarly for the private sector, the benefits of getting products certified must outweigh the cost of doing so.

- **Labelling** programs make comparative information about products available to businesses or consumers. Governments considering labelling programmes for off-grid appliances need to carefully consider:
  - The availability of comparative information about products
  - The mechanism needed to police use of the label; and
  - The consumer education campaigns needed to ensure that off-grid consumers are aware of the label.

1. Undertake Market Research and Stakeholder Mapping

Measures to promote quality need to be introduced at the right stage in a market's development, so as to achieve the desired effect. If they are introduced prematurely, based on inadequate market knowledge or without stakeholder consultation, they can cause significant harm to fragile, nascent markets. Decision-makers are encouraged to undertake market research activities to build their understanding of products, companies and value chains, and how the market is likely to be affected by the measures being considered. Decision-makers should also undertake stakeholder mapping to fully understand the broader environment in which they are operating, and be confident that the institutional, financial and human resources needed to effectively implement measures are either in place, or can be built. Mapping can also identify key stakeholders to work with throughout the standard development and implementation process. Important stakeholders may include Customs Authorities, Bureaus of Standards, industry associations or consumer groups.

2. Build on Existing Tools and Consider a Regional Approach

Alignment of test methods or standards across programmes and countries helps to make products more affordable by enabling companies to design and manufacture products for multiple markets, reducing testing and certification fees, fostering competition and helping to unlock economies of scale. Decision-makers are encouraged to check whether there is an existing international, regional or national test method or standard that meets their needs before developing their own. At the international level, the International Electrotechnical Commission (IEC) has existing standards that cover electrical safety, ingress protection and other areas, as well as a network of accredited test laboratories. Global LEAP test methods, which are designed to test and evaluate the performance and quality of appliances suitable in off- and weak-grid settings, can be used to compare products and performance requirements if needed.[iv]

Governments and other stakeholders are strongly encouraged to take advantage of the Global LEAP test methods and align with them as much as possible.

A regional approach is an effective strategy for aligning test methods and standards. Many regional institutions have a mandate to champion standards development, adoption and implementation. For new measures to be developed and implemented, a critical mass of countries needs to be supportive of their introduction. Country representatives are encouraged to act as 'champions' for new regional measures, and to work closely with other Member States to drive through reform. However, given the rapid pace at which interest in off-grid appliances is developing, decision-makers may prefer to focus on national standards, which can be introduced more quickly. If such an approach is pursued, governments are encouraged to align their efforts as much as possible with international standards and tools from the IEC, Global LEAP Awards and others. National standards can be developed, adopted and implemented through a gradual, phased and collaborative 'roadmap' approach, as outlined below.

3. Develop a Roadmap and Engage Stakeholders

A roadmap can be used to outline a government's objectives, the tools they plan to use, the key stakeholders involved and their roles. It can also outline the process a government envisages for the development of policies and programmes, as well as a strategy for stakeholders consultation. Roadmaps help make the changing policy and regulatory environment as predictable as possible, enabling all stakeholders to understand the process and plan accordingly. Throughout the design and implementation of quality-related policies and programmes, strong stakeholder engagement and collaboration are key. Important stakeholders are likely to include manufacturers, distributors and mini-grid developers, a range of government ministries and departments, consumer groups and civil society organisations.

About this Document

This policy brief has been produced by the Energy Saving Trust (EST) and CLASP, on behalf of the Efficiency for Access Coalition, a coalition to accelerate global energy access through energy-efficient appliances. Since its founding in 2015, Efficiency for Access has grown from a year-long call to action and collaborative effort by Global LEAP and Sustainable Energy for All (SEforALL) to a coalition of 13 donor organizations. Coalition programmes aim to scale up markets and reduce prices for super-efficient, off- and weak-grid appropriate products, support technological innovation and improve sector coordination. Current Efficiency for Access Coalition members lead 12 programmes and initiatives spanning three continents, 44 countries and 19 key technologies. CLASP and EST jointly serve as the Secretariat to the Efficiency for Access Coalition.

The purpose of this brief is to support governments and aid agencies in promoting high-performing appliances for use in off- and weak-grid areas. "Off-grid" refers to areas where populations live beyond the reach of the traditional grid; "weak-grid" refers to areas where populations have unreliable grid connectivity and suffer frequent and sometimes lengthy outages.

This policy brief has been developed in consultation with a diverse group of stakeholders. Efficiency for Access would like to thank the Kenya Energy and Petroleum Regulatory Authority, the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) and the East Africa Centre of Excellence for Renewable Energy and Efficiency (EACREEE) for their feedback. We would also like to thank Efficiency for Access Coalition members, such as USAID Power Africa, the World Bank / IFC Lighting Global team and the Swedish International Development Agency (Sida), as well as other key stakeholders, including the Global Off-Grid Lighting Association (GOGLA) and the Africa Mini-Grid Developer's Association (AMDA) for their feedback.

This brief will be periodically updated to capture emerging best practices. Subsequent briefs will provide guidance around how to accelerate adoption of specific appliances, as well as guidance on key policy topics relevant to all appliances.

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Further Reading

- Global LEAP Off-Grid Refrigerator Test Method – www.efficiencyforaccess.org/publications/global-leap-off-refrigerator-test-method
- Global LEAP Off-Grid Fan Test Method – www.efficiencyforaccess.org/publications/global-leap-off-grid-fan-test-method
- Global LEAP Award Buyer's Guide: Fans and Televisions – www.efficiencyforaccess.org/publications/global-leap-buyers-guide-refrigerators
- Appliance Data Trends: Insights on Energy Efficiency, Quality and Pricing for Off-Grid Appropriate TVs, Fans and Refrigerators, Efficiency for Access Coalition, September 2018
- Equip Data Tool – www.equipdata.efficiencyforaccess.org/.
- Benefits of Harmonizing Test Methods and Quality Standards, Technical Note # 25, Lighting Global Quality Assurance - www.lightingglobal.org/resource/benefits-of-harmonizing-test-methods-and-quality-standards/
- Standards and Labelling Guidebook, CLASP – www.clasp.ngo/tools/s-l-guidebook.

Learn More

Contact us to learn more about the tools outlined above and how the Efficiency for Access Coalition can help you promote high-performing, off-grid appliances. Visit us on our website www.efficiencyforaccess.org, or get in touch at info@efficiencyforaccess.org.

Endnotes

[i] AC power is more suited to being transported over long distances through transmission lines, whereas DC power is more suited to appliances that only require a small amount of electricity. For more information please see: https://www.diffen.com/difference/Alternating_Current_vs_Direct_Current.

[ii] "Appliances" are defined as energy consuming products that can operate in an off-grid energy system, such as low-voltage DC solar home systems or AC/DC mini-grids. "Off-grid" refers to populations that live far from the traditional grid; "weak-grid" refers to populations that have unreliable grid connectivity and suffer frequent and sometimes lengthy outages.

[iii] Analysis conducted by the Schatz Energy Research Center and CLASP. Figures are based on the cash sales price of SHS and appliances, although a similar cost reduction trend, would apply to pay-as-you-go products as well. The four efficiency scenarios were defined as follows:

- Super-Efficient: Average of the top 25% most efficient products in the dataset
- Efficient: Average of the other 75% in the dataset
- Standard: Average of worst-performing products in the dataset (e.g. non-LED TVs, high power consuming fans, etc.)
- Conventional: Data used in 2014 version of the model (e.g. non-LED lamp, etc.).

[iv] See www.globalleapawards.org

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