



Regional Energy Efficiency Standards & Labelling developments in Africa

29 September 2022





Presentation overview



- Introduction
- EAC and SADC progress:
 - Lighting MEPS
 - Draft refrigerator and air conditioners
- GCF Country Projects

Our Mission

CLASP improves the energy and environmental performance of the appliances & equipment we use every day, accelerating our transition to a more sustainable world.



What we do



Energy & Quality Standards to keep inefficient, low-quality products off the market.



Policy Compliance, Product Testing & Quality Assurance to ensure products perform & markets are fair to all.



Product Labeling & Consumer Education to attract consumers to good products & inspire demand.





Awards & Product Recognition to reward early-movers & accelerate markets.



Procurement, Incentives & Bulk Buys to incentivize innovative manufacturers, reduce risks for all & saturate markets with efficient, high-quality products.



Global Collaboration & Knowledge Sharing to leverage cutting-edge & collective knowledge and forge productive partnerships.

-  Climate
-  Clean Energy
-  Both

Where We Work



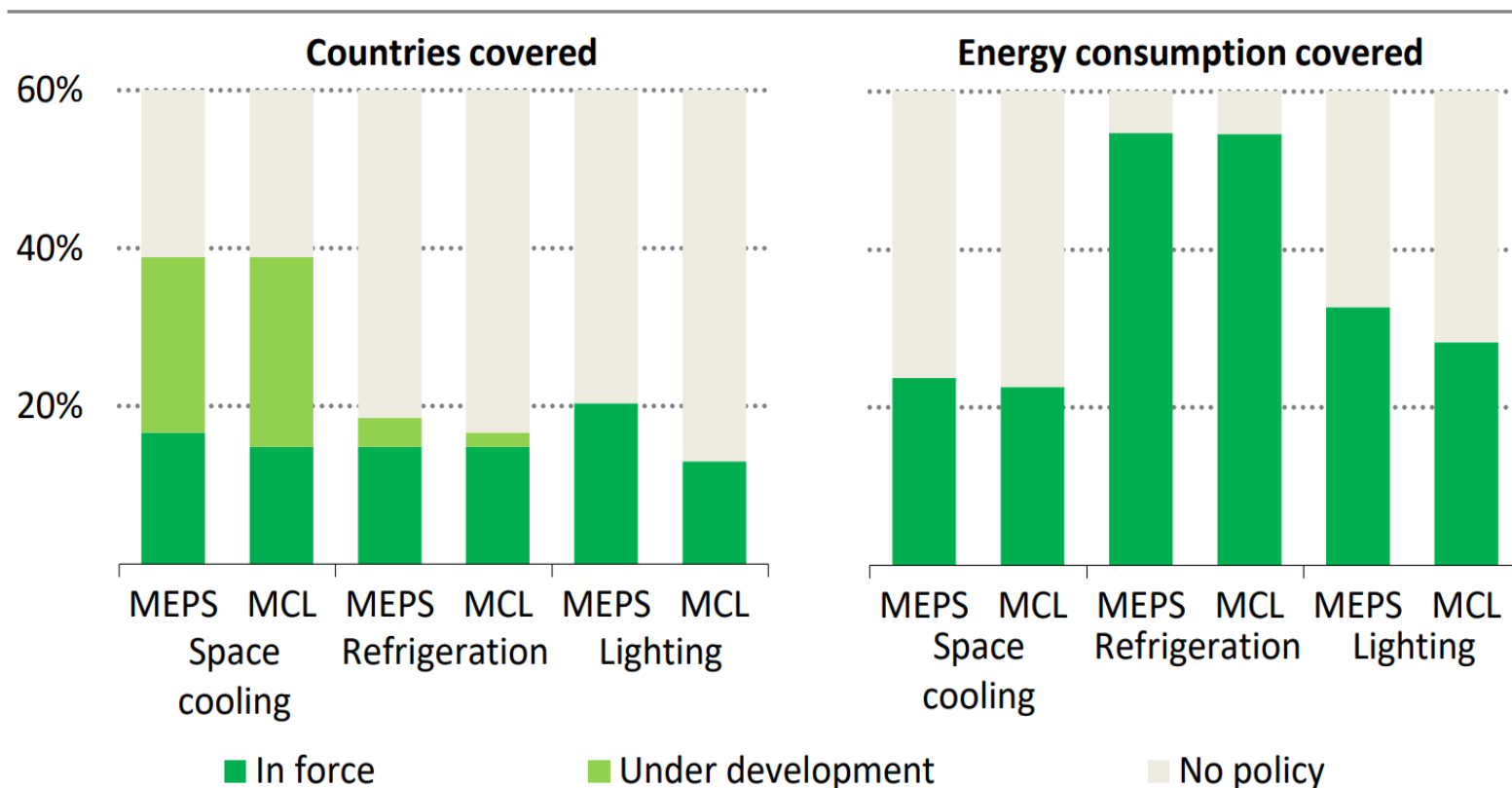
- Over the decade to 2030, the growth in household demand for energy services is set to outpace population growth, as rising levels of access to electricity and rising incomes drive up ownership and use of appliances and equipment.
- Policy actions to improve energy efficiency coupled with universal electricity access by 2030 will temper the growth of electricity demand in the Sub-Saharan Africa.
- Reducing imports of inefficient second-hand appliances and introducing more stringent MEPS and energy labels will further contribute to electricity savings.

- The first S&L program in Sub-Saharan Africa began in the early 2000s with Ghana and South Africa as pioneers.
- Increasingly, more African countries are recognizing the benefits of energy efficiency standards and labelling (EES&L) programmes in reducing energy bills, increasing energy access, driving product innovation, jobs creation and reducing CO² emissions cost.
- More countries have S&L programs for at least one major residential end-use, e.g., Nigeria, Senegal (all members of the Economic Community of West African States [ECOWAS]), Algeria, Egypt, Kenya, Rwanda, Uganda, Mauritius and more.
- Countries with S&L program have implemented either voluntary or mandatory standards.
- Generally, the uptake of S&L programs in sub-Saharan Africa has been slower than in most developed countries. The barriers toward uptake include:
 - Associated S&L programme costs
 - Lack of favourable regulatory environment
 - Weakened energy efficient efficiency appliance/equipment market
 - Lack of awareness among the stakeholders

Share of African Countries with S&L Programs

Share of African countries and demand covered by mandatory MEPS and MCL in the household sector in 2021

(IEA Africa energy outlook 2022)



- Around **40% of African countries** have adopted efficiency standards and labelling for **space cooling equipment** or are planning
- **20% of African countries** have adopted standards & labelling for **refrigeration.**

Benefits of Policy Alignment

- **Safeguards markets from being used as dumping grounds** which arises when countries have less stringent regulations than others
- **Push of the economy** as manufacturers and importers only need to comply to one set of regulations
- **Improved quality of appliances** as only higher efficient products can circulate, which cost less over time
- **Easier policy monitoring** for governments, as the same policy is adopted for the whole region(s)

The EAC and SADC region is slowly realizing the importance of working together to introduce and harmonize efficiency standards.

Several initiatives have been adopted or are underway in the region to harmonize standards for specific products:

1. Harmonized EAC and SADC lighting MEPS-Quality and Performance Standards
2. Draft harmonized standards for refrigerators and air conditioners.

Harmonized EAC and SADC Lighting MEPS-Quality and Performance Standards



- In 2021 the Southern African Development Community Cooperation in Standardization (SADCSTAN) Executive Committee reviewed and approved Minimum Energy Performance Standards (MEPS) for lighting products.
- The MEPS were assigned the following reference number - SADC HT 109:2021.
- Additionally, the EAC community recently adopted this MEPS under reference number EAS 1064-1:2022 and EAS 1064-2:2022.
- The MEPS were developed under the Energy Efficient Lighting and Appliances (EELA) project implemented by the United Nations Industrial Development Organization (UNIDO), in co-operation with the East African Centre of Excellence for Renewable Energy and Efficiency (EACREEE) and the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) with CLASP as the technical implementer. The project was funded by the Swedish International Development Cooperation Agency (Sida).

Harmonized EAC and SADC Lighting MEPS-Quality and Performance Standards



The standard covers the energy efficiency and functional performance of four main categories of general lighting products:

- Lamps:
 - General service lamps; and
 - Tubular lamps;
- Luminaires:
 - Certain indoor ambient luminaires; and
 - Outdoor / streetlight luminaires.

Minimum luminous efficacy of lamps and luminaires

Type of Covered Product*	Minimum luminous efficacy (lm/W)	
	Phase 1 (1 April 2022)	Phase 2 (1 April 2024)
General Service Lamps – Non-Directional	90	105
General Service Lamps – Directional	75	85
Tubular Lamps	115	130
Linear Batten and Troffer Luminaires	105	115
Downlight Luminaires	85	95
High and Low-Bay Luminaires	120	130
Planar (or Panel) Luminaires	85	95
Outdoor / Streetlight Luminaires	105	115

Draft Harmonized Standards for Refrigerators and Air Conditioners

U4E, SACREE and EACREE with technical support from the Berkely Lab are developing harmonized standards for the EAC and SADC regions for:

- Room air conditioners
 - Residential refrigerators
- The draft on harmonized MEPS for refrigerators and air conditioners are at the voting stage at the SADCSTAN.

Residential Refrigerator MEPS and Labels Summary (1)



Scope and product categories



Test methods and efficiency metrics



Refrigerant requirements

Adopted from the U4E Model Regulation Guidelines

- Refrigerators
- Refrigerator-Freezers
- Freezers

- IEC 62552: 2015
- $AEC_{MAX} = M \times AV + N$

$$R = \frac{AEC_{Max}}{AEC}$$

- GWP 20 or less
- ODP 0

Reference Ambient Temperature	Product Category	AEC_{Max} (kWh/year)
24°C	Refrigerators	0.163*AV+102
	Refrigerator-Freezers	0.222*AV+161
	Freezers	0.2206*AV+190

Residential Refrigerator MEPS and Labels Summary (2)



MEPS & performance labelling requirements

- Largely aligned with international best practices

Minimum R Requirements for Refrigerating Appliances

Category	2023	2026
Refrigerators	1.00	1.25
Refrigerator-Freezers	1.00	1.25
Freezers	1.00	1.25

Labeling Requirements for Refrigerating Appliances

Category	Low	Intermediate 1	Intermediate 2	High
Refrigerators	$1.00 \leq R < 1.25$	$1.25 \leq R < 1.50$	$1.50 \leq R < 1.75$	$1.75 \leq R$
Refrigerator-Freezers	$1.00 \leq R < 1.25$	$1.25 \leq R < 1.50$	$1.50 \leq R < 1.75$	$1.75 \leq R$
Freezers	$1.00 \leq R < 1.25$	$1.25 \leq R < 1.50$	$1.50 \leq R < 1.75$	$1.75 \leq R$



Room Air Conditioner MEPS and Labels Summary (1)



Scope and product categories



Test methods and efficiency metrics



Refrigerant requirements

Adopted from the U4E Model Regulation Guidelines

- Air conditioners, Heat pumps
- Ductless single-split, Self-contained, Portable types

Ductless Split & Self-contained

- ISO 5151 & 16358
- CSPF (cooling-only ACs)
- APF (reversible HPs)

Portable

- ISO 18326
- EER (cooling-only ACs)
- EER and COP (reversible HPs)

Ductless Split

- GWP 750 or less
- ODP 0

Self-contained & Portable

- GWP 150 or less
- ODP 0

Labeling Requirements

Air Conditioners

MEPS for Split & Self-Contained

YEAR 1

YEAR 2

Category	Low	Intermediate 1	Intermediate 2	High
CC ≤ 4.5 kW	4.50 ≤ CSPF < 6.10	6.10 ≤ CSPF < 7.10	7.10 ≤ CSPF < 8.00	8.00 ≤ CSPF
4.5 kW < CC ≤ 9.5 kW	4.20 ≤ CSPF < 5.10	5.10 ≤ CSPF < 6.40	6.40 ≤ CSPF < 7.60	7.60 ≤ CSPF
9.5 kW < CC ≤ 12.0 kW	3.80 ≤ CSPF < 4.50	4.50 ≤ CSPF < 5.80	5.80 ≤ CSPF < 7.10	7.10 ≤ CSPF
Outdoor Temp Bin Hours	ISO 16358-1: 2013			

Heat Pumps

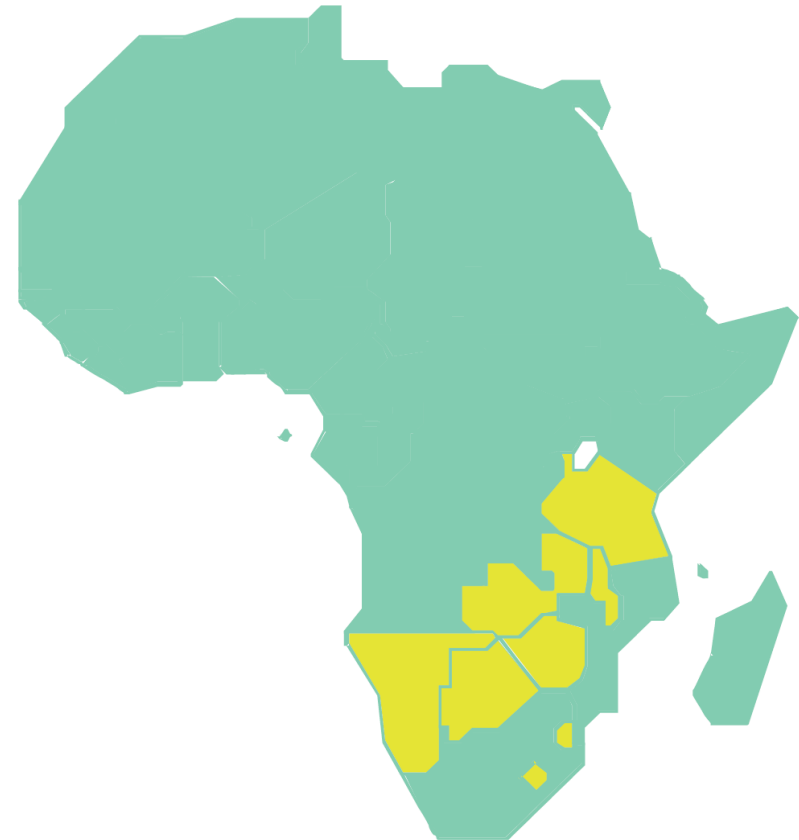
MEPS for Split & Self-Contained

YEAR 1

YEAR 2

Category	Low	Intermediate 1	Intermediate 2	High
CC ≤ 4.5 kW	3.70 ≤ APF < 5.00	5.00 ≤ APF < 6.10	6.10 ≤ APF < 7.10	7.10 ≤ APF
4.5 kW < CC ≤ 9.5 kW	3.30 ≤ APF < 4.00	4.00 ≤ APF < 5.20	5.20 ≤ APF < 6.40	6.40 ≤ APF
9.5 kW < CC ≤ 12.0 kW	3.00 ≤ APF < 3.60	3.60 ≤ APF < 4.70	4.70 ≤ APF < 5.80	5.80 ≤ APF
Outdoor Temp Bin Hours	ISO 16358-1, -2: 2013			

- Developing a national framework for leapfrogging to energy efficient residential refrigerators and distribution transformers.
- 7 Focus countries -Botswana, Eswatini, Lesotho, Malawi, Namibia, Zambia and Zimbabwe.
- Implementation time-line: Jan 2021 –Sep/Dec 2022.
- Coordination: UNEP-CTCN (Implementing institution) and U4E (Technical and regional facilitator) with funding from GCF



Objectives of the GCF Readiness Projects

- Conduct of a detailed market assessment.
- Development and adoption of national testing standards, mandatory Minimum Energy Performance Standards (MEPS), High Energy Performance Standards (HEPS), and labelling schemes for refrigerators and distribution transformers.
- Development of MV&E plans for refrigerators and distributions transformers.
- Delivery of a national consumer awareness campaign for energy efficient refrigerators.
- Delivery of trainings on energy efficient refrigerators and distribution transformers.
- Development of appropriate financing mechanisms to accelerate the deployment of energy efficient refrigerators and distribution transformers.

- Most countries are finalizing the projects as many of the projects will be wrapping up by end of September/October.
- For refrigerators, all countries adopted the IEC 62552:2015 part 1,2 and 3 as their test standards. With the draft SADC/EAC refrigerator regional harmonized standard as their MEPS.
- For distribution transformers all the countries will be adopting the draft MEPS which are based on the U4E [model regulation guidelines for distribution transformers](#). Main reference standard is the IEC 60076.

Thank you!
Any questions?



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