International Energy Agency

SEAD SUPER-EFFICIENT EQUIPMENT & APPLIANCE DEPLOYMENT

AN INITIATIVE OF THE CLEAN ENERGY MINISTERIAL

SEAD regional workshop: Why not harmonise?

Roundtable discussion focussed on lighting and cooling.

Chair: Nicholas Jeffrey (BEIS UK)

Wednesday 21st July, 14:00-17:00 (CEST)

EACREEE Building a Sustainable Energy Future

UNIDO

U4E United for Efficiency UNEP

clasp

SACREEE SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY

Event Open

Nicholas Jeffrey

BEIS UK

Welcoming Remarks

Ed Webber

Deputy Director for International Climate Action

BEIS UK

Keynote Address

Eng. Dr Mackay Okure

EACREEE

Super-efficient Equipment and Appliance Deployment (SEAD) Initiative Workshop for East Africa: "Why not harmonise?"

By Eng. Dr. Mackay Okure
Interim Executive Director EACREEE

21st July 2021

OUTLINE

- Context
- Opportunities from Energy Efficiency
- Energy Efficiency Policy in the EAC
- Why should we harmonise?
- Opportunities for harmonisation
- EACREEE

BACKGROUND - REGIONAL SETTING

- The EAC is home to over 177 million (2019) people spread across over 2.5m km^2
- Population growth for the region is 2.6% p.a.
- Some countries' (Tanzania, Kenya and Uganda) projected populations 5X by 2100
- Urban population 24%; increasing at a rate of between 4.1-6.7% p.a By 2030, between 30% and 50% i.e. 2X in the next two decades
- 90% of rural and low-income urban households use firewood or charcoal to cook
- Electrification level of 38%, with over 140 million people without access
- Estimated technical and commercial losses are around 20% plus 10% or higher with inefficient household and industrial appliances

BACKGROUND - ENERGY CHALLENGES & SOLUTIONS

- ➢ Boost energy access
- ➢ Ensure energy security
- ➢ Take action on climate change mitigation and adaptation
- ❖ Interrelationships of the challenges
- ❖ Compounded by economic and social challenges
- ✓ Execution of strategies that foster socio-economic development, attract investments, and provide basic social services
- ✓ Deploy low-carbon technologies, renewable energy and energy efficiency

THE CASE FOR ENERGY EFFICIENCY

- Delivery of more service for the same energy input
- Reduction in the need to install new peak capacity, especially fossil-based

✓"The cheapest energy is the one not consumed", "the first fuel", "one of the most cost-effective ways to address energy challenge ", "a ready answer to the challenge", "has a critical role in quality of life"

✓It is prioritized globally

✓It is now one of the pillars of the 2030 Agenda for Sustainable Development

✓It can contribute to global emission reduction (via NDCs)

ENERGY EFFICIECY POLICY BASICS

- RISE report – “Highlights the importance of strong energy efficiency policies (and standards) in driving improvements”
- EE must be introduced in a cost-effective manner
- International cooperation is crucial to ensure that it is implemented widely, quickly and cost-effectively by countries, institutions and businesses
- EE policy including regulatory measures, standards and incentives is a critical element in the necessary interventions

EE POLICY IN THE EAC REGION

✓A lot of efforts have been put forth to promote energy efficiency

✓Countries are at different levels

- What is needed?
  - ➢Energy policy integration
  - ➢Harmonisation of policies and regulations across the region
  - ➢Strong institutional infrastructural framework
  - ➢Increased human resource capacities
  - ➢Wider and deeper access to finance, among others.

EE POLICY LANDSCAPE

Country	Energy Policy	EE Policy Framework		
		Policy	Strategy	Action plan
Uganda	R	R	Y	Y
Kenya	Y	Y	Y	Y
Tanzania	Y	Y	Y	D
South Sudan				
Rwanda	Y		Y	Y
Burundi	Y			

D – Under Development, R – Under Revision, Y – Available

BARRIERS TO ENERGY EFFICIENCY INITIATIVES

- Import-oriented market(s)
- Limited awareness on energy efficiency (EE)
- Limited development and implementation of policies
- Limited capacity to develop and implement regulations e.g. MEPS
- Limited enforcement of standards
- Lack of product registration system
- Limited private sector participation in EE

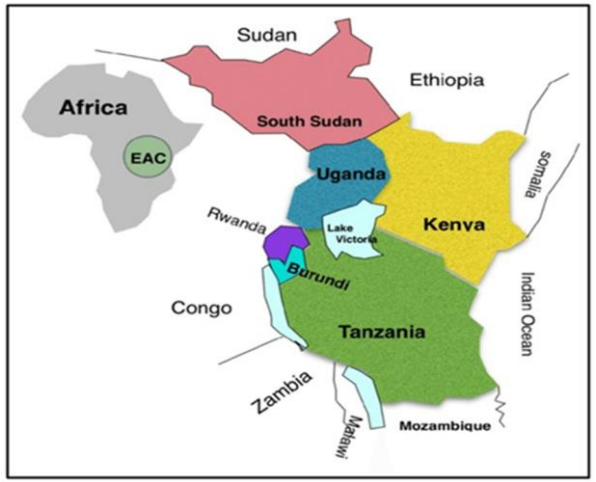
WHY A HARMONISED EE POLICY IN THE EAC?

- To regulate the products that enter the sections of the market; noting that borders are porous
- To recognize and facilitate application of standards developed by the EAC Partner States across the region
- To grow a larger (more viable) market for EE products in the region
- To optimise the establishment and utilization of testing facilities for EE products that are recognized across the region
- To ease benchmarking and enforcement of the policy
- To increase attractiveness to the private sector for investment
- To leverage support for local manufacturing of EE Products

OPPORTUNITIES FOR EE POLICY HARMONIZATION

- The market for EE is still small. Policy makers and investors have a great opportunity to influence or enter the market, respectively. Leapfrog vs lowering.
- EAC has a Treaty for Integration and a track record on harmonisation
- EAC is a single market since 2010 – the second regional integration milestone
- The energy resources are exploited inefficiently, therefore EE potential is huge and it is a motivating factor
- Economies-of-scale training and capacity building for the different stakeholders.
- Institutional structures exist for the development and enforcement of standards, regulations such as MEPS.
- There are opportunities for sharing testing facilities, protocols and certification.
- Joint harmonisation and capacity building projects – SEAD, U4E and EELA

EACREEE



- East African Centre of Excellence for Renewable Energy and Efficiency (EACREEE) is an institution that derives its mandate from the East African Community to promote the development of RE and EE in the EAC Partner States.
- Located at CEDAT Building, Makerere University.

Key EACREEE Mandates

- Harmonization of RE & EE policies, legislations, regulations and standards.
- Capacity building on RE&EE
- Research, development and innovation on RE&EE
- Promotion of investments in RE & EE by creating enabling environment .
- Strengthening knowledge management on RE&EE.

Thank you for your attention

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Introduction to SEAD and the Product Efficiency Ladder Approach for Lighting and Cooling

Dr Kevin Lane

IEA

What is the SEAD Initiative?

- Founded in 2009 under the Clean Energy Ministerial and IPEEC
- Co-lead by the UK, European Commission and India since 2016
- IEA has taken over operating duties in summer 2019

SEAD supports appliance energy efficiency policies and programmes for the 18 member countries by:

Increasing partner participation and engagement

Highlighting the benefits and urgency of product efficiency

Increasing awareness among manufacturers

Ahead of COP, we want to focus our action on **four key product categories**:

1) **Electric motors**
2) **Air conditioners**
3) **Refrigerators**
4) **Lighting**




We will track and monitor progress on these products through SEAD.

COP26 Product Efficiency Call to Action — Objectives

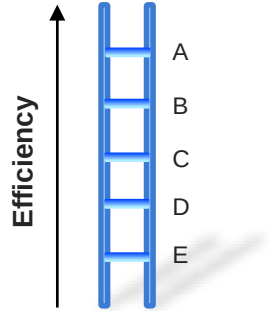
As COP Presidents, the UK wants to drive international action on product energy efficiency policy. Ahead of COP26, the UK and IEA have launched a **call to action** to strengthen the **Super-efficient Equipment and Appliance Deployment (SEAD) Initiative** to support countries in achieving raised ambition **more quickly, easily and at a lower cost**. The objectives of the call to action are to:

- **Set countries on a trajectory to double the efficiency of key products sold globally by 2030 –** industrial motors; residential lighting, ACs and refrigerators
- Support the delivery of crucial **national climate change targets**
- Provide consumers and businesses with more efficient products that are **affordable and cost-effective** to own and operate
- Stimulate **innovation** and provide businesses with **export opportunities**
- Promote a dual course of action making products both **energy efficient and climate friendly** by reducing the use of refrigerants in cooling appliances

Performance ladder as a basis to set energy efficiency levels

Ladder steps can be used to define policy performance requirements, e.g. for:

- Minimum energy performance standards (MEPS)
- Label thresholds for both categorical labels and endorsement labels
- High energy performance standards (HEPS) for incentives (such as obligation programmes and rebates), and energy technology list requirements
- Future aspirational targets, to set R&D targets



Ideally, steps are used by different policy tools in a coordinated way, and revised over time.

Key steps for developing an energy efficiency ladder:

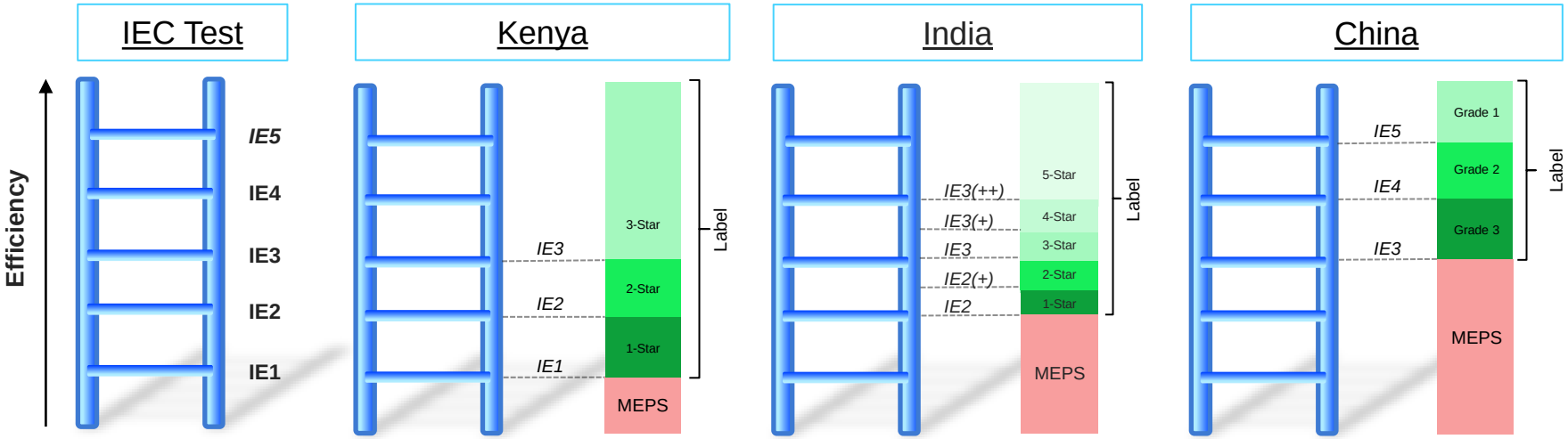
1. Agree on testing procedures to measure energy efficiency
2. Define efficiency thresholds (tiers or steps on the ladder), plus other requirements
3. Map existing requirements
4. Set the target steps to climb the ladder

Align where possible

What is the Product Efficiency Call to Action commitment?

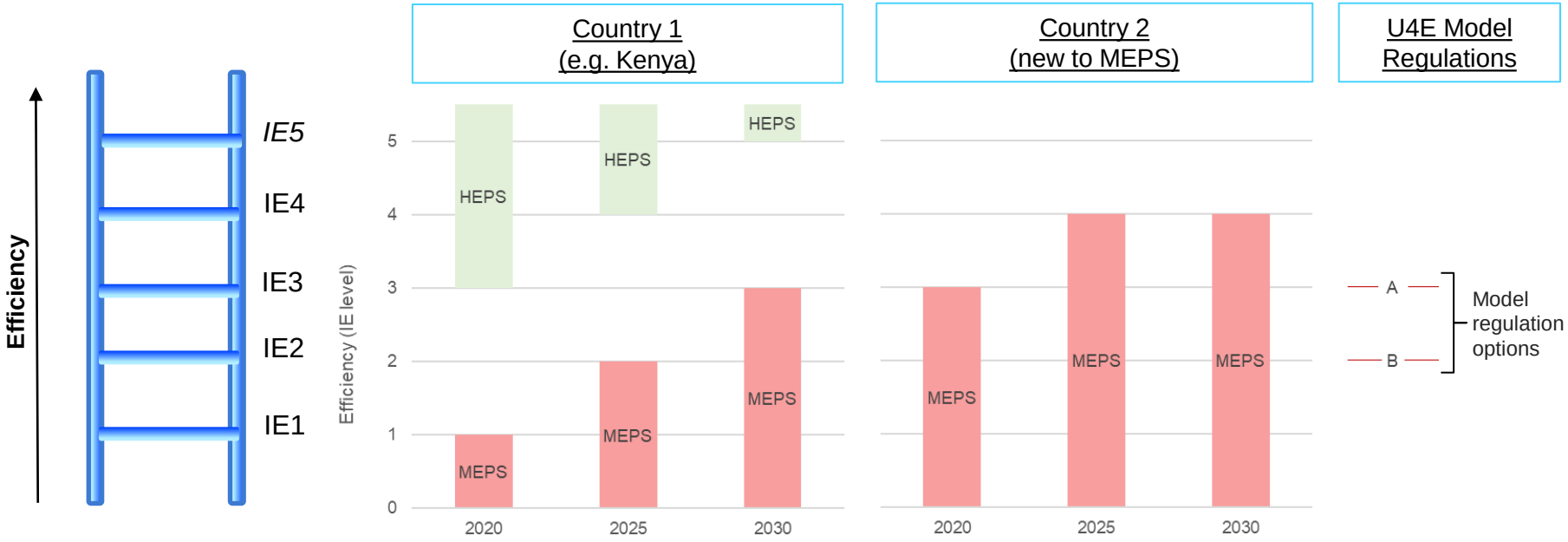
- Countries who sign a joint statement aim to significantly raise (‘double’) efficiency ambition
- Expectation from countries who sign up
  - Engage with SEAD, draft a road map to 2030, include any targets, policy steps to deliver
  - Governments develop their roadmap in context, though IEA (and others) can support
- Policy roadmap development ‘principles’ include, where appropriate:
  - Use and develop existing international testing/measurement standards (e.g. IEC, ISO)
  - Use existing performance tiers based on international standards
    - Globally (e.g. IE for motors), regionally (e.g. EU, ASEAN), in country (e.g. own label levels such as 1-5 Stars or Energy Star)
    - Also consider GTS, U4E model regulations, 4E levels on SSL, award levels, etc.
  - Where new tiers are needed, consider wider implications
  - Align and coordinate with other roadmaps (Cooling plans, NDCs)

Example: Motors – All countries employ the same ladder



Over 40 countries now use an internationally agreed testing procedure (IEC 60034-2-1) to measure efficiency and employ an IE classification scheme (IEC 60034-30-1), to set different levels for Minimum Energy Performance Standards (MEPS) and comparative labels. Other countries use the higher step levels for incentive programmes.

Example: Motors – Setting future requirements

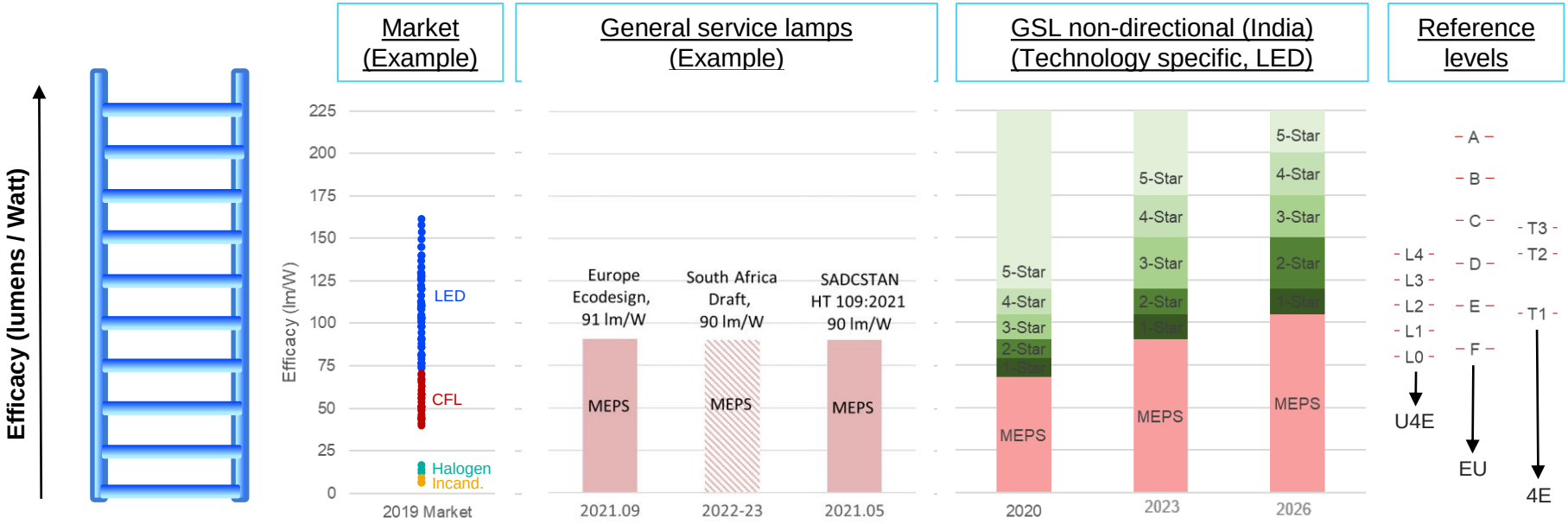


Countries and regions set different future levels, implementing them at different times depending on market conditions.

Identifying HEPS levels enable voluntary supporting policy to develop markets for higher efficiency, which can also be future MEPS levels.

Note: the efficiency levels beyond 2020 are illustrative

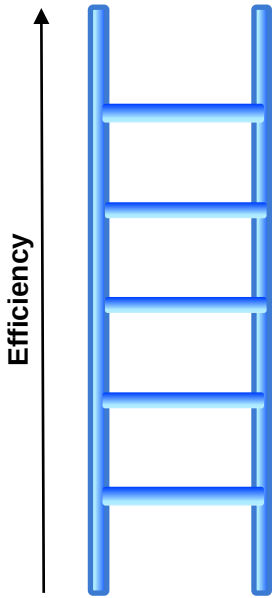
Example: Lighting – Climbing the Efficiency Ladder

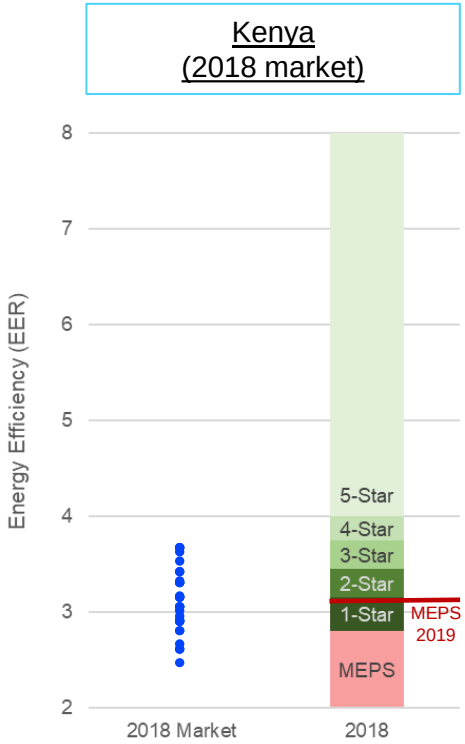


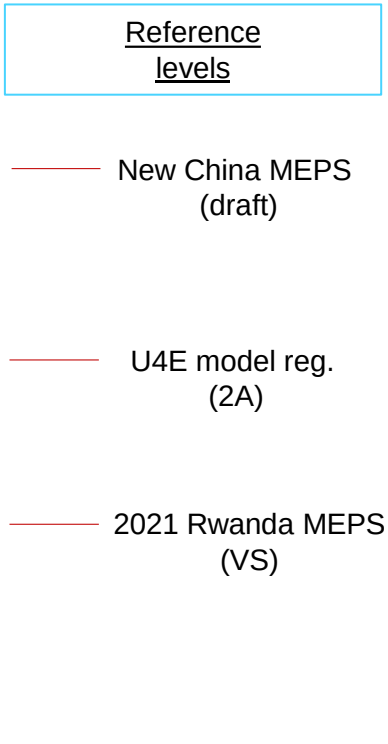
Ideally targets are technology neutral, though increasingly LED Converging test methods: CIE S 025/E (or IES LM-79) or EN 13032-4. Beyond efficiency, additional criteria may be added to performance requirements, such as lifetime, colour rendering or mercury content.

Note: the efficacy levels beyond 2020 are illustrative

Example: Residential ACs – Setting future requirements

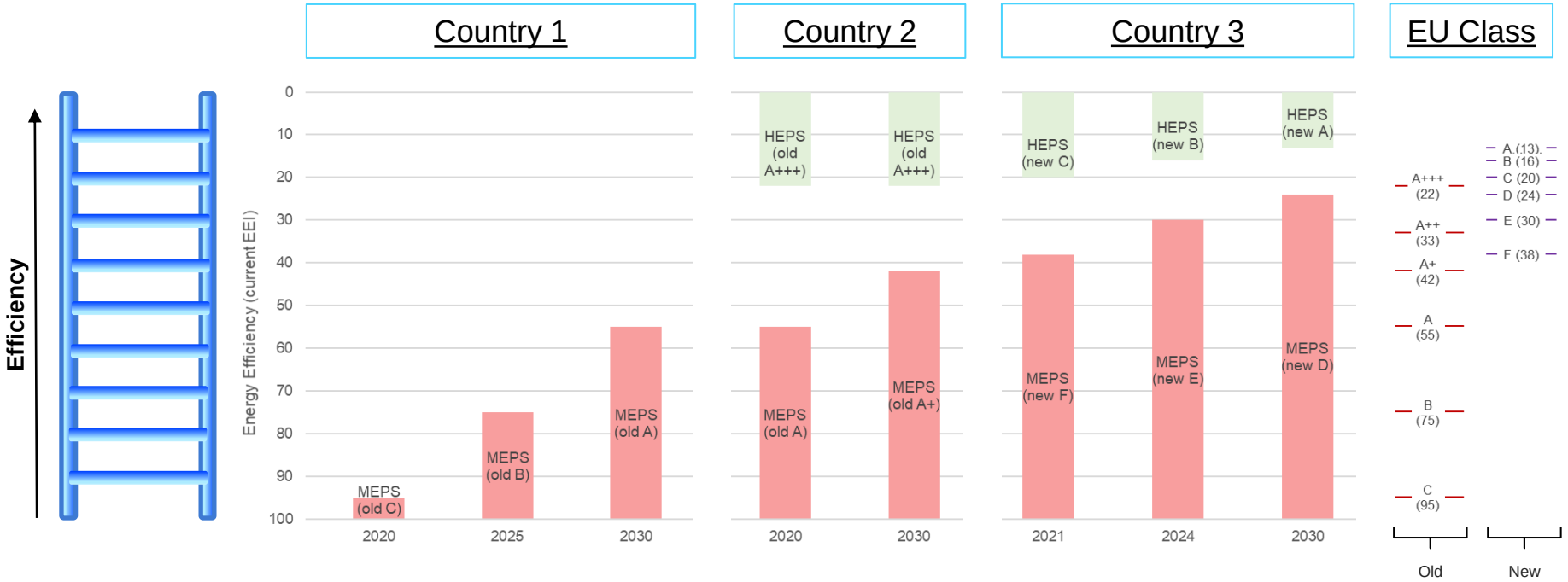






Kenya 2018 market and current regulations; the future efficiency levels shown above are indicative

Example: Refrigerators – Setting future requirements



Countries are converging on IEC 62552 (2015) for measuring energy consumption. Countries and regions use size and features to determine efficiency requirements (e.g. EU, U4E). Countries and regions can set different future levels, implementing them at different times depending on market conditions with the aim of converging over time.

Introduction of the Efficient Lighting and Appliance (EELA) project

Karin Reiss
UNIDO

Regional approaches to accelerate a market transformation towards Energy Efficient Lighting and Appliances

SEAD Workshop for East Africa
21 July 2021

Ms Karin Reiss-Haimbala, Energy Systems and Infrastructure Division,
UNIDO

UNIDO at a glance:

The United Nations Industrial Development Organization (UNIDO) is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability.

UNIDO's mission is to promote and accelerate inclusive and sustainable industrial development (ISID) in developing countries and economies in transition

UNIDO programmatic focus is structured in four strategic priorities:

Creating shared prosperity

Advancing economic competitiveness

Safeguarding the environment

Strengthening knowledge and institutions

Barriers hindering a market transformation in SSA include

- Import oriented markets with no common policy framework for energy efficient lighting and appliances – absence of MEPS in most countries
- Significant barriers still exist around awareness, access to finance and skills
- Ad hoc versus systematic approach – need for transformation
- Lack of capacity to develop and implement regulations such as MEPS
- Challenges with enforcement capacity including local testing facilities
- Challenges on border control and leakage
- Lack of motivation for the private sector to invest as standards are not enforced - Small country focused markets
- Lack of service providers with viable business models that can deliver efficient energy services

Benefits of a market transformation to more efficient products

- **Household savings** - reduce household energy bills
- **Grid reliability** – reduce electricity shortages (brown-outs / black-outs); reduces peak power demand
- **Save national investment** – reduce capital and loans tied up in power stations and grid upgrades; slows new demand growth
- **Market protection** - avoid becoming dumping-ground for technologies banned elsewhere
- **Energy imports** – reduce capital out-flow for fuel purchases / electricity imports; strengthen national energy security
- **Climate change**

Why Regional Collaboration?

- Eliminates trade barriers for EE products
- Unlocks economies of scale
- Increase affordability
- Common monitoring, verification and enforcement
- Supports coordinated compliance planning and efficient use of resources when a regional market shares similar products
- Great potential to avoid duplication of compliance efforts

Regional Sustainable Energy Centres play a pioneering role in regional harmonisation

ENERGY EFFICIENT LIGHTING AND APPLIANCES
in East and Southern Africa

Energy Efficient Lighting and Appliances in East and Southern Africa - EELA

EELA has a transformational approach towards the development of vibrant markets where suppliers are delivering high-quality services and products for energy efficient lighting and appliances to increasingly aware households, businesses and public facilities across East and Southern Africa. EELA stimulates the market for Energy Service Companies(ESCOs), local manufacturing and private sector investments and provides co-financing for innovative business models.

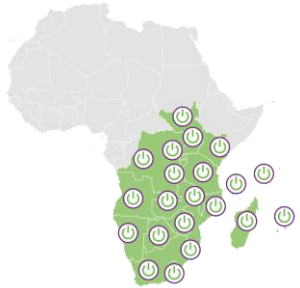
The EELA approach to change

Market incentives for the private sector to deliver efficient and high quality energy services

Minimum Energy Performance Standards (MEPS) for appliances which are harmonized in the region

Capacity building on policy and regulatory framework development, appliances testing and regulatory enforcement

Awareness raising on the benefits of adopting efficient technologies across all stakeholders



A coordinated regional effort through REX and regional sustainable energy centres

EACREEE Building a Sustainable Energy Future
SACREEE SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY

Implemented by UNIDO with financial support from the government of Sweden and in collaboration with technical partners

UNIDO Sverige Swedish Energy Agency clasp

Strengthening the policy and regulatory framework

- Regional MEPS for lighting developed – cooling under development
- Regional compliance (MV&E) framework for the EAC and SADC regions is under development - initial comments from Member States/EELA Focal Points have been incorporated
- National support provided for the implementation of MEPS and for the development of national EELA projects –support on compliance available and trainings planned for 2021
- Energy efficient public procurement guidelines for lighting and appliances were developed
- Support towards environmental management, First webinar on reparability of appliances and equipment in the off-grid sector was held on 18 May 2021 held

Harmonised MEPS for lighting, cooling and PUE

- Harmonised MEPS for general service, office, street and off grid lighting
  - **SADC -** SADCSTAN Executive Committee reviewed and approved MEPS on 28/04/2021. MEPS assigned reference number: SADC HT 109:2021
  - **EAC -** National consultations concluded. EAC TC 51 is to reconvene and vote on the regional MEPS as per the EAC standards harmonization procedures.
  - **All countries joined the regional process to develop harmonised MEPS**
  - **National implementation crucial -SEAD initiative a good opportunity**

- Harmonised MEPS for refrigerating appliances and ACs (collaboration with U4E)
  - MEPS are under development
  - First EAC regional TC meeting held on 7 May 2021 and same for SADC on 9 June 2021
  - MEPS anticipated to be adopted by the end of 2021 if process is not delayed

- Productive use appliances and equipment
  - Market study and supply chain analysis will be carried out in collaboration with CLASP,

After working on lighting and cooling – focus on Energy efficiency in productive use appliances and equipment

- **Energy efficiency in income generating activities = ↑ productivity and ↑ competitiveness**

- Energy efficiency contributes to decoupling economic growth and environmental impact by reducing energy intensity (1).

- Challenges
  - High quality and efficient equipment is often not available on the market
  - No energy efficiency policy for productive use appliances and equipment (2)
  - SMEs rely on outdated technology
  - Lack of information on energy saving equipment (and practices)
  - Low access to finance for upfront investments (3)

(1) https://www.unido.org/our-focus/safeguarding-environment/clean-energy-access-productive-use/industrial-energy-efficiency-and-climate-change
(2) https://shellfoundation.org/app/uploads/2018/10/SF-OCA-Uganda-Accelerator-_-Productive-Use-Technology.pdf
(3) Kostka, Genia, Moslener, Ulf, and Andreas, Jan (2013): Barriers to increasing energy efficiency: Evidence from small-and medium-sized enterprises in China, Journal of Cleaner Production, Volume 57, 59-68.

EELA online training platform

Module 1
General Introduction

Block 1: Introduction to energy efficient appliances

Block 2: Policy and Regulations

Block 3: Market Surveillance

Block 4: Market Systems Development Introduction

Block 5:Webinars and Assignments for Core Group

Module 2
Lighting

Module 3
Clean Cooling

Module 4
Productive Use

Module 5
Market Development

Introductory → *Specialised/ based on interest*

Engagement of stakeholders and information exchange among member states – EELA webinar series

EELA Private Sector Support Facility – call open now

	Window 1	Window 2	Window 3
Applicants	Energy users	Energy service providers	Manufacturers
Support offered	Technical assistance to design an Energy Efficiency project applying an energy service business model	Non- repayable grant to cover upfront costs for equipment **Max. 200,000 EUR**	Non- repayable grant to support technology upgrade **Max. 100,000 EUR**
Required own contribution	Demonstrated commitment to implement the project	Signed contract with a client. At least 25% demonstrated co-financing	Demonstrated need for upgrade of manufacturing At least 25% demonstrated co-financing

ENERGY EFFICIENT LIGHTING AND APPLIANCES
in East and Southern Africa

Join the EELA – get involved

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UNIDO

Karin Reiss-Haimbala
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Harmonisation in Residential Lighting

COP 26 Product Efficiency Call to Action

Doubling the efficiency of products sold globally

Why not Harmonise?

21st July 2021

14:00 – 17:00 Paris Time

Roundtable discussion session focussed on Lighting and Cooling

Roundtable Discussion on Lighting

Dr. Peter Bennich
Swedish Energy Agency

Evita Moawad
UNIDO/EELA

Denis Ariho
EACREEE

Stella Apolot
East Africa Standards Committee

Michael Scholand
CLASP

James Wakaba
CLASP

Dr. Yohane Mukabe
COMESA

Roundtable Discussion on Lighting

Three themes around a Case Study of EELA in East Africa:

1. **Process** – developing harmonised standards in East Africa
   Evita Moawad, UNIDO/EELA; Denis Ahiro, EACREEE; Stella Apolot, EASC

2. **Content** – technical specification and domestication
   Michael Scholand, CLASP; James Wakaba, CLASP

3. **Growth** – scaling up to Africa (and beyond)
   Yohane Mukabe, COMESA

Denis Ariho

Overview of legislative process for lighting

MEPS Development for Lighting in EAC: Timeline

2019

- EACREEE worked with SADCSTAN to establish Standards Technical Committees, and a TC Chair was selected
- A draft standard was developed and presented to the East African Standards Committee at the regional level on 29 November 2019

2020

- Three MEPS awareness webinars convened in Jan-April 2020
- Three EAC TC 51 meetings were held in Sept-Oct 2020 to review the lighting draft MEPS

2021

- Jan-Mar 2021, national TC consultations in Kenya, Rwanda, Burundi, Uganda and Tanzania to discuss and refine the standard with EACREEE and the EELA Team;

- Over 60 hours of review across five national Technical Committees, with detailed discussion on criteria and requirements;
- TC 51 is now reconvening to vote on the regional MEPS, which will make it a harmonised standard for the region

MEPS Development for Lighting in EAC: Next Steps

Awareness on MEPS and Labels, and market creation for EE lighting

MEPS adoption by EAC Partner States

Compliance Framework for MEPS and energy efficiency procurement

East African Standards Committee and Harmonisation

Stella Apolot

EAC standards committee

East African Standards Committee and Harmonisation

EASC engaged with the EELA Initiative in late 2019:

- Recognised the opportunity to develop regionally harmonised standards for lighting, aligning with national policy objectives of our East African Partner States

Why regional harmonisation? Regional Harmonisation has key benefits:

- **Common policy on energy management**– facilitate and provide a common approach in regulatory control, compliance , procurement
- **Consumer Protection** - measure for quality ,more choice, innovation and competition
- **Framework for Mutual recognition** - test certificates, inspection reports , market surveillance and certification for quality and safety – one test accepted every where – reduced cost of doing business
- **Competence building** – peer assessment for competence and international recognition

PRINCIPLES AND PROCEDURES

FOR THE DEVELOPMENT OF EAST AFRICAN STANDARDS

EAST AFRICAN STANDARDS COMMITTEE

East African Standards Committee – Next Steps

- EASC TC-51 is meeting now to review and finalise the two lighting standards – Part 1 on Lamps and Part 2 on Luminaires
- The standards cover energy-efficiency, quality and performance; to ensure citizens in East Africa get good quality lighting
- The standards apply to the most popular / high volume lamps and luminaires
- Our next steps are as follows:
  1. Finalise the technical discussion
  2. Approval by the EAC organs
  3. Gazettement for adoption by the Partner States
- Frameworks for implementation by the Partner States

Domestication of regional regulations
James Wakaba
CLASP

Harmonization and Domestication of Standards in EAC

- EAC Treaty provides for EAC Treaty provides for cooperation in the areas of standardization, Quality Assurance, Metrology and Testing (SQMT)
- SQMT Protocol was negotiated in 2001 and later in 2006 enacted as an SQMT Act
- Objectives of Harmonization and Domestication
  - Protect and improve the health and safety of consumers;
  - Facilitate regional and international trade;
  - Increase opportunities for companies within the community to participate in international technology transfer
  - Prevent deceptive practices
  - Protect animal or plant life or health
  - Protect the environment

Harmonization and Domestication of Standards in EAC

- Key players: Council of Ministers, EAC Secretariat, EA Standards Committee, Standards Management Committee, TC, Sub Committees and Working Groups
- EAC standards developed through TCs formed at the EASC after due consideration of existing International (ARSO/ISO/IEC/CODEX) and National Standards
- Domestication: Member Sates are required by the Act to adopt, without deviation, an EA Standard as a national standard
- Enforcement is through national regulators appointed by individual member states
- 1526 Standards harmonised by 2018
- EELA project aims to domesticate lighting and refrigerator standards developed for EAC (and SADC)
- Regional approach is more efficient than individual national processes

Testing and technical levels for lighting

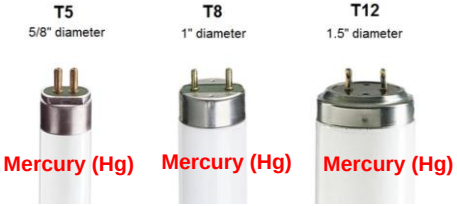
Michael Scholand
CLASP

Draft Harmonised Lighting Standards – Part 1 & 2

General Service Lamps

Certain Indoor Luminaires

Tubular Lamps

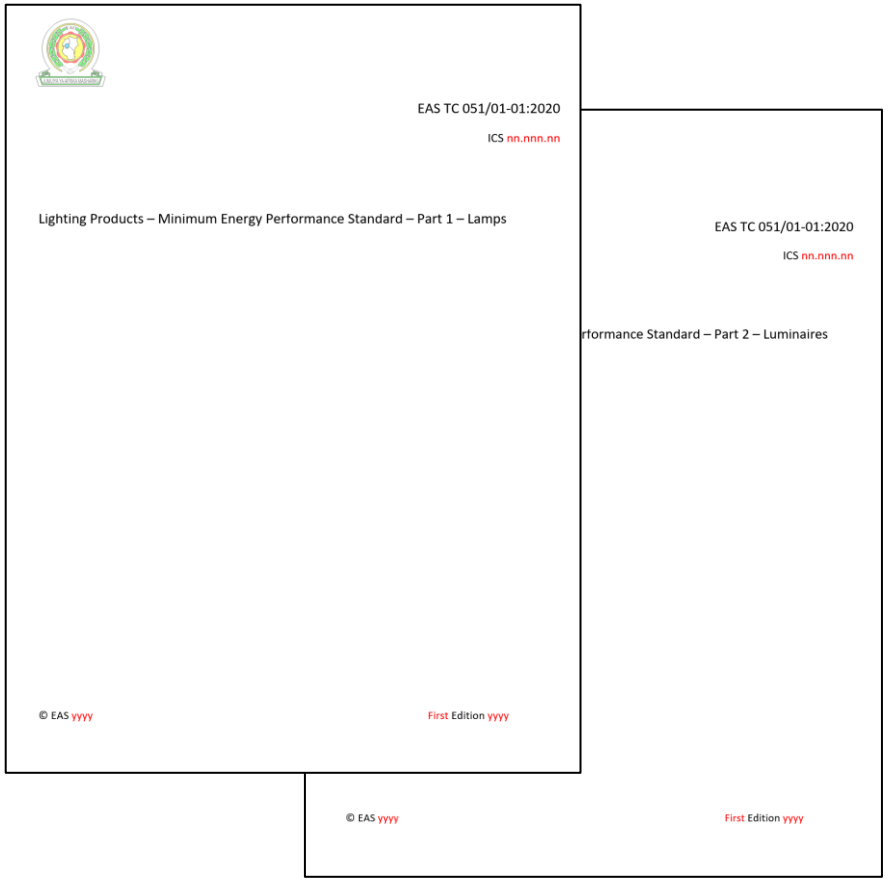


Outdoor/Street Luminaires

Table of Contents of the Two Regional EAC Standards

1. Scope of coverage
2. Normative References
3. Terms and Definitions
4. Detailed Scope
    - Inclusions
    - Exclusions
5. Requirements
    - Energy-efficiency (efficacy)
    - Functional Performance
    - Labelling
6. Referenced Test Methods
7. Requirements for Applicant

Annexes A - C



Efficacy and Quality Requirements in the Standards

All lamps and luminaires

Efficacy (lm/W)
Displacement Factor, (Cos ϕ1)
Harmonics
Standby Power
EMC emissions
EMC immunity
Colour Rendering Index (CRI)
Nominal CCT
Colour consistency
Lumen maintenance factor
Survival factor
Short term flicker indicator ($P_{st}LM$)
Stroboscopic effect visibility measure (SVM)

All luminaires (indoor and outdoor)

Serviceability / Repairability
Warranty
IP Rating

Outdoor luminaires

Luminaire Lifetime
Total Circuit Power
Voltage Variation
Surge Protection Devices
Smart Lighting Compatible
Control of Light Distribution

Comparison of Ambition

- Efficacy levels are in line with MEPS for LED products elsewhere, e.g., GSL=> 90 lumens/watt

Table 1: Minimum luminous efficacy of Lamps

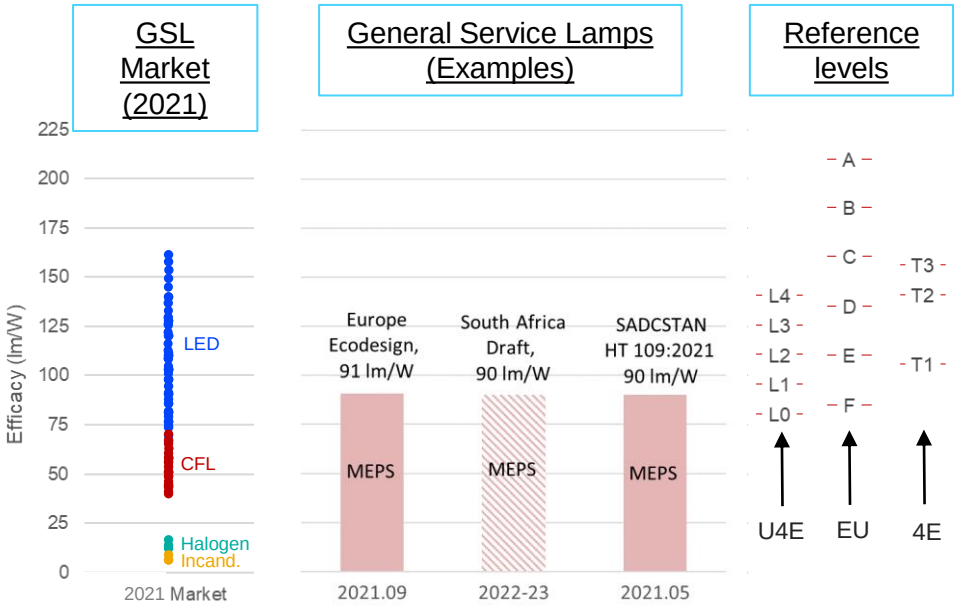
Type of Covered Product*	Minimum luminous efficacy (lm/W) Phase 1 – 1 April 2022	Minimum luminous efficacy (lm/W) Phase 2 – 1 April 2024
General Service Lamps – Non-Directional	90	105
General Service Lamps – Directional	75	85
Tubular Lamps	115	130

**The scope of coverage of these lamps is given in Section 5 of this Standard.*

Table 1: Minimum luminous efficacy of Luminaires

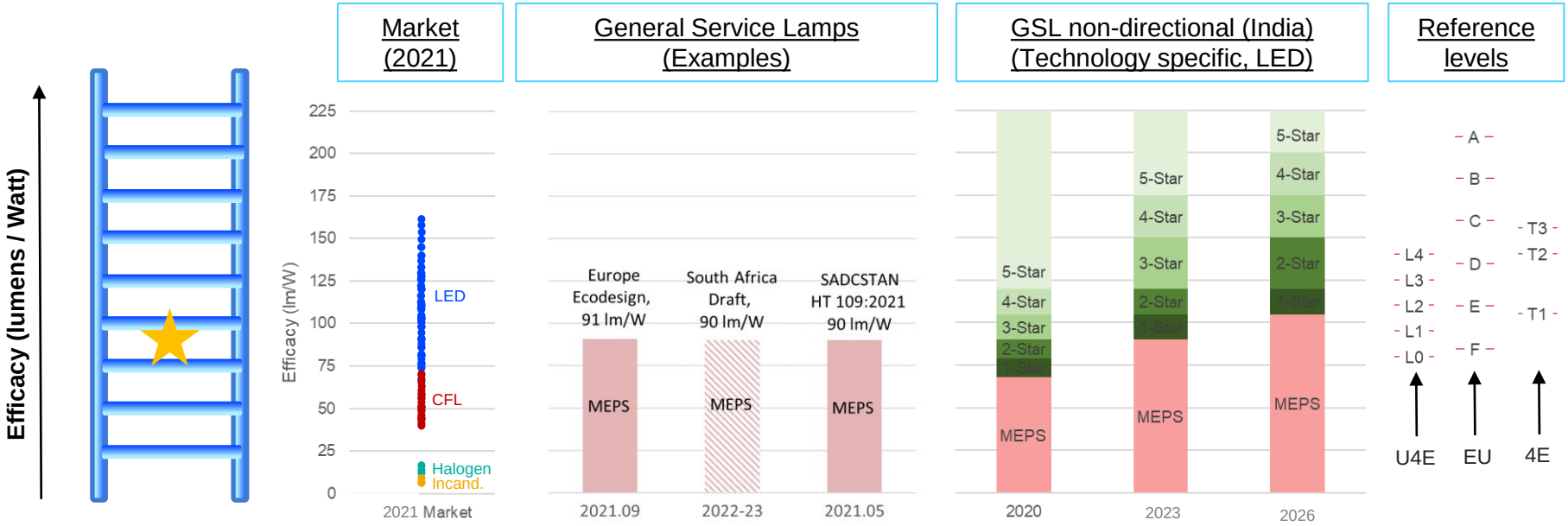
Type of Covered Product*	Minimum luminous efficacy (lm/W)	
	Phase 1 (1 April 2022)	Phase 2 (1 April 2024)
Linear Batten and Troffer Luminaires	105	115
Downlight Luminaires	85	95
High and Low-Bay Luminaires	120	130
Planar (or Panel) Luminaires	85	95
Outdoor / Streetlight Luminaires	105	115

**The scope of coverage of these luminaires is given in Section 5 of this Standard.*



U4E model regulation: https://united4efficiency.org/resources/model-regulation-guidelines-for-energy-efficiency-and-functional-performance-requirements-for-general-service-lamps/
EU Energy Labelling regulation: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02019R2015-20210701
IEA 4E SSL Annex Quality Tiers: https://www.iea-4e.org/wp-content/uploads/2021/03/Task_6_LED_Lighting_Product_Quality___Performance_-_Nov_2020.pdf

Case Study: Lighting – Climbing the Efficiency Ladder

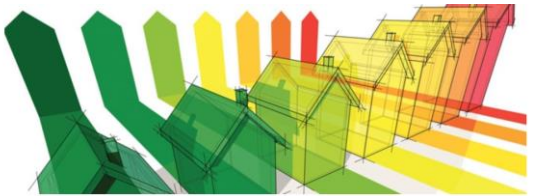


Ideally, targets are technology neutral, though increasingly LED. Converging test methods: CIE S 025/E (or IES LM-79) or EN 13032-4. Beyond efficiency, additional criteria may be added to performance requirements, such as lifetime, colour rendering or mercury content.

Note: the efficacy levels beyond 2021 are illustrative

Evita Moawad (UNIDO)
What are the opportunities beyond MEPS for lighting? HEPS and ambition levels for green procurement

Benefits of Energy-Efficient Market Transformation



- **Household savings** - reduce household energy bills (but still enjoy the same services!);
- **Grid reliability** – reduce electricity shortages (brown-outs / black-outs); reduces peak power demand
- **Save national investment** – reduce capital and loans tied up in power stations and grid upgrades; slows new demand growth
- **Consumer protection** - avoid becoming dumping-ground for technologies banned elsewhere
- **Energy imports** – reduce capital out-flow for fuel purchases / electricity imports; strengthen national energy security
- **Climate change** – develop on a ‘soft energy path’, avoid becoming a high CO_2 emission country

Market transformation requires a comprehensive approach

- **Energy & Quality Standards** push the market toward high-quality, high-efficiency products; including MEPS and performance standards
- **Labeling & Buyer Education** communicate energy, performance, and quality to consumers & other buyers, create demand for sustainability
- **Incentives & Bulk Procurement** accelerate market saturation of high-quality, high-efficiency products & reduce market risk
- **Compliance, Testing & Quality Assurance** ensure products perform as promised & markets are fair to all
- **Global Collaboration & Knowledge Sharing** leverage cutting edge & collective knowledge and forge productive partnerships

Market Pull: Green Procurement, HEPS and Endorsement

Procurement Guidelines establish mechanisms that ensure governments purchase more efficient appliances, both in terms of the quantities purchased and the efficiency of those individual products.

HEPS are Higher Energy Performance Standards and represent levels that governments can publicise to accelerate and encourage wider market transition to even higher energy performance. By adopting HEPS, governments sent a signal to responsible players about the direction they want their markets to go in the medium to long term.

Endorsement Labels such as ENERGY STAR recognise the top 20-30% of a product in a given market, and offer that product a label which makes it easily identifiable to consumers.

Yohane Mukabe (COMESA)
Harmonisation programme, is it aligned with EELA work? How to avoid duplication, opportunities for collaboration, and opportunities for harmonisation at the continental level.

COMESA Activity and ESREM Specific Actions

The Enhancement of a Sustainable Regional Energy Market in Eastern Africa, Southern Africa and Indian Ocean Region (ESREM) is a European Union funded Programme which commenced activities on 31st May 2017, under the 11th EDF cross-regional envelop on soft infrastructure support on energy.

The Project covers the following five Regional Economic Communities: COMESA, EAC, IGAD, IOC and SADC

1. Develop and implement regionally harmonized regulatory frameworks to promote a regional energy market that is efficient, sustainable and able to attract investments
2. Develop and implement frameworks that enhance efficient energy management from the supply and demand side
3. Enhance the capacity of regulators in providing and enforcing regulations that enhance the regional market; and
4. Enhance the renewable energy regulatory frameworks to promote investment in renewable energy.

ESREM Expected Result and Approach

ESREM Expected Result

Result 3: Enhancement of renewable energy and energy efficiency strategy, policies and regulatory guidelines

- **Development and implementation of a synthesized RE and EE strategy in the promotion of renewable energy and energy efficiency projects to support the achievement of the region's clean energy goals**
- **Development and implementation of Regional Common Minimum Performance and labeling standards in the promotion of an energy efficiency market in the EA-SA-IO region**

Project Approach

Engaged key stakeholders from the EA-SA-IO region to agree on harmonized interventions - AU, SACREEE, EACREEE

To synergise effort, collaborating with ongoing EE initiatives within the region – EELA Project

Collaborating with SACREEE, EACREEE, and CLASP to develop relevant regional MEPS and policy guidelines

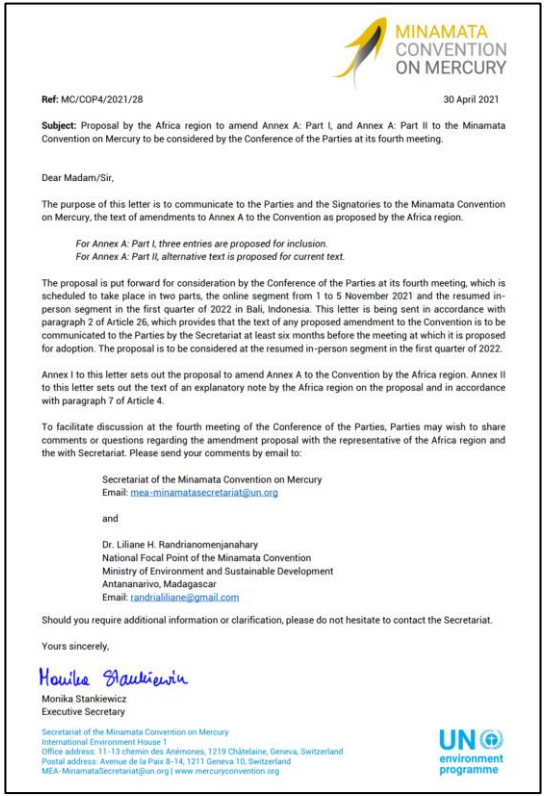
Common MEPs and policy guidelines to be implemented and adopted in 14 Member States in the EA-SA-IO region

Web-based monitoring tool to be developed to track progress on the implementation of MEPS in Member States

Minamata Convention on Mercury – COP4

- Launched in 2013 with the goal to **“Make Mercury History”,** currently has 131 Parties to the Convention
- Seeks to eliminate mercury in products and processes worldwide, but **includes exemptions for mercury-based fluorescent lamps**
- Rapid development and increasing accessibility and affordability of mercury-free LED lamps means those exemptions are now unnecessary
- Phasing out fluorescent lighting products by 2025 will accelerate a transition to LED lighting
- Conference of Parties (COP4) is launched in November 2021 with in-person negotiations in Q1/Q2 of 2022

African Lighting Amendment to Minamata, COP4



MINAMATA CONVENTION ON MERCURY

Ref: MC/COP4/2021/28 30 April 2021

Subject: Proposal by the Africa region to amend Annex A: Part I, and Annex A: Part II to the Minamata Convention on Mercury to be considered by the Conference of the Parties at its fourth meeting.

Dear Madam/Sir,

The purpose of this letter is to communicate to the Parties and the Signatories to the Minamata Convention on Mercury, the text of amendments to Annex A to the Convention as proposed by the Africa region.

For Annex A: Part I, three entries are proposed for inclusion.
For Annex A: Part II, alternative text is proposed for current text.

The proposal is put forward for consideration by the Conference of the Parties at its fourth meeting, which is scheduled to take place in two parts, the online segment from 1 to 5 November 2021 and the resumed in-person segment in the first quarter of 2022 in Bali, Indonesia. This letter is being sent in accordance with paragraph 2 of Article 26, which provides that the text of any proposed amendment to the Convention is to be communicated to the Parties by the Secretariat at least six months before the meeting at which it is proposed for adoption. The proposal is to be considered at the resumed in-person segment in the first quarter of 2022.

Annex I to this letter sets out the proposal to amend Annex A to the Convention by the Africa region. Annex II to this letter sets out the text of an explanatory note by the Africa region on the proposal and in accordance with paragraph 7 of Article 4.

To facilitate discussion at the fourth meeting of the Conference of the Parties, Parties may wish to share comments or questions regarding the amendment proposal with the representative of the Africa region and the with Secretariat. Please send your comments by email to:

Secretariat of the Minamata Convention on Mercury
Email: mea-minamatasecretariat@un.org

and

Dr. Liliane H. Randrianomenjanahary
National Focal Point of the Minamata Convention
Ministry of Environment and Sustainable Development
Antananarivo, Madagascar
Email: randrialiliane@gmail.com

Should you require additional information or clarification, please do not hesitate to contact the Secretariat.

Yours sincerely,

Monika Stankiewicz
Executive Secretary

Secretariat of the Minamata Convention on Mercury
International Environment House 1
Office address: 11-13 chemin des Anémones, 1219 Châtelaine, Geneva, Switzerland
Postal address: Avenue de la Paix 8-14, 1211 Geneva 10, Switzerland
MEA-MinamataSecretariat@un.org | www.mercuryconvention.org

UN environment programme

- 30 April 2021 – the African Amendment on Lighting was circulated to all 131 countries
- African region – 36 countries, all Parties to the Convention
- Proposes to Amend the fluorescent lamp exemptions to phase-out the following:
  - **Integrally ballasted CFLs by the end of 2024**
  - **Linear fluorescent lamps by the end of 2025**
  - **CCFL and EEFL by the end of 2024**
- Global benefits from this amendment include avoiding 232 metric tonnes of mercury and 3.5 gigatons of CO_2

Link: http://www.mercuryconvention.org/Portals/11/documents/News/ES_Africa_Amendment_Proposal_April_2021.pdf

Discussion

Comments or questions?

Harmonisation for Residential Cooling (AC and Refrigeration)

Roundtable Discussion on Cooling

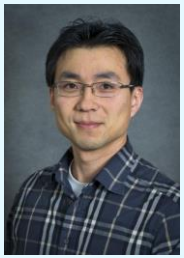
Dr Kevin Lane (IEA)

Readlay Makaliki (SACREEE)

Patrick Blake (U4E)

Dr Nihar Shah (LBNL)

Dr Morris Kayitare (United Nations Environment Programme):



Dr Won Young Park (LBLN)

Introduction/overview of process of regional harmonisation for SADC

Readlay Makaliki
SACREEE

EAC/SADC Technical Process Update

SACREEE, EACREEE, UNIDO and UNEP's U4E are working together to implement a regional harmonisation project on energy-efficient and climate friendly cooling, with key focus on household refrigerators and room air conditioners. The project is implemented in collaboration with the Energy Efficient Lighting and Appliances for East and Southern Africa (EELA). .

- **New Work Item Propsal (NWIP)** submitted to SADC Cooperation in Standardisation (**SADCSTAN)** Secretariat to initiate the process. Member States (NSBs) indicate whether Participating (**P**) or Observer (**O**) in the development process
- **Regional Technical Committees** comprising representatives from Ministries of Energy and National Standards bodies as well as regulators
- **National Mirror Technical Committees** encompassing various stakeholders with interest in the standards being developed. Comments from national TCs representing a countries position feed into the Regional TC
- Comments/inputs **consolidated** at regional level
- **A minimum number of national meetings** required to reach consensus at both national and regional level
- **For EAC** regional standard adoption is binding to partner states
- **For SADC**: Regional standards adoption is not binding and requires national adoption processes
- **Threshold of 75% Vote** required for MEPS to be recommended for adopted as regional standard. TC refers to SADCSTAN ExCo for approval.

Regional standards for EAC and SADC

Patrick Blake

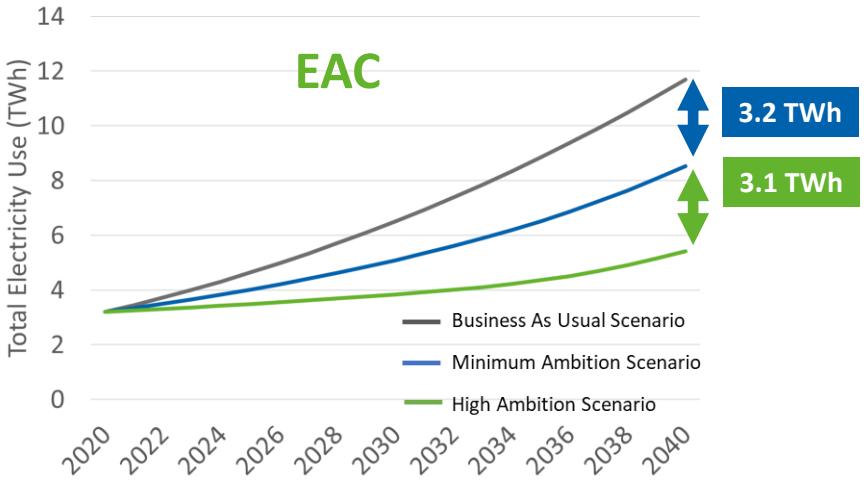
U4E

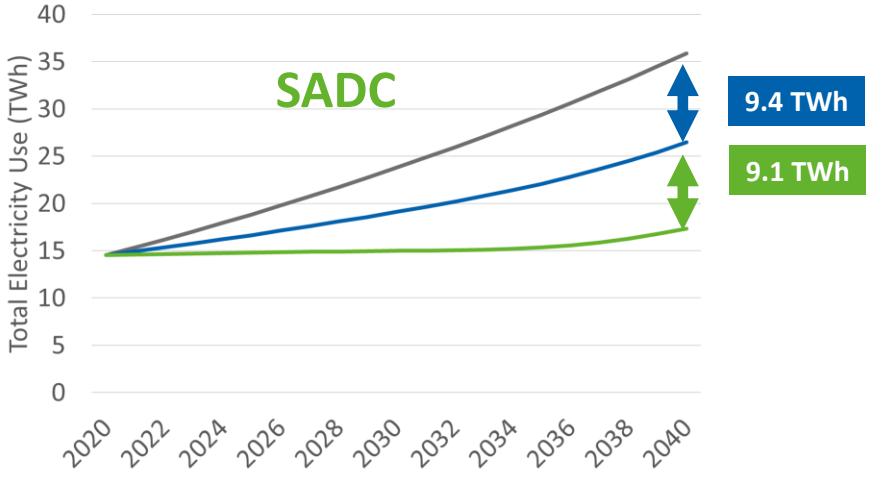
EAC Regional Harmonization on Energy-Efficient and Climate Friendly Air Conditioners and Refrigerators

21 July 2021

COP 26 Product Efficiency Call to Action

Saving Opportunities by 2040 with Energy-Efficient Room Air Conditioners and Residential Refrigerators





Annual Savings in 2040*		
Electricity Savings (TWh)	1.8	1.4
equivalent to:		
Power Stations **[500 MW]**	4	3
Millions of CO_2	1.2	1.1
Millions of USD in electricity bills	200	167

Annual Savings in 2040*		
Electricity Savings (TWh)	4.8	4.6
equivalent to:		
Power Stations **[500 MW]**	2	2
Millions of CO_2	3.9	2.9
Millions of USD in electricity bills	390	370

*Minimum Ambition Scenario

Project Overview

Project Partners:

With technical support of:

With funding from:

Countries:

- East African Community (EAC) and Southern African Development Community (SADC)
- Total of 21 countries

Objective:

- Development of Minimum Energy Performance Standards and Labelling

Technologies:

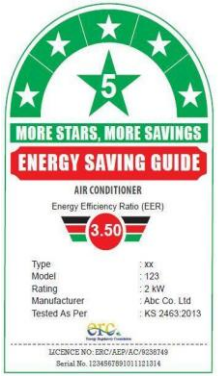
- Room Air Conditioners
- Residential Refrigerators

Workplan of the project

Market assessment	Q2 2020 - Q1 2021	• Develop market assessment methodology • Collect data from a set of countries • Develop Regional Market Assessment
Engagement with Technical Committee (TC)	Q3 2020 - Q4 2021	• Invitation of participants to TC • Plan and conduct TC meetings • Address technical inquiries stemming from TC consultations
Technical Notes	Q4 2020 - Q1 2021	Technical note on MEPS and Labels informed by U4E model regulations, existing policies in the region, and the market assessment for AC and Refrigerators • Draft note • Final note
MEPS and Labels	Q4 2020 - Q4 2021	• MEPS and Labelling draft standards • Organize at least one Regional Virtual Workshop • Coordinate the MEPS and Labels adoption process by a subset (~2-3) of countries

Key Findings in the EAC region

Policy Frameworks	• Rwanda, Kenya and Uganda are the only countries with energy policies in place • Kenya and Uganda are the only countries with energy efficiency strategies in place in the region
MEPS & Labels	• Rwanda, Kenya and Uganda have MEPS • Kenya is the only country with mandatory MEPS labelling in place • Labels from other countries are on products when imported (e.g. Chinese label) • Energy efficiency ratings vary in the region e.g. RSEER (Rwanda), SRI/EER (Kenya).
Supply Chain	• Manufacturers of refrigerators exist in Rwanda (ALMAHA) and Uganda (Gayaza Electronic Works) • There are no air conditioner manufacturers in the region, all products are imported



Kenyan label

EACREEE Building a Sustainable Energy Future

SACREEE SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY

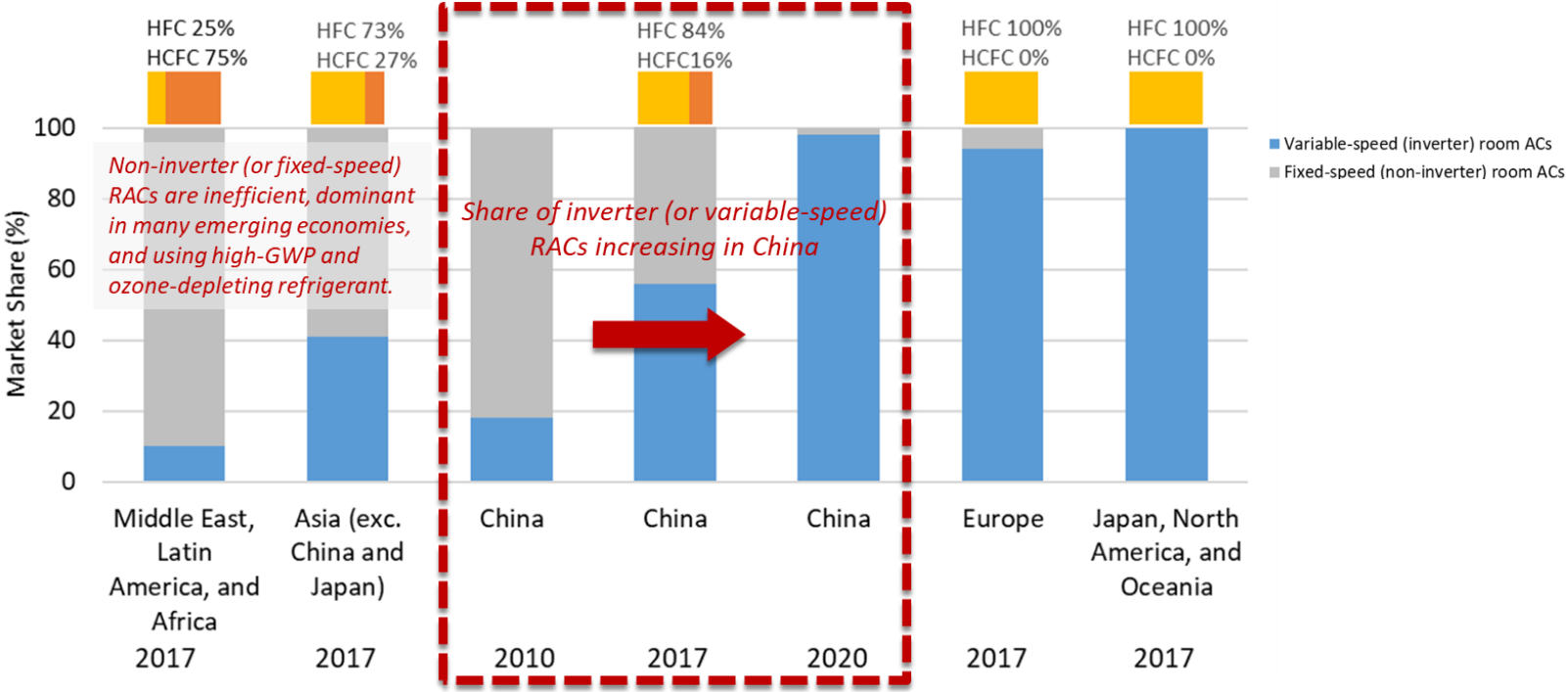
U4E United for Efficiency

Latest testing standards and performance standards for residential cooling

Dr Nihar Shah and Dr Won Young Park
LBL

AC Market and Policy in Transition

- China, the largest room AC market, is in the midst of transition toward energy-efficient and sustainable technologies. Harmonizing EE standards and refrigerants with large markets could mitigate dumping of inefficient and environmentally harmful products.



Source: Updated from Park et al. (2021) Harmonizing Energy-Efficiency Standards for Room Air Conditioners in Southeast Asia, and JRAIA (2018) World AC Demand

Recommendation – Align with global trends and practices

Model Regulation Guidelines	Air Conditioners	Refrigerators
Scope and product categories	• Air conditioners, Heat pumps • Split, self-contained, portable types	• Refrigerators • Refrigerator-Freezers • Freezers
MEPS & performance labelling requirements	• Largely aligned with international best practices (China 2022)	• Largely aligned with international best practices (EU 2021/2024, India, Mexico, the U.S.)
Test methods and efficiency metrics	• ISO 5151:2017 • ISO 16358-1, -2, -3: 2013 • ISO 16358-1: 2013/Amd 1: 2019 • CSPF for cooling-only units • APF for reversible heat pumps	• IEC 62552:2015 (Part 1, 2, and 3) • Annual Energy Consumption (kWh/year) for either 24°C or 32°C
Refrigerant requirements	• GWP 750 or less (Split) • GWP 150 or less (Self contained) • ODP 0	• GWP 20 or less • ODP 0

EAC regional harmonisation

Dr Morris Kayitare

United Nations Environment Programme

EAC Regional Harmonization on Energy-Efficient and Climate Friendly Air Conditioners and Refrigerators

21 July 2021

COP 26 Product Efficiency Call to Action

Purpose of the National Cooling Strategy

- The purpose of the NCS is to transform the market towards **energy efficient** and **climate friendly** cooling.
- **NCS is a way for government to** responds to international commitments such as the Kigali Amendment to the Montreal protocol and Paris agreement

A good strategy precedes any laws: Subdivided into rules and incentives (stick and carrots)

Sticks become laws and **carrots** become incentives

EACREEE Building a Sustainable Energy Future

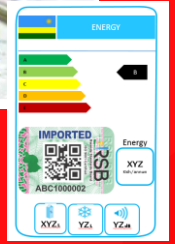
SACREEE SADC CENTRE FOR RENEWABLE ENERGY & ENERGY EFFICIENCY

U4E United for Efficiency

The Cooling Strategy

Hi level areas to consider

Technology	Regulation	Financing	Service



Regulation:
MEPS, Labels

Information:
Awareness,
Capacity Building

Incentives:
Financial,
Take back

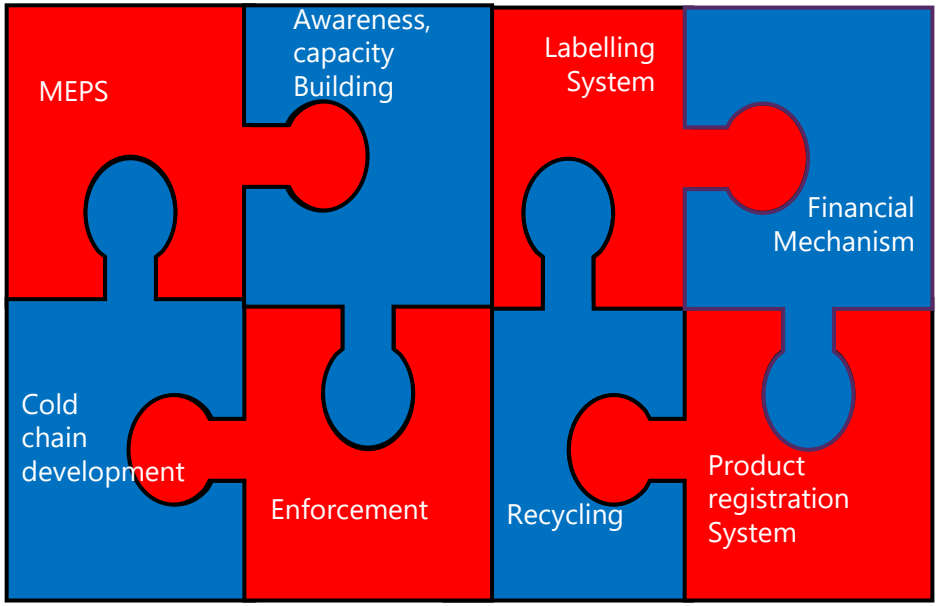
EACREE
Building a Sustainable Energy Future

U4E United for Efficiency

Composition of the NCS

Implementation of the NCS

- **MEPS** and **Labels** are in place : A regulation to make them mandatory is being developed
- **Financial mechanisms:**2 financial mechanism have been developed (Coolease and Green On-wag)
- **Communication campaign:** A national wide campaign has been carried
- **Product Registration System:** The government has developed a PRS to control importation of products
- **Take back, recycling and disposal:** A take back system is being designed and will link to the financial mechanism
- **Cold chain:** A Centre of Excellence (ACES) is being developed by the University of Rwanda in partnership with Birmingham university and U4E for agriculture and vaccine cold chain



The NCS creates a framework to guide the development of each of the above key components of the **market transformation**

Thank you!

TRANSFORMING MARKETS TO ENERGY-EFFICIENT PRODUCTS

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Does harmonisation make compliance easier?

Does harmonisation make compliance easier?

Lina Kelpsaite

Hubert Zan

Benefits of regional compliance frameworks

Lina Kelpsaite
CLASP

Regional Approach to Policy Compliance

Lina, Kelpsaite, CLASP

clasp
Efficient Appliances for People & the Planet

Compliance and Regional Policy Harmonization

Compliance - implementation and enforcement of the energy efficiency policy - helps to safeguard policy benefits by ensuring that substandard and inefficient products are not allowed into or are removed from the national markets.

Regional policy and test method **harmonization** sets the stage for **collaboration on compliance and protecting regional markets**.

Why Regional Approach to Compliance?

CHALLENGES/ CONSIDERATIONS	BENEFITS

• Many compliance programmes are resource constrained
  • Insufficient financial resources
  • Lack of human capacity
  • Lack of testing infrastructure & equipment
	• **Lower** government compliance **costs**

• Many of **same products are available** across borders, especially in free trade areas	• More **honest and open market** for business, **reduced costs**
• **Avoid duplication** of compliance efforts through sharing compliance intelligence and strategies	• More **effective compliance** programmes
• **Inconsistent compliance** across borders	• **Aligned compliance** efforts

Developing Regional Compliance Framework

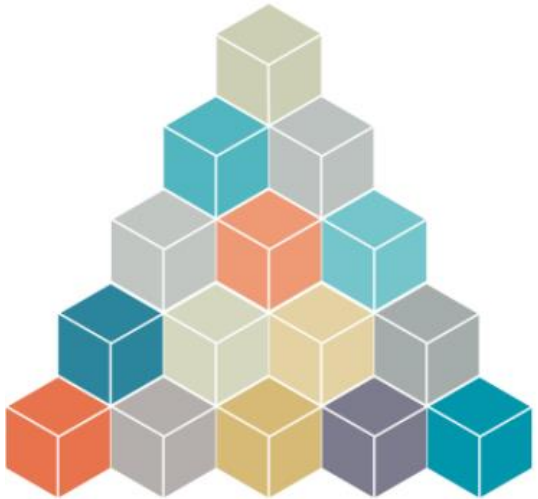
Regional Compliance Framework can be designed to support implementation of regionally harmonized policies.

Regional Compliance Framework can help strengthen national compliance efforts through**:**

- Regional **coordination**
- Regional **product registration systems**
- Regional **testing capacity** and MRAs

Considerations

- Regional and national legislation/regulations
- Align national compliance regulations and methodologies with other member states to the extent possible
- Active participation by member states
- Mechanisms for regional collaboration and sharing compliance intelligence



SADC and EAC Regional Compliance Framework

Regional Compliance Framework will enable countries in EAC and SADC regions to effectively implement regionally harmonized energy efficiency policy measures and protect regional markets from non-compliant and low quality products.

Framework developed under EELA Project to support regional policy implementation for lighting and cooling appliances.

OBJECTIVES

- To increase the **efficiency of compliance efforts** throughout the two regions,
- To establish **appropriate communication channels and collaboration** between the national compliance authorities through regional centers to share compliance intelligence and resources,
- To establish a **regional product registration system**,
- To ensure **adequate and accessed-by-all testing capacity** in the regions,
- To develop **common practices and methodologies**, and support alignment of national compliance regulations to extent possible.

SADC and EAC Regional Compliance Framework

- **Inter-regional collaboration** – facilitating compliance information-sharing and joint activities between two regions, coordinated by SACREEE and EACREEE

- **Intra-regional collaboration** – facilitating regional collaboration, intelligence sharing and joint activities among member states coordinated by SACREEE and EACREEE.

- **National compliance programmes –** building capacity at the national level to implement and enforce energy efficiency policies in member states.

Strategic elements

Strengthening Regional Centers & Coordination Mechanisms	Developing & Adopting Regional Product Registration System	Building Regional Testing Capacity & MRAs	Kicking off Intelligence Sharing & Enforcement Collaboration	Designing and Implementing National Programmes

Thank you!
Any questions?

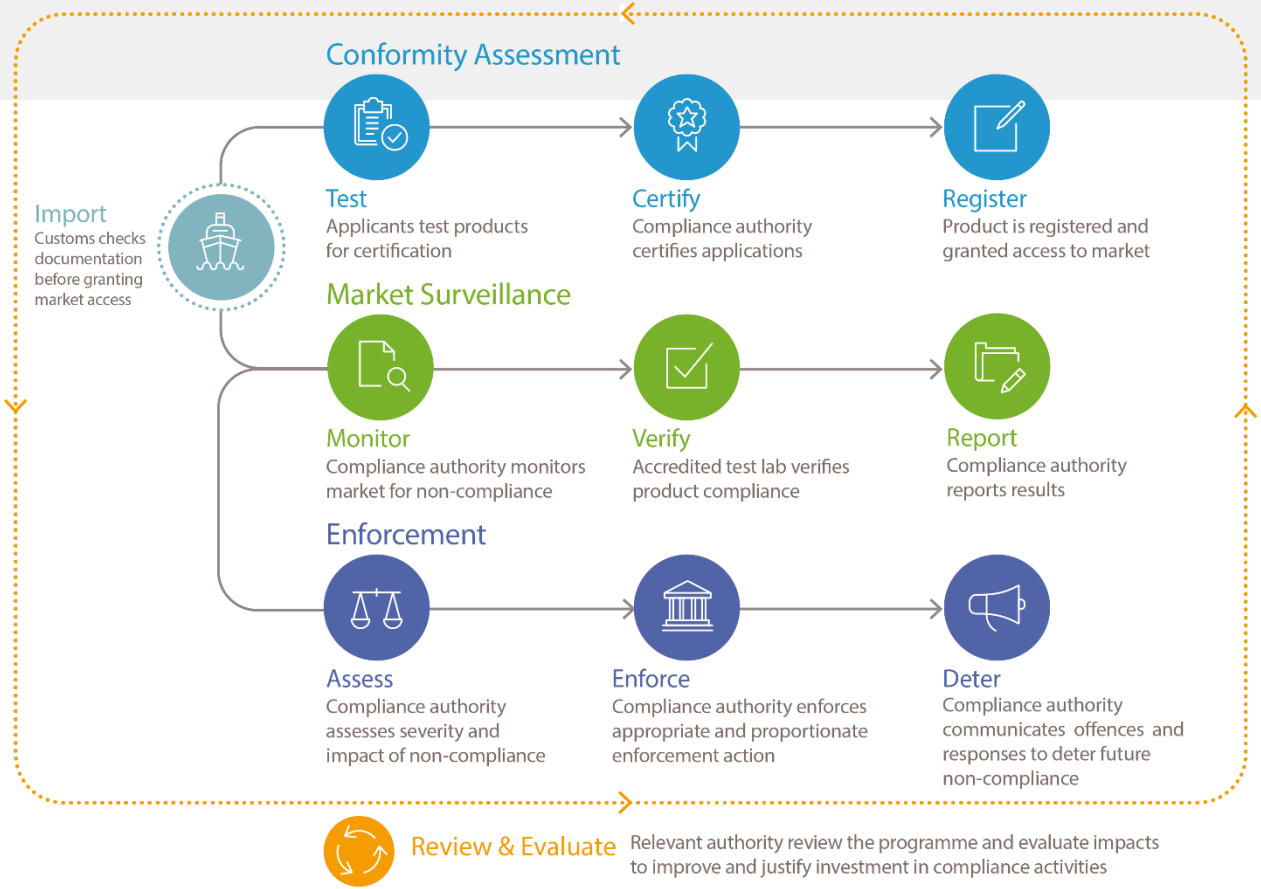
Lina Kelpsaite

Manager | lkelpsaite@clasp.ngo

clasp

Efficient Appliances for People & the Planet

Holistic approach to compliance



Monitoring, Verification and Enforcement (MVE) of cooling appliances and benefits of Harmonisation

Hubert Zan

Energy Commission of Ghana

Monitoring, Verification and Enforcement (MVE) of cooling appliances, the benefits of Harmonization

SUPER-EFFICIENT EQUIPMENT APPLIANCE DEPLOYMENT (SEAD) INITIATIVE WORKSHOP FOR EAST AFRICA

ON 21st July 2021

PRESENTED BY: HUBERT NSOH ZAN, SENIOR ENFORCEMENT OFFICER

REEECCTRI DIRECTORATE- GHANA ENERGY COMMISSION

HIGHLIGHTS OF THE NEW DRAFT REGULATIONS

1.Purpose of Regulations

The purpose of these Regulations is to promote the efficient use and conservation of energy in the country and mitigate energy related climate change by prohibiting the importation for sale and sale of

- Used electrical appliances
- Used accessories ; and
- Used parts

HIGHLIGHTS OF THE NEW DRAFT REGULATIONS

2) Application of Regulations

These Regulations apply to used electrical and electronic appliances defined in this Regulation.

1.Air conditioner
2. Comfort fan
3. Computer
4. Distribution transformer
5. Electric Kettle
6. Electric motor
7. Incandescent Lamp
8. Industrial fan
9. Inverter
10. Metal Halide Lamp
11. Microwave oven
12. Monitor
13. Refrigerating appliance
14. Rice Cooker
15.Set-top box
16. Solar panel
17. Television set
18. Ventilating fan
19. Washing machine
20. Water heater

1)Application of Regulations for Refrigerating Appliance

These Regulations apply to electric mains-operated household and commercial refrigerating appliances with a volume of more than **10 litres** and of less than or equal to **1500 litres** manufactured in Ghana or imported into the country for use

2) Application of Regulations for Air conditioners

1) These regulations apply to the numbered air conditioning product classes set out in Table 2.4 of the Second Schedule manufactured in Ghana or imported into the country for use.
2) The products covered by these Regulations are single-phase and three-phase:

air conditioners;
multi-split outdoor units, whether or not supplied or offered for supply as part of a multi-split system; and
single-split outdoor units;
that have a rated standard cooling full capacity of 65kW or less that are designed primarily for human comfort but shall also apply to such products irrespective of the context in which they are used.

AIRCONDITIONER

Standards Applicable

1.GS 362:2018 Electrical appliances and accessories – Non-Ducted Air Conditioners – Testing and rating for performance

2.ISO 13253:2017: Ducted air-conditioners and air-to-air heat pumps — Testing and rating for performance

3.ISO 15042:2017: Multiple split-system air conditioners and air-to-air heat pumps — Testing and rating for performance

4.ISO 18326:2018: Non-ducted portable air-cooled air conditioners and air-to-air heat pumps having a single exhaust duct — Testing and rating for performance

5.ISO 18326:2018/NP AMD 1: Non-ducted portable air-cooled air conditioners and air-to-air heat pumps having a single exhaust duct — Testing and rating for performance — Amendment 1

6.ISO 16358-1:2013: Air-cooled air conditioners and air-to-air heat pumps — Testing and calculating methods for seasonal performance factors — Part 1: Cooling seasonal performance factor

NEW MATRIX FOR CALCULATION OF EFFICIENCY

Energy Efficiency Standards for Air Conditioners

Given that air conditioners are used mainly in part load conditions, seasonal efficiency measurement methods shall be used to determine the energy efficiency of air conditioners, except for single duct air conditioners.

The Energy Efficiency level of an Air Conditioner is determined by the Cooling Season Total Performance Factor (CSTPF) determined in accordance with sections 5 and 6 of ISO16358-1.

For the purpose of this schedule,

Energy Efficiency Ratio or ***EER*** means the ratio of the standard cooling full capacity to the power input to the product (watts/watts).

Annual Energy Efficiency Ratio or ***AEER*** means the measure of the energy efficiency of the cooling function of air conditioners and incorporates Weighted Average Inactive Power Consumption (P_{ia}).

2.1. Calculation of AEER

The AEER of a product is calculated in accordance with the following formula:

$$AEER = \frac{\text{capacity} \times 2000}{(\text{power input} \times 2000) + (P_{\text{ia}} \times 6.76)}$$

REFRIGERATORS

Standards Applicable

GS IEC 62552-1:2015 Household refrigerating appliances – Characteristics and test methods – Part 1: General Requirements

GS IEC 62552-2:2015 Household refrigerating appliances – Characteristics and test methods – Part 2: Performance Requirements

GS IEC 62552-3:2015 Household refrigerating appliances – Characteristics and test methods – Part 3: Energy consumption and volume

GS IEC 60704-2-14 Household and similar electrical appliances. Test Code for the determination of airborne acoustical noise- Part 2-14: Particular requirements for refrigerators, frozen-food storage cabinets and food freezers. Edition 2.1, 2019-03.

SCHEDULES

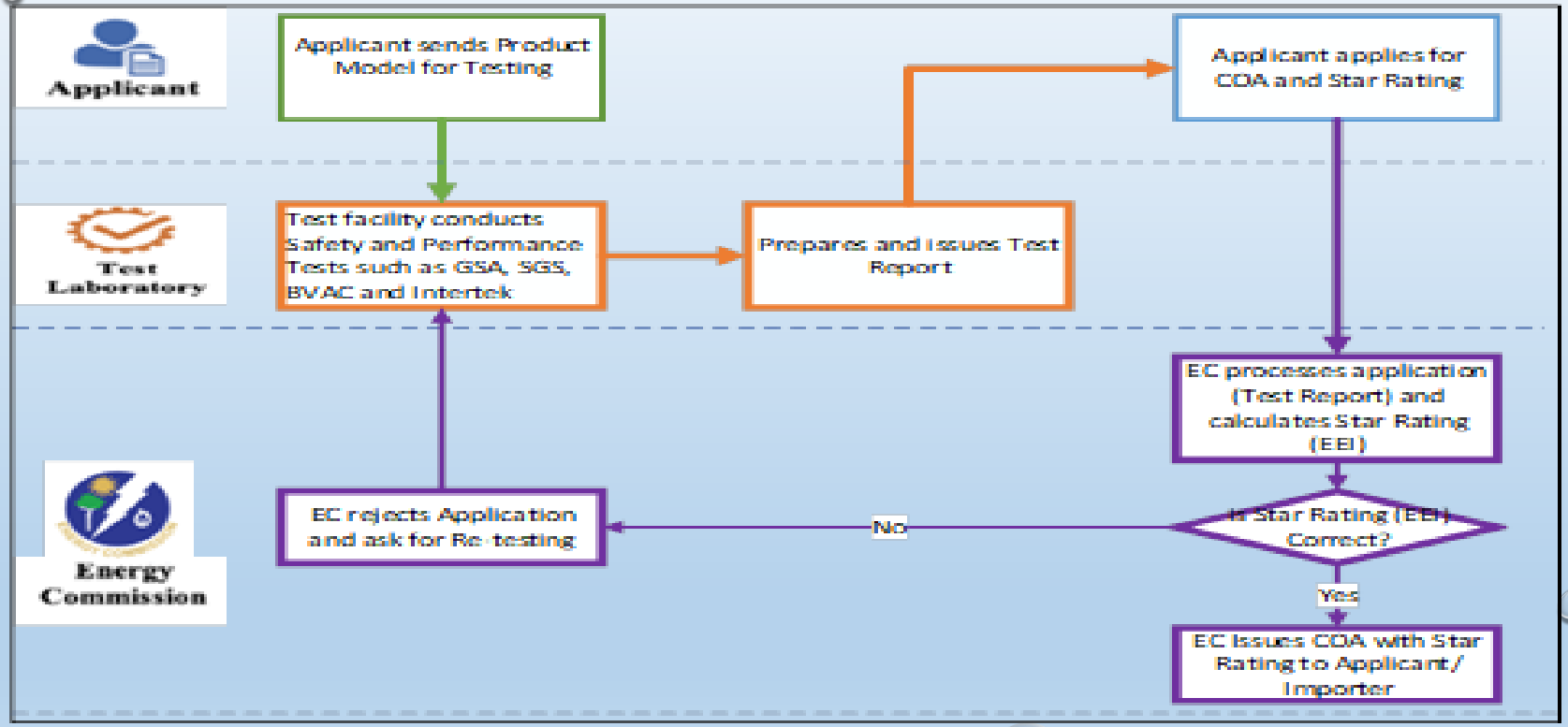
Refrigerators contd

- An appliance shall be rated as ***7-Star to 1-Star*** where the energy efficiency index (EEI) is within the ranges specified in Table 1.

- **Table 1: Proposed Energy Efficiency Star Rating**

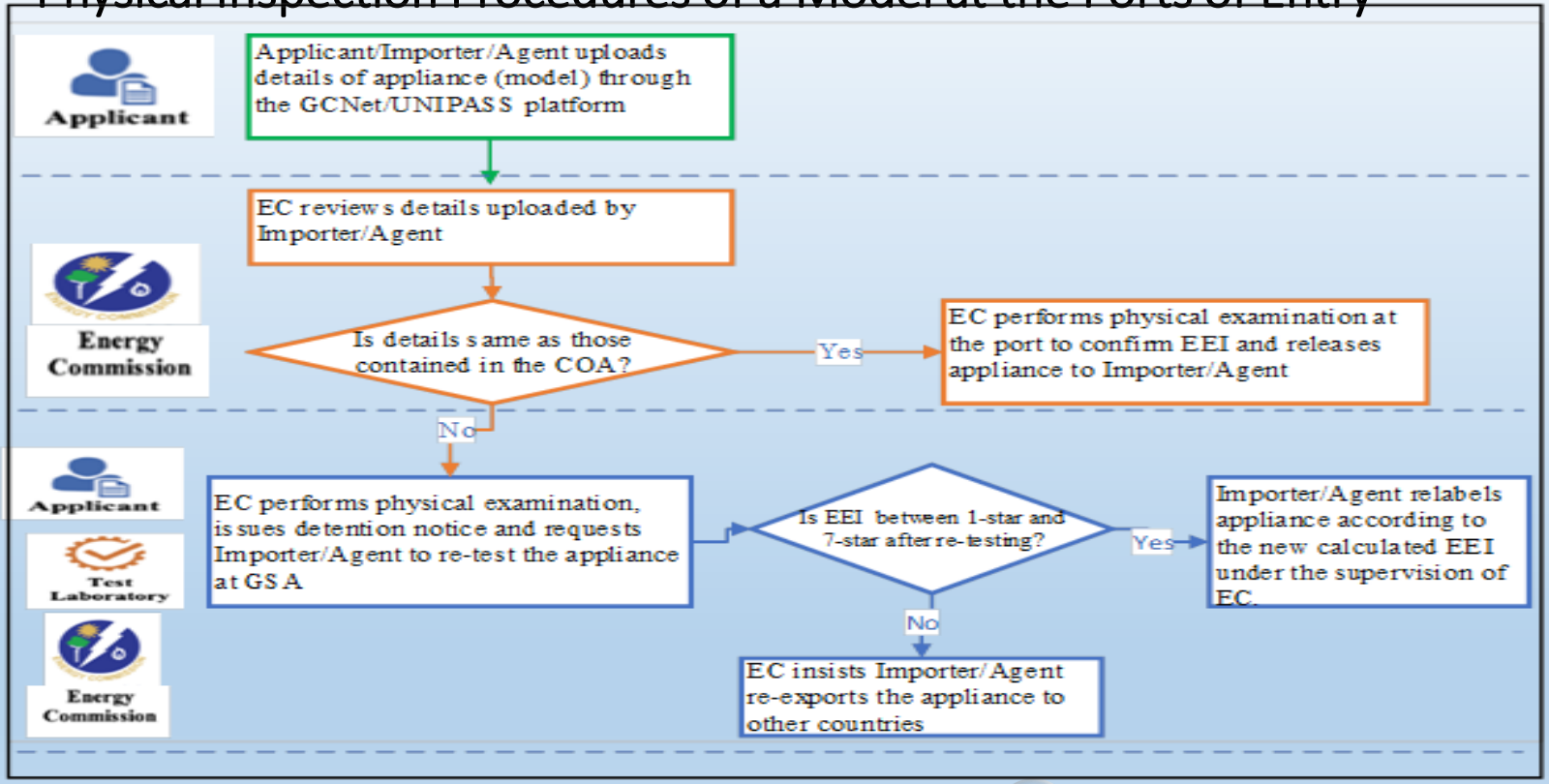
"Energy efficiency Star Rating"	Energy efficiency index (EEI)
7 – Star	EEI<22
6 – Star	22≤EEI<33
5 – Star	33≤EEI<40
4 – Star	40 ≤ EEI< 45
3 – Star	45 ≤ EEI<55
2 – Star	55 ≤ EEI<70
1 – Star	70 ≤ EEI<85

Testing and Approval Processes for Model(s) to be imported into Ghana



Source: Ghana Energy Commission

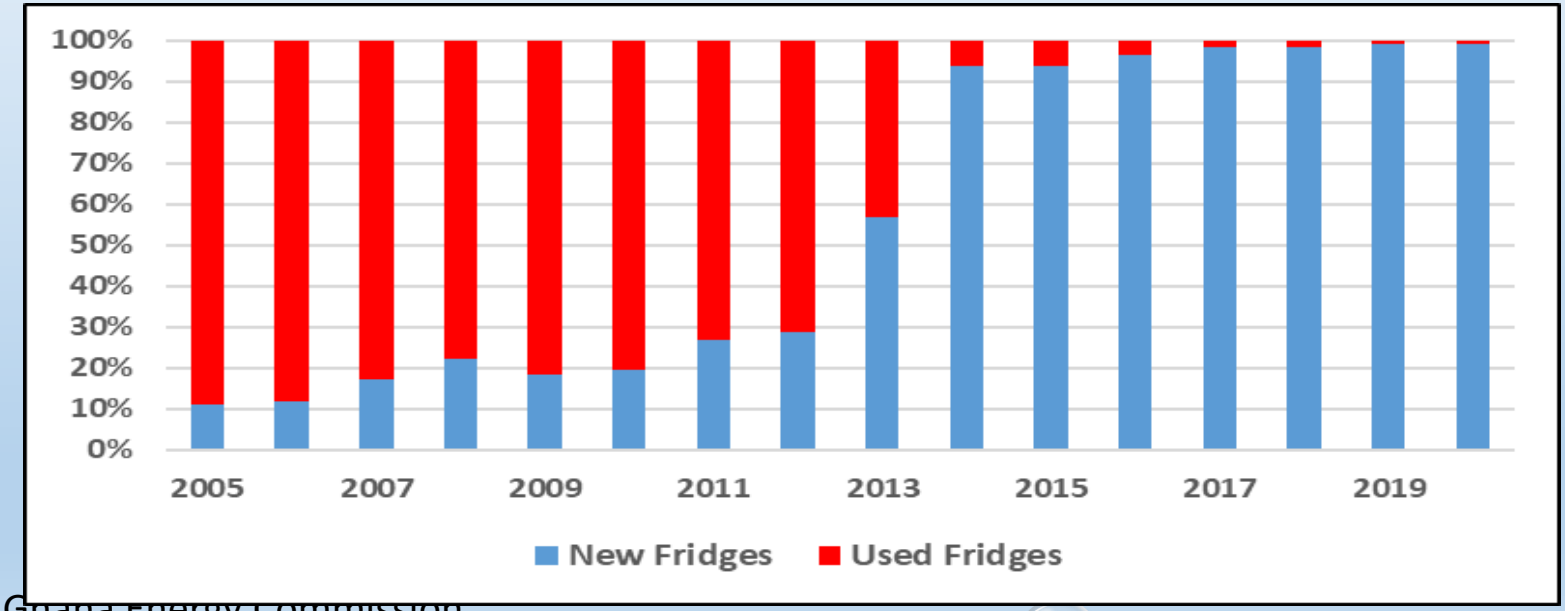
Physical Inspection Procedures of a Model at the Ports of Entry



Source: Ghana Energy Commission

MONITORING ACTIVITIES

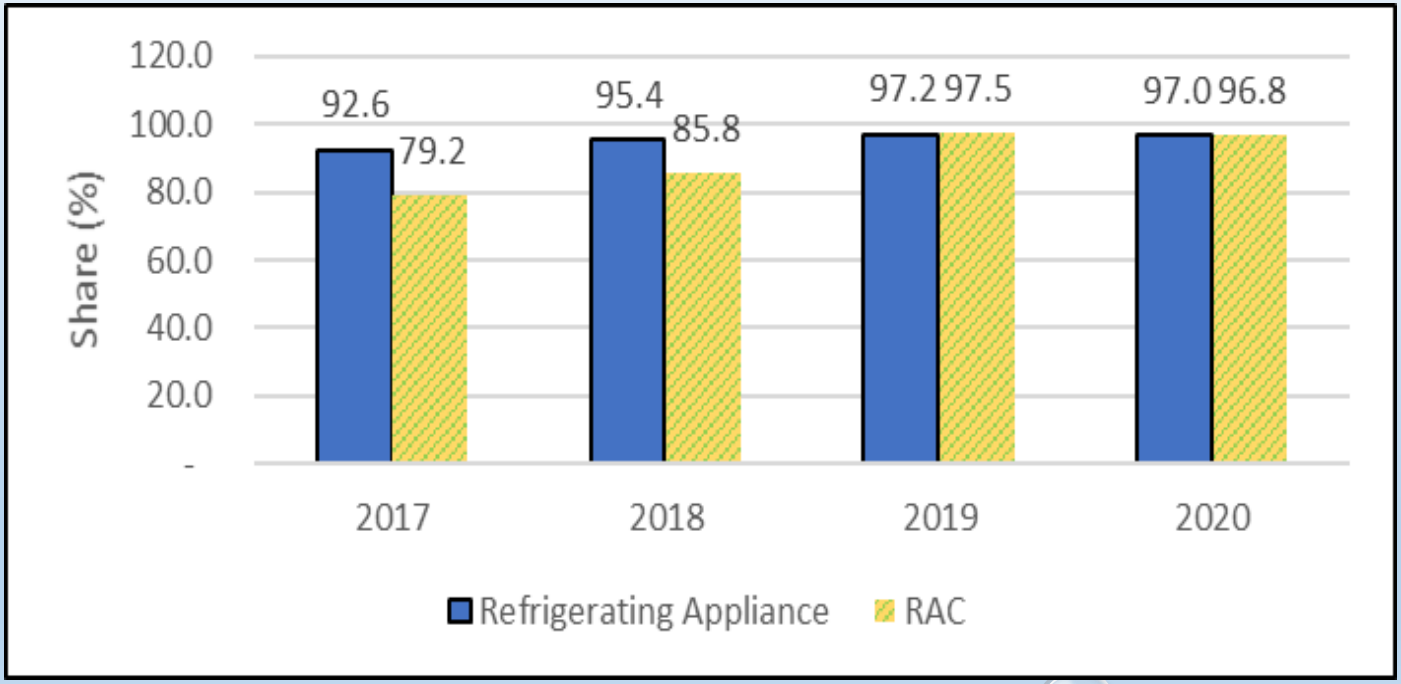
Ghana has evolved/transformed over the years (2005 – 2020) from being a completely used and inefficient refrigerator market (88.9% inefficient in 2005) to new and efficient ones (99.1% efficient in 2020) as a result of MEPS implementation.



Source: Ghana Energy Commission

MONITORING ACTIVITIES

1. Compliance levels of Refrigerating Appliance and RACs



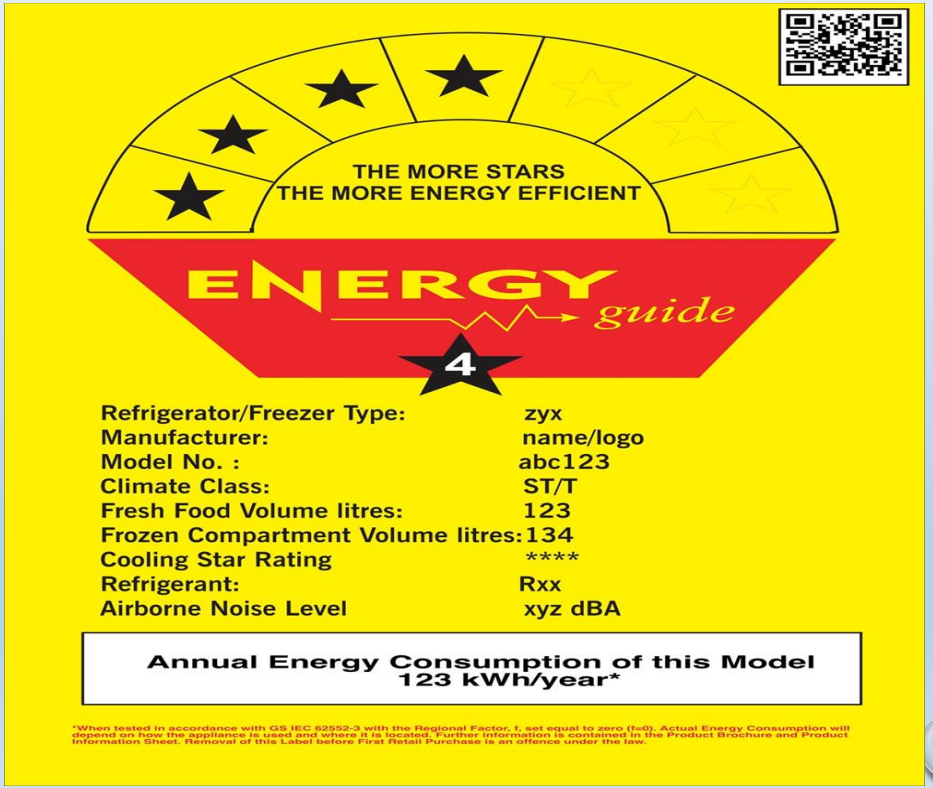
Source: Ghana Energy Commission

VERIFICATION ACTIVITIES

REFRIGERATOR AND AIR CONDITIONER TESTING FACILITY INSTALLED IN GHANA

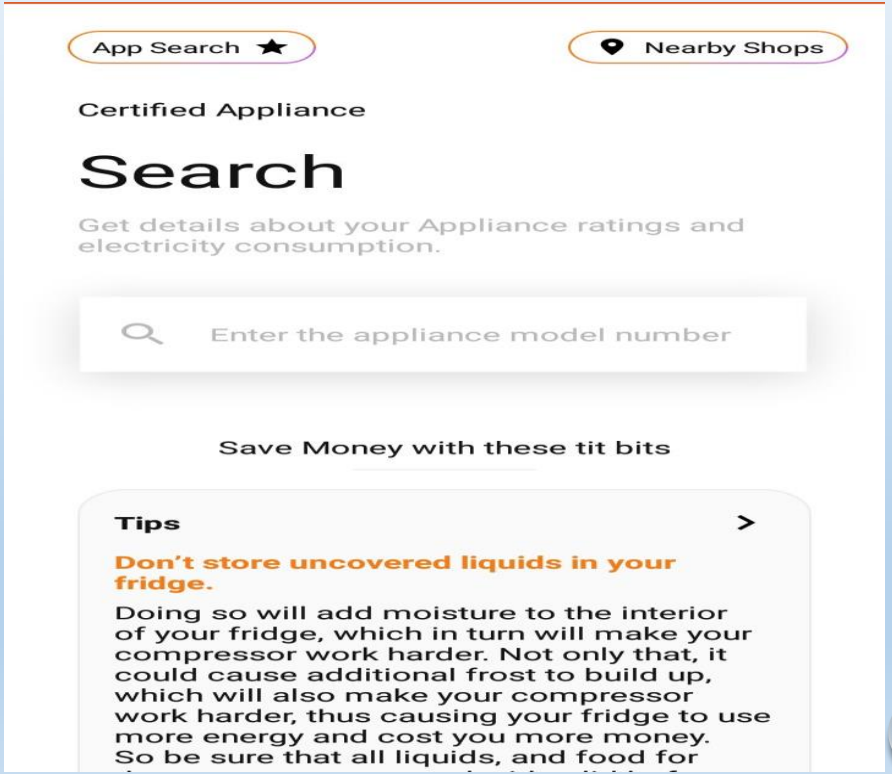
VERIFICATION ACTIVITIES

NEW ENERGY GUIDE WITH QR CODE FEATURE



VERIFICATION ACTIVITIES

USE OF CERTIFIED APPLIANCE APP



ENFORCEMENT ACTIVITIES

EVIDENCE OF A COMPLIANT SHOP

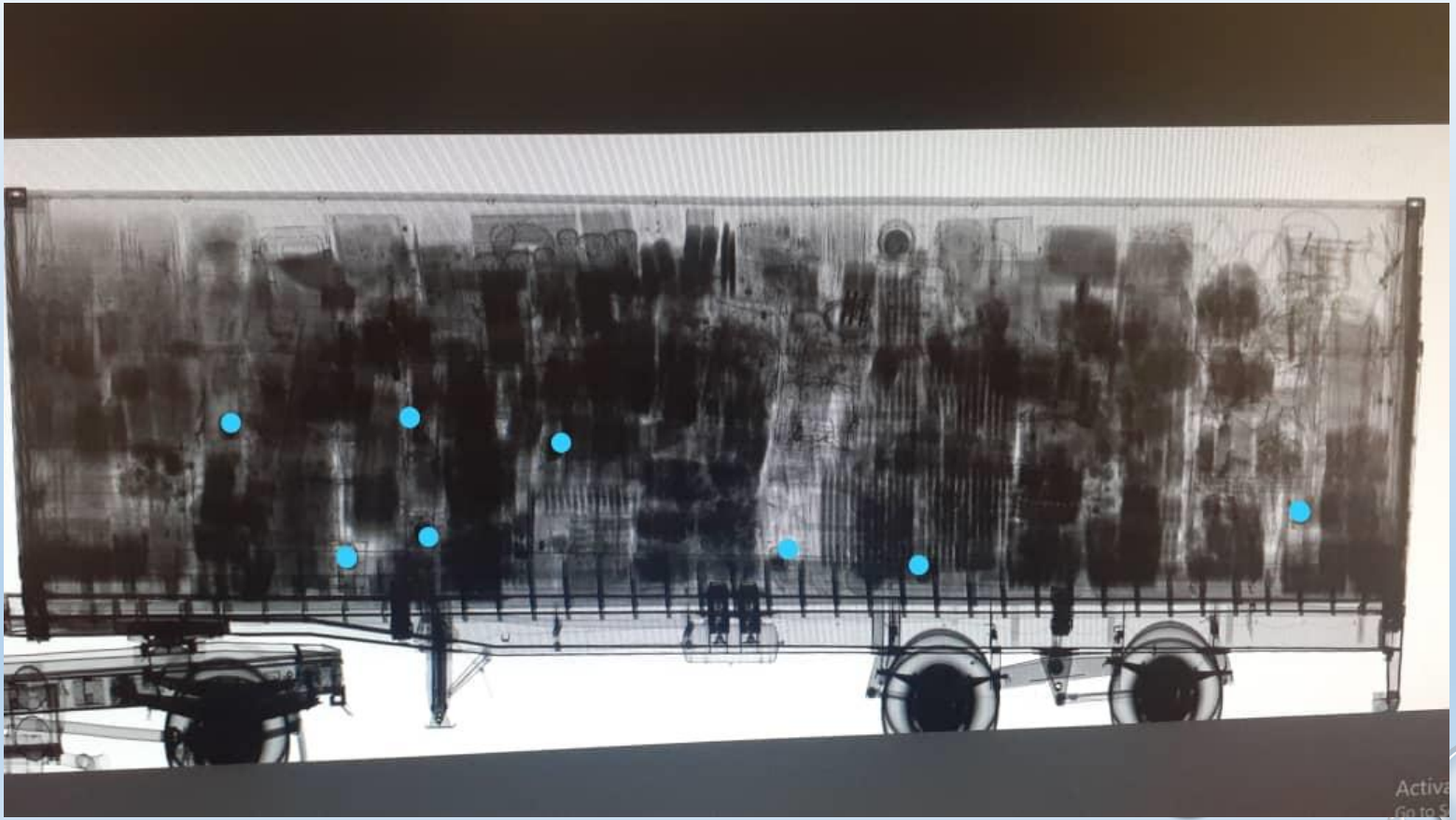
ENFORCEMENT ACTIVITIES

EVIDENCE OF SEIZURES

EVIDENCE OF SEIZURES

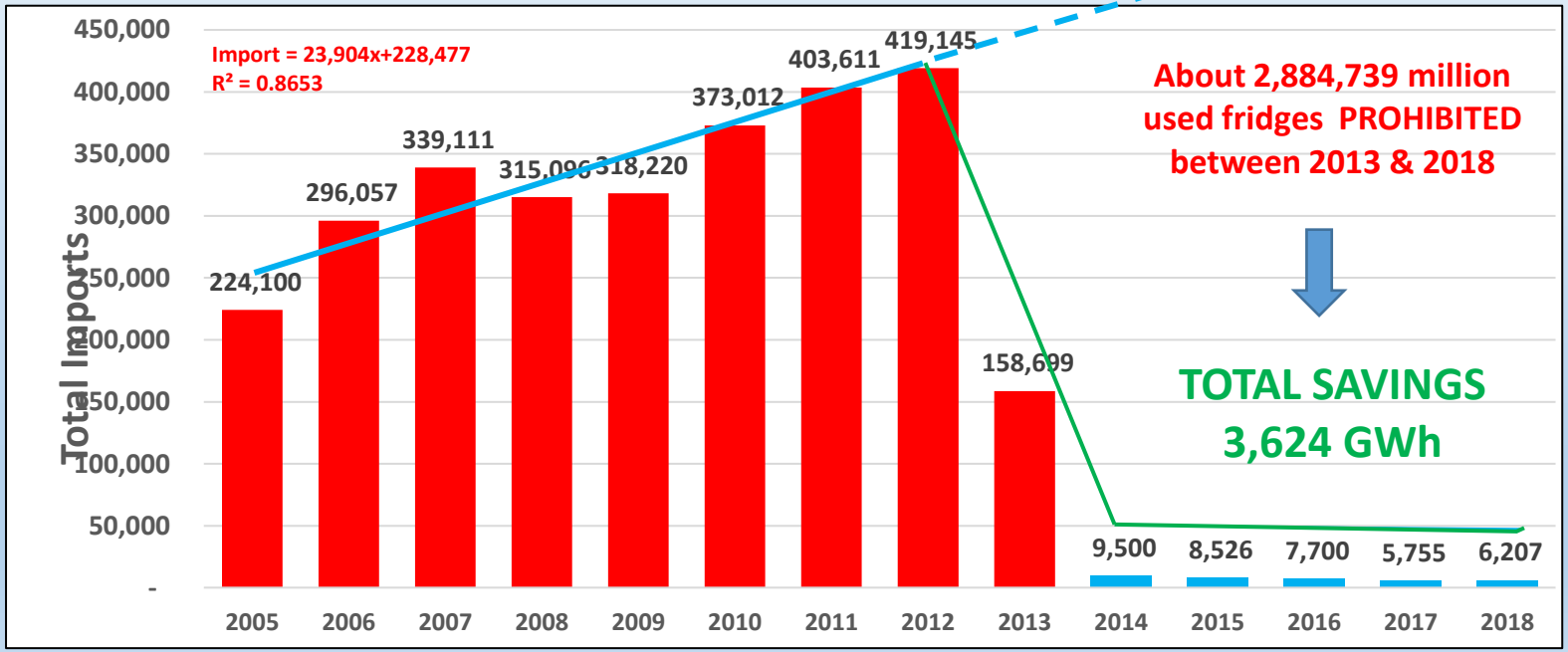
EVIDENCE OF SEIZURES

SCAN IMAGES



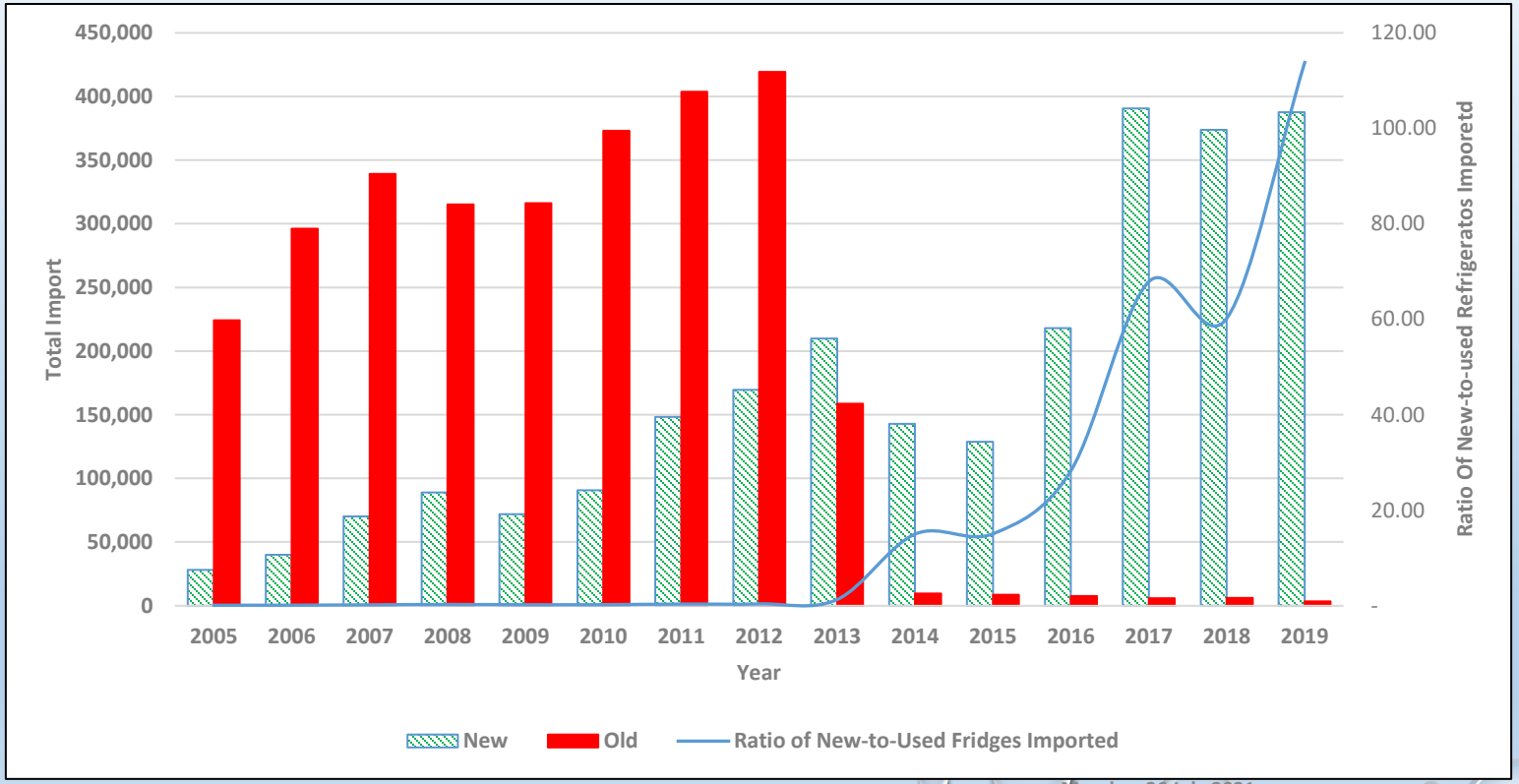
TOTAL IMPORT OF USED FRIDGES FROM 2005 - 2018

- About 2,884,863 used fridges imported since 2005.
- About 41,800 units of the total were seized since the commencement of L.I. 1932 in 2013, and 10,472 turn-ins by the mid-year 2016.



Trends in New Versus Used Refrigerators Imports (2005 – 2019)

(How the market has been transformed between 2013 – 2019)



STRATEGIES

- Use of system leadership
- Quadruple helix model and market innovation
- “Carrot and stick” approach. As well as “Jamboree”
- Innovative Financing –On wage financing. Eg. ECOFRIDGES GO project.
- Highly Energy Performance Standards (HEPS).

EXPECTATIONS

- MEPS are important to streamline the market for new entrants
- It encourages manufacturers to explore innovative and efficient technologies to gain a competitive edge
- Monitoring and enforcement builds consumer confidence in the appliances to be purchased.
- Verification helps prevent misleading information and electronic dumping of new inefficient appliances in the market
- Harmonization helps create uniformity and facilitate trade with regions.

THE FUTURE will be more efficient and BRIGHT!

THANK YOU

Wrap up Discussion
Comments or questions?

Event Close
Thank you for joining us!