United Nations Environment Programme
en.lighten Initiative

Minimum Energy Performance Standards (MEPS) Breakout Group
Report Back to Plenary Session

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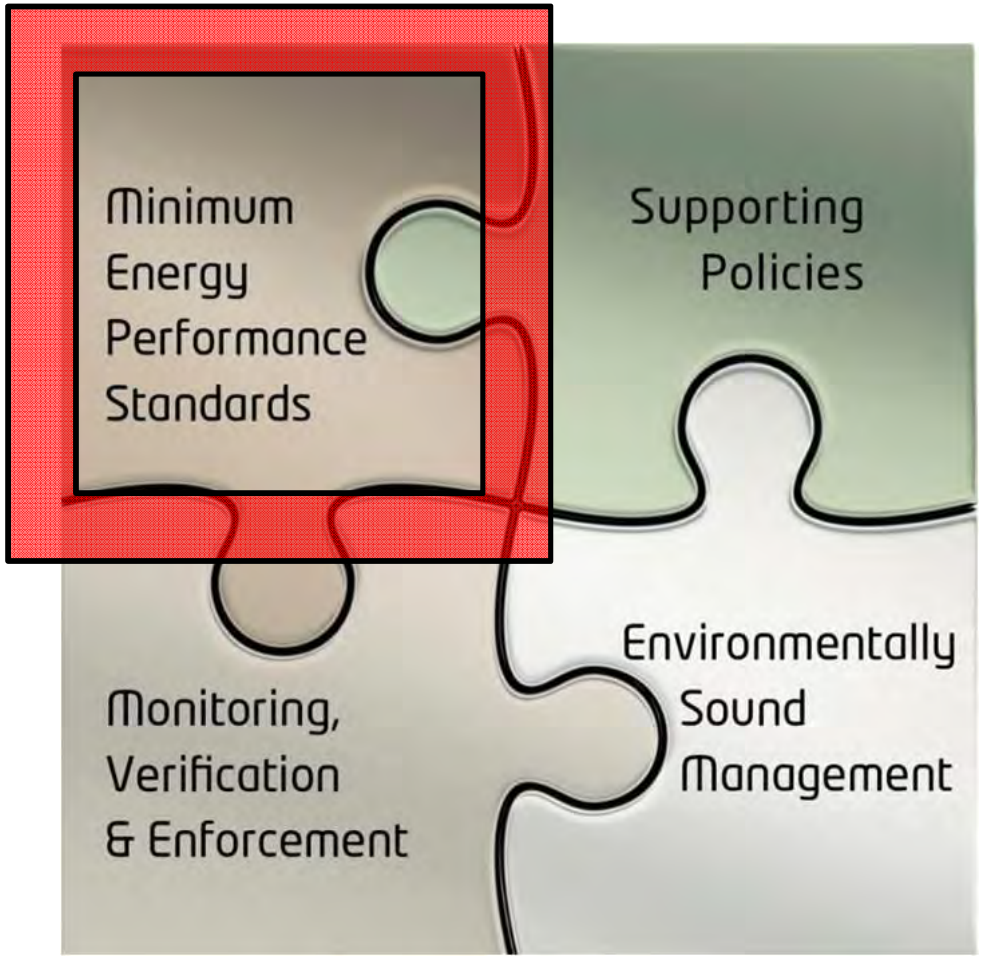
ECOWAS Workshop, Cotonou, Bénin

3 October 2013

Four Pillars of the Integrated Policy Approach
Our Focus is MEPS



Objective of the MEPS Group

- Objective: To adopt and implement Minimum Energy Performance Standards of on-grid and off-grid efficient lighting products in all ECOWAS countries

- Objectif: adopter et mettre en œuvre des normes de rendement énergétique minimum de sur-grille et hors réseau des produits d'éclairage efficaces dans tous les pays de la CEDEAO

MEPS Breakout Group Agenda – Overview

A full agenda, working to cover the following

- 11:00 – 13:00 Session A. On-Grid Lighting MEPS
- 13:00 – 14:00 Lunch
- 14:00 – 15:30 Session B. Off-Grid Lighting MEPS
- 15:00 – 15:45 Coffee Break
- 15:45 – 17:00 Session C. Responsibilities, Timeline, Milestones, Financial Considerations
- We continued working until 18:00

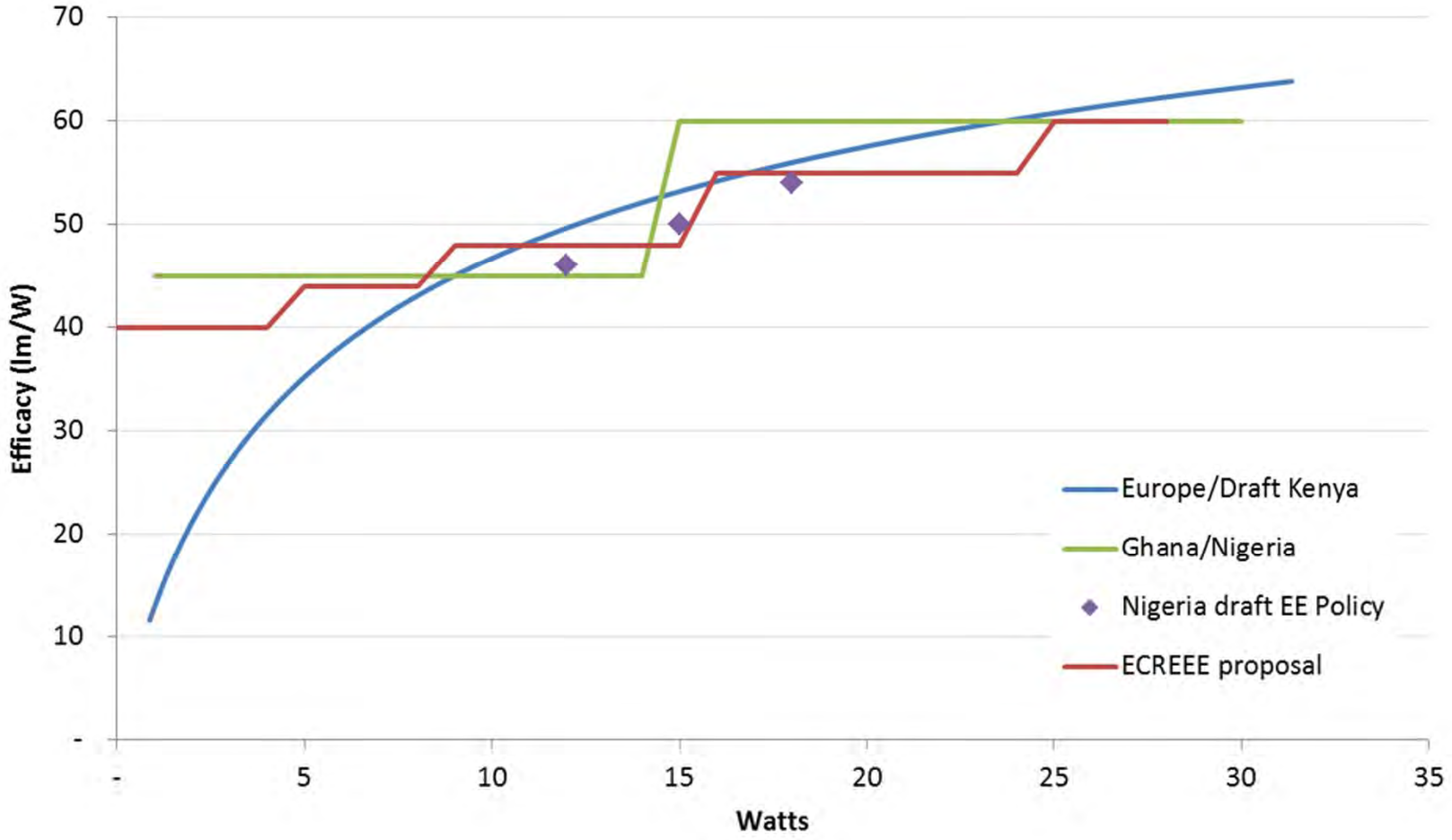
Session A: On-Grid Lighting MEPS

- Agreed on a proposal for MEPS, based on a draft prepared by ECREEE which looked at six standards:
  - Europe Stage 1 of 244/2009 – took effect 1 Sept 2009
  - Europe Stage 5 of 244/2009 – took effect 1 Sept 2013
  - Kenya KS 2446-1:2013 (Draft for review)
  - Ghana GS 323:2003
  - Nigeria NIS 747:2012
  - Nigeria National Energy Efficiency Policy Document, May 2013
- ECREEE worked to find the common levels across the different standards
- MEPS Group discussed this proposal and made some minor revisions

On-Grid Lighting MEPS – Working Group Proposal

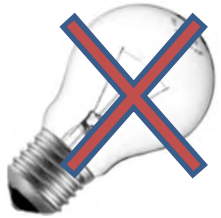
- Technology neutral, phases out incandescent technologies
- MEPS requirements proposed from these regional standards:
  - Luminous Efficacy – (see next slide)
  - Lifetime – minimum of 6000 hours; 1 switch cycle per hour rated life
  - Power Fluctuation Tolerance – operate with 160-260 Volts
  - Power Factor – minimum 0.50 for <25W and 0.90 for ≥25W
  - Lumen Maintenance – 90% at 1000 hours; 88% at 2000 hours
  - Light Quality – Colour Rendering Index (Ra) of 0.80
  - Mercury Content – no more than 5mg per lamp
  - Starting Time – no more than 1.5 seconds
  - Warm-up Time – no more than 90 seconds for 60% brightness

Plot of Luminous Efficacy vs. Wattage – see Red Line



On-Grid Lighting MEPS

- Agreed on a proposal for MEPS, based on the ECREEE draft
  - Covers: mains-voltage, non-directional lamps
  - Phases out incandescent and halogen-incandescent
  - Provides reasonable minimum performance for other lighting technologies
- Implementation starts with a one-year grace period
  - Grace period: from 31 Dec 2015 to 31 Dec 2016
  - Mandatory from 1 January 2017




Session B: Off-Grid Lighting MEPS

- Discussed the need and objective for improving Off-Grid Lighting products
- Discussed Lighting Africa (1) Minimum Quality Standards and (2) Performance Targets
- Discussed the IEC standard:
  - IEC 62257-9-5: Integrated system – Selection of stand-alone lighting kits for rural electrification
  - Only testing standard in the world for off-grid lighting
- Proposal is based on the IEC level
- Incentives first – zero import duty, utility or government promotional programmes
- MEPS later when market is ready

The Need for Off-Grid Lighting MEPS….

Protect the end user / consumer:

- Unsafe and very low quality products are kept from the market.
- Consumers have options to choose from only approved quality brands
- Protect / safeguard consumers investment in better , more sustainable products

Support the local government:

- Right product assembled locally or imported and sold to drive governmentôs initiative to provide lighting for all

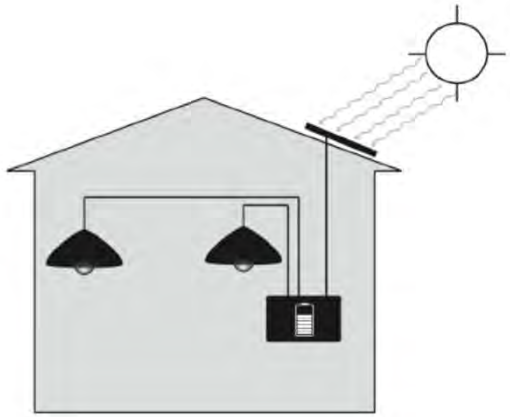
Protect the environment:

- Products with high levels of hazardous materials and quack standards are kept out the market.

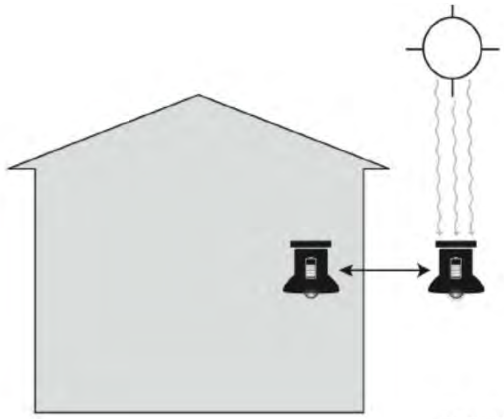
Support the industry

- Adequate market surveillance is in place to enable fair business

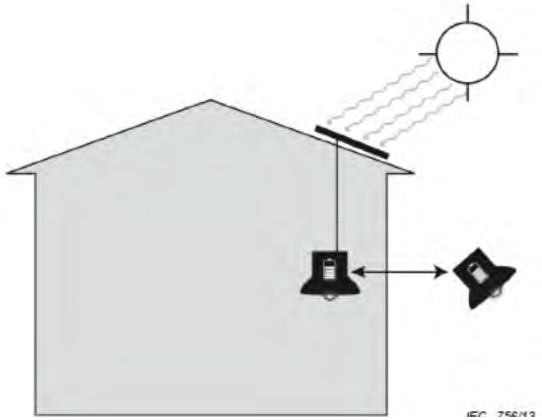
Scope of Coverage for IEC 62257-9-5 (2013)



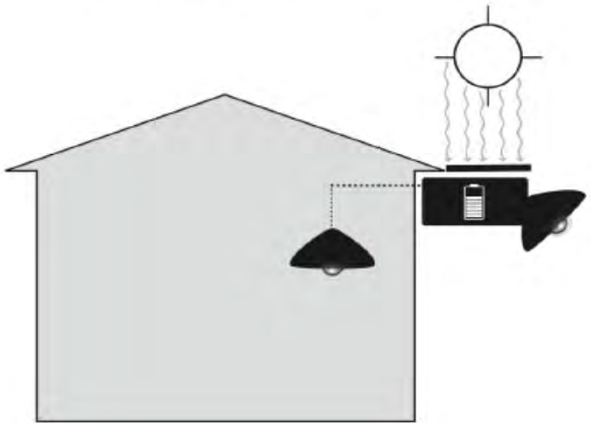
Fixed (indoors) Separate System



Portable Integrated System



Portable Separate Systems



Fixed (outdoors) Integrated System

Summary of Off-Grid Lighting Quality Standards

Lighting Africa Quality Standards (tested using IEC 62257-9-5):

- Truth-in-Advertising: Accurate consumer-facing labelling (e.g., rated run time, battery capacity, power of solar cells)
- Lumen Maintenance: >70% of light output at 2,000 hours
- Durability and Quality: Appropriate protection to prevent early failure
- Warranty: At least six months of coverage

- *Note: these minimum quality standard levels may be increased slightly when Lighting Africa publishes their update later this month.*

Detail on Quality Standards

- Truth-in-Advertising
- Lumen Maintenance:
- Durability and Quality
- Warranty

Note: Update to these specifications may be issued by end of October 2013.

Category	Sheet Field		Quality Standards
Information	Manufacturer		Accurately specified
	Product Name & Model #		Accurately specified
	Warranty		Accurately specified; Minimum coverage 6 months on manufacturing defects under normal use, including battery
Illumination	Light Output		Accurately specified at each available level (lumens)
	Lamp Type		Accurately specified
Energy System Performance	Run Times		Accurately specified for each light setting
Lumen Maintenance	Lumen Maintenance at 2,000 hours		≥ 70% of specified light output at 2,000 hours (depreciated at highest setting)
Charger	Charger Rating		Charger power rating accurately specified (e.g. PV power or mechanical charge time)
	AC-DC Charger Safety		Any *included* AC-DC charger carries approval from a recognized consumer electronics safety regulator[ii]
Storage	Battery Capacity		Accurately specified
	Battery Protection		Protected by an appropriate charge controller that prolongs battery life and protects the safety of the user
Quality and Durability	Physical Ingress Protection	Fixed Outdoor	IP 5x
		Others	IP 2x
	Water Protection[ii]	Fixed Indoor	No requirement
		Portable Separate	Occasional rain: *IP x1* OR *technical equivalent* OR *with warning label*
		Portable Integrated	Frequent rain: *IP x3* OR *technical equivalent* OR *IP x1 / equivalent + warning label*
		Fixed Outdoor	Permanent outdoor exposure: *IP x3* AND *circuit protection*
	Drop Test	Fixed Indoor	None result in dangerous failures[iii]
		Others	5 out of 6 samples are functional after drop test (1 m onto concrete); None result in dangerous failures[iii]
	Soldering and Electronics Quality		Pass soldering and electronics inspection (without endemic bad joints, pinched wires, etc.)
	Switch, Gooseneck, Connector, and Strain Relief Durability		5 out of 6 samples are functional after 1000 cycles (switch, connector, gooseneck tests); 5 out of 6 samples are functional (strain relief test); None result in dangerous failures (all tests)

Summary of Off-Grid Lighting Performance Targets

Also tested using IEC 62257-9-5:

- Minimum Quality Standards must be met.
- Brightness: A total light output (lumens) and/or task light illuminance (lux over a specific area) target that defines the expected lighting service.
- Run time: A duration of daily lighting service over which the brightness target should be met, based on either "solar run time" (for products that include solar modules) or a full battery (for products without individual solar modules).

Detail on Performance Targets

Criterion	Description
Brightness	At least one lighting level, which defines the “specified light output” in subsequent testing, must meet one of the following criteria: Å Light output of at least 20 lumens, or Å Illuminated area of at least 0.1 m^2 at 25 lux or higher on a surface 75 cm from the product, or Å Illuminated area of at least 0.1 m^2 at 25 lux or higher on a work surface when the product is used as a task light.
Runtime	To meet the runtime target, the product must provide either: Å 8 hours of light at greater than or equal to the specified light output with a fully charged battery Å 4 hours of light at greater than or equal to the specified light output after one day of solar charging as defined by the QTM (PV only)

Session C. Responsibilities, Timeline and Milestones

- Limited time, and were not able to discuss all aspects of the tables prepared by Dr. Hagan

- Focused on:
  - Table 1 – MEPS Key Activities
  - Table 2 – Milestones and Timeline

Original Version of Table 1: MEPS Key Activities

		Échéancier	Parties d'exécution
Objectif 1:Adopter et mettre en œuvre des normes de rendement énergétique minimal des contrôles sur réseau et hors réseau des produits d'éclairage efficaces dans tous les pays de la CEDEAO			
Résultat escompté 1.1	Normes minimales de performance énergétique (MEPS) de sur-grille et les lampes économes hors réseau ont adopté et mis en œuvre dans tous les pays de la CEDEAO		
Activité prioritaire 1.1.1	Créer une prise de conscience, adopter et mettre en œuvre des MEPS en réseau et hors réseau des produits d'éclairage efficaces dans tous les pays de la CEDEAO		
Tâches	1. Mener des consultations nationales avec les décideurs politiques et autres parties prenantes sur les MEPS harmonisées de sur-grille et les lampes économes hors réseau	Juillet 2014 to Décembre 2015	Standard Autorité - Lead Ministère de l'Énergie - Co-Lead Ministère du Commerce Agence des douanes Les fabricants / importateurs / distributeurs de lampes économes
	2. Faire connaître les MEPS harmonisées dans la Gazette du Gouvernement pour l'information du public	Juillet 2014 to Décembre 2015	Standard Autorité - Lead Ministère de l'Énergie - Co-Lead Ministère du Commerce Agence des douanes
	3. Adopter les MEPS harmonisées dans certains cas, pour remplacer MEPS nationaux existants	Juillet 2014 to Décembre 2015	Standard Autorité - Lead Ministère de l'Énergie - Co-Lead Ministère du Commerce Agence des douanes

Revised Version of Table 1: MEPS Key Activities

		Échéancier	Parties d'exécution
Objectif 1:Adopter et mettre en œuvre des normes de rendement énergétique minimal des contrôles sur réseau et hors réseau des produits d'éclairage efficaces dans tous les pays de la CEDEAO			
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Activité prioritaire 1.1.1	Créer une prise de conscience, adopter et mettre en œuvre des MEPS en réseau et hors réseau des produits d'éclairage efficaces dans tous les pays de la CEDEAO		
Tâches	1. Mener des consultations nationales avec les décideurs politiques et autres parties prenantes sur les MEPS harmonisées de sur-grille et les lampes économes hors réseau	Janvier 2014 to Juin 2014 (6 mois)	Standard Autorité - Lead Ministère de l'Énergie - Co-Lead Ministère du Commerce Agence des douanes Les fabricants / importateurs / distributeurs de lampes économes Association de consumer
	2. ECOWAS Process of Standardisation (Ecosham) – six step process that takes 11 months; Adopter les CEDEAO MEPS and Harmonisation and publish.	Juillet 2014 to Mai 2015 (11 mois)	Standard Autorité - Lead ECOWAS Minister Le Pays Ministère de l'Énergie - Co-Lead Ministère du Commerce Agence des douanes
	3. Each country of ECOWAS will official publish in their own national official journal.	Juin 2015 (1 mois)	Standard Autorité - Lead Ministère de l'Énergie - Co-Lead Ministère du Commerce Agence des douanes

Table 2: Milestones and Timeline

Strategy	Indicators	Baseline (Year 0)	Target	Sources of Verification	Risks and Assumptions
GOAL: To establish an integrated policy approach for a sustainable and rapid transition to on-grid and off-grid efficient lighting in the ECOWAS Region					
PROJECT OBJECTIVE 1: To adopt and implement Minimum Energy Performance Standards of on-grid and off-grid efficient lighting products in all ECOWAS countries					
OUTCOME 1: Minimum Energy Performance Standards (MEPS) of on-grid and off-grid efficient lamps adopted and implemented in all ECOWAS countries					
Output 1.1: Awareness created on MEPS of on-grid and off-grid efficient lighting products in all ECOWAS countries					
Output 1.2: MEPS of on-grid and off-grid efficient lighting products adopted and implemented in all ECOWAS countries					

What are the milestones, indicators and means of measuring progress of the implementation of the Strategy? Complete the Log Framework Analysis Table 2.

Quelles sont les étapes, les indicateurs et les moyens de mesurer les progrès de la mise en œuvre de la stratégie? Complete le Tableau d'analyse de cadre logique.

Table 2: Milestones and Timeline

- Outcome 1: Minimum Energy Performance Standards (MEPS) for on-grid and off-grid efficient lamps adopted and implemented in all ECOWAS countries
  - Indicators: number of workshops (awareness raising), number of participants, number of standards adopted across ECOWAS
  - Baseline year: 2013, action by Ghana, Nigeria and Senegal
  - Target: All ECOWAS Countries by January 2017 for on-grid and not determined yet for off-grid
  - Verification: Number of reports, number of published standards
  - Risks: Not enough funding to implement; lack of interest from policy-makers (other priorities)

Request

- Every ECOWAS country, please send ECREEE:
- 1) National Activities
- 2) Cost of Activities

Thank you to the MEPS Breakout Group 1.

Any Comments or Questions?