



Harmonization of Energy Performance Standards for Lighting

A Regional Policy Roadmap

Introduction

High efficiency lighting products offer solutions to some of the key issues affecting the Association of Southeast Asian Nations (ASEAN) energy sector: such as resource scarcity and climate change, and their adverse consequences on human health and wellbeing, as highlighted in the *ASEAN Plan of Action for Energy Cooperation (APAEC)* and *Action Plans and Initiatives of Sub Sector Networks and Specialized Energy Bodies for the APAEC 2016-2025: Phase I (2016-2020)*. The APAEC is the energy component of the *ASEAN Economic Community Blueprint 2016-2025*, which directs ASEAN towards achieving energy security and sustainability for the region. The United Nations Environment Programme estimates that a full transition to the most efficient lighting technologies across ASEAN member states could reduce the region's total electricity use by 15 TWh of electricity each year by 2030. The adoption of efficient lighting could therefore allow to avoid the construction of 1-2 coal-fired power plants with a capacity of 1,000 MW each, every year over the period. In parallel, this would allow to avoid the emissions of 9 million tons of CO₂ each year. Through the adoption of more efficient lighting, annual electricity bills in ASEAN could moreover be reduced by 1.5 billion US Dollars by 2030¹.

In order to reap these benefits, there is an urgent need for common agreement on the priorities at the regional level, coupled with the development of coordinated strategies to achieve a sustainable market transformation to advanced lighting technologies.

Adopting a regionally coordinated approach to the transition to efficient lighting in ASEAN member states could bring significant benefits, through sharing resources, avoiding duplication of efforts and therefore reducing cost, enhancing regional cooperation on economic, trade and technical aspects. Harmonizing regulatory requirements enables governments to share market information and enforcement findings, and set foundations for a regional approach to market compliance, monitoring, verification and enforcement. It lowers costs for manufacturers and importers, as it avoids the need for multiple compliance tests. All of these benefits work to help accelerate market transformation, lowering trade barriers and ultimately benefiting consumers.

¹ [United for Efficiency. Savings and Policy Assessments 2017. http://united4efficiency.org/countries/country-assessments/.](http://united4efficiency.org/countries/country-assessments/)



This paper describes the policy roadmap for the harmonization of lighting product standards across ASEAN. This regional policy roadmap closely follows the APAEC. Information and data sourced for this regional policy roadmap can be found in the following reports: ASEAN Regional Market Assessment for Lighting (2016), Technology Scoping Paper (2016) and ASEAN Regional Policy Status Report (2016).

The policy roadmap herein, enumerates various components that have been recommended by the ASEAN SHINE – Lighting Policy and Technical Working Group and indicates specific actions that are required.

Objectives

To provide clear guidelines in the adoption of policies to promote the use of efficient lighting products and define the targets to be achieved by all ASEAN countries in achieving regional harmonization of the nominated lighting products by 2023.

Through this objective, the Lighting Regional Policy Roadmap will contribute to the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025's aspirational goal of reducing energy intensity by 20% by 2020 as a medium-term target, and 30% by 2025 as a long-term target based on the 2005 levels. The Regional Policy Roadmap is a direct response to the APAEC 2016-2025's specific objective to harmonize EE standards of appliances such as air-conditioners and lighting, which are expected to help improve energy efficiency especially in the residential sector by a range of 5-10%.

Components

1) Harmonization of Test Methods:

Based on various recommendations, the ASEAN countries have agreed for uniform testing methods of:

- a) CIE S025 (testing of photometric requirements) and IEC 62612 (testing of functional performance requirements) for non-directional Light Emitting Diode lamps,
- b) CIE S025 (testing of photometric requirements) for double-capped linear Light Emitting Diode lamps (Note: there is currently no IEC performance standard for testing functional performance requirements) and
- c) CIE 084 (testing of photometric requirements) and IEC 60081 (testing of functional performance requirements) for double-capped Linear Fluorescent Lamps.

The test methods are to be adopted and notified by countries by 2022. The countries also need to agree to take into consideration metrics to measure energy performance and



specified technical parameters for quality in the future. Any revision of the harmonized test methods at the national level should be informed at the EE&C-SSN.

2) **Product Scope and Evaluation Parameters:**

After reviewing the relevant detailed product scopes for non-directional LED lamps (as determined in asean prevalent conditions) for ASEAN member states and other countries with existing or proposed MEPS the following detailed scope for non-directional LED lamps have been proposed by the Lighting Working Group. Further detailed refinement in the scopes will be forthcoming.

a) Non-directional lamps

i) LED

Feature	Requirement
Features within scope of another standard	Included within scope of IEC 62612 <ul style="list-style-type: none">• a rated power up to 60 W;• a rated voltage of > 50 V a.c. up to 250 V a.c.;• a lamp cap as listed in IEC 62560
Lumen range	≥ 130 lm
Wattage	≤ 60 W
Caps	E14, E27, B15, B22d

b) Linear lamps

i) Linear LED lamps

Feature	Requirement
Length	550 mm to 1300 mm

ii) Linear fluorescent lamps

Feature	Requirement
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Features within scope of another standard	Included within scope of IEC 60081
Length	550 mm to 1300 mm

- 3) **Harmonization of Minimum Energy Performance Standards:** The ASEAN countries will progress (possibly in a staged progress) towards agreed target reference MEPS of 80 lm/W by 2023, as mandatory MEPS for all non-directional LED lamps and linear LED and fluorescent lamps within the agreed scope. The MEPS would be periodically reviewed, revised and/or expanded at an interval of 5 years or less.
- 4) **Testing Infrastructure:** Establish an appropriate framework for round robin testing, staff skills training and evaluation process for testing facilities by 2022.
- 5) **Mutual recognition Agreements (MRA):** The ASEAN countries would evaluate feasibility of incorporating energy performance testing into existing Mutual Recognition Agreements (MRAs), the Agreement on the ASEAN Harmonized Electrical and Electronic Equipment Regulatory Regime (AHEEERR), or establish new MRAs if necessary by 2022 which would encompass the following elements:
 - Information exchange agreement e.g. compliance outcomes
 - Mutual recognition of test results
 - Mutual recognition of certification of test laboratories (International Laboratory Accreditation Cooperation (ILAC), Asia-Pacific Laboratory Accreditation Cooperation (APLAC))
 - Laboratory accreditation
 - Inspection accreditation
 - Testing certification
- 6) **Reporting:** By 2022 the ASEAN Center for Energy would establish a regional product database for collection of product information. This would enhance information exchange between member countries and could help in providing alerts to non-compliance related cases. This tool could be specifically used to exchange information on products tested by official market surveillance authorities. The database can also be used to monitor programmes, prepare verification activities and eventually flag out products for which a declared characteristic is proven incorrect.