Minimum Energy Performance Standards: Issues and Co-operation Potentials

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Presentation Outline

- About IIEC
- Minimum Energy Performance Standard (MEPS) and Energy Labeling – Overview
- Designs and Implementation Issues
- International Collaborations on MEPS and Labeling
- Co-operation Potentials

About IIEC

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Global Presence with Local Implementation

MEPS & Labeling - Overview

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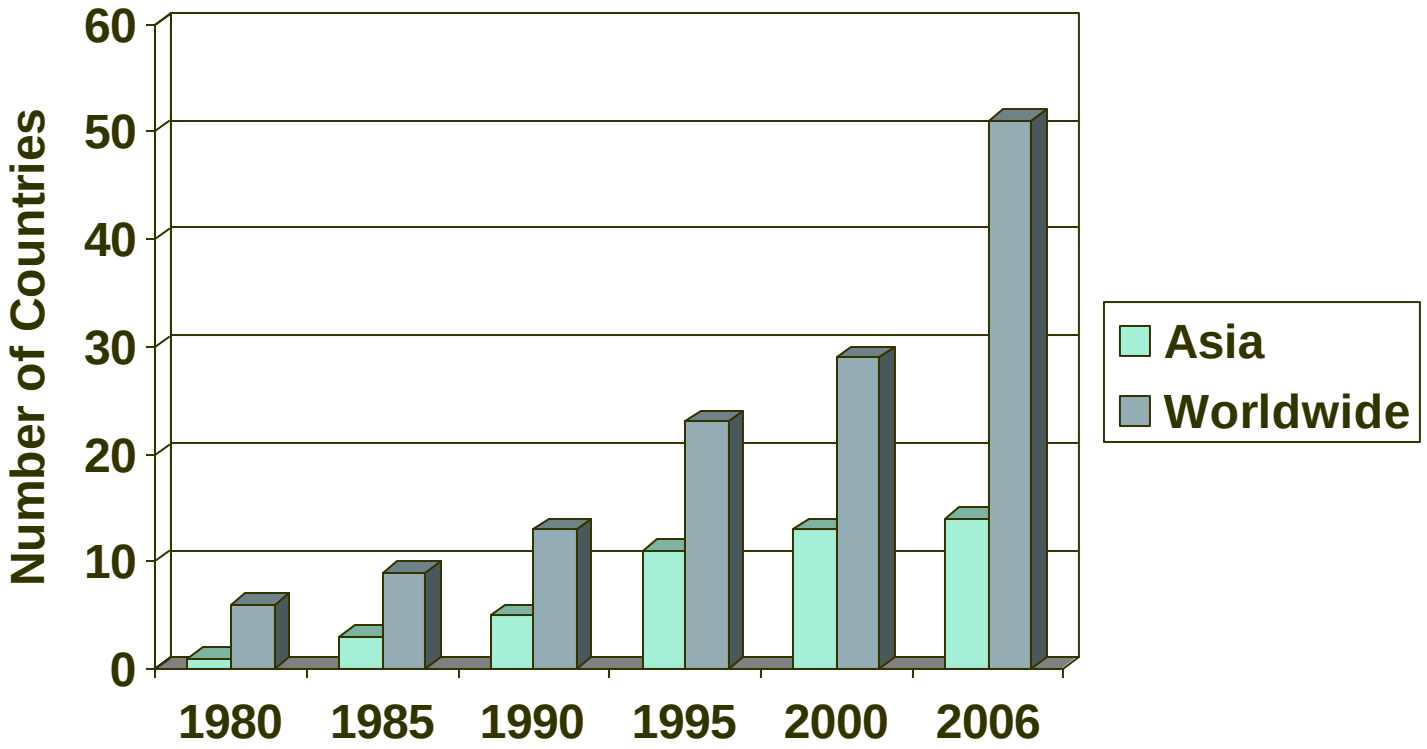
MEPS and Labeling - Global Importance

- **Use of energy in buildings, including appliances, equipment, and lighting ~ 40% of total energy consumption**
- **This contributes ~35% of energy-related CO2 emissions**
- **Most products that will use energy in buildings in 2020 have not yet been built**
- **Mandatory Energy Efficiency Standards**
  - Remove inefficient products from the workplace
- **Energy Labels**
  - Influence consumer and manufacturer decisions

Source: S&L Guidebook, 2nd Edition

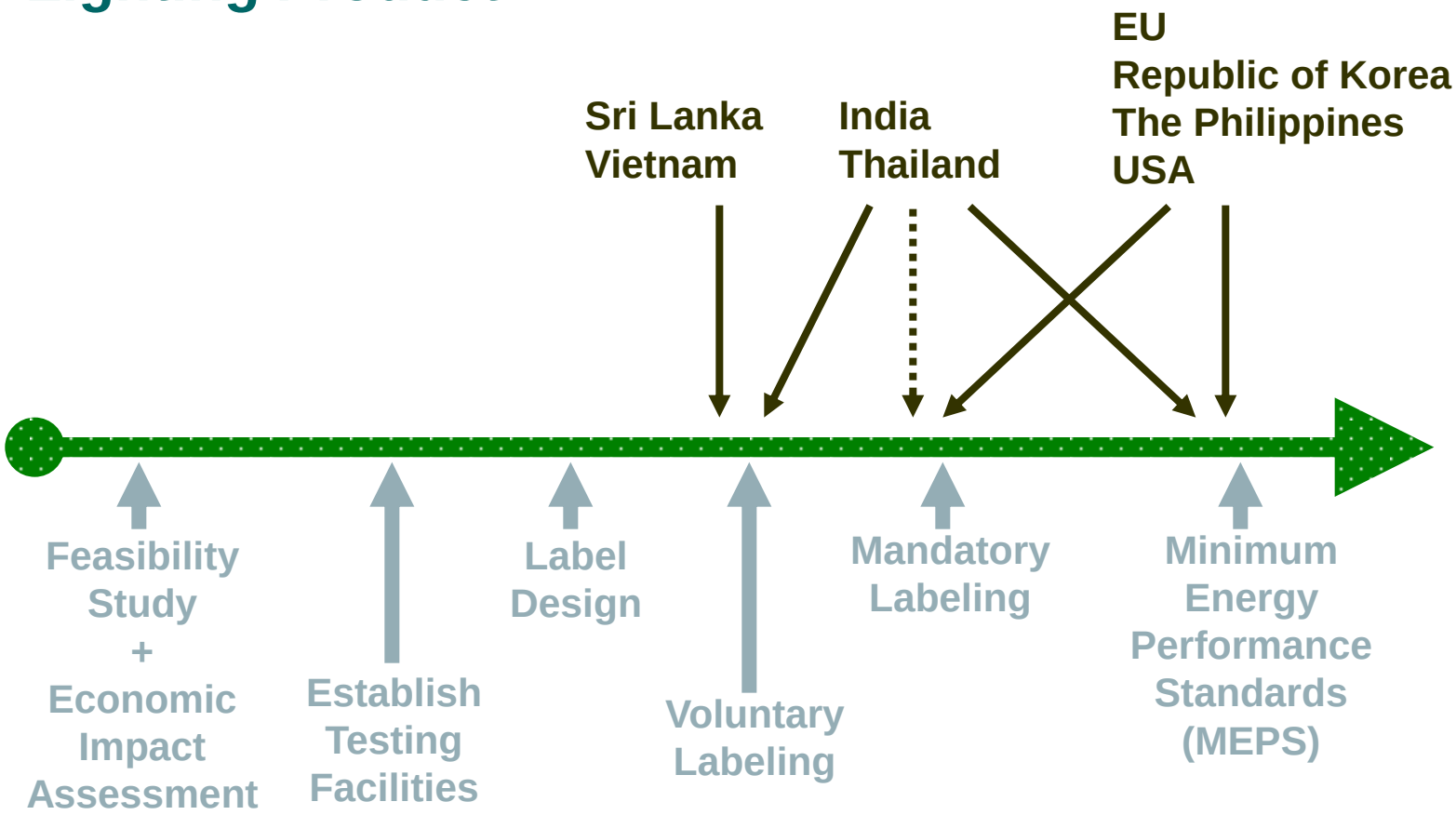
S&L Worldwide Snapshot

Cumulative Number of Countries with S&L Programs in Asia and Worldwide



Typical Steps in Developing S&L

Lighting Product



Design and Implementation Issues

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Design and Implementation Issues

- **Screening of Appliances, Equipment and Lighting Products**
- **Considerations for specific products in priority**
  - Energy Performance Measurement
  - Energy and Non-Energy Criteria
  - Assessment of Economic Impacts
- **Compliance and Check Testing**

Screening of Energy Using Products

- **A broad feasibility study normally serves this requirement**
  - International review
  - Prioritize Appliances, Equipment and Lighting Products
  - Testing infrastructure needs assessment
  - Program design
- **More detailed studies for specific products in priority to determine:**
  - Energy performance measurement
  - Benchmarking local energy performance profile
  - Energy and non-energy criteria
  - Economic impacts

Energy Performance Measurement for Lighting Products

- **Energy performance measurement**
  - Measurement of electricity consumption = Input
  - Measurement of output → Light = Output
  - Determination of Energy Performance →Output/Input
- **Issues related to each specific product**
  - Lamp - Lumen per Watt is widely used.
  - Ballast – International standards available for input/output measurements but for determination of energy performance do not exist
  - Interpretation of testing methodologies specified in international testing standards

Case Study – Energy Performance Measurement for Lighting Products

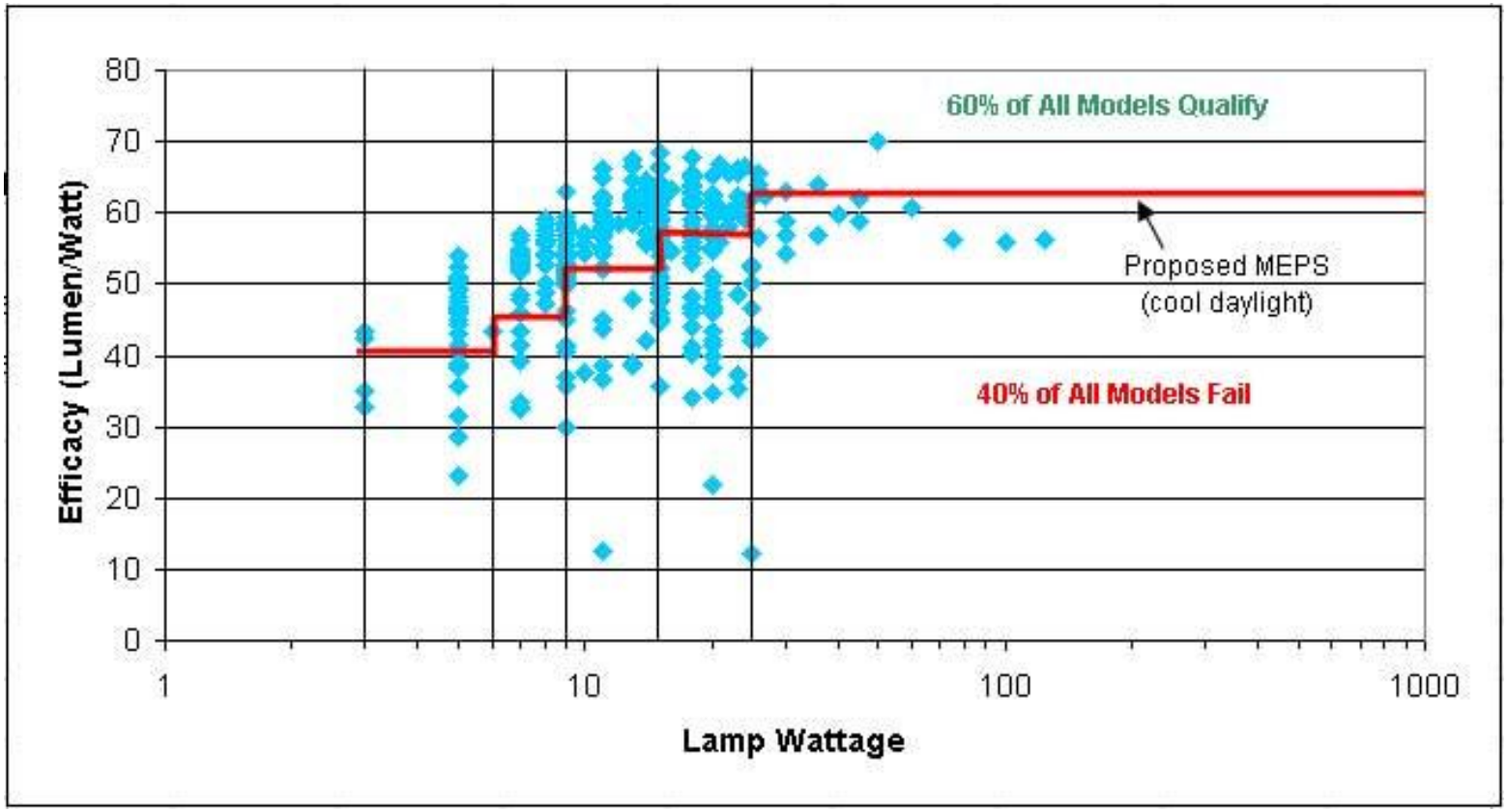
Product	Energy Performance Indicator
Lamp (FL, CFL, HID)	• Lumen per watt
Ballast	• BEF – Canada, China, Japan*, Korea*, USA • Total Input Power – EEI – Australia/New Zealand, EU, Thailand** • Watt loss – Malaysia**
Luminaire	• Light Output Ratio (LOR) – Thailand • Lighting Fitting Efficiency Code (LFEC) – UK • NEMA LER - USA

Note: *Japan and Korea use slightly different formula to calculate BEF
**Malaysia and Thailand is considering to propose MEPS for ballast using EEI (harmonized with EU)

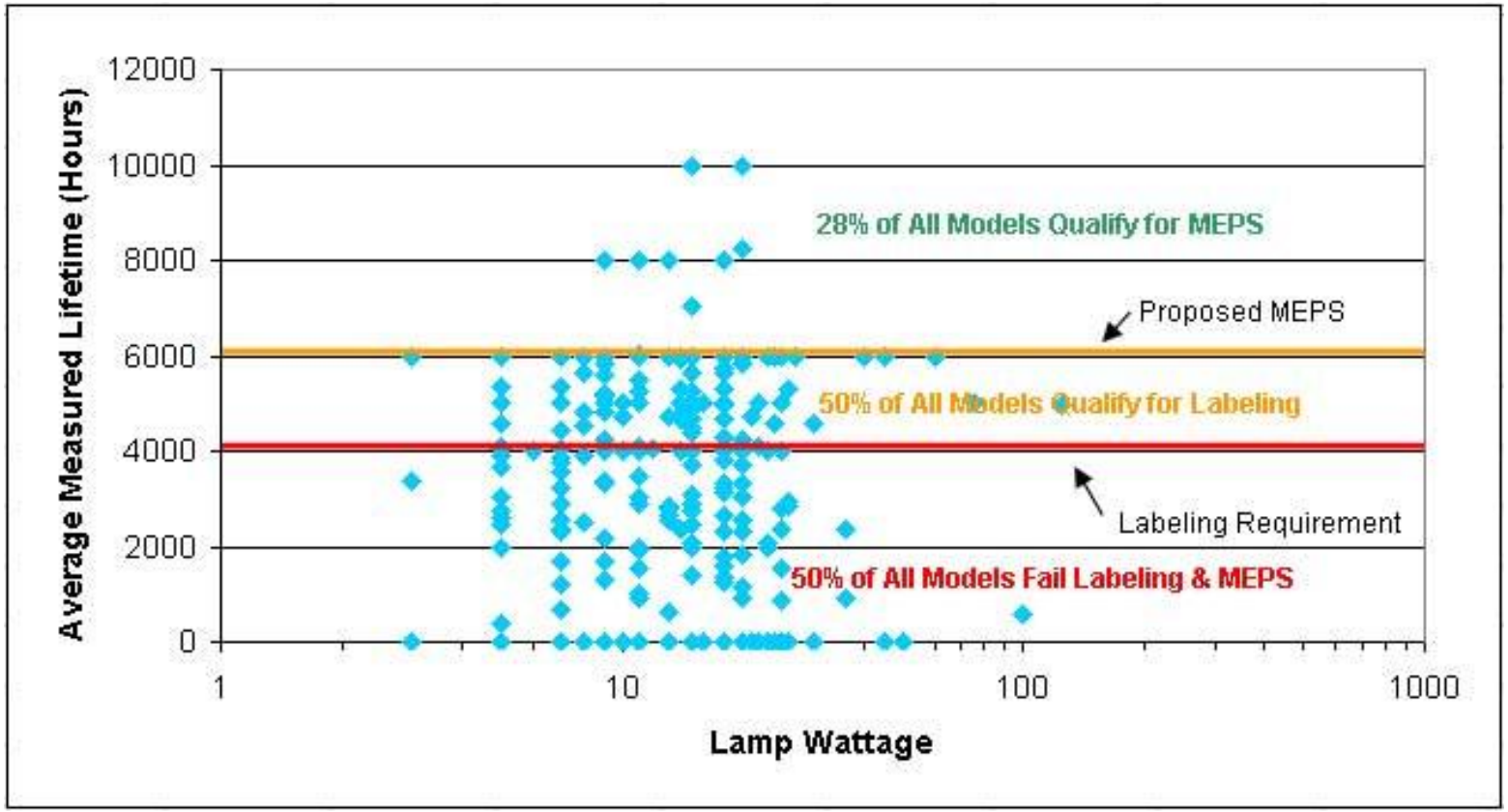
Energy and Non-Energy Criteria

- **In addition to energy performance criteria, non-energy performance are also important to MEPS and Labeling**
  - Lamp – lifetime, color rendering index (CRI)
  - Electronic Ballast – Electromagnetic Compatibility (EMC)
- **How policy makers/program designers choose the right combination of energy and non-energy criteria?**
  - International guidelines and best practices are not available.

Example – Energy Performance Criteria



Example – Non-Energy Performance Criteria



Assessment of Economic Impacts of Products in Priority

- Very important - helping policy makers to decide the right performance levels that suit the local context.
- Results can also be used to verify actual impacts of MEPS and Labeling following years of implementation
- Though it is important, many countries still implement MEPS and Labeling with only limited understanding on costs and benefits of the programs.

Compliance and Check Testing

- **The process is crucial to the program effectiveness.**
- **However, compliance and check testing in many developing countries are relatively weak, probably due to:**
  - Limited Budget
  - Bureaucratic and weak policing process

International Collaborations on MEPS & Labeling

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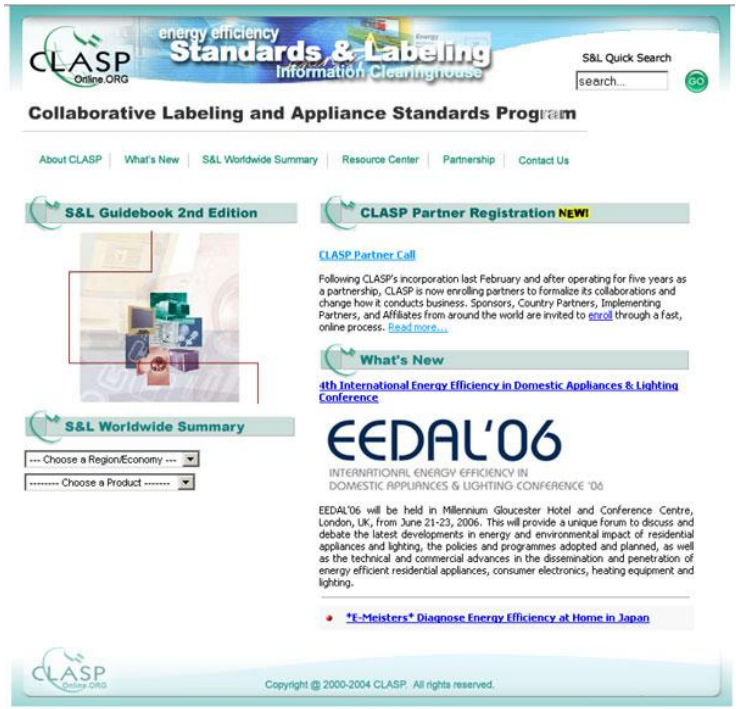
Information Sharing - Global S&L Database

- Internet-based database providing details of MEPS and Labeling programs in more than 80 countries around the World
- Jointly managed by APEC Energy Standards Information System (APEC-ESIS, www.apec-esis.org) and Collaborative Labeling and Appliance Standards Program (CLASP, www.clasponline.org)

apec-esis.org & clasponline.org



Standard Developments

- **Ongoing international standard harmonization efforts also provide better guidelines for policy makers and program designers of MEPS and Labeling, including:**
  - International CFL Harmonization Initiative
  - New IEC standard for ballast energy performance measurement
  - IEC Environmental Committee is pushing the energy efficiency aspect of products and more IEC standards on energy performance will become available (but it still takes many years)

CFL Harmonization Initiative - CFLi

- Test methods for CFL are very similar (mostly based on IEC).
- So, a great potential for harmonization based around the existing IEC protocols
- However, the existing test methods require considerable interpretation, and this may also introduce variations in results, depending upon the assumptions made by individual laboratories.
- CFLi discussed and developed a new test method for electronic self-ballasted CFLs, and proposed to IEC.

Co-Operation Potentials

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Development of Better Standards and Certifications

- **Comprehensive Testing Methodologies**
  - International co-operations in development of tools and standards similar to CFLi should be strengthened so that policy makers and program designers in developing and emerging economies can benefit.
- **Discussion and negotiation is a part of international standard development process so regional and sub-regional co-operation are important to development of standards that are applicable to both developed and developing countries.**
- **One certification, applicable to all – e.g. Energy Star in IT products**

Thank you!

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