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LEDs in Asia: Opportunities and Challenges

International Meetings on Lighting Technology, Policy & Standards

Siam City Hotel

Bangkok, 7 December 2010

My Ton - Team Leader, Energy Efficient Lighting

USAID Contractor

ECO-Asia Clean Development and Climate Program



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ECO-Asia LEDs Report



Overview of LEDs in Asia for those who need to promote, test, and regulate LEDs.

Coverage:

- Market
- Technology Development
- Issues and Barriers
- Standards Activities
- Summary and Recommendations





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ECO-Asia LEDs Report – Market Trends

LEDs – World-Wide Market:

- Globally, the high-brightness LED (HB LED) market grew 11% in 2008, reaching \$5.1 billion, with a small decline for 2009.
- Emerging HB LED segments such as backlights for LCD displays in notebook computers and TVs growth remained strong.
- World-wide LED-based lighting market is projected to continue to grow, with lighting (illumination) and LCD backlighting are seen to be driving the market for HB LED beyond 2010.
- Over the next five years, the market growth forecast for HB LED is at least at a CAGR (compound annual growth rate) of 24%, and is expected to reach \$14.9 billion world wide in 2013.



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ECO-Asia LEDs Report – Market Trends

LEDs – Asian Market:

- Total domestic LED applications revenue in China in 2008 was RMB 45 billion (US\$ 6.5 billion), an increase of 50% over 2007, the largest applications being architectural lighting and displays.
- In India, the lighting market is worth US\$1.5 billion as of 2008, of which LED constitutes 3%, or about US\$45 million.
- Other countries in the region can be assumed to follow the Indian LEDs lighting market, constituting about 2% to 3% of the overall market size.
- Based on this 2008 information, the current market size in Asia for LEDs can be assumed to be about US\$ 7 to 8 billion in 2010, of which lighting constitutes about \$US 500 to 600 million.



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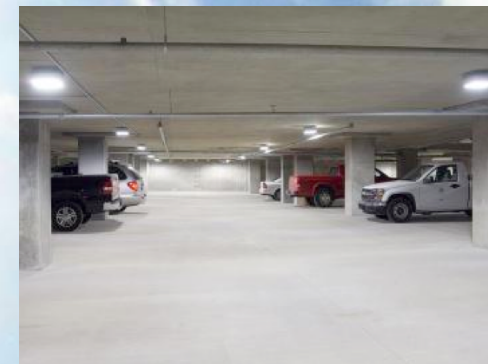
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ECO-Asia LEDs Report – LEDs Technology Trends



LEDs – Near-term opportunities:

- Traffic signals, other transportation uses;
- Exit signs for commercial buildings, other architectural applications;
- Retail food and beverage refrigeration cases;
- Area lighting
 - Indoor, non retrofit
 - Outdoor/Area/Public/Street, non retrofit
- Decorative & Signage applications.



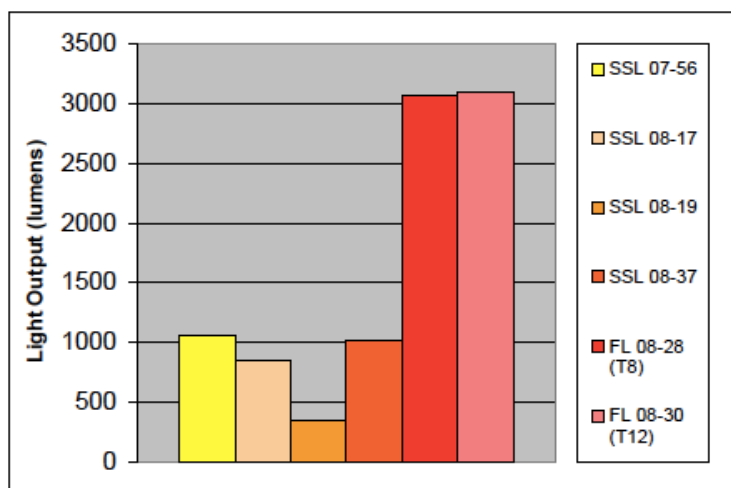


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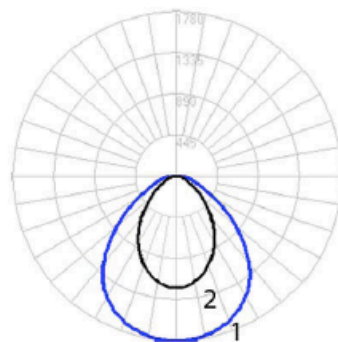
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ECO-Asia LEDs Report – Issues & Barriers

Product performance are not yet comparable for some applications

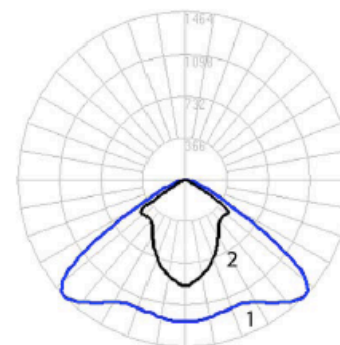


(Source – US DOE)



Lensed troffer

Fluorescent (1) and LED (2)



Parabolic troffer

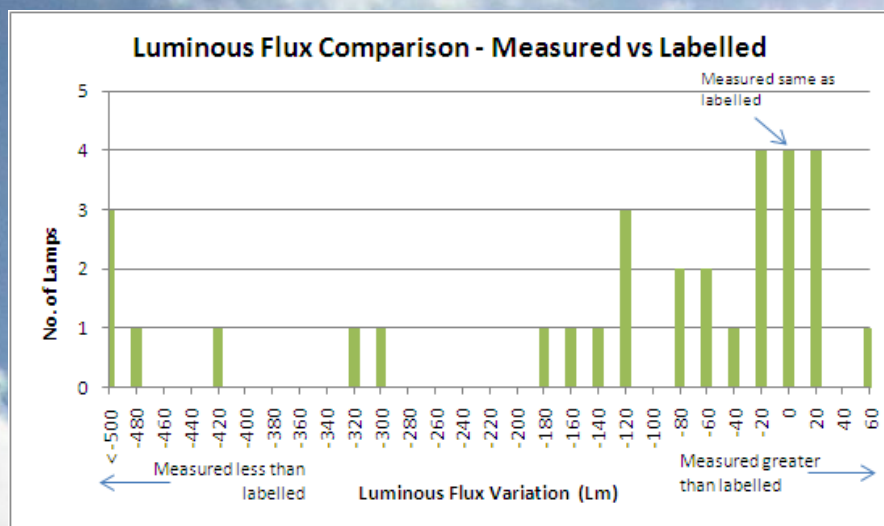
Fluorescent (1) and LED (2)



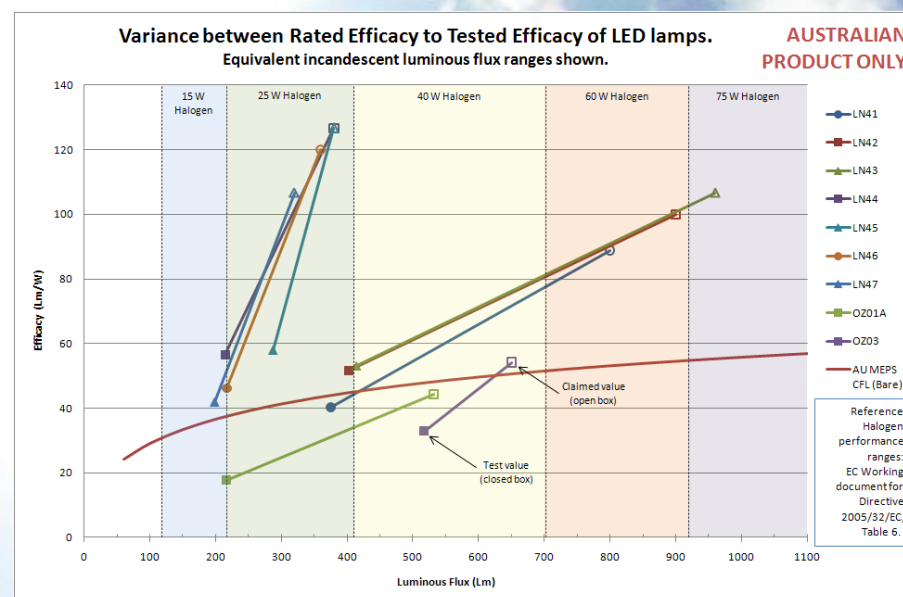
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ECO-Asia LEDs Report – Issues & Barriers

But exaggerated claims are prevalent



(Source – DCCEE)





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ECO-Asia LEDs Report – Standards Development Activities

Results from ECO-Asia Standards Survey of Asian Agencies

| Country/Region | LEDs Std Activities? | Specific Application Category Under Development | Responsible/Lead Organization |
|----------------|--|---|-------------------------------|
| Brunei | None | None | Energy Division of PM Office |
| China | Task Teams formed | Street, devices, lamps | CNIS, others |
| Hong Kong | Task Team formed | None | EMSD |
| India | Task Team formed | Street lighting | BIS |
| Indonesia | Testing standards being developed | LEDs for solar homes | DGE&EU, NSI |
| Japan | A number of standards have been published | See Appendix B | JELMA, JIS |
| Malaysia | Under consideration | Not yet decided | Standards Malaysia |
| NZ | Yes, Task Team formed | Street lighting | EECA |
| Philippines | 2010 Designated for LED standards | Modules/General Safety | BPS |
| Taipei | A number of standards have been published. | See Appendix B | BSMI |
| Thailand | Under development | LED modules | TISI |
| Vietnam | No | NA | VSQI |



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ECO-Asia LEDs Report – Summary & Recommendations

Summary:

- LEDs will be more prevalent in many applications.
- More energy efficient products and options available to users.
- Help to meet demands for energy efficient lighting solutions.

But:

- Lack of regional standards for lighting quality can be a major contribution to poor consumer experience in Asian markets.
- LEDs will need careful development to avoid these missteps: Quality standards, procurement specifications, etc.
- No single option can yet replace the incandescent lamp for GLS.
- For many consumer and commercial applications, high-efficiency fluorescent remains the most cost effective choice.



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ECO-Asia LEDs Report

Areas for policy and program considerations:

- New standards and policy needed
- Focus on areas that are likely to be cost-effective:
 - ♦ Area/public/outdoor lighting
 - ♦ Traffic lights and transportation-related
 - ♦ Architectural and signage
 - ♦ Off-grid
- Lessons learned from CFL introduction should not be ignored



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ECO-Asia LEDs Report

Considerations for Governments and Standard-Setting Agencies in Asia:

- A “roadmap” for LEDs-related policies;
- Regional focus on LEDs standards and labels;
- Focus on quality: energy efficiency, performance, lifetime;
- Use available regional institutions:
 - ♦ Asia Lighting Compact
 - ♦ lites.asia
 - ♦ Regional Center for Lighting
- Develop labeling and procurement guidelines for LEDs to help:
 - ♦ Municipalities & agencies
 - ♦ Consumers



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Questions & Comments?

Thank You!

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