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# **CFLi: Lessons Learned From the International CFL Harmonisation Initiative**

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## Objective of this Presentation

- To provide a brief background of CFLi
- Review CFLi activities to date
- Summarize some lessons learned
- Quick LEDs review
- Implications for standards





## A brief history of CFLi: Impetus

- The initial idea for the CFL Harmonisation Initiative was developed by the Australian Greenhouse Office (AGO),
- AGO organized an initial debate on the topic of harmonization at the Right Lights 6 Conference in Shanghai, China in May 2005.
- At that meeting, more than 80 representatives from 13 countries endorsed the principles behind the initiative.





## CFLi – What is it?

- CFLi was initiated over the concern of the proliferation of CFL standards world-wide.
- CFLi focused on four main areas of harmonization, or alignment:
  - ◆ Performance specification
  - ◆ Test protocol
  - ◆ Verification testing
  - ◆ Compliance
- ***The ultimate goal of the International CFL Harmonisation Initiative is to deliver higher-quality, low-cost CFL lighting products to consumers worldwide.***





## **CFLi: Performance Specification Objectives**

- Establish suitable criteria through stakeholder consensus so that the performance of CFLs can be rated
- Establish a suite of performance tiers and criteria groupings that can be used as performance specifications
- Establish a marking system that will enable various market actors to easily identify the performance of a specific product
- Have this marking system adopted by the market.



## **CFLi: Test Protocol Objectives**

- To develop an internationally acceptable testing protocol for measuring the performance criteria for CFLs
- Encourage adoption of this testing protocol by key market actors and facilitate the submission of this protocol for formal recognition by IEC.



## **CFLi: Verification Testing Objectives**

- Establish a network of laboratories committed to voluntary participation in the first phase of the international CFL harmonization initiative
- Devise a methodology and undertake a comparison test among laboratories on a number of continents to verify the practicability of the proposed revisions to the Testing Protocol
- Provide complete transparency of testing activities and results to provide stakeholder confidence.



## **CFLi: Compliance Mechanism Objectives**

- Establish a framework to assist in the creation, implementation, management and enforcement of policy actions and to develop a series of sample protocols through consensus.
- Establish a marking system that reflects the agreed common set of performance tiers and will enable enforcement.
- Determine if mechanisms for recording and accessing data on individual products performance are required.
- Establish mechanisms to facilitate mutual recognition.
- Establish systems for the sharing of compliance/enforcement activities and data.



## A brief history of CFLi: Support

- More than 80 representatives from 13 countries have endorsed the principles behind the initiative.
- Since its inception in 2006, CFLi has had over 130 representatives from organizations (government, NGO and private sector) taking some level of active role in the initiative.



## A brief history of CFLi: Funding

- Initial funding for CFLi was provided primarily by the Australian Government
- Additional support for CFLi came from from the UK Market Transformation Programme.
- The Australian and UK Governments were the main supporters of the initiative
- A number of other groups (governments, trust and private organisations) also provided monetary or in kind contributions.



## CFLi: Activities to Date

The original projected completion date of the overall initiative was in 2008. The actual completion date was dependent upon the progress made by the various elements of the initiative.

- ♦ **Performance specification:** Agreement was reached on the principle of a four band (three threshold) system to reflect product performance.
- ♦ **Test Protocol:** Full support was received for the submission of the proposed testing protocol (version 13) to the IEC for formal consideration and adoption.
- ♦ **Verification Testing:** Consensus was reached on comparative testing regime and analysis of results to be used for verification, and on mechanisms for public reporting of results.
- ♦ **Compliance Mechanisms:** Agreement was reached that enhanced compliance regimes were required around the globe. However, the needs and capacities of various market actors were diverse. Parties agreed to begin sharing product information that they hold within their schemes as a first stage toward cooperation on compliance.



## CFLi: Lessons Learned

- Need for harmonization is universal
- Obtaining support for harmonization is not difficult, but obtaining agreement on details of harmonization is
- Different difficulties levels associated with developing and harmonization of standards:
  - ♦ Variation in production
  - ♦ Variation in test results
  - ♦ Variation in expert knowledge
- Difficulties at the expert level:
  - ♦ Inertia/resistant to change



## **CFLi: Lessons Learned (Cont'd)**

- Standards setting authority within one country does not rest with one person, or one government agency
- IEC representation may not reflect the views of the whole country's standard setting body
- End-users of standards may not know the appropriate means or mechanisms to provide feedback
- Countries may not be on the same development paths



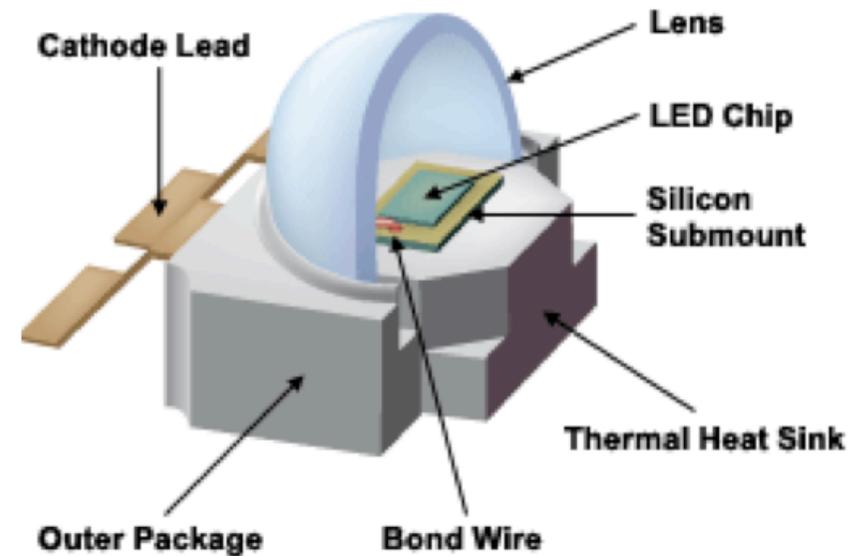
## **CFLi: Lessons Learned (Cont'd)**

- Challenges in aligning standard development schedules, policy development schedules, and mechanisms
- Policy input often needed
- Difference in the reception of performance level vs. reception of test standards
- Standards are by nature technically complex
- Requires the development and increase of knowledge by all.



## Light Emitting Diodes – Overview

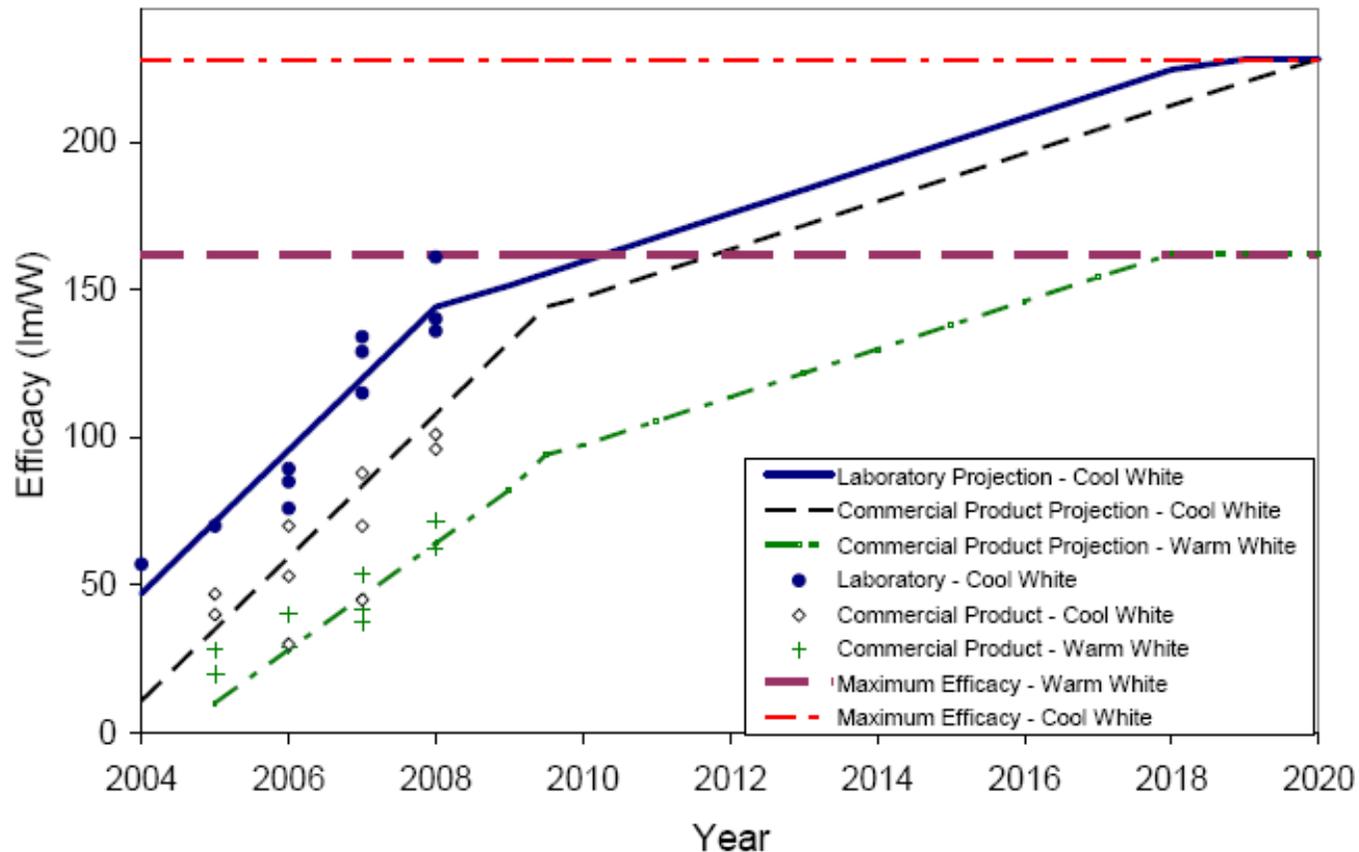
- Semi-conductor based.
- Monochromatic, directional
- White light: mixing multiple LEDs or multiple phosphors
- Performance challenging to measure accurately
- Need driver (power supply) & other components
- Need good design for thermal management to obtain good performance and long lifetimes





## Light Emitting Diodes - Overview

US Department of Energy is projecting 100 Lm/W for commercial warm white LEDs in 2010





## Light Emitting Diodes – Overview

US Department of Energy is projecting that OLEDs will match LEDs by 2015 or later.

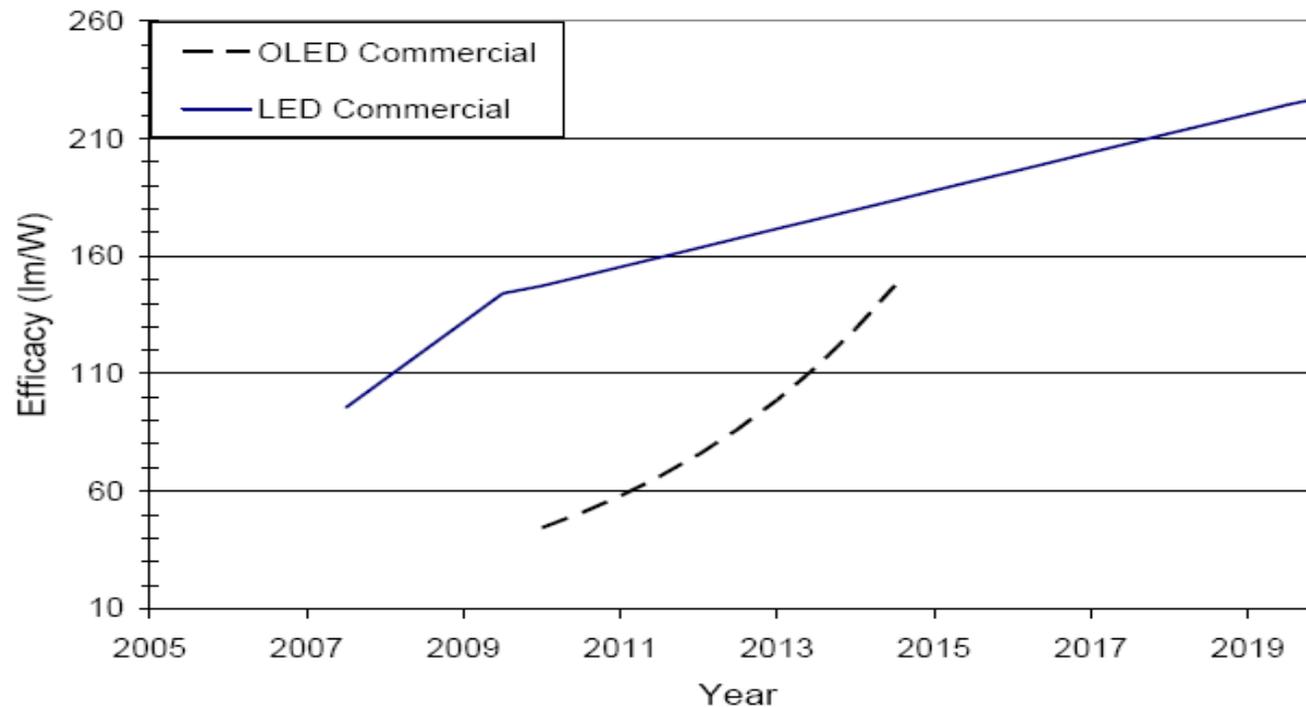


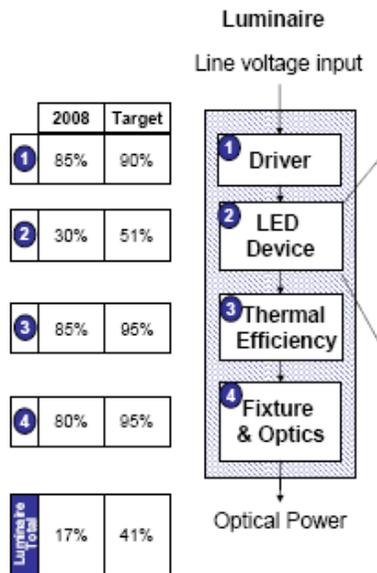
Figure 4.11: LED and OLED Device Efficacy Projections, Commercial  
Source: LED and OLED Technical Committees and the Department of Energy, Fall 2008



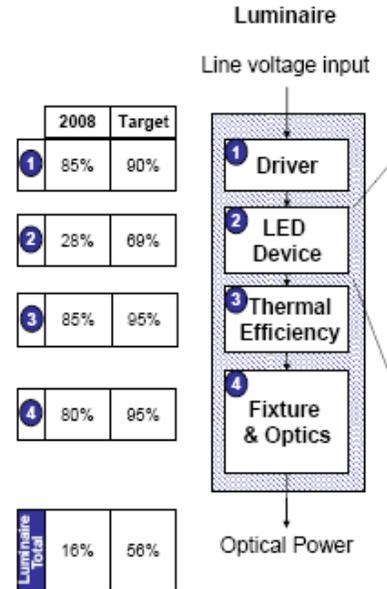
## Light Emitting Diodes - Overview

LEDs applications incorporate very complex technical components:

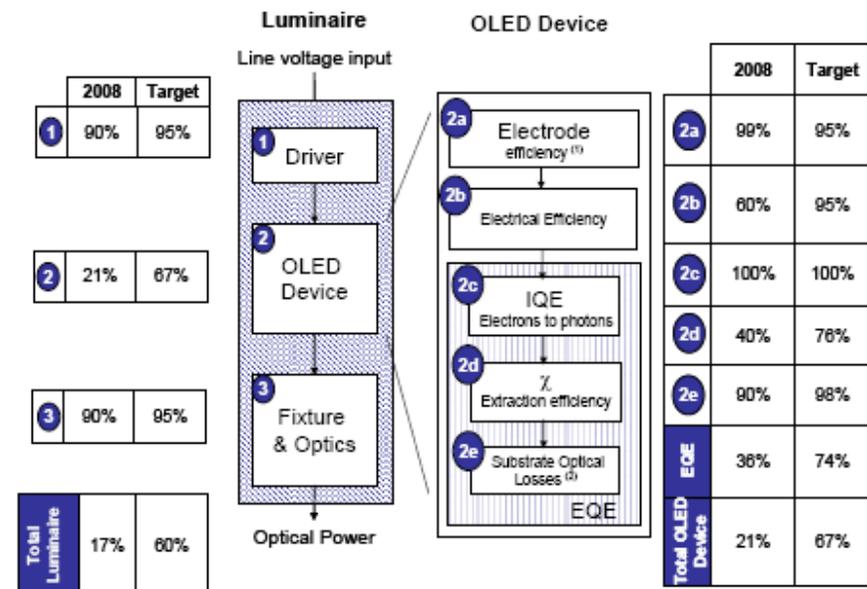
### Color Mixing



### Phosphor Based



### OLEDs





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## Light Emitting Diodes – Implications for Standards

### **LEDs and OLEDs offer Significant Potential (and Challenges):**

- Technology has advanced dramatically
- Reliability and lifetime can be significantly longer than other light sources
- But, there are many more aspects to consider for standard-setting,
  - ♦ for example, Photobiological Safety for LED Lighting IEC/EN 62471



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## Light Emitting Diodes – Policy Drivers

### Regulatory Efficient and Green Regulations potentially affecting standards for LEDs and OLEDs:

- EUP
- California Title 24
- US EnergyStar
- Incandescent lamp bans





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## Light Emitting Diodes – The Challenges Ahead

- A number of missteps were made in introducing CFLs to consumers for incandescent lamp replacement.
- Lack of a regional standards for CFLs is a major contribution to poor product quality in many Asian markets.
- For many consumer and commercial applications, high-efficiency, more conventional sources remains the most cost effective choice.
- LEDs standards will need careful development to avoid these missteps.



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**Thank you for your attention**