

PHILIPS

sense and simplicity

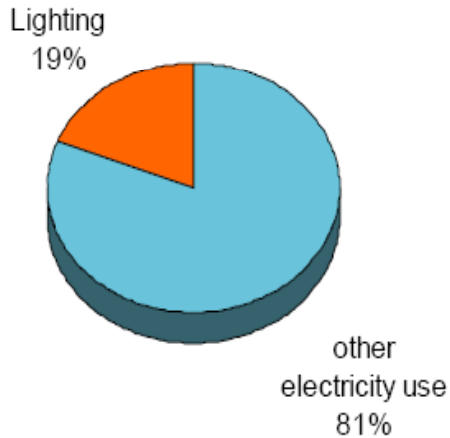
APR CFL Quality ADB clean energy forum

Marti Willemsen
Global Business Unit CFL
BG Lamps
June 16, 2009

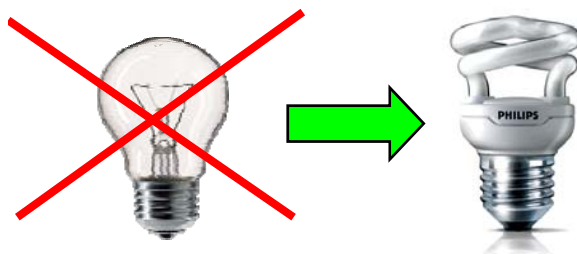


Energy & Climate Challenges

So here is where Lighting comes in...

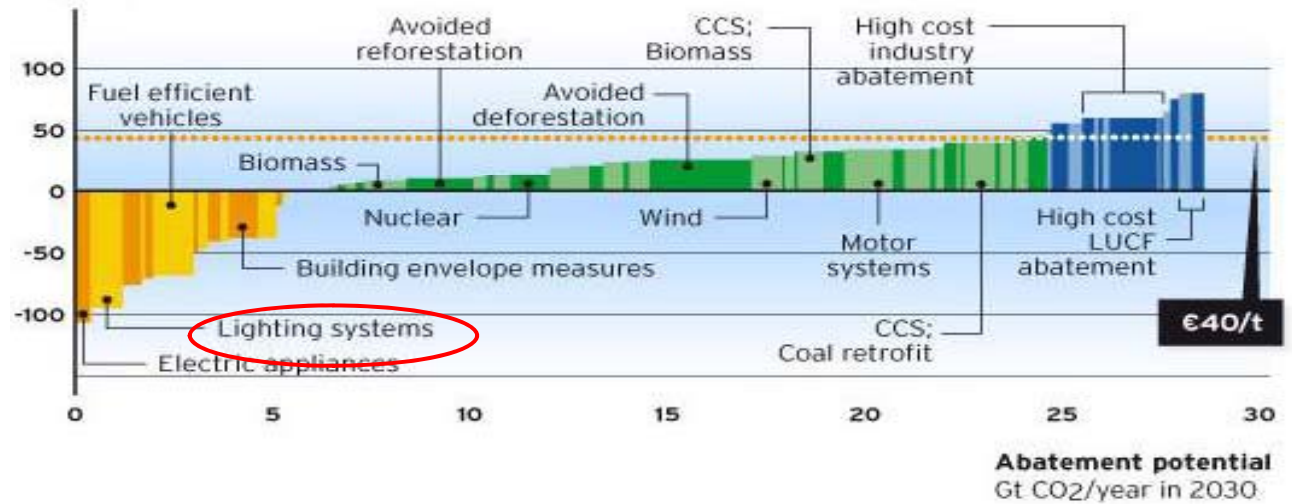


- Lighting uses 19% of all electricity consumption world wide - source IEA
- New lighting technology provides higher quality lighting and saves energy, money and CO₂ emission

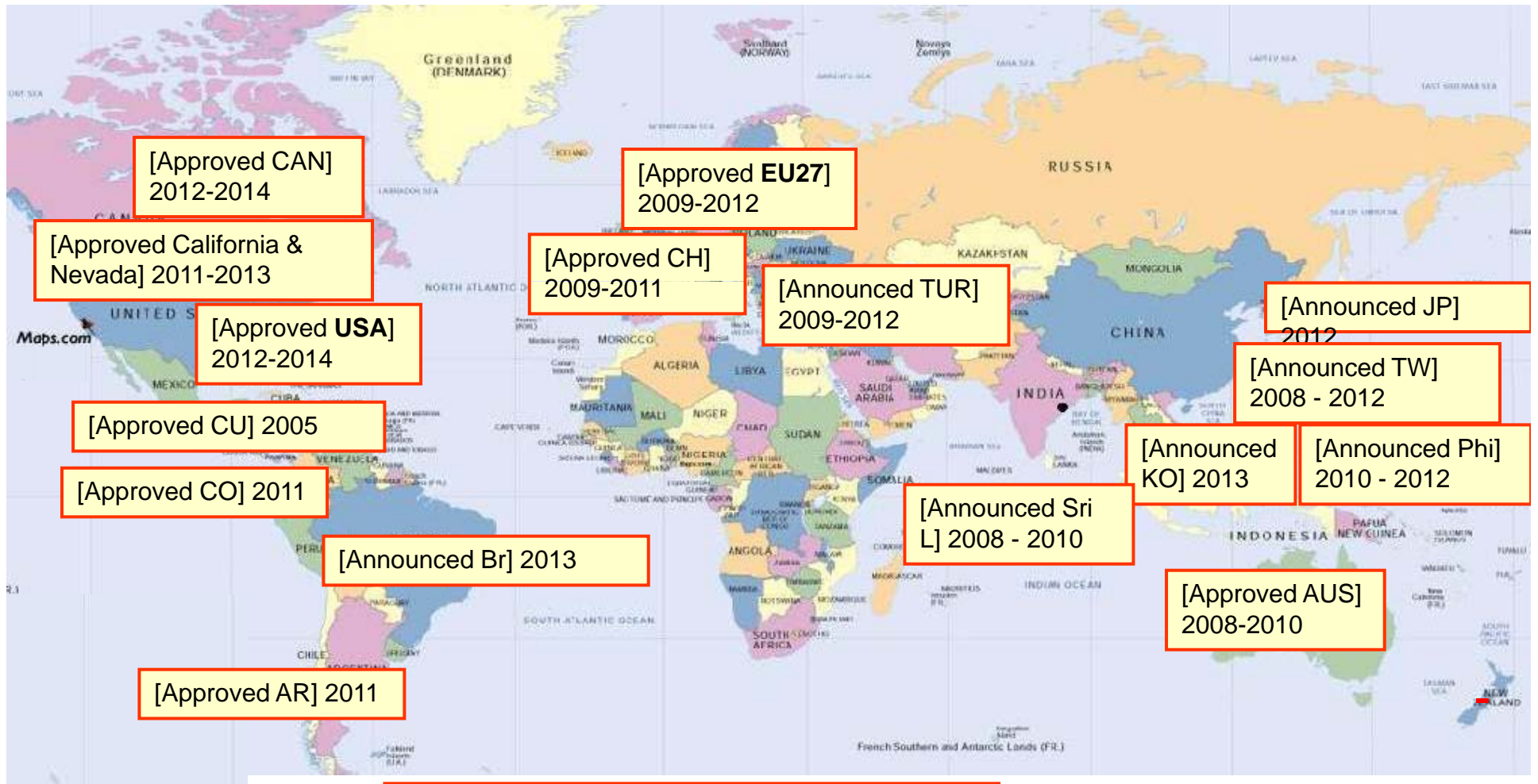


Global cost curve

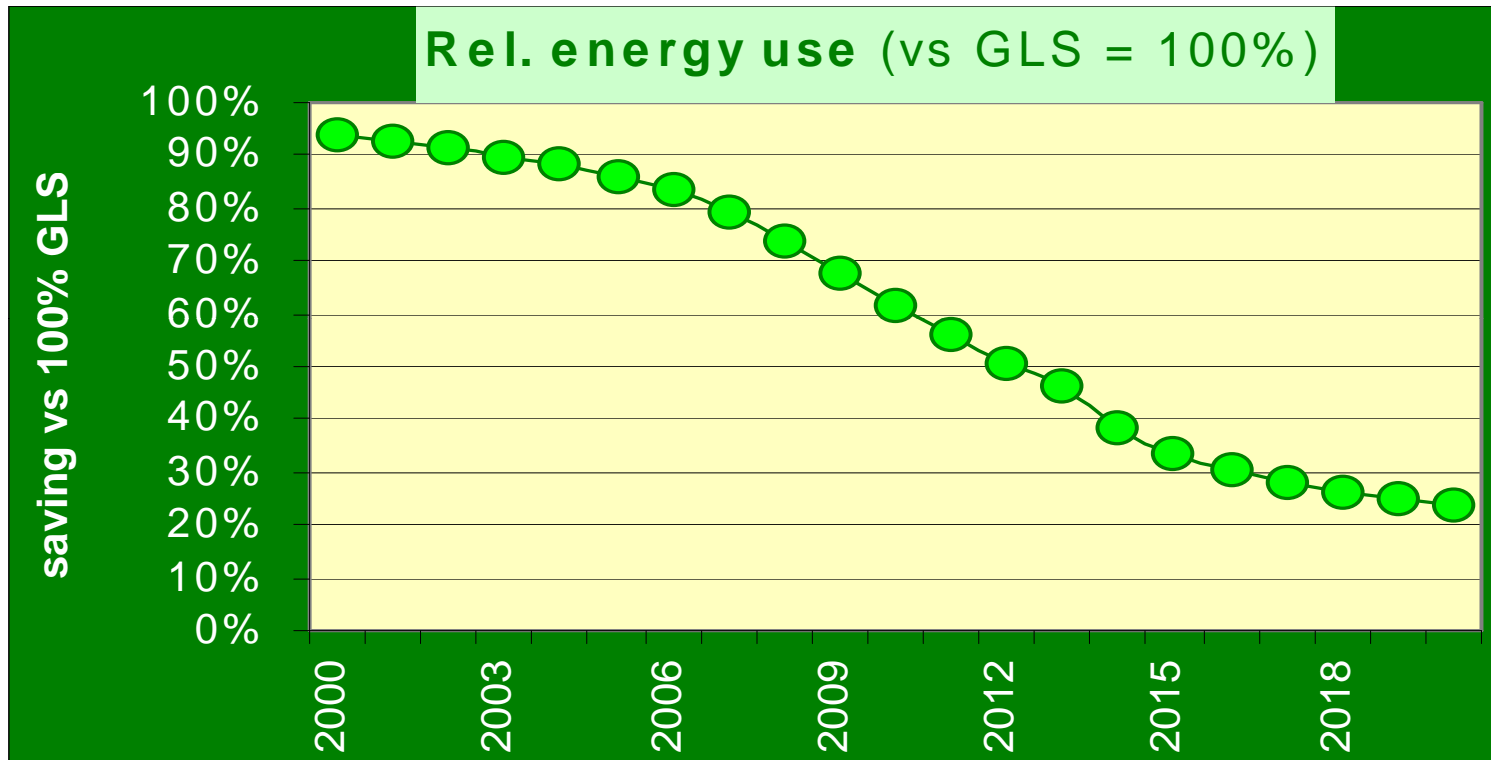
Marginal cost of abatement
€/t CO₂



Legislation Global phase-out Incandescent lamps



Global Relative Energy Savings Residential Lighting *Incandescent phase-out by 2014*



- The phasing-out of incandescent lamps results in a relative energy saving of 60% in 2014 and 75% in 2020
- The absolute energy savings are around 50% in 2020 due to the growth in global population and number of households

Overcoming Barriers

1. Initial Cost
2. Quality
3. Awareness
 - Fit
 - Perception/believe



1. Awareness Campaigns (public / private)
2. Policy Measures / deployment
3. Partnerships (public / private / NGO`s / utilities)

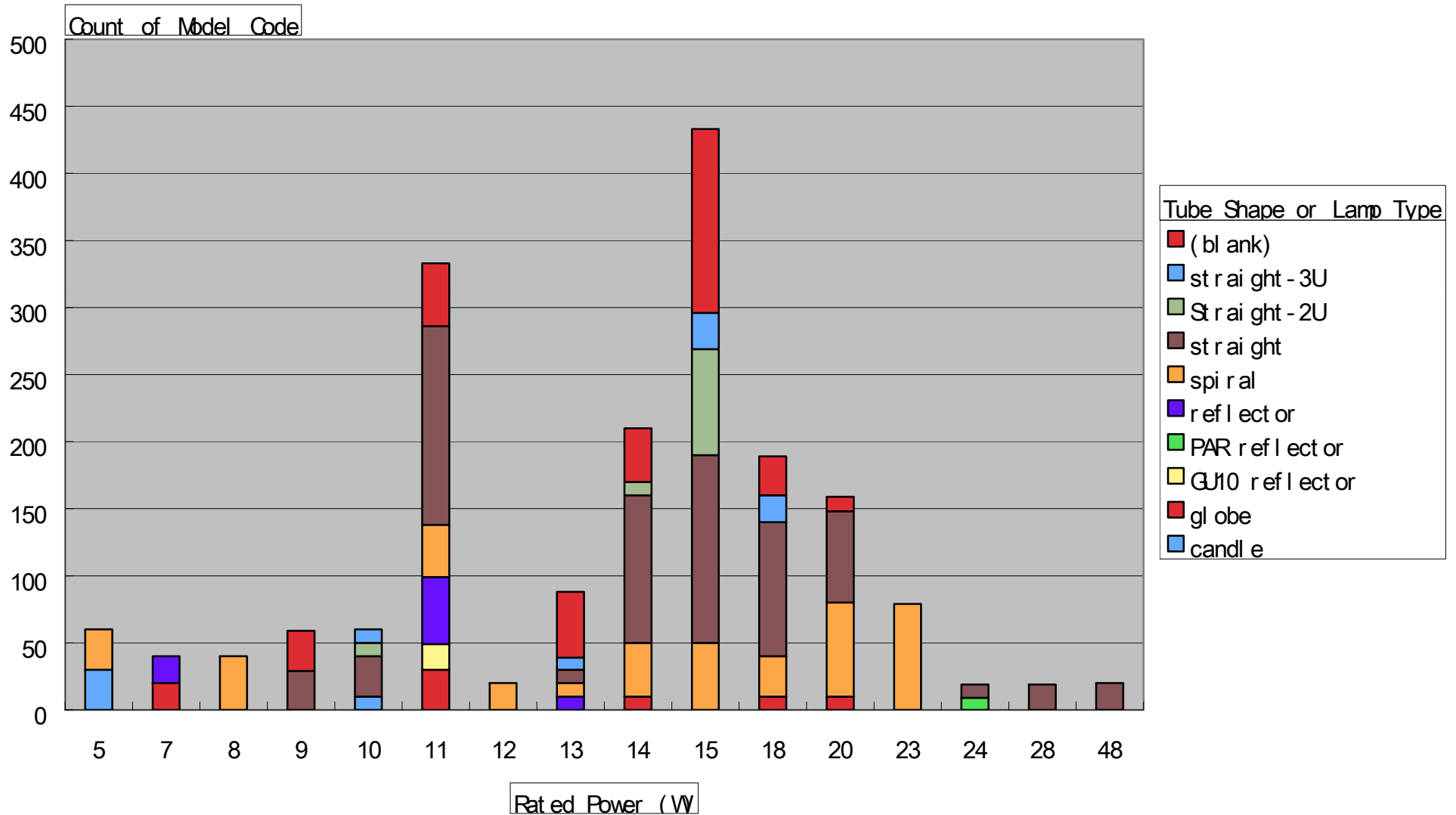
Quality?

Market category	MS	Description of market category
High Quality Internationally well known brands	<ul style="list-style-type: none"> • 60% \$ • 30% V 	<ul style="list-style-type: none"> • Internationally known brands • >6000 hrs lifetime • Evidence of testing and/or quality registration • IEC compliant
High Quality – National known brands	<ul style="list-style-type: none"> • 10% \$ • 6% V 	<ul style="list-style-type: none"> • Not well known brands internationally • > 6000hrs lifetime • Evidence of testing and/or quality registration • local standard compliant
Poor Quality	<ul style="list-style-type: none"> • 15% \$ • 18% V 	<ul style="list-style-type: none"> • Not well known brands • 3000 to 6000 hrs lifetime • Little or no evidence of testing • IEC compliant ??
Very poor Quality	<ul style="list-style-type: none"> • 20 % \$ • 46 % V 	<ul style="list-style-type: none"> • Not well known brands • < 3000 hrs lifetime • no evidence of testing • Extremely low price • non-IEC compliant

Benchmark data achieved from Australian Government

- Method:
 - Lamps have been bought in random stores of 6 countries
 - Lamps have been tested at accredited labs in India and China.
- Purpose:
 - To get an overview of the performance of CFL-I in the region
 - To serve as a test for the intended “check-testing” in Australia
 - To serve as an guide-line for the an harmonized Asian standard
- Statistics:
 - 1828 lamps have been tested on performance.
 - Lamps originate from: Australia (1090), India (187), Indonesia (126), Philippines (149), Thailand (147) and Vietnam (129)
 - Additional 447 Lamps have been tested for mercury content.

Overview of lamp types and wattages



Testing Methodologies - Performance

- Most recent CFLs draft method (to replace IEC 60969)
 - The two deviations from this methodology were:
 - All sample sizes were 10 products except mercury (5 samples)
 - One product from each model also tested at zero hours (new lamp) for both start up and run up tests.
- Products were tested for:

Start Time (ms)

(Calculated) Initial Efficacy (LPW)

Run-up Time (sec)

Power Factor

Lamp Power (W)

Colour Rendering

Initial Lumen Output

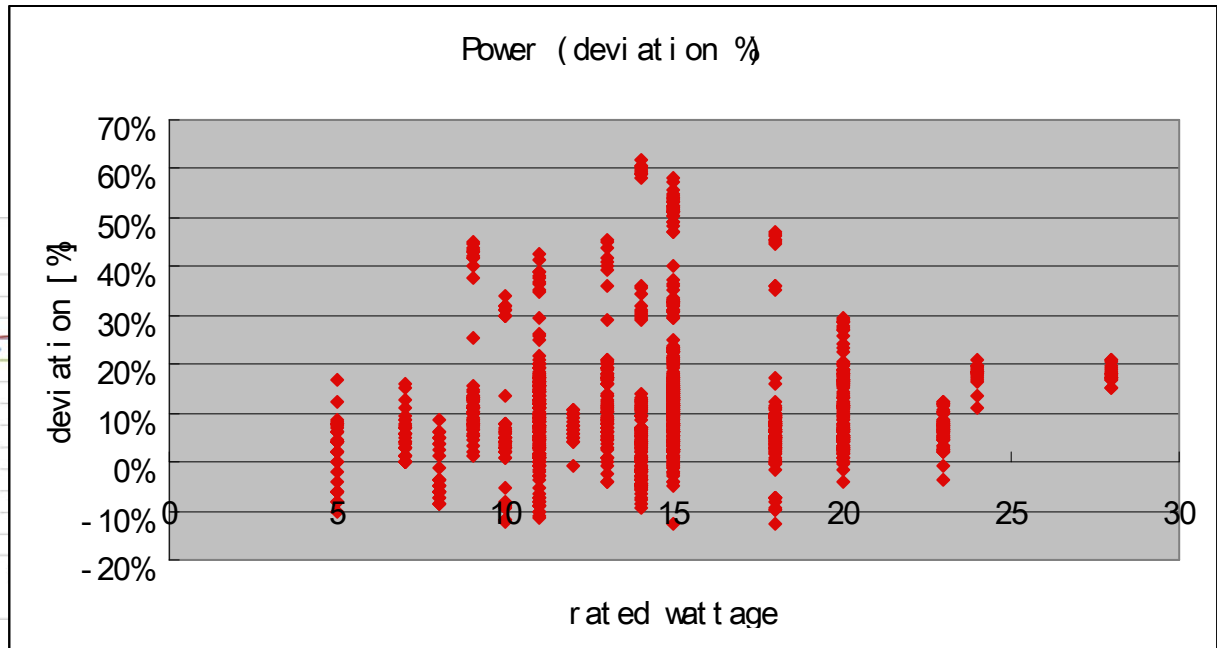
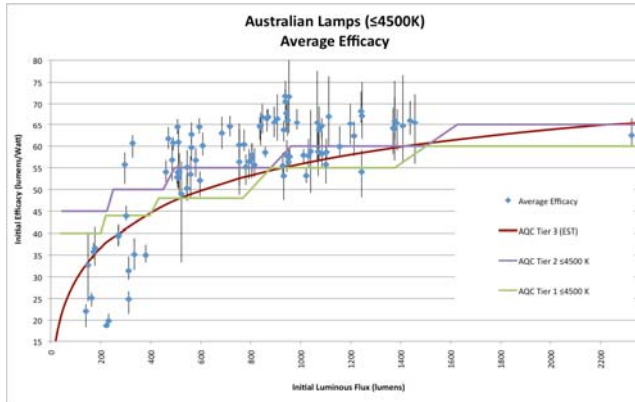
CCT (K)

Chromaticity (x, y)

2,000hr Lumen Maintenance

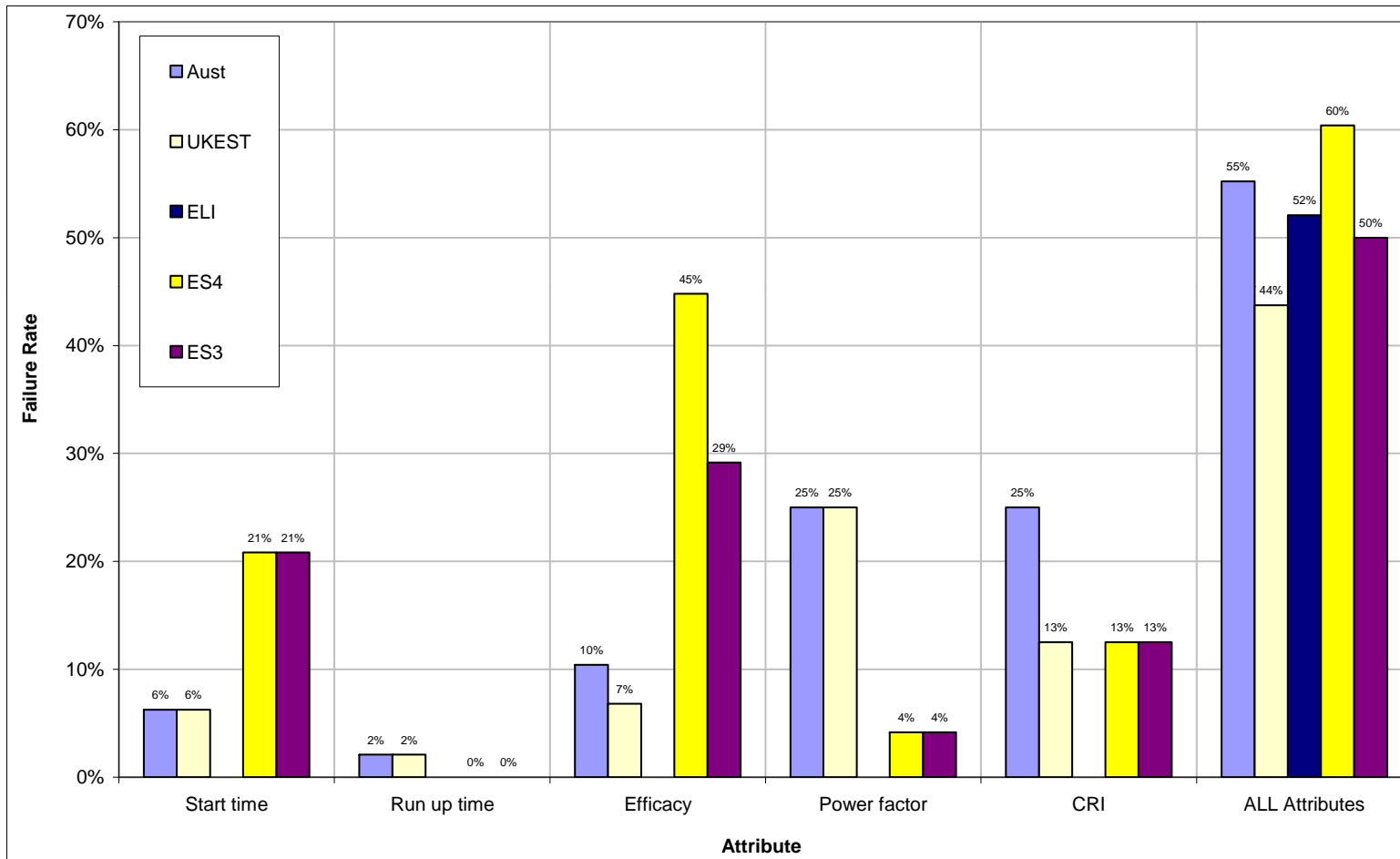
THD (1 sample only)

Some findings



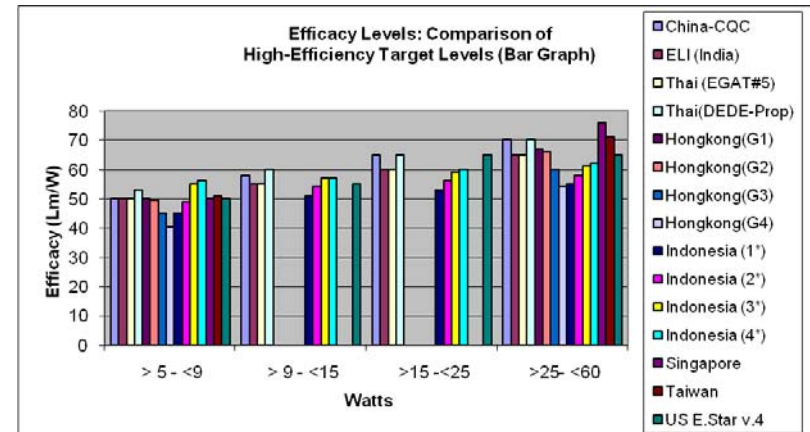
Aspect	Average	Min	Max
Mercury [mg]	4	0.1	78
Lumen @ 2000 hrs	78%	13%	99%
Failed @ 2000 hrs	8.7%	0%	
Color rendering	81.5	69.1	86.5
Run up time [sec]	12.4	2	290

“Pass/Fail” – Aus (remember no requirement!)



Situational analysis

- Lack of regionally recognized quality threshold: quality concerns!
- Little/no publicly available test data on CFL quality
- Proliferation of CFL standards and specifications is found in Asia
 - Mandatory labeling programs
 - Voluntary labeling programs
 - MEPS regulations
 - Every country has its specific standard
- Proliferation of CFL promotional programs
- No price signal for high-quality CFLs
- Most standards are a local variations of IEC
- Main deficit in IEC is on energy efficiency aspects
- Some times attention to environmental impact
- There is a need for a system for qualifying and marking good quality CFLs





Asian Lighting Council

(formerly known as: Manila compact)

- Initiative taken by suppliers, manufacturers and (Asian) lighting associations to develop:
 - A commonly agreed (IEC-based) set of key performance and quality criteria of CFL-I's
 - A voluntary system for marking CFL-I's to indicate compliance
 - A web-based CFL-Quality-Registry with accredited test results
 - Eventually a system for check-testing in the market-place.
- Status
 - Organization will be registered end of October
 - Measurement method has been agreed
 - 3 tier Quality standard has been agreed (including efficacies, lifetime, Hg-content, ...)
 - Database in progress
 - B-plan and organization in final stage

2.3.1 Criteria with levels that vary by tier

Criteria	Asia CFL Quality Charter Guidelines Criteria Requirements					
	Tier 1		Tier 2		Tier 3	
Efficacy (lumens per Watt)						
Wattage bins/CCT	≤ 4500K	> 4500K	≤ 4500K	> 4500K	≤ 4500K	> 4500K
< 5W	40	36	45	42	Comply with the Requirements of Energy Savings Trust Lamp Specification Version 6 – 2007 for Compact Fluorescent Lamps for applicable Lamp Class	
5W to < 9W	44	40	50	46		
9W to < 16W	48	44	55	52		
16W to < 25W	55	51	60	57		
≥ 25W	60	57	65	62		
Lifetime	6,000 hours		8,000 hours			
Lumen maintenance	80% of measured 100-hour lumen level after 2,000 hrs		80% of measured 100-hour lumen level after 2,000 hrs			
Colour (x,y)	Within 7 color steps (SDCM) per the IEC standard		Within 5 color steps (SDCM) per the IEC standard			

Asian Lighting Council

A new, independent organization, covering

- Implementation of product marking system
 - Promoting harmonization of standards and product quality
 - Operating a regional product registry, the “Asia CFL Quality Registry”
 - Outreaching to manufacturers of good-quality CFLs
 - Working with national governments and public and private agencies.
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- In short: considering characteristics necessary for broad acceptance of CFLs by
 - Consumers
 - Regulators
 - Utilities
 - Program managers
 - Energy advocates

