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Mapping and Benchmarking Product Performance

Integrated Approaches to energy technologies
27 November, 2012

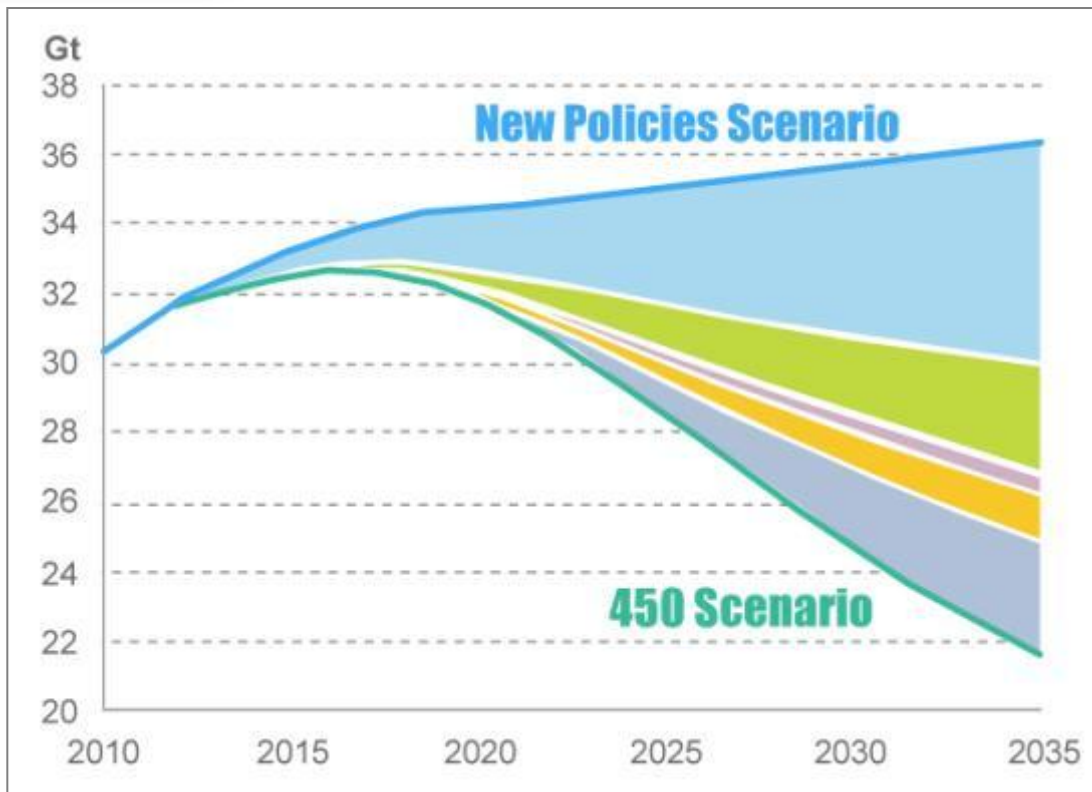
**IEA IMPLEMENTING AGREEMENT
EFFICIENT ELECTRICAL END-USE EQUIPMENT**

PRODUCTS



EFFICIENT ELECTRICAL END-USE EQUIPMENT

World energy-related CO₂ emissions abatement in the 450 scenario relative to the New Policies Scenario – WEO 2011



Source: IEA World Energy Outlook 2011

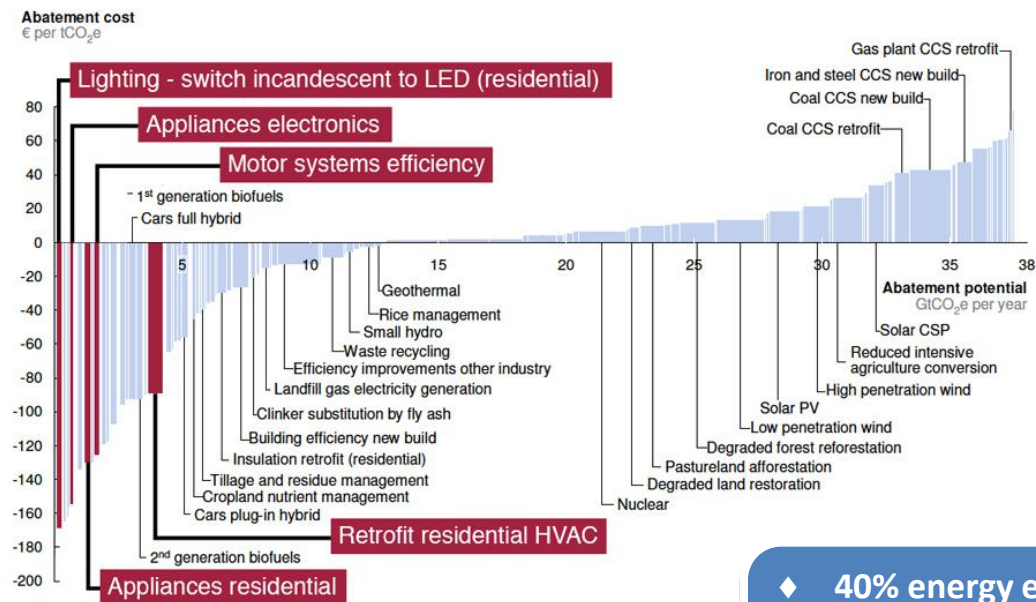
Abatement

	2020	2035
Efficiency	72%	44%
Renewables	17%	21%
Biofuels	2%	4%
Nuclear	5%	9%
CCS	3%	22%
Total (Gt CO₂)	2.5	14.8

EFFICIENT ELECTRICAL END-USE EQUIPMENT

END-USE EFFICIENCY – THE CHEAPEST, MOST AVAILABLE RESOURCE

V2.1 Global GHG abatement cost curve beyond BAU – 2030



- In equipment, large cost-effective opportunities are already available.
- But, the opportunities are widely dispersed and impeded by market barriers.
- Policies aimed at overcoming these barriers have proved successful.

- ◆ 40% energy efficiency (mostly net profit positive)
- ◆ 30% low carbon energy supply
- ◆ 30% forestry and agriculture

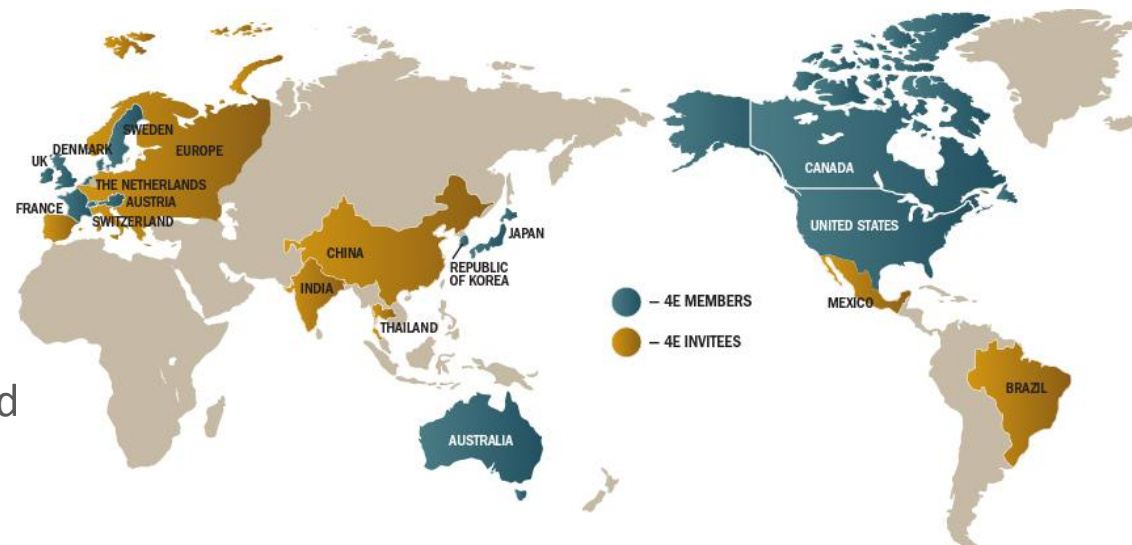
WHY INTERNATIONAL COOPERATION IS THE WAY FORWARD

- Many policy makers are seeking answers to **similar questions**:
 - How do appliances compare in different countries?
 - What have been the most effective policies?
 - What targets could we use?
- **New challenges** regarding appliances:
 - Proliferation of types of electrical equipment
 - Growing complexity
 - Increased international trade
- **Opportunities** in international co-operation:
 - Clear goals and road maps: policies *better predictable* for industry,
 - *Shared costs make policies cheaper* to develop and implement (by countries and industry),
 - and *more effective*

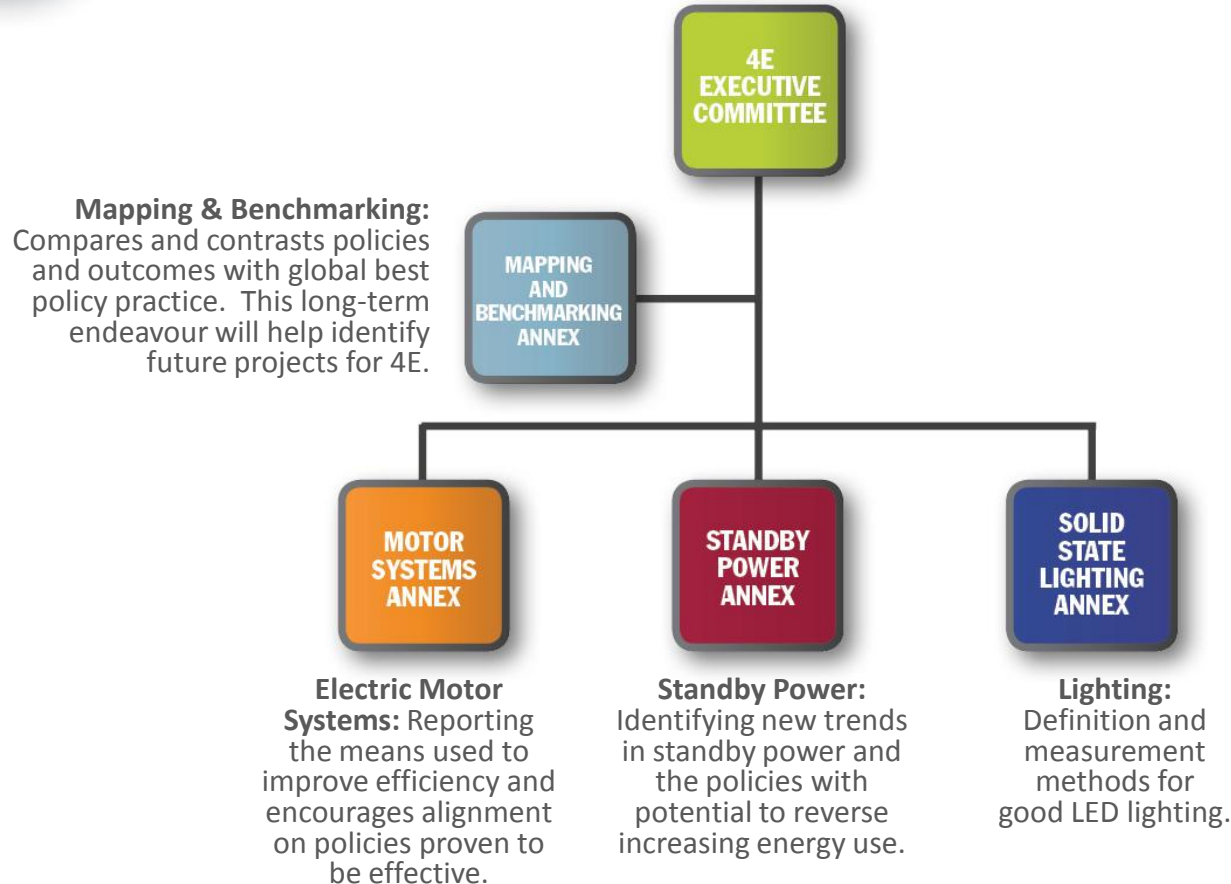
PARTICIPATING COUNTRIES

MEMBERS

Australia
Austria
Canada
Denmark
France
Japan
Korea
The Netherlands
Switzerland
Sweden
UK
USA



STRUCTURE OF 4E

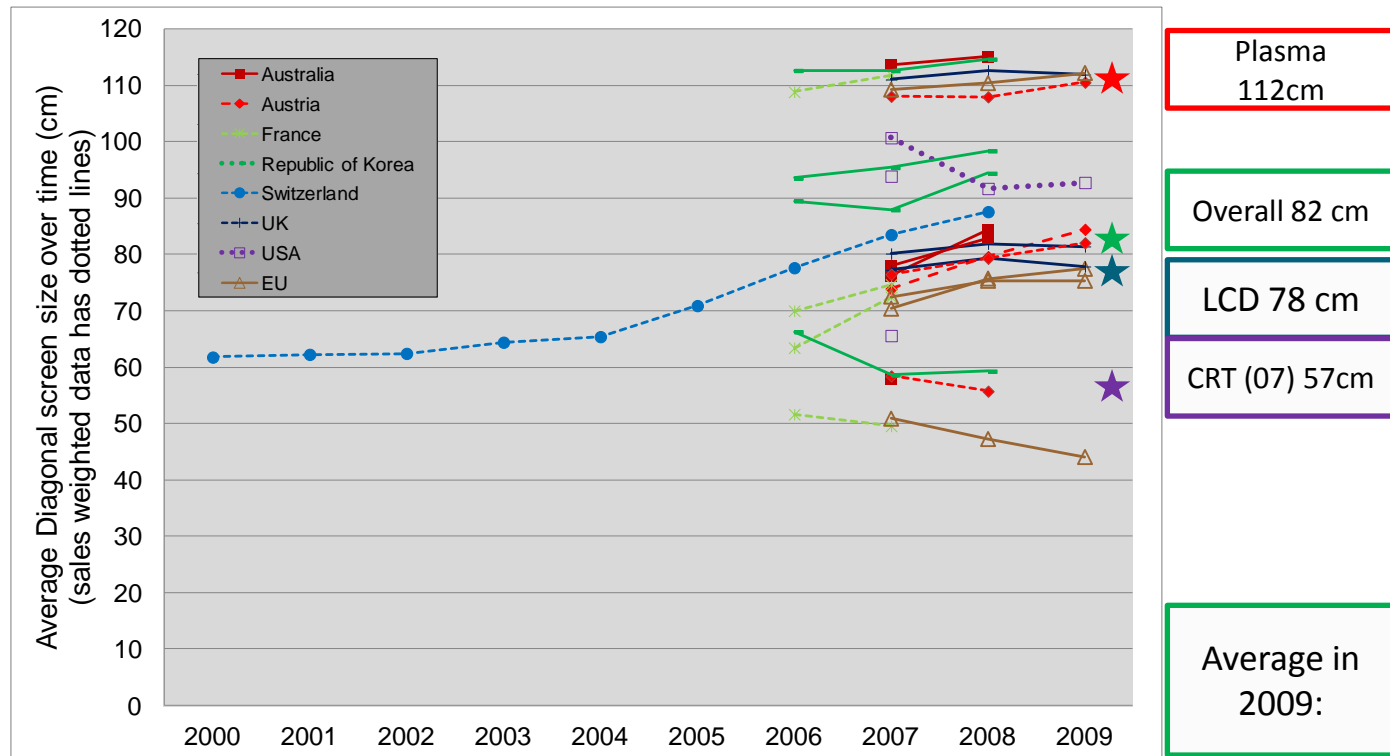


MAPPING & BENCHMARKING

- Compares and contrasts policies and outcomes with global best policy practice.
- The focus of the Annex is on household and commercial products that consume significant quantities of electricity, now or in the future.
- Member Governments periodically select a priority list of products for analysis

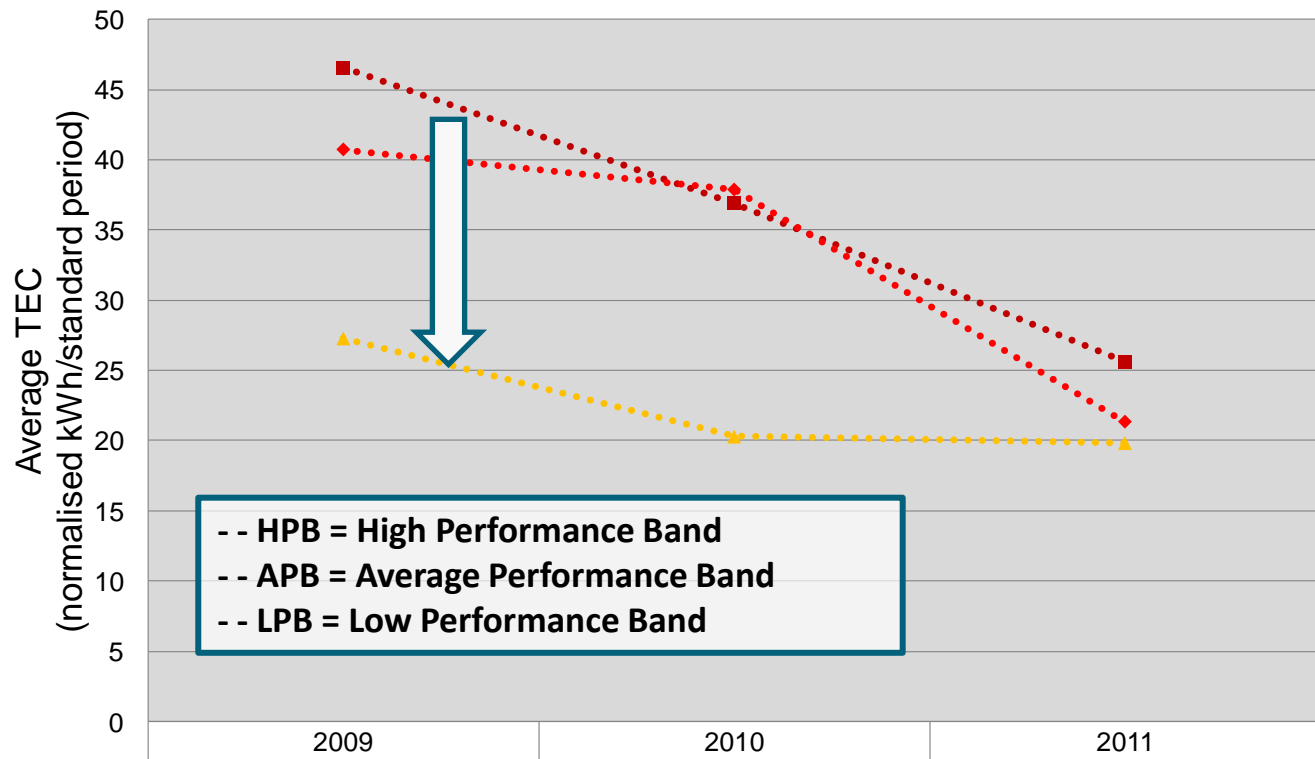
PRODUCT	RELEASE DATE
Domestic Cold Appliances	August 2010
Televisions	October 2010
Air Conditioners	February 2011
Laundry Dryers	June 2011
Domestic Lighting	July 2011
Washing Machines	November 2011
Notebook Computers	December 2011
Retail Display Cabinets	January 2012
Vending Machines	January 2012
Desk Top PCs	August 2012
Dishwashers	December 2012
Set-top Boxes	January 2013
Water Heaters	April 2013

ESTABLISHING MARKET TRENDS: TVS



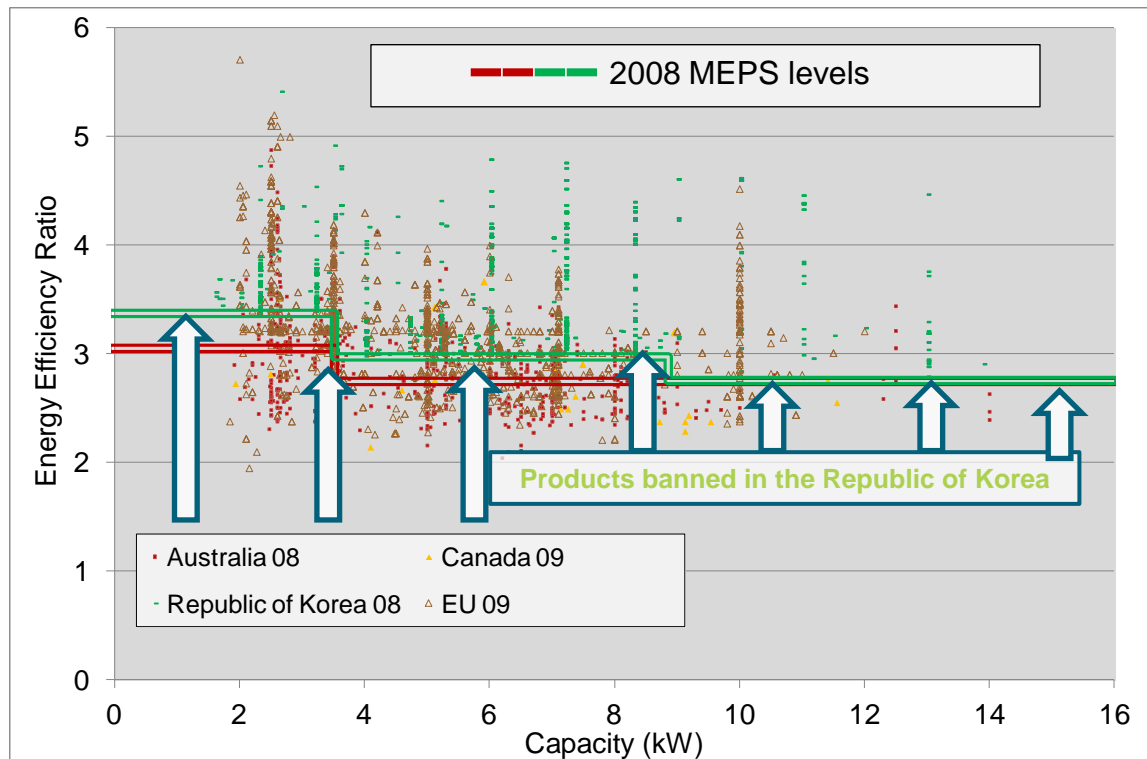
- Plasma had the highest 2009 average at 112cm, with LCD at 78cm, and CRT at 57cm
- Average screen size was 82 cm diagonal in 2009, growing at a few percent per year
- LCD screens dominated the 2009 market with between 50% and 90% of sales

ESTABLISHING MARKET TRENDS: NOTEBOOK PCS



- Improvement of 48% after two years for APB
- High and average bands have improved by between 10% and 24% per year, converging towards low band

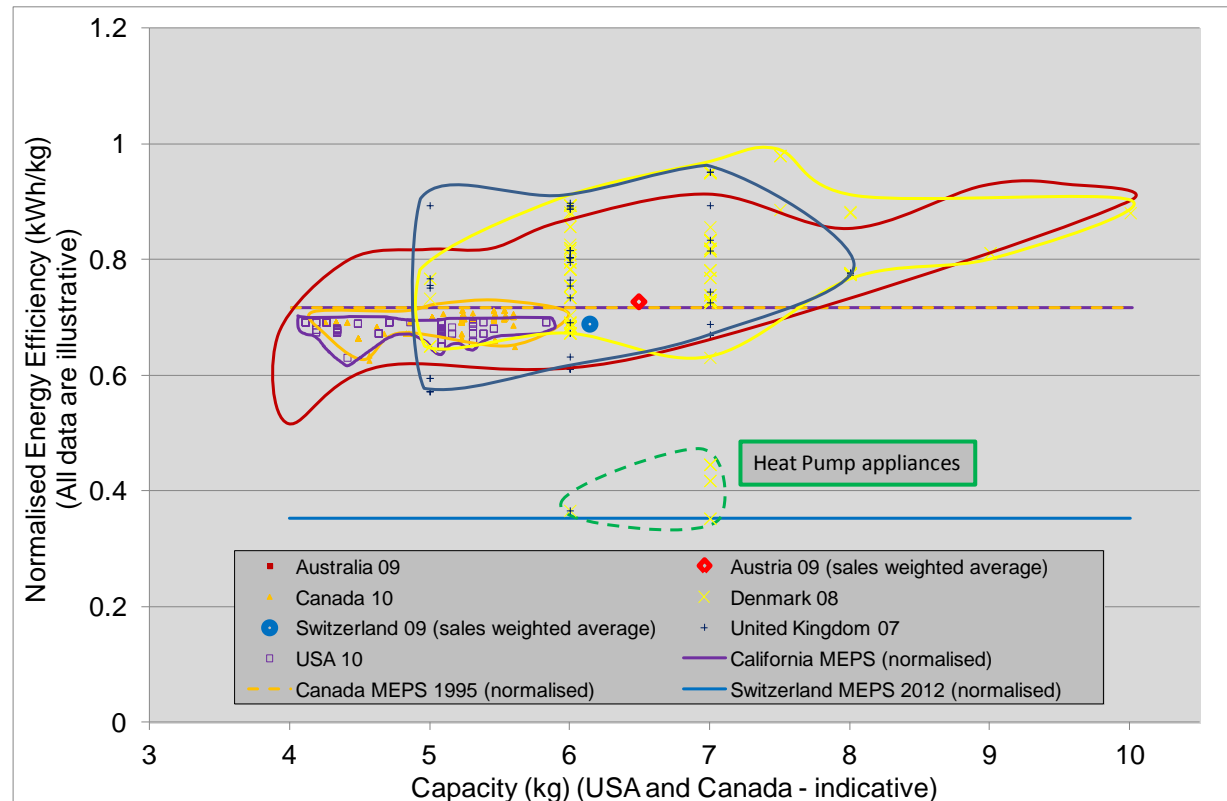
IDENTIFYING POTENTIAL: AIR CONDITIONERS



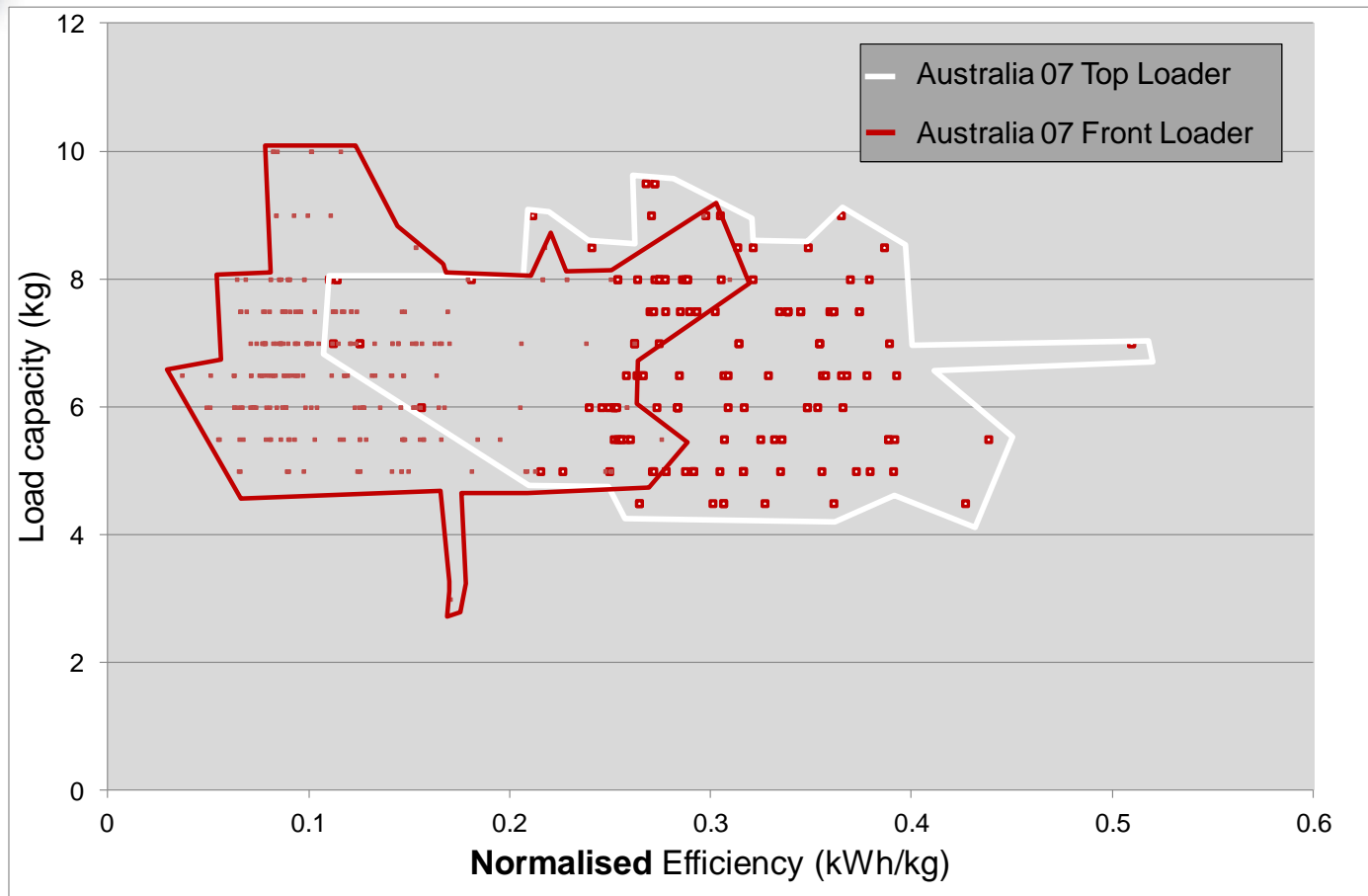
- Split products have widely spread performance in most markets
- Many below 2008 Korean MEPS = opportunity to improve EER

IDENTIFYING POTENTIAL: LAUNDRY DRYERS

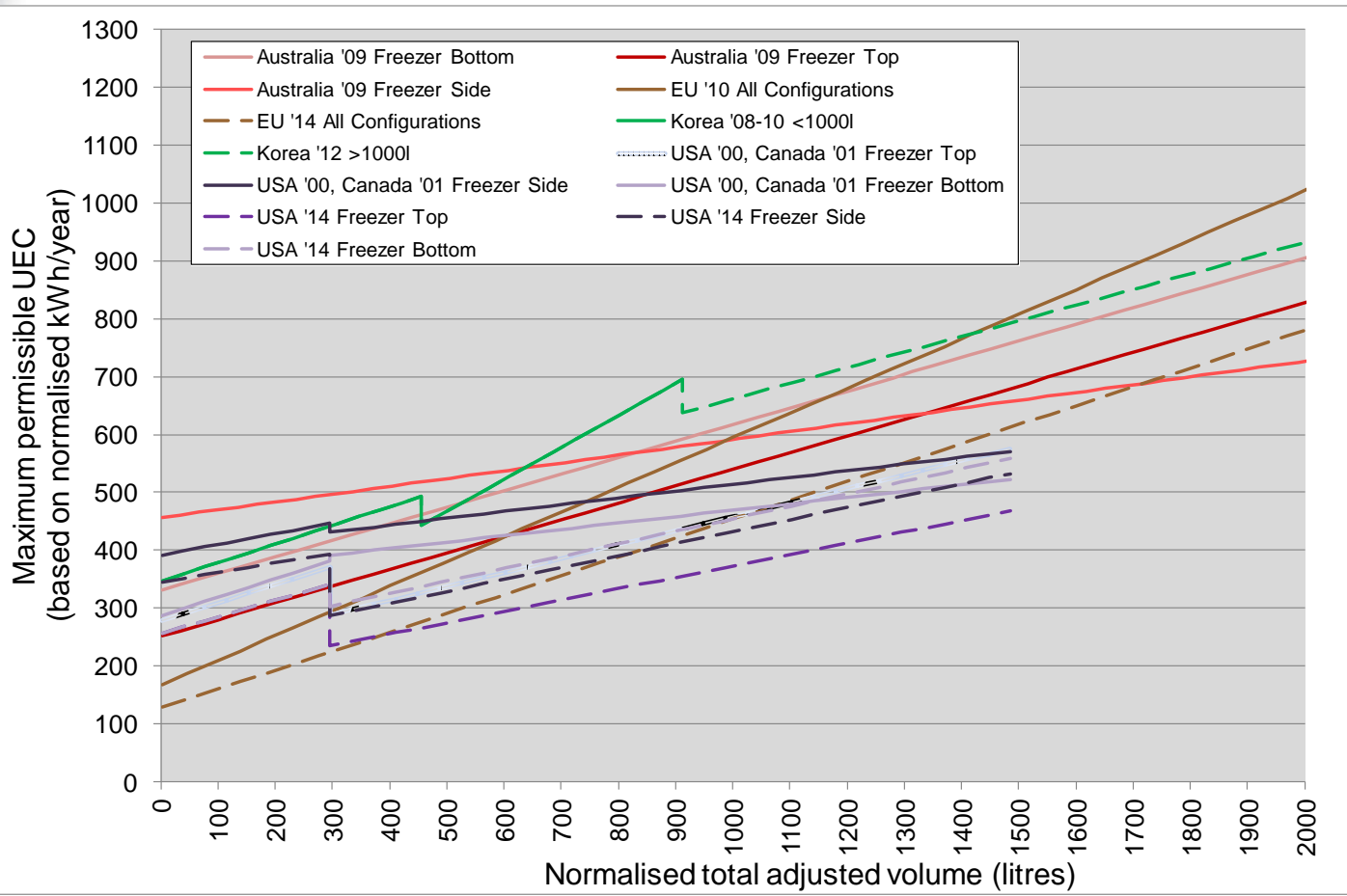
- US / Canadian products cluster closely under their MEPS level
- The Swiss 2012 MEPS challenging even for some heat pump products
- Over half of EU products appear to perform worse than US / Canadian MEPS; but some perform better than the best US / Canadian products



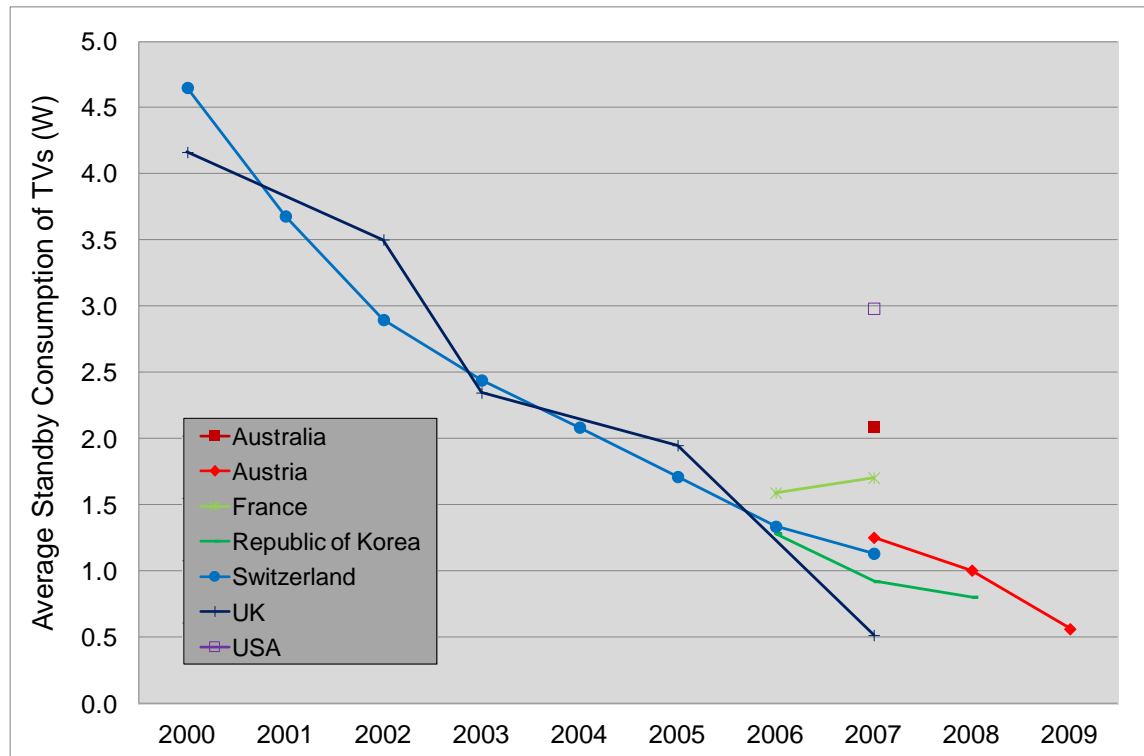
IDENTIFYING POTENTIAL: BEYOND EFFICIENCY



POTENTIAL FOR HARMONISATION

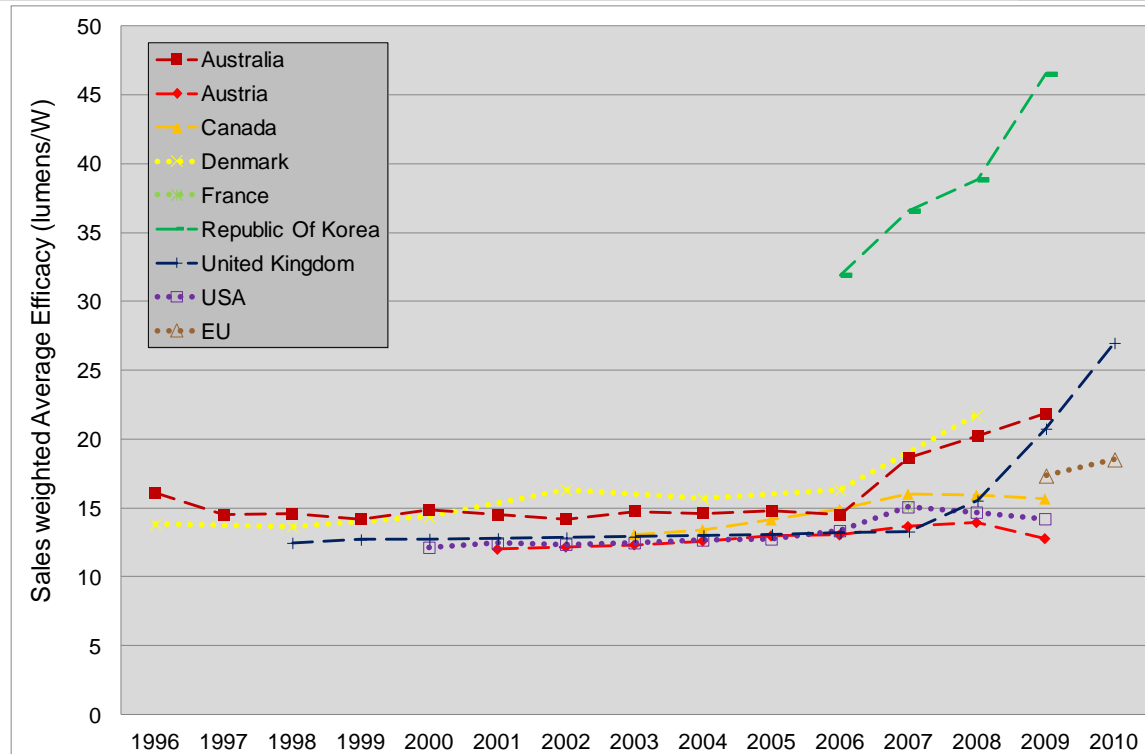


REVIEW IMPACT: TVS



- Average passive standby power fell from 4.4W in 2000 to 0.6W in 2009.
- 'Rapid start' standby is emerging (example at 17W) but regulations can and should address this

REVIEW IMPACT: INEFFICIENT LIGHTING PHASE-OUT



- Little change without regulation. Exception is Denmark - consumer choice
- Large increase in efficacy of lamp sales when regulations come into force
- Again, Korea has best efficacy due to regular revision of regulations

INFORMATION FOR BETTER POLICY DECISIONS

- Detailed analysis of real data provides policy makers with simple, easily understood information on:
 - Market trends
 - Areas for saving potential
 - Efficiency
 - Energy
 - Opportunities for harmonisation
 - Evaluation of impact

...leading to deeper understanding of the opportunities, what has worked and why, and in end, better decision making

GOALS OF THE SSL ANNEX

To provide governments with:

- Tools to assess the performance of SSL
- Information assisting formation of energy-efficient lighting policies
- Provision for harmonized test procedures and laboratory accreditation

in order to increase confidence in SSL in the marketplace



TASKS

- **Task 1: Develop SSL Quality Assurance**
 - Create performance tiers, address equivalency claims
 - Collect data on Life Cycle Assessment, Health issues
- **Task 2: SSL Testing and Laboratory Comparison**
 - Provide for harmonized national and regional testing protocols (CIE, IEC, ANSI, etc.)
 - Interlaboratory Comparison: calibrate 4 Nucleus laboratories
 - Wide international *Interlaboratory Comparison* testing to calibrate participating laboratories
 - Propose proficiency testing procedure for accreditation
- **Task 3: Provide for Harmonized International Accreditation**

GLOBAL LABORATORY TESTS

- The 4E SSL Annex Inter-laboratory Comparison Test will help increase testing capacity and competency worldwide.
- It will verify proficiency of over 150 participating laboratories from around the world
- The IC is being designed so successful completion *may* be acceptable to an Accreditation Body (AB) as evidence of Proficiency Testing (PT) for *any* of SSL method of measurement

POLICY BRIEFS



- High level summaries of 4E Reports
- Recommendations for policy makers
- Available from www.iea-4e.org/4e-policy-briefs
- 12 available

MORE INFORMATION ON 4E

4E and Annex newsletters

4E website: www.iea-4e.org



Operating agent: Mark Ellis (mark@energyellis.com)

4^E

www.iea-4e.org

4E COLLABORATION



International Partnership for Energy Efficiency Cooperation

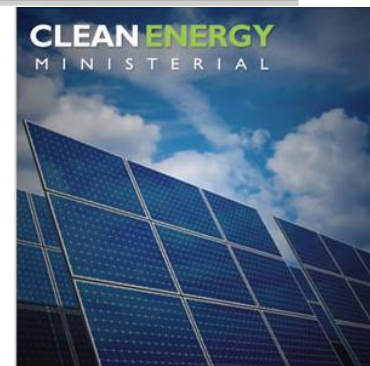


International
Energy Agency

- Energy security
- Environmental protection
- Economic growth
- Engagement worldwide



International
Organization for
Standardization



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IEA IMPLEMENTING AGREEMENT

EFFICIENT ELECTRICAL END-USE EQUIPMENT

**THANK YOU FOR
YOUR ATTENTION**
