

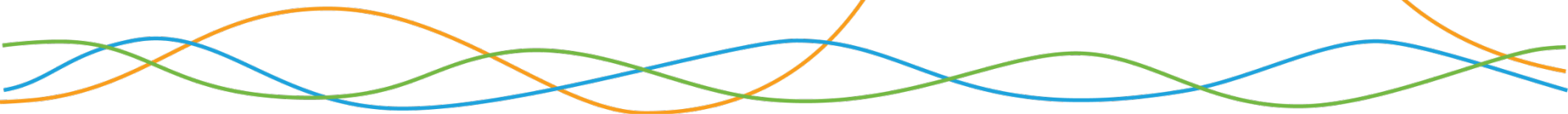


Improving Global Comparability

An Analysis of Appliance Energy
Efficiency Standards and Labels

CLASP & The Policy Partners

September 10, 2014



Context of the study

- Largest and most comprehensive comparison of energy standards and labels ever compiled, covering
 - ✓ Nine major economies
 - ✓ More than 100 products across nine different product areas.
- Contributes to global knowledge, as well as furthering the work of initiatives like SEAD (*CLASP is Operating Agent*)
- Building on 2011 study — *Opportunities for Success and CO₂ Savings from Appliance Energy Efficiency Harmonization* — extended with a stronger evidence base, more data, more products and countries

Goal: Improve technical foundations for viable policy improvements.

What did we do?

- Collected data for over 400 policies including:
 - ✓ Performance requirements
 - ✓ Label thresholds
 - ✓ Test procedures and energy efficiency metrics these are based on
- Where possible, developed conversion functions
- Compared policies across economies to determine relative stringency



S&L policy aspects:

- Efficiency metrics, product definitions, and requirement scope are as important as test procedures in alignment of S&L
- S&L components are less aligned when further along in the S&L development process

Coverage:

- The number of products covered by S&L has grown significantly

Alignment:

- Test procedures and efficiency metrics show a wide range of alignment
- All products have some potential for increased alignment

General:

- Data is not always accessible about S&L policy aspects, even to professionals active in the field





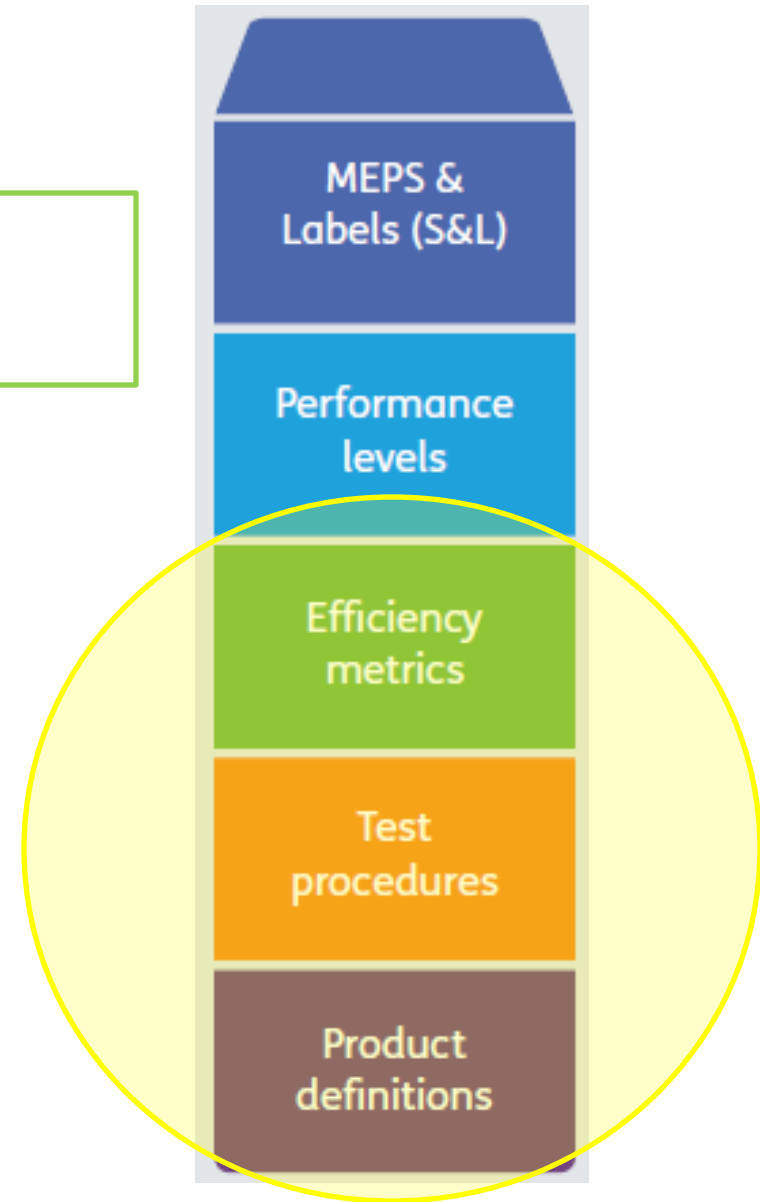
S&L policy has many elements

- **MEPS & Labels (S&L)**: Regulations include all components described below.
- **Energy performance levels**: Thresholds that a product's efficiency metric must meet
- **Efficiency metrics**: Translation of test procedure results into an energy performance indicator
- **Test procedures**: How to determine the energy consumption of a product
- **Product definitions**: Define what is included in regulations for a specific product.

- 1. Comparison of test procedures and efficiency metrics**

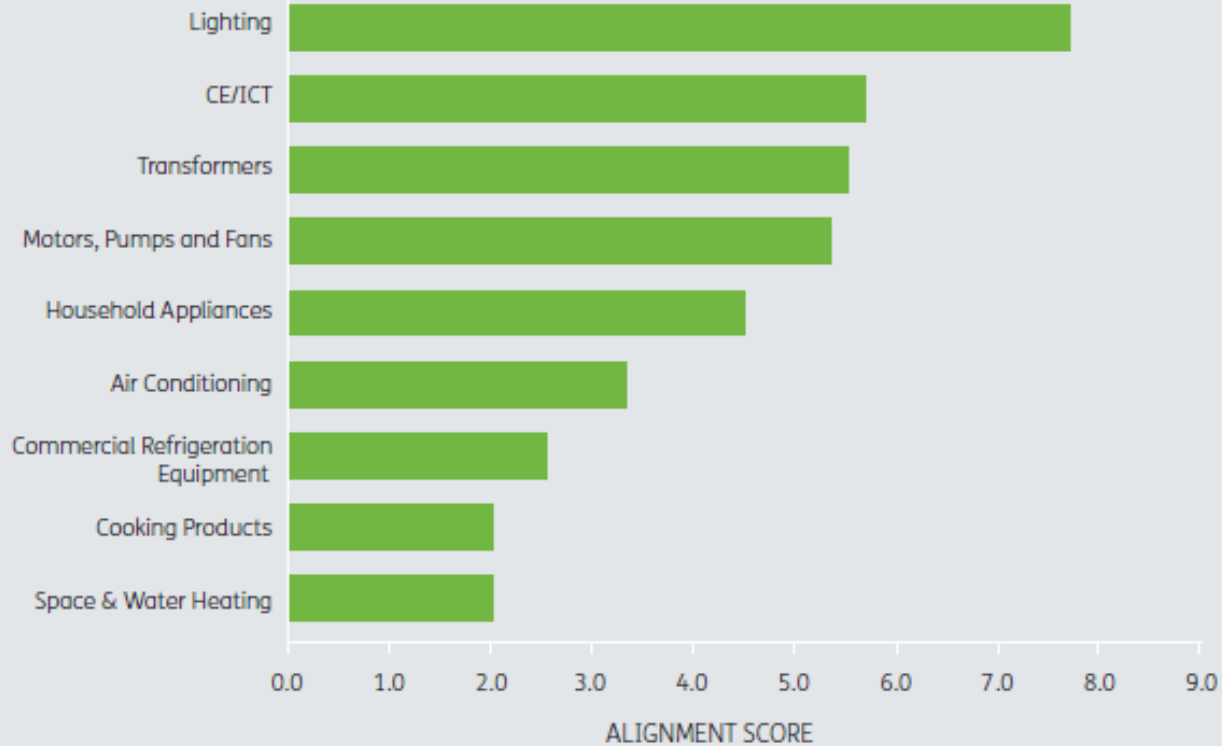
2. Comparison of policy coverage and stringency

3. Future directions



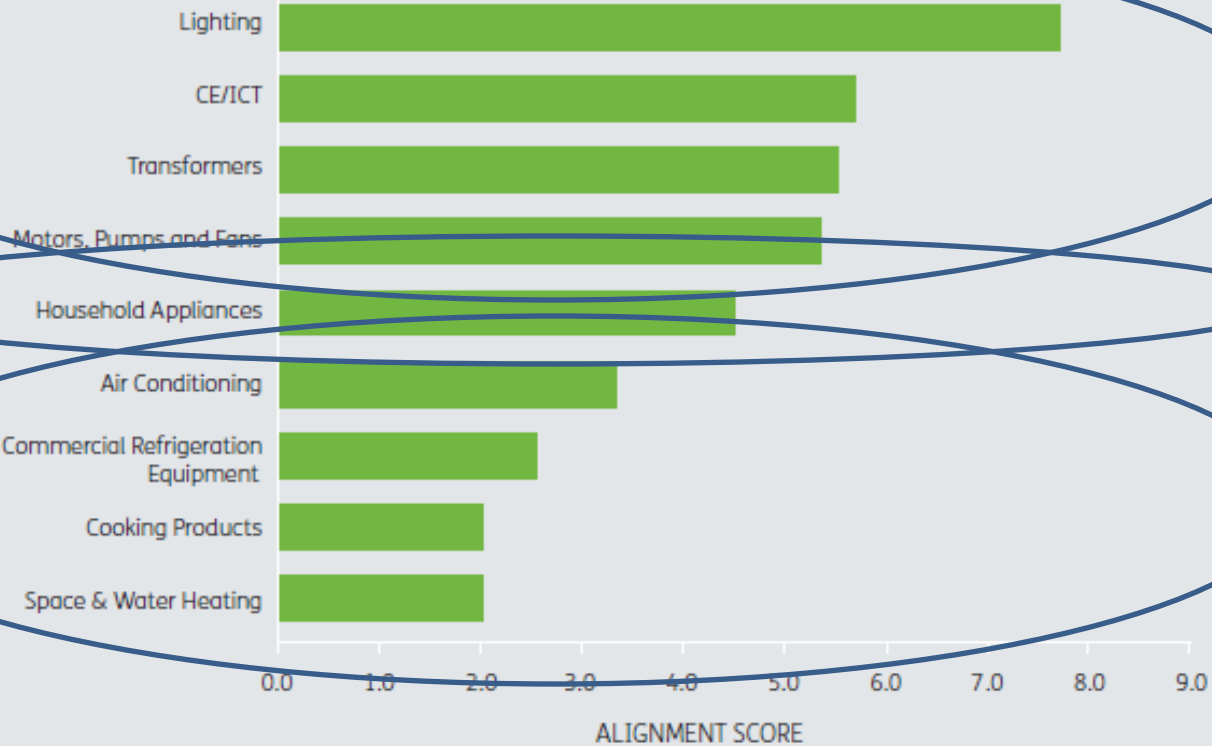
Alignment and comparability vary by product area...

Figure PS-1. **Alignment of test procedures and efficiency metrics by product area**



...and at least partially reflect the level to which products themselves are internationally comparable.

Figure PS-1. **Alignment of test procedures and efficiency metrics by product area**



Elements of S&L policy contribute to comparability...

- **Compact fluorescent lamps (CFLs)** provide a great example of international alignment, and the potential for more
- **Pump systems** provide an example of what can be done through international organizations
 - ✓ ISO is developing generic test conditions, test points, and performance levels



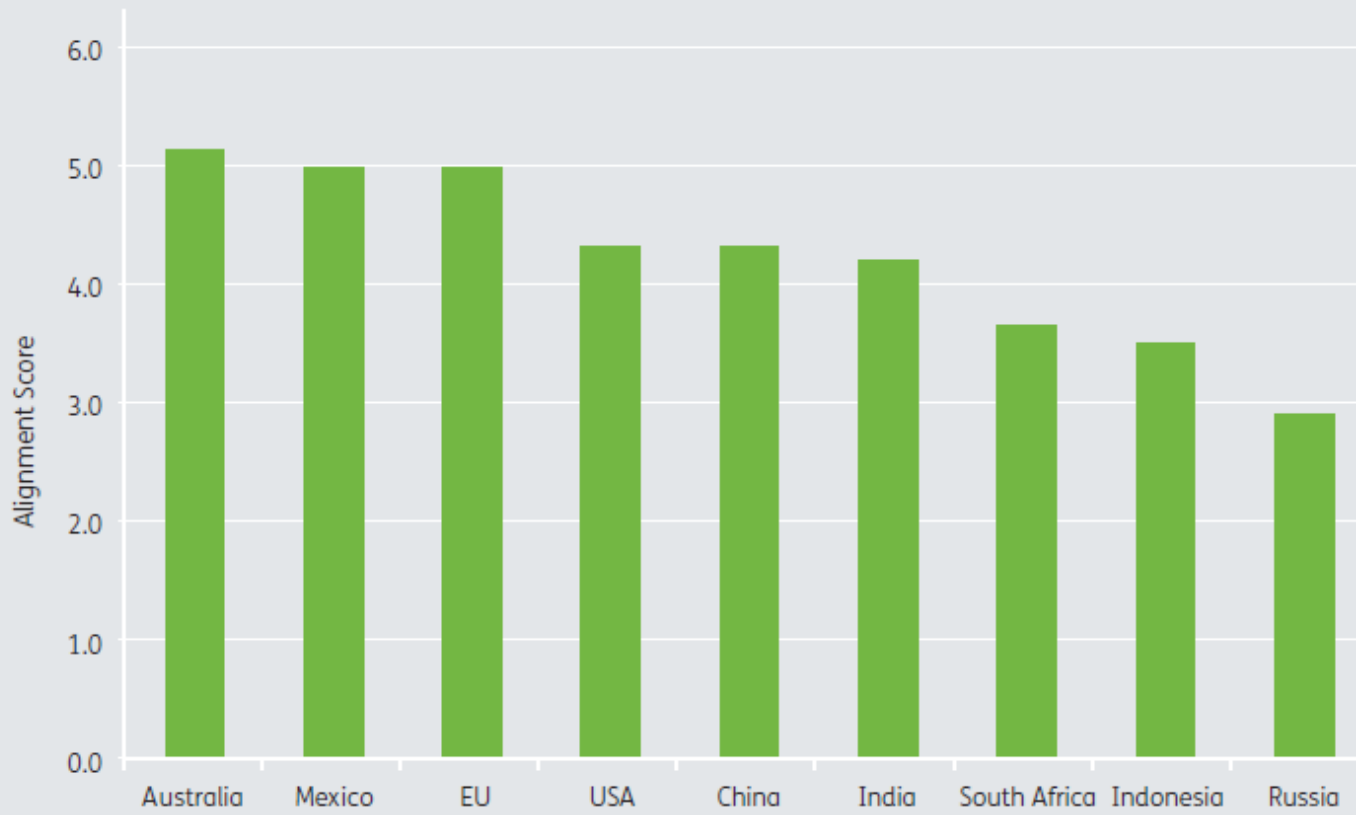
...or contribute to non-alignment.

- **Directional lamps** are an example of how things can easily become hard to compare (the EU measures a differently shaped cone of light — it's the little things)
- Policies for **room air conditioners** cannot be easily compared: economies are adopting the same test procedure, but different efficiency metrics
- Policies for **televisions** are aligned around an IEC test procedure, but show emerging diversion around automatic brightness control (ABC)



Alignment also varies by economy

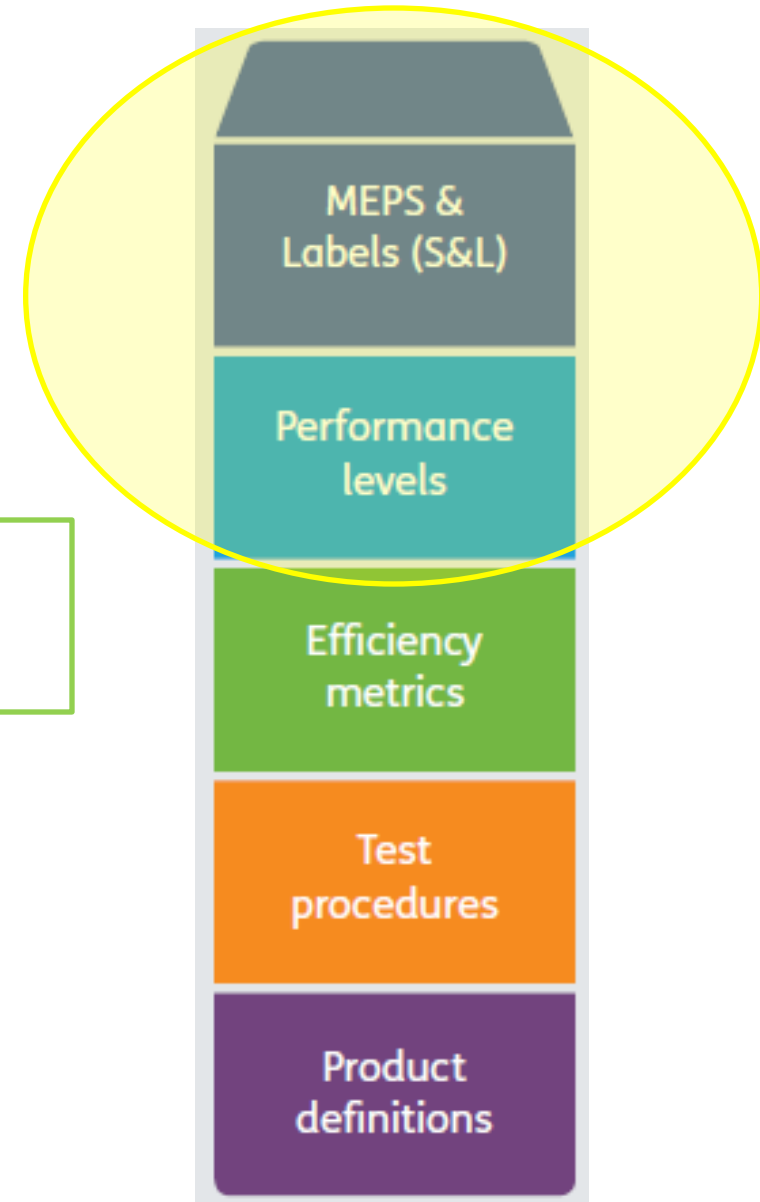
Figure PS-2. **Alignment of test procedures and efficiency metrics by economy**



1. Comparison of test procedures and efficiency metrics

2. Comparison of policy coverage and stringency

3. Future directions



Countries have varying coverage...

Table PS-1. Products covered by S&L (MEPS and/or labels) by economy for all products analyzed

COUNTRY	MEPS	Labels	MEPS or Labels
US	47	40	70
European Union	62	35	67
China (PRC)	39	42	51
Australia	35	18	41
Mexico	23	23	33
India	5	14	16
Russia	8	9	14
Indonesia	7	8	10
South Africa	2	8	9
TOTAL:	228	197	311

...and varying policy stringency.

Table PS-2. Most ambitious S&L identified by economy for all comparable products

COUNTRY	MOST AMBITIOUS		UNIQUE MOST AMBITIOUS	
	MEPS	High Label	MEPS	High Label
European Union	9	9	8	8
Australia	3	5	2	3
U.S.	5	1	5	-
China (PRC)	2	3	1	1
Mexico	2	2	1	-
India	-	1	-	-
Indonesia	-	-	-	-
Russia	-	-	-	-
South Africa	-	-	-	-

Note: In some instances, more countries share a “most ambitious” MEPS or High Label. As a result, the sum of MEPS and High Labels across countries is not identical to the total number of MEPS and High Labels that can be compared: those totals are 18 comparable MEPS and 15 comparable High Labels.

Alignment by economy is complicated.

Some important differences among economies contribute to variations in policy coverage and stringency, such as:

- ✓ Energy prices
- ✓ Product ownership
- ✓ Product usage patterns

These factors and others lead to different economic assessments from country to country.



1. Comparison of test procedures and efficiency metrics
2. Comparison of policy coverage and stringency
- 3. Future directions**



Alignment of products within CE/ICT

Table PS-3. **Alignment potential per product**

PRODUCT		Alignment Potential						
		Possible for test procedure components	Possible for full test procedure	Possible for test procedure & efficiency metrics	Test procedure already aligned, possible for efficiency metrics	Test procedure & efficiency metrics already aligned	Test procedure, efficiency metrics & ranking already aligned	Test procedure, efficiency metrics, ranking & label already aligned
CE/ICT	Television							
	Display							
	Simple Set Top Box (STB)							
	Complex Set Top Box (STB)							
	Computer							
	Server							
	Imaging Machine							
	External Power Supply							



Products have varying potential for future alignment and comparability

Table PS-3. Alignment potential per product

	Possible for test procedure components	Possible for full test procedure	Possible for test procedure & efficiency metrics	Test procedure already aligned, possible for efficiency metrics	Test procedure & efficiency metrics already aligned	Test procedure, efficiency metrics & ranking already aligned	Test procedure, efficiency metrics, ranking & label already aligned
Household Appliances	←→	←→					
Lighting			←→	←→			
CE/ICT	←→	←→		←→		←→	←→
Air Conditioning	←→	←→					
Space & Water Heating	←→	←→	←→				
Commercial Refrigeration Equipment	←→	←→	←→				
Cooking	←→	←→					
Motors, Pumps & Fans		←→	←→	←→	←→	←→	
Distribution Transformers				←→			



Practical possibilities to increase alignment

- **Directional lighting:** Align cone shape
- **All lighting:** Agree generic performance levels for efficacy and quality characteristics
- **Televisions:** Agree on standardized test points and calculation metric for automatic brightness control (ABC)
- **External Power Supplies:** Agree generic performance levels for active mode efficiency and no-load mode power
- **Refrigerated cabinets & display cabinets:** Agree common test conditions and efficiency metrics
- **Fans and pumps (various types):** Agree common efficiency metrics



Furthering alignment opportunities

- **Highlight opportunities for concrete collaboration on alignment** by supplementing these technical foundations with research into policy environments in several economies.
- **Highlight opportunities for international organizations (IEC/ISO) to lead the way** on aligning policy components.
- **Examine energy savings potentials** from adopting more ambitious policies in specific countries for comparable products of interest to policymakers.
- **Assess the costs and benefits** of filling gaps in policy coverage and increasing policy stringency across several economies for comparable products of interest.
- **Analyze the costs of having non-aligned test methods** to industry and governments for one or more products.

Materials available online

- Visit www.clasponline.org/IGC for:
 - ✓ Full report: *Improving Global Comparability of Appliance Energy Efficiency Standards and Labels*
 - ✓ Policymaker summary
 - ✓ Annex 1: Overview Table
 - ✓ Annex 2: Product Fact Sheets





Thank you!

Debbie Karpay Weyl

dkarpay@clasponline.org

Mia Forbes Pirie

mia@thepolicypartners.com

Frank Klinckenberg

frank@thepolicypartners.com

