ENERGY STANDARDS AND LABELLING PROGRAMS THROUGHOUT THE WORLD IN 2013

REPORT PREPARED BY:

Energy Efficient Strategies, Australia and Maia Consulting, Australia

REPORT COMMISSIONED BY:

Department of Industry, Australia

MAY 2014

UNEP DTU PARTNERSHIP | COPENHAGEN CENTRE ON ENERGY EFFICIENCY
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4E Efficient Electrical End-Use Equ
International Energy Agency

maiaconsulting

Project Team

This report was prepared by Energy Efficient Strategies with sub-contracted assistance from Maia Consulting. The work was commissioned by the Department of Industry of the Australian Government. This report update was supported by the IEA 4E Annex, the Super Efficient Appliance Deployment under the Clean Energy Ministerial and the Copenhagen Centre for Energy Efficiency under the United Nations Environment Program.

The original information used to prepare the first edition of this report was collected by Lloyd Harrington of EES in the 1990s. Melissa Damnics (formerly of EnergyConsult, now Maia Consulting) and Lloyd Harrington prepared the report published in 2004 which has been used to benchmark changes in S&L programs over the intervening period to 2013.

This 2013 report was primarily prepared by Jack Brown of Energy Efficient Strategies and Marg Caithness of Maia Consulting. Lloyd Harrington of Energy Efficient Strategies was the project leader. Dianne Glass of Energy Efficient Strategies prepared artwork and formatted the document. The cover design is by Heather Hoare of Pixel City http://www.pixelcity.com.au/ A review of all material was undertaken by Jeffcott Associates Ltd under contract to the IEA 4E Mapping & Benchmarking Annex. Helpful input was also provided by a range of other individuals and organisations as set out in the acknowledgements.

The information in this report is provided for research and information purposes. All information has been compiled from publicly available data sources and reports as of late 2013. Programs are continually changing, so naturally information in this report will become out of date as program changes are made in various countries (on average, 20 new measures per month have been added over the past 10 years, not counting amendments to existing measures). Not all public information sources are current, up to date or accurate. Some programs have no published material and some of these may not be included. As far as possible, information was checked and corroborated within the limited time frame. This publication is free and the authors obtain no commercial gain from its distribution.

This report meets Level AA Web Content Access Guidelines 2.0.

Author Contact Details:

Energy Efficient Strategies
Lloyd Harrington (Director)
Jack Brown (Analyst)

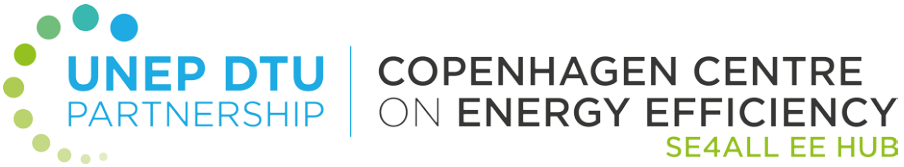
PO Box 515, Warragul, Victoria, 3820
(+61 3) 5626 6333
ees@energyefficient.com.au www.energyefficient.com.au

Maia Consulting
Marg Caithness
(+61 3) 9689 7195

This projected was supported by:

Super Efficient Appliance Deployment http://superefficient.org/

http://www.unepdtu.org/



IEA 4E http://www.iea-4e.org/

Acknowledgements

The authors would like to thank the following organisations for their assistance in the preparation of this report:

Staff of CLASP, Washington DC

Jeffcott Associates, funded through the IEA Efficient Electrical End-Use Equipment (4E) Mapping and Benchmarking Annex

Staff of the Department of Industry (DoI) in Australia are also thanked for their guidance throughout the project.

The authors would like to thank the following individuals (and their organisations) for their specific feedback on particular countries or regions in this report:

Wolfgang Lutz – Energy Strategies, Netherlands

John Cymbalsky – Department of Energy, USA

Dr Paul Waide – Waide Strategic Efficiency Ltd, UK

José Maria Blanco – BUN-CA (Energy Network Foundation), Costa Rica

Dr George Wilkenfeld – George Wilkenfeld and Associates Pty Ltd, Australia

Juraj Krivošík – SEVEn, Czech Republic

Marcos A. Borges – Instituto Nacional de Metrologia, Qualidade e Tecnologia (INMETRO), Brazil

Kateryna Chernyavska – State Agency on Energy Efficiency and Energy Saving (SAEE), Ukraine

PREFACE – COMMISSIONING OF THIS REPORT

History

Over the period 1998 to 2000, Australian government agencies undertook an intensive review of their own energy label that was originally launched in 1986 and adopted nationally in 1992. That review led to a redesign of the label and re-grading of the label scales in 2000. Part of the background research for that review was a compilation of energy labels and energy performance standard requirements in many countries around the world, which was completed in 1999 as an internal research report. One of the key objectives was to see how other energy labels were designed and whether any of the key design elements could be deployed locally to improve consumer understanding and salience of the energy label. The federal and state governments in Australia commissioned a public version of that report in 2001.

A second, more comprehensive edition was commissioned and released in 2004 as part of an evaluation of the label review process.

The preface of the second edition stated:

"*The aim of this report is to provide access to information and resources for those policy makers considering the introduction of local energy labelling and efficiency standard programs. This report is a contribution to the pool of information that will hopefully result in increased cooperation between those responsible for designing standards & labelling schemes with respect to energy efficiency of appliances and equipment around the world, resulting in better and more effective schemes.*"

These aims are as relevant in 2013 as they were in 2004.

Current Review

The Australian Department of Industry commissioned this report to assist in two activities being undertaken in 2013 and 2014. The first reason was because it had been more than a decade since our energy label had been reviewed in the context of international developments. The second reason was to report on the expansion of standards and labelling programs around the world in response to signals about the cost effectiveness of such energy efficiency measures by expert groups like the International Energy Agency and civil society groups like the Collaborative on Labelling and Standards Programs (CLASP). This report contains substantial analysis of the number of measures and trends not provided in earlier analysis.

Label Context

In Australia and New Zealand, energy labels are found on more than 7 million appliances sold each year in both countries. Past research confirms the Australian and New Zealand label is well recognised and trusted by most of the public, but not everyone knows how to use all the information on the energy label.

Some consumers do not know how much they are paying for electricity or understand the information on energy bills and so find it difficult to make the link between star ratings, kilowatt-hours and the running costs of an appliance. It is timely to consider developments from overseas or in other labelling schemes managed locally to explore if these shortcomings can be overcome.

The label was originally designed to be displayed on the appliance in a showroom or on the shop-floor for consumers to consider during the purchase process. The rise in popularity of on-line retailing, however, has changed the way some consumers research products before deciding how and where to buy: many consumers no longer see the physical label in-store. In response to these consumer trends and other labelling developments, the Equipment Energy Efficiency Program has embarked on a wide-ranging review of the labels used in Australia and New Zealand. This includes:

- The independent review of the current label content;
- Consideration of a climatic-zone label for climate sensitive products;
- The interface with smart phone technology and mobile applications;
- The development of "Labelling Principles" to better establish the case for labelling interventions;
- Consideration of mandatory disclosure of the label content in advertising.

The current labelling review in Australia and New Zealand coincides with a number of other projects currently occurring across the world, including a review of the European Union Energy Rating Label (and associated EcoDesign Directives) and the on-going efforts at improving the ENERGY STAR® Program. This report should inform both the local and international reviews about labelling developments in regions other than their own.

Standards Measures Context

With a policy direction of matching world-best regulatory practice as the goal for standard-setting, the Australian and New Zealand Standards & Labelling program monitors developments in this field around the world. This monitoring usually occurs at the time market intervention options are being formulated but, leveraging off the global label review, an opportunity has been created to review the imposition of mandatory, voluntary and potential standards within S&L programs around the world as at 2013.

A literature search establishes there are few global sources for reporting on energy performance standards measures used around the world. The 2004 consultant's report also provides a unique reference point to track what has occurred over the last decade in this field. This report is presented as the third in a series that permits interested persons to explore what is happening using a number of different filters in which to present information on energy performance standard measures in a global context.

SYNOPSIS

Many expert and international bodies encourage governments to undertake standards and labelling measures because they are amongst the most cost-effective market interventions available to government. This report documents the global prevalence of energy performance standards and energy efficiency labels by country in 2013.

This report quantifies how common place energy performance standards and efficiency labelling have now become around the world. It also records trends over the past decade to show the proliferation of both numbers of national programs as well as the expansion of individual product measures. In addition to the aggregate data, this report provides synopsis information about each country program captured as well as examples of the actual labels used within those country programs.

KEY FINDINGS

National Standards & Labelling (S&L) programs (comprising the linked policies of energy performance standards and energy efficiency labelling in two formats) have become commonplace around the world.

The key findings of this 2013 report are set out below.

The number of countries with a standards and labelling program has grown to **81 countries** (from 50 in 2004).

The number of different products subject to mandatory energy performance standard measures is **55 product types** (from 42 in 2004).

The number of all types of Standards & Labelling measures in different countries around the world (where measures are energy performance standards or some form of efficiency labelling) have almost trebled to **3604 measures** in 2013 (from 1220 measures in 2004) comprising:

- The number of energy performance standard measures used (or proposed) for all categories have increased by more than a factor of three to **1453 measures** (from 431 measures).
- Comparative labels used (or proposed) for all product categories have more than trebled to **1149 measures** (from 354 measures). Comparative labels have now overtaken endorsement labelling in absolute numbers, with a strong tendency for these to be mandatory (now more than 80%).
- Endorsement labels used (or proposed) for all product categories have also more than doubled **to 1002** measures (from 435 measures), with more than 95% of all endorsement labels remaining voluntary and applicable to or targeted at the most energy efficient of products.

The most commonly regulated product types are:

- Refrigerators (75 countries with 185 separate measures).
- Room air conditioners (73 countries with 152 measures).
- Lamps or ballasts (67 countries with lamps alone, accounting for some 358 separate measures across all lamps types).
- Televisions (47 countries with 135 measures, most of which are now mandatory from a base of just 21 countries with 41 voluntary measures in 2004).

The countries with the most active national programs are:

- China with 100 measures.
- USA with 86 measures.
- Korea with 78 measures.
- All EU countries with 77 measures.

Product Trends

The top three product types covered in national programs remains constant but the absolute number of measures has expanded significantly. In 2004, **refrigerators** were the most commonly covered product, with some 45 countries managing some 95 separate measures. In 2013, refrigerators expanded to 75 countries with 185 separate measures. **Room air conditioners** remain the second most commonly covered product in 2004 and 2013, with the country count increasing from 37 to 73 and the number measures increasing from 81 to 152. In 2004, around 30 countries covered various **lamps** or ballasts; this increased to almost 67 countries in 2013 with lamps alone accounting for some 149 separate measures.

There has also been a shift in the type of products commonly regulated. In 2013 **televisions** are covered by some 47 countries with 135 separate measures (most of which were mandatory), from a base of just 21 countries in 2004 and 41 measures (where virtually all were voluntary). The coverage of **water heaters** also grew from 12 countries with mandatory measures to some 44 countries with mandatory measures in 2013.

While **electronic products** are now covered by a substantial number of countries, the most common measures tend to be voluntary endorsement labels, although recently products like external power supplies, computers, set top boxes and other audio/video equipment have started to be covered by mandatory energy performance standards. The number of mandatory energy performance standard measures for electronic products increased from 9 in 2004 to 347 in 2013.

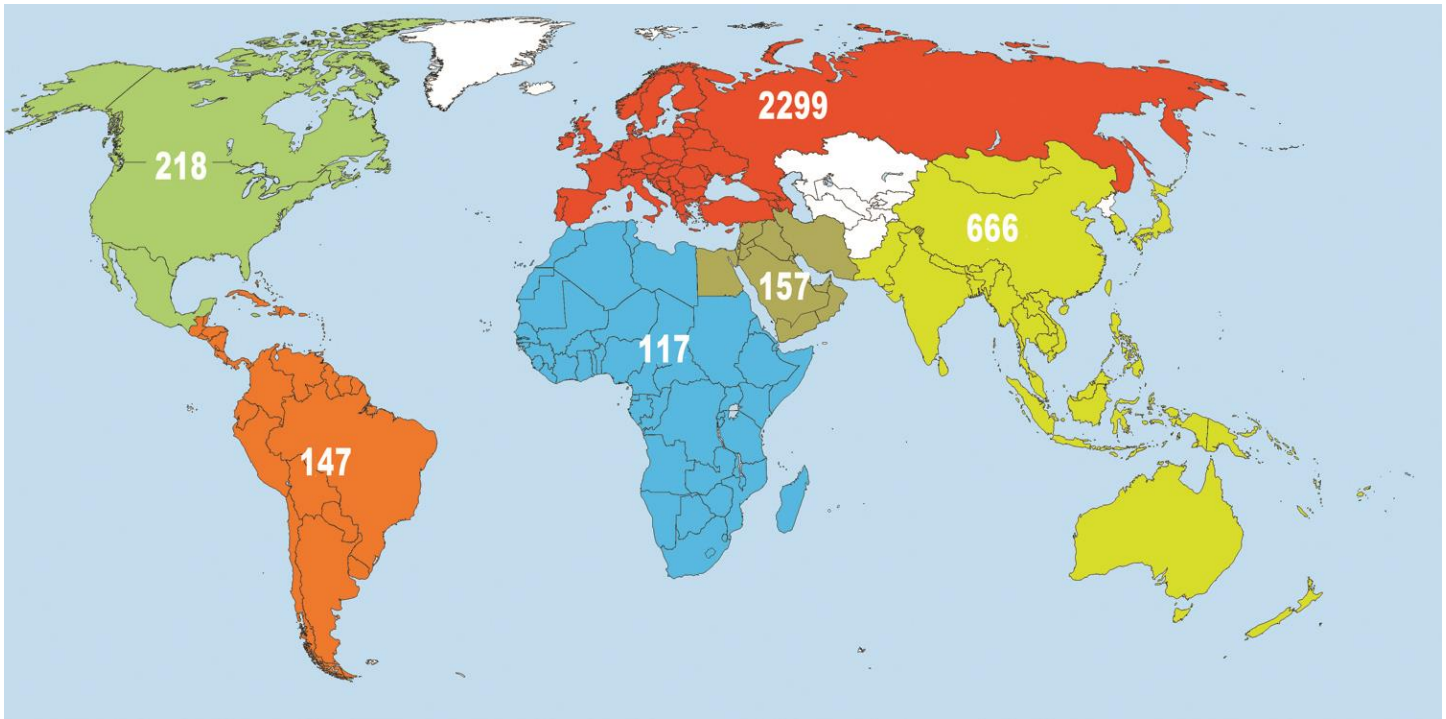
Regional and Country Data

At a regional level, the European region now has the largest number of individual country measures for energy performance standards, comparative labels and endorsement labels. The number of measures by measure type is shown for each of the geographical regions used in this report. Note that the number of countries (and hence measures) in each region varies substantially (from 4 in North America to 35 in Europe).

Summary of Measures by Measure Type and Geographical Region, 2013

Selected Countries	Energy Performance Standards	Comparative Labels	Endorsement Labels	Total Measures
Europe	939	652	708	2299
Asia Pacific	243	228	195	666
North America	92	44	82	218
Central/South America	43	88	16	147
Middle East	79	78	0	157
Africa	57	59	1	117
Total	1453	1149	1002	3604

Measures by Geographical Region, 2013



In 2004, the individual countries with the largest number of individual measures were Canada and the USA. Asian countries now boast the largest set of individual energy efficiency measures across all product types leading in all three types of measures for individual countries in 2013:

- Energy performance standards – China (38)
- Comparative labelling – Korea (26)
- Endorsement labelling – China (40).

Across all measure types, China now has 100 measures in place. The number of measures by measure type for selected countries in 2013 is shown in the following table. This illustrates that the mix of measures within country programs varies considerably, depending on local circumstances and policy drivers.

Summary of Measures by Measure Type for Selected Countries, 2013

Selected Countries	Energy Performance Standards	Comparative Labels	Endorsement Labels	Total Measures
China	38	22	40	100
USA	32	17	37	86
Korea	26	26	26	78
Europe (common measures for all EU countries)	32	20	24	76
Canada	26	13	26	65

This data suggests a re-balancing of the global energy policy development role from its origins in North America and Europe to become more evenly balanced across the economic power house regions of the globe in 2013. For comparative purposes, Australia has 51 measures and New Zealand has 54 measures across all three measure types in 2013*.

Summary of Key Trends

The following points summarise the key quantitative data documented in this report:

- The number of Energy Performance Standard measures in force or proposed in all regions increased by more than threefold to 1453 in 2013.

* While Australia and New Zealand have effectively harmonised requirements for most products, New Zealand is more active in endorsement labelling while Australia has some labelling measures that are not yet adopted in New Zealand.

- The number of product types covered and the number of measures were similar in 2004 for Endorsement and Comparative Labels. In contrast, Comparative Labels were more common in every product category, except for electronics, in 2013.
- There appears to be a shift from voluntary to mandatory Comparative Labelling measures, with large numbers of mandatory measures for all product categories.
- The number of Comparative Labelling measures has increased for all regions, with the exception of North America (which already had broad coverage in 2004).

Summary Table – International Energy Performance Standards Measures by Country†, 2013

Product	Albania	Argentina	Australia	Bangladesh	Bolivia	Brazil	Canada	Chile	China	Costa Rica	Egypt	European Union	Ghana	India	Indonesia	Iran	Israel	Japan	Jordan	Kenya	Korea	Lebanon	Malaysia	Mexico	Namibia	New Zealand	Nigeria	Pacific Islands	Pakistan	Peru	Philippines	Russia	Kingdom of Saudi Arabia	Singapore	South Africa	Sri Lanka	Chinese Taipei	Thailand	Tunisia	Turkey	United Arab Emirates	USA	USA - California	Vietnam
Air Compressors									M							M																											
Air Conditioners - Central and/or 3 Phase			M				M		M			P				M	M				M			M		M	P					V	M		P						P		M	M	
Air Conditioners - Room	M	M	M	P	P	M	M		M	M	M	M	M	V	P	M	M	V	P	P	M		P	M	P	M	P	P	P		M	V	M	M	P	M	M	P	M	P	M		M		P
Air Conditioners - Split System	M	M	M		P		M		M			M						V		P	M	V	P	M	P	M		P			M	V	M				M			P		M		
ACs, Single-packaged central & heat pumps			M				M		M			M						V	P					M		M															P		M		
Audio Equipment									M			M																				V			P								M	
Ballasts			M	V			M		M	M		M			P	M			P	P	M		M			M			P						P		M	M		M		M		V
Boilers							M		M			M				M					M			M						M							M			P		M	M	
Chillers			M						M					P	M	M	P									M											M					M		
Clothes Dryers							M					M					M																P	P							M		
Clothes Washers	M	M		P	P		M		M		M	M				M	M		P		M		P	M	P					P				P				M		M		P
Combination Washer Dryers							M																																				
Computers			M						M			M					V									M					V												
Cooktops/hobs				P		M			M							M		V			M			M	P																		
Copiers									M			V				M		V														V											P
Dehumidifiers							M														M															M					M		
Dishwashers							M					M				M	M		P		M										V			P						M		
External Power Supplies			M						M			M					V		P		M					M														M	M	
Fans - All Types				M			M		M			M		P	P	M	M		P				M						P							M				P		M		P
Fax Machines									M																																		
Freezers		M	M			M	M			M	M	M	M			M	M	V	P		M				P	M	P	M		M		V			P				M	M		M	M	
Furnaces							M									M														M											M	M	
Heat Pumps							M		M									V								P																M		
Heaters - Gas Central																		V																									
Heaters - Space												M				M	M	V			M																				M	M	
Heaters - Vented Gas Fireplaces																																										M		
Irons				P					M							M																												
Lamps					P	M	M		M	M		M		V			M	V	P	P				M	P	M	P	P			M				P		M	M	M		M		M		M
Lamps - Compact Fluorescent			M	P		M	M	P	M			M	M	M	M	M			P	P	M	V		M		M	P		V		M			P	P		M	V		M		M		V
Lamps - Incandescent			M			M	M	P					M			M			P		M		M	M								M		P	P		M		M	M	M	M	M
Lamps - Transformers			M																																								
Lighting Systems									M			M			M									M		M									M					M	M	M	M	
Microwaves				P					M									V																								M		
Monitors			M						M										P							M					V			P									P
Motors					P		M	P	M	M		M				M								M				P								M				M			
Motors - 3 Phase		P	M	P		M		M	M		M				P	M	M		P	P	M		V	M		M			M						P	M	V		M		M		P
Multifunction Devices												V				M		V																	P									
Printers									M									V														V												
Pumps									M			M		P		M					M			M																M				
Pumps - Swimming Pool			V																						P																		
Ranges/Ovens						M	M		M	M		P					M	V						M	P						V				P						M		
Refrigerators - Commercial			M				M		M			P			P	M		V		P	M			M		M															M	M	P
Refrigerators and Refrigerator/Freezers	M	M	M	M	P	M	M	M	M	M	M	M	M	V	M	M	M	V	P	P	M	V	P	M	P	M	P	M	P	M		V		M	P	P	M	M	M	M		M		P
Rice Cookers				P					M						P			V			M																						P
Scanners																																V												P
Set Top Boxes			M						M			M					M		P							M										P						V		P
Solar Water Heaters	M	M			P				M								M		P			V													P								M
Standby Power			M				M					M					M	V	P		V														P					M		M	M	
Televisions - CRT			M	P					M			M			P			V	P		M		P		P	M					P	V			P					M		M	M	
Televisions - Flatscreen			M	P					M			M			P			V	P		M		P		P	M					P	V			P					M		M	M	
Transformers			M				M		M		M			V		M	M	V			M			M		M																M			P
Vacuum Cleaners												M				M					M																							
VCRs and DVD Players												P						V																		P							M	
Water Chillers and Dispensers							M		P												M																							
Water Heaters - All Types			M			M	M		M	M	M	M				M	M	V			M			M	P	M				M		V					M					M	M	M

M = Mandatory V = Voluntary P = Proposed

† For this summary table the EU block is shown as 1 entry; in later analysis all 28 European countries have been included.

Summary Table – International Comparative Label Measure by Country‡, 2013

Product	Albania	Algeria	Argentina	Australia	Bangladesh	Bolivia	Brazil	Brunei Darussalam	Canada	Chile	China	Colombia	Costa Rica	Egypt	European Union	Ghana	Hong Kong (China)	India	Indonesia	Iran	Israel	Jamaica	Japan	Jordan	Kenya	Korea	Lebanon	Malaysia	Mexico	Namibia	New Zealand	Nigeria	Pacific Islands	Pakistan	Peru	Philippines	Russia	Kingdom of Saudi Arabia	Singapore	South Africa	Sri Lanka	Switzerland	Chinese Taipei	Thailand	Tunisia	Turkey	Ukraine	United Arab Emirates	Uruguay	USA	Vietnam
Air Compressors											M																																							
Air Conditioners - Central and/or 3 Phase				V						P	M				M						M					M			M		M														P		M	
Air Conditioners - Room	M	M	M	M	P	P	M	P	M	M	M	M	M	M	M	M	M	M	V	M	M		M	P	P	M		V	M	P	M	P	P	P		M	V	M	M	P	P		M	V	M	M	M	M	M
Air Conditioners - Split System	M	M	M	M		P		P	M		M	M			M		M									M			M	P	M		P			M	P	M						V		M	M			M
ACs, Single-packaged central & heat pumps				M					V	P					M																															M				
Audio Equipment																																							P											
Ballasts					M		M			M		M	M				V	V	P	M						M			M					P		M			P	V			V				M	M	
Boilers																				M	M					M									P													M	
Chillers																				M																											P			
Clothes Dryers	P			M			M		M						M		V				M			P				P		M								M	P				M	M	P			
Clothes Washers	P	P	M	M	P	P	M		M	P	M	V		M	M		M	V	P	M	M			M		M		P	M	P	M					P	P	M		P				P	M	M	M		M	M
Coffee Machines																																										V									
Combination Washer Dryers	P			M					M						M									P													V		P					M	M				
Computers							M			P							V	M					V														V													
Cooktops/hobs					P		M			P	M	V					V						V			M			P	P						V					M								
Copiers						P				P	M						V			M																V												V	
Dehumidifiers																	M									M																M								
Dishwashers	P			M					M						M						M			P		M		P		M						V		P					M	M			M	
External Power Supplies																					V					M																						P	
Fans - All Types					M		M				M							V	P	M	M					M		V						P								V					M	M
Fax Machines											M						V																			V													
Freezers	M	M	M	M			M		M			M	M	M	M	M				M	M	M	V	P		M		V		P	M	P	M		P	M	P	M		P	P			M	M	M	P		M	
Furnaces									V						M					M	M														P												M	
Heat Pumps									V																	M														P								M	
Heaters - Gas Central				V																																													
Heaters - Space				V											M					M	M		V			M										V													
Heaters - Vented Gas Fireplaces									V																																								
Irons					P														P	M																													
Lamps	P	M				P	M	P		M	M	M	M		M		V	M	M	M	V		M	P					M	P		P	P			V			P			V		M	M	P		M	M
Lamps - Compact Fluorescent			M		V		M							V	M	M	M	V	M	M	V			P	P	M	P				P		P	P	M	P		P	M		M	V	P	M		P	M	M	M
Lamps - Incandescent			M				M								M											M								P		V		P					M		P			
Lighting Systems														P	M									P											M			P					M					
Microwaves					P		M			P	M												V					P								V													
Monitors				M						P	M						V							P												V												V	
Motors	M									M	M	M	M							M														P										P				
Motors - 3 Phase					P		M			M								V	P	M	M				P	M									P													M
Multifunction Devices	M					P				P							V			M																V			P								V
Printers	M					P				P	M						V																			V												
Pumps							M											V		M									M															P				
Pumps - Swimming Pool				V																										P																			
Ranges/Ovens	P						M		M				M		M						M		V	P					P	P						V		P					M	M				
Refrigerators - Commercial											M	V														M			M																			P
Refrigerators and Refrigerator/Freezers	M	M	M	M	M	P	M		M	M	M	M	M	M	M	M	M	V	M	M	M	M	P	P	M	P	M	P	M	P	M	P	P	M	P	M	M	V	P		M	V	M	M	M	P	M	M	M
Rice Cookers					P						M						V		P				V			M		P															V					M
Scanners																																					V												V
Set Top Boxes										P								P																															M
Solar Water Heaters		P				P	M				M										M																		P										
Standby Power										M																																		V						
Televisions - CRT				M	P		M			P					M		V	V	P				M	P		M		V		P	M				P	V		P	P				M			M		
Televisions - Flatscreen				M	P		M			P	M				M		V	V	P				M	P		M		V		P	M				P	V		P	P				M			M		
Transformers											M							M			V		V			M																						M
Vacuum Cleaners															M					M						M																							
VCRs and DVD Players																							V																	P									
Water Chillers and Dispensers											M						V									M																							
Water Heaters - All Types			P	V			M			P	M	V	M		M		V	V		M	M					M			M	P				P		V			P			M	V				M	M	

‡ For this summary table the EU block is shown as 1 entry; in later analysis all 28 European countries have been included.

M = Mandatory V = Voluntary P = Proposed

Summary Table – International Endorsement Label Measure by Country[§], 2013

Type of Label	Argentina	Australia	Brazil	Canada	China	European Union	India	Japan	Korea	Malaysia	Mexico	Myanmar	New Zealand	Norway	Philippines	Russia	Singapore	South Africa	Chinese Taipei	Thailand	Turkey	USA	Vietnam
Air Compressors											V												
Air Conditioners - Central and/or 3 Phase					V						V		V							V	P	V	
Air Conditioners - Room			M	V	V				V	V	V		V						V	V	P	V	P
Air Conditioners - Split System				V	V				V				V						V	V	P	V	
ACs, Single-packaged central & heat pumps					V																	P	
Audio Equipment		V		V					M					M					V			V	
Ballasts			M	V	V	V			V		V									V		V	V
Boilers						V	P		V												P	V	
Chillers					V				V														
Clothes Dryers				V		V							V						V			P	
Clothes Washers			M	V	V	V			V		V		V	M	P				V	V		V	P
Coffee Machines						V											V						
Combination Washer Dryers				V																		P	
Computers		V		V	V	V	V	V	M				V	M					V	V	P	V	
Cooktops/hobs			M		V		V												V				
Copiers		V		V	V	V	P	V	M					M					V	V	P	V	P
Dehumidifiers																			V			V	
Dishwashers				V		V							V	M			V		V			V	
External Power Supplies					V																	V	
Fans - All Types			M		V				V	V									V			V	P
Fax Machines		V		V	V	V			M				V	M					V			V	
Freezers			M	V	V	V							V	M		V			V			V	
Furnaces						V	P														P	V	
Heat Pumps						V								M								V	
Heaters - Gas Central						V																	
Heaters - Space					V	V							V										
Heaters - Vented Gas Fireplaces						V																	
Irons					V																		
Lamps			M	V	V	V	V	V	V		V		V		P				V	V	P	V	P
Lamps - Compact Fluorescent	V			V	V	V					V	V						M	V	V	P	V	V
Lamps - Incandescent				V								V									P		
Lighting Systems					V				V		V				M						P		
Microwaves					V				M										V	V			
Monitors		V		V	V	V			M				V	M					V	V		V	P
Motors				V	V		V		V		V					V							
Motors - 3 Phase			M		V															V			P
Multifunction Devices		V		V	V	V	P	V	M				V						V		P	V	P
Printers		V		V	V	V		V	M				V	M					V	V		V	
Pumps			M		V				V		V												
Pumps - Swimming Pool																							
Ranges/Ovens			M		V		V												V			V	
Refrigerators - Commercial					V				V		V											V	P
Refrigerators and Refrigerator/Freezers			M	V	V	V	V			V	V		V	M		V	V		V	V		V	P
Rice Cookers					V														V				P
Scanners				V	V				M				V						V		P	V	P
Set Top Boxes		V		V	V				M		V											V	P
Solar Water Heaters					V								V						V				
Standby Power																			V			V	
Televisions - CRT		V	M	V	V	V	V	V	M	V	V			M	P		V		V	V	P	V	
Televisions - Flatscreen		V	M	V	V	V	V	V	M	V	V			M	P		V		V	V	P	V	
Transformers			M		V				V		V											V	P
Vacuum Cleaners					V																		
VCRs and DVD Players		V		V	V	V		V	M		V			M					V	V		V	
Water Chillers and Dispensers					V						V								V			V	
Water Heaters - All Types			M	V	V	V	V				V								V			P	

M = Mandatory V = Voluntary P = Proposed

§ For this summary table the EU block is shown as 1 entry; in later analysis all 28 European countries have been included.

QUANTITATIVE RESULTS

Analysis of Energy Performance Standards in 2004 and 2013

The following tables compare key data for Energy Performance Standard measures that were present in 2004 with those present in 2013.

Product Type Comparison Table – Energy Performance Standards Measures, 2004 and 2013

Category	Product Types	Country Count	Total Measures (Product by Country)	Mandatory Measures	Voluntary Measures	Proposed Measures
Large Appliances 2004	9	33	116	78	34	4
Large Appliances 2013	12	69	326	251	12	63
Change between 2004 and 2013	+3 (33%)	+36 (109%)	+210 (181%)	+173 (222%)	-22 (-65%)	+59 (1475%)
Space Conditioning 2004	13	36	101	75	18	8
Space Conditioning 2013	13	70	336	261	11	64
Change between 2004 and 2013	0	+34 (94%)	+235 (233%)	+186 (248%)	-7 (-39%)	+56 (700%)
Electronics 2004	12	22	104	9	84	11
Electronics 2013	14	48	370	239	75	56
Change between 2004 and 2013	+2 (17%)	+26 (118%)	+266 (256%)	+230 (2556%)	-9 (-11%)	+45 (409%)
Lighting Equipment 2004	2	30	40	38	2	0
Lighting Equipment 2013	6	65	209	178	8	23
Change between 2004 and 2013	+4 (200%)	+35 (117%)	+169 (423%)	+140 (368%)	+6 (300%)	23
Commercial, Industrial and Miscellaneous 2004	7	31	70	33	33	4
Commercial, Industrial and Miscellaneous 2013	10	63	212	154	9	49
Change between 2004 and 2013	+3 (43%)	+32 (103%)	+142 (203%)	+121 (367%)	-24 (-73%)	+45 (1125%)
Total, All Product Types 2004	43	38	431	233	171	27
Total, All Product Types 2013	55	72	1453	1083	115	255
Change between 2004 and 2013	+12 (28%)	+34 (89%)	+1022 (237%)	+850 (365%)	-56 (-33%)	+228 (844%)

This comparison table reports totals and percentage increases for product categories subject to Energy Performance Standards in 2004 and 2013. The main conclusions from this data are:

- With the exception of space conditioning equipment (which has remained stable), the number of product types covered by Energy Performance Standard measures within each product category has increased significantly;
- For all categories of equipment, there was a substantial increase in the number of countries with Energy Performance Standard measures;
- For all product categories and measure types, the numbers of Energy Performance Standards measures around the world has increased;
- The increase in measures occurred fairly evenly across all product categories, but in relative terms the increase was smaller for product types have been more commonly covered in the past (large appliances and space conditioning) and larger for more recently covered products (like electronics and lighting):
    - Large Appliances: the number of product types covered increased by just 3, but there was a 181% increase in the total number of measures. This was due to increases in the number of mandatory measures (+173, 222% increase) and proposed measures (+59, 1475% increase). Voluntary measures decreased by 65% (-22). There was a 109% increase (+36) in the number of countries implementing Energy Performance Standard measures for large appliances in 2013 compared to 2004;
    - Space Conditioning Equipment: the number of product types covered remained the same, but the total number of measures increased by 233%, with this growth occurring mainly in mandatory measures (+186, 248% increase) and proposed measures (+56, 700% increase). Voluntary measures decreased by 39%. There was a 94% increase (+34) in the number of countries implementing Energy Performance Standard measures for space conditioning equipment in 2013 compared to 2004;
    - Electronic Products: the number of product types covered increased by 2, with a 256% increase in the total number of measures. This was primarily due to increases in mandatory measures (+230, 2556%), with voluntary measures decreasing by 11% (-9). There was a 114% increase (+25) in the number of countries implementing Energy Performance Standard measures for electronic products in 2013 compared to 2004;
    - Lighting Equipment: the number of product types covered increased from 2 to 6, and the total number of measures increased by 423%, mainly through mandatory measures (+140, 368% increase). There was a 120% increase (+37) in the number of countries implementing Energy Performance Standards measures for lighting equipment in 2013 compared to 2004;
    - Commercial, Industrial and Miscellaneous Equipment: the number of product types covered increased by 3, and the total number of measures increased by 203%, again mainly through mandatory measures (+121, 367% increase), with voluntary measures decreasing by 75% (-24). There was a 103% increase (+32) in the number of countries implementing Energy Performance Standard measures for commercial, industrial and miscellaneous equipment in 2013 compared to 2004.

Overall, coverage of product types by Energy Performance Standards around the world increased by 28% fairly evenly through all product categories. There was a 237% increase in the total number of Energy Performance Standard measures (1022 more measures in 2013 compared to 2004), with this mainly driven by a 365% increase in mandatory measures (850 more measures in 2013 compared to 2004). Conversely,

voluntary measures decreased by one third (-56). There was a 89% increase (+34) in the number of countries implementing Energy Performance Standard measures in 2013 compared to 2004.

KEY FINDING – the number of Energy Performance Standard measures in force or proposed in all regions increased to 1453 in 2013.

Geographic Comparison Table – Energy Performance Standards Measures by Region, 2004 and 2013

Region	Total Measures (Product by Country)	Mandatory Measures	Voluntary Measures	Proposed Measures
Europe 2004	223	73	150	0
Europe 2013	939	749	72	118
Change between 2004 and 2013	+716 (321%)	+676 (926%)	-78 (-52%)	118
Asia Pacific 2004	104	66	19	19
Asia Pacific 2013	243	147	37	59
Change between 2004 and 2013	+139 (134%)	+81 (123%)	+18 (95%)	+40 (211%)
North America 2004	57	55	2	0
North America 2013	92	91	1	0
Change between 2004 and 2013	+35 (61%)	+36 (65%)	-1 (-50%)	0
Central/South America 2004	30	25	0	5
Central/South America 2013	43	32	0	11
Change between 2004 and 2013	+13 (43%)	+7 (28%)	0	+6 (120%)
Middle East 2004	13	12	0	1
Middle East 2013	79	54	5	20
Change between 2004 and 2013	+66 (508%)	+42 (350%)	5	+19 (1900%)
Africa 2004	4	2	0	2
Africa 2013	57	8	0	45
Change between 2004 and 2013	+53 (1325%)	+6 (400%)	0	+43 (2250%)

The data shows increases in measures in all regions around the world between 2004 and 2013.

- Europe: the total number of measures covered in this region increased by over 320% (+716), with this growth occurring mainly in mandatory measures (+676, 926% increase). Voluntary measures decreased by 52% (-78);

- Asia Pacific: the total number of measures covered in this region increased by over 134% (+139), with this growth occurring mainly in mandatory measures (+81, 123% increase);
- North America: the total number of measures covered in this region increased by 61% (+35), with this growth occurring mainly in mandatory measures (+36, 65% increase);
- Central/South America: the total number of measures covered in this region increased by over 43% (+13), with this growth occurring mainly in mandatory measures (+7, 28% increase);
- Middle East: the total number of measures covered in this region increased by 508% (+66), with this growth occurring in mandatory measures (+42, 350% increase) and proposed measures (+19, 1900% increase);
- Africa: the total number of measures covered in this region increased by 1325% (+53), with this growth occurring mainly in proposed measures (+43, 2250% increase).

Analysis of Comparative versus Endorsement Labelling Measures in 2004 and 2013

Comparative and Endorsement Labelling measures are used across all product types. Although they commonly co-exist, many specific products may only be covered by only one of these label types in particular countries.

Product Type Comparison Table – Labelling Programs, 2004 and 2013

Category	Comparative Labelling Product Types	Endorsement Labelling Product Types	Comparative Labelling Country Count	Endorsement Labelling Country Count	Comparative Labelling Total Measures (Product by Country)	Endorsement Labelling Total Measures (Product by Country)
Large Appliances 2004	8	9	43	29	194	107
Large Appliances 2013	13	13	77	44	418	207
Space Conditioning 2004	11	11	37	12	97	37
Space Conditioning 2013	13	13	74	42	290	218
Electronics 2004	3	10	3	29	5	240
Electronics 2013	14	14	52	46	145	382
Lighting Equipment 2004	2	2	30	26	39	31
Lighting Equipment 2013	5	5	69	45	200	125
Commercial, Industrial and Miscellaneous 2004	6	7	10	10	19	20
Commercial, Industrial and Miscellaneous 2013	10	10	59	40	96	68
Total, All Product Types 2004	30	39	44	31	354	435
Total, All Product Types 2013	55	55	78	50	1149	1000

The comparison table above outlines the differences between Comparative and Endorsement Labelling

measures for major product categories in 2004 and 2013.

- The number of product types covered by both schemes increased significantly from 2004 to 2013 for all product categories.
- The number of measures for Comparative Labels and Endorsement Labels increased significantly from 2004 to 2013 for all product categories, with growth in Comparative Labels being significantly stronger overall;
- More countries use Comparative Labels compared to Endorsement Labels for the same product types (except for Electronics in 2004);
- The total number of measures was generally similar or larger for Comparative Labels compared to Endorsement Labels for both study years in each product category, except for Electronics, which had substantially more Endorsement Labels in both 2004 and 2013;

Overall, there were slightly more product types covered by Endorsement Labelling than for Comparative Labelling in 2004, while in 2013 the number was the same. Similarly, in 2004 there were more measures for Endorsement Labels compared to Comparative Labels, although in 2013 there were more Comparative Labelling measures.

More in depth analysis of energy labelling by product type is provided in Annex E.

KEY FINDING – the number of product types covered and the number of measures were similar in 2004 for Endorsement and Comparative Labels. In contrast, Comparative Labels were more common in every product category, except for electronics, in 2013.

Analysis of Operation for All Measure Types in 2004 and 2013

The following table provides an overview of the combined number of measures for all three measure types (Energy Performance Standards, comparative labels and endorsement labels) by their mode of operation (mandatory, voluntary or proposed).

Comparison Table – All Program Measures, 2004 and 2013

Category	Product Types	Country Count	Total Measures (Product by Country)	Mandatory Measures	Voluntary Measures	Proposed Measures
Large Appliances 2004	10	43	417	249	153	15
Large Appliances 2013	13	76	951	598	225	128
Change between 2004 and 2013	+3 (30%)	+33 (77%)	+534 (128%)	+349 (140%)	+72 (47%)	+113 (753%)
Space Conditioning 2004	15	41	235	143	78	14
Space Conditioning 2013	13	74	844	510	233	101
Change between 2004 and 2013	-2 (-13%)	+33 (80%)	+609 (259%)	+367 (257%)	+155 (199%)	+87 (621%)
Electronics 2004	14	29	349	9	327	13
Electronics 2013	14	55	897	347	448	102
Change between 2004 and 2013	0	+29 (90%)	+548 (157%)	+338 (3756%)	+121 (37%)	+89 (685%)
Lighting Equipment 2004	2	38	110	69	38	3
Lighting Equipment 2013	6	74	534	340	137	57
Change between 2004 and 2013	+4 (200%)	+38 (95%)	+424 (385%)	+271 (393%)	+99 (261%)	+54 (1800%)
Commercial, Industrial and Miscellaneous 2004	8	33	109	47	58	4
Commercial, Industrial and Miscellaneous 2013	10	65	376	224	82	70
Change between 2004 and 2013	+2 (25%)	+32 (97%)	+267 (245%)	+177 (377%)	+24 (41%)	+66 (1650%)
Total, All Product Types 2004	49	47	1220	517	654	49
Total, All Product Types 2013	56	78	3604	2019	1125	458
Change between 2004 and 2013	+7 (14%)	+31 (66%)	+2384 (195%)	+1502 (291%)	+471 (72%)	+409 (835%)

The comparison table above outlines the totals and differences for all standards and labelling measures for major product categories in 2004 and 2013. For all product categories and measure types, the numbers of S&L measures around the world were found to have increased in 2013 compared to 2004 (total product type coverage increased by 14%, +7).

- Large Appliances: the number of product types covered increased by 3 (30% increase), and there was almost a 130% increase in the total number of standards and labelling measures. This was due to increases in mandatory measures (+349, 140% increase). There was over a 77% increase (+33) in the number of countries implementing measures for large appliances in 2013 compared to 2004;
- Space Conditioning Equipment: the number of product types covered decreased slightly, but the total number of standards and labelling measures increased by over 250%, with this growth occurring mainly in mandatory measures (+367, 257% increase). There was a 80% increase (+33) in the number of countries implementing measures for space conditioning equipment in 2013 compared to 2004;
- Electronic Products: the number of product types covered remained the same, with over a 150% increase in the total number of standards and labelling measures (increase of 548). This was due to increases in mandatory measures (+338, 3756% increase). There was a 90% increase (+29) in the number of countries implementing measures for electronic products in 2013 compared to 2004;
- Lighting Equipment: the number of product types covered increased from 2 to 6, and the total number of standards and labelling measures increased by more than 380%, again mainly through mandatory measures (+271, 393% increase). There was a 95% increase (+38) in the number of countries implementing measures for lighting equipment in 2013 compared to 2004;
- Commercial, Industrial and Miscellaneous Equipment: the number of product types covered increased by 2 and the total number of standards and labelling measures increased by almost 250%, mainly through mandatory measures (+177, 377% increase). There was almost a 100% increase (+32) in the number of countries implementing measures for commercial, industrial and miscellaneous equipment in 2013 compared to 2004.

The overall coverage of product types by standards and labelling measures around the world increased by almost 15% between the years 2004 and 2013. There was almost a 200% increase in the total number of standards and labelling measures (2384 more measures in 2013 compared to 2004), with this driven by increases in all measures types, although predominately mandatory measures. There was over a 66% increase (+31) in the number of countries implementing standards and labelling measures in 2013 compared to 2004.

At a country level, it was found that the numbers of implemented standards and labelling measures per country increased from 2004 to 2013. This was individually true for each of the three measure types examined.

In 2004, the three countries with the highest total number of measures were:

- Canada – 68 measures
- USA – 67 measures
- Australia – 65 measures

This is contrasted in 2013 by the three countries with the highest total number of measures being:

- China – 100 measures
- USA – 86 measures
- Korea – 78 measures
- European Union Countries – 77 measures (each country in the EU is estimated to be subject to 68 measures)

As can be seen, even for single countries, the trend of increasing numbers of implemented measures is obvious. Overall, at a regional level there is still a lot of activity in North America, but Asia and Europe are now also substantial centres of S&L activity around the world.

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METHODOLOGY AND ANALYSIS

This report has been compiled from a wide set of disparate data sources. In order to analyse these data, the authors have used a system of broad classifications to provide more in-depth insights for policy makers and other interested parties. This allows the data to be compiled in a digestible form, facilitating analysis and insight into trends and developments. The classification and organisation system for the data can be characterised into 4 areas:

- How are measures counted: within country programs and/or across product types and groupings?
- How measures are divided by type: energy performance standards, comparative labels and endorsement labels?
- How measures are classified on operational grounds: mandatory, voluntary or proposed?
- How measures are divided by regions: to provide better insights into geographic activity.

Programs and Measures

For this report, the term program is used as a general descriptor of a national country S&L scheme. A national program comprises of at least one measure and in most cases there are a large number of measures within a nation's borders.

The term "measure" is a count of any energy performance standard and/or any efficiency label (endorsement or comparative) for a specific product type that operates within a country S&L program or coming within a collective of product-specific activities. The term measure is applied to each specific product type within each country. Different measure types for same product type are separately counted (e.g. a unique energy performance standard, an endorsement label and a comparative label for the one product type are counted as three measures).

The 55 different product types have been aggregated into 5 broader product categories:

- Large Appliances (including whitegoods)
- Space Conditioning
- Electronics (including computers and home entertainment)
- Lighting Equipment
- Commercial, Industrial and Miscellaneous

A breakdown of product types into the categories above is provided in Annex D.

If a country covers several product types within a product category, these are each identified as a

separate measure. For example, a country that covers say room air conditioners, split air conditioners, packaged central air conditioners, boilers and chillers would be classified as having 5 measures within the space conditioning category (even if some of these are covered by a single regulation or requirement). Similarly, if 4 countries each cover 5 product types within a particular product category (e.g. air conditioners), then this is reported as a total of 20 measures within that product category.

Measure Types

For this report, three types of measures have been identified and used for reporting results:

- **Energy performance standards**: where a benchmark of energy performance, energy consumption or energy efficiency is defined as a limit. Energy performance standards may underpin or be associated with various forms of energy labelling and may be mandatory or voluntary.
- **Comparative labels**: where information on energy and performance is shown on the energy label to allow purchasers to compare selected attributes during the purchase process. Comparative labels may be mandatory or voluntary, but mandatory is more common.
- **Endorsement labels**: labelling schemes which identify the most energy efficient models. Generally endorsement labelling schemes show little product specific information on energy and performance for each model. Endorsement labels may be mandatory or voluntary, but voluntary is more common.

Annexes A, B and C provide additional information about energy labelling programs in general, labelling objectives and common design elements used in energy labels. Note that this report does not attempt to assess the effectiveness or salience of energy label designs or program approaches – this has to be done within each country or region.

Measure Classification

For this report, three types of measure classification based on their operation have been identified and used for reporting:

- **Mandatory Measures**: mandatory measures implemented by countries generally involve legislation that includes a product registration process, a compliance regime and a penalty system if non-compliance is found. These measures attempt to improve the operation of the product market so that all suppliers are bound by the same rules;
- **Voluntary Measures**: voluntary measures implemented by countries take the form of industry agreements, which could be a precursor to a mandatory measure or because the product in question does not require mandatory market intervention;

- **Proposed Measures**: proposed measures reflect announcement by parties about their future intentions or schemes not yet imposed but are substantially advanced towards implementation. They are included in 2013 total numbers as a factual indicator of near-term intentions. These figures have been declared so that alternative analysis may also be conducted. Proposed measures may be voluntary or mandatory.

Regional Breakdown

Each country has been allocated into a geographic region to facilitate comparisons:

- Africa
- Asia - Pacific
- Central/South America
- Europe
- Middle East
- North America

These regions are arbitrary and not intended to reflect any sort of program division or comment on their impact. A list of countries allocated into regions for this report is provided in Annex D.

In simple terms, Africa is relatively undeveloped in terms of national S&L programs, North America and Europe have well established programs, while it is apparent that there is now rapid growth in the other regions.

In the following three product specific tables, countries that are members of the European Union (28 countries in 2013) are listed only under the EU and not individually. This of course (visually) under-emphasises the prevalence of European wide programs (such as energy labelling and Eco-Design, with centralised decision-making functions), because these measures apply to all 28 countries currently in the EU. In the more detailed analysis of measures by type and region, EU wide measures are separately counted in each EU country. European voluntary measures are counted only for the countries in which they operate (in some cases these are EU wide, in other cases they operate in a limited number of countries). In 2004, the EU comprised of 15 countries, which has been taken into account when calculating comparative data on the number of EU wide measures from that year.

The report also separately reports the state of California in the USA. This reporting is an attempt to reflect the influence this, and some other individual states in that country, have in encouraging the expansion of the national program to new product types. In some instances, California has been the leading economy driving standards developments on a global scale working with others in the Asia Pacific region, which is another reason for its inclusion.

Any regional or country based comparisons provided in this report need to be considered in a more qualitative context (in comparison to the other quantitative data in this report) because a regional type of comparison masks important issues like population impacts and economic influence.

Ongoing Developments

The information in this report was compiled from publicly available sources and last checked in October and November 2013. A number of programs and measures have no published material available and such programs may not be included in the report where it was not possible to obtain official documentation or confirmation of the program requirements. In some cases there was old and out of date information was still present on website and sometimes there were conflicts between different sources. As far as possible within the limited time frame and budget, information was checked and only current and up to date information was included.

As evidenced by the rapid change in S&L programs from 2004 to 2013, any report such as this can only provide information that is current at the time of research. During the past 9 years, the number of measures (product type by country) has increased from 1220 to 3604 in total, an increase of 2384 measures. Over this intervening period, this equates to more than 20 new measures a month, or more than one every working day. So the information in this report needs to be treated as a snapshot in time.

GENERAL REFERENCES

A list of websites and references pertaining specifically to each country is included in the overview of each country. A number of broad ranging documents and web sites covering information on energy labels and Energy Performance Standards as well as data covering multiple countries are listed below. National programs are always changing, so the information in this report will change in 2014. It is important to check primary data sources for the most up to date information.

The most recent version of this report can be downloaded from www.energyrating.gov.au from the electronic library.

The following general websites are of broad interest regarding this topic:

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency Programs in APEC Economies

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

http://www.coolproducts.eu/resources/documents/Comparison-Report/International-Equipment-Efficiency-Comparison-Report_FINAL.pdf - International Comparisons of Product Policy

http://www.aceee.org - American Council for an Energy-Efficient Economy (ACEEE)

http:/www.apec-esis.org - APEC Energy Standards Information Systems

http://www.clasponline.org - Collaborative Labelling and Appliance Standards Program (CLASP)

http://www.efficientlighting.net/ - Efficient Lighting Initiative (ELI)

http://www.globalecolabelling.net/- Global Eco Labelling Network

http://www.thegef.org - Global Environment Facility (GEF)

http://www.iea.org - International Energy Agency (IEA)

http://www.wec-policies.enerdata.eu/- World Energy Council – Energy Efficiency Policies and Measures

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REVIEW BY COUNTRY

This report provides a broad overview of S&L programs by examining each country, identifying the type of labelling used as well as the appliance and equipment types covered by energy performance standards. A report using this type of methodology, building from the ground up a picture of the global proliferation of S&L national schemes was last done in 2004, which is the basis of the comparison to the past in this report update. Some regions and many individual countries have more extensive databases of regulated appliances and labelling options, providing much more detailed information for interested parties should they wish to examine program measures more closely.

This report records the extent of the coverage of S&L programs and provides broad information on the different approaches used in such programs, particularly the visual tools used in energy labels. The report documents the source of up-to-date information on individual country programs, along with references to more in-depth and detailed material for each country. Information is presented by country in alphabetical order. Interested parties may obtain more information about S&L programs more generally from such sources as www.clasponline.org. Several annexes to this report provide a summary of what constitutes an energy label and the diversity within voluntary and mandatory schemes, as well as more in depth analysis regarding the coverage for energy performance standards and labelling schemes around the world.

Albania

(Region: Europe)

In 2011, Albania prepared a draft Energy Efficiency Law that transposes basic provisions of several EU Directives concerning energy labelling and consumption of appliances and equipment. When adopted[5], this law will replace the Albanian Law of Energy Efficiency 2005, and the Albanian Law on the Indication by Labelling and Standard Product Information of the Consumption of Energy and Other Resources by Household Appliances 2009. This will form part of the National Energy Efficiency Action Plan 2010-2018, which was created and promoted by the Albania-EU Energy Efficiency Centre and the Albanian National Agency of Natural Resources. Albania is a member of the Energy Charter Treaty, 1998. In 2009, it made an application to become a member of the EU, and in 2012, Albania

[5] It was noted by a source that the Commission had given their blessing to Albania undergoing EU aquis (membership) talks, which if approved by EU Council/Parliament would mean Albania would copy the EU regulations. At the time of writing it was unknown if they have already done so.

received candidate status.

Albania has mandatory labelling for refrigerators, electric motors, air conditioners and some types of office equipment. It was noted that no monitoring of the market implementation of labelling is undertaken for any of these products. Albania plans to implement energy labelling measures for the following products (adopting or adapting EU measures) – electric ovens, air conditioners, clothes washers, dishwashers, combination clothes washers/dryers, clothes dryers, and lamps.

No label image for Albania was available at the time of this report.

Energy Performance Standards - Albania

Albania has established Energy Performance Standards for air conditioners, refrigerators, clothes washers and solar water heaters. No dates of implementation for these Standards were available at the time of this report, and it was noted that no monitoring of the market implementation for Energy Performance Standards is undertaken for any of these products.

References - Albania

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/eneff/eneff_sc_24/ECE.Energy.WP4.2013.4_e.pdf - Paper on the Development of Energy Service Companies Market and Policies in Selected Countries of South-Eastern Europe, Eastern Europe and Central Asia, UNESC

http://www.energy-community.org/pls/portal/docs/1138177.PDF - Republic of Albania, National Energy Efficiency Action Plan

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

http://www.encharter.org/fileadmin/user_upload/document/EE_Standards_and_Labels_2009_ENG.pdf - Policies that Work, Introducing Energy Efficiency Standards and Labels for Appliances and Equipment, Energy Charter Secretariat

http://www.energy-community.org/pls/portal/docs/1420184.PDF - Energy Community Annex 7 – update on the implementation of Directives

http://ec.europa.eu/enlargement/countries/detailed-country-information/albania/ - European Commission Enlargement Information

Algeria

(Region: Africa)

In 2003, the Algerian National Agency for the Promotion and Rationalisation of Energy Use (APRUE) first started on the design of a comprehensive program of energy efficiency standards and labelling for household appliances in Algeria, as part of the National Energy Efficiency Program. In 2009, Algeria released a decree requiring the mandatory labelling of refrigerators, freezers, air conditioners and lamps, with a plan to require clothes washers and solar water heaters to carry a label as well.

Label Image Link:
http://www.aprue.org.dz/recueil%20complet%20Aprue.pdf (page 46) (official label may be in colour)

Currently, only refrigerators are covered by mandatory Energy Performance Standards, based on ISO and EN Standards.

References - Algeria

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

http://www.aprue.org.dz/ - Algerian National Agency for the Promotion and Rationalisation of Energy Use (APRUE)

http://www.energy-strategies.org/en/reports-a-publications/47-2003/85-article-11 - EEDAL Paper - Energy efficiency standards and labelling of household appliances in Algeria – from programme design to implementation

Argentina

Region: *Central/South America*

Between 1997 and 2000, the Programa de Calidad de Artefactos Energéticos para el Hogar (PROCAEH) first detailed test procedures and labelling standards for refrigerators and freezers in Argentina. In 2005, the Programme was reactivated and renamed Programa de Calidad de Artefaacos Energéticos (PROCAE) (Quality of Energy-using Devices), and was expanded to include mandatory labelling for a further three appliances air conditioners, clothes washers and lamps. To date, Argentina has established energy efficiency standards for four appliance categories – air conditioners, refrigerators/freezers, clothes washers and solar water heaters. Incandescent lamps were banned from the market in 2011.

Energy Performance Standards - Argentina

Argentina has established Energy Performance Standards for air conditioners, refrigerators, clothes washers and solar water heaters. Argentina is also developing Energy Performance Standards for industrial electric motors.

Energy Performance Standards, Argentina

Product Description	Year Implemented	Year Revised
Air conditioners – <7kW capacity	2011	2012
Refrigerators, refrigerator-freezers, Freezers	2009	2011
Clothes Washers	2012	
Solar water heaters	2012	

Comparative Label - Argentina

Program Name: Programa de Calidad de Artefactos Eléctricos (PROCAE). (Quality of Energy-using Devices)

Implementing Agency: Secretariat of Energy, IRAM (Argentine Standards and Certification Institute)

Participation Category: Mandatory

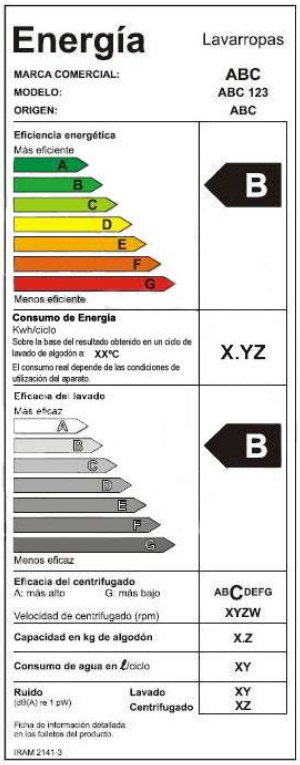
Appliances Labelled: 2001 (voluntary) - freezers, refrigerators and combinations

2006 (mandatory) – freezers, refrigerators, combinations

2008 - fluorescent and incandescent lamps

2009 - split and compact air conditioners

2011 – clothes washers



Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient).

Label Image Link:

http://energia3.mecon.gov.ar/contenidos/fancyzoom/img/1.jpg

Program Information: The Secretariat of Industry, Commerce and Mining issued a resolution in May 1999 mandating that household appliances are to be labelled according to standards of energy efficiency and noise emissions. These labels display the energy efficiency or yield, noise emission and other associated characteristics. The law requires the information to be provided in a brochure, which must be included with the appliance user instruction manual.

PROCAE involves two complementary lines of activity: the development of test procedures and labelling standards under the coordination of the Argentine Institute for Standardisation and Certification (IRAM), as directed by the National Energy Secretariat, and a legal framework, defined by Ministerial Resolution 35 of 2005, that allows the Government to order the mandatory energy efficiency labelling of equipment in accordance with existing labelling standards. The Sub-Secretary of Consumer Protection of the Secretary of Internal Commerce is in charge of mandatory labelling.

IRAM determines the standards as well as the test methods used to determine the required characteristics, the design and layout of the label, and the contents of the brochure. Manufacturers,

importers, distributors, wholesalers and retailers must obtain or require certification to show that the products meet the technical standards. All advertising of appliances must mention the letter that identifies the energy efficiency category of the appliance. Regulations developed by ENARGAS cover the energy labelling of gas stoves and gas water heaters. The labelling of stoves is mandatory.

References - Argentina

http://www.iram.com.ar - IRAM, Instituto Argentino de Normalizacion (Argentine Standards Institute) (Spanish)

http://energia.mecon.gov.ar - Secretaria de Energia (Department of Energy) (Spanish)

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=3445 - Etiquetado de Eficiencia Energética Obligatorio (Mandatory Energy Efficiency Labelling) (Spanish)

http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=3240 - Normas Técnicas de Etiquetado de Eficiencia Energética (Technical Standards for Energy Efficiency Labelling) (Spanish)

Australia

Region: *Asia Pacific*

In Australia, labelling and Energy Performance Standards programs were historically controlled by State legislation, as the national (Commonwealth) parliament did not have the constitutional power to legislate in this area. In 2012, this was changed through the introduction of the Greenhouse and Energy Minimum Standards Act (GEMS), which now allows national control of all labelling and Energy Performance Standards programs under agreement with the states. Energy labelling was introduced progressively in a number of Australian states from 1986, with all states now having the necessary regulations in place. The program was originally coordinated by the National Appliance and Equipment Energy Efficiency Committee (NAEEEC), but this role is now undertaken by a joint Australia/New Zealand program called the Equipment Energy Efficiency (E3) Program. Major manufacturers and importers recognise the commercial value of energy labelling and Energy Performance Standards, and are generally very supportive of the programs.

The Water Efficiency Labelling Scheme (WELS) label was introduced as a voluntary scheme in 2005. Mandatory labelling of most products was introduced in mid 2006, with mandatory labelling of dishwashers and clothes washers starting later in 2008. The WELS label replaced a previous water rating scheme run by the water supply industry (based on AAA efficiency grades). WELS is administered by the Australian Department of the Environment.

In addition to labelling of electric appliances and water labelling, Australia also has a gas labelling scheme. The Australian Gas Association (AGA) has members from both the gas utility sector and gas appliance manufacturers, and has promoted various forms of energy efficiency labelling for space heaters and water heaters since the early 1980s. In 1988, the AGA introduced labels similar in format to those for electrical appliances. The gas labelling program is been voluntary and the level of compliance varies considerably from state to state. The Australian government is progressively regulating gas appliances under GEMS legislation.

Australia is also involved in the international ENERGY STAR® Program, using this endorsement label for office equipment and home electronics. The Endorsement label; the Good Environmental Choice Mark, is also used within Australia.

Energy Performance Standards were introduced to Australia in 1999, with refrigerators and freezers being the first product types covered. Now around 20 products are part of the Energy Performance Standards program, with levels for products revised over time as required.

Energy Performance Standards - Australia

The Australian States and Territories adopted new, uniform regulations in 1999, which saw the beginning of the Australian Energy Performance Standards program. Refrigerators, freezers and electric storage water heaters were initially covered from October 1999. Since this time, the program has been expanded to cover a range of products, with existing regulations revised to new levels as required. Energy Performance Standards requirements are reviewed on an ongoing basis to ensure they keep up with advances in technology. From time to time there may be new or revised levels for products, with additional products also being investigated for potential Energy Performance Standards. Joint AS/NZS standards (some of which are based on international standards), cover the energy performance test requirements for labelling and Energy Performance Standards.

Australia works together with New Zealand on improving the efficiency of products, under a joint program called the Equipment Energy Efficiency (E3) Program. This program develops energy efficiency measures for a range of residential, commercial and industrial products, creating economic and environmental benefits. Aligning product energy efficiency measures across Australia and New Zealand reinforces development of a single marketplace, and allows both countries to honour their commitments under the Trans-Tasman Mutual Recognition Arrangement (TTMRA). Aligning product standards also keeps business compliance costs low as they don't have to meet differing requirements in two countries. Australia and New Zealand have had a joint program since 2002.

Products must meet certain requirements before they can be sold, these are set out in product standards. Importers or manufacturers need to understand and fulfil the requirements, including undertaking a single registration process that is valid in both countries.

Energy Performance Standards, Australia

Product Description	**Year Implemented** *** =proposed**	**Year Revised** *** =proposed**
Refrigerators, refrigerator-freezers, Freezers	1999	2010, 2017*
Electric storage water heaters	1999	2005
Three phase electric motors	2001	2006
Air conditioners – three phase (to 65 kW cooling)	2001	2006, 2010, 2011, 2012
Air conditioners – single phase	2004	2006, 2010, 2011, 2012
Commercial refrigeration	2004	
Ballasts for linear fluorescent lamps	2003	
Distribution transformers	2004	
Fluorescent lamps	2004	
External power supplies	2008	

Product Description	Year Implemented * =proposed	Year Revised * =proposed
Set top boxes	2008	
Chillers (water and air cooled packaged water chillers)	2009	
Close control air conditioners	2009	
Televisions	2009	2013
CFLs	2010	
Pool equipment (voluntary)	2010	
Transformers for ELV lamps	2010	
Incandescent lamps	2011	
Computers and monitors	2013	
Standby power	2014*	

Comparative Label (Electric) - Australia

Program Name: Energy Rating Labelling Scheme

Implementing Agency: Originally State and Territory Governments (start dates vary), now the Department of Industry

Participation Category: Mandatory

Appliances Labelled: 1986 - refrigerators, refrigerator-freezers

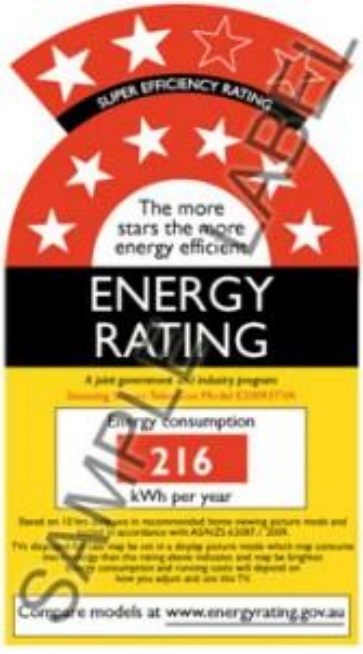
1987 - air conditioners (central, room and. split system), dishwashers, freezers

1989/90 - clothes dryers, clothes washers

2009 – televisions

2013 - computer monitors

Voluntary – three phase air conditioners, swimming pool pumps



Rating System: Energy Consumption (generally kWh/year), 1 to 10 stars (10 most efficient) (includes half stars)

Label Image Link: http://www.energyrating.gov.au/programs/energy-rating-labelling/obtain/

Program Information:

The labelling program requires the cooperation of several organisations. Historically, each State and Territory Government is responsible for legislation, regulations and administration, although from 2012 the program moved to national control. This includes the requirement for labels to be displayed, with regulatory offences and penalties for non-compliance in this area. In order to gain consistency across the country, the E3 Committee was established to provide a coordinating role for the program. E3 determines policy and sets the future directions for labelling.

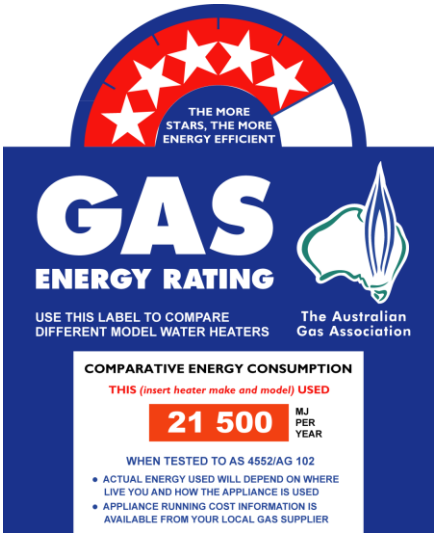
Standards Australia is charged with establishing test procedures. They also publish special regulatory standards that show how to calculate ratings and configure the labels and specify other program requirements.

The rating scheme algorithms used to determine star ratings were upgraded in 2000, increasing the efficiency levels needed to obtain equivalent star ratings, and giving a new look, while still allowing comparison between old and new ratings. In 2007, an additional 4 star 'tiara' (or 'crown') was introduced to allow the labels to convey more information to consumers concerning appliance efficiency levels. The algorithms for the labels for refrigerators, freezers, and air conditioners were again revised in 2010 to include this arrangement, and to take account of rapid market changes and Energy Performance Standards impacts for these products in previous years.

Manufacturers and importers are required to register the claimed performance of all products covered by the program before they can be sold. The government verifies these claims by check testing samples of products on the market, using a selection process that aims to indentify products that are likely to fail. This verification testing is conducted by independent laboratories. Regular surveys of retail outlets for compliance with labelling display requirements are undertaken, as to check that all eligible products are registered.

The first label is for a reverse cycle air conditioner, while the bottom label is for a television.

Comparative Label (Gas) - Australia



Program Name: Gas appliance Star Rating Scheme

Implementing Agency: Australian Gas Association

Participation Category: Voluntary

Appliances Labelled: 1980 - heaters (central and space) and water heaters

Rating System: Energy (MJ/year), 1 to 6 stars (6 most efficient)

Label Image Link:
http://www.energyrating.gov.au/products-themes/cooking/gas-appliances/meps/

Program Information: Being voluntary, this label is administered by the Australian Gas Association. In order for appliances to be approved for sale technical information must be provided to the AGA. This information allows an assessment of energy efficiency that determines the appliances star rating. It is then up to the manufacturer and/or retailer to decide whether to display the rating at the point of sale. Although the program began in the early 1980's, the current label design was adopted 1988. There have been discussions concerning moving the program so it is covered under the same administration as the energy label, as well as introducing it into the New Zealand marketplace.

Comparative Label (Water) - Australia

Program Name: Water Efficiency Labelling and Standards (WELS) Scheme

Implementing Agency: Australian Department of the Environment

Participation Category: Mandatory

Appliances Labelled: 2006 – tapware, showers, lavatory equipment, urinal equipment

2008 – dishwashers, clothes washers

Rating System: Water (Litres/wash or flush etc), 1 to 6 stars (6 most efficient)

Label Image Link: http://www.waterrating.gov.au/

Program Information:

The Water Efficiency Labelling Scheme (WELS) label was introduced as a voluntary scheme in 2005. Mandatory labelling of most products was introduced in mid 2006, with mandatory labelling of dishwashers and clothes washers starting later in 2008. The WELS label replaced a previous water rating scheme run by the water supply industry (based on AAA efficiency grades). WELS is administered by the Australian Department of the Environment.

Manufacturers and importers of applicable equipment need to register their products and affix a label before an item can be sold in the market. Penalties can be enforced for non compliance under the WELS Act, with periodic compliance investigations undertaken in the market. The WELS label design was based of that of the electrical label.

Endorsement Label - Australia

Program Name: Good Environmental Choice

Implementing Agency: Australian Environmental Labelling Association

Participation Category: Voluntary

Appliances Labelled: Began in 2002, covers – computers, display devices, multifunction devices, photocopiers, printers, set top boxes, stereo systems, televisions

Label Image Link: http://www.geca.org.au/

Program Information: This eco-label program was launched in 2002. Products need to meet a variety of environmental standards including energy usage requirements, with companies paying an annual fee to use the label.

Endorsement Label - Australia

See the International ENERGY STAR® section towards the end of the report.

Australia became an international Energy Star partner in 1999. This endorsement label is applicable for two product categories (office equipment and consumer electronics), and for a range of products including; computers, fax machines, photocopiers, televisions, printers and DVD players.

Standby Program - Australia

In 2002, Australia released its standby power plan, which aimed to achieve a 1 Watt standby target across a wide range of product types, endorsed by the then Ministerial Council on Energy. Over the period 2003-2004, a total of 30 standby power profiles were released, outlining the extent of the issue for each product type. A survey regime investigating standby was implemented in 2000, which included both new products (from store surveys) and stock products (from residential surveys), with these periodic surveys found that the average standby power consumption for most appliances had fallen over time, generally thought to be due to the impact of overseas standby policy and regulation.

There currently are Australian regulations for standby power, but only as an inclusion for a number of products in their Energy Performance Standards regulations (dishwashers (2006), clothes washers (2006), air conditioners (2010) and televisions (2009)). The standby consumption for these products is included in the energy consumption figures for the respective product energy labels, but is not shown separately. To align with international policy responses to the issue, and to address the market failure of unnecessary standby power consumption, Australia released a Consultation Regulatory Impact Statement (proposal to regulate) in late 2013, which includes a variety of options to possibly regulate standby power for a broad range of appliances and equipment. Limits on standby power are proposed to begin in 2014.

References - Australia

http:/www.energyrating.gov.au - Energy Labelling and Energy Performance Standards (this site also provides Links to state and territory agencies)

http://www.gas.asn.au - Australian Gas Association

http://www.waterrating.gov.au/ - Australian Water Efficiency and Standards (WELS) Scheme

http://www.standards.com.au - Standards Australia

http://www.geca.org.au/ - Good Environmental Choice Australia

http://www.energyrating.gov.au/programs/high-energy-performance-standards/energy-star-australia/ - Energy Star Australia

http://www.energyrating.gov.au/wp-content/uploads/Energy_Rating_Documents/Library/General/Regulatory_Impact_Statements/Standby-Consultation-RIS-FINAL-2.pdf - Consultation Regulation Impact Statement: Standby Power

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency Programs in APEC Economies

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

http://www.coolproducts.eu/resources/documents/Comparison-Report/International-Equipment-Efficiency-Comparison-Report_FINAL.pdf - International Comparisons of Product Policy

Bangladesh

(Region: Asia Pacific)

Bangladesh is involved in an energy saving regional project (BRESL) that includes five other countries: Pakistan, Indonesia, Thailand, Vietnam and China. These six countries have called on the technical assistance of the Global Environmental Facility (GEF), to asses Energy Performance Standards programs for a number of products, as well as support a labelling process. The project also aims to facilitate the harmonisation of test procedures, standards and labels among developing countries in Asia. Bangladesh had worked on developing standards and labelling previously, but was hindered by financial, policy, technology and information barriers. A renewed push has been made through the National Energy Policy, which enables awareness programs and the gradual implementation of energy efficiency programs. The project aims at rapidly accelerating the adoption and implementation of energy standards and labelling throughout Asia.

Energy Performance Standards - Bangladesh

Bangladesh has established Energy Performance Standards for ballasts, ceiling fans, fluorescent lamps, portable fans, refrigerators, and refrigerator/freezers. Bangladesh is developing or considering for development, Energy Performance Standards for blenders/mixers, clothes washers, cooktops/hobs, irons, 3-phase motors, microwaves, rice cookers, room air conditioners, and televisions.

Energy Performance Standards, Bangladesh

Product Description	**Year Implemented** *** Proposed**
Ballasts (in force, voluntary)	2011
Ceiling fans (in force, mandatory)	2012
Portable fans (in force, mandatory)	2012
Refrigerators (in force, mandatory)	2012
Refrigerator/freezers (in force, mandatory)	2012
Fluorescent lamps (in force, voluntary)	2014*
3-phase motors (under development, voluntary)	2014*
Room air conditioners (under development, voluntary)	2016*
Under consideration	

Product Description	Year Implemented * Proposed
Blenders/mixers (under consideration, mandatory)	
Cooktops/hobs (under consideration, mandatory)	
Clothes washers (under consideration, mandatory)	
Irons (under consideration, mandatory)	
Microwaves (under consideration, mandatory)	
Rice cookers (under consideration, mandatory)	
Televisions (under consideration, mandatory)	

Comparative Label - Bangladesh

Program Name: Energy Efficiency and Conservation Rules (Initial Draft 22, October 2012)

Implementing Agency: Bangladesh Standards and Testing Institute

Participation Category: Mandatory/Voluntary

Appliances Labelled: 2011 – ballasts (mandatory), fluorescent lamps (voluntary)

2012 – ceiling fans (mandatory), portable fans (mandatory), refrigerators (mandatory), refrigerator/freezers (mandatory)

2014 (under development) - cooktops/hobs (voluntary), 3-phase motors (voluntary), room air conditioners (voluntary)

2016 (under development) – blenders/mixers (voluntary), clothes washers (voluntary), irons (voluntary), microwaves (voluntary), rice cookers (voluntary), televisions (voluntary)

Rating System: Star rating system, the higher the number of stars, the more efficient the product

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=3ddf13f5-91b9-4d8f-ba64-801d9650660f (a label image similar to Sri Lanka was provided by a source, but it has not been possible to confirm its official status).

Program Information:

The program is held under the Ministry of Power, Energy and Mineral Resources, within the Sustainable and Renewable Energy Development Authority (SREDA) Act. Pertaining to standards and labelling of equipment and appliances, the Authority may develop and recommend procedures and regulations for the implementation of Energy Performance Standards and energy efficiency labelling for equipment and appliances. The energy efficiency labelling of equipment and appliances is planned to initially be on a voluntary basis, before gradually shifting to a mandatory system. The Authority will provide the framework and timeline of equipment and appliance labelling. After consultation with stakeholders, publication of drafts and obtaining public comments, the Authority may develop and recommend the following requirements: procedures for testing to document label specifications, format and characteristics of labels, levels of energy performance required for labelling, date upon which the label regulations will become effective.

References - Bangladesh

http://www.undp.org/content/bangladesh/en/home/operations/projects/environment_and_energy/barrier-removal-to-the-cost-effective-development-and-implementa.html - Barrier Removal to the Cost Effective Development and Implementation of Energy Standards and Labelling, GEF and UNDP

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.powerdivision.gov.bd/powerdivision/uploads/21.pdf - Energy Efficiency and Conservation Rules, Initial Draft 22 October 2012

http://www.thegef.org - Global Environment Facility (GEF)

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

http://www.lites.asia/files/otherfiles/0000/0165/Day_2_Session_2.2_Bangladesh_national_standards_Sajjadul_Bari.pdf - National Standards, Regulations and Labelling Requirements for Lighting Products in Bangladesh

Bolivia

(Region: Central/South America)

In 2006, the Bolivian Institute of Standardisation and Quality (IBNORCA) approved as standards: NB87001:2006, Incandescent bulb specifications and labelling, and NB87002:2006, Circular and tubular compact fluorescent bulb specifications and labelling. This was the first step in introducing a standards and labelling program for Bolivia. In 2008, the National Energy Efficiency Program (PNEE) was approved, and following on from this, a labelling process is now under development that will be included in the National Plan for Energy Efficiency and the Energy Efficiency Law.

No label image for Bolivia was available at the time for this report (this is likely to be an EU style label, which is common in South America).

Bolivia plans to have a mandatory label for refrigerators, clothes washers, air conditioners, lamps, office equipment and solar water heaters. Mandatory Energy Performance Standards is planned to start in 2015 for refrigerators, clothes washers, air conditioners, lamps, solar water heaters, and electric motors. IBNORCA recently published a labelling standard for refrigerators and freezers.

References - Bolivia

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

http://www.eclac.cl/publicaciones/xml/2/39412/lcw280i.pdf - Energy efficiency in Latin America and the Caribbean - Situation and Outlook, UN and Organiscion Latinomericana de Energli

http://www.cepal.org/publicaciones/xml/8/51608/Eficienciaenergetica.pdf - Energy Efficiency in Latin America and the Caribbean: Progress and Challenges of the Last Five Years (Spanish)

Brazil

(Region: Central/South America)

Ministério de Minas e Energia (MME) (Ministry of Mining and Energy) is the government department responsible for the energy sector, and also implements policies related to energy resources. The MME is responsible for several related organisations including: Electrobas (Government Bulk Supplier) and Agência Nacional de Energia Elétrica (ANEEL Brazilian Electricity Regulatory Agency). Comitê Gestor de Indicadores de Eficiência Energética (Energy Efficiency Level and Management Committee (CGIEE) is responsible for implementing Energy Performance Standards, and is coordinated by the MME. Instituto Nacional de Metrologia, Qualidade e Tecnologia (INMETRO) (National Institute of Metrology, Quality and Technology) is the government agency responsible for the Brazilian Labelling Program. INMETRO requires mandatory labels for applicable products and at times proposes voluntary labels for some appliances and equipment. Alongside the work of INMETRO, energy conservation efforts are co-ordinated by PROCEL (Programa Nacional de Conservacao de Energia Eletrica), which sits within Electrobas, and CONPET, which is coordinated by Petrobras. PROCEL awards endorsement labels for domestic electric equipment on an annual basis, while CONPET awards endorsement labels to some gas using products and light passenger cars.

Brazil began labelling in 1984 with a voluntary endorsement scheme of refrigerators, this was expanded to other products and became a mandatory scheme with the introduction of the Energy Efficiency Act of 2001. This Act also enabled the compulsory establishment of Energy Performance Standards. In 2013, Energy Performance Standards are in force for 9 different appliance categories in Brazil (outlined in the section below).

Energy Performance Standards – Brazil

The Energy Efficiency Act of 2001 enables the compulsory establishment of minimum levels of energy efficiency, which are established by an inter-ministerial forum the Steering Committee of Indicators and Levels of Energy Efficiency (CGIEE). To date, Energy Performance Standards are in force for the following appliance categories in Brazil.

Energy Performance Standards - Brazil

Product Description	Year Implemented
Electric motors – 3 phase	2005
Lighting - CFL	2010
Lighting - HID	2010

Product Description	Year Implemented
Lighting - incandescent	2010
Room air conditioners	2011
Gas ovens and cooktop/hobs	2011
Refrigerators, refrigerator–Freezers, Freezers	2011
Gas instantaneous water heaters	2011
Gas storage water heaters	2011

Comparative Label – Brazil

Program Name: Programa Brasileiro de Etiquetagem – PBE

Implementing Agency: National Institute of Metrology (INMETRO)

Participation Category: Mandatory

Appliances Labelled: 1984 (Voluntary – refrigerators and combinations

1997 (Voluntary) – air conditioners (room), freezers

2003 – water dispensers
2005 – clothes washers
2006 – refrigerators, freezers, refrigerator-freezers

2008 – televisions - CRT, incandescent lamps, ceiling fans

2009 – televisions - flatscreen (LCD and Plasma)

2010 – HID lamps, HID ballasts, pumps, CFLs, clothes dryers, 3 phase motors, transformers

2011 – air conditioners, microwave ovens, gas storage water heaters

2012 – gas ovens, gas cooktop/hobs, gas instantaneous water heaters, solar water heaters, fans, commercial electric ovens, hair dryers, blenders,

vacuum cleaners, computers

2013 – room air conditioners

Rating: Energy (generally kWh/year), A to G stars (A most efficient)

Label Image Link: http://www.inmetro.gov.br/qualidade/eficiencia.asp (above image is expected to be made public in the near future)

Program Information:

The Brazilian program is based on a bar style energy label. It contains an efficiency rating along with information concerning the energy consumption of the applicable product. The program is conducted by the Government agency INMETRO, who are responsible for program monitoring, conformity assessment, labelling, and verifying the manufacturer data.

Endorsement Label - Brazil

Program Name: Programa Nacional de Conservacao de Energia Eletrica (PROCEL) Seal

Implementing Agency: Eletrobras

Participation Category: Mandatory

Appliances Labelled: 1993 – air conditioners (room), ballasts, clothes washers, freezers, lamps, refrigerators, refrigerator/freezers

2007 – instantaneous water heater

2010 – 3 phase motors, televisions (CRT, LCD, LED, Plasma), ceiling and table fans, transformers, clothes washers, lighting (HID), fluorescent ballasts

2011 – cooktop/hobs, ovens, pumps

Label Image Link:

http://www.eletrobras.com/elb/procel/main.asp?TeamID={95F19022-F8BB-4991-862A-1C116F13AB71}

Program Information:

The Brazilian Energy Conservation Program, PROCEL, is managed by Eletrobras, the Brazilian government holding involved in the power sector. Since 1993, PROCEL has granted the Stamp Procel de Economia de Energia annually. This is awarded to the electric equipment that is the most energy efficient in its category, for the given year. It has a dual purpose of both stimulating the national

manufacture of more efficient products, and guide consumers to purchase the most efficient appliance available. Both local and imported appliances can be entered into the scheme by manufacturers. PROCEL plans to expand the list of products covered by the program in the future.

Endorsement Label - Brazil

Program Name: Qualidad Ambiental (ABNT Environmental Quality Label)

Implementing Agency: Associacao Brasileira de Normas Tecnicas (ABNT)

Participation Category: Voluntary

Products Labelled: Categories include: personal care products, textiles, recycled tyres, steel products, sustainable events, tourism, office furniture, paper products.

Label Image Link: http://rotulo.abnt.org.br/en/

Program Information:

This endorsement eco-label was launched in 1993 by the Associacao Brasileira de Normas Tecnicas (ABNT), in collaboration with the Brazilian government. The award of the eco-label is based on life-cycle analyses.

References - Brazil

http://www.eletrobras.gov.br/procel/10.htm - Programa Nacional de Conservacao de Energia Eletrica (PROCEL National Energy Conservation Program)(Portuguese)

http://www.mme.gov.br - Ministério de Minas e Energia (MME) (Ministry of Mining and Energy)(Portuguese)

http://www.inmetro.gov.br - INMETRO (National Institute of Metrology)

http://www.abnt.org.br - Associaçao Brasileira de Normas Técnicas (Brazilian Standards Association) (Portuguese)

http://www.aneel.gov.br - Agência Nacional de Energia Elétrica (ANEEL) Brazilian Regulatory Agency

Written Communication with Fernando Lopes Electrobas and Alexandre Mancuso da Cunha at ANEEL

http://www.abnt.org.br/ - Associacao Brasileira de Normas Tecnicas (ABNT)

Brunei Darussalam

(Region: Asia Pacific)

In 2005, Brunei Darussalam released an overall energy efficiency goal to reduce energy intensity by 25% by 2030. This was part of the Energy Efficiency and Conservation Strategic Plan, which includes the planned introduction of energy efficiency labelling for electrical equipment and appliances. The Energy Efficiency and Conservation Act was to be enacted in 2012[6] (it is unknown at the time of writing as to whether this is the case), with air conditioners and lighting being the first products to be labelled, with plans to expand to other electrical appliances and equipment in the future. The standards for the scheme are based on similar standards in the region.

No label image for Brunei Darussalam was available at the time for this report.

No information concerning Energy Performance Standards in Brunei Darussalam was available at the time of this report.

References - Brunei Darussalam

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies, Brunei Darussalam

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.bt.com.bn/news-national/2011/07/28/stick-energy-labels-appliances - Stick energy labels on appliances, The Brunei Times

[6] It was noted by a source that work on the Energy Efficiency and Conservation Act is probably still in progress.

Canada

(Region: North America)

The Canadian system is the longest running formal energy labelling program in the world, starting in 1978 with air conditioners and refrigerators and freezers. The national comparative labelling program, EnerGuide, is administered by Natural Resources Canada (NRCan). The scheme has both mandatory and voluntary labelling elements.

The Federal Department of Environment Canada administers a voluntary endorsement label program, which incorporates a broad range of environmental considerations, including for some products, energy efficiency. Canadian Energy Performance Standards have broad coverage, encompassing one of the largest ranges of products in the world.

Canada also joined the International ENERGY STAR® program in 2001.

Energy Performance Standards - Canada

The *Energy Efficiency Act* was passed in 1992, and provides for the making and enforcement of regulations concerning Energy Performance Standards and labelling for energy using products. The first Regulations under the Act came into effect in 1995, following extensive consultations with the provincial governments, affected industries, utilities, environmental groups and others. The Regulations established Energy Performance Standards for a wide range of energy using products, with the objective of eliminating the least energy efficient models from the Canadian market.

The Regulations apply to manufacturers or importers who import regulated products into Canada, or ship them from one Canadian province to another. The Federal Regulations do not apply to products that are manufactured and sold within the one Province. However, five provinces have their own energy efficiency regulations, which for the most part are harmonised with the Federal Regulations. In some cases provinces regulate products for energy efficiency that are not covered federally. The Federal Regulations do not take precedence over provincial regulations for locally made and sold products within a Province.

For the products covered in the Federal Regulations, the Energy Performance Standards levels apply equally where the products are incorporated into other products (e.g. where fluorescent lamps and ballast are sold as part of a complete luminaire). Exports and products that are shipped between provinces, only in order to be exported from Canada, are exempt from the Federal Regulations.

All regulated energy using products imported into Canada or shipped between provinces must carry an energy efficiency verification mark from a certification organisation accredited by the Standards Council of Canada and Natural Resources Canada. The mark, which must be placed on the outside of the product, indicates that the energy performance of the product has been verified.

Before importing products or shipping them between provinces, dealers must ensure that an energy efficiency report for that product has been filed with Natural Resources Canada (NRCan). The data in the report are used to verify compliance with Energy Performance Standards.

In line with Canada's free trade arrangement with the USA many Energy Performance Standards are revised to be harmonised with those set by the USA including; clothes washers, fluorescent lamp ballasts, room air conditioners. However, Energy Performance Standards have been recently introduced for dry type transformers, packaged water chillers and exist signs that do not exist in the USA. Energy Performance Standards have also been revised recently for:

- cooking appliances which will now include provisions for tungsten halogen elements (cooking appliances are not subject to either Energy Performance Standards or labelling in the USA);
- water heaters which are harmonised with the US except for electric water heaters which have a Canada only test procedure and Energy Performance Standards levels which are defined in terms of this test procedure;
- incandescent reflector lamps to include a much broader range of lamps than was previously covered.

Between 2007 and 2012, Energy Performance Standards were established for Refrigerated Beverage Vending Machines, Self-Contained Commercial Refrigerators and Freezers, Single Package Vertical Air Conditioners and Heat Pumps, Torchieres (portable electric luminaire, Traffic Signals and Pedestrian Modules Boilers (Electric), and Ceiling Fans and Ceiling Fan Light Kits.

The Regulations are a key element in an integrated strategy for transforming the market to higher energy efficient equipment. This strategy includes: voluntary and mandatory labelling, targeted incentives, demonstration projects, dissemination of information and regulations. Different approaches may be employed depending on the market transformation barriers for a specific product.

Energy Performance Standards, Canada

Product Description	**Year Implemented**	**Year Revised**
Air conditioners - single phase and three phase-packaged central and heat pumps	1995 single 1998 three phase	2006 2006, 2010
Air conditioners - room	1995	2003
Ballast Fluorescent Lamps	1995	2005, 2010
Clothes dryers	1995	
Combination clothes washer-dryers	1995	2004, 2007
Clothes washers	1995	2004, 2007
Dishwashers	1995	2004, 2010
Freezers**	1995	2001, 2005
Furnaces Gas	1995	2009, 2012
Heat pumps – ground or water source	1995	2006
Heat pumps internal water loop	1995	
Ranges	1995	2003
Refrigerators, refrigerator-freezers, wine chillers**	1995	2001
Water heaters	1995	2004 (Standby)
Lamps - fluorescent	1996	
Lamps - incandescent reflector	1996	2003, 2014*
Motors	1997	2011
Air conditioners large, heat pumps and condensing units	1998	2005 (condensing units), 2010
Air conditioners, packaged terminal and heat pumps	1998	2006
Air conditioners, split-system central and heat pumps	1998	2006
Boilers (Gas)	1998	2010, 2012
Compact clothes dryers	1998	
Dehumidifiers	1998	2007, 2012
Oil furnaces	1998	
Icemakers	1998	2008
Water chillers	2004	
Exit signs	2004	2006
Distribution transformers – dry type	2005	2010
Refrigerated beverage vending machines	2007	2008
Torchieres (portable electric luminaire)	2007	2010
Traffic signals and pedestrian modules	2007	

Product Description	Year Implemented	Year Revised
Ceiling fans and ceiling fan light kits	2010	
Self -contained commercial refrigerators and freezers	2010	
Single package vertical air conditioners and heat pumps	2011	
Boilers (electric)	2012	

***** Energy Performance Standards development complete – pending implementation**.** Note: In some cases efficiency regulations in Canadian provinces cover different products and may have different effective dates.

** It is noted from a source that currently consultations are ongoing regarding the revision of Canadian test procedures and regulations to harmonise with the recently enacted revised USA regulations for refrigerated appliances which will be effective from 2014.

Comparative Label - Canada

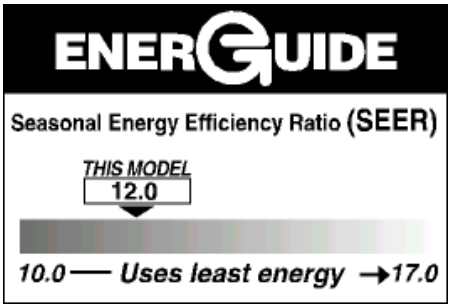
Program Name: EnerGuide Program

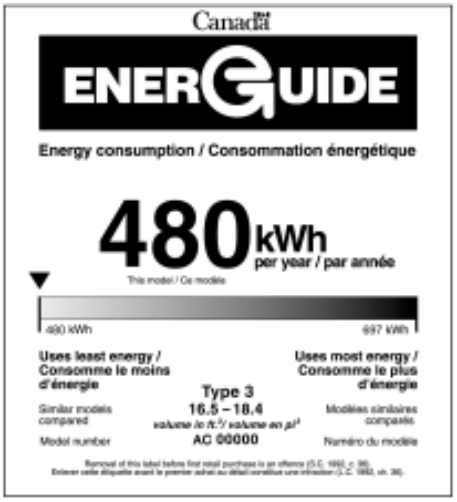
Implementing Agency: Natural Resources Canada

Participation Category: Mandatory

Appliances Labelled: 1978 - air conditioners (room), freezers, refrigerators, refrigerator-freezers

1995 - clothes dryers, clothes washers, combination clothes washer/dryers, dishwashers, ranges/ovens, freezers, wine chillers





Rating System: Labels display the energy (kWh/year) used by the appliance and how this compares with the lowest and highest energy consumption for similar products. Air conditioner ratings are based on the Energy Efficiency Ratio (EER) of the unit.

Label Image Link: http://oee.nrcan.gc.ca/equipment/appliance/1799

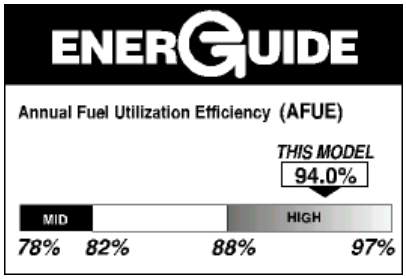
Program Information:

The EnerGuide label for major household appliances is administered under the Regulations of Canada's *Energy Efficiency Act*. The label applies to both domestic and imported products. The Energy Efficiency Regulations specify all details pertaining to the labels including placement on products. An annual appliance directory (hardcopy) is published as a guide for purchasers, listing all

available models on the market, with separate guides are available for major appliances and air conditioners. All product listings are available on the EnerGuide website.

Comparative Label

Program Name: EnerGuide Program (Voluntary)



Implementing Agency: Natural Resources Canada

Participation Category: Voluntary

Appliances Labelled: 1998 – air conditioners (single packaged central and heat pump and split system) heat pumps; gas and propane furnaces

2003 – vented gas fireplaces

Rating System: Labels demonstrate how the appliance compares with the lowest and highest energy efficiency for similar products. Air conditioner and heat pump ratings are based on the Seasonal Energy Efficiency Ratio (SEER) of the unit. Furnace ratings are based on annual fuel utilization efficiency (AFUE).

Label Image Link: http://oee.nrcan.gc.ca/equipment/appliance/1799

Program Information:

The HVAC industry designed this voluntary label program to pre-empt a regulated scheme. This label appears at the back of the manufacturers' brochures (not directly on the product). The premise was that consumers are more likely to view these types of products in a brochure, not on the sales floor. The comparative rating provides users with the equipment's Energy Performance Standards level as the lowest rating and the AFUE, SEER or FE (for fireplaces) of the most efficient product available in the Canadian marketplace as the highest. See EnerGuide Mandatory program above for more information.

Endorsement Label - Canada

Canada is a partner in the International ENERGY STAR® partner (see the International ENERGY STAR® section towards the end of the report for more information). As part of the International ENERGY STAR® Program, Canada (through NRCan) and other partner countries recognise and promote the criteria and logo established under the USA ENERGY STAR® scheme. Products in the agreement that currently have an EnerGuide label, may have the Energy Star logo on the same label.

The United States' EPA and DOE are responsible for developing the endorsement criteria, but NRCan is consulted when developing new specifications. NRCan's agreement with EPA and DOE applies to specific products and does not cover all of the ENERGY STAR® products offered in the US (see website), but Canada is the international partner that has the widest range of products covered in their program. ENERGY STAR® qualified product categories labelled and promoted in Canada include: major household appliances, residential heating, cooling and ventilation equipment, office equipment, consumer electronics, windows and doors, lighting, and commercial equipment. A full listing of the current ENERGY STAR® Qualified products in Canada can be found on the NRCan website.

Endorsement Label - Canada

Program Name: Environmental Choice[M] Program (ECP)

Implementing Agency: Environment Canada

Commencement Date: 1988

Participation Category: Voluntary

Appliances Labelled:

A extensive variety of consumer and professional products are now labelled. Consumer products labelled include: personal soaps and body washes, paints, compostable paper bags, insulation, air travel, ballasts, computer, copiers, dishwashers, fax machines, lamps, motors, multifunction devices, printers and water heaters.

Professional product categories include: automotive related products and services, building and construction materials, cleaning and janitorial products, containers packaging, bags and sacks, electricity products, events and tours, fuel, lubricants and related products, marine products, office furniture and equipment, printing products and services, pulp and paper product

Label Image Link: http://www.ecologo.org/en/

Program Information:

The Environmental Choice[M] Program (ECP), also known as EcoLogo, allows companies to apply to have a product or service certified if it improves energy efficiency; reduces hazardous by-products; uses recycled materials; is re-usable, or provides some other environmental benefit. The EcoLogo Program is a Type I eco-label, as defined by the International Organisation for Standardisation (ISO). Certification is indefinite providing licensed companies confirm annually their continued compliance. Companies are charged an annual fee for the use of the logo and an initial fee is required to cover the expense of auditing and verification.

Standby Program – Canada

The Canadian Government's standby program commenced with the launching of the Standby Advisory Committee in 2007 co-chaired by NRCan and the ElectroFederation of Canada. This committee completed a major study of the standby power consumption, and along with a with a Standby Power Workshop in 2009, a consultation process with stakeholders, NRCan's Office of Energy Efficiency proposed amendments to the Canadian Energy Efficiency Regulations that became mandatory from 2010. Canada's standby power limits and requirements can be found here: http://oee.nrcan.gc.ca/regulations/bulletins/8495

References - Canada

http://www.ecologo.org - Ecologo or Environmental Choice Program

http://oee.nrcan.gc.ca/energuide - EnerGuide

http://oee.nrcan.gc.ca/energystar - Energy Star Canada

http://oee.nrcan.gc.ca/home- Office of Energy Efficiency

http://oee.nrcan.gc.ca/regulations/17311 - Natural Resources Canada Regulations

http://www.scc.ca - Standards Council of Canada

Chile

Region: Central/South America

The Chilean The Chilean government has been working towards reducing annual energy consumption since 1992, initially with the Programa Nacional de Uso Eficiente de la Energía (National Program of Efficient Use of Energy). Chile began the process of setting up both labelling and Energy Performance Standards programs as early as 1999, with the formulation of Energy Performance Standards for electric motors. Energy Performance Standards and energy efficiency labelling for residential refrigerators was also introduced, based on the Mexican standard and label. Additionally, the National Energy Commission is developing a voluntary environmental endorsement label. As of early 2004, detailed analysis has been undertaken for energy labelling and Energy Performance Standards for refrigerators and freezers, air conditioners, clothes washers, clothes dryers, dishwashers, water heaters and pumps. Further work has been undertaken on test procedures for these products, with finalised test procedures aligned with ISO/IEC standards.

In 2005, Chile created the National Energy Efficiency Program (PPEE), within which lies the Chilean Energy Efficiency Standards and Labelling Program (PNEEE).

Energy Performance Standards - Chile

An Energy Performance Standards program is implemented by the Ministry Of Energy, and was introduced on a voluntary basis in 2009 for two appliances. Energy Performance Standards are currently under development for a number of products including: incandescent lamps and CFLs (2013), refrigerators (planned for 2014), and industrial electric motors planned for 2013-14.

Energy Performance Standards, Chile - Voluntary

Product Description	Year Implemented
Refrigerator-freezers	2009
Motors – 3 phase general purpose	2009

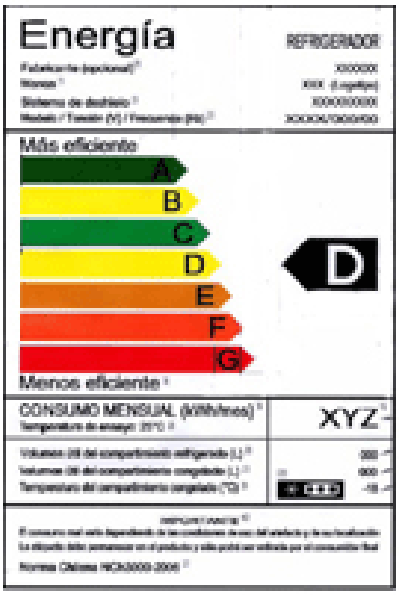
Comparative Label – Chile

Program Name: Chilean Energy Efficiency Standards and Labelling Program (Programa de Normas y Etiquetado de Eficiencia Energetica en Chile) (PNEEE)

Implementing Agency: Ministry of Energy has the overall authority for the labelling program, while the Superintendencia de Electricidad Y Combustibles is the implementing agency

Participation Category: Mandatory

Rating: Energy (generally kWh/year), A to G stars (A most efficient)



Appliances Labelled: 2007 – Incandescent and Fluorescent lamps

2008 – refrigerators, refrigerator-freezers

2008 (revised 2011) – motors - small 3-phase general purpose

2011 – room air conditioners, standby for all audio- video

2012 – standby for Blu Ray, DVD, micro stereos, lighting – fluorescent (other)

2013 – lighting ballast – fluorescent

Pending Implementation 2011 – clothes washers

Pending Implementation 2012 – standby for printers

Under consideration/development 2013 – cooktop/hobs, storage water heaters

Planned: commercial air con and office equipment, microwaves, set top boxes (STB), televisions

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=5e5c2e4c-f853-4d4e-8efc-409319d22d44

Endorsement Label

Proposed in the National Energy Strategy is the creation of an Energy Efficiency Seal for companies who lead the way in energy efficiency, this is yet to be implemented.

References - Chile

http://www.acee.cl – Agencia Chilena de Eficiencia Energetica (AChEE) (Chilean Energy Efficiency Agency) (Spanish)

http://www.inn.cl - Instituto Nacional de Normalizacion INN (National Standards Institute) (Spanish)

http://www.cne.cl - Comisión Nacional de Energía, (National Energy Commission) (Spanish)

http://www.minenergia.cl - Ministreos de Energía (Ministry of Energy) (Spanish)

http://www.chilectra.cl - Chilectra (Chile's Electricity Retailer)(Spanish)

http://www.sec.cl - Superintendencia de Electricidad Y Combustibles (SEC)

China

(Region: Asia Pacific)

The Law on Energy Conservation of China, was approved by the National People's Congress on 1 November 1997, and came into force on 1 January 1998. It supersedes earlier laws that may have indirectly dealt with energy conservation. The Law aims to achieve the rational and efficient use of energy through enhanced energy use management; the adoption of measures, which are technologically feasible, economically rational and environmentally and socially acceptable; and the reduction of loss and waste in the energy production and consumption chain. The various state agencies responsible for standardisation and certification in the initial stages were:

- China State Bureau of Quality and Technical Supervision (CSBTS) who were responsible for the development, implementation and supervision of Energy Performance Standards. CSBTS was later elevated and renamed the State Administration for Quality, Supervision, Inspection and Quarantine (AQSIQ), establishing the Standardization Administration of China to oversee the energy efficiency standards and labelling program in China;
- The State Economic and Trade Commission (SETC) who were responsible, with CSBTS, for the development of energy labelling, certification labelling and quality marks. The SETC was later merged with the State Development and Planning Commission to form the present National Development and Reform Commission, which is responsible for implementation of energy efficiency policy;

The government agencies rely on the efforts of the China National Institute of Standardization (CNIS) to develop proposed Energy Performance Standards.

In 1999 the China Certification Centre for Energy Conservation Product (CECP)[7] was established to implement a new voluntary endorsement label. In 2005, a mandatory comparative label was introduced and now covers 27 product types. Both the comparative label and certification mark are now managed by the China Certification and Accreditation Administration Department. Standards for these two programs are issued by the Standardisation Administration of China, with standard research undertaken by the China National Institute of Standardisation. Compliance supervision is administered by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ). China's drive for energy efficiency has a long history and has led to the establishment of mandatory Energy Performance Standards which covers a diverse range of products.

[7] The CECP has since ceased operations.

China is also involved in an energy saving regional project (BRESL) that includes five other countries – Pakistan, Indonesia, Thailand, Vietnam and Bangladesh. These six countries have called on the technical assistance of the Global Environmental Facility (GEF) to assess Energy Performance Standards programs for a number of products, as well as support labelling processes. The project also aims to facilitate the harmonisation of test procedures, standards and labels among developing countries in Asia.

Energy Performance Standards - China

China's extensive Energy Performance Standards program began in 1989. The administration of the program is conducted by the State Administration for Quality, Supervision, Inspection and Quarantine (AQSIQ), the Standardization Administration of China (SAC) and the China National Institute of Standardisation (CNIS).

Energy Performance Standards, China

Product Description	**Year Implemented**	**Year Revised**
Air conditioners - room (window and split-type)	1989	2004, 2010
Audio – radio receivers and recorders	1989	
Clothes washers	1989	2004, 2013
Fans	1989	
Irons	1989	
Refrigerators	1989	1999, 2003, 2009, 2013
Rice cookers – automatic	1989	2009
Televisions – colour and monochromatic	1989	2004 (colour)
Ballasts for fluorescent lamps	2000	2002, 2012
Electric motors	2000	2007, 2011
Fluorescent lamp ballasts	2001	2013
Lighting systems	2003	2013
Air conditioners - single packaged	2004	
Ballasts (HID)	2005	
Chillers	2005	
High intensity discharge lamps	2005	
Set top boxes	2006	2011
External power supplies (low voltage)	2007	
Water heaters – gas	2007	

Product Description	Year Implemented	Year Revised
AC contactors	2008	
Air conditioners - central	2008	
Computers	2008	(under consideration)
Copy machines	2008	2011, 2012
Induction cookers	2008	2012
Monitors	2008	2011
Pumps – all other types	2008	
Water heaters – electric storage	2008	
Air compressors	2009	
Ceiling fans	2009	
Industrial blowers	2010	
Microwaves	2010	
Televisions – flatscreen	2010	2013
Transformers	2010	2013
Industrial boilers	2011	
Printers and fax machines	2011	
Microcomputers	2012	
Refrigerated cabinets	2012	
Water heaters – solar	2012	
Air conditioners – variable speed	2013	
CFLs	2013	
Rangehoods	2013	
Water heaters – heat pump	2013	
Under development		
Water coolers		

Comparative Label - China

Program Name: China Energy Label

Implementing Agency: National Development and Reform Commission (NDRC) and the General Administration of Quality Supervision, Inspection and Quarantine of China (AQSIQ)

Participation Category: Mandatory

Appliances Labelled: 2005 – refrigerators, air conditioners (fixed speed)

2007 – clothes washers, unitary air conditioners

2008 – self ballasted fluorescent lamps, high pressure sodium lamps, electric motors, gas water heaters, water chillers

2009 – central air conditioners, storage water heaters, variable speed air conditioners, induction cooktops, computer monitors, copy machines, air conditioners (variable speed)

2010 – ceiling fans, automatic rice cookers, conductors, compressors, industrial blowers,

2011 – transformers, microwaves, televisions (flat screen)

2012 – printers, fax machines, solar water heaters, refrigerated cabinets

Label Image Link:

http://www.energylabel.gov.cn/en/Introduction/LabelDevelopmentHistory/index.html

Program Information:

The administration of the program is conducted by the State Administration for Quality, Supervision, Inspection and Quarantine (AQSIQ), and the National Development and Reform Commission (NDRC). Based on efficiency standards, China uses an 'energy efficiency labelling management approach', which is designed to enhance the interaction of producers, and guide consumers to purchase energy efficient products, while promoting producers to use energy efficient technologies. The program was

introduced in 2005, with products added through 'product catalogues for labelling'. The China Energy Labelling Centre (CELC) is the implementing department for the label.

In order for suppliers for manufacturers to join the program, a test report that is registered with the CELC needs to be provided, as well as a self declaration of energy performance and a completed registration for each model to carry the label. Stores and suppliers are responsible for ensuring products for sale are correctly labelled.

Endorsement Label - China

Program Name: China Energy Conservation Label

Implementing Agency: China Quality Certification Centre (CQC)

Participation Category: Voluntary

Appliances Labelled: 1999 – refrigerator/freezers and combinations, 2000 – room air conditioners, small and medium sized motors

2002 – ballasts (fluorescent), lamps, water heaters (electric), microwave ovens, motors (electric), rice cookers, televisions, electric power fitting anti wave exchange power system, low pressure power distribution electricity saver, printers

2003 – clothes washers, computers, monitors, fax machines, copiers, DVD/VCD players

2007 – microcomputers, ballasts – discharge lamps, DVD/Blu Ray players, portable computers

2009 – water heaters (air source heat pump), variable speed drives, lighting systems, water coolers, high intensity discharge lamps (HID), imaging machines, computer monitors, gas cooktop/hobs, set top boxes, ceiling fans, power saving devices, televisions (flat screen), automatic rice cookers, CFLs, air conditioners (variable speed), pumps, external power supplies, refrigerant compressors, instantaneous gas water heaters, electric cooktop/hobs, data projectors, chillers, internal power supplies

2010 – induction cooktop/hobs, LEDs, portable fans, space heaters, ballasts (high pressure sodium vapour lamps), air conditioners (for computer and data processing rooms), air conditioners (central heat

pump), power strips, air conditioners (central), ballasts (metal halide lamps), street lighting systems, indoor heaters, vacuum cleaners, irons, transformers, pump systems

2011 - faxes, printer/faxes, multifunction printers, scanners, servers

2012 – refrigerated cabinets, rangehoods, ballasts (tubular fluorescent), water heaters (solar), computers

2013 – ethernet switches, networking equipment, 3-phase distribution transformers

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=c55aebc4-1a45-473c-a2c7-e2b1d61088cc

Program Information:

The State Economic and Trade Commission (now the National Development and Reform Commission - NDRC) and the China State Bureau of Quality and Technical Supervision (now the General Administration of Quality Supervision, Inspection and Quarantine - AQSIQ) together established the China Certification Centre for Energy Conservation Product (CECP) (now managed by the CQC). One of the first priorities was to establish the label for refrigerators. The labelling of compact fluorescent lamps quickly followed with the assistance of the Greenlights program. Since this time, many more appliances and equipment types have been added to the program. The label application is similar to the USA's Energy Star Label, but does also require a factory check and is subject to a mandatory quality program. Products applying for the certification mark are required to undertake a third party certification process to be able to use the label.

References - China

http://en.cnis.gov.cn/ - China National Institute of Standardisation

http://www.cecp.org.cn/english/ - China Certification Centre for Energy Conservation Product

http://www.cssn.net.cn - National Standard Information Sharing Infrastructure

http://en.ndrc.gov.cn/ - National Development and Reform Commission

http://www.energylabel.gov.cn/en/index.html - China Energy Label Centre

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency Programs in APEC Economies

http://english.aqsiq.gov.cn/ - General Administration of Quality Supervision, Inspection and Quarantine of PRC

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

http://a2se.org.au/files/Steven_Zeng.pdf - Appliance Energy Efficiency S&L Development in China: where are we now, and where to go next? A2SE presentation

http://www.coolproducts.eu/resources/documents/Comparison-Report/International-Equipment-Efficiency-Comparison-Report_FINAL.pdf - International Comparisons of Product Policy

http://www.clasponline.org/en/Resources/Resources/StandardsLabelingResourceLibrary/2013/~/media/Files/SLDocuments/2013/China-MACEEP-Study/09_2013_Market-Analysis-China-Energy-Efficient-Products.pdf - Market Analysis of China Energy Efficient Products (MACEEP)

Colombia

(Region: Central/South America)

Ministerio de Minas y Energia (Ministry of Energy and Mines) has the responsibility for Colombia's energy efficiency program. The Programa Colombiano de Normalización, Acreditación, Certificación y Etiquetado de Equipos de Uso Final de Energia (CONOCE) (Colombian Program Standardization, Accreditation, Certification and Labelling Equipment Energy End Use) was implemented by the Unidad de Planeación Minero Energética (UPME), with cooperation with ICONTEC. Starting in 2002, a series of energy labelling standards have been implemented, including for refrigerators-freezers, clothes washers, air conditioners, motors. Energy labelling is currently voluntary, although may become mandatory in the future.

There are no mandatory or voluntary Energy Performance Standards in place in Colombia.

Comparative Label – Colombia

Program Name: Programa Conoce

Implementing Agency: UPME and ICONTEC

Participation Category: Voluntary

Appliances Labelled: 2002 – air conditioners, ballasts, lamps, motors, refrigerators, freezers and combinations, water heaters (electric)

2004 – clothes washers, gas water heaters, stoves, commercial refrigeration

Rating System: Energy (kWh/year), Efficiency rating A to G (A most efficient).

Label Image Link:
http://www.si3ea.gov.co/Home/ProgramaCONOCE/tabid/110/language/en-US/Default.aspx

Program Information:

The program is run by the Unidad de Planeación Minero Energética (UPME) and ICONTEC as Normas Técnicas Colombianas (NTC). In 2013, a draft Reglamento Técnico de Etiquetado or RETIQ (Labelling Technical Regulations) was published by the Ministry of Mines and Energy which includes updated labelling regulations for air conditioners, refrigerators-freezers, ballasts, electric motors, clothes washers, gas and electric water heaters, gas stoves, and commercial refrigerator-freezers. A move from voluntary to mandatory labelling could occur and a new label design has also been proposed.

The Colombian program has some alignment with the US, Mexican and EU labelling programs.

References - Colombia

http://www.upme.gov.co - Unidad de Planeación Minero Energética (UPME) (Spanish)

http://www.icontec.org.co - ICONTEC (Colombian Institute of Technical Standards and Certification) (Spanish)

http://www.si3ea.gov.co/Home/programaCONOCE/tabid/110/language/en-US/Default.aspx - SI3EA (Information System Energy Efficiency and Alternative Energy) (Spanish)

Costa Rica

(Region: Central/South America)

In 1994, the Costa Rican government passed the Rational Use of Energy Law. This was followed by a series of regulations in 1996 that allowed for the introduction of mandatory Standards and Labels. The Ministerio de Ambiente y Energía (MINAE - Ministry for the Environment and Energy) is responsible for implementing the law.

Energy Performance Standards – Costa Rica

The Costa Rican constitution has meant that products not meeting required standards can not be banned. However, non-compliance results in a tax of 25% of the product's sale price. The standards program is intertwined with the energy labelling scheme, providing an indication of the relative efficiency of products. The Energy Performance Standards program is also the responsibility of MINAE.

Energy Performance Standards, Costa Rica

Product Description	**Year Implemented**
Air conditioners - room	1996
Ballasts	1996
Freezer	1996
Lamps - fluorescent	1996
Motors	1996
Ranges/ovens	1996
Refrigerators/refrigerator-freezer	1996
Water heaters	1996

Comparative Label – Costa Rica

Program Name: ENERGICE

Implementing Agency: Dirección Sectorial de Energía del Ministerio de Ambiente y Energía

Participation Category: Mandatory

Appliances Labelled: 1996 - air conditioners (room), ballasts, freezers, lamps (fluorescent), motors (electric), ranges/ovens, refrigerators, refrigerator-freezers, water heaters (electric)

Rating System: Each leaf (star) represents 5% of increase in savings over the standard set by the norm (INTE XX-XX-XX), defined by INTECO, the National Institute for Standards.

Label Image Link: http://www.inteco.or.cr/esp/catalogo.php (label received through correspondence)

Program Information:

MINAE is responsible for the program. The Ministry's inspectors or those from the Ministry of Economy, Industry and Commerce (MIEC), carry out testing of products. Labels must be placed on products prior to leaving the factory or customs.

References – Costa Rica

http://www.minae.go.cr - Ministerio de Ambiente y Energía (Ministry for the Environment and Energy)

http://www.inteco.or.cr - Oficina nacional de normas y unidades de medida (Costa Rican Standards Organisation) (Spanish)

http://www.grupoice.com/wps/portal/gice/elect_hub/Ahorro%20de%20Electricidad/Sello%20EnergICE%20-%20Inteco/!ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os_gQL0N_D2cLEwN_Vy8XA08zY09TUzNTd49AI6B8JC55A2d_U5J0GwRYugLlXX0tg8xcDQwMTIjRbYADOBoQ0O3nkZ-bql-QGxoaUe6oCABrga2R/dl3/d3/L2dBISEvZ0FBIS9nQSEh/#.Unl1B1P4WSo - Seal Energize, Inteco (Spanish)

http://www.bun-ca.org/nuevo/index.php - BUN-CA, (Energy Network Foundation) (Spanish)

Egypt

(Region: Middle East)

The Egyptian Energy Strategy was implemented in 1979 with a range of aims, including the development of national energy efficiency codes and strategies. Due to political changes, it was a long period of time before Egypt first introduced mandatory standards and labels in 2002/03. Two key long standing stakeholders are the Organisation for Energy Planning (OEP) and the Egyptian Organisation for Standardisation (EOS). These organisations work with other standards and labelling stakeholders in Egypt, including appliance and equipment manufacturers.

Energy Performance Standards - Egypt

First implemented in 2003, Egypt now has mandatory Energy Performance Standards for a range of products as shown below.

Energy Performance Standards, Egypt

Product Description	Year Implemented	Year Revised
Refrigerators	2003	2006
Room air conditioners	2003	
Clothes washers	2006	
Freezers	2006	
Refrigerator/freezers	2006	
Water heaters	2007	
Small 3-phase electric motors	2008	
Transformers	2008	

Comparative Label - Egypt

Program Name: No information found at the time of writing

Implementing Agency: Egyptian Organisation for Standardisation (EOS)

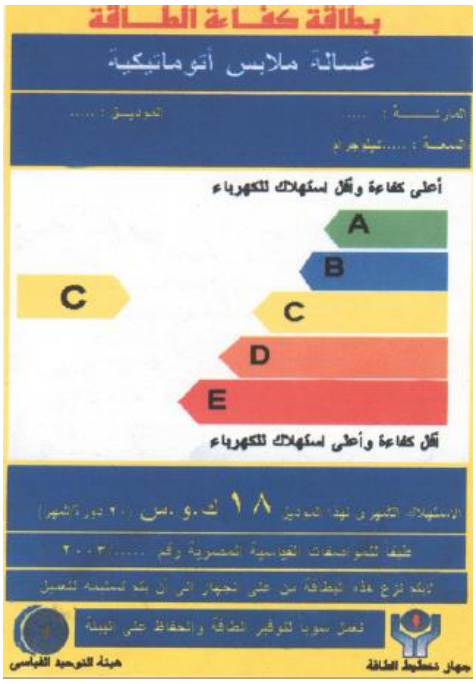
Participation Category: Mandatory/Voluntary

Appliances Labelled: 2003 (all mandatory) – clothes washers, freezers, refrigerators, room air conditioners

2009 – CFLs (voluntary, under revision)

In consideration – lighting systems

Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient)



Label Image Link:
http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=58d871ee-a057-41dc-a4ba-8005d3649459

Program Information:
First introduced in 2003, the label is based of the EU labelling scheme. This label was selected after taking into account Egyptian culture, education levels and lessons learnt from other countries, and involved a detailed consultation process.

References - Egypt

http://www.ceeba.org – The Confederation of Egyptian European Business Associations

http://www.nrea.gov.eg – Egypt New and Renewable Energy Authority

http://www.jcee-eg.net/ - Egyptian German Joint Committee on Renewable Energy, Energy Efficiency and Environmental Protection

http://www.worldenergy.org/documents/egypte_mr._ferjaniegypt_ee_case_study1.pdf - Energy Efficiency Standards and Labels Program, the Egyptian Challenge at a Glance

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.thegef.org - Global Environment Facility (GEF)

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

European Union

(Region: Europe)

The European Union (EU) is now made up of made up of 28 member countries. Originally 9 countries when it first formed, the EU grew to 15 countries by the 1990s: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the United Kingdom. Another 10 additional countries joined in 2004: the Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. Since then, three more have joined in Romania and Bulgaria in 2007, and Croatia in 2013. These countries are required to implement harmonised regulations, including those covering energy efficiency requirements (Energy Performance Standards and labelling).

This broad geographical and economic coverage means that many of the practices of the EU are adopted or absorbed into many other countries that are geographically close or that trade with Europe. The European Commission is the EU's governing body, with the Directorate General of Energy and Transport (TREN) being responsible for energy policy. Labelling and standards are the task of the New Energies and Demand Management Unit.

Prior to the EU labelling program, only a few countries were either running or developing labelling and standards programs. The earliest programs began in the 1960's, with France introducing Energy Performance Standards, and in the mid 1970's with France and Germany both implementing labelling programs. In the 1980's, a voluntary common EU label was developed for ovens, but none of the Member States introduced the system due to a range of concerns. By 1990, Denmark, the Netherlands, and the United Kingdom also had legislation in place pertaining to energy labels and standards, while other countries such as Ireland were running voluntary labelling programs. It was Denmark's desire to introduce a mandatory energy labelling scheme that led to the introduction of a common mandatory EU label.

In 1990, Denmark announced it wished to implement a Mandatory Energy Labelling Program. The European Commission (EC) declared that this would present an obstacle to "Free Trade", and so requested that Denmark not proceed. However, given the interest across Europe in labelling programs the Commission developed the *Directive For Mandatory Energy Labelling Of Household Appliances* (Directive 92/75/EEC), which made comparative labelling compulsory in all member countries once a product directive had been passed. The Directive came into force in 1992, with the first labels becoming effective for refrigerators in 1995. The label for refrigerators and freezers was amended in 2003, with the inclusion of A+ and A++ categories (Directive 2003/66/EC). On 19 May 2010, the EU adopted the Directive 2010/30/EU on energy labels and 25 October 2012, the EU

adopted the Directive 2012/27/EU on energy efficiency amending Directives 2009/125/EC, and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC. The nature of the directive means that new appliances can be included in the program without seeking further political approval (from either parliament or the Council of Ministers – although there is a consultative labelling committee made up of civil servant appointees from Member States). An EU wide review of the energy label commenced in 2013.

Another EC directive in 1992 allowed for the introduction of an EU wide eco-labelling scheme. This voluntary program covers several appliances, which must meet energy efficiency criteria. The eco-label can be incorporated into the design of the comparative label. In addition, several EU members run their own voluntary endorsement programs both for energy efficiency and as part of broader eco-labelling schemes. Europe also now participates in the International ENERGY STAR® program for office equipment.

The history of Energy Performance Standards within the EU has a similar beginning to the labelling program. The Netherlands notified the EC in 1992 of a desire to introduce Energy Performance Standards for refrigerators; again this was seen as a barrier to the working of the single market. The Commission hired consultants from three national energy agencies who formed the Group for Efficient Appliances (GEA) to carry out the study[8]. The GEA produced a report with recommended Energy Performance Standards levels. The Commission and Member States largely ignored these recommendations, opting for less stringent levels, but which were still based upon the technical efficiency definitions and approaches established in the GEA study. This was approved in 1996, and took effect in September 1999. However, the directive is specific to refrigerators and freezers, unlike the framework energy labelling legislation, which means that Energy Performance Standards for other appliances need to be presented separately to the Council of Ministers (made up of representatives from the Member State governments) and the Parliament for approval. Hence the progress of Energy Performance Standards was slow and somewhat ad hoc. Energy Performance Standards for fluorescent lighting ballasts were also introduced in 1999 and requirements for boilers were also developed, but only approved in 2013.

In July 2006, the European Parliament issued the directive (2005/32/EC), with further amendments in 2008 and 2009 establishing a framework for the establishment of energy efficient requirements for energy, known as the EcoDesign Directive. The EcoDesign Directive provides consistent EU wide rules for improving the environmental performance of energy related products through energy efficiency measures, and prevents disparate national legislations on the environmental performance of these products from becoming obstacles to the intra EU trade. The EcoDesign directives can notionally

[8] The GEA also launched a voluntary endorsement label, which allowed consumers to identify the most efficient home electrical and office equipment. The GEA and this label have since ceased to exist.

cover any Energy Related Product (any product not only using energy directly, but also influencing its usage). More than 30 different products have had preparatory studies and many have requirements implemented. The regulations have a set revision and upgrade timetable for all regulated products.

Previously, Directives passed by the European Commission required member states to implement enabling national legislation to give effect to the requirements. Since the EcoDesign directive and the upgraded energy labelling directive, energy efficiency requirements for new products have been promulgated as EU wide delegated regulations, which are force in all member states once passed in Brussels, without the need for national laws or regulations (translation into each of the 24 official EU languages is required).

For some product types, the EC has worked towards improved efficiency through voluntary negotiated agreements for a range of products. The EC negotiates with manufacturing associations to reduce overall energy consumption by setting a target efficiency level for an appliance, and by requiring the elimination of the products that consume the most energy. To date there have been six negotiated agreements. Some of these have been superseded by recent legislative requirements.

NAFTA (Canada, Mexico, USA) countries now implement the EU labelling and Energy Performance Standards directives under the European Economic Treaty – a treaty between EU and European Free Trade Association countries (which includes Iceland, Liechtenstein, Norway and Switzerland). The dates of implementation vary by country. In addition, several countries in Eastern Europe that are not yet in the EU (but that have initiated a format accession process), have also implemented parts or all of the EU labelling and Energy Performance Standards program.

Energy Performance Standards - European Union

The introduction of Energy Performance Standards in Europe was problematic initially, with the European Union members initially needing to gain approval from the EC and the Parliament, in order to introduce or revise mandatory energy efficiency standards for any product. When the Netherlands initially proposed a national standard for refrigerators, it was rejected on the grounds that it would be prohibitive to free trade agreements. Prior to 2009, only three products had mandatory standards.

In 2009, the EU adopted the Directive 2009/125/EC on EcoDesign, aimed at reducing the environmental impact of products, including the energy consumption throughout their entire life cycle. This Directive established a framework for the setting of EcoDesign requirements for energy related products, however made no direct provision for mandatory requirements for specific products. Mandatory requirements are developed for individual products via implementing measures

and voluntary agreements. Since the adoption of the Directive 2009/125/EC, mandatory Energy Performance Standards have been established for many electrical appliance categories (see also http://www.eceee.org/ecodesign/products).

Further products under consideration for Energy Performance Standards include: game consoles, tunnel washers (commercial), DVD and Blu Ray players, commercial refrigeration – all types, ovens, central air conditioners, ice machines. Energy Performance Standards have been developed and is awaiting implementation for coffee machines.

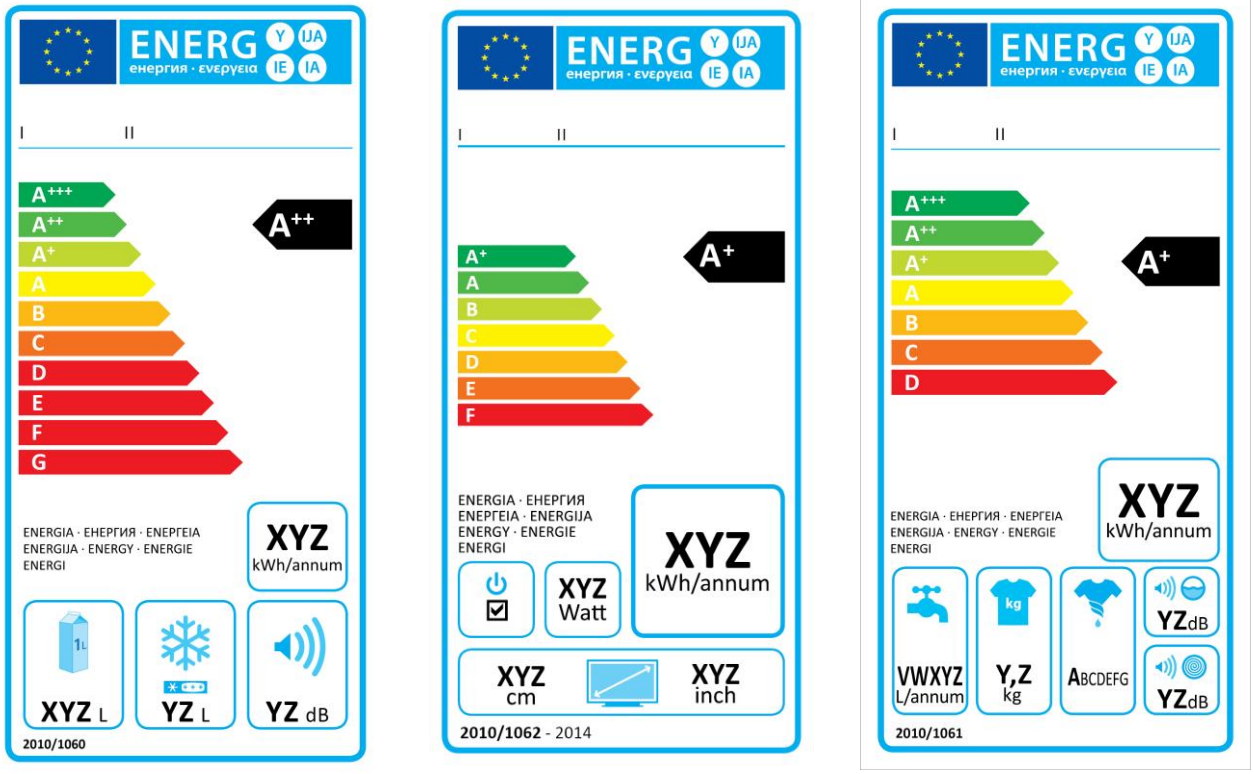
Energy Performance Standards, Europe

Energy Performance Standards – Product Description	**Year Implemented**	**Year Revised**
Boilers hot water (92/42/EEC) – gas/liquid fuels	1992	
Televisions (642/2009 implementing 2005/32/EC)	2009	
Freezers (96/57/EC) and (2005/32/EC)	1999	2009
Refrigerators and/or Refrigerator-freezers (96/57/EC) (643/2009 implementing 2005/32/EC)	1999	2009
Ballast for fluorescent lamps (2000/55/EC)	2000	2010
Lighting low pressure sodium (2005/32/EC)	2009	
Lighting – CFL	2009	
Electric motors (640/2009 implementing 2005/32/EC)	2009	
External power supplies (278/2009 implementing 2005/32/EC)	2009	
Lighting (various)	2009	
Simple set top boxes (107/2009 implementing 2005/32/EC)	2009	
Air conditioners	2009	2012
Clothes washers (1015/2010 implementing 2009/125/EC)	2010	
Dishwashers (1016/2010 implementing 2009/125/EC)	2010	
Lighting ballast HID (2005/32/EC)	2010	
Pumps (2005/32/EC)	2009	2012
Industrial fans (327/2011 implementing 2009/125/EC)	2011	
Lighting systems (2005/32/EC)	2012	
Clothes dryers (932/2012 implementing 2009/125/EC)	2012	
Circulators (622/2012 implementing 641/2009/EC)	2012	
Lighting - halogen (2005/32/EC)	2013	

Energy Performance Standards – Product Description	**Year Implemented**	**Year Revised**
Computers and computer servers (617/2013 implementing 2009/125/EC)	2013	
Space heaters (813/2013 implementing 2009/125/EC)	2013	
Standby (1275/2008)	2009	
Network standby (801/2013 implementing 1275/2008)	2015	
Vacuum cleaners (666/2013 implementing 2009/125/EC)	2013	
Water heaters (814/2013 implementing 2009/125/EC)	2013	
Negotiated Agreements – Product Description		
Audio Equipment	1997	
Codes of Conduct (Voluntary Industry Agreements) (only showing latest versions)		
Complex Set Top Box Code of Conduct on Energy Consumption of Digital TV Services	2012	
Data Centres	2012	
Broadband Equipment	2013	
Digital Television Services	2013	
Imaging Equipment	2013	

Note: Many of the regulations noted have several Tier levels defined for later years.

Comparative Label - European Union



Program Name: Energy Label

Implementing Agency: National bodies of EU member Countries

Participation Category: Mandatory

Appliances Labelled: 1994 - refrigerators, refrigerator-freezers and freezers (94/2/EC) (revised with 2010/30/EU and again with Commission Delegated Regulation 1060/2010)

1996 - clothes washers (95/12/EC) (revised with 2010/30/EU and again with Commission Delegated Regulation 1061/2010), clothes dryers (95/13/EC) (revised with 2010/30/EU and again with Commission Delegated Regulation 392/2012)

1997 - combination washer-dryers (96/60/EC)

1998 – dishwashers (97/17/EC) (revised with 2010/30/EU and again with Commission Delegated Regulation 1059/2010), lighting systems (92/75/EEC)

2000 – electrical lamps and luminaries (98/11/EC) (revised with 2010/30/EU and again with Commission Delegated Regulation 847/2012)

2003 - air conditioners (2002/31/EC), electric ovens (2002/40/EC)

2010 – Commission Delegated Regulations: 1062/2010 televisions (updating 2010/30/EU)

2011 – Commission Delegated Regulations: 626/2011 air conditioners (updating 2010/30/EU)

2013 – Commission Delegated Regulations: 811/2013 space heating equipment, 812/2013 water heaters, 665/2013 vacuum cleaners

Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient), although new label scales generally show a highest rating of A+++ with the lowest rating of D; the visible end scales depend on the product.

Label Image Link: http://ec.europa.eu/energy/efficiency/labelling/labelling_en.htm

Program Information:

Most products are now covered by delegated regulations, which do not require member country laws or regulations. Member States are responsible for compliance, educational and promotional activities. Product suppliers need to provide proof of appliance efficiency and make informational available in the form a product fiche. The requirement for a label also applies to products for hire (but not for second hand products), and a set of information to be provided on internet is also specified, where the label is not displayed. A new directive for the label display on internet is under preparation. For any advertisement, the product´s energy class has to be specified in media, whenever the price or technical specifications are promoted.

The label displays the energy consumption and rates the appliance with its comparative level of efficiency. There is no product registration system in Europe.

The above far left label is for a refrigerator, the middle for a television, and the far right is for a washing machine. All labels are of similar style. The EU has moved to using pictograms rather than words for each of the performance measures included in addition to energy, due to the large number of languages used in Europe (the EU labels are regarded as "language neutral").

The label is currently in a revision process (2013-2014), which may result in a (fundamentally) new design and energy class specification. Further information can be found at - http://www.energylabelevaluation.eu/eu/home/welcome

Endorsement Label - European Union

Program Name: European Eco-label award scheme

Implementing Agency: European Union Eco Labelling Board (EUEB)

Participation Category: Voluntary

Appliances Labelled: Began in 1992 - computers (including portables), lamps (cfls, double ended tubes), computer monitors, televisions,

(Products originally included, but no longer included in the scheme - refrigerators, refrigerator-freezers, clothes washers, dishwashers, freezers, vacuum cleaners)

Product Categories:

Electrical equipment and household appliances:

2007 – heat pumps

2009/2013 – televisions

2011 – notebook computers, light bulbs, personal computers

Other products:

Beauty care, cleaning, clothing, paints and varnishes, electronic equipment, coverings, furniture, household appliance, lubricants, paper products, gardening, holiday accommodation.

Label Image Link: http://ec.europa.eu/environment/ecolabel/information-and-contacts.html

Program Information:

Launched in 1992, the European Eco-label award scheme operates across the European Union, Norway, Liechtenstein and Iceland. The EUEB was formed recently to improve the administration of the program and has representatives from all participant countries. Criteria are set by the EC in consultation with the member states, and are reviewed every three years to ensure the label stays relevant. If an eco-label is awarded, it can be displayed on the comparative label, and as with many eco-label programs, energy efficiency is just one criteria. Manufacturers need to apply to the accredited National organisation to be awarded the label, with the onus of proof of the claim on the

manufacturer. The national body then informs the EUEB, and if there are no objections, then the label is awarded.

Endorsement labels from individual Countries with the European Union

Seven examples of labelling programs being run by countries (or groups of countries) within the EU are briefly summarised below. This is not an exhaustive list, with other EU countries also using endorsement labels, including the Czech Republic, France, Sweden, Slovakia and Hungary. Details about the Nordic Swan Ecolabel, which operates in Norway, Sweden, Denmark, Finland and Iceland can be found under **Norway** see page 132.

Program Name: Austrian Eco Label

Implementing Agency: Federal Ministry for Environment, Youth and Family Affairs (BMUJF)

Participation Category: Voluntary

Appliances Labelled: Refrigerators, refrigerator-freezers, freezers, clothes washers, copiers

2013 – product categories - building and housing, household and cleaning, garden, office, paper and printing, green energy, sustainable financial products, mobility (driving schools)

Label Image Link: http://www.umweltzeichen.at/cms/home233/content.html

Program Information: This eco label program began in 1991, and is administered by the BMUJF. Labels are awarded only for a 12 month period.

Program Name: Umweltzeichen or Blue Eco Angel (Germany)

Implementing Agency: Federal Ministry for the Environment Nature Conservation and Nuclear Safety

Participation Category: Voluntary

Appliances Labelled: 1986 – boilers, water heaters

1990 – copiers, gas heating products

1992 - refrigerators, freezers and combinations

1994 – ballasts, computers

1996 – printers

1997 – televisions

1998 - fax machines, portable computers

1999 - clothes dryers clothes washers, dishwashers

2013 – product categories include: home and living, electrical appliances including baby monitors and coffee machines, building materials, office equipment and consumables, energy and heating flues and equipment, gardening tools and materials and commercial practices.

Label Image Link: http://www.blauer-engel.de/en/blauer_engel/

Program Information:

This Eco label program is a joint initiative of three organisations: Umweltzeichen - an independent panel with representatives from the scientific, business and environmental communities, consumer organisations, union, industry, and Government; Deutsches Institut für Gütesicherung und Kennzeichnung (RAL German Institute for Quality Assurance and Labelling); and Umweltbundesamt (the Federal Environmental Agency).

Program Name: Milieukeur

Implementing Agency: Stichting Milieukeur, The Netherlands

Participation Category: Voluntary

Appliances Labelled: Central heaters, lamps, computers, televisions

Label Image Link: http://www.milieukeur.nl/19/home.html

Program Information:

Stichting Milieukeur is responsible for this ecolabel. The organisation is made up of environmental, consumer, manufacturers and retail organisations, as well as government representatives.

Program Name: Energy Efficiency Recommended Logo

Implementing Agency: Energy Saving Trust, UK

Participation Category: Voluntary

Appliances Labelled: Refrigerators, refrigerator-freezers and freezers, clothes washers, clothes dryers combination washer-dryers, dishwashers, lamps, boilers

Label Image Link: http://www.energysavingtrust.org.uk/

Program Information: This program developed by the UK Energy Trust, who awards the label to the most efficient products in each category.

Program Name: Aenor-Medio Ambiente, (Spain)

Implementing Agency: Asociacion Espanola de Normalizacion y Certificacion (AENOR. Standards Association Spain)

Participation Category: Voluntary

Appliances Labelled: copiers, fax machines, televisions, printers, VCR

Label Image Link: http://www.ecolabelindex.com/ecolabel/aenor-medio-ambiente

Program Information: The Spanish eco label program began in 1994, and is run by the independent standards organisation, AENOR.

Program Name: Environmental Label (Croatia)

Implementing Agency: Ministry of Environmental and Nature Protection

Participation Category: Voluntary

Appliances Labelled: Building and cleaning products, paper products, tourism (accommodation providers), waste management and recycling, biodegradable lubricants.

Label Image Link: http://www.ecolabelindex.com/ecolabel/environmentally-friendly-label-croatia

Program Information:

The Environment Label of Croatia was established in 1993, and is awarded for products or services which are deemed to be better for the environment compared to other products through a life cycle analysis. The manufacturer, importer, service provider, wholesale or retail merchant submits an application for the award of the Environment Label to the Ministry of Environmental and Nature Protection, who then forwards the submission to the Commission for the award of the Environmental Label for consideration and professional assessment. The Commission proposes or rejects awarding of the Environmental Label if the product meets or does not meet all the requirements for the award, with the Environmental Label award then passed by the Ministry if the application is successful. The Environmental Label is awarded for a fixed term of three years. The manufacturer may resubmit a new application for an extension.

Summary of European Labelling Programs

Original EU Country	Comparative Energy Label	EU Eco Label	Own Energy Endorsement Label	Own Eco Label
Austria	M	V		V
Belgium	M	V		
Denmark	M	V		V
Finland	M	V		V
France	M	V		
Germany	M	V		V
Greece	M	V		
Ireland	M	V		
Italy	M	V		
Luxembourg	M	V		
Netherlands	M	V		V
Portugal	M	V		
Spain	M	V		V
Sweden	M	V		V
United Kingdom	M	V	V	
New EU Country*				
Bulgaria	M?	V		
Croatia	M		V	
Cyprus	M	V		
Czech Republic	M	V		V

Original EU Country	Comparative Energy Label	EU Eco Label	Own Energy Endorsement Label	Own Eco Label
Estonia	M	V		
Hungary	M	V		V
Latvia	M	V		
Lithuania	M	V		V
Malta	M	V		
Poland	M	V	V	V
Romania	M	V		
Slovakia	M	V		V
Slovenia	M	V		
Non EU Country				
Iceland		V		V
Liechtenstein		V		
Norway	M	V		V
Switzerland	V	V	V	?
Turkey	M?	V		

M – Mandatory, V – Voluntary, ? – Status Unknown

* New countries were admitted to the EU on 1 May 2004.

Standby Power – European Union

In 2008, the European Commission published a new standby regulation; EC No 1275/2008. This implemented the Directive 2005/32/EC of the European Parliament and of the Council, in regards to Ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment. This regulation came into force in two stages with Tier 1 in December 2009, and Tier 2 in December 2012.

In August 2013, the EU published the Networked Standby Amendment to Regulations EC/2008/1275 (standby), and EC/642/2009 (televisions). An amended standby regulation was issued later in August 2013 (Regulation 801/2013) for networked products, and the requirements will be introduced in three Tiers in January 2015, January 2017, and January 2019. Existing standby and off mode regulation still applies for non-networked equipment.

While the amendment sets out levels through to 2019, a review is planned in 2016 to assess the validity of the levels in relation to any future advances in technology and design.

References - European Union

http://ec.europa.eu/energy/efficiency/labelling/labelling_en.htm - EU Energy Labelling site

http://ec.europa.eu/energy/efficiency/ecodesign/eco_design_en.htm EU Ecodesign website

http://iet.jrc.ec.europa.eu/energyefficiency/ EU Joint Research Centre – energy efficiency

http://www.eceee.org/ecodesign/products - ECEEE, Ecodesign and Labelling

http://www.come-on-labels.eu/legislation/eu-product-energy-labelling - Come On Labels, EU product energy labelling

http://www.which.co.uk/energy/saving-money/guides/energy-labels-explained/ - Energy Labels, UK

http://www.irish-energy.ie - Energy Labels at Irish Energy Centre

http://ec.europa.eu/environment/ecolabel/ - EU Eco Label

http://www.energysavingtrust.org.uk/ - Energy Savings Trust UK

http://www.blauer-engel.de - Blue Angel Germany

http://www.milieukeur.nl/ - The Netherlands Eco Label

http://www.umweltzeichen.at/cms/home/tourismus/content.html - Austrian Eco Label

http://www.kape.gov.pl - Polish National Energy Conservation Agency (KAPE)

http://www.efficientlighting.net - Efficient Lighting Initiative (ELI), Poland.

http://www.mos.gov.pl - Ministry of Environment, Poland

http://www.mg.gov.pl - Ministry of Economy, Poland

http://www.mzoip.hr/ - Ministry of Environmental and Nature Protection, Croatia

Ghana

(Region: Africa)

The government of Ghana initiated an energy efficiency and conservation program in response to an energy crisis in 1983/84, with subsequent periods of power shortfalls in 1994, 1998 an 2007. Only minimal change occurred in the sector until 1997, when the government began to implement energy sector reform, including the establishment of the Ghana Energy Foundation. With support from both the government of Ghana, and international aid organisations, the Foundation aims to improve the efficiency and sustainability of the energy sector in collaboration with the private sector, government institutions and regulatory bodies. Developing and implementing an appliance labelling and standards program is one of the primary focuses of the Energy Foundation's work. The program is motivated not only by a desire to encourage consumers to make efficient choices, but also prevent the market from being used as a dumping ground for obsolete products. Additionally, it is hoped the experiences in Ghana will increase the availability of higher-efficiency consumer goods throughout West Africa, while providing a successful model for other countries in the region.

In the early 2000's, USAID, CLASP and the Alliance to Save Energy worked closely with the Ghana Energy Foundation and the Ministry of Mines and Energy, to identify products and develop a standards and labelling program appropriate for Ghana. Ghana's Electrical Appliance Labelling and Standards Program (GEALSP), the first for sub-Saharan Africa, was customised to meet the country's energy needs, culture and economy. Standards were first introduced for room air conditioners, following by lighting, refrigerators and deep freezers. Room air conditioners were chosen as the first product for Energy Performance Standards due to the potential energy savings. In 2005, the first Energy Performance Standards was introduced for room air conditioners and compact fluorescent lights. This was complemented by a comparative labelling program for air conditioners and lighting, and more recently for refrigerators and freezers.

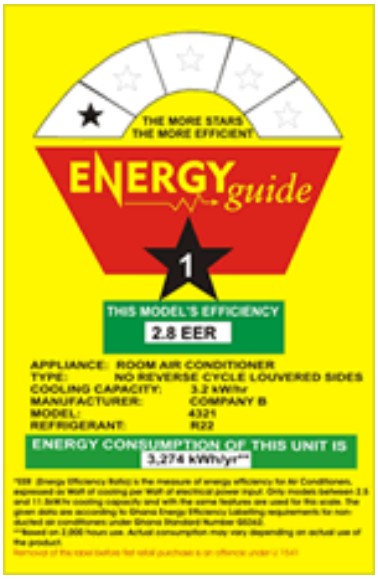
Energy Performance Standards – Ghana

In 2002, Ghana enacted appliance standards regulations for room air conditioners – the first such regulations in Sub-Saharan Africa. Energy Performance Standards were subsequently introduced for lighting and refrigerators.

Energy Performance Standards, Ghana

Product Description	Year Implemented	Year Revised
Air conditioners	2002	2005, 2008
Lighting - CFL	2008	
Lighting - Incandescent	2008	
Refrigerators, refrigerator-freezers	2009	2010

Comparative Label - Ghana



Program Name: Ghana's Electrical Appliance Labelling and Standards Program (GEALSP)

Implementing Agency: Ghana Energy Commission

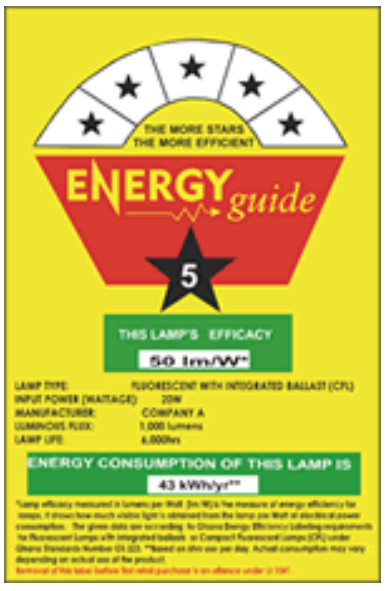
Participation Category: Mandatory

Appliances Labelled: 2005 - room air conditioners, compact fluorescent lamps (both updated in 2009)

2009 - refrigerator/freezers

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=0f1ff451-ad08-4c5c-8aad-12c40f919109



Rating System:

Ghana's comparative label uses a 'dial' or gauge with greater efficiency linked to advancement along the arc. The number of stars or the 'grading' numeral on the scale depends on the highest pre-set threshold for energy performance that the model is able to meet. Labels display the estimated annual energy consumption (kWh/year) used by the appliance and how this compares with the lowest and highest energy consumption for similar products. Air conditioner ratings are based on the Energy Efficiency Ratio (EER) of the unit. The top label is for air conditioners, the bottom label is for refrigerators.

References - Ghana

http://www.ghanaef.org/ - Ghana Energy Foundation

http://www.clasponline.org – various documents on Ghana are available.

http://www.gsa.gov.gh/ - Ghana Standards Authority

http://www.energyguide.org.gh/ - Refrigerator Energy Efficiency Project

http://www.energycom.gov.gh/ - Energy Commission (Ghana)

http://superefficient.org/en/Resources/~/media/Files/ECOWAS/ECOWAS%20Institutional%20Assessment_Final%20Report%20with%20Appendices.pdf - Institutional and Regulatory Framework Assessment for the ECOWAS Appliance Standards and Labelling Program, SEAD

http://www.ecowrex.org/sites/default/files/2008%20EE%20Regulation%20LI1932.pdf - LI1932, Energy Efficiency Regulations 2008

Hong Kong (China)

Region: Asia Pacific

Hong Kong has established a voluntary comparative label program, as well as mandatory comparative and endorsement style labels. The comparative energy labelling program for Hong Kong was set up as a voluntary program in 1995, by the Electrical and Mechanical Services Department of the Hong Kong government. The mandatory scheme commenced in 2009, and uses an EU style efficiency label.

Comparative Label – Hong Kong (China)

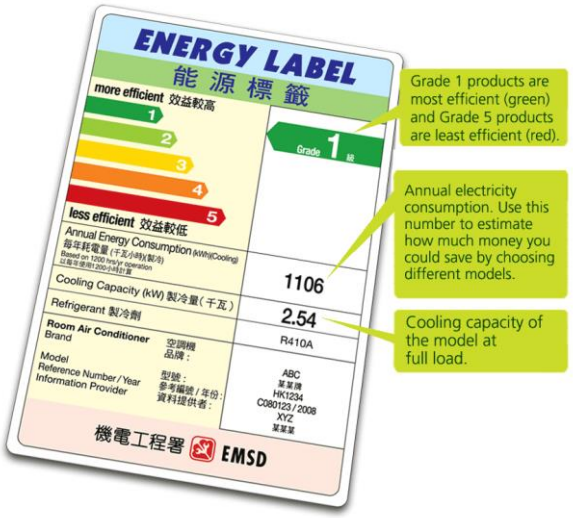
Program Name: The Hong Kong Mandatory Energy Efficiency Labelling Scheme (MEELS)

Implementing Agency: Electrical and Mechanical Services Department (EMSD)

Participation Category: Mandatory

Appliances Labelled: 2009 – air conditioners, refrigerators, CFLs

2011 – clothes washers, dehumidifiers



Rating System: Energy (kWh/year), Efficiency Rating (grade) 5 to 1 (1 most efficient)

Label Image Link: http://www.energylabel.emsd.gov.hk/en/about/background.html

Program Information:

Under MEELS, energy labels are required to be shown on applicable products for supply into Hong Kong, as to inform consumers of their energy efficiency performance. Prior to supplying a prescribed product in Hong Kong, an importer or manufacturer is required to submit a test report of the product model to EMSD for assignment of a reference number. Verification is conducted at accredited laboratories on products that are selected at random. The program is supported by a website, which lists registered products and details registration procedures. The example label is for an air conditioner label.

Comparative/Endorsement Label – Hong Kong (China)

Program Name: The Hong Kong Voluntary Energy Efficiency Labelling Scheme (VEELS)

Implementing Agency: Electrical and Mechanical Services Department (EMSD)

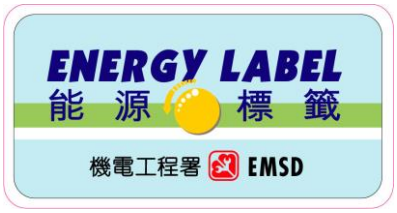
Participation Category: Voluntary

Appliances Labelled: 2010 – laser printers

2011 – LCD monitors, LEDs, televisions,

2012 – ballasts, CFLs, refrigerators, room coolers, clothes dryers, induction cooker

2013 – multifunction devices, water coolers, fax machines, dehumidifiers, photocopiers, rice cookers, computers, gas instantaneous water heaters, clothes washers, rice cookers, computers, electric storage water heaters



Label Image Link: http://www.gov.hk/en/residents/environment/energy/efficiencylabel.htm

Program Information:

The VEELS scheme has two labelling components, namely the 'Recognition Type' and 'Grading Type' energy labels. The 'Recognition Type' energy label (bottom) is an endorsement label used to help consumers recognise that appliances have met energy efficiency and performance requirements. The 'Grading Type' energy label (top) is a comparative label divided into 5 grades - Grade 1 indicates the highest energy efficiency level. Both labels are voluntary and work in conjunction with each other.

References – Hong Kong (China)

http://www.energyland.emsd.gov.hk - Energy Land

http://www.emsd.gov.hk/emsd - Electrical and Mechanical Services Department

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency

http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml - Mandatory Energy Efficiency Labelling Scheme

http://www.emsd.gov.hk/emsd/eng/pee/eels_vlntry.shtml - Voluntary Energy Efficiency Labelling Scheme

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

India

(Region: Asia Pacific)

The Energy Conservation Act of 2001 provides the basis for India's standards and labelling program. This legislation established the Bureau of Energy Efficiency (BEE), and an Energy Conservation Fund. The legislation enables the provision of the introduction of mandatory labels and standards. This allowed an energy labelling program to be developed in India, which began in 2006 with standards followed shortly afterward. Both of these programs are administered by BEE. The Indian Pollution Control board also runs an eco-label program.

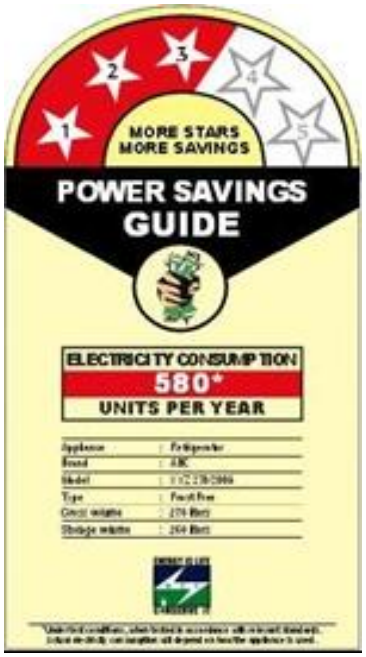
Energy Performance Standards - India

India has introduced voluntary Energy Performance Standards for refrigerators, room air conditioners, fluorescent lamps and distribution transformers. The Bureau of Indian Standards (BIS) administers standards in India, with the requirements specified in the relevant product standards. The BIS, and the Indian Institute for Technology, both have test laboratory capable of testing energy efficiency. Manufacturers adopting voluntary standards and claiming compliance with the Indian Standard are subject to compliance inspections. Energy Performance Standards for chillers, agricultural pump sets, industrial fans and pumps are currently being developed.

Energy Performance Standards, India (voluntary)

Product Description	Year Implemented	Year Revised
Refrigerators, refrigerator-freezers	1999	2010
Room air conditioners	1992	2012
Fluorescent lighting	2010	
Distribution transformers	2010	
CFLs (mandatory)	2012	
LED lighting	2012	

Comparative Label - India



Program Name: Comparative Label

Implementing Agency: Bureau of Energy Efficiency (BEE)

Participation Category: Voluntary/Mandatory

Appliances Labelled: 2004 – refrigerators and refrigerator-freezers

2006 - refrigerators and room air conditioners (voluntary)

2007 - refrigerators (direct cool) (voluntary)

2010 - refrigerators (frost free), tubular fluorescent lamps (TFL), room air conditioners and distribution transformers (mandatory)

2009 – agricultural pump sets, general purpose 3 phase motors, ceiling fans (voluntary)

2010 – storage water heaters, clothes washers (voluntary), fluroescent lamps (tubular)

2011 – laptop computers (became mandatory in 2013)

2012 – televisions, LED lighting, ballasts – electronic/magnetic (voluntary), CFLs

2013 - Under review: LPG stoves

2013 - Under development: set top boxes, voltage stabilisers, uninterrupted power supply (UPS), inverters

Rating System: Energy Consumption, Efficiency Rating (grade) 1 to 5 stars (5 most efficient)

Label Image Link:

http://www.clasponline.org/en/RFPsPartnerships/RFPs/ClosedRFPs/2013/RFP3-13

Program Information:

The impetus for the Standards and Labelling program in India came with the passage of the energy conservation bill in October 2001. The Bill allowed for the establishment of Bureau of Energy Efficiency (BEE), which was completed in March 2002. India's Standards and Labelling program involves multiple cooperating organisations: MOP, BEE, Steering Committees, the Technical Committee, and the BIS. BEE develops the labels with input from the Steering and Technical Committees, the label is proposed to MOP, who is then responsible for the execution of the labelling scheme.

India's labelling program was launched in 2006, initially with a voluntary comparative labelling scheme for refrigerators and air conditioners. The overall strategy was to begin labelling on a voluntary basis, then move to a mandatory approach for energy performance and test procedure standards. BEE's Star Labelling is now mandatory for four appliances, including frost-free refrigerators, room air conditioners, distribution transformers and tubular fluorescent lights (TFLs).

Endorsement Label – India

Program Name: BEE Star Ver 1

Implementing Agency: Central Pollution Control Board

Participation Category: Voluntary

Appliances Labelled: 2011 - notebook computers/laptops

2012 - LEDS (self ballasted)

Under consideration for development: central boilers and furnaces

Under development: imaging machines

Label Image Link:

http://www.clasponline.org/en/Resources/Resources/SLHeadlines/BEE-launches-endorsement-labels-for-computers

Program Information:

An endorsement label was introduced for computers (notebook/laptop) in 2011. The label indicates to the consumer that the labelled products save energy compared to other notebooks/laptops. The BEE Star Label is in line with ENERGY STAR version 5.2 specifications for computers. Desktop computers and set top boxes are also under consideration for inclusion in the endorsement labelling scheme. Initially the label was affixed to the carton/box of the product, but following the introductory six months, it became compulsory for manufacturers to affix label to both the carton and the product itself.

Endorsement Label - India

Program Name: Ecomark Scheme

Implementing Agency: Central Pollution Control Board

Participation Category: Voluntary

Appliances Labelled: 1996 - lamps, motors, ranges/ovens, refrigerators, televisions, water heaters

2013 includes – paper products, wood particle board, wooden flush door shutters, domestic gas stoves

Label Image Link: http://www.ecolabelindex.com/ecolabel/ecomark-india

Program Information:

The Ecomark scheme was developed by the Indian Government in 1991, as a form of environmental label with wide product coverage. The ECO Mark scheme derives its power from the government notifications, which issued by Ministry of Environment and Forests. The Central Pollution Control Board, which is under the Ministry of Environment and Forests, acts as a technical wing/consultant of the Ministry. The ECO mark is awarded by the Bureau of Indian Standards, as per the requirements laid down in different national standards. These requirements are arrived and approved by the technical committee within in Central Pollution Control Board.

The Central Pollution Board has been a member of the Global Eco-labelling Network (GEN) since 2000. Products that are eligible to receive the Ecomark as of 2013 include: soaps and detergents, paper, food items, lubricating oils, packaging materials, architectural paints and powder coatings, batteries, electrical/electronic goods, food additives, wood substitutes, cosmetics, aerosol propellants, plastic products, textiles, fire-extinguishers, leather. To date this label has had limited success in India with few manufacturers taking up the opportunity to use the scheme.

References - India

http://www.emt-india.net/Standards_Labeling/main.htm - BEE Standards and Labelling

http://www.powermin.nic.in Ministry of Power, Government of India

http://www.bee-india.nic.in/- Bureau of Energy Efficiency

http://envfor.nic.in - Eco Mark Scheme Ministry of Environment and Forests

http://cpcb.nic.in/Eco_Label.php Eco Label

http://www.ecolabelindex.com/ecolabel/ecomark-india - Ecolabel Index, India

http://www.bis.org.in/index.asp- Bureau of Indian Standards (BIS)

http://www.ceeraindia.org/documents/ecomarkindia.htm - Eco Mark Scheme BIS

http://www.iiec.org/ - International Institute for Energy Conservation

http://www.lites.asia/files/otherfiles/0000/0186/National_Standards_and_Labels_-_India_4_December_2012.pdf - National Standards and Labels, Profile India

Indonesia

(Region: Asia Pacific)

The Indonesian government first announced a Master Plan for Energy Conservation in 1995, with Indonesian Energy Performance Standards and labelling programs coming under the authority of the Ministry of Energy and Mineral Resources. Indonesia has introduced labelling for a number of products (started in 2011 with CFLs), adding products in 2012, and with plans to expand this in coming years. The acknowledged reasons for introducing both standards and labelling, is to increase demand side energy efficiency, and to encourage suppliers (importers and manufacturers) to supply only efficient products. Currently, four products are subject to Energy Performance Standards (chillers, lighting systems, packaged terminals and refrigerators), with levels also planned for a larger range of products. Future Energy Performance Standards will be based on the Standard National Indonesia.

Indonesia is involved in an energy saving regional project (BRESL) that includes five other countries – Pakistan, Bangladesh, Thailand, Vietnam and China. These six countries have called on the technical assistance of the Global Environmental Facility (GEF) to asses Energy Performance Standards programs for a number of products, as well as support a labelling process. The project also aims to facilitate the harmonisation of test procedures, standards and labels among developing countries in Asia.

In order to gain the energy efficiency label, products gain certification through a government appointed accreditation body that ensures that products are tested by independent test laboratories. Products that meet the requirements can then be issued with a certificate and assigned an energy label. For CFLs, the manufacturers or importer must issue a written declaration of conformity and submit this to the Ministry of Energy and Mineral Resources before they label can be put on the product.

Energy Performance Standards - Indonesia

First implemented in 2000, Indonesia now has mandatory Energy Performance Standards for chillers, commercial lighting systems, packaged terminals, refrigerators and CFLs. Energy Performance Standards are under development for a range of products, and in consideration for refrigerated cabinets.

Energy Performance Standards, Indonesia

Product Description	**Year Implemented**
Chillers	2000
Lighting systems (commercial)	2000
Packaged terminals	2000
Refrigerators	2005
CFLs	2013
Under development	
Ballasts	
Medium 3-phase electric motors	
Portable fans	
Refrigerator/freezers	
Rice cookers	
Room air conditioners	
Televisions	
Under consideration	
Refrigerated cabinets	

Comparative Label - Indonesia

Program Name: Energy Efficiency Labelling

Implementing Agency: Ministry of Energy and Mineral Resources

Participation Category: Mandatory/Voluntary

Appliances Labelled: 2011 – compact fluorescent lighting (mandatory)

2012 – refrigerators, refrigerator-freezers, room ACs (details not finalised)

2013 (under development) – portable fans, flat screen televisions, lighting ballasts (under consideration), CRT televisions

2014 (under development) – medium 3 phase motors, rice cookers

2015 (under development) – irons, clothes washers

Rating System: Energy (kWh/year), dual efficiency rating system: efficiency rating (grade) 1 to 4 stars (4 most efficient) AND lowest and highest energy consumption for similar products.

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=7d328fe0-f16b-42df-800d-286783f2cf34

Program Information:

Indonesia launched a comparative energy labelling program in 2011, with CFLs the first product to be labelled. Labelling of CFLs is mandatory, with violations of the provisions of the Declaration of Conformity possibly sanctioned according to regulations. Locally produced CFLs that do not bear signs of an energy saving label will be removed from the market. Imported CFLs that do not bear the energy efficiency label are prohibited entry into Indonesia and must be re-exported or destroyed.

In 2012, refrigerators, refrigerator-freezers and room air conditioners were added to the labelling program. The program is expected to be further expanded to other products through 2013 and beyond. The label is of 1 to 4 stars, ranked by EER[9].

References - Indonesia

http://www.lites.asia/files/otherfiles/0000/0210/Day_1_Session_3.1_Indonesia_policy_on_standards_and_labelling_Maritje_Hutapea.pdf - Energy Efficiency and Conservation Policy in Indonesia Presentation – (Director of Energy Conservation, Ministry of Energy and Mineral Resources)

www.bsn.go.id/ - Badan Standardisasi Nasional – (BSN) (National Standardization Agency of Indonesia)

http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/Harmonization%20of%20standards%20ACs/Regional%20survey%20findings_%20Bek%20Chee%20Jin.pdf – Harmonisation of Energy Efficiency Standards for Air Conditioners and Refrigerators in South East Asia, Market Study – (International Copper Association)

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency

[9] Sources note that this voluntary labelling program is under revision, as currently the label standards are hardly utilised.

http://www.esdm.go.id/index-en.html - Ministry of Energy and Mineral Resources, Indonesia

http://www.undp.org/content/indonesia/en/home/operations/projects/environment_and_energy/barriers-removal-to-the-cost-effective-development-of--energy-ef.html - BRESL, Indonesia

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

Iran

Region: Middle East

In 1996, the Iranian parliament ratified legislation allowing the introduction of mandatory labels and standards on all energy consuming products. This led to the establishment of the Standards for Energy Consumption Group, within the Energy Efficiency Office, under the guidance of the Iranian Ministry of Energy. Since this time Iran has introduced mandatory labelling and Energy Performance Standards for a range of products.

Energy Performance Standards - Iran

Energy Performance Standards for refrigerators were implemented in 1998, and in 1999 for evaporative coolers. Whilst the test method for refrigerators is based on ISO, the tropical ambient temperature of 32°C is used for the energy consumption measurement, due to the substantially hotter climatic conditions in Iran. The program hopes to bring Iranian manufacturers up to the level of European Manufacturers over a three year period. Imported hermetic compressors have been subject to Energy Performance Standards since 1999, with the intent of restricting the import of inefficient vapour compression compressors. Energy Performance Standards are not applied to local compressor manufacturers as they supply only a small fraction of the Iranian market. The Standards Organization is in charge of monitoring the import of compressors and their compliance with the Energy Performance Standards. Iran had to develop the test methods and standard levels for evaporative coolers themselves as they were the first to introduce a program for this type of product. All Energy Performance Standards levels introduced in Iran are mandatory.

Energy Performance Standards, Iran

Product Description	Year Implemented
Refrigerators, refrigerator-freezers	1998
Evaporative coolers	1999
Hermetic compressors	1999
Fluorescent lighting	2002
Chillers	2002
Clothes washers	2002
Pumps	2002
Water heaters	2003
Irons	2008

Product Description	Year Implemented
Room air conditioners	2008
Fluorescent ballasts	2009
Central air conditioners	2009
Imaging machines	2010
Industrial fans	2010
3 Phase motors	2012
Boilers and furnaces	2012
Dishwashers	2012
Freezers	2012
Kettles	2012
Motors	2012
Refrigerated display cabinets	2012
Transformers	2012
Vacuum cleaners	2012
Cooktop/hobs	2013
Compressors	2013
Space heaters	No date

Comparative Label - Iran

Program Name: Energy Efficiency Labelling of Energy Consuming Products

Implementing Agency: Standards and Industrial Research Organisation, Iran.

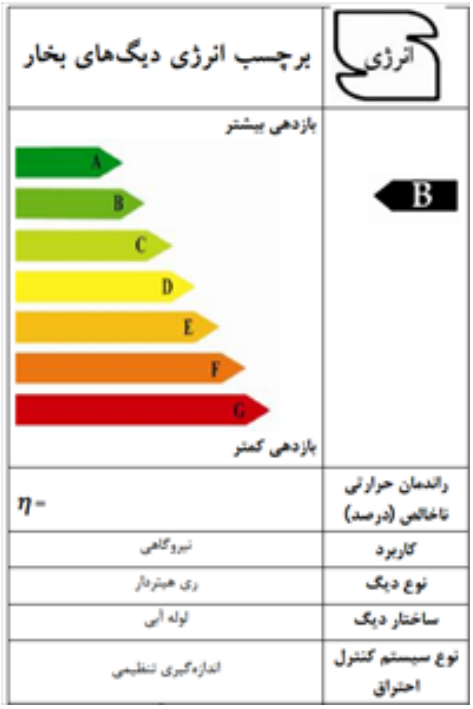
Participation Category: Mandatory

Appliances Labelled: 1996 – clothes washers

1998 - refrigerators, refrigerator-freezers, freezers

1999 – evaporative coolers

2002 – space heaters, cooling towers, pumps, chillers



2003 – water heaters

2004 – flourescent lamps

2006 – room air conditioners

2008 – irons

2009 – lighting ballasts

2010 – imaging machines, industrial fans

2011 – central boiler/furnaces

2012 – 3-phase motors, vacuum cleaners, motors, kettles

2013 - electric water heaters (geyser), ventilator fans, centrifugal pumps, fan coils, compressors

Rating System: Energy (kWh/year), efficiency rating (grade) A to G (A most efficient) (Persian)

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=bf9eee53-11b4-43ca-8fb0-62b8eb7f4f6d

Program Information:

Iran took a number of years to develop an energy labelling program for refrigerators. The intent of the program was to encourage local manufacturers to improve the efficiency of their products. Imports of refrigerators into Iran have been restricted, although a number of local manufacturers have links with European companies and export limited volumes back into Europe. Market analysis of models available in 1997 provided data that enabled the scheme to be developed. The label is based on the European label design due to the market and manufacturer links with Europe (although it is a mirror image and has Persian script). The Standards and Industrial Research Organization of Iran administrate the program. Energy efficiency ratings are based on random selection and testing of the products, according to the established standard performance test procedures at the Standards Organization laboratories. Due to the limited capacity of the test facilities at the Standard Organization's laboratory, there is currently no penalty imposed on products with no energy label. Companies do use the energy label as a marketing tool and run national TV commercials showing their standards' compliance.

References - Iran

http://www.moe.gov.ir/ - Ministry of Energy

http://www.saba.org.ir - Iran Energy Efficiency Organisation IEEO – SABA

http://www.iranenergy.org.ir – Department of Energy

http://www.clasponline.org – CLASP

Israel

(Region: Middle East)

Labelling and Energy Performance Standards have been in place in Israel since 1985. Initially, a professional committee that included members from various ministries, professional organisations, the standards institute and the consumer association, developed the first phase of the project. Shortly after this, the Standards Institute was given responsibility for developing and implementing labels and standards for all residential appliances. Since then, standards and labels have been introduced for 13 products, including cars. While all of the standards are mandatory, some of the labels are voluntary. A difficulty with the program is that the standards and labels are not backed by regulation, making enforcement difficult. Hence since 1996 the Ministry of National Infrastructures has begun presenting legislation to the parliament clarifying the standards and labelling requirements. As each piece of legislation is passed control will become the Ministry's responsibility. Room air conditioners were the first regulation to be passed by parliament with standards approved in 1999, with labels passed and approved in January 2001.

The government ministry now overseeing the standards and labelling programs in Israel is the Ministry of Energy and Water Resources. Many products now have mandatory labelling and Energy Performance Standards, with many of the labelled products currently in the process of a standards review.

Energy Performance Standards - Israel

The SII is responsible for all aspects of the Energy Performance Standards program in Israel. Standards are gradually being enacted into law and upgraded as required. Mandatory Energy Performance Standards are in force for the products listed below, with a number under review (noted with an *).

Energy Performance Standards, Israel

Product Description	Year Implemented	Year Revised
Air conditioners (room)	1985	2009, 2011
Lamps fluorescent tubes	1985	2006, 2011*
Clothes washers	1986	
Freezers	1986	
Lamps	1986*	
Ranges/ovens	1986	2010

Product Description	Year Implemented	Year Revised
Refrigerators, refrigerator-freezers	1986	2005, 2008
Water heaters (solar and electric)	1986	
Space heaters	1987	
Fans	1989	
Dishwasher	1990	2010
3 Phase motors	2006*	
Transformers	2006*	
External power supplies (voluntary)	2007	
Central air conditioners	2008*	
Clothes dryers	2010	
Set top boxes	2011	
Halogen lighting	2012*	
Incandescent lighting	2012*	
Chillers	Under consideration for development	

*Currently under review (2013)

Comparative Label - Israel

Program Name: Energy Label

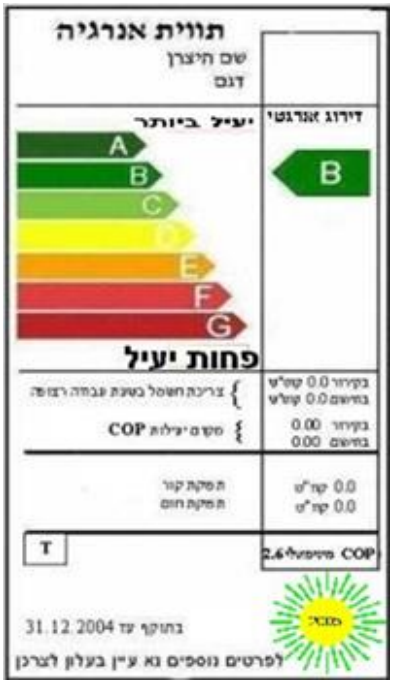
Implementing Agency: Formally, Standards Institution of Israel (SII) and the Ministry for National Infrastructure, since 2013 implemented by the Ministry of Energy and Water Resources

Participation Category: Mandatory

Appliances Labelled: 1985 – air conditioners (room), lamps (fluorescent tubes voluntary)

1986 – clothes washers, freezers (revised 2005), lamps (voluntary), ranges/ovens, refrigerators (revised 2005), refrigerator-freezers (revised 2005), space heaters (electric), water heaters (solar, electric)

1989 – portable fans



1990 – dishwashers

1993 – boilers and furnaces

2002 – florescent lamps (voluntary) (2006/2011/2013 under review)

2006 – 3 phase motors (2013 under review)

2006 - transformers (voluntary)

2007 - external power supplies (voluntary)

2008 – room air conditioners and central air conditioners (2013 under review)

2009 – dishwashers and clothes washers (2013 under review)

2010 – clothes dryers

2012 – ovens (2013 under review)

2013 – space heaters

Rating System: Energy (kWh/year), efficiency rating (grade) A to G (A most efficient) (Hebrew).

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=220b1cb9-2fdf-4021-875d-61adb7ebdb0d

Program Information:

The Ministry of Energy and Water Resources are the implementing agency for the labelling program. All applicable products, whether manufactured in Israel or imported into Israel, are required to be labelled.

Endorsement Label - Israel

Program Name: Green Mark

Implementing Agency: The Standards Institute of Israel (SII)

Participation Category: Voluntary

Products Labelled: No information found at the time of writing

Label Image Link:
http://www.ecolabelindex.com/ecolabels/?search=israel&as_values_0166

Program Information:
The Green Mark label confirms that a product meets a rigid set of criteria regarding the products impact on the environment. It also provides an overall assessment of a product's environmental quality relative to other products in the same category. The scheme is based on Israeli Standard SI 1738, which in turn, is based on EU Directive 880/92.

Standby Program - Israel

In 2011, Israel introduced standby power regulations '*Maximum Electric Output in Standby Mode for Domestic and Office Electric Appliances*'. This applies to all electric appliances used for domestic and office uses (listed below), operating at a voltage that does not exceed 230 volts, and powered by connection to the electricity mains.

- *Domestic appliances with an electronic display*: clothes washers, clothes dryers, dishwashers, baking ovens, microwave ovens;
- *Information technology equipment*: computers, computer screens and printers;
- *Audio equipment*: radio sets, amplifiers and wireless telephone sets;
- *Television receivers, digital decoders for reception of cable and satellite transmissions* (except digital converters that are managed by a broadcasting centre or through broadcast encryption).

Israel is considering approaches to dealing with network standby.

References - Israel

http://www.sii.org.il/20-en/SII_EN.aspx - Standards Institution of Israel (SII)

http://energy.gov.il/English/Pages/default.aspx - Ministry of Energy and Water Resources

Jamaica

(Region: North America)

Jamaica's interest in energy conservation stems from a desire to reduce the country's fuel imports, which impact heavily on foreign exchange spending. Jamaica introduced an energy labelling scheme in 1997, which according to the Government's Energy Policy, will be extended to all appliances that use electricity. Currently there is no Energy Performance Standards legislation in Jamaica.

In 2010, Jamaica's National Energy Conservation and Efficiency Policy 2010-30 was published, with a goal of expanding appliance labelling and testing.

Comparative Label - Jamaica

Program Name: Ener$ave Jamaica

Implementing Agency: Bureau of Standards, Jamaica

Participation Category: Mandatory

Appliances Labelled: 1997 – freezers, refrigerators, refrigerator-freezers

Rating System: Annual Energy Operating Cost and Consumption

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=1edafef1-4f2d-4375-8eb6-d1c59ef1ebda

Program Information:

The Bureau of Standards is responsible for the Jamaican Ener$ave program that is covered by the Standards Act. Consumers are encouraged to purchase the most energy efficient appliances both to reduce their own energy costs and also to contribute to the National energy conservation program. Each year the specially designed Energy Efficiency Laboratory at the Bureau of Standards, tests the energy consumption of all imported and locally manufactured refrigerators and freezers. The test is based on the American Home and Appliance Manufacturers (AHAM) standard with the test temperature set at 38 degrees Celsius to reflect the Jamaican climate. The energy label reflects annual consumption primarily as a dollar value, but also in kWh. The year in which the test was conducted is also clearly displayed.

References - Jamaica

http://jbs.org.jm - Bureau of Standards, Jamaica

http://www.pcj.com/dnn/ - The Petroleum Corporation of Jamaica

http://www.mem.gov.jm/ - Ministry of Science, Technology, Energy and Mining

Japan

(Region: Asia Pacific)

The Law Concerning Rational Use of Energy or Energy Conservation Law was introduced in 1979, and serves as the basis for Japan's labelling and standards program. The law has been reviewed and updated several times since its introduction, broadening both the products covered, and the desired efficiency levels. Since 1986, Japan has required that energy consumption information be displayed on the compliance plates inside the door of refrigerators and freezers. However, in August 2000 a comparative labelling program was introduced allowing consumers to more easily distinguish more efficient models. The mandatory Uniform Energy Saving Label program for retailers was introduced in 2006 initially for refrigerators and fluorescent lamps, but has now been expanded to include four other products. Additionally, Japan participates in the International Energy Star endorsement label program for office equipment, and has an eco label program which includes several appliances. There are no traditional Energy Performance Standards in Japan, instead it has an aggressive efficiency target program that encourages (or more accurately, obliges) manufacturers to reach a specified level of efficiency by a nominated date – this program is called Top Runner.

Energy Performance Standards – Japan

The Ministry of International Trade and Industry (MITI – now called METI) passed the Law Concerning the Rational Use of Energy (or Energy Conservation Law) in 1979. The Law established standards concerning plant energy management, heat insulation of homes, and automobile fuel consumption. In 1979, target efficiency standards for residential refrigerators and air conditioners were established. Refrigerator standards were removed from the Law in 1984, since all manufacturers had already exceeded the efficiency targets. Standards for fluorescent lamps, televisions, computers, magnetic disk drives, and copiers were added in 1994. The Energy Conservation Law was revised in June 1998, and put into force in April 1999. In the Law target efficiency standards and requirements for energy-consuming products were established these targets are called the "Top Runner" program.

Appliances that have high saturation, large energy consumption, and/or are deemed in need of energy efficiency improvements, have target efficiency levels set under Top Runner. The standards are set by identifying the most efficient model in each size and type of product as the benchmark. Manufacturers and importers have to ensure the average (sales weighted) efficiency of all their appliances shipped meet this target efficiency by a specified date (the target year). The program allows a continuum for improvement over time making manufacturers constantly increase the efficiency of appliances. The Top Runner standards are voluntary as there is no minimum level, however penalties can be evoked if the average efficiency target is not met. Usually, the penalty

involves public announcements by the government that a company has failed to meet the target, although financial deterrents such as fines are available. The Ministry of Economy Trade and Industry monitor the program, and it is legislated through the Energy Conservation Law. The program so far has been very successful with most manufacturers meeting the targets by the specified dates. When the target year is reached, new target levels can be reviewed and established.

There are currently just over 20 products included in the program.

Top Runner, Japan

Product Description	Year Implemented	Year Revised
Air conditioners	1998	2006, 2008
Copying machines, printers, multifunction devices	1998	2011
Fluorescent lamps	1998	2008, 2009
Televisions, VCRs, DVD recorders	1998	2005, 2007, 2009
Computers, hard drives	1998	2003, 2009
Refrigerators, freezers	1999	2006, 2011
Gas cooking appliances, gas/oil space heaters, gas water heaters	2002	2004
Electric toilet seats	2002	2007
Vending machines	2002	2007
Transformers	2002	2011
Rice cookers	2005	
Microwaves	2005	
Routers and switches	2008	
Heat pump water heaters	2012	

Comparative Label – Japan

Program Name: Uniform Energy Saving Label (for retailers)

Implementing Agency: Ministry of Economy Trade and Industry (METI)

Participation Category: Mandatory

Appliances Labelled: 2006 – refrigerators, fluorescent lamps

2007 – electric toilet seats

2008 – room air conditioners

2009 – televisions (flat screen and CRT)

Rating System: Energy (kWh/year), Efficiency rating 1 to 5 stars (5 most efficient)

Label Image Link: http://www.enecho.meti.go.jp/policy/saveenergy/toprunner2010.03en.pdf

Program Information:

The Uniform Energy Saving Label is for retailers only, and is administered by METI. It covers products and shows the kWh/year and an efficiency rating in stars. The label also indicates the compliance level with the Top Runner standard, with arrows placed under the stars to show achievement and non-achievement. The expected annual electricity bill is indicated at the base of the label.

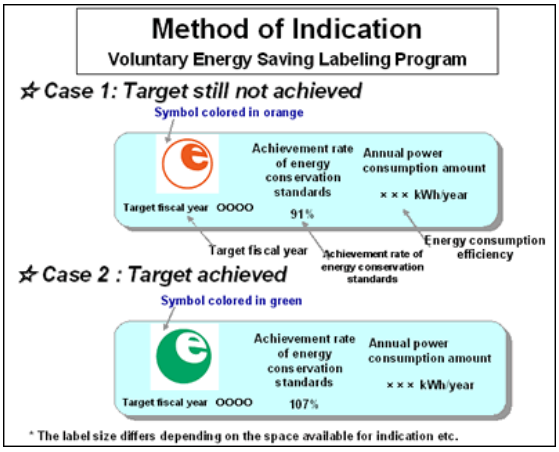
Manufacturers and importers must provide a self-declaration of energy performance prior to joining the program. The Industry Association (for certain product types) undertakes an energy efficiency performance test. Surveys are also conducted by METI to ensure that the labels are placed correctly on products at the point of sale. Products may also be randomly selected for testing by the Industry Association.

Top Runner Indicator Label - Japan

Program Name: Energy Saving Labelling Program (for manufacturers)

Implementing Agency: Ministry of Economy Trade and Industry (METI)

Participation Category: Voluntary (quasi-mandatory)



Appliances Labelled: (the following list almost certainly includes revised dates of implementation, as this program runs alongside the Top Runner Program)

2002 – transformers

2003 – gas cooking appliances

2005 – rice cookers

2006 – microwaves, refrigerator/freezers, refrigerators, computers, cooktop/hobs, freezers, space heaters

2007 – DVD/Blu Ray players, electric toilet seats

2008 – room air conditioners

2009 – televisions (flat screen and CRT), hard drives

Rating System: Annual Consumption (kWh/year Lm/W), Top Runner target year, achievement rate of Top Runner efficiency ratio (%) – less than 100% means that the product has not met the Top Runner target (label e yellow/orange), more than 100% means that the product exceeds the Top Runner target (label e green).

Label Image Link:

http://www.enecho.meti.go.jp/policy/saveenergy/toprunner2010.03en.pdf

Program Information:

Japan's new indicator label allows consumers to ascertain how an appliance fairs in relation to the Top Runner Standard (See Energy Performance Standards above). Firstly the labels are colour coded; yellow/orange to indicate the models that are below (failed to meet) the efficiency target level, and green for those above (i.e. better than) the efficiency target level. Secondly, the label displays the ratio percentage of the standard that the model has achieved, i.e. if it operates at the Top Runner standard level then the ratio is 100%. Thirdly, the label displays the annual energy consumption of the appliance, and also the year by which the target is to be attained. The Energy Efficiency Policy Division of the Agency of Natural Resources and Energy, which sits within the Ministry of Economy Trade and Industry, administers the program. The labels are to be adhered to the appliance as well as packaging, and in advertising. Where an air conditioner also has heating capabilities, energy consumption for both heating and cooling is displayed.

In addition to these designated products which are required to be labelled according to progress against Top Runner, a range of other products are required to carry basic performance, capacity and energy consumption information on the products themselves or in catalogues. Manufacturers and importers must provide a self declaration of energy performance prior to joining the program. The Industry Association (for certain product types), undertakes an energy efficiency performance test. Surveys are also conducted by METI to ensure that the labels are placed correctly on products at the point of sale. Products may also be randomly selected for testing by the Industry Association. While this label contains some technical information, it is primarily an indicator of whether Top Runner targets have been achieved (or not), so it is a hybrid between a normal endorsement label and a comparative label. The Top Runner indicator label is usually included within the comparative label for products that are covered by those requirements.

Endorsement Label – Japan

Japan is an international ENERGY STAR® partner. See International ENERGY STAR®.

This endorsement label is for one product category - office equipment, and includes 8 different products.

Endorsement Label – Japan

Program Name: Japan Environment Association (JEA) Eco Mark

Implementing Agency: Energy Conservation Centre

Participation Category: Voluntary

Appliances Labelled: 2011 – multifunction devices

2012 – LEDs, Blu-Ray DVD players

2013 – photocopiers, computers, printers, projectors, televisions

Label Image Link: http://www.ecomark.jp/english/

Program Information:

The JEA Eco Mark is a voluntary program, managed in accordance with the standard and principle ISO14020 and ISO 14024, and has been running since 1989. The Mark is for selected products that are suitable for environmental preservation, as defined by the Eco Mark Committee for Establishing Category and Criteria. This mark is also for a variety of other products that are not energy related in nature.

Standby Program - Japan

In 2001, a number of industry bodies – JERAIA (Japan Refrigeration and Air Conditioning Industry Association), JEITA (Japan Electronics and Information Technology Industries Association) and JEMA (Japan Electrical Manufacturer's Association), agreed as part of a voluntary industry agreement, that for appliances with supporting functions (i.e. remote controls), efforts should be made to reduce the standby power consumption to 1 Watt or less. It was also agreed that for other products with standby functions, efforts would be made to achieve as close to 0 Watts standby power consumption as possible. Standby power is also included in the total energy consumption of at least 7 of the products covered by Top Runner.

References - Japan

http://www.enecho.meti.go.jp/english - Agency of Natural Resources and Energy

http://www.asiaeec-col.eccj.or.jp/index.html - Energy Conservation Centre Japan (ECCJ)

http://www.eccj.or.jp/top_runner/index.html - Top Runner site (ECCJ)

http://www.jisc.go.jp/eng/ - Japan Industrial Standards Committee (JISC)

http://www.meti.go.jp/english/index.html - Ministry of Economy Trade and Industry (METI)

http://www.jeas.or.jp/english/ - Japan Environment Association (JEA)

http://www.ecomark.jp/english/ - Eco Mark Office

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency Programs in APEC Economies

http://www.enecho.meti.go.jp/policy/saveenergy/toprunner2011.03en-1103.pdf - Top Runner Program

http://www.eceee.org/events/eceee_events/product_efficiency_08/programme_presentations/Kodaka_TopRunnerProgram.pdf - Japan's Top Runner Program: The Race for the Top presentation

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

http://www.coolproducts.eu/resources/documents/Comparison-Report/International-Equipment-Efficiency-Comparison-Report_FINAL.pdf - International Comparisons of Product Policy

Jordan

(Region: Middle East)

Jordan faces a serious energy challenge due to a lack of domestic resources, and an increasing demand for energy to fuel its social and economic development. Since 2004, the Jordanian Cabinet has committed to developing a clear policy framework for energy efficiency. With the cooperation of the UNDP, in 2010, the Government of Jordan started to establish an energy labelling system and an Energy Performance Standards program for household appliances. It is noted that there a range of barriers to energy efficiency in Jordan, but also that there are large opportunities to reduce the energy consumption of appliances and equipment, especially refrigerators, freezers and air conditioners. No single Government agency in Jordan has clear responsibility of promoting energy efficiency, and coordination between different responsible for standards and labelling development, implementation and enforcement is found to be difficult. There is also no experience of how a structured enforcement program should be implemented and no test laboratory available. These are significant challenges that are required to be addressed before a set of effective programs can be fully implemented.

There are a range of appliances that are in the process of being required to carry a comparative label, based of the EU label. These include a range of whitegoods, lighting products, ovens and air conditioners.

Energy Performance Standards - Jordan

As part of the adoption of the EU EcoDesign and Energy Labelling Directives, Jordan is planning on introducing mandatory Energy Performance Standards levels for a range of products. Jordan has also been working with the Global Environment Facility (GEF) on solar water heater standards, and is planning to require mandatory solar water heater installation on new buildings by the end of 2013.

Energy Performance Standards, Jordan (mandatory)

Product Description	**Year Implemented**
Development Completed, Pending Implementation	2013
Ballasts	
Displays	
Fluorescent lamps	
Freezers	
High intensity discharge lamps (HID)	
Incandescent lamps	
Low pressure sodium lamps	
Refrigerators	
Refrigerator/freezers	
LED lamps	
Televisions	
Under Development	2014
Standby – all equipment types	
Building circulators	
Clothes washers	
Dishwashers	
External power supplies	
Integrated fans	
3-phase motors (medium)	
Packaged terminals	
Portable air conditioners	
Room air conditioners	
Set top boxes	

Comparative Label - Jordan

Program Name: Technical Regulation on Energy Labelling

Implementing Agency: National Energy Research Centre (NERC)

Participation Category: Mandatory (label is optional in the first year of implementation and mandatory the year after)

Appliances Labelled: 2012 – clothes washers (under revision)

2013 – development completed, pending implementation – clothes dryers, combination clothes washer/dryers, dishwashers, fluorescent lamps, lighting systems, ovens, room air conditioners, LED lamps

2013 – revision completed, pending implementation – freezers, refrigerators, refrigerator/freezers

2014 – under development – displays, televisions

Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient)

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=f2c2220c-2a86-4f86-84df-d8355bc93935

Program Information:

The EcoDesign and Energy Labelling Directive as well as related legislation, are in the process of being transposed into Jordan national legislation. These two programs will be the basis of the standards and labelling schemes in Jordan.

References - Jordan

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.nerc.gov.jo – National Energy Research Centre, Jordan

http://www.jsmo.gov.jo/ - Jordan Standards and Metrology Organisation

http://www.jism.gov.jo/english/Information%20Services%20and%20Technical%20Help/pdf/EcoDesign%20Factsheet%20Jan2013.pdf - EcoDesign and Energy Labelling, Jordan Standards and Metrology Organisation

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

http://www.undp.org/content/dam/undp/documents/projects/JOR/00059526/EE%20proj%20-%20doc%20signed.pdf - Project Document, Energy Efficiency Standards and Labelling in Jordan, UNDP

http://www.thegef.org - Global Environment Facility (GEF)

Kenya

(Region: Africa)

In 2004, the Kenyan government made energy efficiency a priority as part of the National Energy Policy Sessional Paper No. 4. The Government stated that it 'recognised the need to remove barriers and constraints to the adoption of energy efficiency and conservation technologies, and will therefore put appropriate measures into place'. Through the Ministry of Energy, the Kenyan Government committed itself to supporting the Energy Efficiency and Conservation Centre, and published the Energy Act which was passed into law in 2006. Working with the UNDP and 4 other East African countries (Burundi, Rwanda, Tanzania and Uganda), Kenya worked to develop its national Standards and Labelling program, with a 5 year initiative designed to remove barriers to market transformation of energy efficient products and services. The key stakeholders in this process in Kenya include the Kenya Bureau of Standards, Kenya Revenue Authority, Ministry of Energy, Energy Regulatory Commission, Kenya Anti-Counterfeiting Agency, and the National Environment Management Authority. The Kenyan Ministry of Industrialisation is leading the UNDP-GEF funded standards and labelling program development.

Three products are slated to be the first to be subject to mandatory comparative labelling – CFLs, 3-phase motors, refrigerators and room air conditioners. This scheme is currently under development but will based on the EU labelling scheme, and expected to start sometime in 2015.

No label image for Kenya was available at the time for this report, although it is known to be based on the Australian style energy star rating label.

Kenya also looking at implementing mandatory Energy Performance Standards for a range of products 2013 including – ballasts, fluorescent lamps, 3-phase motors, refrigerators and room air conditioners. These have been developed and approved by the Kenyan Bureau of Standards, with the Kenyan Energy Commission drafting the relevant regulations. They are loosely based around the EU/Australian Energy Performance Standards. Energy Performance Standards are also planned for a number of products in 2015 (with draft Standards to be gazetted towards the end of 2014) – refrigerated cabinets (voluntary agreement, using Australian levels), fluorescent tube lamps, and hotel air conditioners (voluntary agreement).

References - Kenya

http://www.google.com.au/url?sa=t&rct=j&q=kenya%20energy%20labelling&source=web&cd=2&ved=0CDMQFjAB&url=http%3A%2F%2Fwww.thegef.org%2Fgef%2Fsites%2Fthegef.org%2Ffiles%2Fgef_p

rj_docs%2FGEFProjectDocuments%2FClimate%2520Change%2FKenya%2520-%2520Development%2520%26%2520Implementation%2520of%2520Standards%2520and%2520Labelling%2F12-2-2008%2520-ID2775%2520Kenya%2520Standards%2520and%2520lables%2520ProDoc%2520Nov2008%2520rev.doc&ei=Dg5SUv_pMobyiAf_yIGYCw&usg=AFQjCNG9X254O5PtpPjOcYE8eLK73uZ0Ng&sig2=NLPB8zz2ZU4X-W59NB0ZCA&bvm=bv.53537100,d.aGc - Development and Implementation of a Standards and Labelling Program in Kenya with Replication in East Africa, UNDP

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.iiec.org/index.php?option=com_content&view=article&id=515:iiec-awarded-sal-training-project-in-kenya&catid=1:iiec-recent-news&Itemid=48 - IIEC Awarded S&L Training Project in Kenya

http://www.thegef.org/gef/project_detail?projID=2775 - Global Environment Facility (GEF)

http://www.industrialization.go.ke/index.php?option=com_content&view=article&id=137:standards-labelling&catid=57:donor-programmes-&Itemid=177 - Standards and Labelling Program, Kenya Department of Cooperative, Development and Marketing

Korea

(Region: Asia Pacific)

The Korean government has embraced energy efficiency and conservation, as the country has to import virtually all of its energy and faces the challenge of high energy prices and unstable supply. In 1980, the government promulgated the "Rationalization of Energy Utilization Act" to serve as a basic law for energy efficiency and conservation and established the Korea Energy Management Corporation (KEMCO) to implement energy efficiency and conservation programs. In 1992, the Rationalization of Energy Utilization Act was amended to include energy labelling and standards programs. The Act has been updated several times since, giving Korea four labelling programs and an extensive Energy Performance Standards agenda, both of which cover a broad range of appliances. The administration for the labelling and Energy Performance Standards programs is essentially the same. The Ministry of Knowledge Economy (MKE) is responsible for establishing the framework for the program such as setting efficiency levels and methods of testing. The Korean Energy Management Corporation (KEMCO) is charged with implementation and monitoring of the program. Cars also carry an energy label in Korea (similar format to electrical products). Korea has also set standby targets for a wide range of products, these were first announced in 1998, and were upgraded in 2002, and February 2004. Originally voluntary, from 2007 the reporting of standby was made mandatory, and coupled with a standby warning label.

KEMCO undertakes labeling and Energy Performance Standards surveys and verification testing to ensure compliance with the requirements of the programs.

Energy Performance Standards - Korea

In 1992, the Ministry of Commerce, Industry and Energy (MOCIE) was authorised to set Energy Performance Standards levels on the basis of analyses carried out by agencies such as the Korean Institute of Energy Research (KIER), and through negotiation with the private sector. The energy tests are detailed in Korean Industrial Standards (KS), which are usually closely related to equivalent Japanese Industrial Standards (JIS), and/or IEC standards. The aim of the Energy Performance Standards is to eliminate the most inefficient models from the market, while the targets are to encourage manufacturers to continually increase the efficiency of products. Energy Performance Standards are updated regularly in Korea, typically on a 3 to 5 year cycle. Mandatory Energy Performance Standards has been applied to a range of products, where there is a violation, a fine of up to US $18,000 dollars will be charged.

Energy Performance Standards, Korea

Product Description	**Year Implemented**	**Year Revised**
Lamps - fluorescent	1992	1997, 2000, 2004
Lamps - incandescent	1992	1997, 2003, 2009
Refrigerators, refrigerator-freezers	1992	1997, 2001, 2004
Air conditioners (room)	1993	1997, 2001, 2004, 2009
Ballasts	1994	1995, 2000, 2004
Space heaters (domestic gas boiler)	2001	2003, 2010
Clothes washers	2002	2004
Dishwashers	2002	2004, 2007
Water dispensers (hot and cold)	2002	2012
Freezers	2004	2010
Kim-Chi refrigerators	2004	
Rice cookers	2004	2010
Vacuum pumps	2004	
Front loading clothes washers	2006	
Dish dryers	2009	
Vacuum cleaners	2009	
External power supplies	2009	
Commercial refrigerators	2010	
3-phase induction motors	2010	
Electric fan heaters	2011	
Electric cooktop/hobs	2011	
Gas water heaters	2011	
Air cleaners	2011	
Dehumidifiers	2012	
Televisions (flat screen)	2012	
Central air conditioners	2012	
Transformers	2012	

Comparative Label - Korea

Program Name: Energy Efficiency Rating Labelling and Standards Program

Implementing Agency: Korea Energy Management Corporation (KEMCO)

Participation Category: Mandatory

Appliances Labelled: Began 1992 – refrigerators, freezers, Kimchi refrigerators, air conditioners, clothes washers, front loading clothes washers, dishwashers, dish dryers, cooler/heaters for drinking water, rice cookers, vacuum cleaners, electric fans, air cleaners, incandescent lamps, fluorescent lamps, fluorescent lamp ballasts, associated ballasts, 3-phase induction motors, household gas boilers, external power supplies, heat pumps, commercial refrigerators, gas water heaters, transformers, televisions, electric fan heaters, electric stoves, central air conditioners, dehumidifiers, electric pads, electric heated water mats, electric heating boards, electric beds, electric radiators

Rating System: Energy (kWh/month), efficiency rating, CO_2 emissions

Label Image Link: http://www.kemco.or.kr/new_eng/pg02/pg02100200_4.asp

Program Information:

The program has a dial style label which rates appliance efficiency 5 to 1 with 1 being the most efficient. The Korean dial used to operate to show more efficient ratings in the clockwise direction (see old label to the right). This was changed to now show the most efficient rating (1) in the left (anti-clockwise) (see above). The rating is calculated by assessing the ratio of the appliance's energy consumption compared to the Energy Performance Standard, which is equivalent to a rating of 1 (a product with a rating of 1 uses 30-40% less energy than a product with a rating of 5). Labels must be adhered to all products and mentioned in all advertising, with products also required to include instructions on how to use the appliance efficiently. The Energy Performance Standards level is regularly reviewed, and once in force, this becomes rating level 5. The most efficient rating (1) is called the Target Energy Performance Standard (TEPS). Often the TEPS level becomes the future level. Since 2009, CO_2 emissions have been shown on the label, initially this was for only required for a handful of products, but now covers almost all of the products subject to the label.

Manufacturers and importers need to provide a test report that has been accredited by the government, for each model or family of models to be sold. The previous year's production/sale of the product must be provided to KEMCO by the end of January in of the following year. The new Korean label is interesting as it is a circle and the dial is the reverse of most other label designs (better or more efficient is anti-clockwise). The previous Korean energy label had the same grading system (5 to 1), but dial was more efficient in a clockwise direction and a more traditional label shape.

The top label is the current label, while the bottom label is the old label (for comparison).

Endorsement Label - Korea

Program Name: High Efficiency Appliance Certification Program

Implementing Agency: Korea Energy Management Corporation (KEMCO)

Participation Category: Voluntary

Appliances Labelled: Began 1996 - lighting equipment, motors, heat recovery ventilators, gas boilers, pumps, centrifugal water chillers, energy saving devices for monitors, un-interruptible power system, vending machines, transformers, inverters, auto thermostatic valves for heating, multi-functional switchgear system, direct-fired absorption chiller-heaters, ventilation fans, centrifugal blowers, LED lamps (various types), ballasts (various types)

Label Image Link: http://www.kemco.or.kr/new_eng/pg02/pg02100101.asp

Program Information:

KEMCO sets an efficiency performance standard at the top end of the market. Companies can apply for use of the label if their products exceed this standard. Test reports from an authorised test institute are submitted with the application, and additionally an inspection of factory facilities is undertaken prior to approving the label for a product. KEMCO randomly tests products to ensure the standards are maintained, with non-compliance penalised with public notification and removal of certification.

Endorsement Label - Korea

Program Name: e-Standby Label

Implementing Agency: Korea Energy Management Corporation (KEMCO)

Participation Category: Voluntary

Appliances Labelled: Began 1999 - computers, fax machines, monitors, photocopiers, printers, scanners, multifunction devices, energy saving and controlling devices, digital converters, VCRs, home audio products, DVD players, radios, microwaves, set top boxes, door phones, cord/cordless phones, electronic toilet seats, modems and home gateways, hand dryers, servers.

Labelling System: 'Energy Boy' endorsement label

Label Image Link: http://www.kemco.or.kr/new_eng/pg02/pg02100300.asp

Program Information:

The 'Energy Boy' label is a voluntary endorsement label that initially covered electronic equipment, but now is for a range of product types. The equipment eligibility requirements are mostly the same as the International ENERGY STAR® program. Like the High Efficiency Label, the program is administered by KEMCO and the Ministry of the Knowledge Economy (MKE). Manufacturers and importers guarantee a product's standby power saving ability under an agreement with KEMCO. Products that meet the standard are notified by the government and then entitled to bear the label, while products that have had Energy Performance Standards applied to them are removed from the program.

Warning Label - Korea

Program Name: e-Standby Warning Label

Implementing Agency: Korea Energy Management Corporation (KEMCO)

Participation Category: Mandatory

Appliances Labelled: 2008 – televisions

2009 – computers, monitors, printers, multifunction devices, set top boxes, microwaves

2010 – VCRs, audio products, DVD players, radios, door phones, cord/cordless phones, electronic toilet seats, fax machines, copiers, scanners, modems, home gateways

Labelling System: Standby Warning Label

Label Image Link: http://www.kemco.or.kr/new_eng/pg02/pg02100300.asp

Program Information:

MKE and KEMCO established the 'Standby Korea 2010' roadmap to limit standby power below 1W by 2010. As part of this, in 2007 the Rational Energy Utilisation Act was amended to make the e-Standby Program mandatory. There is mandatory reporting on standby power, in the case of a violation, a fine of up to US $5,000 will be charged per model. Korea is the first country in the world to introduce a mandatory standby power warning label. It is seen as a critical policy change to enhance the energy conservation effect and an important milestone in Korea's energy standards and labelling programs. There is a plan to increase the coverage of this program into the future.

Endorsement Label - Korea

Program Name: Energy Frontier Label

Implementing Agency: Korea Energy Management Corporation (KEMCO)

Participation Category: Voluntary

Appliances Labelled 2012 – televisions, refrigerators, air conditioners, drum clothes washers

Labelling System: Unknown

Program Information:

The Energy Frontier scheme sets medium and long term energy efficiency goals and provides incentives to those who have achieved target goals within the specified periods. The scheme sets efficiency targets which are 30-50% higher than current 1st grade efficiency, every three years in order to motivate the industry to achieved efficiency targets. Products satisfying energy frontier standards are deemed to be ultra high efficiency products.

No image for the Energy Frontier Label for Korea was available at the time of this report.

Standby Program - Korea

In 1999, Korea became one of the few countries that had specified separate standby power targets for a wide range of products. The Energy-saving Office Equipment and Home Electronics Program was implemented to enhance the spread of the energy saving products that decrease electric energy consumption during standby. This program was based on Article 13 of the Rational Energy Utilization Act of Korea and Ministry of Commerce, Industry and Energy's Notification: Regulation on the Enhanced Spreading of the Energy-saving Office Equipments and Home Electronics. The purpose of the program is to save standby power consumption systematically by encouraging manufacturers to voluntarily produce and sell the energy saving products meet the energy saving standard suggested by Ministry of Commerce, Industry and Energy (MOCIE), and Korea Energy Management Corporation (KEMCO). Specifically, it was originally a voluntary agreement program where manufacturers guarantee that energy saving products under their own brand name meet the efficiency specifications of KEMCO. Meeting these specifications means the product can also carry the Energy Boy endorsement label. In 2007, the e-Standby program became mandatory, and required mandatory reporting of on standby power, this change was part of the Standby Korea 2010 roadmap. The program now covers 22 items.

To go along with the endorsement label, and as a mandatory part of the standby program, Korea also has a warning label. This was established in 2007, and was ramped up to now cover a range of products. Korea is the first country in the world to introduce a mandatory standby power warning label. It is seen as a critical policy change to enhance the energy conservation effect and an important milestone in Korea's energy standards and labelling programs. There is a plan to increase the coverage of this program into the future.

References - Korea

http://www.kemco.or.kr - Korea Energy Management Corporation (KEMCO)

http://www.ats.go.kr - Korean Agency for Technology and Standards

http://www.cacpk.org - Consumers Korea

http://www.mke.go.kr/language/eng/ - Ministry of Trade, Industry and Energy

http://www.kemco.or.kr/new_eng/pg02/pg02100300.asp - Korea e-Standby Program

http://www.kemco.or.kr/nd_file/kemco_eng/KoreaEnergyStandards&Labeling.pdf - Korea's Energy Standards and Labelling – Market Transformation

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance

Mechanisms for Energy Efficiency Programs in APEC Economies

http://www.kemco.or.kr/new_eng/pg02/pg02100102.asp - KEMCO, How to Identify Energy Saving Products

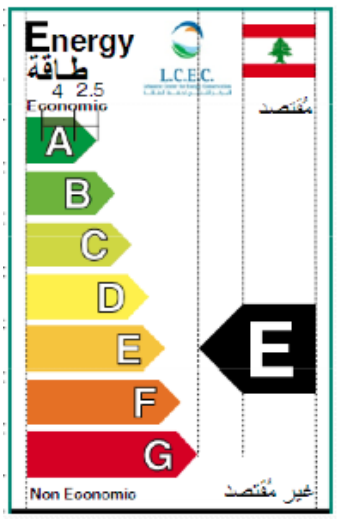
http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

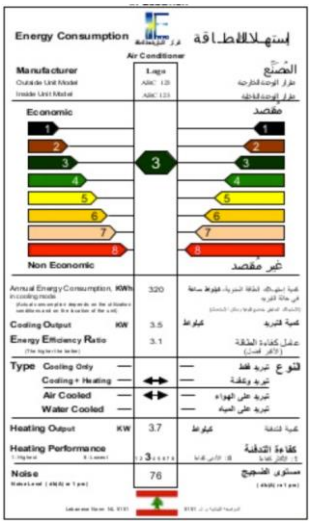
http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

Lebanon

(Region: Middle East)

The Lebanese Centre for Energy Conservation (LCEC) is a national organisation affiliated with the Lebanese Ministry of Energy and Water. The LCEC addresses end use energy conservation and renewable energy at a national level. It supports the Government of Lebanon to develop and implement national strategies that promote the development of efficient and rational uses of energy.





It is recognised by the Lebanese Government that labelling and Energy Performance Standards for appliances and equipment are essential policy elements in energy efficiency and climate change mitigation programs. In this respect, the LCEC has worked with the Lebanese Standards Institution (LIBNOR) to introduce standards for 5 household appliances – refrigerators, CFLs, split system air conditioners, electric/gas water heaters, and solar water heaters. These standards can be adopted on a voluntary basis and are intended to conform to international and European norms, and in coherence to similar cultures to Lebanon.

Along with these standards, there is a planned label for refrigerators (top label), and CFLs (bottom label), both of these are based off the EU labelling scheme.

Label Image Link:
http://www.slideshare.net/rcreee/workshop-on-ee-labels-2011-day-1-session-3-lebanese-paper

Voluntary Energy Performance Standards for refrigerators and CFLs were introduced in 2007, while voluntary Energy Performance Standards for air conditioners and solar water heaters were introduced in 2008. Efforts to adopt the CFL and solar water heater Energy Performance Standards on a mandatory basis is under consideration.

References - Lebanon

http://www.lcecp.org.lb – Lebanese Centre for Energy Conservation

http://www.slideshare.net/rcreee/workshop-on-ee-labels-2011-day-1-session-3-lebanese-paper - The Energy Efficiency Standards and Labelling Program in Lebanon, Lebanese Centre for Energy Conservation slideshow

http://www.libnor.org/ - Lebanese Standards Institution

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

Malaysia

(Region: Asia Pacific)

The Ministry of Energy, Green Technology and Water has just finalised Malaysia's National Energy Efficiency Master Plan, which contains goals and targets to coordinate and implement energy efficiency and conservation throughout the country. The authority with the overall responsibility for the energy efficiency rating and labelling program is the Energy Commission. Malaysia has a mandatory energy label for household refrigerators and voluntary labelling (comparative and endorsement) for a range of products. Voluntary Energy Performance Standards levels are in place for 3-phase electric motors, while portable fans and some lighting products are subject to mandatory Energy Performance Standards. There are also a range of products that Energy Performance Standards are currently being developed for.

Energy Performance Standards - Malaysia

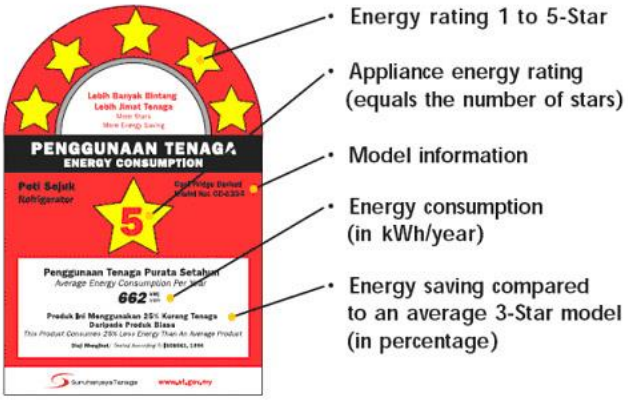
Malaysia has introduced mandatory efficiency standards for fluorescent ballasts, portable fans and incandescent lamps, and voluntary standards for small and medium 3-phase electric motors. Energy Performance Standards for refrigerator/freezers, air conditioners, televisions and clothes washers are in the development process, however no decision as to whether they will be mandatory or voluntary has been made yet.

Energy Performance Standards, Malaysia

Product Description	Year Implemented	Year Revised
Small 3-phase electric motors (voluntary)	1989	
Fluorescent ballasts (mandatory)	1996	2005
Portable fans (mandatory)	1999	2001
Medium 3-phase electric motors (voluntary)	2003	
Incandescent lamps (mandatory)	2012	
Under development		
Refrigerator/freezers	(proposed 2014)	
Room air conditioners (split and window wall)		
Televisions (flat screen and CRT)		
Clothes washers (under consideration)		

Comparative Label - Malaysia

Program Name: Energy Efficiency Criteria for Material and Electrical Equipment to Qualify for the Minimum Energy Performance Standards Star Rating



Implementing Agency: Suruhanjaya Tenaga - ST (Energy Commission)

Participation Category: Mandatory and Voluntary

Appliances Labelled: 2004 – mandatory: refrigerators

2005 – voluntary: refrigerators-freezers, freezers

2006 – voluntary: flat screen television, CRT televisions

2009 – voluntary: room air conditioners

2013 – voluntary (all under consideration for development): clothes washers, rice cookers, dishwashers, kettles, clothes dryers, microwaves

Unknown – voluntary: portable fans

Rating System: Energy (kWh/year), efficiency star rating 1 (worst) to 5 (most efficient)

Label Image Link:
http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/Harmonization%20of%20standards%20ACs/Regional%20survey%20findings_%20Bek%20Chee%20Jin.pdf

Program Information:
In order to join the program or sell products, suppliers and manufacturers must provide a test report from an independent laboratory recognised by the Department of Standards Malaysia, a completed registration form for each model or family of models to be sold in the market, and sales data. If a product is found to be incorrectly labelled, voluntary compliance through education, advice or guidance is given. A list of models along with their energy performance details is provided on the Energy Commission's website and via a publication.

Endorsement Label - Malaysia

Program Name: Energy Efficiency Labelling Scheme for electrical appliances and equipment

Implementing Agency: Suruhanjaya Tenaga - ST (Energy Commission)

Participation Category: Voluntary

Appliances Labelled: 2005 – refrigerators-freezers

2009 – portable fans, CRT televisions, room air conditioners, flat screen televisions

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=4217abea-173e-4d04-adc8-77d18434f6b1

Program Information:

In order to join the program or sell products, suppliers and manufacturers must provide a test report from an independent laboratory recognised by the Department of Standards Malaysia, a completed registration form for each model or family of models to be sold in the market, and sales data. If a product is found to be incorrectly labelled, voluntary compliance through education, advice or guidance is given. A list of models along with their energy performance details is provided on the Energy Commission's website and via a publication.

References - Malaysia

http://meih.st.gov.my/ - Suruhanjaya Tenaga (ST) (Energy Commission)

http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/Harmonization%20of%20standards%20ACs/Regional%20survey%20findings_%20Bek%20Chee%20Jin.pdf – Harmonisation of Energy Efficiency Standards for Air Conditioners and Refrigerators in South East Asia, Market Study – (International Copper Association)

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

Mexico

(Region: North America)

Mexico's interest in labelling and standards programs is inspired by a desire to reduce the growing demand for electricity. Mexico first developed energy efficiency standards in 1995, under the National Commission for Energy Saving (CONAE). The law underpinning the energy efficiency standards is the *Ley Federal Sobre Metrologia y Normalizacion* of 1992. This law outlines two styles of standards: voluntary standards called Normas Mexicanas (NMX), and mandatory standards called Normas Oficuales Mexicanas (NOM). Whilst USA experience has provided the base for these, the Mexican programs have been developed in response to local requirements. Currently there are two labelling programs and for a large range of products. The Secretaria de Energia (Ministry of Energy) oversees several organisations that share responsibility for the programs. In general terms, the requirements in Mexico broadly align with those in Canada and the USA (test procedures and regulatory levels under NAFTA) although the product coverage and timing differs.

Energy Performance Standards - Mexico

In 1992, the Federal Law of Metering and Standards (Ley Federal Sobre Metrología y Normalización) defined two types of standards: Voluntary, Mexican Standards (NMX) (Normas Mexicanas) and mandatory, Official Mexican Standards (NOM) (Normas Oficiales Mexicanas). Several organisations are involved in the enactment of the NOM. These include*:*

Secretaria de Energia, involved when standards affect their areas of competence;

National Commission for Efficient Energy Use (CONUEE) (Comisión Nacional para el Uso Eficiente de la Energía), responsible for the design and enactment of standards and labels related to energy efficiency;

National Standards Consultative Committee for the Preservation and Rational Use of Energy Resources (CCNNPURRE) (Comité Consultivo Nacional de Normalización para la Preservación y Uso Racional de los Recursos Energéticos). This committee is responsible for reviewing all Energy Performance Standards proposals. CONAE presides over and defines membership in CCNNPURRE which includes representatives from the SECOFI (*Secretariat of Commerce and Industrial Promotion*), SE (*Secretaria de Energia*), IIE (*Electric Research Institute* (Instituto de Investigaciones Eléctricas)) an independent government research centre; ANFAD, ANFEEA, CANAME (trade associations) and academics.

Enactment of a new standard typically takes about two years. The NOM includes both the minimum energy performance levels required, and the test procedure for determining the equipment

performance. Until recently, the General Standards Directorate (Dirección General de Normas - DGN) of SECOFI was in charge of certifying testing laboratories and verifying compliance with the Energy Performance Standards and labelling requirements. The National Association of Standardisation and Certification of the Electric Sector (Asociación Nacional de Normalización y Certificación del Sector Eléctrico - ANCE) is in charge of elaborating the NMX related to the electric sector. It can also certify others and has its own laboratory for conducting various standardised test procedures. Mexico has reviewed many of its Energy Performance Standards levels in an attempt to harmonise with the USA and Canada (see table below). In 2008, the passing of the Law for Sustainable Use of Energy transferred authority for energy efficiency standards from CONAE to the National Commission for Energy Efficiency (CONUEE). CONUEE has established energy efficiency standards for 15 product categories and seven system categories. CONUEE also regulates a mandatory comparative energy label for domestic appliances.

Energy Performance Standards, Mexico

Product Description	**Year Implemented**	**Year Revised**
Air conditioners - room	1995	2002/2008/2011*
Boilers	1995	
Refrigerators, refrigerator-freezers	1995	2002*
Water heaters	1995	2000
Air conditioners (Split-system central and heat pumps)	1996	2002*
Clothes washers	1996	2000/2010/2013
Luminaries	1996	
Pumps – centrifugal residential	1996	2004
Transformers	1997	
Air conditioners - central	1998	2002/2007*
Lamps – compact fluorescent	1998	2008/2013
Electric motors (single and three phase)	1998	2004*
Tortilla machines	2004	2009
Motors - 1 phase	2005	
Refrigerated cabinets – commercial	2009	
Motors - 3 phase industrial	2010	
Instantaneous water heaters (gas)	2011	
Storage water heaters (gas)	2011	
Lighting – high intensity discharge (HID)	2011	
Lighting - incandescent	2011	

Product Description	Year Implemented	Year Revised
Lighting systems	2011	
Lighting solid state LEDS – ballasted	2012	
Lighting solid state LEDS other	2013	
Gas cooktop/hobs and ovens	Pending 2013	
Transformers	2014	

*Harmonised with Canada and USA Energy Performance Standards.
Under NAFTA levels are usually harmonised although the timing may differ.

Comparative Label - Mexico

Program Name: No information found at the time of writing

Implementing Agency: Comisión Nacional de Ahorro de Energía (CONAE)

Since 2008 National Commission for Energy Efficiency (CONUEE) regulates the comparative energy label

Participation Category: Mandatory

Appliances Labelled: 1995 - air conditioners (room and central), pumps (centrifugal residential)

1995/2013 - refrigerators and/or refrigerator-freezers,

1996 – ballasts

1998/2007 - air conditioners (central), lamps

2000 – non-residential buildings, clothes washers

2001- commercial refrigerators, water heaters

2007 - central air conditioners

2009 – refrigerated cabinet - commercial

2010/2013 - clothes washers

2011 – room air conditioners

2013 pending implementation – gas cooktop/hobs and ovens

Rating System: The products which were originally labelled, each had different formats and styles to depict energy efficiency. Most of these showed a rating relative to the relevant Energy Performance Standards level, but these had different systems of bars, letters and percentages. Over the period 2001 to 2004, the label design across all products was converted to the style shown here - new products which were labelled also used this style. The style of label shows the Energy Performance Standards level, and the energy consumption of the labelled appliance with a bar showing the savings relative to the level (the higher the % saving, the better).

Label Image Link:
http://www.conuee.gob.mx/wb/CONAE/refrigerador

Program Information:
Under the government Energy Performance Standards scheme (see information below), appliances must be assessed for energy efficiency, with products that require efficiency labels, rated as part of this process. For example, the label for refrigerators shows how efficient the appliance is in comparison to one operating at the level.

Endorsement Label - Mexico

Program Name: Sello FIDE

Implementing Agency: Fideicomiso para el Ahorro de Energía Eléctrica (FIDE)

Commencement Date: 1995

Program Type: Endorsement label

Participation Category: Voluntary

Appliances Labelled: Air conditioners (room), lamps, refrigerators (revised 2013), refrigerator-freezers (revised 2013), televisions, motors, electronic sensors, clothes washers, air compressors

2009 – home theatre equipment

2011 – elevators, instantaneous water heaters, water heating storage

2012 – air compressors, tortilla making machines, central air conditioners, room air conditioners, clothes washers, ballast (HID), fluorescent lamps, compact fluorescent lamps, solid state lighting – LEDS, fluorescent lamps, lighting systems, pumps, uninterrupted power supplies (UPS), inverters, transformers, refrigerated cabinets and water coolers – commercial, set top boxes

Label Image Link: http://www.fide.org.mx/

Program Information:

In 1995, Mexico introduced the Sello FIDE, a voluntary energy efficiency endorsement seal given by the Fideicomiso para el Ahorro de Energía Eléctrica (FIDE). FIDE is a non-profit association that draws membership from a collaborative of Mexican utilities, labour organisations and businesses, including CONAE and the Comisión Federal de Electricidad (CFE Federal Electricity Commission). Manufacturers have to submit certified test results on their products to confirm that they cover the Sello FIDE requirements, a certified laboratory then tests the product to verify manufacturer claims. If approved, manufacturers pay for certification and sign an agreement stipulating length of validity of the Sello FIDE endorsement, how it can be displayed, and the cancellation of certification. Manufacturers can then display the Sello FIDE on their products. FIDE advertises the Sello FIDE in order to entice consumers to look for it when purchasing electrical equipment.

There are three labels awarded under this scheme FIDE Seal A is issued for electrical or electronic equipment that are efficient (such as refrigerators), FIDE Seal B will be awarded for products that save energy by themselves (eg. thermal conductors). For home theatre equipment, DVD, Blu Ray and Set top box, the third label type - a similar but smaller endorsement label is used.

References - Mexico

http://www.conae.gob.mx - Comisión Nacional de Ahorro de Energía (CONAE - National Energy Savings Commission) (Spanish)

http://www.conuee.gob.mx/wb - National Commission for Energy Efficiency

http://www.fide.org.mx/ - Fideicomiso para el Ahorro de Energía Eléctrica (FIDE Trust for saving Electrical Energy) (Spanish)

http://www.economia.gob.mx - Dirección General de Normas (Mexican Standards Association)(Spanish)

http://www.energia.gob.mx - Secretaria de Energia (Ministry of Energy)

http://www.cre.gob.mx - Comisión Reguladorade Energía (CRE Energy Regulatory Commission)

http://www.cfe.gob.mx - Comisión Federal de Electricidad (CFE Federal Electricity Commission)

Myanmar

(Region: Asia Pacific)

Myanmar is at the very beginning of the process aimed at introducing appliances and equipment standards and labelling. With the assistance of the Global Environment Facility (GEF) and the UNDP, Myanmar has implemented a voluntary label for fluorescent and tungsten filament lamps displaying information on brand, wattage and voltage. Test standards for fluorescent and tungsten filament lamps have also been implemented.

The National Electrical Inspection Department tests physical characteristics of products (watt, current, and installation resistance). It certifies if a product meets the labelling requirements, if it does not, the manufacturers cannot register their trademark.

No label image for Myanmar was available at the time for this report.

References - Myanmar

http://www.enlighten-initiative.org/CountrySupport/GlobalPolicyMap.aspx - en.lighten (GEF&UNDP)

http://www.energy.gov.mm/ - Myanmar Ministry of Energy

http://www.burmalibrary.org/docs2/ELECTRICAL-Burma.pdf - Electrical Industry of Burma/Myanmar Online Compendium

Namibia

(Region: Africa)

Namibia is at the very beginning of the process aimed at introducing appliances and equipment standards and labelling. With the assistance of the Global Environment Facility (GEF) and the UNDP, in the middle of 2013 Namibia put out for tender an investigation into the adoption of standards and labelling for electrical appliances and equipment sold in Namibia. The project falls under the Namibia Energy Efficiency Program (NEEP), and is driven by rising electricity consumption in Namibia coupled with a growing power deficit for the country's main energy supplier. The project is to include (at a minimum) non ducted air conditioners (up to 5 kW), clothes washers, electric stoves/hobs/ovens, refrigerators, freezers, water heaters, lamps, swimming pool pumps, and televisions. The completed work will be used to determine what standards and/or regulations exist regarding energy performance and labelling requirements, compare Namibian standards (if available) against regional and international standards, determine Energy Performance Standards levels for each appliance, recommend timelines, undertake an impact analysis, and test a proposed label design.

No label image for Namibia was available at the time for this report.

References - Namibia

http://www.thegef.org - Global Environment Facility (GEF)

http://www.polytechnic.edu.na/vacancy/docs/tenders/2013/130515%20-%20NEEP%20-%20ToR%20for%20Energy%20performance%20and%20labelling%20of%20appliances%20final.pdf - Invitation to Tender, Investigation of energy performance and labelling requirements for electrical appliances and equipment sold in Namibia, GEF, UNDP, Polytechnic of Namibia

New Zealand

(Region: Asia Pacific)

New Zealand, while having the ability to set programs independently, has worked in close collaboration with Australia when establishing its energy efficiency labels and standards. New Zealand's appliance and equipment energy efficiency programs are linked technically, commercially, and administratively to those of Australia. There is open and free trade between the two countries. The test procedures, comparative labelling, and Energy Performance Standards requirements for appliances are mostly contained in joint Australian and New Zealand standards. For most products, the same manufacturers and importers supply both markets. Although the Ministry for Economic Development is responsible for the New Zealand Energy Sector, the Ministry for the Environment (MfE) is charged with developing policy in the energy efficiency area. The Energy Efficiency and Conservation Authority (EECA), is an independent government organisation that is responsible for implementing MfE energy efficiency and conservation policy.

In May 2000, the NZ Parliament passed the *Energy Efficiency and Conservation Act*. This gave the government the power to make labelling mandatory, and set Energy Performance Standards levels for a range of products. Mandatory labelling regulations became effective in April 2002. New Zealand has a separate voluntary labelling program for water heaters, and is also a participant in the International ENERGY STAR® Program. Energy Performance Standards also became mandatory for some products in July 2002 with further products being covered in February 2003.

The Energy Performance Standards and energy rating labelling programs are developed and implemented under EECA's Products Program. The Energy Efficiency (Energy Using Products) Regulations require suppliers and manufacturers to provide a self-declaration of energy performance, complete a registration process for each model or family of models to be sold, be able to supply a test report showing the product has been test to and comply with the criteria, and provide annual sales data. Verification testing is also undertaken, and products that are thought most likely to fail are selected for testing.

Energy Performance Standards - New Zealand

New Zealand works together with Australia on improving the efficiency of products, under a joint program called the Equipment Energy Efficiency (E3) Program. This program develops energy efficiency measures for a range of residential, commercial and industrial products, creating economic and environmental benefits. Aligning product energy efficiency measures across New Zealand and Australia reinforces development towards a single marketplace. It allows both countries to honour

their commitments under the Trans-Tasman Mutual Recognition Arrangement (TTMRA). Aligning product standards also keeps business compliance costs low as they don't have to meet differing requirements in two countries. New Zealand and Australia have had a joint program since 2002.

Products must meet certain requirements before they can be sold with these are set out in product standards. Importers or manufacturers need to understand and fulfil the requirements, including undertaking a registration process.

Energy Performance Standards, New Zealand

Product Description	**Year Implemented**	**Year Revised**
Air conditioners - packaged (three phase to 65 kW cooling)	2002	
Fluorescent lamps	2002	
Three phase electric motors	2002	
Refrigerators, refrigerator-freezers, freezers	2002	2011
Ballasts	2003	2005
Electric storage water heaters	2003	
Refrigerated cabinets	2004	
Lighting systems	2004	
Small 3-phase electric motors	2006	
Refrigerated vending machines	2008	
Ice machines	2008	
Transformers	2010	
Central air conditioners	2011	
Set top boxes	2011	
Chillers	2011	
Room air conditioners	2011	
Gas water heaters	2011	
External power supplies	2011	
CFLs	2012	
Televisions	2012	
Computers	2013	
Computer monitors	2013	
Under development		
Heat pump water heaters	2014	

Comparative Label - New Zealand

Program Name: Energy Rating Label

Implementing Agency: Energy Efficiency and Conservation Authority

Participation Category: Mandatory

Appliances Labelled: 2002- refrigerators (revised 2010), refrigerator-freezers (revised 2010), air conditioners (central, room and. split system – revised 2010), dishwashers, freezers (revised 2010), clothes dryers, clothes washers

2012 - televisions

Rating System: Energy consumption (generally kWh/year), 1 to 6 stars (6 most efficient)

Program Information: Prior to 2002 this program ran on a voluntary basis but was identical to the Australian program. Due to the close links New Zealand has with the Australian appliance market, labels often appeared on models imported from Australia, or on models manufactured locally for sale in both markets. The labels have been mandatory in New Zealand since 2002. EECA is responsible for implementation.

New Zealand and Australia jointly operate their mandatory energy labelling program. For more information regarding the energy labels, see **Australia**.

Endorsement Label - New Zealand

New Zealand is an international partner of the ENERGY STAR® program (see the International ENERGY STAR® section towards the end of this report).

This endorsement label was initially only applicable for ICT and office equipment, but New Zealand has also obtained approval to develop local criteria and use the ENERGY STAR® label for a range of other products such as HVAC, lighting, solar water heaters and domestic appliances.

References - New Zealand

http://www.eeca.govt.nz - Energy Efficiency and Conservation Authority (EECA)

http://www.mfe.govt.nz - Ministry for the Environment (MfE)

http://www.standards.co.nz - Standards New Zealand

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency

http://www.eeca.govt.nz/landing/standards-and-ratings - EECA Standards and Ratings

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

Nigeria

(Region: Africa)

The Energy Commission of Nigeria was established in 1979, and is responsible for the strategic planning and coordination of Nigeria's energy policies. In 2011, Nigeria and the UNDP entered into a project aimed at promoting the energy efficiency in the residential and public sectors, with a key goal being the use of standards and labelling for equipment and appliances. Product types include air conditioners, lighting, electric motors, fans, heating appliances and refrigeration appliances. The project is expected to run to 2015. In 2015, it is planned that mandatory Energy Performance Standards and energy labels will be introduced for air conditioners (room and central), refrigerators, freezers, CFLs and LED lamps.

No label image for Nigeria was available at the time for this report.

References - Nigeria

http://www.slideshare.net/Mathesisslides/overcoming-barriers-for-the-scaling-up-of-ee-appliances-in-nigeria - Overcoming barriers for the scaling up of energy efficient appliances in Nigeria, UNDP

http://www.ng.undp.org/energy/ - Nigeria Energy Efficiency Project – Promoting energy efficiency in the residential and public sector in Nigeria, UNDP and GEF

http://www.energy.gov.ng/ - Energy Commission Of Nigeria

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://superefficient.org/en/Resources/~/media/Files/ECOWAS/ECOWAS%20Institutional%20Assessment_Final%20Report%20with%20Appendices.pdf - Institutional and Regulatory Framework Assessment for the ECOWAS Appliance Standards and Labelling Program, SEAD

Norway

(Region: Europe)

The Norwegian Olje- og energidepartementet (OED, Ministry of Petroleum and Energy) oversees the energy sector. Within the Ministry, the Water Resources and Energy Directorate (NVE) were responsible for energy efficiency activities until the end of 2001.

Distribution utilities were also required to promote energy efficiency under Norway's Energy Act. This requirement no longer pertains to end-user efficiency activities, only to efficiency in their own operations. A change to the Energy Act in January 2002, introduced a new model for financing and organising energy end-use and renewable energy production activities (Proposition No. 35 to the Odelsting (2000-2001)). A new agency, Enova, was established, and a levy placed on the electricity distribution tariffs for all end-uses is channelled into an Energy Fund.

Enova was created by the Norwegian parliament to:

- limit energy use considerably more than if developments were allowed to continue unchecked;
- increase annual use of water-based central heating based on new renewable energy sources, heat pumps and waste heat of 4 TWh by the year 2010;
- install wind power capacity of 3 TWh by the year 2010; and
- increase environmentally friendly land-based use of natural gas.

Enova focuses its efforts on both the energy supply and the energy demand side, and the development and adoption of reliable methodologies for performance measurement and verification of results are high priorities.

Norway implements the EU labelling directives under the European Economic Treaty – a treaty between EU and European Free Trade Association countries (which includes Iceland, Liechtenstein, Norway and Switzerland). Comparative Energy labelling was instituted in 1997, and is based on the corresponding European Union directives, with Norway also running a parallel Energy Performance Standards program. Norway participates in an Eco-labelling program which includes energy efficiency criteria similar to the US ENERGY STAR® program, as well as the EU eco label flower program.

Energy Performance Standards - Norway

See the European Union for more details.

Implementing Agency: Norwegian Water and Energy Directorate (NVE)

Participation Category: Mandatory

Appliances with Energy Performance Standards: Same as Europe, although implementation dates may differ.

Comparative Label - Norway

See the European Union for more details.

Implementing Agency: Norwegian Water and Energy Directorate (NVE)

Participation Category: Mandatory

Appliances Labelled: Same as Europe, implementation dates may differ.

Endorsement Label - Norway

Program Name: The Nordic Swan Label

Implementing Agency: Nordic Eco-labelling Board

Participation Category: Mandatory

Appliances Labelled: Began 1991 - clothes washers, computers, copiers, dishwashers, fax machines, freezers, heat pumps, printers, refrigerators, refrigerator-freezers, monitors, televisions, and VCRs, audio products

2013 – Currently there are over five thousand Swan Labelled products under the categories of: children's products (eg. clothes, toys, nappies), car and boat products (eg. cleaning products and fuels), grocery stores, electrical products (eg. batteries, computers, appliances (refrigerators, clothes washers and dishwashers), office equipment, televisions), healthcare – disposable products, Hotels and Restaurants, Household paper and lighting, Personal care items, office equipment (eg. computers, printers and toner cartridges), cleaning products, textiles, and printing and paper.

Label Image Link: http://www.ecolabelindex.com/ecolabel/nordic-ecolabel-or-swan

Program Information:

The Nordic Swan Ecolabel operates not only in Norway, but also in Sweden, Denmark, Finland and Iceland. The Nordic Ecolabelling Board sets the policy framework, the criteria for the products and oversees the national boards. Each of the participating countries has a national body to administer the label.

- in Norway an independent foundation, Ecolabelling Norway has been established;
- in Sweden and Finland, the Standards Association has responsibility;
- in Iceland and Denmark, environmental labelling is under the Ministry of Environment.

For all jurisdictions, the office and audio-visual equipment criteria sets energy efficiency levels based on the US ENERGY STAR® program. The criteria for household appliances are set with the aim to improve the overall efficiency in the market and are designed to complement the comparative labelling system. Being an eco-labelling program, meeting energy efficiency criteria in isolation will not allow the granting of a label.

References - Norway

http://odin.dep.no/oed - Olje- og energidepartementet (OED, Ministry of Petroleum and Energy)

http://odin.dep.no/md/ - Miljøverndepartementet (Ministry for the Environment)

http://www.ecolabel.no - Nordic EcoLabel

http://www.enova.no – ENOVA website

http://www.efta.int/about-efta - EFTA website

Pacific Islands

(Region: Asia Pacific)

Governments in the Pacific Island region have moved to improve the energy efficiency of appliances and equipment. This has led to the development of Energy Performance Standards and an associated comparative labeling scheme for Fiji.

The preliminary processes for the implementation of this program started in 1996, and was subject frequent stakeholder consultations, cost and benefit analysis, retailer trainings and various submissions to the cabinet for relevant discussions and approvals. Approval received from from the Fiji Cabinet in early 2011, with legislation for Energy Performance Standards and comparative energy labelling for refrigerators and freezers in place since early 2012. Initially the program was based on Australian/New Zealand standards, but it is now mandatory for these appliances to be compliant to the FS/AS/NZS standards.

The Fiji Department of Energy monitors and facilitates the import and sales of household freezers and refrigerators into Fiji, with the Fiji Revenue and Customs Authority assisting in the managment of the Program.

Fiji is considering extending both Energy Performance Standards and comparative labelling to air conditioners (room and split systems) and lamps[10].

No label image for Fiji was available at the time for this report.

References – Pacific Islands

http://www.fdoe.gov.fj/index.php/energy-security/energy-conservation-efficiency/mepsl - Fijian Department of Energy

[10] It has been noted by a source that the Governments of Samoa, Tonga, Kiribati and Vanuatu have currently all agreed (at a Cabinet level) to regulate for Energy Performance Standards and comparative labelling, with the expectation that this will be undertaken for a similar product coverage to Fiji. It is not known when formal program implementation will be undertaken.

Pakistan

(Region: Asia Pacific)

Pakistan is involved in an energy saving regional project (BRESL) that includes five other countries – Bangladesh, Indonesia, Thailand, Vietnam and China. These six countries have called on the technical assistance of the Global Environmental Facility (GEF) to asses Energy Performance Standards programs for a number of products, as well as support a labelling process. The project also aims to facilitate the harmonisation of test procedures, standards and labels among developing countries in Asia. In Pakistan, the BRESL project started in 2010 and is expected to finish in 2014, with a focus on fans, motors, CFLs, ballasts, refrigerators and air conditioners.

The Pakistan Energy Efficiency and Conservation Bill and policy for energy efficiency and labelling have both been submitted to the Ministry of Water and Power for approval. Energy efficiency testing protocols have been adopted for each of these six appliance types, with a labelling procedure and logo approved by the project steering committee. Energy Performance Standards have been developed and approved for ballasts and fans, while levels for electric motors, air conditioners and refrigerators is still in under development. Voluntary levels have been implemented for CFLs.

No label image for Pakistan was available at the time for this report.

References - Pakistan

http://www.undp.org/content/pakistan/en/home/operations/projects/environment_and_energy/barrier-removal-to-energy-efficiency-standards-and-labeling/ - Barrier removal to energy efficiency standards and labelling (BRESL), GEF and UNDP

http://www.bresl.com/index.php?option=com_content&task=category&sectionid=7&id=47&Itemid=73 - BRESL homepage

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.worldenergy.org/data/energy-efficiency-policies-and-measures/ - World Energy Council

http://www.thegef.org - Global Environment Facility (GEF)

http://www.lites.asia/files/otherfiles/0000/0217/Day_2_Session_1.3_BRESL_overview_Asep_Suwarna.pdf - BRESL Overview

Peru

(Region: Central/South America)

The Peruvian Government passed a law in 2000 allowing for mandatory energy efficiency labelling for all energy consuming equipment and products. The Technical Standards Committee for the Rational Use of Energy and Energy Efficiency (CTNUREEE) is currently developing the program. The law also called for efficiency standards, which the National Institute of Competition Preservation and Protection of Intellectual Property (INDECOPI) was scheduled as part of its 2003 program. The standards cover motors, industrial boilers, refrigerators, electric water heaters and lamps.

In 2009, a voluntary Energy Performance Standards program was introduced in Peru, and a voluntary comparative labelling scheme commenced development. The Ministry of Energy and Mines and INDECOPI are developing the labelling program. The Ministry of Energy and Mines is responsible for the development of Energy Performance Standards and the compliance of both the labelling and Energy Performance Standards programs. In 2013, 11 products were covered under Energy Performance Standards, and 8 products under the comparative labelling program[11]. An endorsement label was introduced for compact fluorescent lighting in 2000.

Energy Performance Standards – Peru

The Ministry of Energy and Mines is responsible for the implementation of the voluntary Energy Performance Standards, first introduced in 2011.

Energy Performance Standards, Peru

Product Description	Date Implemented
Boiler/furnace – Central	2011
Freezers	2011
Storage water heaters	2011
Hot water system - instantaneous	2011
Lighting – fluorescent	2011
Refrigerators	2011
Refrigerator-freezers	2011
3 Phase motors	2011

[11] Sources have suggested that through cooperation with the UNDP, the Peruvian program will undergo a major review in the near future, including a revision to the label image and technical labelling regulations.

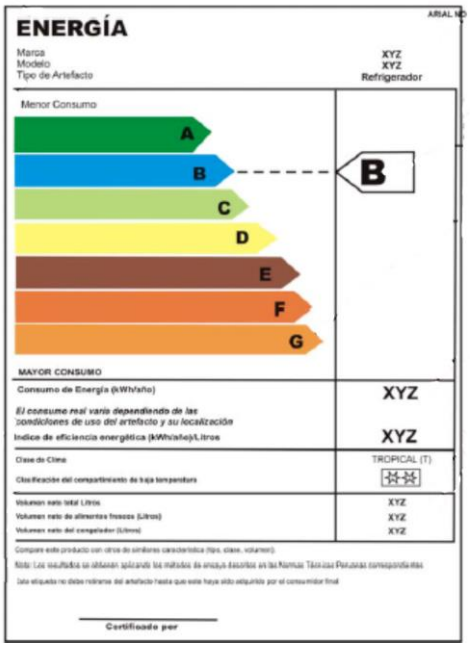
Comparative Label – Peru

Program Name: Regulamento de la etiqeta de efeiceincia energetica (Energy Efficiency Label Regulation)

Implementing Agency: Ministry of Energy and Mines

Participation Category: Voluntary

Appliances Labelled: 2011 - refrigerator-freezers, freezers, fluorescent lamps, 3 phase motors, water heater – instantaneous, water heater - storage, central boilers and furnaces



Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient). Boilers and motors are A to C rated.

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=ab488289-7e17-4c6a-bc92-be82b21e7c1f

Program Information:

The Ministry of Energy and Mines and INDECOPI developed the comparative labelling scheme. Law no. 27345 – *Promotion of Energy Efficiency Use* and *Reglamento of Law 27345: Decreto Supremo 053-2007-EM* (the *Bylaw*), provide the framework for the program.

References - Peru

http://www.indecopi.gob.pe - National Institute of Competition Preservation and Protection of Intellectual Property (INDECOPI)

http://www.minem.gob.pe/ - Ministerio de Energia y Minas (Ministry of Energy and Mines)

http://www.efficientlighting.net/ - Efficient Lighting Initiative

http://www.minem.gob.pe/_publicacion.php?idSector=12&idPublicacion=351 - Etiqueta de Eficiencia Energetica (Energy Efficiency Label) (Spanish)

http://www.minem.gob.pe/_publicacion.php?idSector=12&idPublicacion=352 - Guia de Estandares Minimos de Eficiencia Energetica (Minimum Standards Guide Energy Efficiency)

Philippines

(Region: Asia Pacific)

In 1992, the Bureau of Product Standards (BPS) signed an agreement with the Association of Home Appliance Manufacturers (Philippines) for voluntary labelling of household air conditioners. In 1993, this program became mandatory and by mid 1994, had been expanded to cover all sizes of window/wall type air conditioners. Since 1994, there has been a national information campaign to increase awareness and understanding of the label. In 2000, labels for cold appliances (refrigerators and freezers) were introduced. A voluntary label for fluorescent lamp ballasts was introduced in 2000, and became mandatory in 2002. In 2001, split system air conditioners were also included within the scope of the energy labelling program and labels for CFLs were also introduced. Circular and linear fluorescent lamps were required to be labelled from 2009, and electric ballasts in 2010. Labelling for industrial blowers, clothes washers and televisions is under consideration.

The Efficient Lighting Initiative endorsement label program started in 2000, while an endorsement label for the Philippines started 2009. Both these labels cover types of lighting products at the moment, there is a plan to expand the Philippines endorsement label to other products in the future (not much information was found concerning this program).

Energy Performance Standards started in 1993 for air conditioners, and has since expanded to include CFLs and linear fluorescent lamps. Applicable products that have been imported are issued with an import commodity clearance if they conform to the Energy Performance Standards and energy label requirements.

In 2004, the Philippine Government launched the National Energy Efficiency and Conservation Program (NEECP), in support of the implementation of energy efficiency plans and programs under its long term 2011-2030 Philippine Energy Plan. The aforementioned Energy Performance Standards and labelling appliance programs fall underneath the NEECP.

Energy Performance Standards - Philippines

The Philippines Energy Performance Standards program also developed in the early 1990's, and currently covers all types of room air conditioners. Energy Performance Standards for CFLs were implemented in 2002 and revised in 2010, with levels for linear fluorescent lamps implemented the same year. Energy Performance Standards for clothes washers and televisions are under consideration (refrigerators possibly had levels in the past, but no information on current programs for this product was available at the time of this report).

Manufacturers and importers must supply a test report from a government recognised testing laboratory and complete a registration process for each model or family of models that is to be sold in the market. Checks of test reports are done jointly by DOE and DTI to ensure that program requirements, including safety requirements are being complied with. Verification testing is also conducted.

Energy Performance Standards, Philippines

Product Description	Year Implemented	Year Revised
Room air conditioners (window wall)	1993	1994
Room air conditioners (split systems)	2002	
CFLs	2002	2010
Linear fluorescent lamps	2010	
Under consideration		
Clothes washers		
Televisions		

Comparative Label - Philippines

Program Name: Philippine Appliance Energy Standards And Labelling Program

Implementing Agency: Department of Energy (DOE), Bureau of Product Standards (BPS)

Participation Category: Mandatory

Appliances Labelled: 1993 – air conditioners (room) (under revision)

2000 – refrigerators, refrigerator-freezers, freezers

2001 – air conditioners (split) (under revision)

2002 – compact fluorescent lamps

2003 – fluorescent lamp ballasts (ferromagnetic only) (initially voluntary)

2009 – lighting systems (circular and linear fluorescent lamps)

2010 – electric ballasts

Under consideration – industrial blowers, clothes washers, televisions

Rating System: Power (Watts), EER (kJ/hour/Watt) (air conditioners), energy (kWh/year), energy efficiency factor (refrigerators), Watts loss (fluorescent lamp ballasts), Lumens per watt (CFLs)

Label Image Link:

http://www.unep.org/climatechange/mitigation/sean-cc/Portals/141/doc_resources/Network%20meetings/Third-Meeting/S3_Standards%20and%20labeling_Phon-amnuaisuk.pdf

Program Information*:*

The Philippines energy label displays the appliance's energy efficiency rating (EER: this is calculated from the coefficient of performance), or an energy efficiency factor as measured under the test standard[12]. Consumers can use this information to compare products if they wish. The label also shows the minimum efficiency requirement (Energy Performance Standards) for that size and type of air conditioner[13]. Labels also show a range of other data such as rated voltage/frequency, and capacity or volume.

Manufacturers and importers must supply a test report from a recognised testing laboratory and complete a registration process for each model or family of models that will be sold in the market. Surveys (visual checks of retail outlets) are undertaken by the DTI to check that energy labels are placed correctly on the products. Verification testing is also conducted

Labels shown above, left to right are – air conditioners, refrigerators and freezers, CFLs. A categorical label showing stars is under consideration.

[12] It was noted by a source that the Philippines appear to be moving towards a star based label.

[13] This is also done for lamp and ballast labels.

Endorsement Label - Philippines

Program Name: No information available at the time of writing

Implementing Agency: Department of Energy (DOE), Bureau of Product Standards (BPS)

Participation Category: Mandatory

Appliances Labelled: 2009 – lighting systems (circular and linear fluorescent lamps)

Under consideration for revision – industrial blowers

Under consideration for development – clothes washers, televisions, high intensity discharge lamps (HID)

Program Information: No information or label image for this program for the Philippines was available at the time of this report.

References - Philippines

http://www.doe.gov.ph - Department of Energy (DOE)

http://www.dti.gov.ph - Department of Trade and Industry including the Bureau of Product Standards

http://www.phileep.org/ - Philippine Energy Efficiency Project (PEEP)

http://www.bps.dti.gov.ph/ - Bureau of Public Standards, Standards and Conformance Portal

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency

http://www.efficientlighting.net/FormerELI/philippines/philippines.htm - Efficient Lighting Initiative

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.lites.asia/files/otherfiles/0000/0173/Informing_the_Supplier_Philippines_Raquel_Huliganga.pdf - The Philippine Energy Efficiency Standards and Labelling Program for Lighting Products

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

http://www.lites.asia/files/otherfiles/0000/0238/Manila_lites_asia_meeting_1.8_Philippine_policies_for_EE_lighting_Mirna_Campanano.pdf - Policies on Energy Efficiency Standards and Labelling in the Philippines

Russia

(Region: Europe)

Russia has high energy consumption and increasing energy prices, making energy efficiency a potentially valued tool. However, energy prices remain very low, providing few incentives to pursue energy efficiency. Russia began taking energy conservation action in 1976 when it was still part of the USSR, and introduced energy efficiency standards for ovens in 1983. This Energy Performance Standards program has been expanded and revised several times since (1987 and 1991), with Russia now having a number of appliances required to meet Energy Performance Standards.

The Federal Law "On Energy Conservation" of 1996 called for more accountability of producers and consumers and the inclusion of energy efficiency requirements in federal standards for equipment, materials, buildings and vehicles, including labelling. A standard, setting out general ways of indicating energy efficiency of products, came into force in September 2000 (GOST P 51380-1999). This sets out the framework for a labelling scheme broadly harmonised with Europe, and uses the IEC and ISO test procedures. Revised Energy Performance Standards and voluntary labelling were introduced for refrigerators in January 2001 (through GOST P 51388), with this standard also envisages labelling for a wide range of products such as gas and electric appliances, lamps, insulation products and cars. The style of energy label used is similar to the European Union.

In 2009, the Russian Federal Law No. 261-FZ *On energy saving and improvement of energy efficiency* was enacted. It regulates relations in regards to energy saving and improvement of energy efficiency. To promote this law the Federal State institution Russian Energy Agency (CEA), Ministry of Energy of Russia was established in 2009. The Russian Energy Agency implements the comparative labelling program while the Federal Agency on Technical Regulating and Metrology implements the Energy Performance Standards program[14].

There is currently (starting October 2013) a UNDP/GEF project being piloted in the Moscow area. This project is sponsoring the development of EU style test methods, voluntary labelling, institutional capacity building and awareness raising activities. The project focuses on clothes washing machines, refrigerators, pumps, industrial air conditioners, fans and chillers. IEC standards have been transposed and either been published or submitted to GOST.

[14] It was noted from a source that in the future, responsibility for energy efficiency product policy will fall to the Eurasian economic commission, Department for Technical Regulation and Accreditation. This body will oversee technical product standards for the 'Customs Union' of Russia, Belarus and Kazakhstan.

Energy Performance Standards - Russia

Four agencies were involved in the development of Russia's program[15]. They are:

- Ministry of Fuel and Energy;
- GOSTANDART of Russia (the State Committee of Russian Federation for Standardisation and Meteorology, also known as GOST);
- ZNEENMash (an affiliate of GOST who are responsible for the development of product energy performance regulations);
- Mintopenergo, (responsible for developing and overseeing voluntary energy efficiency requirements and targets).

GOSTANDART regulations, always prefixed with GOST, contain product energy performance requirements and describe the product's energy test procedure.

The Energy Performance Standards program is implemented by the Federal Agency on Technical Regulation and Metrology, which is part of the federal bodies of executive power of the Russian Federation, and is administered by the Ministry of Industry and Trade of the Russian Federation. Most Energy Performance Standards currently (2013) appear to be voluntary[16], with some under review or under consideration for revision. Energy Performance Standards for clothes washers are currently under consideration for development. While a range of levels were implemented in the 1980's, it appears that these were not implemented during a period of great political change. Most of these levels are no longer relevant today but remain as part of the program.

Energy Performance Standards, Russia

Product Description	Year Implemented	Year Revised
Ranges/ovens	1983	
Water heaters - electric	1984	
Dishwashers	1987	
Freezers	1987	
Refrigerators, refrigerator-freezers	1987	2001*
Computers	1989	

[15] It was noted from a source that there is now a formal agreement between CEN, CENELEC and Rosstandart for closer collaboration on standardisation to facilitate trade in goods between Europe and Russia.

[16] This appears to be due to a law that decrees all products standards should be voluntary unless they involve hazards to life, health etc. It is noted by a source that there are currently political and legal initiatives underway to work around or appeal this status.

Product Description	Year Implemented	Year Revised
Graphical input devices	1989	
Monitors	1989	
Printers	1989	
Televisions	1989*	
Audio - domestic sound frequency signal amplifiers	1990	
Air conditioners (window, split-type and ducted)	1999	
Lighting – incandescent (mandatory)	2011	

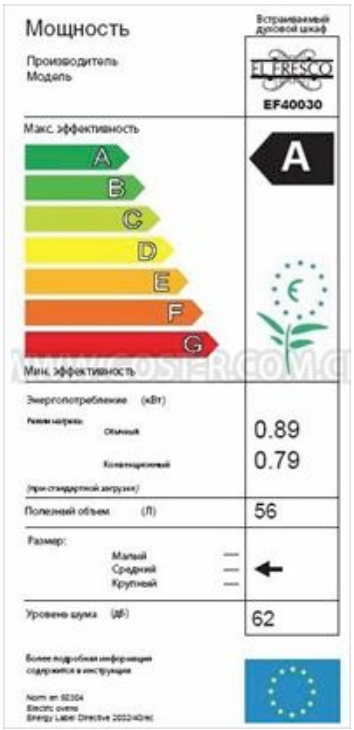
* Under consideration for revision

Comparative Label – Russia

Program Name: Comparative Label

Implementing Agency: Russian Energy agency

Participation Category: Voluntary



Appliances Labelled: 2011 - cooktop/hobs and ovens (electric), dishwashers, room air conditioners, combination clothes washer and dryers, lighting – incandescent, lighting – low pressure sodium
2012 - microwave ovens, space heaters (electric), photocopiers, televisions – CRT/plasma/LCD, storage water heaters
2013 (application for labelling in progress) – refrigeration devices, clothes washers, ovens, lamps, fluorescent lamps, split system air conditioners, computers, monitors, office equipment

Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient).

Label Image Link:
http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=4d0b564b-843d-4ec8-a7d6-7c843f5d3b1a [17]

[17] It was noted by a source that it is probable that this EU style label is not in use for Russia at the current time.

Program Information[18]:

The Russian Federation has a framework regulation that sets out the intent to have mandatory energy declarations on a (separately listed) set of appliances and commercial/industrial equipment. This is called Federal Law No. 261-FZ "On Saving Energy and Increasing Energy Efficiency, and on Amendments to Certain Legislative Acts of the Russian Federation" and came into force in 2009. The law provides for energy-efficiency rules for the circulation of goods and disclosure rules for the energy-efficiency of goods. These provisions were to take effect with respect to household energy-consuming appliances from January, 2011, and to PCs, other computer hardware and office equipment from January, 2012.

The first follow-up implementing law subsequent to that framework was submitted for WTO approval in February 2013 and should have been enacted in September 2013 (still currently awaiting confirmation): *Technical Regulation of the Customs Union on informing of consumers on energy efficiency of electrical energy-consuming devices.* This includes the technical requirements for voluntary energy labelling of washing machines, washer-dryers, refrigerators, electric ovens, dishwashers, residential air conditioners and household lamps.

An A to G label is proposed, almost identical for each of these product types by means of an energy efficiency index and follows the classical EU colour design, although simpler than the more recent EU fiche. The designated authority for this label is the Eurasian economic commission, Department for Technical Regulation and Accreditation. Whilst the provisions are apparently stated as voluntary (Article 6), Article 7 of this regulation, the 'Safeguard Clause', requires The Member States of the Customs Union "take all measures to limit … and withdraw from the market electrical appliances that do not comply".

Endorsement Label – Russia

Program Name: Efficient Russia Equipment Project

Implementing Agency: Association of European Business (independently managed)

Participation Category: Voluntary

Appliances Labelled: 2013 – electric motors, refrigerators, freezers

Label Image Link:

http://www.ebrd.com/pages/news/press/2013/130918a.shtml

[18] Please note that this Program Information should be considered as draft information only, it was yet to be confirmed at the time of writing.

Program Information:

This is Russia's first energy efficiency endorsement label, it was launched in the latter half of 2013. The design and launch of the label was a joint project by the Association of European Business (AEB), and the European Bank for Reconstruction and Development (EBRD), with close cooperation with the Russian Sustainable Energy Efficiency Facility (RuSEFF), CLASP, the Government of Finland, and SEAD. Initially only covering electric motors, refrigerators, freezers, windows and glazing products, it will be expanded to other products in the future.

References - Russia

http://www.gost.ru/wps/portal/ GOSTANDART – Federal agency on Technical Regulating and Metrology

http://www.cenef.ru - Centre for Energy Efficiency

http://www.energy.ru - Energy Russia (including Links to Ministry)

http://rosenergo.gov.ru/ - Russian Energy agency

http://www.ebrd.com/pages/news/press/2013/130918a.shtml - Launch of new energy efficiency label in Russia

http://www.clasponline.org/en/Resources/Resources/SLHeadlines/Russia-Launches-its-First-Energy-Efficiency-Endorsement-Label - Russia Launches its First Endorsement Label

http://www.themoscowtimes.com/business/article/ebrd-aeb-to-launch-energy-efficiency-labels/486294.html - EBRD, AEB to Launch Energy Efficiency Labels

http://www.ruseff.com/ - Russian Sustainable Energy Financing Facility

http://label-ee.ru/eng/Pages/default.aspx - Standards and Labels for Promoting Energy Efficiency in the Russian Federation, Ministry for Education and Science of the RF, UNDP/GEF Project

http://www.eurasiancommission.org/ru/act/texnreg/deptexreg/Pages/default.aspx - Department of Technical Regulation and Accreditation (in Russian)

http://eu-rf.org/ - Standardisation cooperation between CEN, CENELEC and Rosstandart

Kingdom of Saudi Arabia

(Region: Middle East)

Saudi Arabia first introduced Energy Performance Standards and comparative labelling for Air Conditioners in 2007. In 2010, the Standards for Air conditioners were updated and the labelling scheme expanded to include clothes washers and refrigeration products.

The Saudi Royal Decree No. M/10 dated 3/3/1392H (1972 G) provides the basis for the rules and requirements for Energy Efficiency Labelling which is handled by the Saudi Arabia Standards Metrology and Quality Organisation (SASO), the official standards body in Kingdom of Saudi Arabia (KSA). The Saudi Energy Efficiency Center (SEEC) was formed 2010, and is responsible for the development of efficient technologies and conservation policies. SASO is the regulatory body implementing both the comparative labelling and the Energy Performance Standards program in Saudi Arabia.

Energy Performance Standards – Kingdom of Saudi Arabia

Energy Performance Standards, Saudi Arabia

Product Description	Year Implemented	Year Revised
Air conditioners (non-ducted and ducted)	2009	September 2013

Comparative Label – Kingdom of Saudi Arabia

Program Name: Energy Efficiency Label

Implementing Agency: Saudi Arabia Standards Metrology and Quality Organisation (SASO)

Participation Category: Mandatory

Appliances Labelled: 2007 - air conditioners (revised 2010)

2010 - clothes washers, freezers, refrigerators, refrigerator-freezers

Rating System: The label is comparative, and contains the energy consumption (kWh/year), and EER for each product, and is intended to guide the consumer to the

most efficient product. The label displays manufacturer specific details, electrical specifications and operational capacity, and its performance under standard tests. The number of stars indicate the appliance's energy efficiency at rated conditions. A maximum of six stars can be displayed; the more stars, the greater the energy efficiency. The number of stars is derived differently for each appliance category. Note that the label dial shows greater energy efficiency in an anti-clockwise direction.

Label Image Link:

http://www.intertek.com/appliances-electronics/energy-efficiency/ksa-label/

Program Information:

Possible extensions to electric dryers, water type heaters, TVs, electric cookers, electronic ballasts and other products

References

http://www.saso.org.sa - Saudi Arabian Standards Organization (SASO)

http://www.intertek.com/appliances-electronics/energy-efficiency/ksa-label/ - Intertek

Singapore

(Region: Asia Pacific)

Singapore takes a sector based, yet integrated approach to energy efficiency, with the Energy Efficiency Programme Office established to promote and facilitate the adoption of energy efficiency. One of the key work items for the Office is to stimulate demand for energy efficiency through regulation and standards, incentives and open information.

Since 2008, applicable residential electrical products must carry labels under the Singapore Environmental Protection and Management Act. To supply these goods into the Singapore market, importers and manufacturers must apply to the National Environment Agency (NEA) to be registered. Singapore has a mandatory comparative label, a voluntary endorsement label and mandatory Energy Performance Standards for a number of products.

Energy Performance Standards - Singapore

The mandatory Energy Performance Standards program came into effect in 2011, with three products initially being covered – room air conditioners, refrigerators, and refrigerator/freezers. Standards are usually specified as a function of the efficiency categories defined for ticks (e.g. for refrigerator-freezers, Energy Performance Standards levels are effectively 2 ticks, so only 3 possible label grades are on the market). There are plans to widen the coverage of the program to include another 4 products in the future. In order to join the program, a test report must be provided, with each model or family or models required to undertake a registration process. Visual checks and screening tests are to be conducted in the future for this program.

Energy Performance Standards, Singapore

Product Description	**Year Implemented**
Room air conditioners (under revision)	2011
Refrigerators (under revision)	2011
Refrigerator/freezers (under revision)	2011
Under development	
Clothes dryers	
CFLs	
Halogen lamps	
Incandescent lamps	

Comparative Label – Singapore

Program Name: Mandatory Energy Labelling Scheme (MELS)

Implementing Agency: National Environment Agency (NEA)

Participation Category: Mandatory

Appliances Labelled: 2008 – refrigerators, refrigerator/freezers, room air conditioners

2009 – clothes dryers

Under development - televisions

Rating System: Energy (kWh/year), EER, 0 to 4 ticks (4 most efficient)

Label Image Link:
http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=e6e843cc-5ad0-4df4-8407-ea58dd043c24

Program Information:
The Mandatory Energy Labelling Scheme was created in 2008. Registered suppliers selling applicable products into the market must affix the Energy Label on the units they supply to Singapore. The Energy Label shall be affixed only after the National Environmental Agency (NEA) has issued the Certificate of Registration (COR) for the model. Retailers are only allowed to display models that have the label affixed on them.

Label green ticks legend: 0 = energy efficiency rating is low, 1 = fair, 2 = good, 3 = very good, 4 = excellent

NEA does not currently conduct verification testing of products however, there are plans to introduce this feature in the future.

Endorsement Label – Singapore

Program Name: Singapore Green Labelling Scheme

Implementing Agency: Singapore Environment Council (SEC)

Participation Category: Voluntary

Appliances Labelled: 2012 – coffee machines, dishwashers, refrigerators, refrigerator/freezers, televisions (flatscreen and CRT)

Label Image Link:

http://www.sec.org.sg/sgls/about

Program Information:

Launched in 1992 and administered by the Singapore Environmental Council (SEC), the Singapore Green Labelling Scheme is Singapore's leading environmental standards and certification mark. The label is applicable to most products except food, drinks and pharmaceuticals, with products evaluated through stringent standards. Application for the Scheme is open to both local and foreign companies.

References - Singapore

http://www.mti.gov.sg - Ministry of Trade and Industry (MTI)

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency

http://app2.nea.gov.sg/data/cmsresource/20090316653072840750.pdf - Environmental Protection and Management (Energy Conservation) Regulations

http://www.sec.org.sg/sgls/ - Singapore Green Labelling Scheme

http://app.nea.gov.sg/cms/htdocs/category_sub.asp?cid=258 - National Environment Agency, Energy Labelling Scheme

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

South Africa

(Region: Africa)

Energy labelling is part of the South African Department of Minerals and Energy National 10 year Energy Efficiency Strategy. Appliance Labelling falls under the programme for residential sector, with this sector program including building standards for housing, appliance energy labelling, information and awareness, lighting program and non-electric appliances.

In May 2004, the Ministry of Minerals and Energy announced the introduction of an appliance energy labelling program for South Africa. The product coverage will eventually be the same as Europe, and it is proposed to use the same test procedures and energy labelling equations, making the program fully harmonised with the European scheme. The rationale for this approach is that the bulk of appliances in South Africa are sourced from Europe. The program started on a voluntary basis initially, but became mandatory once the Energy Bill is passed. The South African Bureau of Standards (SABS) is a key implementation partner in the program, with assistance from electricity utilities and municipalities. Advice on the project is being provided as part of the Capacity Building in Energy Efficiency and Renewable Energy (CaBEERE) project, which is a joint program of the South African and Danish governments. The Department of Energy is leading a UNDP-GAF funded South African energy efficiency standards and labelling project. This project was officially launched in early 2013.

The comparative labelling program was launched in South Africa in 2005, initially with the voluntary labelling of two product categories. Since then, further labelling and standards for many product categories are under development. Once a new standard has been gazetted, the requirements will move from voluntary to mandatory. Energy Performance Standards are under development by the South African Bureau of Standards.

In 2012, SABS introduced a standard for the energy efficiency of appliances (SANS 941). It applies to non-ducted air conditioners, heat pumps, audio and video equipment, dishwashers, electric lamps, electric ovens, refrigerators, freezers, clothes dryers, washer-dryer combinations, and clothes washers. It is currently voluntary, but will become mandatory. There are three general requirements concerning power factor, passive standby consumption and energy labels.

Energy Performance Standards – South Africa

The South African Bureau of Standards is developing the Energy Performance Standards program. Energy Performance Standards are under development for clothes washers, refrigerators, freezers,

clothes dryers, dishwashers, ovens, air conditioners, fluorescent lamps, solar water heaters, heat pumps, incandescent lamps, central air conditioners, video recording equipment, set top boxes, multifunction devices, lighting ballast fluorescent, televisions, displays and audio visual equipment. A passive standby requirement has also been proposed and is under development.

Energy Performance Standards, South Africa

Product Description	Year Implemented
Lighting systems	2010

Comparative Label – South Africa

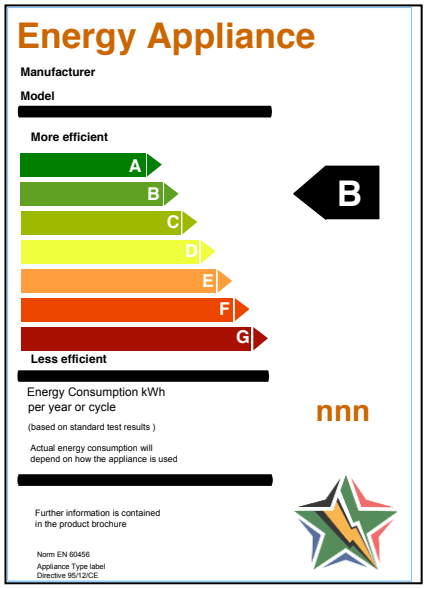
Program Name: Appliance Labelling Scheme

Implementing Agency: Department of Energy – Republic of South Africa

Participation Category: Mandatory

Appliances Labelled: 2005 - refrigerators, refrigerator–freezers

Under development for labelling – dishwashers, ovens, room air conditioners, clothes dryers, clothes washers, combination washer and dryers, lighting – ballasts fluorescent, compact fluorescents, lighting-incandescent, lighting systems, water heaters, freezers, heat pumps, central air conditioners, video recording equipment, set top boxes, audio equipment, multifunction devices, televisions



Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient).

Label Image Link:
http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=d993bf5e-208d-4681-8788-342b1bccf389

Program Information:

The grading for the labels is determined by the South African National Accreditation System (SANAS), and the South African Bureau of Standards (SABS). It is described in the relevant standard for each electrical appliance. The labelling requirements for many appliances have been adopted from the European market. All products that are legally imported or produced in South Africa carry the South African Star, which will be visible in the bottom right corner of the appliance label. The requirements are broadly aligned with those of Europe (implementation dates and product coverage may differ).

Energy efficiency labels for appliances were introduced in May 2005 on a voluntary basis and will become mandatory when the appliance in question is gazetted (all are currently still voluntary).

References – South Africa

http://www.dmr.gov.za/ – Department of Minerals and Energy, South Africa

http://www.energy.gov.za/EEE/Projects/Appliance%20Labelling/Information%20Campaign%202005/ANNEX%20D%20CaBEERE%20Backgrounder.pdf - CaBEERE project

https://www.sabs.co.za/ - South African bureau of Standards

http://www.energy.gov.za/ - Department of Energy

http://www.efficientlighting.net – Efficient Lighting Initiative

http://www.energy.gov.za/files/eee_frame.html - Energy Efficiency and Environment, Department of Energy

http://www.thegef.org/gef/CPE%20South%20Africa - Global Environment Facility (GEF) – South Africa

www.gov.za/documents/download.php?f=137869 - Compulsory Specification for CFLs

www.gov.za/documents/download.php?f=209164 - Compulsory Specification for Energy Efficiency and Labelling of Electrical and Electronic Apparatus

Sri Lanka

(Region: Asia Pacific)

In April 2003, the Ceylon Electricity Board in partnership with Sri Lanka Standards Institution (SLSI) launched a voluntary energy rating label. In 2012, the National Energy Management plan 2012-16 included regulatory interventions and energy efficiency measures such as energy efficiency labelling. The national energy agency in Sri Lanka – the Sri Lankan Sustainable Energy Authority (SLSEA), has launched an energy labelling process in collaboration with the Sri Lanka Standards Institute (SLSI), with assistance from the National Engineering Research and Development (NERD) Centre and University of Moratuwa for product testing and related technological assistance.

Energy Performance Standards – Sri Lanka

The Energy Performance Standards program in Sri Lanka is under development with some standards implemented and others are planned.

Energy Performance Standards, Sri Lanka

Product Description	Year Implemented
Industrial motors - planned	2012
Air conditioners - mandatory	No date
Lamps - mandatory	No date
Refrigerators - planned	No date

From World Energy Council Database - www.wec-policies.enerdata.eu

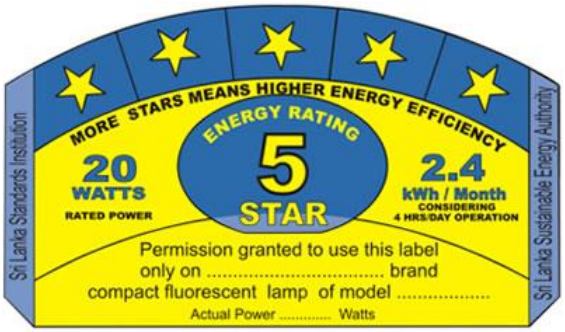
Comparative Label – Sri Lanka

Program Name: Energy Efficiency Labelling Scheme

Implementing Agency: Sri Lanka Standards Institute (SLSI)

Participation Category: Voluntary/Mandatory

Appliances Labelled: 2003 – ballasts, CFL's (voluntary)



2009 – CFLs (mandatory)

2013 (proposed) – refrigerators, air conditioners, fluorescent lamps

Rating System: Energy (kWh/year)

Label Image Link:
http://www.energy.gov.lk/sub_pgs/energy_managment_regulatory_energyLabelling_CFL.html

Program Information: The program uses a star rating label, with 1 being the least efficient category and 5 being the most efficient. From 2004, only lighting products with a rating of 3 stars or more were able to use the label. The program is hoping to launch labels for refrigerators, freezers and air conditioners in 2013. Additionally, the SLSI is assisting USAID to replicate the program in Nepal.

References – Sri Lanka

http://www.slsi.lk/web/ - Sri Lankan Standards Institute (SLSI)

http://powermin.gov.lk/ - Sri Lankan Ministry of Power and Energy

http://www.energy.gov.lk/sub_pgs/energy_managment_regulatory_1.html#2 - Sri Lankan Sustainable Energy Authority

http://www.wec-policies.enerdata.eu/ - World Energy Council

http://www.lites.asia/files/otherfiles/0000/0166/Day_2_Session_2.3_Sri_Lanka_national_standards_Irosha_Kalugalage.pdf - Standards, Regulations and Labelling Requirements for Lighting Products, Sri Lanka Sustainable Energy Authority

Switzerland

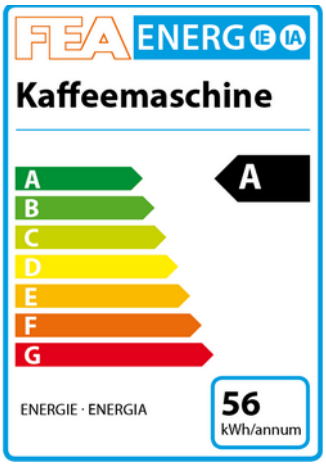
(Region: Europe)

In the 1990's, Switzerland's Energy 2000 program developed voluntary targets for household appliances, office equipment and home electronics. The legislation allowed for Energy Performance Standards to be introduced if the targets were not met, without the need for further parliamentary approval. The scheme was complemented with an Energy 2000 endorsement label for the top 20-30% of products that consume the least energy. The office equipment endorsement label program was subsequently adopted by the GEA. In 1999, the Swiss Government embraced the GEA label in preference to the Energy 2000 label. The remainder of the Energy 2000 program underwent a review process, as the targets had largely been met and the target dates had expired. As a result, the Swiss Government launched a new program January 2001. The program called SwissEnergy includes a wide range of activities, including a modified labelling and target efficiency program. The Swiss Federal Office of Energy (SFOE) operating within the Department of the Environment, Transport, Energy and Communication (DETEC) is responsible for SwissEnergy. Additionally, a voluntary agreement between SFOE, manufacturers and importers meant the EU comparative labelling system was being used in Switzerland on a voluntary basis.

Switzerland implements the EU labelling directives under the European Economic Treaty – a treaty between EU and European Free Trade Association countries (which includes Iceland, Liechtenstein, Norway and Switzerland)[19]. Since 2003, the EU labelling system has been made mandatory.

Comparative Label - Switzerland

Products covered are the same as Europe, implementation dates may differ. See the European Union for more details.



Implementing Agency: Swiss Federal Office of Energy (SFOE)

Program Name: No information available at the time of writing

Implementing Agency: Swiss federal Office of Energy (SFOE)

Participation Category: Voluntary

[19] It was noted by a source that some Switzerland Energy Performance Standards may be at a stricter level than those set up the EU.

Appliances Labelled: 2009 – coffee machines

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=223e870c-cce3-453b-9c0f-e4390f456833

Program Information:

Switzerland was the first country in Europe to introduce voluntary comparative labelling for coffee machines in 2009.

Voluntary Endorsement Label - Switzerland

See European Union

References - Switzerland

http://www.energieagentur.ch - Swiss Agency for Efficient Energy Use (SAFE)

http://www.suisse-energie.ch - Swiss Energy and Swiss Federal Office of Energy (SFOE)

http://www.nordlicht.uni-kiel.de/sme/b14.htm - Interdisciplinary Analysis of Successful Implementation of Energy Efficiency in the Industrial, Commercial and Service Sector, Final Report, Research funded in part by The European Commission in the framework of the Non Nuclear Energy Programme JOULE III Copenhagen, Karlsruhe, Kiel, Vienna, Wuppertal, February 1998.

Chinese Taipei

(Region: Asia Pacific)

As Chinese Taipei imports the majority of its energy, the benefits of energy efficiency programs have great potential. In 1998, the government announced it would introduce a formal comparative program and investigations into this are currently being undertaken. In 2001, the Energy Commission in the Ministry of Economic Affairs (MOEA) introduced a voluntary endorsement energy label program that covered ten products. The Environment Protection Agency runs an ecolabel program (Greenmark), which has an extensive list of energy consuming products that are required to meet efficiency standards (amongst other criteria). Additionally, Chinese Taipei is a partner of the International ENERGY STAR® Program, labelling office equipment. In 1999, MOEA also developed the country's Energy Performance Standards program, while in 2010 it introduced a mandatory energy efficiency rating labelling program currently covering six products. The MOEA is also responsible for compliance of the programs.

Energy Performance Standards - Chinese Taipei

The Energy Commission in the Ministry of Economic Affairs (MOEA) has developed Energy Performance Standards for a range of products, with the scheme well established and a number of products requiring revision to levels. In most cases the energy tests are detailed in Chinese National Standards (CNS) of Chinese Taipei, and the Energy Performance Standards requirements are published by MOEA. Suppliers can test their own products or send them to a designated laboratory. The Government conducts random checks on product performance.

Energy Performance Standards, Chinese Taipei

Product Description	Year Implemented	Year Revised
Motors	1981	2012
Ceiling fans	1982	1982
Electric storage water heaters	1989	1989
Air conditioners - room (split-type)	1991	2002
Fluorescent lamps	1993	2010
Refrigerators, refrigerator-freezers	1996	2011
Packaged terminals	2002	2002
Boilers	2003	2012
Chillers	2003	2012
Ballasts	2009	2009

Product Description	Year Implemented	Year Revised
CFLs	2010	2010
Air conditioners (window wall)	2011	2011
Dehumidifiers	2011	2011
Incandescent lamps	2012	2012
Small electric motors	2012	2012

Comparative Label – Chinese Taipei

Program Name: Energy Efficiency Rating

Implementing Agency: Bureau of Energy, Ministry of Economic Affairs (MOEA)

Participation Category: Mandatory

Appliances Labelled: 2010 – refrigerator/freezers, room air conditioners

2011 – dehumidifiers, CFLs

2013 – gas cooktop/hobs, gas instantaneous water heaters

Rating System: Energy consumption (RF kWh/year, AC power), rating 1 to 5 (5 most efficient)

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=45b42fbf-fbfa-4e0f-9566-ed23721f5157

Program Information:

The label was introduced in order to provide stronger support to the government's policies on energy conservation and carbon reduction. The label was introduced as part of an amendment to the Energy Management Act in 2008. To be able to join the program or sell products, suppliers and manufacturers have to provide a certificate or test report provided by an independent third party authority. Independent verification on samples of products is also undertaken periodically.

Endorsement Label - Chinese Taipei

Program Name: Energy Conservation Label

Implementing Agency: Bureau of Energy, Ministry of Economic Affairs (MOEA)

Participation Category: Voluntary

Appliances Labelled: 2001 – air conditioners, clothes dryers

2002 – electric fans, lamps, televisions

2003 – dryers, hand dryers

2005 – fluorescent lamps

2006 – instantaneous gas water heaters, gas cooktop/hobs

2007 – water coolers, DVD/Blu ray players, hair dryers

2008 – integrated stereos, electric storage water heaters, indoor light fixtures, cold/warm/hot water fountains

2009 – window and split air conditioners

2010 – photocopiers, warm/hot drinking water dispensers, clothes washers, monitors, televisions, dehumidifiers, CFLs

2011 – printers, refrigerator/freezers, refrigerators, electric stoves

2012 – exhaust fans, computers, signal lighting, notebook computers

2013 – electric stoves/ovens, rice cookers

Label Image Link:

http://www.energylabel.org.tw/index_en.asp

Program Information:

In 2001, the Energy Conservation label was launched by MOEA. The intent of the program is to establish a verification labelling system for domestic energy saving products, provide guidance to industry, and encourage consumers to purchase energy saving products. To be able to join the program or sell products, suppliers and manufacturers need to provide a certificate or test report from an independent third party authority, and undertake a registration process for each model or

family of models to be sold in the market. Routine and random checks, as well as store and internet checks are conducted in the program to monitor label display. Independent verification testing on products is also undertaken.

Endorsement Label - Chinese Taipei

Program Name: Greenmark Ecolabel

Implementing Agency: Bureau of Energy, Ministry of Economic Affairs (MOEA)

Participation Category: Voluntary

Appliances Labelled: Began in 1992 - air conditioners (room unitary and split-type), clothes washers, computers (including portables), fax machines, freezers, lamps, microwaves, monitors, printers, refrigerators, televisions, transformers, water heaters, induction cookers, clothes dryers, solar water heaters, dehumidifiers, copiers, dishwashers. Currently, the program has issued ecolabel certificates to nearly 6,000 products under 112 product categories.

2010 – refrigerator/freezers, room air conditioners

2011 – dehumidifiers, CFLs

2013 – gas cooktop/hobs, gas instantaneous water heaters

Label Image Link:

http://greenliving.epa.gov.tw/GreenLife/eng/english.aspx

Program Information:

In 1992, the Environmental Protection Administration (EPA) launched an eco-label program called "Greenmark". The EPA still administers the program via the Greenmark Program Review Committee, however implementation of all aspects of the program is contracted to the Environment and Development Foundation (EDF). The program covers a large number of product categories including paper, water-using devices and several energy-using appliances. All energy using appliances must meet energy efficiency criteria to receive the award. The program is instrumental in the government's green procurement program that has been in place since 2002.

Endorsement Label - Chinese Taipei

Chinese Taipei is an international ENERGY STAR® partner. See the International ENERGY STAR® section towards the end of this report.

This endorsement label is applicable for one product category – ICT/office equipment.

References - Chinese Taipei

http://www.energylabel.org.tw/index_en.asp - Energy Conservation Label (Chinese)

http://greenliving.epa.gov.tw/GreenLife/eng/E-GreenMark.aspx – Greenmark Labelling Program

http://www.moea.gov.tw - Ministry of Economic Affairs

http://www.taipower.com.tw - Taiwan Power Company

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency http://www.moeaboe.gov.tw/English/english_index.aspx - Bureau of Energy, News page

http://www.energylabel.org.tw/product_en/product/list.asp - Endorsement Label, Chinese Taipei

https://ranking.energylabel.org.tw - Bureau of Energy

http://web3.moeaboe.gov.tw/ECW/english/content/Content.aspx?menu_id=1535 – Efficiency Standards and Benchmarks

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

Thailand

(Region: Asia Pacific)

Thailand passed its Demand Side Management (DSM) Master Plan and its Energy Conservation Promotion Act in 1991, with an associated Energy Conservation Promotion Fund in 1992. These two programs have established a strong basis for an increase in the efficient use of energy. Organisations involved in energy conservation include: the Ministry of Energy (MOEN), Electricity Generating Authority Thailand (EGAT), Department of Alternative Energy Development and Efficiency (DEDE), Energy Policy and Planning Office (NEPO), Thai Industrial Standards Institute (TISI), and Electrical and Electronics Institute (EEI), and Thailand Environment Institute (TEI). Currently Thailand has two labelling schemes – a comparative label operated by EGAT for its DSM programs, and an eco label operated by TEI.

Thailand has recently implemented a long term plan for energy efficiency improvement called the '20 year Energy Efficiency Development Plan (EEDP 2011-2030)'. This plan was developed by the Ministry of Energy, and approved by the Thai cabinet in 2011. Thailand uses both mandatory and supportive/promotional measures, including mandatory Energy Performance Standards and voluntary energy performance labelling for appliances and equipment.

Thailand is also involved in an energy saving regional project (BRESL) that includes five other countries – Pakistan, Indonesia, Bangladesh, Vietnam and China. These six countries have called on the technical assistance of the Global Environmental Facility (GEF) to asses Energy Performance Standards programs for a number of products, as well as support a labelling process. The project also aims to facilitate the harmonisation of test procedures, standards and labels among developing countries in Asia. In Thailand the BRESL project began in 2009 and is implemented with close collaboration with the Ministry of Energy's Department of Alternative Energy Development and Efficiency (DEDE), and the Electricity Generating Authority of Thailand (EGAT). The activities focus on capacity building and assisting government, manufacturing, distribution, retail, consumer and environmental stakeholders to develop and implement cost effective energy standards and labelling programs.

Thailand has active comparative label, endorsement label and Energy Performance Standards programs for appliances and equipment.

Energy Performance Standards - Thailand

The implementing organisation for the Thai Energy Performance Standards program is the Department of Alternative Energy Development and Efficiency, Ministry of Energy (DEDE). The program was first implemented in 2006 for two product types – refrigerators/freezers and CFLs, and has since expanded to cover 4 more product types. Product standards are set by the DEDE and regulated by the Thai Industrial Standards Institute (TISI) under the Ministry of Industry.

Suppliers and manufacturers must have their products certified by the TISI, and register either each model or family of models to be able to sell the products in Thailand. Visual checks of registration details are commissioned by the government agency, and verification testing is conducted within the program.

Energy Performance Standards, Thailand

Product Description	Year Implemented	Year Revised
Ballasts – magnetic and electronic	2004	
Refrigerators	2006	(2012)
Refrigerator/freezers	2007	(2012)
CFLs (voluntary)	2006	
Other fluorescent lamps	2006	
Medium 3-phase electric motors (voluntary – under revision)	2007	
Room air conditioners (pending implementation)	2013	
Kettles	No date	

Note: 2012 levels for refrigerators and refrigerator freezers are under consideration.

Comparative Label - Thailand

Program Name: The Energy Efficiency Label No. 5

Implementing Agency: Electricity Generating Authority of Thailand (EGAT)

Participation Category: Voluntary

Appliances Labelled: 1995 – room air conditioners (split and window wall), refrigerators

1998 – residential fluorescent lighting ballasts (magnetic ballasts)

2000 – refrigerator/freezers

2004 – rice cookers

2006 – compact fluorescent lamps

2008 – portable fans

2009 – fluorescent lighting ballasts (electronic ballasts and low loss magnetic ballasts), lamps

2010 – kettles, standby (all equipment types)

2011 – instantaneous water heaters

Rating System: Energy consumption (RF kWh/year, AC power), rating 1 to 5 (5 most efficient) (in practice on grades 3, 4 and 5 are available)

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=13c86801-eda6-4685-97b6-948e3205de39

Program Information:

Appliance energy labelling in Thailand is operated by the electricity utility (Electricity Generating Authority of Thailand - EGAT), and is a voluntary program. The energy labelling project has been approved by the Thai government and is incorporated into the utility's Demand Side Management (DSM) Program. The program is supported by a very high profile publicity campaign to raise public awareness of energy labels and energy efficiency. The labelling program first came into effect in 1993/94.

In order to obtain a label, a product must be sent to the Electrical and Electronics Institute (EEI) for energy performance testing. Suppliers and manufacturers must also complete a registration process for a model or family of models to be able to join the program or sell products under the program. Verification testing for electrical products is undertaken by EGAT.

Endorsement Label - Thailand

Program Name: Green Label Scheme

Implementing Agency: Thailand Environment Institute (TEI)

Participation Category: Voluntary

Appliances Labelled: 1994 – CFLs, fluorescent lamps, ballasts for fluorescent lamps

1997 – displays, computers

1998 – medium 3-phase electric motors

2002 – refrigerators, refrigerator/freezers

2003 – ballasts

2004 – printers, DVD players, televisions

2007 – clothes washers

2009 – photocopiers

2010 – room air conditioners (split and window wall)

2011 – microwaves, CFLs, central air conditioners, fluorescent lamps

Label Image Link:

http://www.ecolabelindex.com/ecolabel/thai-green-label

Program Information:

The Thai Green Label Scheme was initiated by the Thailand Business Council for Sustainable Development (TBCSD) in 1993, as a TBCSD council project. It was formally launched in 1994 by the Thailand Environment Institute (TEI), in association with the Ministry of Industry. TISI, NEPO and EGAT are all involved in supporting the scheme. Products or services which meet the Thai Green Label criteria can carry the Thai Green Label.

The products must be manufactured or assembled by ISO 9002 certified plants, quality control plant according to the test method number 5.6.1, or certified by other standardised tests of product quality that may be set in the future. Products must also be manufactured, transported and disposed of in a manner meeting requirements of all applicable governmental acts and regulations.

References - Thailand

http://www.egat.or.th - Electricity Generating Authority Thailand (EGAT)

http://www.eppo.go.th - Energy Policy and Planning Office (EPPO)

http://www.tisi.go.th - Thai Industrial Standards Institute

http://www.tei.or.th - Thailand Environment Institute (TEI)

http://www.ecct-th.org - Energy Conservation Centre of Thailand

http://publications.apec.org/publication-detail.php?pub_id=1285 - Survey of Market Compliance Mechanisms for Energy Efficiency Programs in APEC Economies

http://www.tl.undp.org/content/thailand/en/home/presscenter/articles/2010/11/12/bresl-working-group-aims-to-lower-energy-costs-for-consumers-market-energy-efficient-appliances.html - BRESL Project, UNDP

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.dede.go.th/dede/ - Thailand Ministry of Energy, Department of Alternative Energy Development and Efficiency

http://labelno5.egat.co.th/index.php?lang=en – Electricity Generating Authority Thailand (EGAT), Label No. 5 Program

http://aperc.ieej.or.jp/file/2012/12/28/Compendium_2011.pdf - Compendium of Energy Efficiency Policies of APEC Economies

http://www.lites.asia/files/otherfiles/0000/0112/National_Standards_and_Labels_-_Thailand_23_June_2012.pdf - National Standards and Labels, Country Profile, Thailand

Tunisia

(Region: Africa)

Tunisia introduced mandatory labels for refrigerators in 2004, and followed with mandatory minimum energy performance standards in 2007. The launch of the energy label is to be supported by a major media promotional campaign late in 2004. The label resembles the European label design although it has one half in Arabic and the other in French, to reflect the bilingual nature of Tunisian society. Appliances are labelled from 1 'efficient', to 8 'inefficient', such that the class 1 corresponds to the A+ level in the EU label, and the other seven classes correspond to the A to G classes in the EU label. Field tests of the label design have shown that more than 70% of consumers correctly interpret the label without having previously seen it. Prior to its introduction, the label was tested in a six month pilot program involving a number of retailers and manufacturers. The requirements of the Energy Performance Standards are to be phased in, so that from 2007 all appliances sold on the market must attain a class 4 (EU label class C) or better, and from 2010 at least a class 3 (EU label class B) or better.

The Agence Nationale des Energies Renouvelables (ANER) is responsible for the program, which was sponsored by the GEF. To ensure conformity with the programs requirements all refrigerators sold on the Tunisian market must have their energy performance certified at the national test laboratory operated by CETIME. ANER and CETIME also plan to do regular check testing of appliances at the point of sale. ANER plans to extend the standards and labelling program to cover room air conditioners in the near future.

Both mandatory comparative labelling and Energy Performance Standards have been introduced in Tunisia, and are implemented by the National Agency for Energy Conservation (ANME).

Energy Performance Standards – Tunisia

Energy Performance Standards have been introduced in Tunisia for room air conditioners, incandescent lamps, refrigerators and freezers. They are implemented by the National agency for Energy Conservation (ANME)

Energy Performance Standards, Tunisia

Product Description	Year Implemented	Year Revised
Freezers	2004	2007
Air conditioners - room	2009	
Lamps - incandescent	2007	
Refrigerators	2007	

Comparative Label Tunisia

Program Name: No information found at the time of writing

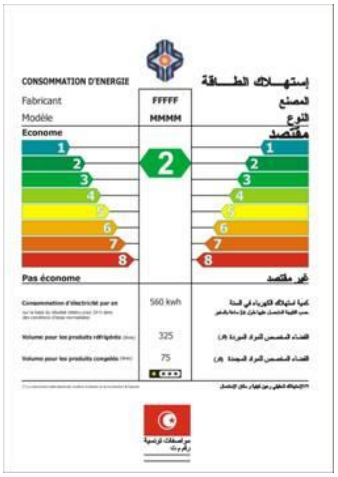
Implementing Agency: National Agency for Energy Conservation (ANME)

Participation Category: Mandatory

Appliances Labelled: 2004 - refrigerators, freezers

2009 - room air conditioners

2013 – Under consideration for development – clothes washers and CFLs



Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=4ff7cf19-9c66-411e-9fdc-bafeef557b08

Program Information:

Since 2004, Tunisian law requires the display of an EU-style energy label (with eight classes, the top one representing the EU A+ and A++ classes) in a bilingual version (French and Arabic, and the numbers 1-8 indicating classes instead of letters). Applicable to refrigerators and freezers - from July 2006 onwards, the lowest two energy classes (7 and 8) have been banned from the Tunisian market, followed in July 2007 with the banning of classes 5 and 6. It is planned that class 4 will be banned from 2010 onwards.

References – Tunisia

http://www.anme.nat.tn/index.asp?pId=62 – National Renewable Energy Agency (ANME)

http://www.giz.de/en/worldwide/19474.html - Summary of Tunisian Labelling Project

http://www.giz.de/en/worldwide/326.html - Overview of Tunisian Programs

http://siteresources.worldbank.org/EXTENERGY2/Resources/4114199-1276110591210/Tunisia.pdf - Energy Efficiency Institutional Governance in Tunisia (presentation)

Turkey

(Region: Europe)

Turkey is a major emerging economy and has been a candidate for EU membership since 1999. The standards and labelling program appears to be inline with EU directives. Since 2002, mandatory comparative labelling has been introduced and Energy Performance Standards is being developed for a number of appliance categories.

Energy Performance Standards – Turkey

A number of appliance categories are under consideration for mandatory Energy Performance Standards including integrated fans, boilers, pumps (other), and air conditioners (room, central packaged terminal and portable).

Energy Performance Standards, Turkey

Product Description	Year Implemented
Dishwashers	2011
Clothes washers	2011
Lamps (ballast fluorescent, HID and HiD ballast, incandescent, low pressure sodium, solid state/LEDs) and lighting systems	2011
External power supplies	2011
Pumps – building circulators	2011
Freezers, refrigerator and refrigerator/freezers	2011
Refrigerators	2011
Televisions - CRT and flatscreen	2011
Motors – 3 phase	2012

Comparative Label – Turkey

Program Name: No information available at the time of writing

Implementing Agency: Ministry of Energy and Natural Resources (MoENR/DG) and Ministry of Science, Industry and Technology (MoSIT)

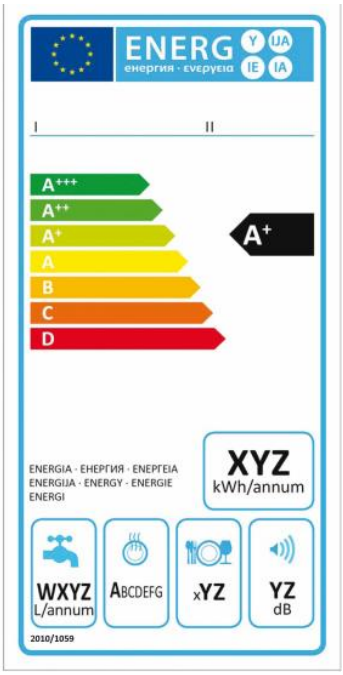
Participation Category: Mandatory

Products Labelled: 2002 – washer-dryers, clothes dryers (under revision), lamps – CFL, incandescent, solid state/leds and lighting systems

2003 – ovens

2007 – air conditioners – packaged terminal, portable, room (under revision)

2012 – dishwashers, clothes washers, freezers, refrigerators, refrigerator-freezers, televisions – CRT and flatscreen



Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=bd8f09c4-bb0a-4bf1-8411-e51a9e3e1797

Program Information:

No information available at the time of writing, but requirements align broadly with EU requirements (dates may vary).

Endorsement Label – Turkey

The Ministry of Energy and Natural Resources (MoENR/DG) is considering the introduction of the voluntary endorsement labelling using the EU Energy Star for imaging machines, computers, game consoles and computer servers. The Ministry of Environment and Urbanisation is considering voluntary endorsement using the EU Ecolabel for boilers and furnaces, central and room air conditioning, lighting and televisions. To date these have not been implemented (2013).

Standby Power – Turkey

Turkey has introduced Energy Performance Standards for the power consumption in standby and off modes for all electrical and electronic household and office equipment as per EU directive 2005/32/EC. See Standby Power - European Union.

References – Turkey

http://www.enerji.gov.tr - - Ministry of Energy and Natural Resources

http://www.sanayi.gov.tr/Default.aspx?lng=en - Ministry of Science, Industry and Technology (MoSIT)

http://www.csb.gov.tr/turkce/index.php - Ministry of Environment and Urbanisation

Ukraine

(Region: Europe)

Increased energy efficiency in all economic sectors is a priority of the Ukrainian Government. Through the Energy Strategy of Ukraine 2030, the Ukrainian government has moved to base its national energy standards & labelling policies on the respective EU schemes. The State Agency on Energy Saving and Energy Efficiency (SAEE) has been assigned to this work and given the legal mandate to lead the process of setting up a national energy standards and labelling scheme.

Since 2002, the SAEE has implemented eight national energy labelling regulations for household appliances, which have been applied on a voluntary basis. In addition, mandatory Energy Performance Standards for household refrigerators in accordance with the EC Ecodesign Regulation 643/2009 have been enacted.

Currently, the SAEE has developed Draft Technical Regulations by transposing the Labelling Directive 2010/30/EU, as well as transposing the Commission Delegated Regulations for energy labelling of household refrigerating appliances (1060/2010) and household washing machines (1061/2010).

Label Image Link:

http://www.energy-strategies.org/images/phocadownload/projects/Otchet_A4_eng.pdf (page 32 of the presentation)

References - Ukraine

http://www.energy-strategies.org/en/projects/36-general3/149-energy-labelling-of-household-appliances-in-ukraine - Energy labelling of household appliances in Ukraine

http://www.energy-community.org/pls/portal/docs/1420184.PDF - Energy Community Annex 7 – update on the implementation of Directives

http://un.ua/eng/article/462550.html - Cabinet introduces energy efficiency labels for refrigerators and washing machines

http://www.energy-strategies.org/en/projects/249-energy-labelling-directive-and-regulations-transposed-into-ukranian-legislation - Energy Labelling Directive 2010/30/EU and Commission Delegated Regulations transposed into Ukrainian national Legislation

http://saee.gov.ua/en/content/legislation - State Agency on Energy Efficiency and Energy Saving of Ukraine

United Arab Emirates

(Region: Middle East)

In 2011, through the Minister of Environment and Water, the United Arab Emirates (UAE) introduced the National Energy Efficiency and Conservation Program. Initially this covered air conditioners (2011), but was expanded in 2012 to cover lamps, clothes washers, refrigerators, and then central air conditioners and chillers in 2013. Currently, a labelling scheme is in place for room air conditioners and clothes washers, with the program to cover other products in the future. Based on a system already in place in Australasia but adjusted for the UAE, the labels will help consumers make informed purchase decisions. It is expected that the labelling system will save USD $110 million by 2016 from the energy savings from air conditioners alone. In 2011, the UAE introduced Energy Performance Standards for room air conditioners.

Comparative Label – United Arab Emirates

Program Name: No information available at the time of writing

Implementing Agency: Emirates Authority for Standardisation and Metrology (ESMA)

Participation Category: Mandatory

Appliances Labelled: 2013 – central air conditioners (under development), room air conditioners (in force), clothes washers (in force)

Under development – CFLs, linear fluorescent lamps, LEDs, chillers, clothes dryers, refrigerators, incandescent lamps, halogen lamps, electric motors, water pumps

Rating System: Energy (kWh/year or per cycle), Efficiency rating 1 star to 5 stars (5 most efficient)

Label Image Links:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=bfedbeea-7874-4d90-903c-cdfd91e5d2d5

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=890ba0d6-ab1b-4435-a74b-aa08afa3fca1

Program Information:

The top label (right) is an example CFL label, while the bottom label (right) is an example clothes washer label.

References - United Arab Emirates

http://enterpriselabeling.com/uae-moving-forward-with-mandatory-energy-efficiency-labels/ - UAE moving forward with mandatory energy efficiency labels

http://www.esma.gov.ae/SiteCollectionDocuments/ECAS/EG-Products.pdf - UAE Regulated Products, Electrical and Gas Appliances

http://www.esma.gov.ae/en-us/Pages/Home.aspx - UAE Government Website

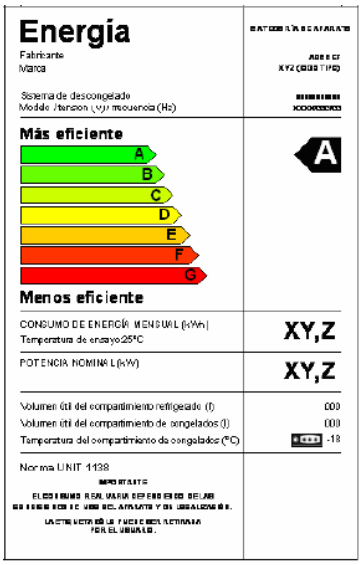
http://www.docstoc.com/docs/130811767/UAE-Energy-Efficiency-Standardization-Labeling - UAE Energy Efficiency Standardisation and Labelling presentation

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

Uruguay

(Region: Central/South America)

In 2004, the Uruguayan Government and the Global Environment Facility (GEF) signed a grant agreement with the purpose of implementing the Energy Efficiency Project, aiming at increasing the demand for and supply of energy efficient goods and services. In 2008, a preliminary draft of the Energy Efficiency Law was released, as part of the Law, there was an aim to develop a National Energy Efficiency Plan, which included the development of an energy efficiency labelling system and energy efficiency standards for equipment. In 2009, Uruguay released decrees making energy efficiency labelling compulsory for electrical and gas equipment, with labelling to become mandatory once the transitory periods have been fulfilled as applicable for appliance types.



Comparative Label - Uruguay

Program Name: Res. Ministerial 955/011; Res. Ministerial 956/011; Dto. 430/009

Implementing Agency: Direccion Nacional de Energia (National Directorate of Energy)

Participation Category: Mandatory

Appliances Labelled: 2011 – CFLs

2012 – refrigerators, storage water heaters

Rating System: Energy (kWh/year or per cycle), Efficiency rating A to G (A most efficient)

Label Image Link:
http://www.eficienciaenergetica.gub.uy/doc/etiquetado/unit/UNIT%201138%20-%20Eficiencia%20Energ%C3%A9tica.%20Aparatos%20de%20refrigeraci%C3%B3n%20el%C3%A9ctricos%20de%20uso%20dom%C3%A9stico.%20Especificaciones%20y%20etiquetado.pdf (page 6)

Program Information:

The Energy Efficiency Law states that no applicable equipment utilising energy for it functioning, can be marketed in Uruguay that does not include nationally standardised information on energy consumption and performance via energy efficiency labels. The information provided to the consumer regarding the energy consumption and performance of equipment will be based on

energy efficiency norms, in line with national technical norms, or international standards that have been included in national regulations (if required). Equipment without proper labelling can be fined up to 100% of its sale price, and customs can block its imports.

References - Uruguay

http://www.temasactuales.com/temasblog/environmental-protection/energy-the-environment/energy-efficiency/an-ambitious-energy-efficiency-law-for-uruguay/ - An Ambitious Energy Efficiency Law for Uruguay

http://enhesa.wordpress.com/2012/07/02/energy-efficient-products-the-case-of-latin-america/ - Energy Efficient Products – the case of Latin America

http://www.eficienciaenergetica.gub.uy/ - Eficiencia Energetica (Spanish)

http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

http://www.eclac.cl/publicaciones/xml/2/39412/lcw280i.pdf - Energy efficiency in Latin America and the Caribbean - Situation and Outlook, UN and Organiscion Latinomericana de Energli

http://www.worldenergy.org/documents/congresspapers/172.pdf - Definition of a proper institutional and legal framework to promote energy efficiency in Uruguay

USA

(Region: North America)

The US Federal government has passed several major pieces of legislation that set a solid framework for appliance labelling and standards. In 1975, the Energy Policy and Conservation Act required the Federal Trade Commission (FTC) to establish a labelling program and the Department of Energy (DOE) to set voluntary efficiency targets. The labelling program, Energy Guide, became effective from about 1980 when manufacturers were obliged to place energy labels indicating energy consumption on their appliances. Following was the National Energy Policy and Conservation Act of 1978, which changed efficiency targets to mandatory standards and ensured that Federal Law had precedence over individual state laws. Many states had begun prescribing Energy Performance Standards during the late 1970s, meaning manufacturers had to meet varying criteria. This situation led to manufacturers giving great support to the federal act. The actual standards, along with a requirement to review and update efficiency levels, were made into law in 1988 with the enactment of the National Appliance Energy Conservation Act. Additional standards (mainly commercial and industrial products) were written into the law in 1992, with the introduction of the Energy Policy Act. There are now national efficiency standards for most home appliances and equipment.

The 1992, the DOE was directed to support a voluntary office equipment program (ENERGY STAR®) under the Energy Policy Act of 1992. ENERGY STAR® is a joint effort with the US Environmental Protection Agency (EPA) and is used to indicate low standby for some products and high efficiency for others. In an effort to boost the effect of these programs a presidential executive order was passed at the end of 2001, declaring all government agencies when purchasing appliances with standby mode, consumption must be no greater than 1 watt. The Energy Policy Act of 2005 included an expanded coverage and scope. The Energy Independence and Security Act of 2007 (EISA) added standards for some additional products, and included provisions to advance the standard-setting process. Orders passed as part of the Federal Energy Management Program (FEMP) also require that all appliances purchased by government agencies must be energy star labelled. In addition to these government programs, a non-profit organisation has also established an eco label, which endorses energy efficient products.

Energy Performance Standards - USA

The US Department of Energy (DOE) is required by legislation to set Energy Performance Standards for a wide range of nominated products. Additionally, those products which are not covered, but which consume more than a specified amount of energy, are also to be considered for Energy

Performance Standards. However, Energy Performance Standards can only be set after a prescribed process of research and consultation, and the levels must be demonstrated to be technically feasible and cost-effective. Energy Performance Standards levels are reviewed by the DOE from time to time, and higher levels are set if the analysis justifies a revision. Federal Energy Performance Standards levels take precedence over state levels, but if the Federal government determines that no standards are warranted for a particular product, then states are free to set local rules. Canada and, to a lesser extent, Mexico, have harmonised their Energy Performance Standards regimes with the US for many products, although the implementation dates vary. As with the energy labelling program, NIST is responsible for establishing test procedures.

Energy Performance Standards, USA

Product Description	**Source**	**Initial Legislation**	**Current Standard Effective Date***	**Updated Standard Potential Effective Date****
Residential				
Battery chargers	EPACT	2005	None	2015
Boilers	NAECA	1987	2012	2020
Central air conditioners and heat pumps	NAECA	1987	2015	2022
Clothes dryers	NAECA	1987	2015	2020
Clothes washers	NAECA	1987	2015	2021
Dehumidifiers	EPACT	2005	2012	2019
Direct heating equipment	NAECA	1987	2013	2021
Dishwashers	NAECA	1987	2013	2021
External power supplies	EPACT	2005	2008	2015
Furnace fans	EPACT	2005	None	2016
Furnaces	NAECA	1987	2013	2022
Microwave ovens	NAECA	1987	2016	2022
Pool heaters	NAECA	1987	2013	2021
Ranges and ovens	NAECA	1987	2012	2018
Refrigerators and freezers	NAECA	1987	2014	2021
Room air conditioners	NAECA	1987	2014	2020
Set top boxes and network equipment	None	None	None	2018
Televisions	NAECA	1987	None	None
Water heaters	NAECA	1987	2015	2021
Wine chillers	NAECA	1987	None	2019

Product Description	Source	Initial Legislation	Current Standard Effective Date*	Updated Standard Potential Effective Date**
Commercial/Industrial				
Automatic ice makers	EPACT	2005	2010	2016
Boilers	EPACT	1992	2012	2019
Clothes washers	EPACT	2005	2013	2018
3 phase central air conditioners	EPACT	1992	2008	2018
Air cooled CAC and HPs	EPACT	1992	2010	2017
Water and evaporatively cooled CAC and HPs	EPACT	1992	2013	2021
Refrigeration equipment	EPACT	2005	2012	2017
Water heaters	EPACT	1992	2003	2017
Distribution transformers – liquid immersed	EPACT	1992	2016	2022
Distribution transformers – low voltage dry type	EPACT	2005	2016	2022
Distribution transformers – medium voltage dry type	EPACT	1992	2016	2022
Electric motors	EPACT	1992	2010	2017
Fans, blowers and fume hoods	EPACT	1992	None	2019
Furnaces – warm air	EPACT	1992	2003	2017
Packaged terminal AC and HPs	EPACT	1992	2010	2018
Pumps	EPACT	1992	None	2019
Small electric motors	EPACT	1992	2015	2021
Unit heaters	EPACT	2005	2008	None
Vending machines	EPACT	2005	2012	2019
Walk in coolers and freezers	EISA	2007	2009	2016
Lighting				
Candelabra and intermediate base incandescent lamps	None	None	2012	2018
Ceiling fans and ceiling fan light kits	EPACT	2005	2007	2018
Compact fluorescent lamps	EPACT	2005	2006	2020
Fluorescent lamp ballasts	NAECA	1988	2014	2021
General service fluorescent lamps	EPACT	1992	2012	2017
General service lamps – incandescents, CFLs, GSLED, GSOLED	None	None	2012	2020
HID lamps	EPACT	1992	None	2017
Illuminated exit signs	EPACT	2005	None	None

Product Description	Source	Initial Legislation	Current Standard Effective Date*	Updated Standard Potential Effective Date**
Incandescent reflector lamps	EPACT	1992	2012	2017
Luminaires	EPACT	1992	None	None
Mercury vapour lamp ballasts	EPACT	2005	2008	None
Metal halide lamp fixtures	EISA	2007	2009	2017
Torchiere lighting fixtures	EPACT	2005	2006	None
Traffic signals	EPACT	2005	2006	None

Source - http://www.appliance-standards.org/products

* This date refers to the date the last Standard issued by DOE becomes effective

** This date refers to the date the expected revision to the DOE Standard is expected to come into effect

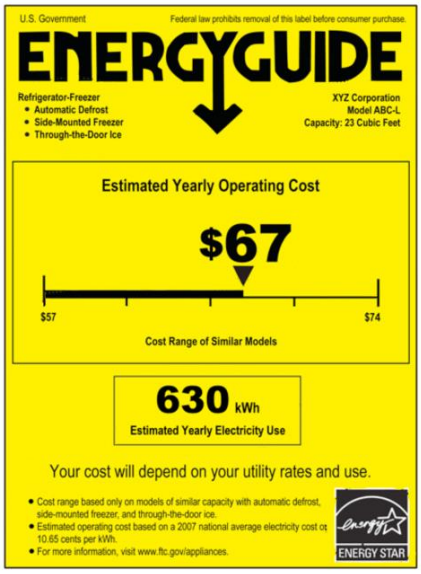
Comparative Label - USA

Program Name: Energy Guide

Implementing Agency: US Federal Trade Commission (FTC)

Participation Category: Mandatory

Appliances Labelled: 1980 – air conditioners (room), clothes washers, dishwashers, freezers, furnaces, refrigerators, refrigerator-freezers, water heaters (electric, gas, oil).



1992 - heat pumps, boilers,

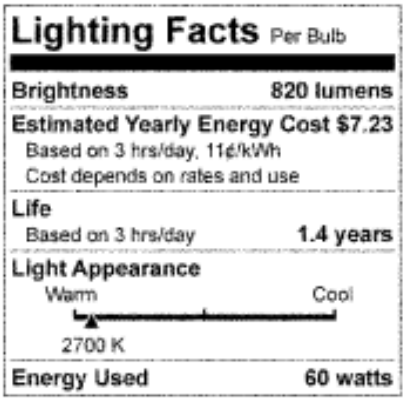
1993 - air conditioners (central)

1994 – ballasts, lamps

2007 – central boiler/furnace, water heating instantaneous

2008 – ceiling fans

2011 – televisions - CRT and flatscreen (under reveiw 2013)



2012 – lighting ballast fluorescent, CFL, LEDS

Under development – battery chargers, external power supplies (2013)

Rating System: Energy (kWh/year), operating cost and lowest and highest energy used for similar products (EER and or SEER for air conditioners). The end points on the label are upgraded each year.

Label Image Link:

http://www.clasponline.org/Tools/Tools/SL_Search/SL_SearchResults/SL%20Detail%20Page?m=7f5c186e-002b-4045-92e1-5ce9ffd2d1ed

http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=ca2825875984c2aefa012d7ec2efa03e&rgn=div9&view=text&node=16:1.0.1.3.29.0.19.25.36&idno=16

Program Information:

The FTC is responsible for the design, implementation and compliance of this program. The technical requirements are set out in the Code of Federal Regulations 16CFR305. The National Institute of Standards and Technology (NIST) are responsible for development and maintenance of test procedures. Test procedures are specified on the Code of Federal Regulations 10CFR430. The label originally showed only the annual cost of operation however; problems arose when national average electricity price changed from year to year and the range of prices was so wide. In 1994, the FTC decided to revise the Energy Guide label so that annual energy use (in kWh) rather than average annual operating cost became the main comparative indicator.

Endorsement Label - USA

Program Name: ENERGY STAR® Program

Implementing Agency: US Department of Energy (DOE) and the US Environmental Protection Agency (EPA) (lead agency depends on the product).

Participation Category: Voluntary

Appliances Labelled: 1992 – computers (2009 under revision), monitors,

1993 – printers

1994 – fax machines

1995 – air conditioners (central), copiers, furnaces, heat pumps, transformers

1996 - air conditioners (room) (review complete pending implementation 2013), dishwashers, refrigerators

1997 – clothes washers (under review 2013), MFD's, residential lighting products, scanners.

1998 – televisions, VCR's

2000 – audio products, CFL's, DVDs

2003 – steam cookers

2004 – air cleaners

2006 – battery chargers (under review 2013), external power supplies

2008 – string lights, telephones – cordless, freezers, refrigerator-freezers (under review 2013)

2009 – ovens (under revision 2013), central air conditioning, imaging machines (under review 2013)

2010 – water coolers, refrigerators, refrigerated cabinets (all under review 2013)

2011 – fryers, griddles, commercial hot food holding cabinets, LEDs self ballasted, set top boxes - complex and simple (under review 2013)

2012 – ceiling fan lighting kits, lighting fixtures, dehumidifiers, solid state LEDs/other, uninterruptable power supplies, integrated fans, ceiling fans

2013 – dishwashers, central boilers and furnaces, ice machines

Other products with Energy Star endorsement label under development: game consoles, networking equipment, computer server, clothes dryer, washer and dryer, climate control heating and cooling, televisions – CRT and flatscreen, refrigerated vending machine, laboratory refrigerator/freezers, water heaters - storage and instantaneous

Label Image Link:

http://www.energystar.gov/

Program Information:

The ENERGY STAR® endorsement label was launched in 1992, both the Environment Protection Agency (EPA) and the US Department of Energy (DOE) jointly manage it. The ENERGY STAR®

program is both an international product specification that deals with standby and increasingly on mode performance for a wide range of consumer electronic products and office equipment (see the section on International ENERGY STAR), and a US domestic endorsement labelling program that identifies major appliances, buildings and other equipment that are high efficiency (generally which average or Energy Performance Standards levels by a significant margin).

The program originally covered only computers, monitors and printers, but has now been expanded to cover a wide variety of appliances, equipment, building products and even homes and windows. For office equipment, such as personal computers and photocopiers, and electronic equipment, the Energy Star label indicates that the model has certain power management capabilities, and that the manufacturer has undertaken to supply the product with those capabilities turned on, or "enabled". For other types of equipment, the Energy Star label indicates that the product is among the most efficient of its type, either because it is in the top percentile of the range on the market, or because it exceeds the Energy Performance Standards level by a specified margin. The amount by which an appliance must exceed the minimum standard differs for each product and is dependent upon available technology in each product category. The program is continuing to explore endorsement criteria for new products.

Endorsement Label - USA

Program Name: Green Seal of Approval

Implementing Agency: Green Seal

Participation Category: Voluntary

Appliances Labelled: 1992 – lamps

1993 - clothes washers, dishwashers

1994 – clothes dryers, freezers, ranges/ovens, refrigerators, refrigerators-freezers

1995 – air conditioners (residential)

1998 – heat pumps

2009 – CFLs

Label Image Link: http://www.greenseal.org/

Program Information:

Green Seal is a non-profit organisation, which runs an eco labelling program, the "Green Seal of Approval". The types of products eligible for a label are selected according to the significance of their potential environmental impact, and in consultation with industry, environmentalists, consumer groups and the public. Criteria are then established addressing the areas the product has most negative impact. Manufacturers pay Green Seal to organise the testing and monitoring of their product. Once the label is awarded the product is checked annually. The label displays the program logo and clearly states the criteria for which the award was given e.g. "Meets Green Seal Environmental Criteria for high Energy Efficiency, low Noise, and recycled Packaging".

Standby – USA

USA standby requirements for a wide range of products have been included in the ENERGY STAR® program for many years. However, participation in ENERGY STAR® is voluntary. In July 1999, President Clinton signed executive order 13123, which requires ENERGY STAR® compliance as a prerequisite for government purchasing, where applicable. For product groups where ENERGY STAR® specifications are not yet available, the order requires agencies to select products that are in the upper 25 percent of energy efficiency as designated by FEMP. These requirements cover much more than standby in many cases.

In July 2001, President Bush signed executive order Executive Order 13221, 'Energy-Efficient Standby Power Devices', which limits the standby power of equipment purchased by Federal government departments and agencies. The order states: "Each agency, when it purchases commercially available, off-the-shelf products that use external standby power devices, or that contain an internal standby power function, shall purchase products that use no more than one watt in their standby power consuming mode". As a result of this order, the Department of Energy is required to compile and maintain a listing of eligible products. This can be found on the Federal Energy Management Program (FEMP) website. The scope of the order is not specified, but it is assumed to be extremely wide and the number of product types included in the FEMP website is continuing to expand.

The DOE is progressively including standby and off mode power into the test procedure energy consumption measurements of many products covered by energy labelling and Energy Performance Standards.

References - USA

http://www.eere.energy.gov/EE/buildings_appliances.html - DOE Labelling Page

http://business.ftc.gov/documents/bus-82-energyguide-labels-faqs#products – EnerGuide Labelling

http://www.energystar.gov - ENERGY STAR®

http://www.nist.gov - National Institute of Standards and Technology

http://www.greenseal.org - Green Seal

http://www.eere.energy.gov/femp - Federal Energy Management Program

http://www.eere.energy.gov/buildings/appliance_standards/ - US DOE Appliance and Equipment Standards

http://www.appliance-standards.org/products - Appliance Standards Awareness Project

USA – California

(Region: North America)

Energy Performance Standards – California

California has Energy Performance Standards for some appliances and equipment. These are implemented by the Californian Energy Commission, and are exclusive to California (Federal Standards pre-empt states, so they can only regulate products not covered federally).

The current Appliance Efficiency Regulations, (California Code of Regulations, Title 20, Sections 1601 through 1608), dated September 2012, contain amendments that were adopted by the California Energy Commission in January, 2012. The Appliance Efficiency Regulations (or Energy Performance Standards) include standards for twenty-three categories of appliances, including both federally regulated appliances and non-federally regulated appliances. These standards apply to appliances that are sold or offered for sale in California, (with the exceptions of those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.)

Energy Performance Standards, California

Product Description	**Year Implemented**
Central air conditioners (electric)	2003
Freezers	2003
Wine chillers	2003
Pool heaters	2003
Water heaters - instantaneous	2003
Water heaters - storage	2003
Hot food holding cabinets	2006
Traffic lights	2006
Refrigerated vending machines	2006
Walk-in cooler/freezers	2006
DVD/Blu ray players	2006
Standby - televisions	2006
Standby – DVD players and recorders	2006
Refrigerated cabinets	2007

Product Description	Year Implemented
Home Theatre equipment	2007
Standby – compact audio products	2007
Central boiler/furnaces	2008
Space heaters (oil, gas)	2008
Lighting, incandescent	2008
External power supplies	2008
Ice machines	2008
Lighting systems	2010
Battery chargers	2013
Uninterruptable power supplies	2013
Televisions – CRT and flatscreen	2013

Energy Performance Standards are under development for fluorescent lighting.

References – California

http://energy.ca.gov/ - California Energy Commission

http://www.energy.ca.gov/2012publications/CEC-400-2012-019/CEC-400-2012-019-CMF.pdf - California Energy Commission, October 2012, *2012 Appliance Efficiency Regulations*

Vietnam

(Region: Asia Pacific)

In 2005, the Vietnamese Government, through the Ministry of Industry and Trade (MOIT) released the Vietnam National Energy Efficiency Program (VNEEP), for the period 2006-2015. The VNEEP calls for the improvement of energy efficiency, the reduction of energy losses, and the implementation of extensive measures for the conservation of energy. The VNEEP is the first long term comprehensive plan that Vietnam has instituted aimed at improving energy efficiency and conservation. The first Phase (2006-2010) aims to initiate the program, while Phase 2 (2011-2015) aims to expand each component of the program, including the gradual implementation of energy efficiency standards and energy labelling programs for appliances and equipment.

Vietnam is also involved in an energy saving regional project (BRESL) that includes five other countries – Bangladesh, Pakistan, Indonesia, Thailand and China. These six countries have called on the technical assistance of the Global Environmental Facility (GEF) to asses Energy Performance Standards programs for a number of products, as well as support a labelling process. The project also aims to facilitate the harmonisation of test procedures, standards and labels among developing countries in Asia.

Vietnam has a comparative label, an endorsement label and an Energy Performance Standards program for applicable products. The labels are newly designed and have replaced older labels used in the past.

Energy Performance Standards - Vietnam

Like energy labelling, the organisation in charge of implementing Energy Performance Standards in Vietnam is the Ministry of Industry and Trade (MOIT). Energy Performance Standards are a recent addition in Vietnam, with the first tranche of products being subject to levels in 2009. Incandescent lamps were regulated in 2013, while Energy Performance Standards for an additional 15 products is planned to be implemented in 2014 and 2015.

Manufacturers and importers are required to register the claimed performance of all products covered by the program before they can be sold. Energy Performance Standards applications must also include a third party certification of compliance with the relevant performance criteria. The government may verify claims by check testing samples of products on the market.

Energy Performance Standards, Vietnam

Product Description	**Year Implemented**
Ballasts – electronic (voluntary)	2008
CFLs (voluntary)	2008
Fluorescent lamps (voluntary)	2009
Lighting systems	2009
Solar water heaters	2009
Storage water heaters	2009
High intensity discharge lamps (HID)	2009
Incandescent lamps	2013
Pending Implementation	
Room air conditioners	2014
Fluorescent lamps	2014
Ceiling fans	2014
Electronic ballasts	2014
Electromagnetic ballasts	2014
Set top boxes	2014
Clothes washers	2014
Refrigerators	2014
Rice cookers	2014
CFLs	2014
Displays	2015
Transformers	2015
Medium 3-phase electric motors	2015
Refrigerated cabinets	2015
Imaging machines	2015

Comparative Label - Vietnam

Program Name: Energy Label

Implementing Agency: Ministry of Industry and Trade (MOIT)

Participation Category: Mandatory/Voluntary

Appliances Labelled: 2011 (voluntary) – imaging machines, displays

2013 (mandatory) – electronic ballasts, CFLs, ceiling fans, rice cookers, electromagnetic ballasts, medium 3-phase electric motors, refrigerators, room air conditioners, fluorescent lamps, transformers, clothes washers, set top boxes

2014 (mandatory) – refrigerated cabinets (pending implementation)

Rating System: Energy consumption (kWh/year, AC power), rating 1 to 5 (+stars) (5 most efficient)

Label Image Link:
http://www.tietkiemnangluong.com.vn/en/to-label/introduce-energy-labels-36002-12051.html

Program Information:
Voluntary comparative labeling began in 2006, legislation was applied in 2011, with mandatory labeling expected to come into force by the end of 2013. The government plans to survey retail outlets for compliance with the labeling display requirements and to check that all eligible products are registered.

Endorsement Label - Vietnam

Program Name: Viet Energy Star

Implementing Agency: Ministry of Industry and Trade (MOIT)

Participation Category: Voluntary

Appliances Labelled: 2008 – CFLs, ballasts (electronic and electromagnetic)

Under consideration – Displays,

refrigerators, refrigerated cabinets, rice cookers, imaging machines, set top boxes, linear fluorescent lamps, medium 3-phase electric motors, transformers, ceiling fans, room air conditioners, clothes washers

Label Image Link:

http://www.tietkiemnangluong.com.vn/en/to-label/introduce-energy-labels-36002-12051.html

Program Information:

Voluntary endorsement labeling began in 2006, with legislation applied in 2011 to require mandatory labeling, which is expected to come into force by the end of 2013.

References - Vietnam

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http://asemconnectvietnam.gov.vn/lawdetail.aspx?lawid=2011 - Implementation Roadmap for Energy Labelling and MEPS

http://www.moit.gov.vn/en/Pages/default.aspx - Ministry of Industry and Trade

http://tietkiemnangluong.com.vn/en/ - Ministry of Industry and Trade, National Energy Efficiency Program

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http://www.clasponline.org/en/Tools/Tools/SL_Search - CLASP Online Standards and Labelling Database

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http://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CCsQFjAA&url=http%3A%2F%2Fwww.lites.asia%2Ffiles%2Fotherfiles%2F0000%2F0132%2FNational_Standards_and_Labels_-_Vietnam_30_August_2012.doc&ei=6Bi0Uvi4D8OckAWFm4G4CA&usg=AFQjCNG8-EWR_T_IcCGzASmMNfrZxKdxoA&bvm=bv.58187178,d.dGI – National Standard and Label, Country Profile, Vietnam

International Programs

USA – International Energy Star

The International Energy Star Program began in October 1995, with an agreement between the governments of Japan and the United States. Since then, the US EPA has made formal arrangements with New Zealand, Chinese Taipei, the European Union, the European Free Trade Association, Switzerland and Canada. These countries and organisations recognise and promote the criteria and logo established under the USA energy star scheme. The international program is presently confined (in most cases) to office equipment and consumer electronics (those products with international specifications), except for Canada whose scheme encompasses most of the products covered within the US domestic ENERGY STAR® program (New Zealand also has an expanded ENERGY STAR® coverage). Additionally, other countries have established their own endorsement label programs using the ENERGY STAR® criteria (eg Korea). For more details see USA.

The ENERGY STAR® label image was updated in 2002 (the new image is below – various versions are available).

Program Name: International ENERGY STAR®

Implementing Agency: US Department of Energy and the US Environmental Protection Agency in conjunction with international partners.

Parnter Countries: Canada

Chinese Taipei
European Free Trade Association
European Union
Japan
New Zealand
Switzerland
Taiwan

Participation Category: Voluntary, endorsement label

Appliances Labelled: There are multiple tiers of specifications for most products. Transitions occur regularly, as product requirements are continuously updated and revised. International ENERGY STAR® covers the electronics and office equipment categories, including the following individual products (product coverage varies by country):

audio/video equipment, battery chargers, computers, cable boxes, displays, enterprise servers, games consoles, imaging equipment, set top boxes, small network equipment, telephony, televisions, uninterruptible power supplies

Product specifications can be found here: http://www.energystar.gov/products/specs/

Label Image Link: http://www.energystar.gov/

Program Information:

Each participant country sets up an administrative arm that is responsible for promotion and implementation of the program at a local level. Products approved in one country are licensed to display the label in any of the other participating countries. Product information is then shared between the participants. The US EPA and US DOE are responsible for developing the endorsement criteria, but there is now a process to consult all partners when developing new specifications. See USA for more details.

http://www.energystar.gov - Energy Star USA

http://www.eeca.govt.nz/standards-and-ratings/energy-star - Energy Star New Zealand

http://www.energystar.jp/index_esu.html - Energy Star Japan

http://energystar.epa.gov.tw/english/index.asp - Energy Star Taiwan

http://www.eu-energystar.org/ - Energy Star European Union

http://oee.nrcan.gc.ca/energystar - Energy Star Canada

http://www.energystar.gov/index.cfm?c=partners.intl_implementation – International Energy Star page

http://www.bfe.admin.ch/themen/00507/05479/05490/05520/index.html?lang=en – Energy Star Switzerland

Efficient Lighting Initiative

The Efficient Lighting Initiative (ELI) was initiated as a three year program in 2000, designed by the International Finance Corporation (IFC) and funded by the Global Environment Facility (GEF) to accelerate the penetration of energy efficient lighting technologies into emerging markets in developing countries. The ELI was designed to lower market barriers to the take up of efficient lighting in Argentina, the Czech Republic, Hungary, Latvia, Peru, the Philippines and South Africa, through a set of multi-county initiatives, partnerships, and tailored interventions.

In 2005, the China Standards Certification Center (CSC) was commissioned by the IFC to develop and expand the ELI certification and branding system globally. The expanded ELI program was operated by the ELI Quality Certification Institute, led by CSC with help from a team of international experts from Asia, North America and Latin America. Since 2005, ELI has focused on the developing countries of the Asia/Asia Pacific region, Latin America and Africa and is also worked on harmonising its test methods and performance specifications with other voluntary labelling programs internationally[20].

Program Name: Efficient Lighting Initiative (ELI)

Implementing Agency: ELI Quality Certification Institute

Commencement Date: 2000

Participation Category: Voluntary, endorsement label

Appliances Labelled: Covers a range of lighting equipment and components

Label Image Link:

http://www.efficientlighting.net/index.php?option=com_frontpage&Itemid=1

Program Information: The covered lighting products have voluntary technical specifications for energy efficiency and can carry the ELI logo if they can show they comply with the ELI technical specifications. Compliance with these specifications is determined by the ELI Quality Certification Institute through a review and assessment of all supporting documentation submitted by the applicant, as well as product performance data from accredited lighting laboratories.

See http://www.efficientlighting.net/index.php - Efficient Lighting Initiative

[20] It was noted by a source that there is uncertainty about how much this label and program is used by adopting countries.

ANNEX A - WHAT IS AN ENERGY LABEL?

Energy labels improve market operation by displaying accurate energy consumption information on products, which is useful for consumers or companies when purchasing appliances or equipment. Such information is the only way end users can estimate the ongoing energy costs for appliances and equipment after they have been purchased. Energy labelling programs for appliances and equipment now operate in most Organisation for Economic Co-operation and Development (OECD) countries and in an increasing number of other countries. A wide variety of products are labelled, with product coverage varying from country to country. The most commonly labelled appliances are refrigerators, freezers and air conditioners, although the range of products is as diverse as rice cookers, boilers, lighting and clothes washers. Labelling is not restricted to electric products, with some countries including gas, solar and other fuel types (such as oil) in their programs.

Labelling programs are not necessarily restricted within country borders. For example, the EU label extends not only to EU member states but has been broadly adopted by a number of other countries around the world (for example in Russia, South Africa and Turkey). The US EPA ENERGY STAR® program for electronics and office equipment has been adopted in many other countries around the world through formal international partnerships with US EPA.

This report provides summary information on energy labelling activities within a range of countries. The report makes no qualitative judgements about what constitutes a good energy label or a poor energy label. There are of course many label design elements that can be used, and even given the wide range of climatic, cultural influences and language specific needs across different regions, it would appear that countries are not developing energy labels in isolation from each other. Increased influence from major labelling regions is more apparent now than it was in 2004, given there are many elements of an energy label that have to be locally and culturally relevant for it to be effective. Of great importance is the process used to develop a new energy label within a country or region, and the ongoing evaluation of energy labelling programs to measure how well it is working and if it can be improved. If an energy label is to be effective, it has to be understood, liked, and used by consumers.

Where categorical labels are used, the underlying formulas to calculate efficiency levels are critical to ensure that fair and meaningful comparisons between products can be made by consumers. There are many issues to be considered such as the efficiency metric used (how is efficiency defined?) and the size of the steps for each of the label grades. These issues are not explored in this report.

Given the range of diverse languages in the EU, they have moved away from language specific information on their energy labels and use pictograms to convey information on a range of other

parameters (in addition to energy and efficiency). However, most other countries use some language elements to communicate with consumers. Given that language is likely to necessitate fundamental differences in energy labels in different regions (even if climatic and cultural variations are ignored), the prospects for a single harmonised label around the world are somewhat low. However, a major component of any energy labelling program (and indeed an energy performance standard measure) is the testing method (test procedure) used to determine the key performance data to be shown on the energy label (capacity, energy consumption, etc.). Harmonisation of test methods was identified in 2004 as a topic where real gains can be made at an international level, and through the work of the Collaborate Standards and Labelling Program (CLASP), the Super-Efficient Equipment and Appliance Deployment (SEAD), the International Energy Agency's (IEA) Implementing Agreement for a Co-Operating Programme on Efficient Electrical End-Use Equipment (4E) and other cooperative organisations, encouraging steps have been made towards this goal. Another area that is being examined closely is the issue of so called efficiency metrics – the way that we define efficiency for different types and sizes of products. This is particularly important for categorical labels that define specific threshold levels for label efficiency levels or grades. Where there is potential for an agreed approach to both test procedures and energy efficiency metrics, a great deal of harmonisation of the underpinnings to energy labelling and MEPS can be achieved, moving many countries closer together and allowing much deeper levels of international cooperation.

ANNEX B - LABELLING OBJECTIVES

The purpose of an energy label is to provide guidance to consumers at the time of purchase on the likely energy consumption of the products of interest, and more importantly, provide a basis for comparing the energy consumption of products. This information can be used by consumers to make many assessments such as energy costs for ongoing operation (which are critical when determining total lifetime operating costs) and issues like environmental impact. It is important then that the ranking of products within an energy labelling system be broadly reflective of the energy consumption that is likely during "normal" use. Where a product is assessed under test conditions that are far away from normal use, there is a risk that label rankings could be misleading. For some products types there is a wide range of normal use, so this can become a difficult issue to address through a single label with limited data. It is important that test procedures are capable of reflecting the likely range of typical use (especially in different regions where climate may be an important factor), and it is also important that regulators and program designers structure their labelling requirements to reflect local conditions (as far as possible within the likely distribution of typical use). These are issues that require ongoing assessment and evaluation within any program. A related issue is that energy programs should be designed to reward products that can automatically adjust and optimise their energy consumption under a range of typical use.

While many consumers still visit retail outlets to purchase appliances and equipment and can still view energy labels where they are present, the increasing prevalence of the Internet as a communication tool and information source means that comparative information can be obtained through other sources. Many countries operate websites that have consolidated lists of labelled appliances available for sale to allow comparison of products. An increasing number of websites aim to provide comparative information for consumers with a particular emphasis on energy - an example is the Top Ten website: http://www.topten.info/. Historically, paper brochures used to be distributed at retail stores to help people choose an appliance, now people can use computers and smart apps to find the information they need. Energy labels will still be relevant for many years to come as having such information affixed to an appliance when they are viewed by purchasers is critical in conveying information to purchasers that are looking at appliances. They also provide reliable information for regulators when undertaking enforcement and compliance. It is important that this type of information also appears on electronic formats such as websites where consumers may purchase products online. In the future however, labels may need to reinvent themselves by using barcodes or Quick Response Codes (QR codes) to allow consumers who use smart apps to compile and compare detailed information on those appliances that are available and on display. This type of approach could be much more informative than a static energy label, allowing

information on local electricity prices, climate and consumer specific information to be incorporated, but is yet to be widely adopted on energy labels. It would also allow dynamic, up to date information on the least and most efficient products in the category of interest to be provided. Exploring these issues is beyond the scope of this report, but it is always important to consider and understand the broader context on how labels are used and how they could be more effective in their communication.

CLASP has been set up for some time to assist countries to develop their own Standards & Labelling programs. Information can be found at www.clasponline.org

ANNEX C – LABEL DESIGN ANALYSIS

Label Types and Visual Design Approaches

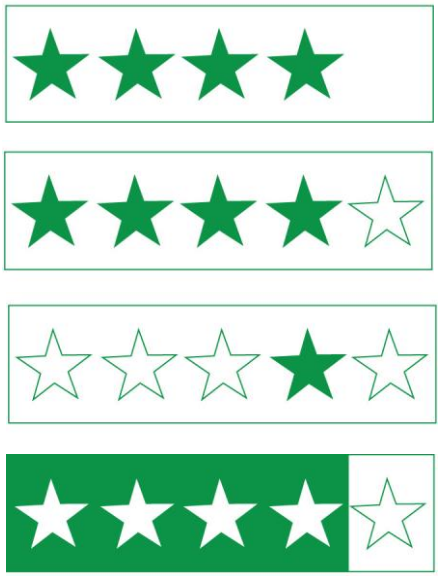
It is useful to consider how energy labels communicate information to end users. There are two main types of energy labels: Endorsement and Comparison.

Endorsement labels indicate that products belong to the "most energy efficient" class of products or meet a predetermined standard or eligibility criteria. Products generally display a logo or mark which identifies they have met the standard or product class and endorsement labels generally contains little or no comparative energy efficiency information. This type of label merely informs the consumer that the product meets a required standard or benchmark. Endorsement labelling programs are mostly in voluntary nature. An Endorsement label may be specifically for energy efficiency or it may be an "eco" label. Eco label programs endorse products that have low impact across a wide range of environmental factors, with energy consumption levels often having a high priority (but not always).

Comparative labels allow consumers to form a judgement about the energy efficiency (or energy consumption) and relative ranking across products that carry a label. The comparative labelling programs for appliances and equipment in OECD countries are primarily mandatory; however some comparative programs in other countries are voluntary. Endorsement and comparative labels can coexist, and do so in many countries. The most commonly used comparative labels use a scale with defined efficiency categories or thresholds. This type of label allows consumers to easily assess the comparative efficiency of a product by means of a simple numerical or ranking system. The concept is that it is much easier for a consumer to remember and compare a simple ranking scale (such as 1, 2, 3 or 1 star, 2 stars, 3 stars or A, B, C) for a range of different products than to remember and compare energy consumption values and sizes of individual products of interest. Numbers as a ranking system are often used in preference to Western letters where a country's language and culture is not based on these letters.

Essentially, the visual design support elements used to assist consumer interpretation of comparative labels in use around the world can be grouped into four basic types.

1. Linear Categories:

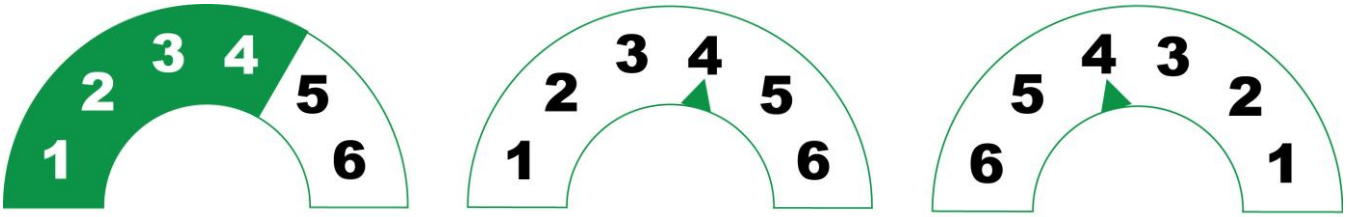


A linear category ranking is the simplest form of label to indicate energy efficiency. The series of example images shown to the right each show the same rating of 4 stars, but they do this in slightly different ways. These example label images show stars, but any type of positive indicator could be used – i.e. ticks, numbers, smiley faces etc. The premise that the label works with is that the greater the number of positive indicator marks, the better the efficiency.

The top label uses a simple 1 to 5 star scale, using solid stars. If the rating doesn't reach 5 stars (as in this example), then only 4 stars are shown. The second label indicates a 4 star rating using solid stars as well, although it leaves star outlines if they are not reached by the rating level to help consumers understand the rankings possible. The third label uses a solid star as a place marker to indicate the rating level reached, leaving star outlines on either side of the rating reached. The final label, instead of solid coloured stars, uses white stars and colours the around these stars to provide a rating.

Bangladesh, Japan, Chinese Taipei, United Arab Emirates, Vietnam and Singapore all use a label design of this general design type.

2. Dial Categories:



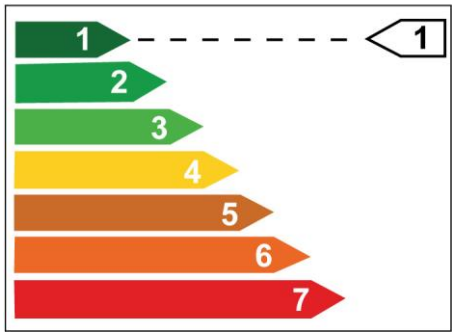
A dial label is simply a set of possible ratings that fan out across a curve. This uses the speedometer concept from a car as the guiding principle – the more the 'speed increases' (tends to the right, clockwise), the better. Generally a clockwise indication is an indicator of a more positive attribute, although in some countries and cultures, an anti-clockwise direction is regarded as 'more positive'.

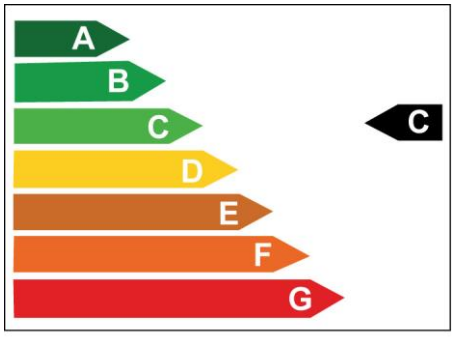
The three example labels above use numbers to indicate the efficiency level. The first two use a different marker system to show the level – the first a coloured in section that includes up to the

rating level (i.e. 4), the second a pointer to show the rating level. For these two, the rating of 6 is the most efficient, but any maximum grade can be selected. The final label reverses the order of the rating numbers, making 1 the most efficient. This type of system is used by Thailand (5 most efficient, clock wise dial) and Korea (1 most efficient, anti-clockwise dial). The use of numbers (rather than symbols with a positive attribute) means that it is not always clear with a larger number is better or a lower number is better.

A hybrid of the linear categories and the dial design is very commonly used, as these two design elements reinforce each other. The first example above uses a simple 1 to 6 star scale, using solid stars and leaves star outlines if they are not reached by the rating level. The second label, like the final line label example, uses white stars and colours the around these stars to provide a rating. The third label uses a solid star as a place marker to indicate the rating level reached, leaving star outlines on either side of the rating reached, and also uses numbers around the outside of the dial to indicate the rating level. This type of label (or a very similar variant) is used in Australia, Ghana, India, Indonesia, Malaysia, New Zealand, Saudi Arabia (anti-clockwise arc) and Sri Lanka.

3. Bar Categories:





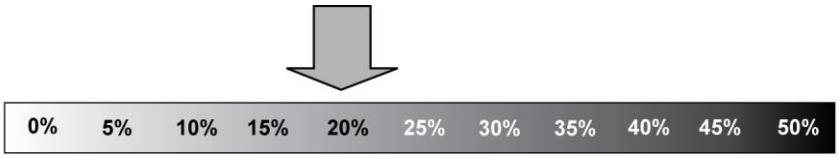
This type of label uses a series of bars with a grading from most to least efficient. All grade bars are visible on every label with a marker next to the appropriate bar indicating the efficiency grade of the model.

The first label example uses numbers to indicated efficiency levels, with a pointer to provide a rating. The second label simply swaps the numbers for letters (numbers are commonly used in cultures that do not use Western text). The use of colours in the grading system are common (green being perceived a 'good' colour (environmental, the 'go' colour on a set of traffic lights etc.), while red is a 'bad' colour ('stop' on traffic lights or a warning colour)). The length of the bars is also a communicating element (which in effect represents energy consumption rather than efficiency).

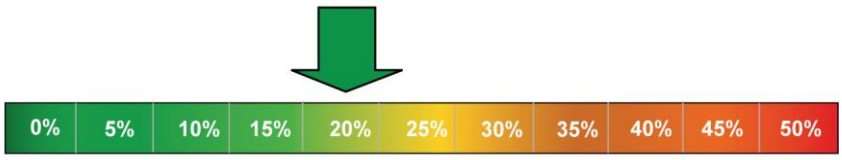
This label is used primarily in Western and Eastern Europe, Russia, South America, South Africa, in some parts of the Middle East and North Africa. This style is also found in China and Hong Kong. The 'EU style' label is used in many countries, indicating that the EU labelling policy has a strong international influence.

4. Linear Label:

The final label type uses a linear scale indicating the highest and lowest energy use of models on the market, locating the specific model within that scale. As energy is used as the comparator (rather than efficiency), it is necessary to group models into similar size categories for comparison.



The first label uses a percentage graduation, and shows that the model uses 20% more energy than the best model on the market, using a white/grey/black colour graduation.



The second label operates under the same principle and shows the same result, although uses a green to red colour graduation like that found in the bar label examples.

The last label doesn't use percentages, instead uses a monetary cost, comparing the best model on the market to the worst, generally this cost is calculated over an annual basis. An alternative to this type of linear label is to show energy on a similar scale to operating cost. Operating costs requires a number of assumptions regarding tariffs, and so needs to be updated from time to time. Energy consumption values also need to be updated on a regular basis as models on the market (scale end points) change. To allow valid comparison of similar products, labels that compare energy or operating cost have to be confined to relative narrow categories of products that are of similar size and with similar features (there are no efficiency categories that take size into account). This form of label is used in the USA, Canada and Mexico.

Other Types of Energy Labels

There are also some other energy labels that have no graphic elements to support the indication of energy efficiency – these generally rely on text to explain the efficiency or some numeric indicator of efficiency (e.g. energy efficiency rating (EER) for air conditioners, or some efficiency ranking). An example of this approach is used in the Philippines and Jamaica (operating cost only).

What are Energy Performance Standards?

Energy Performance Standards (also called just 'Standards', 'efficiency standards' or Minimum Energy Performance Standards (MEPS) in some countries) are the specified energy efficiency levels (or maximum energy consumption levels) products must meet before they can be legally sold. These mandatory standards are set at levels that balance the technical possibility with economic viability and competitive forces within a particular market. Energy Performance Standards are usually not static but are revised over time to reflect improving levels of energy efficiency available in new products as technologies and designs improve, and as the impacts of Energy Performance Standards in some regions has an influence on the type of product available on the market elsewhere. Energy Performance Standards rely on test procedures (often also called 'Test Standards') which are used to determine appliance performance, energy consumption and hence energy efficiency. Some countries prefer to encourage manufacturers to increase product efficiency in a voluntary manner without threat of regulation (for example through energy labelling). An alternative approach is to set target efficiency levels based on average market efficiency rather than the performance of individual appliances. Other types of programs can be based on negotiated agreements rather than regulations.

ANNEX D –

PRODUCT CATEGORIES, REGIONS AND MEASURE SUMMARY

Summary Table - Product Categories

Category	Product
Space Conditioning	Air Conditioners - Central and/or 3 Phase
	Air Conditioners - Room
	Air Conditioners - Split System
	Air Conditioners, Single-packaged central and heat
	Boilers
	Chillers
	Dehumidifiers
	Fans - All Types
	Furnaces
	Heat Pumps
	Heaters - Gas Central
	Heaters - Space
	Heaters - Vented Gas Fireplaces
Lighting Equipment	Ballasts
	Lamps
	Lamps - Compact Fluorescent
	Lamps - Incandescent
	Lamps - Transformers
	Lighting Systems
Large Appliances	Clothes Dryers
	Clothes Washers
	Coffee Machines
	Combination Washer Dryers
	Cooktops/hobs
	Dishwashers
	Freezers
	Irons
	Microwaves
	Ranges/Ovens
	Refrigerators and Refrigerator/Freezers
	Rice Cookers
	Vacuum Cleaners

Category	Product
Electronics	Audio Equipment
	Computers
	Copiers
	External Power Supplies
	Fax Machines
	Monitors
	Multifunction Devices
	Printers
	Scanners
	Set Top Boxes
	Standby Power
	Televisions - CRT
	Televisions - Flatscreen
	VCRs or DVD Players
Commercial, Industrial and Miscellaneous	Air Compressors
	Motors
	Motors - 3 Phase
	Pumps
	Pumps - Swimming Pool
	Refrigerators - Commercial
	Solar Water Heaters
	Transformers
	Water Chillers and Dispensers
	Water Heaters - All Types

Summary Table – Countries by Region

Country	Region
Albania	Europe
Algeria	Africa
Argentina	Central/South America
Australia	Asia Pacific
Bangladesh	Asia Pacific
Bolivia	Central/South America
Brazil	Central/South America
Brunei Darussalam	Asia Pacific
Canada	North America
Chile	Central/South America
China	Asia Pacific
Chinese Taipei	Asia Pacific
Colombia	Central/South America
Costa Rica	Central/South America
Croatia	Europe
Egypt	Middle East
European Union	Europe
Ghana	Africa
Hong Kong (China)	Asia Pacific
India	Asia Pacific
Indonesia	Asia Pacific
Iran	Middle East
Israel	Middle East
Jamaica	North America
Japan	Asia Pacific
Jordan	Middle East
Kenya	Africa
Kingdom of Saudi Arabia	Middle East
Korea	Asia Pacific
Lebanon	Middle East
Malaysia	Asia Pacific
Mexico	North America
Namibia	Africa
New Zealand	Asia Pacific
Nigeria	Africa
Norway	Europe
Pacific Islands	Asia Pacific
Pakistan	Asia Pacific
Peru	Central/South America
Philippines	Asia Pacific
Russia	Europe
Singapore	Asia Pacific
South Africa	Africa
Sri Lanka	Asia Pacific
Switzerland	Europe
Thailand	Asia Pacific
Tunisia	Africa
Turkey	Europe
Ukraine	Europe
United Arab Emirates	Middle East
Uruguay	Central/South America
USA	North America
USA - California	North America
Vietnam	Asia Pacific

Summary Table – Overview of International Labelling and Energy Performance Standard Measures by Product, 2013

		Energy Performance Standards			Comparative Labelling			Endorsement Labelling		
Products	**Total Measures**	**Mandatory**	**Voluntary**	**Proposed**	**Mandatory**	**Voluntary**	**Proposed**	**Mandatory**	**Voluntary**	**Proposed**
Air Compressors	4	2	0	0	1	0	0	0	1	0
Air Conditioners - Central and/or 3 Phase	89	11	1	31	35	1	4	0	5	1
Air Conditioners - Room	152	50	3	14	58	4	11	1	9	2
Air Conditioners - Split System	106	40	3	6	43	1	5	0	7	1
Air Conditioners, Single-packaged central and heat pumps	71	34	1	2	30	1	1	0	1	1
Audio Equipment	39	30	1	1	0	0	1	2	4	0
Ballasts	101	40	2	5	11	4	3	1	35	0
Boilers	75	37	0	1	4	0	1	0	30	2
Chillers	13	7	0	2	1	0	1	0	2	0
Clothes Dryers	107	31	0	2	36	1	5	0	31	1
Clothes Washers	148	39	0	8	47	2	12	2	36	2
Coffee Machines	4	0	0	0	0	1	0	0	3	0
Combination Washer Dryers	39	1	0	0	32	1	3	0	1	1
Computers	79	31	2	0	2	3	1	2	37	1
Cooktops/hobs	24	5	1	2	4	4	4	1	3	0
Copiers	80	2	30	1	2	3	2	2	35	3
Dehumidifiers	9	4	0	0	3	0	0	0	2	0
Dishwashers	112	34	1	2	36	1	4	1	33	0
External Power Supplies	42	35	1	1	1	1	1	0	2	0
Fans - All Types	62	36	0	6	8	3	2	1	5	1
Fax Machines	40	1	0	0	1	2	0	2	34	0
Freezers	146	45	2	4	50	2	7	2	34	0
Furnaces	69	5	0	0	31	1	1	0	29	2
Heat Pumps	40	3	1	2	2	1	1	1	29	0
Heaters - Gas Central	30	0	1	0	0	1	0	0	28	0
Heaters - Space	98	33	1	0	31	3	0	0	30	0
Heaters - Vented Gas Fireplaces	30	1	0	0	0	1	0	0	28	0
Irons	7	2	0	1	1	0	2	0	1	0

		Energy Performance Standards			Comparative Labelling			Endorsement Labelling		
Products	**Total Measures**	**Mandatory**	**Voluntary**	**Proposed**	**Mandatory**	**Voluntary**	**Proposed**	**Mandatory**	**Voluntary**	**Proposed**
Lamps	149	42	2	7	43	4	9	1	38	3
Lamps - Compact Fluorescent	150	43	4	7	42	5	10	1	37	1
Lamps - Incandescent	58	15	0	4	32	1	3	0	2	1
Lamps - Transformers	1	1	0	0	0	0	0	0	0	0
Lighting Systems	75	37	0	0	30	0	3	1	3	1
Microwaves	15	2	1	1	2	2	3	1	3	0
Monitors	52	3	1	3	2	3	2	2	35	1
Motors	52	35	0	3	6	0	2	0	6	0
Motors - 3 Phase	38	14	2	7	6	1	4	1	2	1
Multifunction Devices	78	1	29	1	2	3	2	1	35	3
Printers	47	1	2	0	2	2	2	2	36	0
Pumps	43	33	0	1	3	1	1	1	3	0
Pumps - Swimming Pool	4	0	1	1	0	1	1	0	0	0
Ranges/Ovens	85	7	2	30	34	2	5	1	4	0
Refrigerators - Commercial	51	9	1	31	3	1	1	0	4	1
Refrigerators and Refrigerator/Freezers	185	53	4	10	62	3	11	2	39	1
Rice Cookers	18	2	1	3	3	3	3	0	2	1
Scanners	12	0	1	1	0	2	0	1	5	2
Set Top Boxes	47	32	1	3	1	0	3	1	5	1
Solar Water Heaters	17	5	1	3	3	0	2	0	3	0
Standby Power	42	34	2	2	1	1	0	0	2	0
Televisions - CRT	134	34	2	7	35	4	8	3	39	2
Televisions - Flatscreen	135	34	2	7	36	4	8	3	39	2
Transformers	25	10	2	1	4	2	0	1	4	1
Vacuum Cleaners	61	30	0	0	30	0	0	0	1	0
VCRs and DVD Players	71	1	1	29	0	1	1	2	36	0
Water Chillers and Dispensers	10	2	0	1	2	1	0	0	4	0
Water Heaters - All Types	131	44	2	1	38	5	5	1	33	1

ANNEX E – OVERVIEW OF COMPARATIVE AND ENDORSEMENT LABELLING MEASURES

Analysis of Comparative Labelling Measure Comparisons in 2004 and 2013

Comparison Table - Comparative Labelling Measures, 2004 and 2013

Category	Product Types	Country Count	Total Measures (Product by Country)	Mandatory Measures	Voluntary Measures	Proposed Measures
Large Appliances 2004	8	43	194	168	16	10
Large Appliances 2013	13	77	418	337	22	59
Change between 2004 and 2013	+5 (63%)	+34 (79%)	+224 (115%)	+169 (101%)	+6 (38%)	+49 (490%)
Space Conditioning 2004	11	37	97	67	24	6
Space Conditioning 2013	13	74	290	246	17	27
Change between 2004 and 2013	+2 (18%)	+37 (100%)	+193 (199%)	+179 (267%)	-7 (-29%)	+21 (350%)
Electronics 2004	3	3	5	0	3	2
Electronics 2013	14	54	145	85	29	31
Change between 2004 and 2013	+11 (367%)	+51 (1700%)	+140 (2800%)	85	+26 (867%)	+29 (1450%)
Lighting Equipment 2004	2	30	39	29	7	3
Lighting Equipment 2013	5	70	200	158	14	28
Change between 2004 and 2013	+3 150%)	+40 (133%)	+161 (413%)	+129 (445%)	+7 (100%)	+25 (833%)
Commercial, Industrial and Miscellaneous 2004	6	10	19	14	5	0
Commercial, Industrial and Miscellaneous 2013	10	59	96	66	13	17
Change between 2004 and 2013	+4 (67%)	+49 (490%)	+77 (405%)	+52 (371%)	+8 (160%)	17
Total, All Product Types 2004	30	44	354	278	55	21
Total, All Product Types 2013	55	78	1149	892	95	162
Change between 2004 and 2013	+25 (83%)	+34 (77%)	+795 (225%)	+614 (221%)	+40 (73%)	+141 (671%)

The comparison table above outlines the totals and differences between Comparative Labelling measures for product categories in 2004 and 2013. For all product categories and measure types, the numbers of Comparative Labelling measures around the world were found to have increased in 2013 compared to 2004 (total product type coverage increased by over 80%). A very large increase was seen in for electronic products, with 11 more products covered, a 370% increase.

- Large Appliances: the number of product types covered increased by 5 (over 60%), and there was a 115% increase in the total number of measures. This was primarily due to an increase in the number of mandatory measures (+169, 101% increase). There was almost an 80% increase (+34) in the number of countries implementing Comparative Labelling measures for large appliances in 2013 compared to 2004;
- Space Conditioning Equipment: the number of product types covered increased slightly, but the total number of measures increased by 199% (+193), with this growth occurring mainly in mandatory measures (+179, 267% increase). Voluntary measures decreased by 29%, a decrease of 7 measures. There was over a 100% increase (+37) in the number of countries implementing Comparative Labelling measures for space conditioning equipment in 2013 compared to 2004;
- Electronic Products: the number of product types covered increased by 11, with a 2800% increase in the total number of measures (+140). An increase in mandatory measures was the main contributor (+85 from a base of 0 in 2004). There was almost an 1700% increase (+51) in the number of countries implementing Comparative Labelling measures for electronic products in 2013 compared to 2004;
- Lighting Equipment: the number of product types covered increased from 2 to 5, and the total number of measures increased by over 413% (+161), again mainly through mandatory measures (+129, 445% increase). There was over a 133% increase (+40) in the number of countries implementing Comparative Labelling measures for lighting equipment in 2013 compared to 2004;
- Commercial, Industrial and Miscellaneous Equipment: the number of products covered increased by 4, and the total number of measures increased by 490% (+49), again through mandatory measures (+52, 371% increase). There was almost a 500% increase (+49) in the number of countries implementing Comparative Labelling measures for commercial, industrial and miscellaneous equipment in 2013 compared to 2004.

The overall coverage of product types by Comparative Labelling around the world increased by 25 between the years 2004 and 2013 (83% increase), with this increase being fairly even distributed across all product categories (electronics in particular was a large increase). There was a 225% increase in the total number of Comparative Labelling measures (795 more measures in 2013 compared to 2004), with this mainly driven by a 221% increase in mandatory Comparative Labelling measures (614 more measures in 2013 compared to 2004). There was almost an 80% increase (+34) in the number of countries implementing Comparative Labelling measures in 2013 compared to 2004.

KEY FINDING – there appears to be a shift from voluntary to mandatory Comparative Labelling measures, with large numbers of mandatory measures for all product categories.

Comparison Table – Comparative Labelling Programs by Region, 2004 and 2013

Region	Total Measures (Product by Country)	Mandatory Measures	Voluntary Measures	Proposed Measures
Europe 2004	169	168	1	0
Europe 2013	652	621	20	11
Change between 2004 and 2013	+483 (286%)	+453 (182%)	+19 (1900%)	11
Asia Pacific 2004	94	45	41	8
Asia Pacific 2013	228	122	61	45
Change between 2004 and 2013	+134 (143%)	+77 (171%)	+20 (49%)	+37 463%)
North America 2004	44	36	8	0
North America 2013	44	37	4	3
Change between 2004 and 2013	0	+1 (3%)	-4 (-50%)	3
Central/South America 2004	21	17	3	1
Central/South America 2013	88	52	4	32
Change between 2004 and 2013	+67 (319%)	+32 (206%)	+1 (33%)	+31 (3100%)
Middle East 2004	12	11	2	0
Middle East 2013	78	48	5	25
Change between 2004 and 2013	+66 (550%)	+37 (336%)	+3 (150%)	25
Africa 2004	13	1	0	12
Africa 2013	59	12	1	46
Change between 2004 and 2013	+46 (354%)	+11 (1100%)	1	+34 (283%)

The comparison table above outlines the differences between the number of Comparative Labelling measures for different regions for 2004 and 2013.

- Europe: the total number of measures covered in this region increased by 286% (+483), with this growth occurring mainly in mandatory measures (+453, 182% increase);
- Asia Pacific: the total number of measures covered in this region increased by 143% (+134), with this growth occurring mainly in mandatory measures (+77, 171% increase);
- North America: the total number of measures covered in this region stayed the same, with only slight changes in measure numbers;
- Central/South America: the total number of measures covered in this region increased by more than 300% (+67), with this growth occurring in mandatory measures (+32, 206% increase) and proposed measures (+31, 3100% increase, from a low base);
- Middle East: the total number of measures covered in this region increased by 550% (+66), with this growth occurring in mandatory measures (+37, 336% increase);
- Africa: the total number of measures covered in this region increased by over 354% (+46), with this growth occurring mainly in proposed measures (+34, 283% increase).

KEY FINDING – the number of Comparative Labelling measures has increased for all regions with the exception of North America (which already had broad coverage in 2004).

Analysis of Endorsement Labelling Measure Comparisons in 2004 and 2013

Comparison Table - Endorsement Labelling Programs, 2004 and 2013

Category	Product Types	Country Count	Total Measures (Product by Country)	Mandatory Measures	Voluntary Measures	Proposed Measures
Large Appliances 2004	9	29	107	3	103	1
Large Appliances 2013	13	44	207	10	191	6
Change between 2004 and 2013	+4 (44%)	+15 (52%)	+100 (93%)	+7 (233%)	+88 (85%)	+5 (500%)
Space Conditioning 2004	11	12	37	1	36	0
Space Conditioning 2013	13	42	218	3	205	10
Change between 2004 and 2013	+2 (18%)	+30 (250%)	+181 (489%)	+2 (200%)	+169 (469%)	10
Electronics 2004	10	29	240	0	240	0
Electronics 2013	14	46	382	23	344	15
Change between 2004 and 2013	+4 (40%)	+17 (59%)	+142 (59%)	23	+104 (43%)	15
Lighting Equipment 2004	2	26	31	2	29	0
Lighting Equipment 2013	5	45	125	4	115	6
Change between 2004 and 2013	+3 (150%)	+19 (73%)	+94 (303%)	+2 (100%)	+86 (297%)	6
Commercial, Industrial and Miscellaneous 2004	7	10	20	0	20	0
Commercial, Industrial and Miscellaneous 2013	10	40	68	4	60	4
Change between 2004 and 2013	+3 (43%)	+30 (300%)	+48 (240%)	4	+40 (200%)	4
Total, All Product Types 2004	39	31	435	6	428	1
Total, All Product Types 2013	55	50	1000	44	915	41
Change between 2004 and 2013	+16 (41%)	+19 (61%)	+565 (130%)	+38 (633%)	+487 (114%)	+40 (4000%)

The comparison table above outlines the totals and differences between Endorsement Labelling measures for product categories in 2004 and 2013. For all product categories and measure types, the numbers of Endorsement Labelling measures around the world were found to have increased in 2013 compared to 2004 (the total number of measures increased by almost 140%).

- Large Appliances: the number of product types covered increased by 4 (almost 45% increase), and there was a 93% increase in the total number of measures (+100). This was due to increases in voluntary measures (+88, 85% increase). There was over a 50% increase (+15) in the number of countries implementing Endorsement Labelling measures for large appliances in 2013 compared to 2004;
- Space Conditioning Equipment: the number of product types covered increased slightly, but the total number of measures increased by 489%, with this growth occurring mainly in voluntary measures (+169, 469% increase). There was a 250% increase (+30) in the number of countries implementing Endorsement Labelling measures for space conditioning equipment in 2013 compared to 2004;
- Electronic Products: the number of product types covered increased by 4, with almost a 60% increase in the total number of measures. This was due to increases in voluntary measures (+104, 43% increase). There was almost a 60% increase (+17) in the number of countries implementing Endorsement Labelling measures for electronic products in 2013 compared to 2004;
- Lighting Equipment: the number of product types covered increased from 2 to 5, and the total number of measures increased by more than 300%, again mainly through voluntary measures (+86, 297% increase). There was over a 70% increase (+19) in the number of countries implementing Endorsement Labelling measures for lighting equipment in 2013 compared to 2004;
- Commercial, Industrial and Miscellaneous Equipment: the number of product types covered increased by 3, and the total number of measures increased by 240%, through a 200% increase (+40) in voluntary measures. There was a 300% increase (+30) in the number of countries implementing Endorsement Labelling measures for commercial, industrial and miscellaneous equipment in 2013 compared to 2004.

The overall coverage of product types by Energy Performance Standards around the world increased by 40% between the years 2004 and 2013, with this increase fairly even through all product categories. There was found to be almost a 130% increase in the total number of Endorsement Labelling measures (565 more measures in 2013 compared to 2004), with this driven by increases mainly in voluntary measures. There was a 60% increase (+19) in the number of countries implementing Endorsement Labelling measures in 2013 compared to 2004.

KEY FINDING – the number of Endorsement Labelling measures around the world has increased from 2004 to 2013.

Comparison Table – Endorsement Labelling Measures by Region, 2004 and 2013

Region	Total Measures (Product by Country)	Mandatory Measures	Voluntary Measures	Proposed Measures
Europe 2004	238	0	238	0
Europe 2013	708	14	679	15
Change between 2004 and 2013	+470 (197%)	14	+441 (185%)	15
Asia Pacific 2004	126	0	126	0
Asia Pacific 2013	195	14	159	22
Change between 2004 and 2013	+69 (55%)	14	+33 (26%)	22
North America 2004	64	0	64	0
North America 2013	82	0	78	4
Change between 2004 and 2013	+18 (28%)	0	+14 (22%)	4
Central/South America 2004	7	6	0	1
Central/South America 2013	16	15	1	0
Change between 2004 and 2013	+9 (129%)	+9 (150%)	1	-1 (-100%)
Middle East 2004	0	0	0	0
Middle East 2013	0	0	0	0
Change between 2004 and 2013	0	0	0	0
Africa 2004	0	0	0	0
Africa 2013	1	1	0	0
Change between 2004 and 2013	1	1	0	0

The comparison table above outlines the differences between the number of Endorsement Labelling measures for different regions for 2004 and 2013.

- Europe: the total number of measures covered in this region increased by almost 200% (+470), with this growth occurring mainly in voluntary measures (+441, 185% increase);
- Asia Pacific: the total number of measures covered in this region increased by 55% (+69), with this growth mainly occurring in voluntary measures (+33, 26% increase);
- North America: the total number of measures covered in this region increased by almost 30% (+18), with this growth occurring mainly in voluntary measures (+14, 22% increase);

- Central/South America: the total number of measures covered in this region increased by almost 130% (+9), with this growth occurring mainly in mandatory measures (+9, 150% increase);
- Middle East: the total number of measures remained unchanged from 2004 to 2013 at 0;
- Africa: the total number of measures covered in this region increased by 1, a mandatory measure.

KEY FINDING – the number of Endorsement Labelling measures has increased for all regions, with the exception of the Middle East.