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ENERGY LABELLING AND STANDARDS PROGRAMS THROUGHOUT THE WORLD

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Preface

This report is the culmination of many years of work in the area of energy labelling and performance standards. It commenced informally in the early 1990's when I was contracted by an Australian government energy efficiency agency and started to collect examples of energy labels from a number of different countries such as those in Europe (prior to the introduction of a European wide label), the USA and Canada. At this time, while major appliances in Australia already carried energy labels, labelling efforts were increasing and Australian governments were keen to learn what was happening overseas to improve the Australian domestic labelling scheme.

I also discovered that, wherever I travelled, people were fascinated by samples of the Australian appliance energy label and, in fact, by any other energy labels that they had not seen. So I made a point of collecting examples of energy labels whenever the opportunity arose. In the mid 1990's I was commissioned to write several reports for government on energy labelling in various countries as background for our programs in Australia.

By 1997, I had amassed quite an array of energy labels from nearly 20 countries. Comparing the underlying elements of the various types of labelling schemes, I presented a paper on energy labels from around the world at the first international appliance energy efficiency conference in Firenze in 1997. After this conference, I received considerable feedback from delegates and obtained more examples of energy labels (even from places that I had no idea had energy labelling programs).

The National Appliance & Equipment Energy Efficiency Committee (NAEEEC) of Australia commissioned the initial version of this report in early 1999. That report was used to support the revision of the energy label design in Australia, underway at that time. That version was used only as an internal committee reference document for government officials and was not published.

In late 1999, a substantially modified, abbreviated and updated version of the first report was published as Annex H to the APEC report *Review of Energy Efficiency Test Standards and Regulations in APEC Member Economies* by Energy Efficient Strategies. In 2000, NAEEEC commissioned a public release version of this report, which was first published in May 2001 (Edition 1.0). Two minor updates were undertaken in 2001 and 2002. This revision (Edition 2.0) contains significant new information, particularly from APEC countries. You can check for the latest electronic copy from www.energyrating.gov.au in the electronic library.

The aim of this report is to provide access to information and resources for those people and countries considering the introduction of local energy labelling and MEPS programs. This report is a contribution to the pool of information that will hopefully assist in the future alignment of test procedures internationally. I also hope that increased cooperation between those responsible for designing labelling schemes with respect to energy efficiency of appliances and equipment around the world will result in better and more effective schemes. Resources to assist countries to establish energy labelling and MEPS programs are increasing all the time: a very important source is the Collaborative Labelling and Standards Program (CLASP). More details and a wealth of information and "how to" manuals can be obtained from www.clasponline.org which has good up to date information for many countries and programs.

Energy labels in this report are reproduced for information and research purposes only and electronic versions of this report are made available free of charge. The authors do not obtain financial gain from the publication of this report. Many of the energy labels reproduced in this report are copyright within their countries of origin and care needs to be exercised if using them for other than research purposes. Low resolution versions of the labels have been included in an attempt to keep the total file size manageable.

I would like to personally thank NAEEEC for their vision in commissioning this report. My colleague, Melissa Damnics of EnergyConsult, again undertook considerable research for this version of the report and used extensive email contacts and web searches to uncover much new information, for which I am most grateful. I thank Melissa for all her hard work and continued dedication to the project. I also wish to thank the many individuals who have provided detailed comments and feedback.

As will be appreciated, compiling complex data such as this from more than 50 countries is a huge task. With so many countries, some information will also quickly become out of date. Inevitably, there will be errors or omissions in the report. However, while I will continue to maintain an interest in this field and hope to update the report when and where possible, Energy Efficient Strategies or EnergyConsult takes no responsibility for the subsequent use or misuse of information provided in this report. There are a number of primary data sources that can provide more detailed and up to date information and these are listed as far as possible. These sources can provide details such as test procedures (the detailed test method) and the technical basis for the energy labelling or MEPS program – as a rule this type of information is not included in this report.

I hope that you enjoy the report and find it useful in your research.

Note that the document is set up for double sided printing, so there are some intentional blank pages.

Lloyd Harrington

Director, Energy Efficient Strategies

Victoria, Australia

30 July 2004

www.energyefficient.com.au

ENERGY LABELLING AND STANDARDS PROGRAMS THROUGHOUT THE WORLD

Introduction

National energy labels and minimum energy performance standards (MEPS) are fast becoming commonplace throughout the world. This report provides a broad overview of current labelling and MEPS programs from over 50 countries. While not claiming to be an exhaustive list of this constantly expanding domain, the document summarises a wide variety of programs located by the authors.

This report aims to enable the reader to understand the extent of the coverage and the different methods used in such programs. The report also acts as a guide to resources where the most up to date information can be found, along with references to more in-depth and detailed material. Information is presented by country in alphabetical order and summary tables are provided on pages viii and ix.

What is an Energy Label?

It is axiomatic that the market for household energy services would be enhanced where buyers are able to take into account not just the cost of the appliance but the otherwise invisible factor of energy consumption. Energy labels improve the market's operation by displaying accurate energy consumption information on products, which is useful in the purchase decision. Energy labelling of household appliances now operates in most OECD countries and an increasing number of other countries. A wide variety of products are labelled, with the list varying from country to country. The most commonly labelled appliances are refrigerators, freezers and air conditioners, although the range is as diverse as rice cookers, boilers, lighting products and washing machines. Labelling is not restricted to electric products, with some countries including gas and oil equipment in their programs.

There are two main types of 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 the labels generally contains little or no comparative energy efficiency information. This type of label merely informs the consumer that the product meets the required standard. Endorsement labelling programs are mostly of a 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 of all products that carry a label. The comparative labelling programs 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 comparison labels use a scale with absolutely defined efficiency categories. This type of label allows consumers to easily assess the efficiency of a product in relation to an absolute scale, 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 star, 3 star or A, B, C) than to remember and compare energy consumption values.

Essentially the visual designs of comparison labels in use around the world can be grouped into three basic types:

1. ***Dial Label:*** This type of label has a "dial" or gauge, with greater efficiency linked to advancement along the gauge (more efficient represented by a clockwise arc). This type of label is used in Australia, Thailand, and Korea and is proposed for India. The number of stars or the "grading" numeral on the scale depends on the highest preset threshold for energy performance that the model is able to meet.
2. ***Bar Label:*** This type of label uses a bar chart with a grading from best to worst. All grade bars are visible on every label with a marker next to the appropriate bar indicating the grade of the model. This label is used primarily in Europe and South America. Mexico uses this concept for some products, but the format is different (although their label design is under consideration).
3. ***Linear Label:*** This label has 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. This model is used in North America.

There are also many other energy labels that have no graphic concept to support the indication of energy efficiency – these generally rely on text to explain the efficiency or some numeric indicator of efficiency (eg EER for air conditioners, or some efficiency ranking).

Labelling programs are not necessarily restricted within country borders. For example, the European Union Label extends not only to EU member states (which now include 25 countries from June 2004) but has been adopted by several other countries in the region. The US EPA ENERGY STAR® program for office equipment has been adopted in many other countries around the

world and, in the South & Latin America region, attempts are underway to design and implement a unified energy labelling program for that continent.

This report covers more than 60 Endorsement and Comparative labels from around the globe. Label designs are included for information purposes only. Replication for other purposes may be a breach of copyright laws.

This report merely provides information on labelling activities within a range of countries. There are no qualitative judgements about what constitutes a good energy label or a poor energy label. That is a task for a different type of report. There are of course many label design elements that can be used, as this report illustrates. Given the wide range of climatic and cultural influences and language specific needs across different regions, it would appear most countries are developing energy labels in isolation from each other. This is not necessarily a bad thing, as there are many elements of an energy label that have to be locally and culturally relevant for it to be effective. What is of greater 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. Too often the process of developing and implementing an energy label is organised in a bureaucratic fashion with too little reference to what consumers want and need. If an energy label is to be effective, it has to be understood, liked and used by consumers.

Given that language will necessitate fundamental differences in energy labels in different regions (even if climatic and cultural variations are ignored), the prospects for a harmonised label around the world appear poor. However, a major component of any energy labelling program (and indeed MEPS program) is the testing method used to determine the key performance data to be shown on the energy label (capacity, energy consumption, etc.) – harmonisation of test methods is where real gains can be made at an international level.

The Collaborate Standards and Labelling Program (CLASP) has been set up to assist countries to develop their own energy labelling and MEPS programs. They have already published a number of such guides – these are available on www.clasponline.org

What are Minimum Energy Performance Standards?

Minimum Energy Performance Standard (MEPS) (also called just "Standards" or "efficiency standards" in some countries) are the specified minimum energy efficiency 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. MEPS are usually not static but are revised over time to reflect improving levels of energy efficiency. MEPS rely on test procedures (often also called "Test Standards") which are used to determine appliance performance, energy consumption and hence energy efficiency. They are critical as they enable products to be compared on a fair basis. Some countries prefer to encourage manufacturers to increase product efficiency in a voluntary manner without threat of regulation. Instead of legislating MEPS, target efficiency levels are set usually based on average market efficiency rather than the performance of individual appliances and are referred to as targets or negotiated agreements. Overviews of 27 countries' MEPS or target programs are provided in this report.

General References

A list of web sites and references pertaining specifically to that country follows the overview of each country. A number of broad ranging documents and web sites covering theoretical information on energy labels and MEPS as well as data covering multiple countries are listed below. Information is always changing, so the information in this report may be dated. It is important to check primary data sources for the most up to date information.

Energy Efficiency Strategies et al, 1999, *Review of Energy Efficiency Test Standards and Regulations in APEC Member Economies,* prepared by Energy Efficiency Strategies and others for APEC Secretariat, Singapore. See www.energyefficient.com.au

International Energy Agency, 2000, *Energy Labels and Standards*, OECD, Paris France.

Wiel S. & McMahon J., 2000, *Energy Efficiency Labels and Standards: A Guidebook for Appliances, Equipment and Lighting*, Collaborative Labelling and Appliance Standards Program (CLASP). See www.clasponline.org

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

www.apec-esis.org - APEC Energy Standards Information Systems

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

www.energyefficient.com.au - Energy Efficiency Strategies, Australia

www.gksoft.com/govt/en/ - Governments on the WWW

www.gen.gr.jp/index.html - Global Eco Labelling Network

www.iea.org - International Energy Agency

http://www.trade.gov/td/tic/ - US Dept of Commerce, International Trade Administration, Trade Information Centre

www.weea.org/ - World Energy Efficiency Association

www.wssn.net - World Standards Services Network (links to national and regional standards bodies)

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

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Summary of Labelling Programs

Product	Argentina		Australia		Brazil		Canada		Chile		China		Colombia		Costa Rica		Croatia		European Union 25		Hong Kong		India		Indonesia		Iran		Israel		Jamaica	
Type of Label	Comparative	Endorsement	Comparative	Endorsement	CoVparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement
Air Conditioner - Central			V				V	V																								
Air Conditioner - Room			M	V	V	M	M	V			P	V	M		M				M		V		P				M		M			
Air Conditioner - Split System			M	V			V												M		V											
Air conditioners, Single-packaged central & heat pumps			V				V																									
Air Compressor																																
Audio Equipment				V				V												V												
Ballasts			O			M		V				V	M		M								?									
Boilers																																
Clothes Dryers			M	V			M										M		M		V											
Clothes Washer Dryers Integrated			M	V			M										M		M													
Clothes Washers			M	V		M	M	V									M		M	V	V								M			
Computers				V				V												V												
Copiers				V				V												V		V										
Dehumidifiers								V														V										
Dishwashers			M	V			M	V									M		M	V									M			
Fans								V																					V			
Fax Machines				V				V												V												
Freezers	M		M	V	V	M	M					V	M		M		M		M	V									M		M	
Furnaces							V	V																								
Heat Pumps			M	V			V	V																								
Heaters- Space			M	V			V	V																					M			
Heaters - Vented Gas Fireplaces							V																									
Heaters- Gas Central			M	V			V																									
Lamps			V			M		V				V	M		M		M		M	V		V		V					V			
Microwave Oven								V				V																				
Monitors				V				V												V		V										
Motors			O					V				V	M		M									V								
Multi Function Devices (MFD)				V				V												V		V										
Printers				V				V												V		V										
Pumps																																
Ranges/Ovens							M								M		M		M					V					M			
Refrigerators	M		M	V	V	M	M	V	?	?	P	V	M		M		M		M	V	V		P	V	V		M		M		M	
Rice Cookers												V										V										
Scanners				V				V												V												
Solar Water Heating																													M			
Televisions			P	V				V				V								V		V		V								
Transformers			O					V																								
VCRs and/or DVDs				V				V				V								V												
Water Dispensers								V																								
Water Heaters			V	V				V				V	M		M						V			V					M			

Product	Japan		Korea		Mexico		New Zealand		Norway		Philippines		Russia		Singapore		Sri Lanka		South Africa		Chinese Taipei		Thailand		Tunisia		U.S.A.	
Type of Label	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement	Comparative	Endorsement
Air Conditioner - Central			M		M		V									V											M	V
Air Conditioner - Room	V		M		M	V	M		M		M				V	V			P		O	V	V	V	P		M	V
Air Conditioner - Split System			M				M		M		M				V	V			P		O	V	V	V	P		M	
Air conditioners, Single-packaged central & heat pumps			M		M		V																				M	V
Air Compressor						V																						
Audio Equipment		V						V		V												V						V
Ballasts			M		M		O				V						V							V			M	V
Boilers				V																							M	V
Clothes Dryers							M		M										P			V						V
Clothes Washer Dryers Integrated							M		M										P									
Clothes Washers			M		M	V	M		M	V						V			P		O	V		V			M	V
Computers	V	V		V				V		V						V						V		V				V
Copiers	V	V		V				V		V												V		V				V
Dehumidifiers																						V						V
Dishwashers			M				M		M	V									P			V					M	V
Fans				V																								V
Fax Machines		V		V				V		V												V						V
Freezers	V		M		M	V	M		M	V	M				V	V			P		O	V					M	V
Furnaces			M																								M	V
Heat Pumps			M				M			V																	M	V
Heaters- Space	V		M																								M	V
Heaters - Vented Gas Fireplaces																												
Heaters- Gas Central																											M	V
Lamps	V		M	V	M	V	V		M		M					V	V		P			V		V			M	V
Microwave Oven				V																		V						
Monitors		V		V				V		V						V						V						V
Motors				V		V	O																	V				
Multi Function Devices (MFD)		V		V				V														V						V
Printers		V		V				V		V												V						V
Pumps				V	M																							
Ranges/Ovens	V								M										P			V						V
Refrigerators	V		M		M	V	M		M	V	M		V		V	V			P		O	V	V	V	M		M	V
Rice Cookers			M																									
Scanners		V		V				V														V						V
Solar Water Heating		V																				V						
Televisions	V	V		V		V	P	V		V												V						V
Transformers	V			V			O															V						V
VCRs and/or DVDs		V		V				V		V												V						V
Water Dispensers			M																									
Water Heaters	V				M		V															V					M	

Legend: M - Mandatory Label V - Voluntary Label ? - Label Status Unknown P - Proposed program O - Other efficiency marking system ▭ - APEC Countries

Note: Not all countries or products are included; due to variations in product definitions, this table is only indicative of coverage

Summary of MEPS

Product	Australia	Canada	Chile	China	Columbia	Costa Rica	European Union 25	Ghana	India	Iran	Israel	Japan	Korea	Malaysia	Mexico	New Zealand	Peru	Philippines	Russia	Saudi Arabia	Singapore	Chinese Taipei	Tunisia	U.S.A.
Air Conditioners - Central	M	M													M	M								M
Air Conditioners - Room	M	M	?	M	M	M	V	M	V		M	T	M		M	M		M	M	?	M	M	P	M
Air conditioners Large, heat pumps & condensing units	M	M														M							P	M
Air conditioners, Packaged terminal and heat pumps	M	M														M								M
Air conditioners, Single-packaged central & heat pumps	M	M														M								M
Air conditioners, Split-system central and heat pumps	M	M													M	M		M	M					M
Audio Equipment	S			M			S						S						M					S
Ballasts	M	M		M	M	M	M					T	M	M		M		M						M
Boilers		M					M						M				M?					M		M
Clothes Dryers	S	M	?																					M
Clothes Washers	S	M	?	M			V				M		M		M									M
Clothes Washers/Dryer Integrated	S	M																						M
Computers	P											T	S			P			M					S
Copiers	S											T	S											S
Dehumidifiers		M																						
Dishwashers	S	M	?				V				M		M						M					M
Fans				M							M											M		
Fax Machines	S												S											S
Freezers	M	M	?		M	M	M				M	T				M			M					M
Furnaces		M											M											M
Hard-disk Drives												T												
Heat Pumps	P	M														P								M
Icemakers	P	M														P								
Irons				M																				
Lamps	M	M		M	M	M					M	T	M		M	M	M?	M				M		M
Monitors	P												S			P			M					S
Motors	M	M	M	M	M	M	V							V	M	M	M?					M		M
Power supplies (low voltage, internal/external)	P			P			V						S			P								
Printers	S												S						M					S
Pumps			M												M									
Ranges/Ovens		M				M					M	T							M			M		
Refrigerators	M	M	M	M	M	M	M		V	M	M	T	M		M	M	M?		M			M	M	M
Rice Cookers				M									M									M		
Scanners													M						M					
Set Top Boxes	P						V						S			P								
Solar Water Heating					M						M													
Space Heaters	M	M									M	T	M											M
Televisions	P			M			S					T	S			P			M					S
Transformers	M	M										T			M	M								
VCRs	S						S					T	S											S
Water Chillers (large buildings)	P	M														P						M		
Hot/Cold Water Dispensers	P												M			P								
Water Heaters	M	M	M		M	M	V				M	T			M	M	M?		M			M		M

Legend: M - Mandatory Standard V - Voluntary Standard T - Target Program S - Standby target

APEC Countries P - Proposed Mandatory Program

Note: Not all countries or products are included; due to variations in product definitions, this table is only indicative of coverage

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Review by Country

Argentina

Argentina began a comparative labelling program some time ago. Whilst it is still relatively new, the government has plans to expand the program by extending the types of products covered. The current legislation allows for labelling laws to be applied to air conditioners, ballasts, clothes dryers, clothes washers, dishwashers, hot water systems (electric), lamps, ovens and refrigerator-freezers. It also proclaims that future expansion of the list is possible without the need for further legislation. To date Argentina has no minimum energy performance standards. The energy labelling program for refrigerators is already operational. Argentina uses a bar style of energy label.

Comparative Label - Argentina

Program Name: Programa de Calidad de Artefactos Eléctricos para el Hogar (PROCAEH). ***(Quality of Domestic Electircal Devices)***

Implementing Agency: Secretariat of Industry, Commerce and Mining, IRAM, Instituto Argentino de Normalizacion (Argentine Standards Institute)

Participation Category: Mandatory

Appliances Labelled: 2001 - freezers, refrigerators and combinations.

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

Program Information: The Secretariat of Industry, Commerce and Mining issued a resolution in May 1999 mandating household appliances are to be labelled according to standards of energy efficiency and noise emission. The label displays 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 instruction manual. 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. Resolutions have been made which permit labelling programs to be developed for air conditioners, clothes dryers, clothes washers, dishwashers, electric hot water systems and lighting products.

References - Argentina

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)

Australia

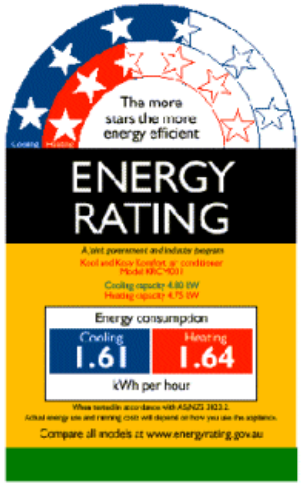
In Australia labelling and MEPS programs are controlled by State rather than national legislation. The national (Commonwealth) parliament does not have the constitutional power to legislate in this area. Energy labelling was introduced in some states in Australia in 1986 and now all states have the necessary regulations in place. The program is now co-ordinated by the National Appliance and Equipment Energy Efficiency Committee (NAEEEC). Major manufacturers and importers now recognise the commercial value of energy labelling, and are generally very supportive of the program.

In addition to labelling of electric appliances, the Australian Gas Association (AGA) also runs a labelling scheme. The AGA has members from both the gas utility sector and gas appliance manufacturers. The AGA 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 has been voluntary and the level of compliance has varied considerably from state to state. In recent years the AGA has made labelling information a requirement for technical approval. This effectively makes the collection of data required to produce a label mandatory. Governments may regulate gas appliance efficiency in the near future.

Australia is also involved in the international ENERGY STAR® Program, using this endorsement label for office equipment and home electronics. See page 48 for more details. An new endorsement label, called the Top Energy Saver Award (TESAW), was introduced in late 2003 to recognise labelled appliances that are the most efficient in their category (this replaces the previous Galaxy Award). Two other endorsement labels are also used within Australia; the Energy Smart Product Labelling Scheme and the Good Environmental Choice Mark. Australia also has a car fuel consumption rating label and guide.

MEPS are a more recent addition to the Australian scene, only being introduced in 1999. Eight product types are covered by MEPS with several more under active consideration over the next few years.

Comparative Label (Electric) - Australia



Program Name: Star Rating Scheme (Electric)

Implementing Agency: State and Territory Governments (start dates vary)

Participation Category: Mandatory

Appliances Labelled: 1986 - refrigerators, refrigerator-freezers

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

1989/90 - clothes dryers, clothes washers

Rating System: Energy Consumption (generally kWh/year), 1 to 6 stars (6 best).

Program Information: The labelling program requires the cooperation of several organisations. Firstly, each State and Territory Government is responsible for legislation, regulations and administration. This includes the requirement for labels to be displayed and regulating offences and penalties for non-compliance in this area. Secondly, in order to gain consistency across the country, the National Appliance and Equipment Energy Efficiency Committee (NAEEEC) was established to provide a co-ordinating role for the program. NAEEEC determines policy and sets the future directions for labelling. Finally, 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 was upgraded in 2000, increasing the efficiency levels needed to obtain equivalent star ratings and the labels have been given a new look allowing comparison between old and new ratings. It is proposed to include televisions into the labelling program by 2006.

Comparative Label (gas) - Australia

Program Name: Gas appliance Star Rating Scheme

Implementing Agency: Australian Gas Association

Participation Category: Voluntary

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

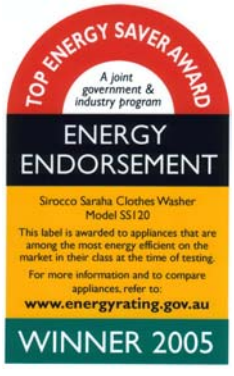
Rating System: Energy (MJ/year), 1 to 6 stars (6 best)

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. Governments may regulate these products from 2006.

Endorsement Label - Australia

See International ENERGY STAR® page 48.

Endorsement Label - Australia



Program Name: Top Energy Saver Award

Implementing Agency: Australian Greenhouse Office.

Participation Category: Voluntary

Appliances Labelled: All appliances that carry a comparative energy rating label (gas and electric) are eligible.

Program Information: This national program is new for 2004 and has replaced the Galaxy Energy Awards. Appliances are granted the award if they achieve the efficiency benchmark set by the government (usually the top 5-10% of models on the market). This enables consumers to instantly recognise the most efficient models on the market.

Endorsement Label - Australia

Program Name: Energy Smart Product Labelling

Implementing Agency: Sustainable Energy Development Authority NSW

Participation Category: Voluntary

Appliances Labelled: air conditioners, clothes dryers, clothes washers, dishwashers, freezers, lamps, refrigerators, solar water heating, water heaters.

Program Information: Companies can apply to receive and Energy Smart Label if their products meet the energy criteria set by state agencies. Eligible products are generally the most energy efficient models in each appliance category.

Endorsement Label - Australia

Program Name: Good Environmental Choice

Implementing Agency: Australian Environmental Labelling Association

Participation Category: Voluntary

Appliances Labelled: 2002 computers

Program Information: This eco-label program was launched in 2002. Products need to meet a variety of environmental standards including energy usage requirements. Companies pay an annual fee to use the label. Computers are currently the only appliance eligible for this label.

Minimum Energy Performance Standards - Australia

The States and Territories adopted new, uniform regulations in 1999. This saw the beginning of the Australian MEPS program. Refrigerators, freezers and electric storage water heaters were initially covered from October 1999. MEPS for three phased packaged air conditioners and three phase electric motors were implemented from October 2001. Fluorescent lamp ballast MEPS were introduced in 2003 with other products being introduced as shown. Joint Australian and New Zealand (AS/NZS) standards, some of which are based on international standards, cover most of the energy performance test requirements for labelling and MEPS.

Minimum Energy Performance Standards, Australia

Product Description	Year Implemented (revision)
Air conditioners – three phase (to 65 kW cooling)	2001 (2007)
Air conditioners – single phase	2004 (2006/2007)
Ballasts for fluorescent lamps	2003
Three Phase Electric Motors	2001 (2006)
Refrigerators, Refrigerator-freezers and/or Freezers	1999 (2005)
Electric Storage Water Heaters	1999 (2005)
Distribution transformers	2004
Commercial refrigeration	2004
Fluorescent lamps	2004
Gas water heaters	1989 (2004/2006)
Gas space heaters	1990
Gas cookers	1988

A number of new products are being considered for MEPS in the coming years including: televisions, power supplies, chillers, HID lamps, close control air conditioners, wine storage cabinets, pool pumps, icemakers, hot/cold water dispensers, furnaces, boilers, heat pumps, dehumidifiers.

Standby Program - Australia

In 2002, Australia released its standby power plan which aims to achieve a 1 Watt standby target across a wide range of product types which has been endorsed by the Ministerial Council on Energy. Over the period 2003-2004 a total of 30 standby power profiles have been released which set voluntary industry targets for the period 2007-2008. If adequate progress is not made by this initial target date, a range of more stringent options will be considered including mandatory regulations. The program is part of the National Appliance and Equipment Energy Efficiency Program.

The standby profiles that set targets include the following products: printers, copiers, scanners, multifunction devices, modems, PC speakers, videocassette recorders, various home audio products, DVD players, personal video recorders, set-top boxes, microwave ovens, games consoles, air conditioners, bread makers, clothes dryers, clothes washers, dishwashers, coffee machines, cooktops & ovens, rangehoods, motion detectors, roller doors, security systems, smoke alarms, space heaters, instantaneous gas water heaters.

References - Australia

www.energyrating.gov.au - Government Energy Labelling and MEPS Site (this site also provides Links to state and territory agencies)

www.gas.asn.au - Australian Gas Association

www.energystar.gov.au - Energy Star Australia

www.standards.com.au - Standards Australia

www.greenhouse.gov.au - Australian Greenhouse Office and www.greenhouse.gov.au/transport/index.html for car labelling system.

www.energysmart.com.au - Energy Smart Program

www.aela.org.au - Australian Environmental Labelling Association

Brazil

Ministério de Minas e Energia (MME) (Ministry of Mining and Energy) is the government department responsible for the energy sector. MME is responsible for several organizations including: Electrobas (Government Bulk Supplier) and Agência Nacional de Energia Elétrica (ANEEL Brazilian Electricity Regulatory Agency). Energy conservation efforts are co-ordinated by PROCEL (Programa Nacional de Conservacao de Energia Eletrica) that sits within Electrobas. Brazil entered into the labelling arena with a voluntary endorsement scheme in 1993. The government has since expanded upon this, implementing a mandatory labelling program. Presently, there are no MEPS for products in Brazil, however there is a proposal to introduce them in the near future.

Comparative Label - Brazil

Program Name: Programa Brasileiro de Etiquetagem – PBE

Implementing Agency: Programa Nacional de Conservacao de Energia Eletrica (PROCEL) and National Institute of Metrology (INMETRO)

Participation Category: Voluntary

Appliances Labelled: 1997 - air conditioners (room), freezers, refrigerators and combinations

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

Program Information: The Brazilian program is based on the bar style energy label. It contains an efficiency rating along with energy consumption and freezer temperature information. The program is conducted by PROCEL, the national energy efficiency program and the government agency INMETRO is responsible for verifying the manufacturers data.

Endorsement Label - Brazil

Program Name: Stamp Procel de Economia de Energia (Energy Efficiency Stamp)

Implementing Agency: Programa Nacional de Conservacao de Energia Eletrica (PROCEL)

Participation Category: Mandatory

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

Program Information: The Brazilian Energy Conservation Program, PROCEL, is managed by Eletrobras, the Brazilian government holding of the power sector. PROCEL has granted the Stamp Procel de Economia de Energia annually, since 1993. It is awarded to the electric equipment that is the most energy efficient in its category in the given year. Its dual purpose is to stimulate the national manufacture of more efficient products and guide the consumer to purchase the most efficient appliance. The Manufacturers can enter both local and imported appliances. The following organisations are involved in choosing the winners: CEPEL (Center of Research of Electric Energy of the Eletrobrás), INMETRO (National Institute of Metrologia), IDEC (Institute of Defense of the Consumer), ABINEE (Brazilian Association of the Electric and Electronic Industry), ELECTROS (National Association of Manufacturers of Eletro-Eletrônicos, Products), ABRAVA (Brazilian Association of Refrigeration, Conditional Air, Ventilation, and Heating). PROCEL plans to expand the list of products covered by the program in the future.

References - Brazil

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

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

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

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

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

Canada

The Canadian system is the longest running formal energy labelling program in existence. Natural Resources Canada (NRCan) administers the national comparative labelling program, EnerGuide. The scheme has both mandatory and voluntary labelling elements. Canada also joined the International ENERGY STAR® program in 2001. Additionally, 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 MEPS have broad coverage, encompassing one of the largest ranges of products in the world. The program also includes voluntary labels for cars, vans, light trucks and homes. The following energy labels are reproduced for information with the permission of Natural Resources Canada, 2001.

Comparative Label - Canada

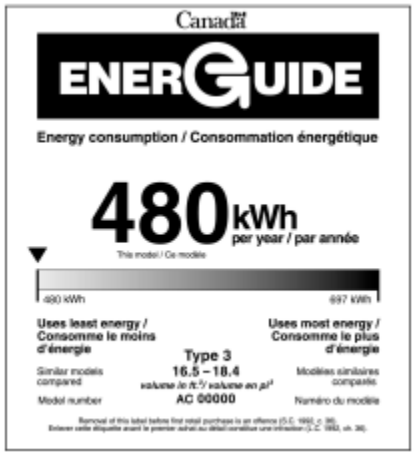
Program Name: EnerGuide Program

Implementing Agency: Natural Resources Canada

Participation Category: Mandatory

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

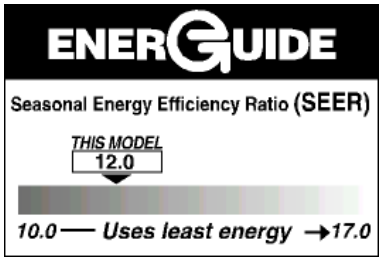
1995 - clothes dryers, clothes washers, clothes washer/dryer integrated, dishwashers, ranges/ovens



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

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. An annual appliance directory (hard copy) is published as a guide for purchasers, listing all available models on the market. Separate guides are available for major appliances and air conditioners. All product listings are available on the EnerGuide web site. The Energy Efficiency Regulations specify all details pertaining to the labels including placement on products. The program has strong support through internet sites and retailer liaison and training programs.

Comparative Label



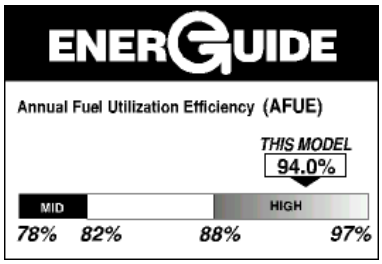
Program Name: EnerGuide Program (Voluntary)

Implementing Agency: Natural Resources Canada

Participation Category: Voluntary

Appliances Labelled: 1998 – air conditioners (single packaged central & heat pump and split system) heat pumps; gas and propane furnaces. 2003 – **vented gas fireplaces**

Rating System: Labels demonstrates how the appliance compares with the lowest & 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).



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 MEPS level as the lowest rating and the AFUE, SEER or FE (for fireplaces) of the best 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 International ENERGY STAR® page 48. As part of the International ENERGY STAR® Program, Canada (through NRCan) and other partner countries recognize 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.

Endorsement Label - Canada

Program Name: Environmental Choice^{M} Program (ECP)

Implementing Agency: Environment Canada

Commencement Date: 1988

Participation Category: Voluntary

Appliances Labelled: air conditioners – central, ballasts, computer, copiers, dishwashers, fax machines, lamps, motors, MFD's, printers and water heaters.

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. A wide range of products carry the EcoLogo from paper bags to building products. There are preset guidelines for over 100 products. If no criteria exist, an independent panel can be convened to assess if a product or service has significantly less adverse environmental impacts than competing products or services. Certification is indefinite providing licensed companies confirm annually their continued compliance. ECP also conducts random inspections or product testing to confirm 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. The EcoLogo features three stylised doves intertwined to form a maple leaf, representing consumers, industry and government working together to improve Canada's environment.

Minimum Energy Performance Standards - Canada

The *Energy Efficiency Act,* passed in 1992, provides for the making and enforcement of regulations concerning minimum energy performance standards (MEPS) 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 MEPS 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 harmonized with the Federal Regulations. However, 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 MEPS 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 MEPS.

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

- cooking appliances which will now include provisions for tungsten halogen elements (cooking appliances are not subject to either MEPS or labelling in the USA);
- water heaters which are harmonized with the US except for electric water heaters which have a Canada only test procedure and MEPS 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

Products under consideration for future MEPS are wine chillers, commercial refrigerators and freezers, vending machines, central air conditioners, large air conditioners and traffic signals.

The Regulations are a key element in an integrated strategy for transforming the market to higher energy efficient equipment. This strategy includes: suasion through 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.

Minimum Energy Performance Standards, Canada

Product Description	Year Implemented (revision date)
Air conditioners Large, heat pumps & condensing units	1998
Air conditioners, Packaged terminal and heat pumps	1998
Air conditioners, Room	1995
Air conditioners, Single-packaged central & heat pumps	1998
Air conditioners, Split-system central and heat pumps	1998
Ballast Fluorescent Lamp	1995 (2005/2010)
Boilers	1998
Clothes dryers Standard	1995
Clothes dryers Compact	1998
Clothes washer-dryers Integrated	1995 (2004)

Product Description	Year Implemented (revision date)
Clothes washers	1995 (2004)
Dehumidifier	1998
Dishwashers	1995
Distribution Transformers – dry type	2005
Exit Signs	2004
Freezer	1995 (2001)
Furnaces Gas	1995
Furnace Oil	1998
Heat pumps Ground- or water-source	1995
Heat pumps Internal water-loop	1995
Icemakers	1998
Lamps Fluorescent	1996
Lamps Incandescent reflector	1996 (2003)
Motors	1997
Ranges	1995 (2003)
Refrigerators and/or Refrigerator-freezers	1995 (2001)
Water heaters	1995 (2004)
Water Chillers	2004

Note: In some cases efficiency regulations in Canadian provinces cover different products and may have different effective dates.

References - Canada

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

http://office.nrcan.gc.ca/tools/label_e.htm - Office of Energy Efficiency

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

www.scc.ca - Standards Council of Canada

www.environmentalchoice.com - Environmental Choice Program

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

Chile

In 1992 the Chilean Government began the Programa Nacional de Uso Eficiente de la Energía (National Program of Efficient Use of Energy). The program is run by the Comisión Nacional de Energía, (National Energy Commission) which is responsible to the Ministreos De Economía, Minería y Energía (Ministry of Economics, Minerals & Energy). The goal is to reduce annual consumption in Chile by 10%. At this stage the program is focusing on public sector organizations (municipalities, offices and public services) and the private sector (companies, industries, transport, commerce and construction).

However, Chile has begun the process of setting up both labelling and MEPS programs. In 1999 MEPS for electric motors, and MEPS and energy efficiency labelling for residential refrigerators, based on the Mexican standard and label, were formulated. These proposals are still awaiting evaluation by a committee. Additionally, the National Energy Commission is developing a voluntary environmental endorsement label. Companies who choose to differentiate their products from those of the competition can submit them to an accreditation process, which will assess if the product meets specific standards. A seal of approval will be awarded and can be displayed on the product label.

The process for establishing standards and/or labels involves the Instituto Nacional de Normalizacion - INN (National Standards Institute) developing the program. The proposed standard and/or label must then be published for public comment. The INN sets

up a committee of institutions it decides are directly related to it and/or affected by the proposal, which must give its approval. It then returns to the INN's Council for final approval, before being sent to the Ministerio de Economía (Ministry of the Economy) for its publication. Only if a standard and/or label is part of a regulation does compliance become obligatory.

Detailed analysis has been undertaken for energy labelling and MEPS 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. While benefits appear to be good, decisions on the regime (voluntary or mandatory) and label design are yet to be finalised as of early 2004.

References - Chile

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

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

www.minecon.cl - Ministreos De Economía, Minería y Energía (Ministry of Economics, Minerals & Energy) (Spanish)

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

China

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 in some instances 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 MEPS. 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 State Development and Reform Commission, which is responsible for implementation of energy efficiency policy.
- The national appliance test centres:
  Guangzhou Testing and Inspection Station for Household Electric Appliances (GTIHEA), now the Guangzhou Household Electric Appliance Research Institute (GHEARI) and Beijing Testing and Inspection Station for Household Electric Appliances (BTIHEA), now the China Household Electric Appliance Research Institute (CHEARI).

The government agencies rely on the efforts of the China National Institute of Standardization (CNIS) to develop proposed MEPS, and in 1999 they established the China Certification Centre for Energy Conservation Product (CECP) to implement a new voluntary endorsement label. Currently, China is planning to introduce a comparative label. Market research has been undertaken and the label design is being finalised. It is expected that the program will begin as a voluntary system but will become mandatory at a later stage. China's drive for energy efficiency has led to the establishment of mandatory MEPS covering a diverse range of products.

Comparative Label - China

Program Name: ***China Energy Efficiency Label***

Implementing Agency: Under consideration

Participation Category: Mandatory

Appliances Labelled: The first planned product to carry an energy label under this program is likely to be refrigerators (planned for late 2004). Room air conditioners will likely be the next product. The label shown is one of the possible designs being considered for refrigerators.

Program Information: Details are still under consideration.

Endorsement Label - China

Program Name: *China Energy Conservation Label*

Implementing Agency: China Certification Centre for Energy Conservation Product

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.

Program Information: The State Economic and Trade Commission (SETC, now NDRC) and the China State Bureau of Quality and Technical Supervision (CSBTS, now AQSIQ) together established the China Certification Centre for Energy Conservation Product (CECP). 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. In 2002, 16 additional categories were listed, CECP predicts that the labelling program will quickly be extended to, clothes washers, small household electrical appliances, fans, water pumps, small scale electrical machinery, air compressor, and more. China is confident about the success of the program with manufacturers reporting to CECP that energy efficiency is a good marketing tool. The label application is similar to the USA's Energy Star Label and so far has been awarded to over 100s of products.

Minimum Energy Performance Standards - China

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

Minimum Energy Performance Standards, China

Product Description	Year Implemented	Revision
Air Conditioners: room (window and split-type)	1989	2000 (review in progress)
Air Conditioners: single packaged	(in progress)	
Audio - Radio receivers and recorders	1989	
Ballasts for Fluorescent Lamps	2000	2002
Clothes Washers	1989	2003
Fans Electric	1989	
Irons Electrical	1989	
Refrigerators	1989	1999, 2003
Rice cookers – Automatic	1989	
Televisions - Colour and monochromatic	1989	2004 (colour)
Fluorescent Lamp Ballasts	2001	
Electric Motors	2000	(review in progress)
External Power Supplies (low voltage)	(in progress)	

References - China

www.cssn.net.cn - China Standards Information Centre

www.csicci.gov.cn - China Bureau of Quality & Technical Supervision

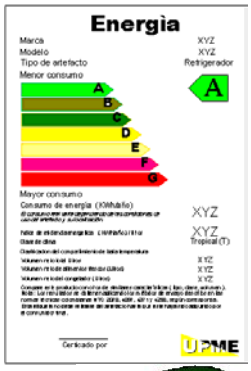
www.cecp.org.cn - China Certification Centre for Energy Conservation Product (Chinese)

http://eetd.lbl.gov/EA/China/pubs/EEPolicyUpdate.pdf - 1999, Lawrence Berkeley National Laboratory, *Status Report on Energy Efficiency Policy and Programs in China*, USA.

http://www.clasponline.org/download/General/2003/266/Chinastd_etf2003.pdf - Jiang Lin, *Appliance Standards and National Labeling Program*: *China*, presented at the Earth Technologies Forum (ETF), April 22-24, 2003 at the Hyatt Regency in Washington, DC.

Colombia

Ministerio de Minas y Energia (Ministry of Energy and Mines) has the responsibility for Colombia's energy efficiency program. The program was developed primarily by two agencies, the Unidad de Planeación Minero Energética (UPME) and the Institute de Ciencias Nucleares y Energias Alternativas (INEA). Additionally, utilities are responsible for their own programs. The primary focus has been on increasing the use of CFL's through rebate and incentive programs. Minimum energy performance standards have been ratified. A labelling program was launched in 2002.



Comparative Label - Columbia

Program Name: Programa Conoce

Implementing Agency: UPME

Participation Category: Mandatory

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

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

Program Information: The program is run by the Unidad de Planeación Minero Energética (UPME). It was launched in 2002 and in line with Columbia's trade agreement with Mexico and the USA it is intended that the program align with the labelling programs that exist with these trading partners. An endorsment label may also be running parellel with this program but no information is currently available.

Minimum Energy Performance Standards - Colombia

There is limited information about energy efficiency in Colombia, however it would appear that MEPS laws were ratified by the parliament in 1997 and expanded when the labelling program was introduced in 2002.

Minimum Energy Performance Standards, Colombia

Product Description	Year Implemented
Air Conditioners	2002
Ballasts Fluorescent lamp	1998
Freezers	2002
Lamp Compact Fluorescent	1998
Lamp Fluorescent	1998
Motors	2002
Refrigerators	2002
Solar Water Heating	1998
Water Heater (electric)	2002

References - Colombia

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

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

www.coltrade.org - Colombian Government Trade Bureau Washington DC

Lawrence Berkeley National Laboratory, 1998, *Energy Management in the Government Sector – An International Review* viewed at http://eetd.lbl.gov/ March 2001

Costa Rica

In 1994 the Costa Rican government passed the Rational Use of Energy Law. This was followed by a serious 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.

Comparative Label – Costa Rica

Program Name: Plaqueo Energetico

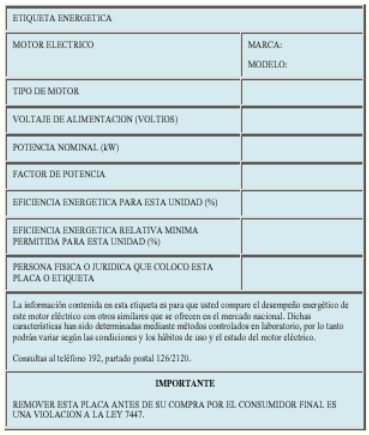
Implementing Agency: Dirección Sectorial de Energía del Ministerio de Ambiente y Energía

Participation Category: Mandatory

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

Rating System: Labels display the energy consumption used by the appliance and the MEPS level for this product. Air Conditioner ratings are based on the Energy Efficiency Ratio (EER) of the unit.

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.



ETIQUETA ENERGETICA	
MOTOR ELECTRICO	MARCA: MODELO:
TIPO DE MOTOR	
VOLTAJE DE ALIMENTACION (VOLTIOS)	
POTENCIA NOMINAL (kW)	
FACTOR DE POTENCIA	
EFICIENCIA ENERGETICA PARA ESTA UNIDAD (%)	
EFICIENCIA ENERGETICA RELATIVA MINIMA PERMITIDA PARA ESTA UNIDAD (%)	
PERSONA FISICA O JURIDICA QUE COLOCO ESTA PLACA O ETIQUETA	

La información contenida en esta etiqueta es para que usted compare el desempeño energético de este motor eléctrico con otros similares que se ofrecen en el mercado nacional. Dichas características han sido determinadas mediante métodos controlados en laboratorio, por lo tanto podrán variar según las condiciones y los hábitos de uso y el estado del motor eléctrico.

Consultas al teléfono 192, partado postal 126/2120.

IMPORTANTE

REMOVER ESTA PLACA ANTES DE SU COMPRA POR EL CONSUMIDOR FINAL ES UNA VIOLACION A LA LEY 7447.

Minimum 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 MEPS program is also the responsibility of MINAE.

Minimum Energy Performance Standards, Costa Rica

Product Description	Year Implemented
Air Conditioner (Room)	1996
Ballasts	1996
Freezer	1996
Lamp Fluorescent	1996
Motors	1996
Ranges/Ovens	1996
Refrigerators/Refrigerator-Freezer	1996
Water Heater	1996

References – Costa Rica

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)

Croatia

Croatia is in the process of implementing the EU energy labelling program including a consumer and retailer information and awareness raising campaign.

Program Name: Energy label

Implementing Agency:

Participation Category: Mandatory

Appliances Labelled: Same as Europe, implementation dates may differ. (from 2003)

Program Information: **See page 14 European Union for more details.**

European Union

The European Union (EU) is now made up of made up of 25 member countries. They original 15 are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the United Kingdom. The 10 new countries that joined on 1 May 2004 were Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. These countries are required to implement harmonised regulations, including those covering energy efficiency requirements (MEPS and labelling).

This broad geographical and economic coverage means that, many of the practices of the EU are adopted and/or absorbed into many other countries that are close to or 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. Another energy efficiency organization operating within the EU is the Group for Efficient Appliances (GEA). GEA membership is not restricted to, nor is it compulsory for EU members. One GEA member is the European Energy Network (EnR), which is itself a union of national environment and energy agencies.

Prior to the EU labelling program, many countries were either running or developing labelling and/or standards programs. The earliest programs began in the 1960's with France introducing MEPS 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 it was poorly designed and none of the Member States introduced the system. By 1990, Denmark, the Netherlands, and the United Kingdom also had legislation in place pertaining to energy labels and/or standards, while other countries such as Ireland were running voluntary labelling programs. In fact it was the 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" requesting Denmark not go ahead. 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 in 1995. 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). The label for refrigerators and freezers was amended in 2003 with the inclusion of A+ and A++ categories (Directive 2003/66/EC).

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. The framework directive on energy labelling (Council Directive 92/42/EEC) was amended in 2003 to include Eco-design requirements for Energy-Using Products (COM/2003/0453 final).

The Group for Efficient Appliances (GEA) launched a voluntary endorsement label, which allows consumers to readily identify the most efficient home electrical, and office equipment. In addition, several EU members run their own voluntary endorsement programs both solely for energy efficiency and as part of broader ecolabelling schemes. Europe also now participates in the International ENERGY STAR® program for office equipment.

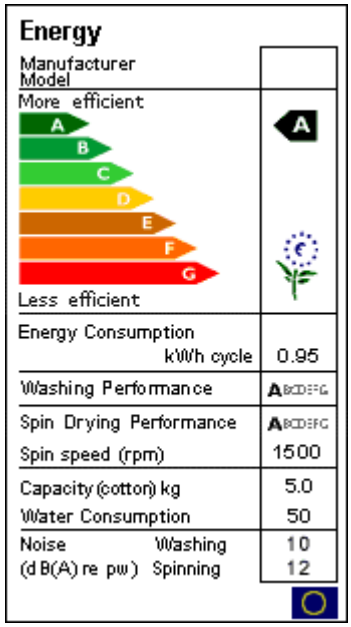
The history of MEPS within the EU has a similar beginning to the labelling program. The Netherlands notified the EC in 1992 of a desire to introduce MEPS for Refrigerators. Again this was seen as a barrier to the working of the single market. The Commission hired consultants from three national energy agencies who formed the GEA to carry out the study. The GEA produced a report with recommended MEPS levels. The Commission and Member States largely ignored these recommendations, opting for less stringent MEPS, but which were still based upon the technical efficiency definitions 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 MEPS 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 there are currently only three products with mandatory MEPS so far. On the other hand, the EC is working toward 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 are six negotiated agreements in operation.

NAFTA countries now implement the EU labelling and MEPS 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, many countries in Eastern Europe and the Baltic states have also implemented parts or all of the EU labelling and MEPS program.

There is also a proposal which aims to increase investments in energy efficiency where cost-effective through the promotion of audits, energy services by energy distributors, and by ESCOs (COM/2003/0739 final). The Commission has also recently passed a directive on combined heat and power - Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC, OJEU L 52 of 21. February 2004

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)
1996 - clothes washers (95/12/EC), clothes dryers (95/13/EC)
1997 - combination washer-dryers (96/60/EC)
1998 – dishwashers (97/17/EC)
2000 – lamps (98/11/EC)
2003 - air conditioners (2002/31/EC), electric ovens (2002/40/EC)

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

Program Information: Although a central directive is issued through the European Commission, each country needs to establish national legislation for the program to be enforced. Member States are responsible for all aspects of implementation including compliance, label accuracy, educational and promotional activities. Product suppliers need to provide proof of appliance efficiency and are also responsible for the supply of labels and brochures in appropriate languages. The requirement for a label also applies to products for hire. The label displays the energy consumption and also rates the appliance as to its comparative level of efficiency. Studies are under way to assess the technical basis of defining energy labels for electric storage water-heaters, ovens and air-conditioners, plus revisions are proposed for refrigerators and clothes-washers. Several European countries outside the EU have also adopted this label. There is no product registration system in Europe, which has created some enforcement problems.

Endorsement Label - European Union

Program Name: GEA Label

Implementing Agency: Group for Energy Efficient Appliances (GEA)

Participation Category: Voluntary

Appliances Labelled: Began in 1996 – audio equipment, battery chargers, computers, copiers, IRDs, DVDs, fax machine, lamps, monitors, MFDs, printers, scanners, television, television-VCR combinations, VCRs.

Program Information: The GEA label is an endorsement program has been adopted and developed from the Swiss Federal Office of Energy (SFOE) E2000 label. The Swiss label operated successfully from 1994. The label applies to office equipment, and a variety of consumer electronic equipment. Performance levels are set annually and manufacturers are invited to nominate eligible equipment. Efficiency of a product is judged by its energy consumption in standby mode. Generally only the top 20% to 30% of the market qualify in the given year. The label carries the year of compliance. GEA members include Norway, Switzerland and all EU members except Belgium. Product testing and application for labels is up to individual manufacturers. The individual national bodies a responsible for promotion of the scheme.

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 - clothes washers, computers (including portables), dishwasher, freezer, lamps (cfls, double ended tubes), computer monitors, refrigerators, refrigerator-freezers, televisions, vacuum cleaners

Program Information: 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. The energy efficiency requirements for appliances allow only the upper end of the market to qualify for the label. For example refrigerators and washing machines must have an energy efficiency rating better than that required to receive and A in the comparative label program. If an eco-label is awarded it can be displayed on the comparative label. As with most eco-label programs energy efficiency is just one criteria. Manufacturers need to apply to the accredited National organization to be awarded the label. The onus of proof is on the manufacturer. The national body then informs the EUEB and if there are no objections then the label may be awarded.

Endorsement labels from individual Countries with the European Union

Five examples of labelling programs being run by countries (or groups of countries) within the EU are briefly summarised below. This list however, is not exhaustive. It would appear that Switzerland also has an eco-label program, but to date no information has been obtained as to whether they contain energy efficiency criteria. Details about the Nordic Swan Ecolabel, which operates in Norway, Sweden, Denmark, Finland and Iceland can be found under **Norway** see page 35.

Program Name: Umweltzeichen or Blue Eco Angel

Implementing Agency: Germany

Participation Category: Voluntary

Appliances Labelled:
1986 – boilers, water heaters
1990 – copiers, gas heating
1992 - refrigerators, freezers and combinations
1994 – ballasts, computers
1996 – printers
1997 – televisions
1998 - fax machines, portable computers
1999 - clothes dryers clothes washers, dishwashers

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

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

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

Program Name: Milieukeur

Implementing Agency: Stichting Milieukeur, The Netherlands

Participation Category: Voluntary

Appliances Labelled: central heaters, lamps, computers, televisions

Program Information: Stichting Milieukeur is responsible for this ecolabel. The organization is made up of environmental, consumer, manufacturers and retail organizations as well as government representatives.

Program Name: Austrian Eco Label

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

Participation Category: Voluntary

Appliances Labelled: refrigerators, refrigerator-freezers and freezers, clothes washer, copiers.

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: Aenor-Metio Ambiente

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

Participation Category: Voluntary

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

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

Program Name: Polish Efficient Lighting Program (PELP), became Efficient Lighting Initiative (ELI).

Implementing Agency: International Finance Corporation (IFC), Poland

Participation Category: Voluntary

Appliances Labelled: 1995 – Lamps

Program Information: The PELP program was designed to increase market penetration of energy efficient lighting in Poland. The scheme achieved its goal through public education and temporary subsidies. The PELP bright "green leaf" label was introduced to reassure customers that the lamp was both efficient and of high quality. The Global Environment Facility (GEF) funded the program. The success of the program led to the IFC requesting funding to expand the program. In 1998 approval was given and the "green leaf" logo can now be found in Argentina, the Czech Republic, Hungary, Latvia, Peru, the Philippines and South Africa. The program has been renamed the Efficient Lighting Initiative (ELI).

Summary of European Labelling Programs

Original EU Country	Comparative Energy Label	GEA Energy Label	EU Eco Label	Own Energy Endorsement Label	Own Eco Label
Austria	M	V	V		V
Belgium	M		V		
Denmark	M	V	V		V
Finland	M	V	V		V
France	M	V	V		
Germany	M	V	V		V
Greece	M		V		
Ireland	M		V		
Italy	M		V		
Luxembourg	M		V		
Netherlands	M	V	V		V
Portugal	M		V		
Spain	M		V		V
Sweden	M	V	V		V
United Kingdom	M		V	V	
New EU Country*					
Cyprus	M		V		
Czech Republic	M		V		V
Estonia	M		V		
Hungary	M		V		V
Latvia	M		V		
Lithuania	M		V		V
Malta	M		V		
Poland	M		V	V	V
Slovakia	M		V		V
Slovenia	M		V		
Non EU Country					
Bulgaria	M?		V		
Croatia	M				
Iceland			V		V
Liechtenstein			V		
Norway	M	V	V		V
Romania	M		V		
Switzerland	V	V	V	V	?
Turkey	M?		V		

M – Mandatory V – Voluntary ? – Status Unknown

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

Minimum Energy Performance Standards - European Union

European Union members need to gain approval from the EC and the Parliament in order to introduce or revise mandatory energy efficiency standards for any product as to date there is no framework directive for MEPS. When the Netherlands initially proposed standards for refrigerators it was rejected on the grounds that it would be prohibitive to free trade agreements. To date only three products have mandatory standards. MEPS for domestic gas or oil fired hot water services were approved in 1992, taking effect in 1998. The refrigerator and freezer MEPS, which took effect in 1996, excluded most models with an energy label rating lower than C. The parliament also approved MEPS for Fluorescent Lighting Ballasts in .

Whilst not keen on regulating the market with MEPS, the EU would like to see the efficiency of energy using products improve. Some success has been achieved with voluntary standards or negotiated agreements, which are decided between the EC and manufacturer Associations. Negotiations have taken place with the European Federation of Domestic Appliance Manufacturers (CECED) and the European Association of Consumer Electronics Manufacturers (EACEM). Energy efficiency gains have been achieved for six products types and negotiations on additional appliances are continuing. Essentially, an overall target for reduction in average energy consumption is set, rather than a compulsory minimum standard for individual appliances. For example the Clothes washer agreement of 1997 set out to reduce average consumption by 20%. This program is well supported by the manufacturers and to date targets are being met.

Minimum Energy Performance Standards, Europe

MEPS – Product Description	Year Implemented
Ballast for fluorescent lamps (2000/55/EC)	2004
Boilers Hot Water * (92/42/EEC) – gas/liquid fuels	1998
Freezer (96/57/EC)	1999
Refrigerators and/or Refrigerator-freezers (96/57/EC)	1999
Negotiated Agreements – Product Description	
Air conditioners	2003
Audio Equipment	1997
Clothes Washers	1997
Dishwashers	2000
External Power Supplies	1999
Set Top Boxes and Other Digital TV Service Systems	1999
Televisions	1997
VCRs	1997
Water Heaters	2000

Note *: MEPS date was actually 1994, but countries with existing MEPS levels could allow those levels to remain until 1998.

References - European Union

www.europa.eu.int/scadplus/leg/en/lvb/l32004.htm - Energy Label EU site

www.environment.detr.gov.uk/energylabels/rw/index.htm - Energy Labels, UK

www.irish-energy.ie - Energy Labels at Irish Energy Centre

www.gealabel.org - GEA Label

www.europa.eu.int/comm/environment/ecolabel/index.htm - EU Eco Label

www.est.org.uk/indexe.html - Energy Savings Trust UK

www.blauer-engel.de - Blue Angel Germany

www.milieukeur.nl/ - The Netherlands Eco Label

www.bmu.gv.at/u_kennzeich_auszeich/oe_umweltzeichen/tmp_inhalt.htm - Austrian Eco Label

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

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

www.mos.gov.pl - Ministry of Environment, Poland

www.mg.gov.pl - Ministry of Economy, Poland

Ghana

The government of Ghana initiated an energy efficiency and conservation program in response to an energy crisis in 1983/84. Only minimal change occurred in the sector until 1997 when the government began to implement energy sector reform. The Public Utilities Regulatory Commission Act (Act 538) and the Energy Commission Act (Act 541) were passed transferring tariff setting, energy sector regulation, policy formulation, and efficiency promotion away from the Ministry of Energy to other institutions. This led to the establishment of the Ghana Energy Foundation. With support from both the government of Ghana and international aid organizations the foundations 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. USAID, CLASP and Alliance to Save Energy are working closely with the energy Foundation to establish this program.

Comparative Label - Ghana

A labelling program similar to the EU comparative label has been developed and is currently being tested for market acceptability. It is expected that a label for air conditioners will be launched shortly with refrigerators, lighting systems, and electric motors and drives following soon after.

Minimum Energy Performance Standards - Ghana

Ghana recently enacted the first appliance standards regulation in Sub-Saharan Africa, for room air-conditioner units. Currently standards for refrigerators, similar to those that exist in Europe, are being developed. As with the labelling program it is hoped that standards for other appliances will also quickly be developed.

Minimum Energy Performance Standards, Ghana

Product Description	Year Implemented
Air Conditioner	2002
Refrigerators and/or Refrigerator-Freezers	planned

References - Ghana

www.usaid.gov/pubs/cbj2003/cent_prog/egat/934-0031.html - USAID Data Sheet

www.ase.org/ghanaef/index.html - Ghana Energy Foundation

www.clasponline.org – various documents on Ghana are available.

Hong Kong (China)

Hong Kong has established a voluntary comparative label program and an endorsement style label. 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 program has remained unaffected by the return of Hong Kong to China in 1997. A voluntary endorsement label was introduced in December 1998 for compact fluorescent lamps that meet minimum efficacy and performance levels. The Government of the Hong Kong Special Administrative Region of the People's Republic of China is monitoring the program, and will decide whether the labelling should become mandatory, and whether minimum energy performance standards should be implemented.

Comparative Label – Hong Kong (China)

Program Name: The Hong Kong Voluntary Energy Efficiency Labelling Scheme

Implementing Agency: Electrical and Mechanical Services Department

Participation Category: Voluntary

Appliances Labelled: 1995 - refrigerators,
1996 - room air conditioners,
1997 - clothes washers,
1999 - clothes dryers,
2000 - electric water heaters

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

Program Information: The program is now supported by a new web site, which lists registered products and details registration procedures. The program initially covered refrigerators and air conditioners (which are by far the biggest residential electricity end uses in Hong Kong) and the labelling requirements specify ISO standards for energy consumption measurement. Clothes Washers, Dryers and electric water heaters were added in phases from 1997 to 2000.

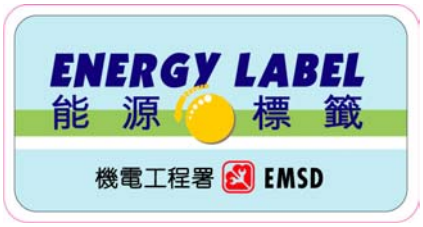
Endorsement Label – Hong Kong (China)

Program Name: The Hong Kong Voluntary Energy Efficiency Labelling Scheme

Implementing Agency: Electrical and Mechanical Services Department

Participation Category: Voluntary

Appliances Labelled: 1998 - compact fluorescent lamps,
2000 - photocopiers
2001 - rice cooker, multifunction devices
2002 dehumidifiers, laser printers
2003 – televisions, LCD monitors



Program Information: In order to receive an endorsement label the products must meet the energy efficiency and performance criteria specified and comply with the Electrical Products (Safety) Regulation and appropriate international safety standards.

References – Hong Kong (China)

www.energyland.emsd.gov.hk - (Energy Land)

www.emsd.gov.hk/emsd - (Electrical and Mechanical Services Department)

India

Legislation passed in 2001 established the Bureau of Energy Efficiency and an Energy Conservation Fund to manage and finance conservation activities. The legislation also makes provision for the introduction of mandatory labels and standards. This has allowed an energy labelling to be developed in India, which is due to begin in 2004 and standards are expected to follow shortly afterward. The pollution Control board also runs an eco-label program..

Comparative Label - India

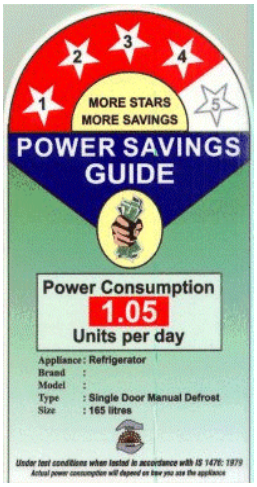
Program Name: *Comparative Label*

Implementing Agency: Bureau of Energy Efficiency

Participation Category: Mandatory

Appliances Labelled: 2004 – refrigerators and refrigerator-freezers (proposed)

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



Program Information: India's labelling program is expected to be launched in 2004/5. It is currently in the process of doing the necessary preparatory work for the introduction of full-fledged standards and labelling program. The impetus for the S&L program has come with the passage of the energy conservation bill in the Indian parliament in October 2001. The Bill allowed for the establishment of Bureau of Energy Efficiency (BEE), in March 2002. BEE will take over

responsibility for the S&L program in India. USAID collaborated with Ministry of Power, BIS and CII to research the design and effectiveness of the label from 1997 to 1999. The label design process was an excellent example of how to develop a relevant national energy label and utilised considerable consumer and stakeholder input. Labelling is also being considered for air conditioners.

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.

Program Information: The Ecomark scheme was developed by the Indian Government in 1991 and is an environmental label, covering a wide range of products. The ECO Mark scheme derives its power from the government notifications, 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 award of ECO mark is done 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 set up in Central Pollution Control Board. The label's success has been very limited to date with few manufacturers taking up the opportunity.

Minimum Energy Performance Standards - India

India has introduced voluntary Minimum Energy Performance Standards for Refrigerators and Air Conditioners. The Bureau of Indian Standards (BIS) administers standards in India and the requirements are specified in the relevant product standards. However, these standards are not made mandatory by government regulations. 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. The MEPS requirement is specified as a maximum limit on energy/power consumption (refrigerators and air-conditioners), minimum efficiency, or maximum permissible heat loss (water heaters). In 1999, the refrigerator standard was revised by revising the value of the energy parameter (maximum energy consumption per day). The introduction of BEE in 2002 will see responsibility for efficiency standards now come under the bureau. BEE is currently proposing to also introduce minimum energy performance standards for distribution transformers, agricultural pump sets, Industrial fans & pumps.

Minimum Energy Performance Standards, India (voluntary)

Product Description	Year Implemented
Refrigerators and/or Refrigerator-Freezers	1999
Room Air Conditioners	1992

References - India

www.bee-india.com - Bureau of Energy Efficiency

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

http://delhi.vsnl.net.in/bis.org - Bureau of Indian Standards (BIS)

http://delhi.vsnl.net.in/bis.org/eco.htm - Eco Mark Scheme BIS (Under Construction)

Indonesia

The Indonesian government announced a Master Plan for Energy Conservation in 1995. The Directorate General of Electricity and Energy Development (DGEED), which is under the jurisdiction of the Ministry of Mines and Energy (MME) developed the plan. As such, DGEED is responsible for developing and establishing national labelling programs and energy standards. Indonesia has introduced a voluntary label for Refrigerators and Refrigerator Freezer Combinations. No minimum energy efficiency standards exist for appliances at present however; Indonesia is in the process of drafting national MEPS for room air conditioners, electric water heaters, televisions and electric irons.

Comparative Label - Indonesia

Program Name:

Implementing Agency: Directorate General of Electricity and Energy Development (DGEED)

Participation Category: Voluntary

Appliances Labelled: 1999 - refrigerators, refrigerator-freezers

Rating System: Energy (kWh/year), dual efficiency rating system: efficiency rating (grade) 1 to 5 stars (5 best) AND lowest & highest energy consumption for similar products.

Program Information: Indonesia had been actively working on an energy label for refrigerators since 1996. The scheme was developed by the Centre for Energy Studies at the University of Indonesia and is administered by the DGEED. The label is an interesting hybrid as it combines both dial (these are in fact displayed horizontally, rather than an arc) and bar style features, showing stars for efficiency (5 = best, 1 = worst) and a bar graph displaying the energy use of the particular model relative to other models on the market. The label also indicates energy consumption (kWh/year) and the average energy price per year. The University of Indonesia undertakes the task of testing the energy consumption of refrigerators.

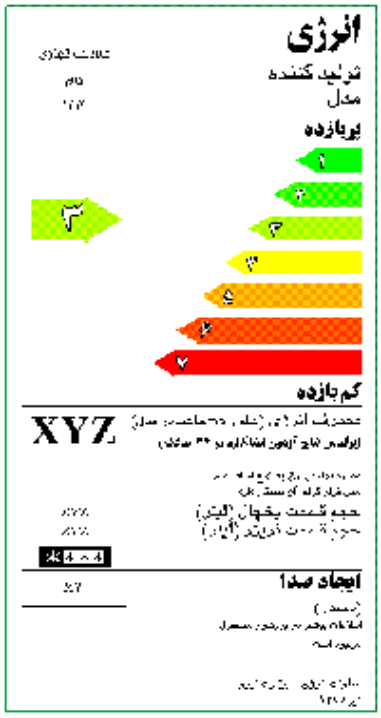
References - Indonesia

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

www.djlpe.go.id/ - Direktorat Jenderal Listrik Dan Pemanfaatan Energi (Directorate General of Electricity and Energy Utilisation) (Indonesian)

Iran

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 MEPS.



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: 1998 - refrigerators, refrigerator-freezers

1999 – evaporative coolers

Rating System: Energy (kWh/year), efficiency rating (grade) 7 to 1 (1 best) (Persian)

Program Information: Iran had been developing an energy labelling program for refrigerators for some years. The intent of the program is 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.

Minimum Energy Performance Standards - Iran

Minimum Energy Performance Standards for refrigerators were implemented in 1998 and for Evaporative Coolers in 1999. 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 MEPS since 1999 with the intent of restricting the import of inefficient vapour compression compressors. MEPS 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 import of compressors and their compliance with the MEPS. 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.

Minimum Energy Performance Standards, Iran

Product Description	Year Implemented
Refrigerators and/or Refrigerator-Freezers	1998
Evaporative Coolers	1999
Hermetic Compressors	1999

References - Iran

www.iranenergy.org - Ministry of Energy

www.saba.org.ir - Iran Energy Efficiency Organisation IEEO - SABA

Israel

Labelling and MEPS 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 and labels in January 2001. Regulations for Refrigerators and Freezers has already been presented to parliament and draft legislation has been prepared for Clothes Washers, Clothes Dryers, Ranges/Ovens, Water Heaters and Fans.

Comparative Label - Israel

Program Name: Energy Label

Implementing Agency: Standards Institution of Israel (SII) and the Ministry for National Infrastructure

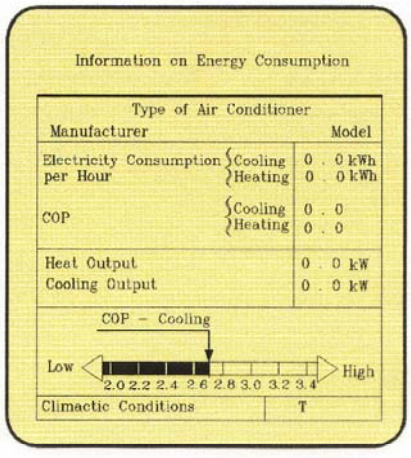
Participation Category: Mandatory/Voluntary

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

1986 – clothes washer, freezer, lamps (voluntary), ranges/ovens, refrigerators, refrigerator-freezers, space heater (electric), water heater (solar, electric)

1989 – fans (voluntary)

1990 – dishwasher



Rating System: Energy Consumption, Energy along energy consumption scale showing best and worse on the market..

Program Information: Currently the SII is responsible for all aspects of the program with the exception of Room Air Conditioners. All products, whether manufactured or imported, are required to be labelled.

Minimum Energy Performance Standards - Israel

Currently the SII is responsible for all aspects of the program with the exception of Room Air conditioners. Standards are gradually being enacted into law and upgraded. Currently the mandatory standard for air-conditioners is (COP) 2.4 as of 2002 it will be (COP) 2.6.

Minimum Energy Performance Standards, Israel

Product Description	Year Implemented
Air Conditioners (Room)	1985
Clothes Washer	1986
Dishwasher	1990
Fans	1989
Freezer	1986
Lamps	1986
Lamps Fluorescent Tubes	1985
Ranges/Ovens	1986
Refrigerators and/or Refrigerator-Freezers	1986
Space heater	1987
Water Heater (Solar and Electric)	1986

References - Israel

http://sii.org.il/neweng/eng.htm - Standards Institution of Israel (SII)

www.mni.gov.il/ - Ministry of National Infrastructure

Jamaica

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. According to the Government's Energy Policy, the program will be extended to all appliances that use electricity. Currently there is no MEPS legislation in Jamaica.

Comparative Label - Jamaica

Program Name: Ener$ave Jamaica

Implementing Agency: Bureau of Standards, Jamaica

Participation Category: Mandatory

Appliances Labelled: 1997 – Freezers, Refrigerator, Refrigerator-freezers

Rating System: Annual Energy Operating Cost and Consumption

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 to reduce their own energy costs but also so as 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 43.3 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

www.pcj.com/energy_policy.htm - The Petroleum Corporation of Jamaica

Japan

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 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. 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 MEPS 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.

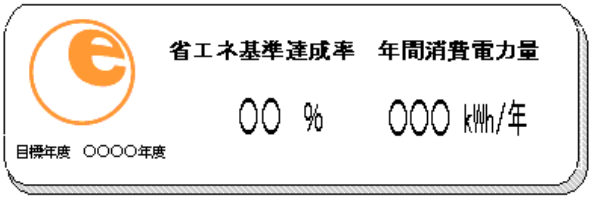
Comparative Label - Japan

Program Name: Energy Saving Labelling Program

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

Participation Category: Voluntary

Appliances Labelled: 2000 - air conditioners, freezers, lighting fixtures, refrigerators, refrigerator-freezers, televisions.



2003 - ranges/ovens (gas), space heaters, toilet seats, transformers (oil/moulded or dry type), water heaters (gas & oil).

Rating: 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).

Program Information: Japan's new label allows consumers to ascertain how an appliance fairs in relation to the Top Runner Standard (See MEPS below). 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, administer 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. Although the label is voluntary, the program has been very successful with 100% of manufacturers using the label in catalogues during 2003.

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. These include the following products (in addition to those covered above): vending machines, transformers, VCRs, magnetic (hard) disks, computers, copiers, passenger and freight vehicles.

Endorsement Label – Japan

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

Endorsement Label – Japan

Program Name: Eco Mark Program

Implementing Agency: Japan Environment Association (JEA)

Participation Category: Voluntary

Appliances Labelled: 1990 – Solar Hot Water heater

1999 – photocopier

2000 – Computers

2001 – printers

Program Information: The Eco Mark Program is the responsibility of the Japanese Environment authority and is administered by the Japan Environment Association. The program had been running since 1989 however office equipment is a recent addition. Over 170 products in these categories have already been granted labels.

Minimum 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 gearing up to meet the targets. When the target year is reached, new target levels can be reviewed and established.

Top Runner: Products Covered and Target Years, Japan

Product Description	Top Runner Target Year
Air Conditioners – cooling only	2007 *
Air Conditioners – reverse cycle > 4kW	2007 *
Air Conditioners – reverse cycle ≤4 kW	2004 *
Fluorescent lights	2005
Televisions	2003
VCR	2003
Photocopiers	2006
Computers	2005
Magnetic disk drives (computer hard drives – see **)	2005
Refrigerators, Refrigerator-freezers	2004
Space Heaters	2006
Ranges/Ovens (Gas)	2006
Water Heaters (Gas & Oil)	2006
Toilet Seats	2006
Distribution Transformers to 7kV (oil filled)	2006
Distribution Transformers to 7kV ("moulded" or dry type)	2007
Vending Machines	2005
Petrol & LPG passenger vehicles	2010
Diesel passenger vehicles and freight vehicles	2005
Petrol freight vehicles	2010

Note: Target years are generally Japanese fiscal years commencing on 1 April of the year shown.
* The exception appears to be air conditioners which start 1 October of the year shown.

** Magnetic disk drives are hard drives for computers with more than 1GB RAM where the drives are larger than 40mm diameter and where data transfer speeds do not exceed 3.2GB/s

References - Japan

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

www.eccj.or.jp/indexu.html - Energy Conservation Centre Japan (ECCJ)

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

www.jisc.org - Japan Industrial Standards Committee (JISC)

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

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

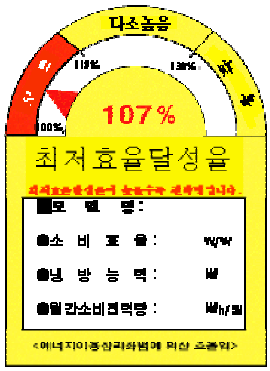
Korea

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 three labelling programs and an extensive MEPS agenda, covering a broad range of appliances.

The administration for the labelling and MEPS programs is essentially the same. The Ministry of Commerce, Industry and Energy (MOCIE) 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. There are eight laboratories/research institutes that provide testing facilities for the programs. Once the test centres establish product efficiency it becomes the manufacturer/importers responsibility to report the level to KEMCO. KEMCO randomly tests appliances in both factories and retail outlets each year. The government is investigating the program to include electric rice cookers, electric radiant heaters, and electric water heaters. Cars also carry an energy label in Korea (similar format to electrical products).

Korea is unusual as it 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.

Comparative Label - Korea



Program Name: Energy Efficiency Rating Labelling Program

Implementing Agency: Korea Energy Management Corporation (KEMCO)

Participation Category: Mandatory

Appliances Labelled: 1992 - lamps (fluorescent, incandescent), refrigerators, refrigerator-freezers
1993 - air conditioners (central, heat pumps, room)
1994 – ballasts (fluorescent)
1999 – linear fluorescent lamps
2000 - clothes washer
2001 – gas furnaces (domestic space heaters and boilers).
2002 – dishwashers, water dispensers (hot and cold)
2004 – rice cooker, kimchi fridge, CFL

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

Program Information: The program has a dial style label which rates appliance efficiency 5 to 1 with 1 being the most efficient. The rating is calculated by assessing the ratio of the appliance's energy consumption compared to the Minimum Energy Performance Standard, which is equivalent to a rating of 1 (See MEPS below). Labels must be adhered to all products and mentioned in all advertising. Products must also include instructions on how to use the appliance efficiently. The MEPS level is regularly reviewed and once in force, this becomes rating level 5. The best rating (1) is called the Target Energy Performance Standard (TEPS). Often the TEPS level becomes the future MEPS level. Over the years, Korea has continued to introduce very aggressive MEPS levels for air conditioners and refrigerators. Because of this, the label for these products has been changed in 2004. The new label (used for these 2 products only) has only three grades which translate as "moderate" (exceeds MEPS by not more than 15%), "high" (exceeds MEPS by 15% to 30%) and "very high" (exceeds MEPS by more than 30%). The precise rating (% that the model exceeds MEPS) is shown in the label dial.

Endorsement Label - Korea

Program Name: Certification of high energy efficiency appliance program

Implementing Agency: Korea Energy Management Corporation (KEMCO)

Participation Category: Voluntary

Appliances Labelled (since December 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

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 authorized test institute are submitted with the application. 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. Non-compliance is penalized with public notification and removal of certification..

Endorsement Label - Korea

Program Name: Energy-saving office equipment & home electronics program

Implementing Agency: Korea Energy Management Corporation

Participation Category: Voluntary

Appliances Labelled Began 1999 - Computers, Fax Machine, Monitors, Photocopiers, Printers, Televisions, VCRs, all-in-one systems, combination printer/fax machine, microwave oven, TV/VCR Combination unit, DVD players, scanners, Battery rechargers.

Labelling System: "Energy Boy" endorsement

Program Information: Apart from the mandatory energy labelling, there is a voluntary "Energy Boy" label, which is an endorsement label for electronic equipment. The equipment eligibility requirements are mostly the same as the International ENERGY STAR® program. The program is administered by KEMCO.

Endorsement Label - Korea

Program Name: Energy Winner

Implementing Agency: Citizens' Alliance for Consumer Protection of Korea (CACPK)

Participation Category: Voluntary

Appliances Labelled Began in 1997 - There are 5 broad award categories: "Green Appliances" (boilers, washing machines, dishwashers); "Green Lighting", "Energy Efficient Cars", "Green Buildings" & "Energy Efficient Activities".

Labelling System: "Energy Winner" endorsement label

Program Information: The Korea Energy Winner Award is an annual prize awarded to energy efficient products and was founded in 1997. The objective was to alleviate a nationwide energy inefficiency crisis, ease the economic and environmental burden caused by energy waste and increase the production and consumption of energy efficient products, thereby ensuring the promise of sustainable energy. This campaign is led by CACPK's Energy Efficiency and Conservation Committee, which is comprised of Korea's top 25 professionals in the field of energy with strong participation from the media. Consumers, media, and professionals in relevant fields evaluate products, systems and energy efficiency activities when assessing nominations for an award. There are currently 5 award categories which cover 41 products, systems, and activities. The selection criteria are innovation, appropriateness, energy efficiency, economics and potential for energy conservation of the product. To encourage consumers to purchase eligible products, the award logo can be used on the product (as an endorsement label – see above) and in their advertisements.

Minimum Energy Performance Standards - Korea

In 1992 the Ministry of Commerce, Industry and Energy (MOCIE) was authorised to set MEPS 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 Korean government publishes two energy efficiency levels for each product. The less stringent value defines the MEPS level – no product less efficient than this may be sold after the date the levels take effect (the MEPS defines the bottom of efficiency rating 5). The more stringent value is the "target" (Target Energy Performance Standards or TEPS). The energy ratings for the comparative energy labels are defined in relation to the "target" values – the target value equates to an efficiency rating of 1 (most efficient). When the MEPS levels are made more stringent the target levels are also made more stringent – often the old target value becomes the new MEPS level. The aim of the MEPS is to eliminate the most inefficient models from the market while the targets are to encourage manufacturers to continually increase the efficiency of products. MEPS are updated regularly in Korea – typically on a 3 to 5 year cycle.

Minimum Energy Performance Standards, Korea

Product Description	Year Implemented	Year Updated
Air Conditioners (Room)	1993	1997, 2001, 2004
Ballasts	1994	1995, 2000, 2004
Clothes Washers	2002	2004
Dishwasher	2002	2004
Freezers	2004	
Kim-Chi Fridge	2004	
Lamps Fluorescent	1992	1997, 2000, 2004
Lamps Incandescent	1992	1997, 2003
Refrigerators and/or Refrigerator-Freezers	1992	1997, 2001, 2004
Rice Cooker	2004	
Space Heater (Domestic Gas Boiler)	2001	2003
Vacuum pump	2004	
Water Dispenser (Hot And Cold)	2002	

Standby Program - Korea

Korea is one of the few countries that have specified separate standby power targets for a wide range of products. Energy-saving Office Equipment & Home Electronics Program has been implemented since April 1, 1999 to enhance the spread of the energy saving products that decrease electric energy consumption during standby, based on the Article 13 of 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 & Home Electronics. The purpose of the program is to save standby power consumption systematically by encouraging manufacturers to 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), voluntarily. Specifically, it is a voluntary agreement program where manufacturers guarantee that energy saving products under their own brand name meet the efficiency specifications of KEMCO.

The now program covers 17 items: Computers, Monitors, Printers, Fax Machines, Copiers, Scanners, Multifunction Devices, Energy Saving & Controlling Devices, Televisions, Videocassette Recorders, Home Audio Products, DVD Players, Microwave Ovens, Battery Chargers, Power supplies, Set-top boxes, and door phones (also known as intercoms). The first 14 products were included in the original program while the last 3 were included for the first time in the program revision in January 2004 (MOCIE notification No. 2004-7, 20 January 2004). New target levels and dates have been included for existing products in the 2004 update.

References - Korea

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

www.mocie.go.kr - Ministry of Commerce Industry and Energy (MOCIE)

www.ats.go.kr - Agency for Technology and Standards

www.unescap.org/enrd/energy/compend/ceccontents.htm - 1999 Economic and Social Commission for Asia and the Pacific, ESCAP. *Compendium on Energy Conservation Legislation in Countries of the Asia and Pacific Region*

www.cacpk.org - Citizens' Alliance for Consumer Protection of Korea

Malaysia

The Ministry of Energy, Telecommunications and Multimedia (METM) is responsible for the implementation of energy efficiency policies in Malaysia. Under the METM, the Energy Commission (ST) oversees energy policy formulation and any energy efficiency activities. Malaysia is currently working on a voluntary labelling program for refrigerators, freezers, fans and air conditioners. Malaysia has begun the task of introducing MEPS and has developed testing standards for energy performance tests of various electrical products, which reference ISO and IEC test standards. Malaysia has surplus capacity and currently exports energy resources and products.

Comparative Label - Malaysia

Program Name: Energy Labelling Program

Implementing Agency: Suruhanjaya Tenaga (ST) (Energy Commission)

Participation Category: Voluntary

Appliances Labelled: 2004 – refrigerators and freezers

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

Program Information: The labelling program for refrigerators and freezers is expected to be launched in mid 2004, with air conditioners and fans following shortly after. The program was given a boost in December 2003 with five manufacturers signing a voluntary agreement to phase out inefficient refrigerators and promote efficient units.

Minimum Energy Performance Standards - Malaysia

Malaysia has introduced mandatory efficiency standards for ballasts and voluntary standards for electric motors. MEPS for refrigerators, fans and air conditioners are in the final stages of development, however no decision as to whether they will be mandatory or voluntary has been made yet.

Minimum Energy Performance Standards, Malaysia

Product Description	Year Implemented
Ballasts Fluorescent (mandatory)	1999
Motors (voluntary)	1989

References - Malaysia

www.dsm.gov.my - Department of Standards Malaysia

www.st.gov.my - Suruhanjaya Tenaga (ST) (Energy Commission)

www.ptm.org.my - Pusat Tenaga Malaysia (Malaysian Energy Centre)

Mexico

Mexico's interest in labelling and standards programs is inspired by a desire to reduce the growing demand for electricity. The implementation of energy efficiency labelling and MEPS is very advanced. Whilst USA experience has provided a base, the Mexican programs have been developed in response to local requirements. Currently there are two labelling programs and a large range of MEPS. The Secretaria de Energia (Ministry of Energy) oversees several organizations that share responsibility for the programs.

Comparative Label - Mexico

Program Name:

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

Participation Category: Mandatory

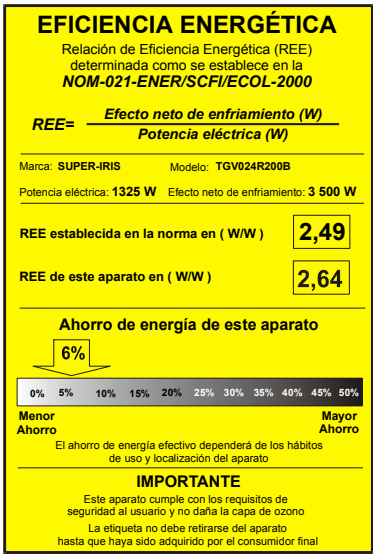
Appliances Labelled: 1995 - air conditioners (room & central), refrigerators and/or refrigerator-freezers, pumps (centrifugal residential)

1996 – ballasts

1998 - air conditioners (central), lamps

2000 – non-residential buildings, clothes washers

2001- commercial refrigerators, water heaters



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 MEPS 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 style shown here. New products which were labelled also used this style. The new style shows the MEPS level, the energy consumption of the labelled appliance with a bar showing the savings relative to the MEPS Level (the higher the % saving, the better).

Program Information: Under the government MEPS scheme (see information below) appliances must be assessed for energy efficiency. Those products that require efficiency labels are rated as part of this process. The label for refrigerators shows how efficient the appliance is in comparison to one operating at the MEPS 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, Refrigerator-Freezers, Televisions, motors, electronic sensors, clothes washers, air compressors.

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 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 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, cancellation of certification, etc. 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.

Minimum 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 Compulsory, 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 Energy Savings Commission* (CONAE) (Comisión Nacional de Ahorro de 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 MEPS 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 MEPS and/or labelling requirements. The CONAE is now in charge of verifying compliance; which due to its limited budget, is operating at a reduced level. 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/is reviewing many of its MEPS levels in an attempt to harmonize with the USA and Canada. (See table below) CONAE has developed MEPS for tortilla making machines.

Minimum Energy Performance Standards, Mexico

Product Description	Year Implemented	Year Updated
Air Conditioners Central	1998	2002*
Air Conditioners Room	1995	2002*
Air conditioners (Split-system central and heat pumps)	1996	2002*
Boiler	1995	Cancelled
Clothes Washers	1996	2000
Lamps – Compact fluorescent	1998	
Luminaries Cobra Head type	1996	
Electric Motors (single and three phase)	1998	2004*
Pump – Centrifugal residential	1996	2004
Refrigerator and/or Refrigerator-Freezer	1995	2002*
Transformers	1997	
Water Heaters	1995	2000
Tortilla Machines	2004	

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

References - Mexico

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

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

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

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

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

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

New Zealand

New Zealand, while setting programs independently, has worked in close conjunction 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. The test procedures, comparative labelling and MEPS requirements for appliances are mostly contained in joint Australian and New Zealand standards. For most products, the same manufacturers and importers supply both markets. On 15 May 2000 the NZ Parliament passed the *Energy Efficiency and Conservation Act*. This gave the government the power to make labelling mandatory and set MEPS 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. MEPS also became mandatory for some products in July 2002 with further products being covered in February 2003.

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 organization that is responsible for implementing MfE energy efficiency and conservation policy.

Comparative Label - New Zealand

Program Name: Star Rating Scheme

Implementing Agency: EECA

Participation Category: Mandatory

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

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

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. For more information regarding the labels, see **Australia** page 2.

Comparative Label - New Zealand

Program Name: *WaterMark*

Implementing Agency: Electrical Development Association

Participation Category: Voluntary (essentially inoperative)

Appliances Labelled: 1991 – electric storage water heaters

Rating System: A – D (A Best)

Program Information: In 1991 the NZ Electricity Development Association (EDA) introduced the "WaterMark" label for electric storage water heaters. While not mandatory, the label enjoyed high coverage because the major utilities and manufacturers support it. The label rated the insulation level of the Hot Water Unit with A best and D worst. Some electricity suppliers offered cheaper rates for the installation of A grade models. Most models on the market are now B or higher. The EDA ceased to exist in about 1999 so the scheme has fallen into disuse in recent times.

Endorsement Label - New Zealand

New Zealand is an international partner of the ENERGY STAR® program. See International ENERGY STAR® page 48.

Minimum Energy Performance Standards - New Zealand

In 2001 the New Zealand government introduced building regulations that specified MEPS for water heaters installed in all new residential buildings and extensions/renovations that require building approval. The MEPS levels specified are at a less stringent level than those specified in the test standard, while supplies of foam blowing agents for insulation for use by local manufacturers are secured. MEPS for Air Conditioners, Lamps, Freezers, Refrigerators and Motors became mandatory in July 2002. MEPS for domestic electric storage water heaters and fluorescent lighting ballasts were introduced in February 2003. MEPS levels for ballasts

were originally more stringent than Australia, but these have recently been revised to be harmonised. MEPS levels for water heaters are different from Australia for the time being. For other products, Australia and New Zealand are working towards harmonised requirements (levels and timing). New Zealand are yet to announce formal coverage of new MEPS products in 2004 (transformers, commercial refrigeration, single phase air conditioners), but this is expected.

Minimum Energy Performance Standards, New Zealand

Product Description	Year Implemented
Air conditioners - packaged (three phase to 65 kW cooling)	2002
Ballasts	2003
Fluorescent Lamps	2002
Three Phase Electric Motors	2002
Refrigerators, Refrigerator-freezers and/or Freezers	2002
Electric Storage Water Heaters	2003

References - New Zealand

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

www.mfe.govt.nz - Ministry for the Environment (MfE)

www.standards.co.nz - Standards New Zealand

Norway

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) was 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 in the Energy Act on 1 January 2002 introduced a new model for financing and organizing 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. The Energy Fund is managed by Enova The requirement of the distribution utilities to promote energy efficiency was removed.

In 2002 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; &
- 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 and Norway also has a parallel MEPS program. Norway also 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.

Comparative Label - Norway

See page 14 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

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, while in Iceland and Denmark environmental labelling is under the Ministry of Environment. 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.

Minimum Energy Performance Standards - Norway

See page 14 European Union for more details.

Implementing Agency: Norwegian Water and Energy Directorate (NVE)

Participation Category: Mandatory

Appliances with MEPS: Same as Europe, implementation dates may differ.

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)

www.ecolabel.no - Nordic EcoLabel

www.enova.no – ENOVA website

http://secretariat.efta.int/Web/EuropeanEconomicArea/introduction - EFTA website

Peru

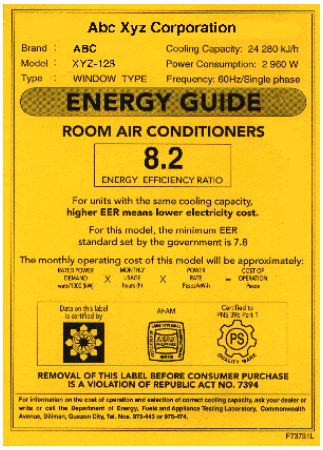
The Peruvian Government passed a law in 2000 allowing for mandatory energy efficiency labelling for all energy consuming equipment and products. The Technical Standards Committee for the Rational Use of Energy and Energy Efficiency (CTNUREEE) is currently developing the program. The law also called for efficiency standards, which the National Institute of Competition Preservation and Protection of Intellectual Property (INDECOPI) has scheduled as part of its 2003 program. The standards will cover motors, industrial boilers, refrigerators, electric water heaters and lamps.

References - Peru

www.indecopi.gob.pe - National Institute of Competition Preservation and Protection of Intellectual Property (INDECOPI)

Philippines

In July 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 October 1993, this program became mandatory and by June 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 this will be mandatory by 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. There is a plan to eventually include other industrial equipment in the labelling program. The agency, in coordination with BPS, has completed a proposal for industrial fans and blower but implementation can not begin until the test facility is completed.



Comparative Label - Philippines

Program Name: Philippine Appliance Energy Standards And Labelling Program

Implementing Agency: Department of Energy (DOE), Bureau of Product Standards (BPS) and Association of Home Appliance Manufacturers (AHAM).

Participation Category: Mandatory

Appliances Labelled: 1993 – air conditioners (room)

2000 – refrigerators, refrigerator-freezers freezers.

2001 – air conditioners (split)

2002 – compact fluorescent lamps

2003 – fluorescent lamp ballasts (ferromagnetic only) - see adjacent label (initially voluntary)

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)

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. Consumers can use this information to compare products if they wish. The label also shows the minimum efficiency requirement (MEPS) for that size and type of air conditioner. Labels also show a range of other data such as rated voltage/frequency, and capacity or volume. See MEPS below for information on administration of the program.

Minimum Energy Performance Standards - Philippines

The Philippines MEPS program also developed in the early 1990's and currently covers all types of room air conditioners. MEPS for fluorescent lamp ballasts were implemented in January 2002 followed later that year by MEPS for CFLs. MEPS for refrigerators and industrial fans and blowers are under consideration.

Minimum Energy Performance Standards, Philippines

Product Description	Year Implemented
Air Conditioners Room (split systems)	2002
Air Conditioners Room (window wall)	1993/4
Fluorescent Lamp Ballast (ferromagnetic)	2002
CFL	2002

The BPS and DOE jointly administer the energy standards and labelling program. Both monitor compliance by way of regular inspection of dealer stores and drawing of test samples from the manufacturer's warehouse. It is required that all models are tested twice a year. Inspection reports of dealer stores conducted by BPS and DOE are submitted to DOE-FATL (Fuel and Appliance Test Laboratory) for compliance evaluation quarterly. Manufacturers who are found to be not complying with the energy labelling component of the program are penalized by BPS. Models that do not pass the MEPS component are not allowed to be distributed in the market. Penalties are more severe if a manufacturer is caught distributing models that did not pass the MEPS. Before the

initiation of the program, only half of the annual sales volume for small-sized window-type air conditioners met the MEPS level, and none of the larger units did. By forcing these units off the market, the program had an immediate and pronounced effect.

References - Philippines

www.doe.gov.ph - Department of Energy (DOE)

www.dti.gov.ph - Department of Trade and Industry including the Bureau of Product Standards

Russia

Russia has high energy consumption and increasing energy prices, making energy efficiency a potentially valued tool. However, energy prices remain very low which provides few incentives to pursue energy efficiency. Russia began taking energy conservation action in 1976 (it is was still part of the USSR) and it introduced energy efficiency standards for ovens in 1983. This program was expanded and revised several times since, giving Russia a long list of appliances that are required to meet MEPS, with the last updates in 1987 and 1991.

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 use of IEC and ISO test procedures. Revised MEPS and voluntary labelling were introduced for refrigerators in January 2001 (through GOST P 51388) and this standard also envisages labelling for a wide range of products such as gas and electric appliances, lamps, insulation products and cars. However, it appears at this stage, the program has not progressed beyond refrigerators on a voluntary basis. The style of energy label to be used is similar to the European Union.

Minimum Energy Performance Standards - Russia

Four agencies were involved in the development of Russia's MEPS program. 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. Mostly of the MEPS are mandatory, although many of the requirements are probably dated.

Minimum Energy Performance Standards, Russia

Product Description	Year Implemented
Air Conditioners (window, split-type and ducted)	1999
Air conditioners Room	1986
Audio - Domestic sound frequency signal amplifiers	1990
Computers	1989
Dishwashers	1987
Freezers	1987
Graphical input devices	1989
Monitors	1989
Printers	1989
Ranges/Ovens	1983
Refrigerators and/or refrigerator-freezers	1987 (2001)
Televisions	1989
Water heaters Electric	1984

References - Russia

www.gost.ru - GOSTANDART

www.cenef.ru - Centre for Energy Efficiency

www.energy.ru - Energy Russia (including Links to Ministry)

Saudi Arabia

Saudi Arabia has recently introduced MEPS for Air Conditioners. More information is still being sought.

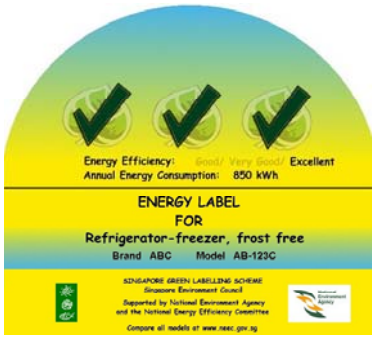
References

www.saso.org.sa - Saudi Arabian Standards Organization (SASO)

Singapore

Singapore's energy efficiency program is divided between two ministries. The Ministry of Trade and Industry (MTI) oversees the Public Utilities Board (PUB) and the Singapore Productivity and Standards Board (PSB). PUB is currently responsible for the regulation of the electricity industry. PUB is Singapore's standards organisation and is responsible for the design and implementation of standards. The Singapore Environment Council operates an energy labelling program and an eco labelling program with an energy efficient component. Singapore also has an accelerated depreciation allowance for selected energy efficiency equipment types.

Comparative Label - Singapore



Program Name: ***Energy Label***

Implementing Agency: Singapore Environment Council (SEC)

Participation Category: Voluntary

Appliances Labelled: 2002 – air conditioners (room, central, split), freezers, refrigerators, refrigerator-freezers

Rating System: Energy (kWh/year), EER

Program Information: The National Energy Efficiency Committee (NEEC) launched the Singapore Energy Labelling Scheme in 2002. The program is administered by the Singapore Environment Council (SEC), household appliances such as refrigerators and air-conditioners will be labelled with Energy Labels. Refrigerators, Freezers and air-conditioners were selected for the program as they account for between 40-65% of the average household electricity bill in Singapore. Other household appliances such as washing machines, water heaters and dishwashers will be included at a later stage. The label uses a three-tick system rating appliance from good to very good to excellent comparative to other models in the market. Annual Energy Consumption is also displayed on the label.

Endorsement Label - Singapore

Program Name: Green Labelling Scheme

Implementing Agency: Singapore Environment Council (SEC)

Participation Category: Voluntary

Appliances Labelled: 1993 - lamps

1994 - clothes washers

1995 - computers and monitors

1998 - air-conditioning (central, room), refrigerators and refrigerator-freezers

Program Information: The MoE launched The Singapore Green Labelling Scheme in May 1992 later handing over control to the SEC. The scheme was introduced to promote the use of a broad range of environment-friendly products. It covers 30 different product groups, excluding only foods, drinks, and pharmaceuticals. In 1993 the scheme expanded to include energy-consuming products. To obtain a Green Label, products must not exceed set levels of energy consumption. The Electrical & Electronics Test Centre (EETC) performs energy consumption tests for the regulated products.

Minimum Energy Performance Standards - Singapore

The Singapore Productivity and Standards Board (PSB), operating under the MTI designs and implements most energy standards for electrical equipment in Singapore. There is currently no dedicated MEPS program however, an energy efficiency standard for window-type room air-conditioners requires models of 9,000 Btu and greater (≥ 2.6 kW) to achieve an EER of at least 8.0 (metric 2.34 W/W). No other mandatory energy efficiency regulations exist.

Minimum Energy Performance Standards, Singapore

Product Description	Year Implemented
Air Conditioners Room	1998

References - Singapore

www.sec.org.sg - Singapore Environment Council (SEC)

www.neec.gov.sg - National Energy Efficiency Committee (NEEC)

www.psb.gov.sg - Singapore Productivity and Standards Board (PSB)

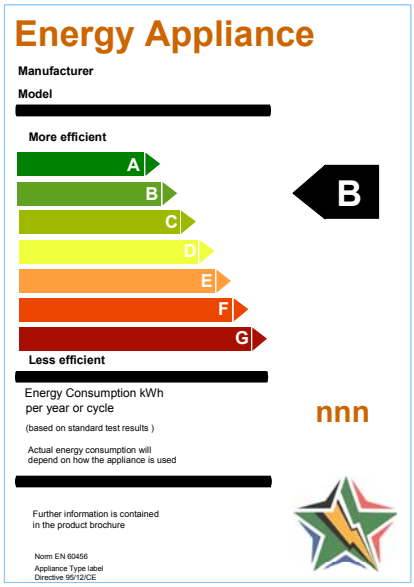
www.mti.gov.sg - Ministry of Trade and Industry (MTI)

www.pub.gov.sg - Public Utilities Board (PUB)

South 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. The residential sector program includes building standards for housing, appliance energy labelling, information & awareness, lighting program and non-electric appliances.

On 11 May 2004, the Deputy Minerals and Energy Minister, Lulama Xingwana, 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 also use the same test procedures and energy labelling equations as Europe, 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 will start on a voluntary basis initially, probably in late 2004 but is likely to become mandatory once the Energy Bill is passed. The south Africa Bureau of Standards (SABS) is likely to be 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.



References – South Africa

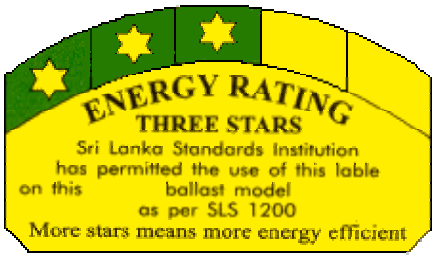
www.dme.gov.za – Department of Minerals and Energy, South Africa

www.dme.gov.za/publications/cabeere_project.htm - CaBEERE project

Sri Lanka

In April 2003 the Ceylon Electricity Board in partnership with Sri Lanka Standards Institution (SLSI) launched a voluntary energy rating label. At present there is no MEPS program in Sri Lanka.

Comparative Label – Sri Lanka



Program Name: Energy Efficiency Labelling Scheme

Implementing Agency: Sri Lanka Standards Institute (SLSI)

Participation Category: Voluntary

Appliances Labelled: 2003 – Ballasts, CFL's

Rating System: Energy (kWh/year)

Program Information: The program uses a star rating label with 1 being the least efficient category and 5 being the most efficient. After 3 months eight companies have already began labelling their products. From 2004 only lighting products with a rating of 3 stars or more will be able to use the label. The program is hoping to launch labels for refrigerators and freezers by the end of 2004. Additionally the SLSI is assisting USAID to replicate the program in Nepal.

References – Sri Lanka

www.nsf.ac.lk/slsi/energylabel.htm - Sri Lankan Standards Institute (SLSI)

www.dailymirror.lk/2003/04/19/ft/4.html - Daily Mirror Sri Lanka

Switzerland

In the 1990's Switzerland's Energy 2000 program developed voluntary targets for household appliances, office equipment and home electronics. The legislation allowed for MEPS 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 consumed 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. The remainder of the Energy 2000 program under went 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 was on 31 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). 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 page 14 European Union for more details.

Implementing Agency: Swiss Federal Office of Energy (SFOE)

Voluntary Endorsement Label - Switzerland

See European Union page 14.

Endorsement Label - Switzerland

Program Name: Energy Awareness

Implementing Agency: Swiss Federal Office of Energy (SFOE)

Participation Category: Voluntary

Program Information: The 'Energy Awareness' label will be used to distinguish energy efficient products and services. No other details are available at present

References - Switzerland

www.energieagentur.ch - Swiss Agency for Efficient Energy Use (SAFE)

www.suisse-energie.ch - Swiss Energy and Swiss Federal Office of Energy (SFOE)

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

As Chinese Taipei imports the majority of its energy, the benefits of energy efficiency programs have great potential. While there is not currently a formal comparative labelling program, product rating plates (which contain basic information on the appliance such as brand and serial number) on appliances and equipment are required to show energy consumption data for clothes washers, refrigerators and air conditioners. In 1998 the government announced it would introduce a formal comparative program and investigations into this are currently being undertaken. In 2001 he Energy Commission in the Ministry of Economic Affairs (MOEA) introduced a voluntary endorsement energy label program that covers 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. The government has also expressed interest in adopting other arms of the program such as household electrical products and appliances. MOEA also developed the country's MEPS program and is responsible for the Bureau of Standards Metrology and Inspection and Taiwan Power (the electricity Utility).

Endorsement Label - Chinese Taipei

Program Name: Energy Conservation Label

Implementing Agency: Energy Commission

Participation Category: Voluntary

Appliances Labelled: 2001 - air conditioners clothes dryer dehumidifiers refrigerators

2002 - clothes washers, electric fans, lamps, televisions

2003 – hair dryers, hand dryers

Program Information: In 2001 the Energy Conservation label was launched. The program is run by the Energy Label Committee, which is headed up by the Executive Secretary of the Energy Commission. The committee sets the benchmarks for products with most being on average 15% higher than the national MEPS level. In late 2003 159 models from 18 different manufacturers are using the label.

Endorsement Label - Chinese Taipei

Program Name: Greenmark

Implementing Agency: Environment and Development Foundation (EDF)

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 and/or refrigerator-freezers, televisions, transformers, water heaters, induction cooker, clothes dryer, solar water heater, dehumidifiers, copiers, dishwasher.

Program Information: In August 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.

Endorsement Label - Chinese Taipei

Chinese Taipei is an international ENERGY STAR® partner. See International ENERGY STAR® page 48.

Minimum Energy Performance Standards - Chinese Taipei

The Energy Commission in the Ministry of Economic Affairs (MOEA) has developed MEPS for a number of products. In most cases the energy tests are detailed in Chinese National Standards (CNS) of Chinese Taipei, and the MEPS 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.

Minimum Energy Performance Standards, Chinese Taipei

Product Description	Year Implemented
Air Conditioners Room (unitary and split-type)	1991
Fluorescent Lamp	1993
Boilers	2003
Chillers	2003
Fans Electric (Table, Floor, Hanging, Ventilation)	1982
Motors	1981
Ranges/Ovens	1999
Refrigerators and/or Refrigerator-Freezers	1996
Rice Cookers	1999
Water Heaters Electric Storage	1989

References - Chinese Taipei

www.energylabel.org.tw - Energy Conservation Label (Chinese)

www.greenmark.itri.org.tw – Greenmark Labelling Program

www.moeaec.gov.tw - Energy Commission

www.bsmi.gov.tw - Standards Metrology and Inspection

www.moea.gov.tw - Ministry of Economic Affairs

www.taipower.com.tw - Taiwan Power

Meng Ching-hwa 2003 'The Energy Label Program and Policies of Chinese Taipei', paper presented at the APEC Energy Labelling Seminar, Kaohsiung, Chinese Taipei from 17-19 November 2003

Thailand

Thailand passed its Demand Side Management (DSM) Master Plan in 1991 and its the Energy Conservation Promotion Act, 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 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. MEPS have been passed for several products (refrigerators, freezers, air conditioners, motors, fluorescent-tube lamps and ballasts) but have not yet taken effect.

Comparative Label - Thailand

Program Name:

Implementing Agency: Electricity Generating Authority of Thailand (EGAT).

Participation Category: Voluntary

Appliances Labelled: 1994 - refrigerators, refrigerator-freezers,
1995 - room air conditioners
1996 - ballasts

Rating System: Energy consumption (RF kWh/year, AC power), rating 1 to 5 (5 best)

Program Information: Appliance energy labelling in Thailand is operated by the electricity utility (Electricity Generating Authority of Thailand - EGAT) and it 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. EGAT has secured the voluntary participation of the 5 local refrigerator manufacturers and 55 local air conditioner manufacturers. The refrigerator label shows energy consumption as kWh/year while the air conditioner label displays power efficiency. Additional products that are labelled under the DSM program include brown rice[1] (1999), low loss ballasts (2000), CFLs with service life > 8,000 hours (2002), electric fans (2002), and rice cookers (launched on 29 July 2004). The ballast label is very small and looks like a comparison label (same format as other appliances), but in fact has no performance or energy data so its operation is similar to an endorsement label (only a rating of 5 is available).

Endorsement Label - Thailand

Program Name: Energy Label

Implementing Agency: Electricity Generating Authority of Thailand (EGAT).

Participation Category: Voluntary

Appliances Labelled: 1996 - motors

Program Information: EGAT launched a high-efficiency motors (HEM) program offering interest-free loans in 1996. In an effort to assist industry with the purchasing decision a voluntary green labeling program was also launched.

Endorsement Label - Thailand

Program Name: Green Labelling Scheme

Implementing Agency: Thailand Environment Institute (TEI)

Participation Category: Voluntary

Appliances Labelled: Began in 1994 – air conditioners, ballasts, clothes washers, computers, lamps, motors, refrigerators, photocopiers.

Program Information: Thailand Business Council for Sustainable Development (TBCSD) developed the idea for the green labelling scheme in 1992. In 1994 the Thailand Environment Institute (TEI), a private not for profit organization had the program operational. It is currently controlled by the Thai Green Label board, which consists of representatives from government departments industry associations and interest groups. TISI, NEPO, and EGAT are all involved in supporting the scheme. There is a strong emphasis on energy efficiency criteria for energy using products seeking a green label. As of August 2004, labels have been issued for 140 models in 15 product categories, including paint, lamps, insulation, etc. There are criteria for 32 product categories, and more are being developed.

[1] Note: Brown rice (the food) carries an energy label as it uses less energy to process compared to white rice and there are also health benefits from the added fibre, vitamins, and minerals.

References - Thailand

www.egat.or.th - Electricity Generating Authority Thailand (EGAT)

www.moste.go.th - Ministry of Science, Technology and Environment (MoSTE)

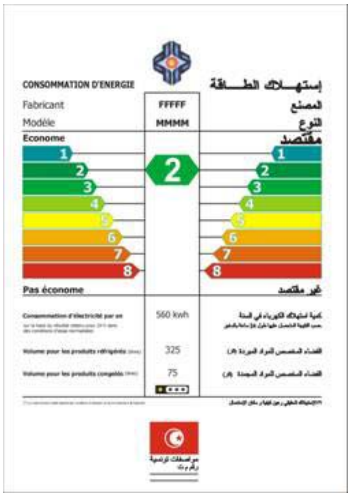
www.eppo.go.th - Energy Policy and Planning Office (EPPO)

www.tisi.go.th - Thai Industrial Standards Institute

www.tei.or.th - Thailand Environment Institute (TEI)

www.ecct-th.org - Energy Conservation Centre of Thailand

Tunisia



Tunisia introduced mandatory labels for refrigerators in 2004 to be 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 minimum energy performance standards are to be phased 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 lable class B), or better.

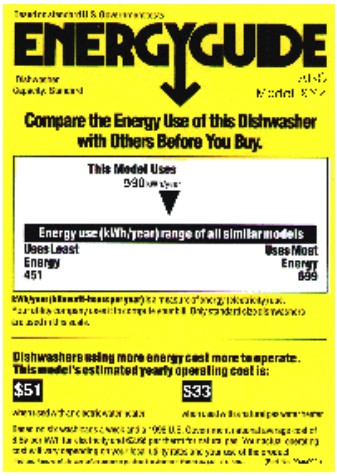
The Agence Nationale des Energies Renouvelables (ANER) is responsible for the program, which was sponsored by the GEF. To ensure conformity with the programs requirements all refrigerators sold on the Tunisian market must have their energy performance certified at the national test laboratory operated 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.

www.gefweb.org/operport/msp/tunisia.doc - Summary of Tunisian Labelling Project

USA

The US Federal government has passed four 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 in this area had precedence over individual state laws. Many states had begun prescribing MEPS 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 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 act also directed DOE to support a voluntary office equipment program (ENERGY STAR®). 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. 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 organization has also established an eco label, which endorses energy efficient products.

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

Rating System: Energy (kWh/year), operating cost and lowest & highest energy used for similar products (EER and or SEER for air conditioners).

Program Information: The FTC is responsible for the design, implementation and compliance of this program. The National Institute of Standards and Technology (NIST) is responsible for the test procedures. 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. There is a proposal to update the label to be more consumer friendly, based on extensive consumer research in the USA, but an implementation date (if any) is not clear at this stage.

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, monitors

1993 – printers

1994 – fax machines

1995 – air conditioners (central), copiers, furnaces, heat pumps, transformers

1996 - air conditioners (room), dishwashers refrigerators

1997 – clothes washers, MFD's, residential lighting products, scanners.

1998 – TV's, VCR's

1999 – audio products, CFL's, DVDs

Other products now covered – commercial refrigeration, dehumidifiers, phone products, set top boxes, ceiling fans, geothermal heat pumps, programmable thermostats, ventilation fans, exit signs, traffic signals, commercial fryers, commercial food holding cabinets, commercial steamers, roofing products, room air cleaners, vending machines, water coolers, windows, doors and skylights.

Program Information: The ENERGY STAR® endorsement label was launched in 1992. 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 MEPS 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 household electronic equipment such as video cassette recorders, 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 MEPS 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

Program Information: Green Seal is a non-profit organization, 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 display 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".

Minimum Energy Performance Standards - USA

The US Department of Energy (DOE) is required by legislation to set MEPS for a wide range of nominated products. Additionally, those products which are not covered by MEPS but which consume more than a specified amount of energy are also to be considered for MEPS. However, MEPS can only be set after a prescribed process of research and consultation, and the MEPS levels must be demonstrated to be technically feasible and cost-effective. MEPS levels are reviewed by the DOE from time to time, and higher levels are set if the analysis justifies a revision. Federal MEPS 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 MEPS rules. Canada and, to a lesser extent, Mexico, have harmonised their MEPS 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.

Minimum Energy Performance Standards, USA

Product Description	Source	Year Implemented	Updates
Air conditioners, Central	NAECA	1992	2006
Air conditioners, Room	NAECA	1990	2000
Air conditioners, Large packaged – air source	EP Act	1995	
Air conditioners, Large packaged – water source/cooled	EP Act	1995	2004
Air conditioners, Small packaged – air source	EP Act	1994	
Air conditioners, Small packaged – water source/cooled	EP Act	1994	2003
Air conditioners, Packaged terminal and heat pumps	EP Act	1994	
Ballasts, Fluorescent Lamp	NAECA	1990	2005, 2010
Boilers, packaged	EP Act	1994	
Clothes dryers	NAECA	1988	1994
Clothes washers	NAECA	1988	1994, 2004, 2007
Dishwashers	NAECA	1988	1994
Furnaces, residential	NAECA	1992	

Product Description	Source	Year Implemented	Updates
Furnaces, mobile home	NAECA	1990	
Furnaces, warm air (commercial)	EP Act	1994	2003
Heating equipment, direct	NAECA	1990	
Lamps, Fluorescent	NAECA	1994/5	
Lamps, Incandescent reflector	NAECA	1995	
Microwave		Ceased (a)	Ceased (a)
Motors	EP Act	1997	
Pool heaters	NAECA	1990	
Ranges/Ovens	NAECA	1990	
Refrigerators & freezers	NAECA	1990	1993, 2001
Water heaters, residential	NAECA	1990	2004 (b)
Water heaters, commercial (includes storage tanks)	EP Act	1994	2003

(a) A DOE rule indicated MEPS for microwaves, ovens and ranges were not justified so MEPS will not apply.

(b) An update to the water heater rule in 1991 was to take into account a change in test procedure.

Priority areas for new and revised MEPS rules by the US Department of Energy in 2004 are for distribution transformers, small and large packed air conditioners (air sourced) and residential furnaces.

Standby – USA

Standby requirements for a wide range of products have been included in the ENERGY STAR® program for many years in the USA. However, participation in ENERGY STAR® is voluntary. On 9 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.

On 31 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 are continuing to expand.

References - USA

www.eere.energy.gov/EE/buildings_appliances.html - DOE Labelling Page

www.energystar.gov - ENERGY STAR®

www.nist.gov - National Institute of Standards and Technology

www.greenseal.org - Green Seal

www.eere.energy.gov/femp - Federal Energy Management Program

http://oahu.lbl.gov/index.html - Standby Power Data Centre (submit or search for low standby products)

www.eere.energy.gov/buildings/appliance_standards/ - US DOE Appliance and Equipment Standards

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 Australia, New Zealand, Chinese Taipei, European Union and Canada. These countries 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 which covers most of the products covered within the US domestic ENERGY STAR® program. Additionally, other countries have established their own endorsement label programs using the ENERGY STAR® criteria (eg Korea). For more details see USA page 45. The ENERGY STAR® label image was updated in 2002 (the new image is below – various versions are available).

Endorsement Label

Program Name: International ENERGY STAR®

Implementing Agency: US Department of Energy and the US Environmental Protection Agency in conjunction with international partners.

Commencement Date: 1995 – Japan
1999 – Australia and New Zealand
2000 – Chinese Taipei, European Union
2001 – Canada*

Participation Category: Voluntary

Appliances Labelled: Note that product coverage varies by country:
1992 – computers, monitors
1993 – printers
1994 - fax machines
1995 – copiers
1997 – MFD's, scanners

** Canada uses the full list of appliances covered by the USA program.*

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 page 45 for more details.

References

www.energystar.gov - Energy Star USA

www.energystar.gov.au Energy Star Australian & New Zealand

www.eccj.or.jp/ene-star/english/prog/ - Energy Star Japan

http://soloman.epa.gov.tw/english/offices/k/estar.htm - Energy Star Chinese Taipei 2000

http://energyefficiency.jrc.cec.eu.int/energystar/ - Energy Star European Union

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

ASEAN Efficiency Label

ASEAN is the Association of South East Asian Nations and encompasses Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam. The association is developing a voluntary endorsement label program that will be able to be used throughout the region. Planning is well under way and it is hoped the label will be launched for ballasts during 2004/2005, for refrigerators in 2005/2006 and for Air Conditioners, Motors and Electric Fans between 2006 and 2009.

References

Sinsukprasert, P. 2003, 'ASEAN Energy Standard and Labelling: Update and Plan' paper presented at the APEC Energy Labelling Seminar, Kaohsiung, Chinese Taipei from 17-19 November 2003.