



**Asia-Pacific
Economic Cooperation**

2011/SOM1/EWG/EGEEC/004

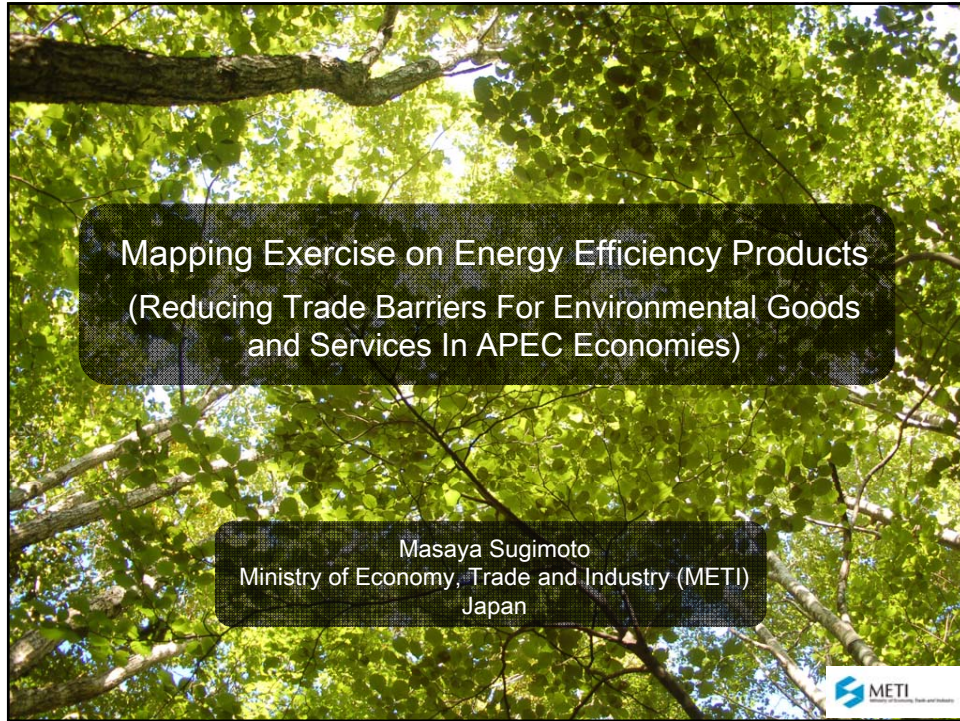
Agenda: D1 3-1

**Mapping Exercise on Energy Efficiency Products -
Reducing Trade Barriers for Environmental Goods
and Services in APEC Economies**

Submitted by: Japan



**37th Expert Group on Energy Efficiency and
Conservation Meeting
Washington, D.C., United States
28 February - 2 March 2011**



1. Project Overview

(1) Background

- Many economies work independently to establish national policies and standards for Environmental Goods and Services (EGS).
- Differing standards create barriers to trade and require higher costs for trading among APEC economies.
- Alignment, or harmonization, of various standards and test methods for EGS among APEC economies could contribute to the promotion of EGS

1. Project Overview

(2) Objective

This Mapping Exercise is;

to clarify non-tariff barriers (NTBs) with regard to energy efficiency standards, labeling, and testing procedures of key (7) electric appliances, by analyzing their convergences and divergences, based on the updated information on the APEC Energy efficiency standards Information System (ESIS) database and APEC members government websites.

1. Project Overview

(3) Methodology

A. Researcher

ICF International, in partnership with China Quality Mark Certification Group Product Certification Co., Ltd

B. The scope of the research (key electric appliances)

- Air Conditioners
- Refrigerators & Freezers
- Domestic & Commercial Lighting
- Computers & Monitors
- Televisions
- Clothes Washers & Dryers
- Water Heaters

C. Research Procedure

- (a) Conducted desk research and interviews
- (b) Developed a matrix for each economy and cross-economy matrix for each selected product category
- (c) Developed key findings and recommendations

1. Project Overview

(4) Relevance to APEC priorities

- EGS Workshop in July 2009 (MAG)
- AMM Joint Statement in November 2009
- Conference on Standards and Conformance for Green Harmonization in September 2010 (SCSC/EGEE&C joint project)
- AMM Joint Statement, Yokohama Vision and The APEC Leaders' Growth Strategy in November 2010
- Priorities of APEC 2011

2.Product-by-Product Analysis

(1) Air Conditioners (a) Room ACs



Standard and Label

- 15 economies have mandatory standards.
(Australia, Canada, Chile, China, Hong Kong, Indonesia, Japan, Mexico, New Zealand, Singapore, Chinese Taipei, Thailand, the Philippines, the United States, and Vietnam)
- Some economies have multiple standards
(in total, 19 mandatory standards, 16 mandatory labels, and 13 voluntary label programs.)

Test Standards

- Test Standards ISO 5151 have been used by 6 economies
(Chile, Hong Kong, Malaysia, Singapore, Thailand, the Philippines, Australia, New Zealand, Canada, China, the United States, and Japan)

Recommendations

- A benchmarking approach is recommended.
- Regarding the harmonization, it can be stated from test standards.
- However, further in-depth analysis is recommended to compare the technical parameters within each individual economy's test standards.

2.Product-by-Product Analysis

(1) Air Conditioners (b) Central ACs



Standard and Label

- 8 economies have mandatory standards and labels.
(Australia, China, Japan, Korea, Mexico, New Zealand, Chinese Taipei and the US)
- Those 8 economies have 17 mandatory standards, 11 mandatory labels, and 15 voluntary labels for various central AC products

Test Standards

- Each economy has its individual test procedure for Central ACs.

Recommendations

- With regard to the harmonization, it can be stated from test standards
- Further in-depth analysis is recommended to compare the technical parameters within each individual economy's test standards.

2.Product-by-Product Analysis

(2) Refrigerators and Freezers

(a) Household refrigerators and/or freezers



Standard and Label

- 13 economies have mandatory standards
(Australia, Canada, China, Indonesia, Japan, Korea, Mexico, New Zealand, Peru, Chinese Taipei, Thailand, Philippines and the United States)
- 15 economies have set up mandatory labels, and 12 economies have voluntary labeling programs for household refrigerators and/or freezers.
- In addition, 2 economies are developing mandatory standards. (Russia, Singapore.) And Brunei Darussalam has started developing a voluntary scheme.

Test Standards

- Test standards ISO 15502 and new IEC standard IEC 62552 have been referenced or directly adopted by eight economies
(Chile, China, Indonesia, Hong Kong, Philippines, Korea, Singapore and Thailand).

Recommendations

- Wide adaptation of ISO and IEC standards in existing standards indicate the possibility of test standard harmonization between these members, and economies that are developing standards and label for refrigerators/freezers.

2.Product-by-Product Analysis

(2) Refrigerators and Freezers

(b) Commercial refrigeration equipment



Standard and Label

- 6 economies have launched mandatory standards.
(Australia, Canada, Mexico, New Zealand, Korea, and the US)
- 3 economies have launched mandatory labels.
(Mexico, Korea and the US)
- 2 economies are developing MEPS standards
(China and Thailand)
- 2 economies have voluntary label programs (ENERGY STAR)
(Canada and the US)

Test Standards

- Minimal convergence exists among economies.
- However, this may suggest a potential focal area for harmonization, since many other members have not developed test standards yet.

Recommendations

- Compared with household refrigeration appliance standards and labels, commercial equipment is new in the market, but has great potential in the APEC region. This stage allows for greater up-front collaboration in development of test methods and standards and labels.

2.Product-by-Product Analysis

(3) Domestic and Commercial lighting (a) Compact Fluorescent Lamps (CFLs)



Standard and Label

- 8 economies have mandatory standards and labels.
(Australia, Canada, China, Japan, Peru, Chinese Taipei, the Philippines and the US.
- 12 economies have set up voluntary labeling programs.
(Canada, China, Hong Kong, China, Japan, New Zealand, Korea, Mexico, Chinese Taipei, Thailand, the Philippines, the US and Vietnam)

Test Standards

- Many economies have developed their own individual test standards.
(e.g., AS/NZS 4847.1 in Australia, CSA C861-06 in Canada) for power and luminous flux testing and IES LM65-01 for lifetime testing.
- But there is the convergence between Chile, China, Hong Kong, China, Thailand, and the Philippines, who have all adopted or referenced IEC standard IEC 60969.

Recommendations

- Wide adaptation of IEC standards above indicates the possibility of test standard harmonization between these members and suggests a common approach for economies currently developing or considering developing standards.

2.Product-by-Product Analysis

(3) Domestic and Commercial lighting (b) Fluorescent Lamps



Standard and Label

- 10 members have mandatory standards
(Australia, Canada, China, Japan, Korea, New Zealand, Peru, Chinese Taipei, the Philippines and the US).
- 7 economies have mandatory label programs
(Canada, Chile, Japan, Peru, Korea, the Philippines and the US)
- 11 economies have voluntary labeling programs.
(Australia, Canada, Chile, China, Japan, New Zealand, Korea, Mexico, Thailand, the Philippines and the US)

Test Standards

- There is minimum convergence. Each economy has developed its own test method.
- Only a few economies (China, Chile, the Philippines) reference IEC standards, including IEC 60901 and IEC 60081.

Recommendations

- IEC standards may provide opportunities to harmonize test methods.
- Economies could start with streamlining the product category definition.

2.Product-by-Product Analysis

(3) Domestic and Commercial lighting (c) Incandescent Lamps



Standard and Label

- 6 economies have issued mandatory standards (Australia, Canada, Korea, Chinese Taipei, the Philippines, and the US)
- 4 economies launched mandatory label programs. (Canada, Chile, Korea, and the US)
- No economy has voluntary labels.

Test Standards

- Existing standards use different test standards.
- Economies developed their own test methods for specific incandescent lamps.
- There is minimal convergence on test standards.

Recommendations

- Referencing or adopting existing international test standards will provide increased opportunities for international trade of Incandescent lamps.

2.Product-by-Product Analysis

(3) Domestic and Commercial lighting (d) High Intensity Discharge (HID) Lamps



Standard and Label

- 5 economies have launched energy efficiency standards and label programs. (China, US, Philippines, Korea and Mexico)

Test Standards

- Only The Philippines has adopted IEC series test standards for its Mandatory Label program.
- There is slight convergence between existing programs.

Recommendations

- Compared to the large market and wide-use of HID lamps, the energy efficiency standard or energy efficiency labeling program is not developing as fast as needed to regulate the market.
- However, this also provides a good opportunity for those economies that do not have standards or labels to work together to develop or adopt harmonized test standards and further energy efficiency standards.

2.Product-by-Product Analysis

(3) Domestic and Commercial lighting (e) Solid State Lighting (SSL)



Standard and Label

- Only 4 economies launched voluntary labeling programs (Malaysia, Korea, Mexico and the US have)
- There is no mandatory standard in the place.

Test Standards

- There is not any convergence in terms of test standards.
- IEC has published serious standards, and the US has also issued several standards for testing (e.g. IESNA LM-79-08 Electrical and Photometric Measurement of Solid State Lighting Products and IESNA LM-80-08)

Recommendations

- The harmonization can be less complicated and easier if is started at the early stage of technology APEC groups can also actively facilitate the harmonization, and lead the efforts, as appropriate, to collaborate with other international organizations.

2.Product-by-Product Analysis

(3) Domestic and Commercial lighting (f) Ballasts



Standard and Label

- 7 economies have mandatory labels. (Australia, Canada, China, Malaysia, New Zealand, Korea, and Chinese Taipei)
- 7 economies have voluntary programs. (China, Malaysia, Korea, Mexico, Thailand, Philippines and Vietnam)

Test Standards

- 4 economies are adopting or partially adopting IEC 60929: AC-supplied electronic ballasts for tubular fluorescent lamps - Performance requirements for their test standards, although each refers to different versions. (Australia, Malaysia, Philippines and Vietnam)

Recommendations

- IEC has published a series of standards which have been adopted or referenced by some APEC economies, and this brings a common foundation for test standard harmonization.
- For those that are developing or about to develop standards for FL ballasts, the IEC standards are good references to think about. In addition, harmonizing the evaluation metric is also important.

2.Product-by-Product Analysis

(4) Computers and Monitors (a) Computers



Standard and Label

- Few APEC economies have established mandatory programs other than Korea's warning label and Japan's Top Runner program (mandatory standard)
- 5 economies have introduced ENERGY STAR as a voluntary label (Australia, Canada, Japan, New Zealand, and the US)
- 3 economies have developed their own voluntary programs. (China, Hong Kong, and Korea)
- Thailand is developing the MEPS and HEPS.2 economies are considering launching programs. (Philippines and Indonesia)

Test Standards

- US EPA test methods are widely adopted across member economies.
- Only 2 economies use their own test methods.
- Korea adopts IEC 62301.

Recommendations

- There is existing convergence in computer standards among the APEC economies, which presents a unique opportunity for APEC to facilitate further harmonization.
- Most economies have programs involving US EPA test methods, it is recommended that other member economies follow suit.

2.Product-by-Product Analysis

(4) Computers and Monitors (b) Monitors



Standard and Label

- 4 economies adopted ENERGY STAR as a voluntary label (Australia, Japan, New Zealand, and the US)
- 6 economies have developed their own voluntary programs. (China, Hong Kong, China, Korea, Mexico, Chinese Taipei, and Thailand)

Test Standards

- Similar to computers, US EPA test methods are widely adopted across member economies.
- Korea and Thailand adopt the IEC 62301 standard
- Chinese Taipei utilizes a combination of IEC and ENERGY STAR test methods.
- Only 3 economies have their own test methods (China, Hong Kong and Mexico)

Recommendations

- There is existing convergence in computer standards among the APEC economies, which presents a unique opportunity for APEC to facilitate further harmonization. This can start from first harmonizing the modes of energy use, then the levels of energy efficiency.
- It is recommended any other economy who is considering launching a program adopt test standards from either EPA or IEC, given their prevalence in existing programs.

2.Product-by-Product Analysis

(5) Televisions



Standard and Label

- 3 economies have mandatory standard (Australia, China and Japan)
- 4 economies are considering mandatory standards (Indonesia, Russia, Thailand and the Philippines)
- 4 economies developed a mandatory label (Australia, China, Japan and Korea)
- Canada is developing mandatory label that will become effective in 2011
- 11 economies have voluntary labeling scheme (Canada, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, Chinese Taipei, Thailand and the US)
- The ENERGY STAR program is also used for three economies(the US, Canada, and New Zealand)
- Mexico also has an independent voluntary label for TV receivers.

Test Standards

- IEC standards (IEC62087, 62301, and 60107-1) are partly referenced or directly adopted by existing standards.

Recommendations

- Reference IEC standards is the basic foundation of further harmonization efforts.

2.Product-by-Product Analysis

(6) Clothes Washers and Dryers

(a) Clothes Washers



Standard and Label

- 12 economies have created mandatory standards and labels
- The Philippines are developing mandatory standards and labels.
- 7 economies have voluntary standards and labels (Canada, China, Hong Kong, Mexico, New Zealand, Chinese Taipei and the US. Among them, Canada, New Zealand and the US share the ENERGY STAR program with their own modifications while the other three utilize their individual programs)

Test Standards

- Most economies have developed their own test standards, incorporating some parameters from international standards.
- Hong Kong, Indonesia, Korea, Malaysia and Chinese Taipei directly adopt IEC 60456 or the Japan Industrial Standard (JIS) 9606/9608, or both, as their test methods.

Recommendations

- There is minimal convergence among the APEC group as a whole in terms of the standards, test procedures, product scopes and energy efficiency levels.

2.Product-by-Product Analysis

(6) Clothes Washers and Dryers (b) Clothes Dryer



Standard and Label

- 2 economies have introduced mandatory standards (Canada and the US)
- 4 economies have mandatory labels (Australia, Canada, New Zealand and Singapore)
- The Philippines is considering developing a mandatory program, the US is revising the current standard, and Thailand has been developing both MEPS and HEPS.
- 3 economies issued Voluntary labels (Hong Kong, China, Chinese Taipei and the United States)

Test Standards

- Hong Kong and Singapore adopt IEC 61121 as their test standard
- Other economies have their own test procedures.

Recommendations

- Current practices generally diverge between two groups of economies: the Hong Kong-Singapore group and the US-Canada group, in terms of test method, product scope definition, and energy efficiency calculation.
- As their differences are quite distinct, it will be difficult to make these two groups converge. However, if other APEC members intend to develop a mandatory or voluntary program, they could choose to follow either group's practices, depending according to the region they are more likely to trade with.

2.Product-by-Product Analysis

(7) Water Heaters (a) Electric Water Heating



Standard and Label

- 8 economies have mandatory standards
- 4 economies have mandatory labels (China, Korea, Peru and the US).
- 8 economies have established voluntary labels and four of them (Canada, China, New Zealand and the US) – also set specific voluntary criteria for solar-powered heaters.
- 2 economies (The Philippines and Brunei) are considering developing a program.
- In Australia, an agreement has been reached to phase-out electric water heaters in residential homes.

Test Standards

- Almost all member economies have their own test procedures, but there is no clear indication of adopting a common international standard.
- Australia and New Zealand share a common standard for the mandatory program, but NZ developed a separate test standard for the voluntary program for solar heaters..
- The exception is Hong Kong, who did not develop its own test standard, but rather borrowed methods from a European standard (EN), a Chinese standard (GB), and a Japanese standard (JIA).

2.Product-by-Product Analysis

(7) Water Heaters

(a) Electric Water Heating



Recommendations

- There is minimal convergence in terms of the standards, test procedures, product scopes and energy efficiency levels.
- However, since less than half of APEC economies have a standard or label for electric water heaters, harmonization can begin with those who are planning to develop such programs.
- Solar water heaters, as a relatively new product, offers an exceptional opportunity for harmonization, but there is a need to first coordinate product definition and energy performance parameters among the several existing voluntary programs.

2.Product-by-Product Analysis

(7) Water Heaters

(b) Gas and/or Oil-Fired Water Heating



Standard and Label

- 5 economies have introduced a mandatory label (China, Japan, Korea, Mexico and the US)
- 7 economies have created voluntary labels for gas water heaters, and 4 economies have voluntary labels for oil-fired heaters. (Canada and Japan have programs for both heaters)

Test Standards

- Almost all member economies have their own test procedures and there is no clear indication of adopting a common international standard.
- The exception is Hong Kong, China, who did not develop its own test standard, but rather borrowed methods from a European standard (EN), a Chinese standard (GB), and a Japanese standard (JIA).

Recommendations

- For gas and oil-fired water heaters, there is minimal convergence in terms of the standards, test procedures, product scopes and energy efficiency levels.
- However, since less than half of APEC economies have a standard or label for these types of water heaters, harmonization can begin with those who are planning to develop such programs. There is a need to first coordinate product definition and energy performance parameters among the several existing programs.

for reference 1: Summary Matrix of Mandatory Standard

Table 19 Summary of Mandatory Standard

Product	Australia	Brunei Darussalam	Canada	Chile	China	Hong Kong, China	Indonesia	Japan	Malaysia	Mexico	New Zealand	Papua New Guinea	Peru	Korea	Russia	Singapore	Chinese Taipei	Thailand	The Philippines	The United States	Vietnam
Air Conditioners – Room	M	M	M	M	M		M	M	M	M				M			M	M	M	M	
Air Conditioners – Central	M	M	M	M	M			M	M	M							M	M	M	M	
Refrigerators/Freezers - Household	M	M	M	M	M		M	M	M	M		M	M	U	M	M	M	M	M	M	
Commercial Refrigeration	M	M	M				M	U	M	M							M	U	M	M	
Compact Fluorescent Lamps	M	M	M	M	M			M	M	M			M				M	V	M	M	
Fluorescent Lamps	M	M	M	M	M			M			M		M	M			M	V	M	M	
Incandescent Lamps	M	M											M				M		M	M	
HID Lamps				M																	M
Solid State Lighting																					
Ceiling Fan Lighting Kits			M																		M
Integrated Lamps																					
Lighting Systems for Public Areas									M												
Torchiere			M																		M
Light Fixtures																					
Lighting Sensor equipment																					
Reflectors																					
Ballasts	M	M	M	M					M	M			M				M				
Computers	U				U		U	M											U	U	
Monitors	U			M			U														
Televisions	M	M	M	M	M		U	M						U				U	U		
Clothes Washers			M	M	M		M			M			M					U	U	M	
Clothes Dryer			M															U	U	M	
Water Heaters - Electric	M	M	M	M	U	U		U		M		M	M				M	U		M	
Water Heaters - Gas	U	M	M							M							M				M
Water Heaters - Oil-Fired			M					M	M								M				

Legend: M – Mandatory Standard V – Voluntary Standard U – Under development T – To be further researched

for reference 2: Summary Matrix of Labeling Standard

Table 20 Summary of Labeling Programs

Product	Australia	Brunei Darussalam	Canada	Chile	China	Hong Kong, China	Indonesia	Japan	Malaysia	Mexico	New Zealand	Papua New Guinea	Peru	Korea	Russia	Singapore	Chinese Taipei	Thailand	The Philippines	The United States	
Air Conditioners - Room	M	V		M	V	M	V	V	M	V	M	V	M	V	M	V	M	V	M	V	M
Air Conditioners - Central	M	V		M	V	M	V	V	M	V	M	V	M	V	M	V	M	V	M	V	M
Refrigerators - Household	M	V	U	M	V	M	V	V	M	V	M	V	M	V	U	V	M	M	M	V	M
Commercial Refrigeration				M	V	M	V		U												
Compact Fluorescent Lamps				M	V	M	V		M	V	V	V		M				U	V	V	M
Fluorescent Lamps				M	V	M	V		M	V	V	V		M				U	V	V	M
Incandescent Lamps				M	V	M	V		M	V	V	V		M				U	V	V	M
HID Lamps						M	V				V	V		M						M	M
Solid State Lighting										V	V	V									
Ceiling Fan Lighting Kits				V							V	V									M
Integrated Lamps				V							V	V						V			M
Lighting Systems for Public Areas																					
Torchiere				V																	
Light Fixtures										V											M
Lighting Sensor equipment										V											M
Reflectors				V		V	V			V									V	M	M
Ballasts				V		V	V			V											
Computers	U	V		V		V	V		M	V	V	V		M	V				V	V	
Monitors	U	V				M	V	V		V	V	V		M	V				V	V	
Televisions	M			U	V	M	V	V	V	M	V	V		M	V			V	V		M
Clothes Washers	M			U	V	M	V	V	V	M	V	V		M	V			V	V		M
Clothes Dryer	M			U	V	M	V	V	V	M	V	V		M	V			V	V		M
Water Heaters - Electric			U	V	M	V	V	U		V	V		M	M	V			V			M
Water Heaters - Gas	U			M	V	M	V	V	M	V	V			M	V			V			M
Water Heaters - Oil-Fired				M	V	M	V	V	M	V	V				V			V			M

Legend: M – Mandatory Label V – Voluntary Label U – Under development T – To be further researched

Key Findings

- Dual approach to address energy efficiency across various product categories. (Mandatory approach vs Voluntary approach)
- Many economies refer to (but do not completely adopt) international test standards.
- Voluntary labels are used by most APEC economies, but applicability varies.
- ENERGY STAR voluntary labels are used by some APEC economies.
- Australia and New Zealand has a successful harmonization in Standards and Labeling program.
- Few economies' domestic energy policies support energy standard harmonization.

Recommendations

(1) Policy Recommendations

- APEC should play an important role in the alignment and the harmonization of energy efficiency standards and programs
- APEC should collaborate with key international organizations (such as IEA, IEC, and ISO) and involves relevant stakeholders (e.g., industry representatives)
- APEC should focus on capacity building and training to build S&L capacity for developing economies
- APEC should encourage APEC economies to adopt existing international standards and test methods.
- APEC should encourage APEC economies to utilize the APEC ESIS website for knowledge-sharing and the increase of transparency to energy efficiency standards and labeling.

Recommendations

(2) Technical Recommendation

- Test standards harmonization is an important and necessary first step.
- To harmonize conformity assessment mechanisms is also important.

(3) Other thoughts

- Development of “APEC Benchmarking Metrics” as a common metric and clear comparable scheme would be considered, but very challenging
- Mutual Recognition of Energy Efficiency Standards among APEC economies would help reduce the trade barrier.
- Harmonization of Energy Efficiency Standards is possibly the most effective option.

For the Next Step

According to this mapping report;

“Further in-depth research” should be pursued, especially in the sector of test standards and conformity assessments (the least divergence, therefore, most possible area for harmonization).

That “Further in-depth research” should estimate convergences and divergences in test standards and conformity assessments of each APEC economies and relevant international organizations, for the assessment of the future possibility for harmonization.

Sources

Australia Mandatory MEPS and ERLs: Department of Climate Change and Energy Efficiency, <http://www.energyrating.gov.au/>

ENERGY STAR Label: Department of the Environment, Water, Heritage and the Arts, <http://www.energystar.gov.au/>

Brunei Darussalam Voluntary Label: Energy Division, Prime Minister's Office, http://www.energy.gov.bn:81/index.php?option=com_content&view=article&id=238&Itemid=89

Canada MEPS & Mandatory Label: Office of Energy Efficiency www.oeenrcan.gc.ca
Voluntary Label: Energy Star in Canada, Office of Energy Efficiency <http://www.oeenrcan.gc.ca/energystar/>

Chile Mandatory Label: Superintendencia de Electricidad y Combustibles (SEC - Superintendency of Electricity and Fuels) http://www.sec.cl/portal/page?_pageid=33_3397595_33_3401553&_dad=portal&_schema=PORTAL

China MEPS & Mandatory Label: China Energy Label Management Center, China National Institute of Standardization, <http://www.energylabel.gov.cn/index.aspx>
Voluntary Label: China Quality Certification Center, <http://www.cqc.com.cn>

Hong Kong, China Mandatory Label: Electrical and Mechanical Services Department, http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml
Voluntary Label: Electrical and Mechanical Services Department, http://www.emsd.gov.hk/emsd/eng/pee/eels_vlntry.shtml

Indonesia MEPS & Label: Compendium of Energy Efficiency Policies of APEC Economies, 2010, Asia Pacific Energy Research Centre, Institute of Energy Economics, Japan, posted on the website at www.ieej.or.jp/aperc.

Japan Top Runner Program & Mandatory Label, and Voluntary Label:
Asia Energy Efficiency and Conservation Collaboration Center, of The Energy Conservation Center, Japan: <http://www.asiaeec-col.eccj.or.jp/index.html>
Top Runner Program: http://www.asiaeec-col.eccj.or.jp/top_runner/index.html
Final Reports on the Top Runner Target Product Standards: http://www.eccj.or.jp/top_runner/

Korea MEPS & Labels: Korea's Energy Standards & Labeling, KEMCO, http://www.kemco.or.kr/new_eng/pg02/pg02100101.asp

Malaysia MEPS: SIRIM Berhad (formerly known as the Standards and Industrial Research Institute of Malaysia) <https://www.msonline.gov.my/default.php>
Voluntary Labels: Suruhanjaya Tenaga (ST) (Energy Commission) http://www.st.gov.my/index.php?option=com_content&view=article&id=5242&Itemid=4217&lang=en
Pusat Tenaga Malaysia (Malaysian Energy Centre) <http://www.ptm.org.my/index.php/energy/energy-efficiency/energy-rating-labelling.html>

Sources

Mexico MEPS & Mandatory Label: Comisión Nacional para el Ahorro de Energía (Conae) (CONAE - National Energy Savings Commission) http://www.conae.gob.mx/wb/CONAE/CONA_1002_nom_publicadas_vigen
Voluntary Label: La Comisión Federal de Electricidad <http://fide.codice.com/home/subhome.asp?seccion=3>

New Zealand MEPS & Labels: Energy Efficiency and Conservation Authority <http://www.eeca.govt.nz/standards-and-ratings/minimum-energy-performance-standards-and-labelling>
ENERGY STAR: Energy Efficiency and Conservation Authority <http://www.eeca.govt.nz/suppliers-and-partners/energy-star-partners/energy-star-product-specifications>

Peru MEPS & Mandatory Label: Ministerio de Energías y Minas (Ministry of Energy and Mining) <http://siee.minem.gob.pe/index.php?path=MQ==>

Russia Compendium of Energy Efficiency Policies of APEC Economies, 2010, Asia-Pacific Energy Research Centre, Institute of Energy Economics, Japan, posted on the website at www.ieej.or.jp/aperc

Singapore Mandatory Label: National Environment Agency, http://app.nea.gov.sg/cms/htdocs/category_sub.asp?cid=258

Chinese Taipei MEPS http://www.apec-esis.org/countrysummary_sl.php?country=Chinese%20Taipei&ID=260
Voluntary Label: Bureau of Energy, Ministry of Economic Affairs, http://www.energylabel.org.tw/index_en.asp

Thailand MEPS: Thai Industrial Standards Institute (TISI), <http://www.tisi.go.th/eng/index.php> Electric Labels: Electricity Generating Authority of Thailand (EGAT), <http://www2.egal.co.th/labelNo5/> MEPS, HEPS and Non-electric Labels: Department of Alternative Energy Development and Efficiency (DEDE) <http://www.dede.go.th>

Philippines MEPS & Labels: Department of Energy, <http://www.doe.gov.ph/EE/EfficiencyStandards.htm>
Bureau of Product Standards <http://www.bps.dti.gov.ph/> ELI: <http://www.efficientlighting.net/>

United States MEPS & Mandatory Label: Appliance Standards Awareness Project-Federal Standards: <http://www.standardsasap.org/federal.htm>
Building Technologies Program, of Energy Efficiency & Renewable Energy, US Department of Energy http://www1.eere.energy.gov/buildings/appliance_standards/
Part 430-Energy Conservation Program for Consumer Products, at Electronic Code of Federal Regulations: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tp=ecfrbrowse/Title10/10cfr430_main_02.tpl
Part 431- Energy Efficiency Program for Certain Commercial and Industrial Equipment, at Electronic Code of Federal Regulations: <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=38d58540923a1b1ec3a7eda9b9203085&rgn=div5&view=text&node=10:3.0.1.4.17&idno=10>
Energy Savers, of Energy Efficiency & Renewable Energy, US Department of Energy: <http://www.energysavers.gov/tips/>
Energy & Environment, Federal Trade Commission, Bureau of Consumer Protection: <http://www.ftc.gov/appliances/>
Voluntary Label: ENERGY STAR Program, US Environmental Protection Agency, & US Department

Vietnam MEPS & Labels: Vietnam Energy Efficient Public Lighting (VEEPL), <http://www.veepl.vast.ac.vn/>
Directorate for Standards and Quality (STAMEQ), <http://en.tcvn.vn/>

