



**Asia-Pacific
Economic Cooperation**

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Barriers of Applying International Program for ICT Products

Submitted by: Korea Energy Management Corporation (KEMCO)



**Aligning Energy Efficiency Regulations for
ICT Products: Developing a Strategic
Approach
Seoul, Korea
18 July 2012**

Aligning Energy Efficiency
Regulations for ICT Products:
Developing a Strategic Approach
18 July, 2012 – Seoul, Korea



Barriers of Applying International Program for ICT Products

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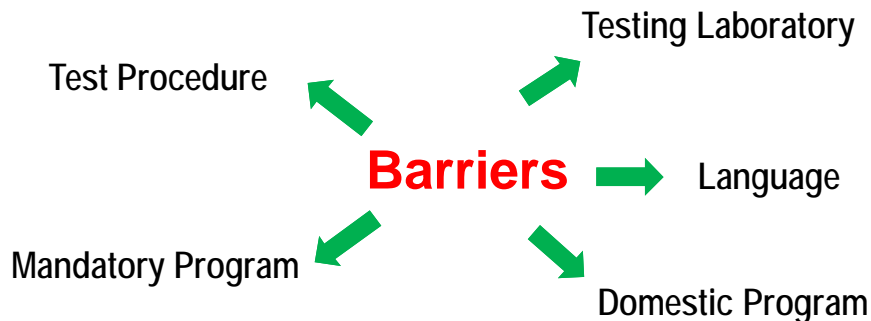
ICT Products in Korea

◆ Energy Standard & Labeling

Products	Program	Characteristic	Label
TVs	Energy Label and Standard Program	Mandatory	
LED lights	High-efficiency Appliance Program	Voluntary	
Computers	e-Standby Program	Mandatory	
Monitors	e-Standby Program	Mandatory	
Set-top boxes	e-Standby Program	Mandatory	
Servers	e-Standby Program → Energy Efficiency Label and Standard Program	Voluntary → Mandatory	

Barriers of Applying International Program

- ◆ There can be complicated barriers for applying international program as follows



Barrier 1 : Test Procedure

- ◆ IEC or ISO can be acceptable as international test procedure, but...

- There are no existence of IEC standard for most of ICT products

International test procedure	Domestic test procedure
- TVs (KS C IEC 62087)	- LED lights - Computers - Monitors - Set top boxes - Servers



International Organization for Standardization

Barrier 2 : Mandatory Program

◆ Responsible partners can be acceptable when MEPS or mandatory energy labeling is applied

- Government need responsible partner to give penalty when partners have violation of regulation
- Domestic manufacturers or importers can be responsible partner

: Basically overseas manufacturers are not responsible partners on energy standard and labeling. They can participate program only through importers

MEPS



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Barrier 3 : Testing Laboratory

◆ Government designated only domestic testing laboratory

- It is not effective test report by overseas testing laboratory, if regulation do not designate overseas testing laboratory as effective testing laboratory



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Barrier 4 : Language

◆ English is international language but...

- Regulation of energy standard and labeling is regulated by only their own language NOT English
 - : **English is not effective** when government operate domestic program
- Government don't want misunderstanding of regulation because of language problem

Barrier 5 : Domestic Program

◆ Most government already had good domestic program

- Domestic program is more efficient than international program for it's own government
- Government don't want to lose energy standard & labeling initiative



Thank you

If you have any question,

please e-mail to yrkim@kemco.or.kr



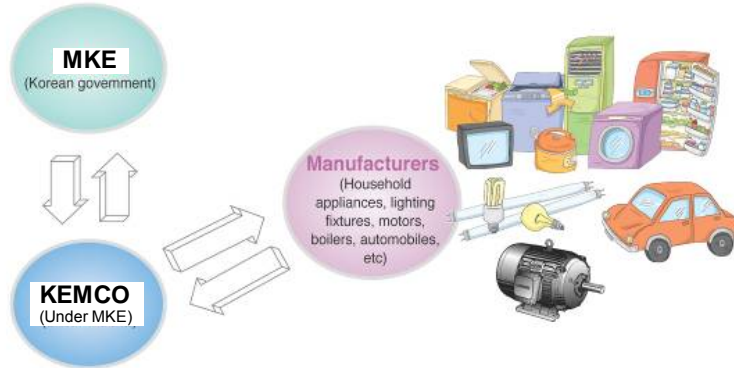
Backup Slides

1. Policy Implementation Organization in Korea
2. Korea's Energy Standards and Labeling
3. Best Practice of Applying International Standard at Motors



1. Policy Implementation Organization in Korea

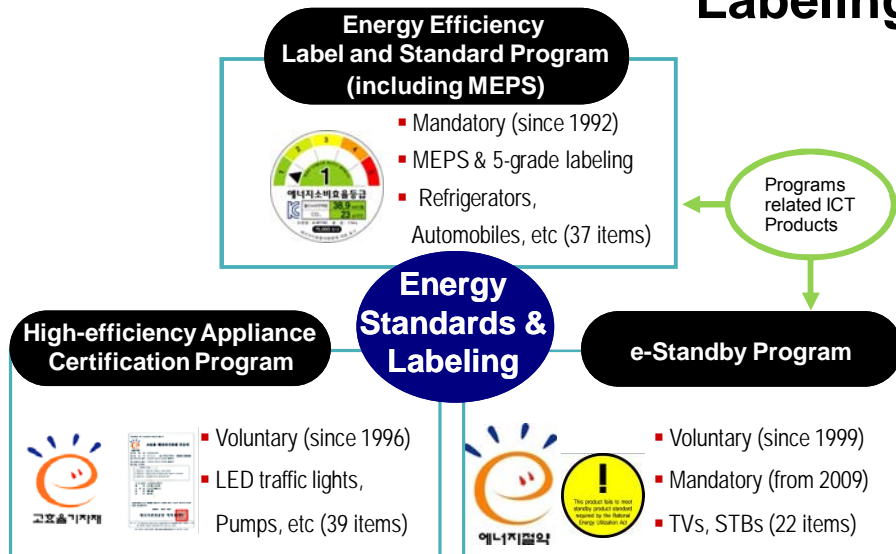
◆ Korea's energy standards & labeling



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2. Korea's Energy Standard and Labeling



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Energy Efficiency Label and Standard Program

◆ Mandatory Energy Label and Minimum Energy Performance Standard

- **Mandatory** indication of rating from 1 to 5
- Number one is the best in Korea
- **MEPS** will be applied below 5 grade
- 37 products with over 23,000 models
- 170 million/year of products are related



Mandatory
Including MEPS

: Refrigerators, freezers, kimchi refrigerators, air conditioners, washing machines, drum washing machines, dish washers, dish driers, coolers, rice cookers, vacuum cleaner, electric fans, air cleaners, incandescent lamps, CFLs, ballasts, fluorescent lamps, 3 phase electric motors, gas boilers, external power supplies, heat pumps, commercial refrigerators, gas water heaters, TVs, windows, transformers, electric fan heaters, electric stoves, VRF multi-split heat pumps, dehumidifiers, electric pads, electric water pads, electric panels, electric radiators, electric beds, tires, automobiles (37 products)

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Energy Efficiency Label and Standard Program(2)

◆ Three kind of mandatory action should be observed by manufacturers or importers

- Mandatory indication of energy efficiency grade label from 1st to 5th grade



- Applying Minimum Energy Performance Standard

: Production and sales of products that fall below 5th grade is prohibit

MEPS (Minimum Energy Efficiency Performance standard)

A mandatory energy efficiency standard that prohibits manufacturing and sales activities of products falling below the minimum energy efficiency level (subject to a fine of below \$US 19 thousand dollars).



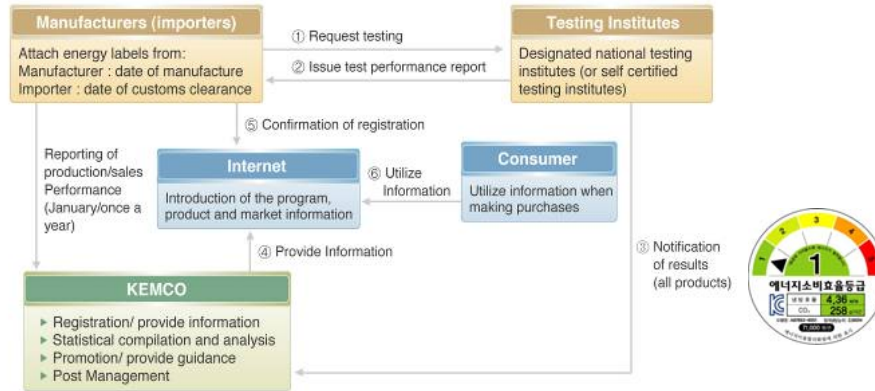
- Mandatory reporting of energy efficiency level

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Energy Efficiency Label and Standard Program(3)

◆ Reporting procedure



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High-efficiency Appliance Certification Program

◆ Voluntary High-efficiency Certification

- Certification by KEMCO
- Voluntary
- High efficiency certificate
- Government purchase
- Target products



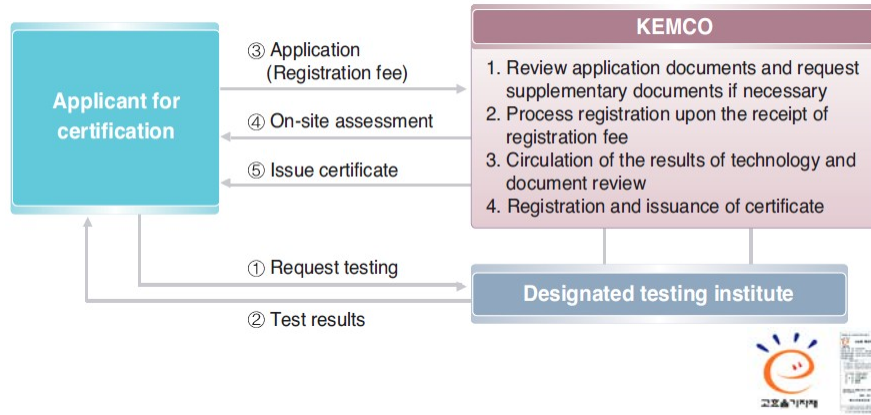
Pumps, UPS, industrial gas boilers, industrial oil boilers, oil burning water boilers, LED traffic lights, LED guide lights, LED lamps, general LED lighting equipments, LED guard lighting equipments, LED sensor lighting equipments, converters for LED lighting modules, PLS equipments, heat recovery ventilators, ventilation fans, centrifugal blowers (39 products)

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High-efficiency Appliance Certification Program(2)

◆ Procedure of certification



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e-Standby Program

◆ Core program to reduce standby

- Voluntary “Energy Boy” label
or **mandatory standby warning label**
 - Government purchase
 - 22 products with over 9,000 models
 - 90 million/year of products are related
- : Computers, set top boxes, monitors, printers, VCRs, audios, multifunction devices, microwave ovens, DVD players, home gateways, fax machines, copiers, scanners, bidets, door phones, cordless phones, radios, modems energy saving & controlling devices, home gateways, servers, hand dryers, digital converters (22 products)



에너지절약
Voluntary

Products satisfying standby standard

or



Mandatory

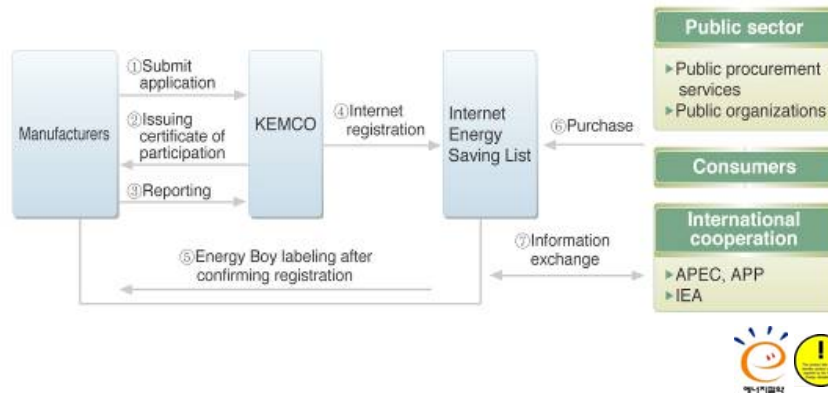
Products failing standby standard

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e-Standby Program(2)

◆ Reporting procedure

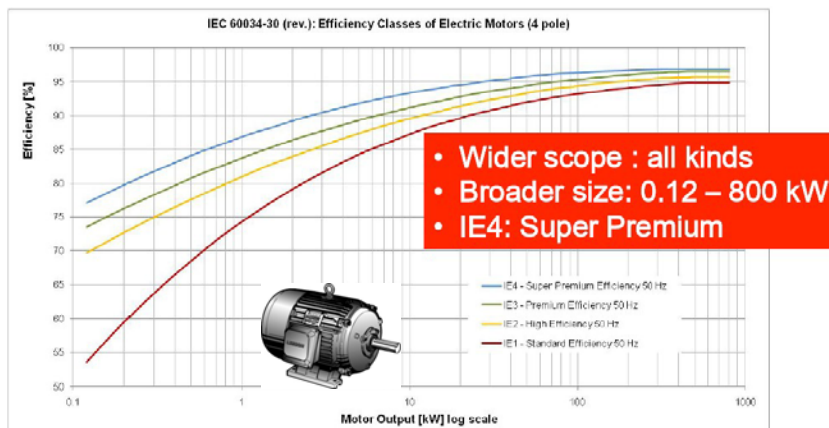


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Efficiency Standard

◆ Efficiency standard of 3 phase electric motors



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Scope of MEPS and Mandatory Energy Labeling

◆ Scope of MEPS

- Motors subject to MEPS (The target motors shall meet all conditions form ① to ⑦)

- ① low voltage 3-phase cage induction motors for voltages up to and including 600V
- ② output from 0.75kW to 200kW
- ③ 2, 4, 6, 8 poles
- ④ T-frame
- ⑤ single speed
- ⑥ foot-mounted or flange type
- ⑦ design A and B



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Minimum Energy Performance Standard (IE2)

◆ IE2 of Nominal Full Load Efficiency (IEC 60030)

• MEPS of phase electric motors (Nominal full load efficiency)

(%)

Nameplate Output (kW)	Protective type				Closed type			
	2 poles	4 poles	6 poles	8 poles	2 poles	4 poles	6 poles	8 poles
0.75	75.5	82.5	80.0	74.0	75.5	82.5	82.0	74.0
1.5	84.0	84.0	85.5	85.5	84.0	84.0	86.5	82.5
2.2	84.0	86.5	86.5	86.5	85.5	87.5	87.5	84.0
3.7	85.5	87.5	87.5	87.5	87.5	87.5	87.5	85.5
5.5	87.5	88.5	88.5	88.5	88.5	89.5	89.5	85.5
7.5	88.5	89.5	90.2	89.5	89.5	89.5	89.5	88.5
11	89.5	91.0	90.2	89.5	90.2	91.0	90.2	88.5
15	90.2	91.0	91.0	90.2	90.2	91.0	90.2	89.5
18.5	91.0	91.7	91.7	90.2	91.0	92.4	91.7	89.5
22	91.0	92.4	92.4	91.0	91.0	92.4	91.7	91.0
30	91.7	93.0	93.0	91.0	91.7	93.0	93.0	91.0
37	92.4	93.0	93.0	91.7	92.4	93.0	93.0	91.7
45	93.0	93.6	93.6	92.4	93.0	93.6	93.6	91.7
55	93.0	94.1	93.6	93.6	93.0	94.1	93.6	93.0
75	93.0	94.1	94.1	93.6	93.6	94.5	94.1	93.0
90	93.6	94.5	94.1	93.6	94.5	94.5	94.1	93.6
110	93.6	95.0	94.5	93.6	94.5	95.0	95.0	93.6
132	93.6	95.0	94.5	-	94.5	95.0	95.0	-
160	94.5	95.0	94.5	-	95.0	95.0	95.0	-
200	94.5	95.0	-	-	95.0	95.0	-	-

MEPS



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Premium Efficiency Standard (IE3)

◆ IE3 of Nominal Full Load Efficiency (IEC 60030)

Standards for premium efficiency (IE3)

Nameplate output (kW)	Protective type				Closed type			
	2 poles	4 poles	6 poles	8 poles	2 poles	4 poles	6 poles	8 poles
0.75	77.0	85.5	82.5	-	77.0	85.5	82.5	75.5
1.5	85.5	86.5	87.5	-	85.5	86.5	88.5	84.0
2.2	85.5	89.5	88.5	-	86.5	89.5	89.5	85.5
3.7	86.5	89.5	89.5	-	88.5	89.5	89.5	86.5
5.5	88.5	91.0	90.2	-	89.5	91.7	91.0	86.5
7.5	89.5	91.7	91.7	-	90.2	91.7	91.0	89.5
11	90.2	93.0	91.7	-	91.0	92.4	91.7	89.5
15	91.0	93.0	92.4	-	91.0	93.0	91.7	90.2
18.5	91.7	93.6	93.0	-	91.7	93.6	93.0	90.2
22	91.7	94.1	93.6	-	91.7	93.6	93.0	91.7
30	92.4	94.1	94.1	-	92.4	94.1	94.1	91.7
37	93.0	94.5	94.1	-	93.0	94.5	94.1	92.4
45	93.6	95.0	94.5	-	93.6	95.0	94.5	92.4
55	93.6	95.0	94.5	-	93.6	95.4	94.5	93.6
75	93.0	95.4	95.0	-	94.1	95.4	95.0	93.6
90	94.1	95.4	95.0	-	95.0	95.4	95.0	94.1
110	94.1	95.8	95.4	-	95.0	95.8	95.8	94.1
132	94.5	95.8	95.4	-	95.4	95.8	95.8	94.5
160	95.0	95.8	95.4	-	95.4	96.2	95.8	94.5
200	95.0	95.8	95.4	-	95.8	96.2	95.8	94.5



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MEPS in Other Economies

◆ Time period for implementation of MEPS for 3 phase electric motors

Efficiency Levels	Efficiency Classes	Testing Standard	Performance Standard
3-phase induction motors	IEC 60034-30	IEC 60034-2-1	Mandatory MEPS ****
	Global classes IE-Code 2008; rev. 2012 *	incl. stray load losses 2007; rev. 2012 **	National Policy Goal
Super Premium Efficiency	IE4	Preferred Method	
Premium Efficiency	IE3	Summation of losses with load test. P_{LL} determined from residual loss	Canada
High Efficiency	IE2		USA
			Europe*** 2015 / 2017
Standard Efficiency	IE1		Australia
			Brazil
			China
			Europe
			South Korea
			New Zealand
			Switzerland
			Costa Rica
			Israel
			Chinese Taipei

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3. Best Practice of Applying International Standard at Motors

◆ 3 phase electric motors are successful case to apply international standard

- Test procedure : IEC 60034-2-1
- Energy Efficiency Classes(IE2, IE3) : IEC 60034-30



Efficiency level (IEC 60034-30)	Efficiency criteria	Market Share	Status
General motors (IE1)	-	20%	Applying of phase out policy
High efficiency motors (IE2)	More efficient than standard motor by 4 to 5%	79%	MEPS
Premium motors (IE3)	More efficient than high efficiency motors by 3 to 4%	1%	Tax incentive
Super premium motors (IE4)	More efficient than premium motors by 1 to 2%	0%	R&D

Need to Benchmark Motors Case for ICT Products

◆ It is not easy to accept test report without any obstacle because of complicated barriers

- But test procedure and energy efficiency level can be accepted like motors case
 - : Test procedure : IEC is good
 - : Government can regulate energy efficiency level after benchmarking IEC standard, if IEC announced energy efficiency level with test procedure
- Reporting system : Domestic system