

41th APEC EGEE&C meeting

**Current Status of Energy
Efficiency Management in
Chinese Taipei**

Apr. 11, 2013

Green Building Information in Chinese Taipei

- **No mandatory regulations for green building in Chinese Taipei,**
- **Green Building Certification Program (1995)**
 - **Ministry of interior**
 - **voluntary program**
 - **2 years period for Public Building (school,)**
 - **similar with US Leed program**
 - **Building Construction Materials**
- **Green Building Research Project(2011)**
 - **Zero Energy Building Association (website)**
 - 102 partners (builder, academic, building products, researcher.....)**
 - **first year focus on building energy consumption simulation program,**
 - Zero energy building technology search around the world**
 - **second year focus on building material, high EE AC and refrigerator**

Contents

- I. Energy Situation of Chinese Taipei**
- II. Chinese Taipei's Energy Efficiency Management Programs**
- III. Closing Remarks**

I. Energy Situation of Chinese Taipei

1. Energy Supply (1/3)

(1) High Dependence on Imported Energy

- 99.4% of total energy supply was imported in 2010 and the majority was fossil fuel
- Renewable energy accounted for 69% of total indigenous energy supply.

Fig (1) Total Primary Energy Supply (2010)
146.0 Million KLOE

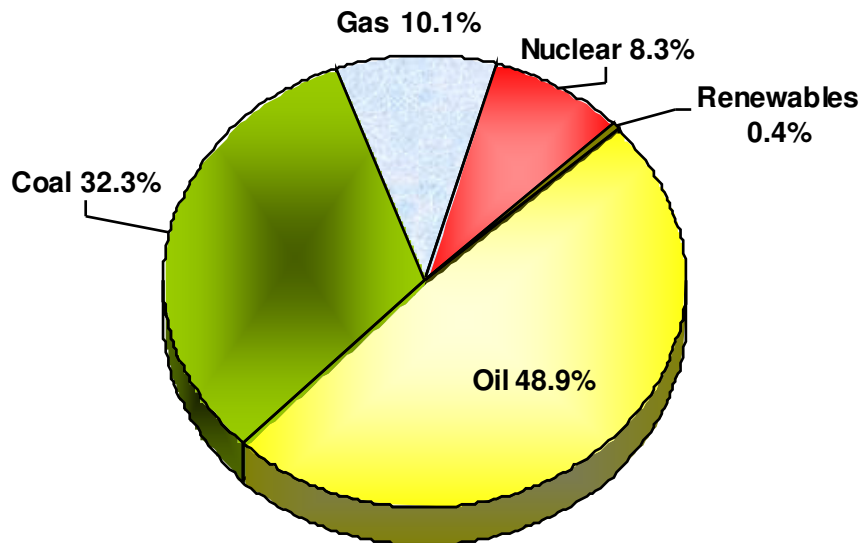
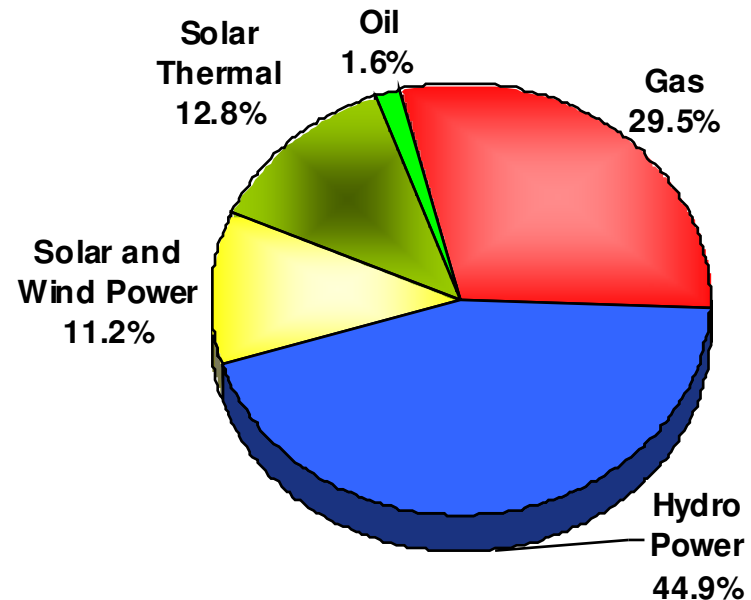


Fig (2) Indigenous Energy Supply (2010)
0.89 Million KLOE



1. Energy Supply (2/3)

(2) High Dependence on Fossil Energy

- Fossil fuels accounted for **91%** of Chinese Taipei's total energy supply.

Table (1) Energy Supply Structure of Major Economies (2009)

Unit = %

	Total Energy Supply(Mtoe)	Coal	Oil	Gas	Share of Fossil Fuel
Germany	387.4	19.9	37.2	23.7	80.8
Japan	527.9	20.5	45.3	16.3	82.1
Korea	284.8	22.4	52.5	10.4	85.3
U.S.	2507.9	22.4	39.5	23.8	85.7
U.K.	313.9	11.6	50.3	29.7	91.6
Chinese Taipei	127.6	30.5	51.8	8.6	90.9

Source : IEA Energy Balances of OECD Countries,2010; Energy Balances in Chinese Taipei, 2010.

1. Energy Supply (3/3)

- 77% of Chinese Taipei's electricity supply was generated from fossil fuel, and electricity from high carbon intensity coal fired plants accounted for 53%.

Table (2) Electricity Generation Structure of Major Economies (2009)

Unit = %

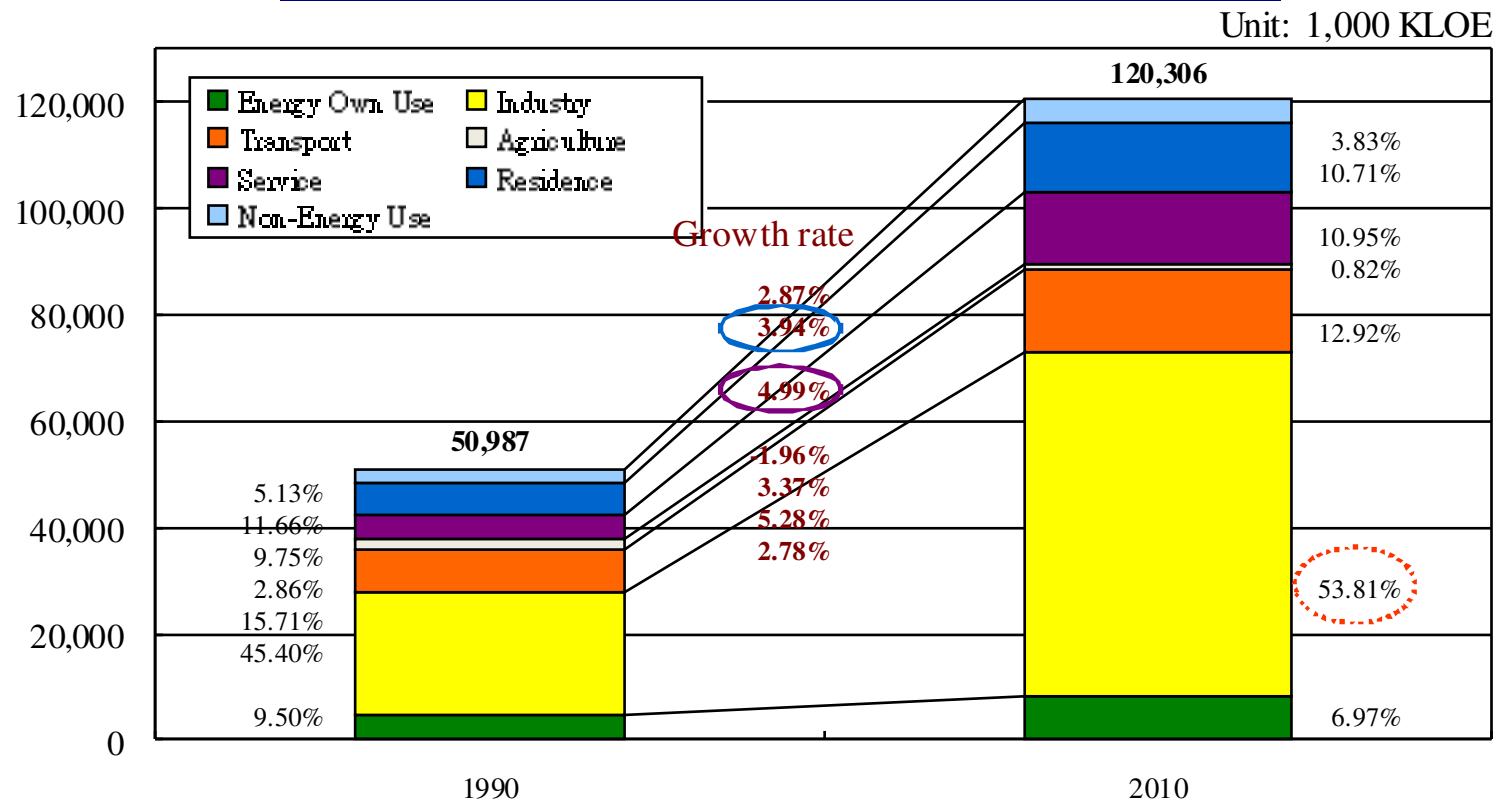
	Total Electricity Supply(Twh)	Coal	Oil	Gas	Share of Fossil Fuel
Germany	590.7	44.8	2.1	13.0	59.9
Korea	443.2	46.9	3.2	15.4	65.5
Japan	1,039.7	28.4	8.7	26.3	63.4
U.S.	4,161.2	45.6	1.2	22.8	69.7
U.K.	368.1	28.4	1.6	44.1	74.0
Chinese Taipei	229.7	53.4	3.3	20.4	77.0

Source : IEA Energy Balances of OECD Countries,2010; Energy Balances in Chinese Taipei, 2010.

2. Energy Consumption

- The shares of energy consumption in **industry** and **transportation** sectors accounted for **53.8%** and **13%**, respectively.
- The shares of energy consumption in service and residential sectors are about **11%**, and they continue to increase notably.

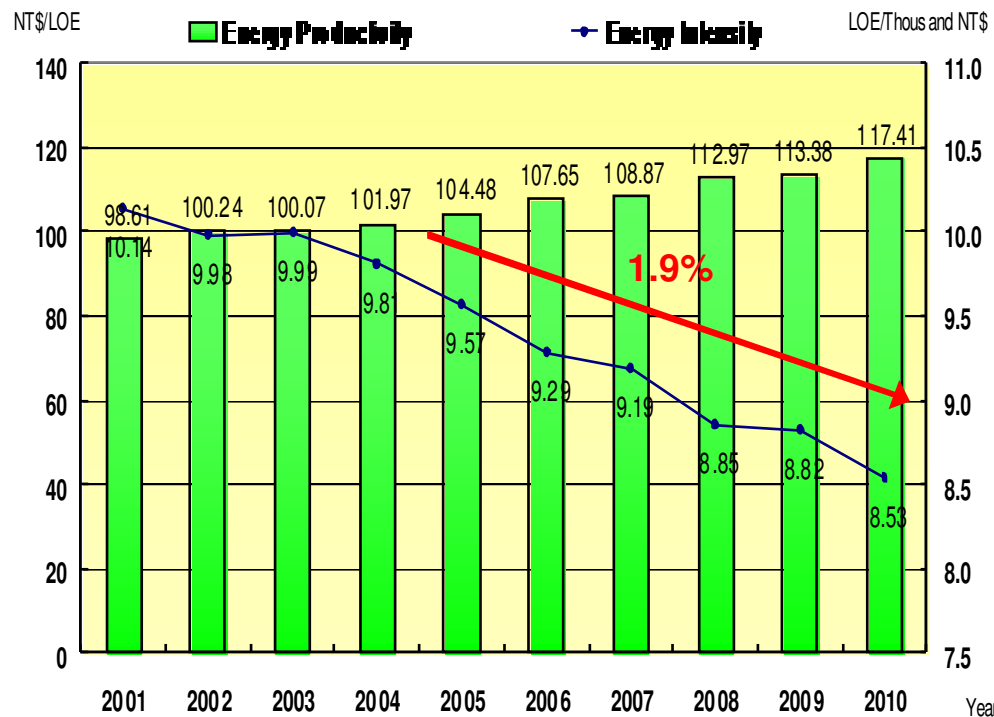
Fig (3) Energy Consumption by Sector (2010)



3. Energy Efficiency

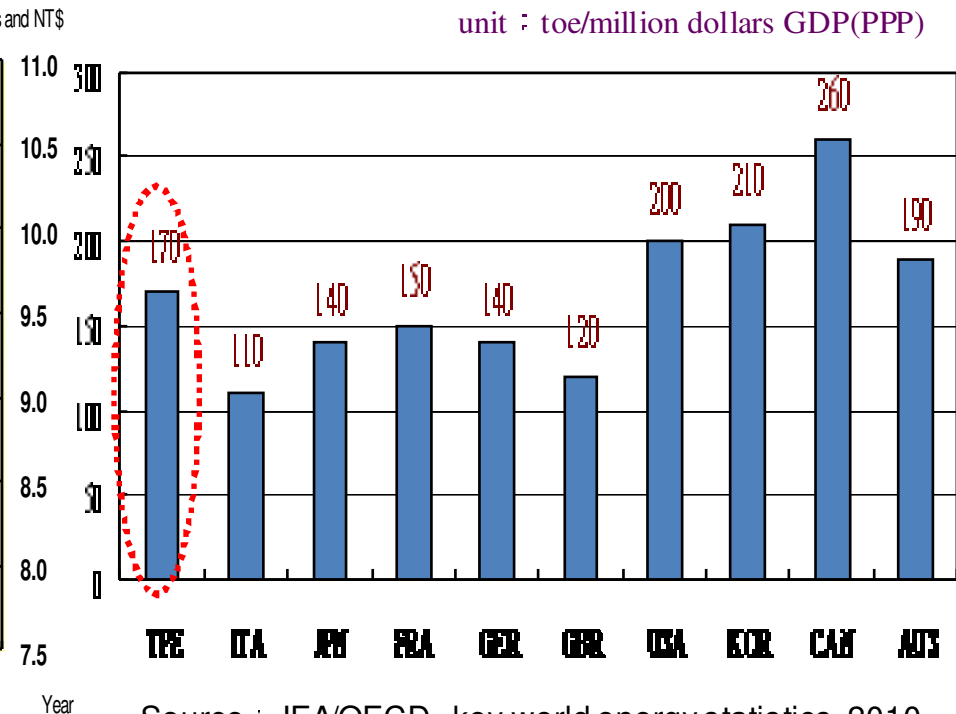
- Energy intensity has decreased by 1.9% annually since 2001.
- In comparison, there is still room for energy efficiency improvement.

Fig (4) Energy Intensity and Productivity (2010)



Source : Chinese Taipei Energy Statistics 2011.

Fig (5) Energy Intensity Comparison (2008)



Source : IEA/OECD, key world energy statistics, 2010. 9

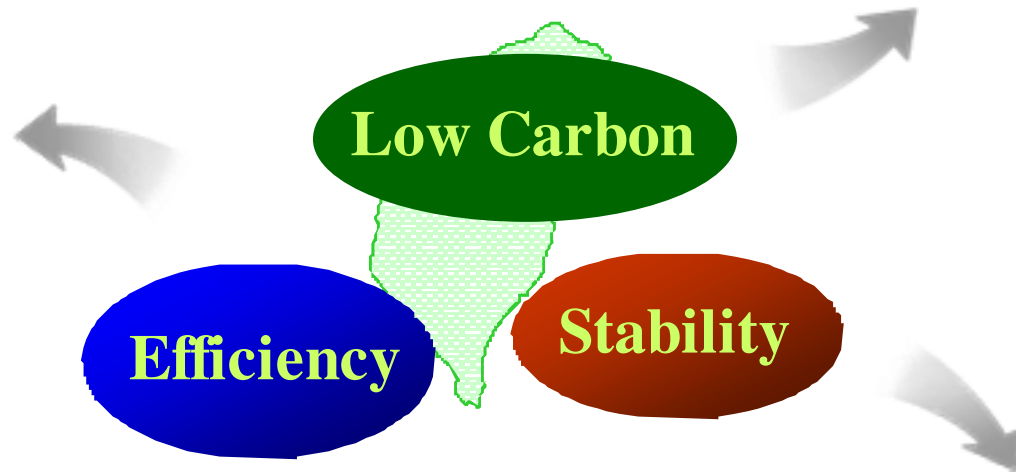
II. Chinese Taipei's Energy Efficiency Management Programs

1. Chinese Taipei Sustainable Energy Policy

- ◆ **Energy efficiency:** **2 %** annual energy efficiency improvement through **2015**.

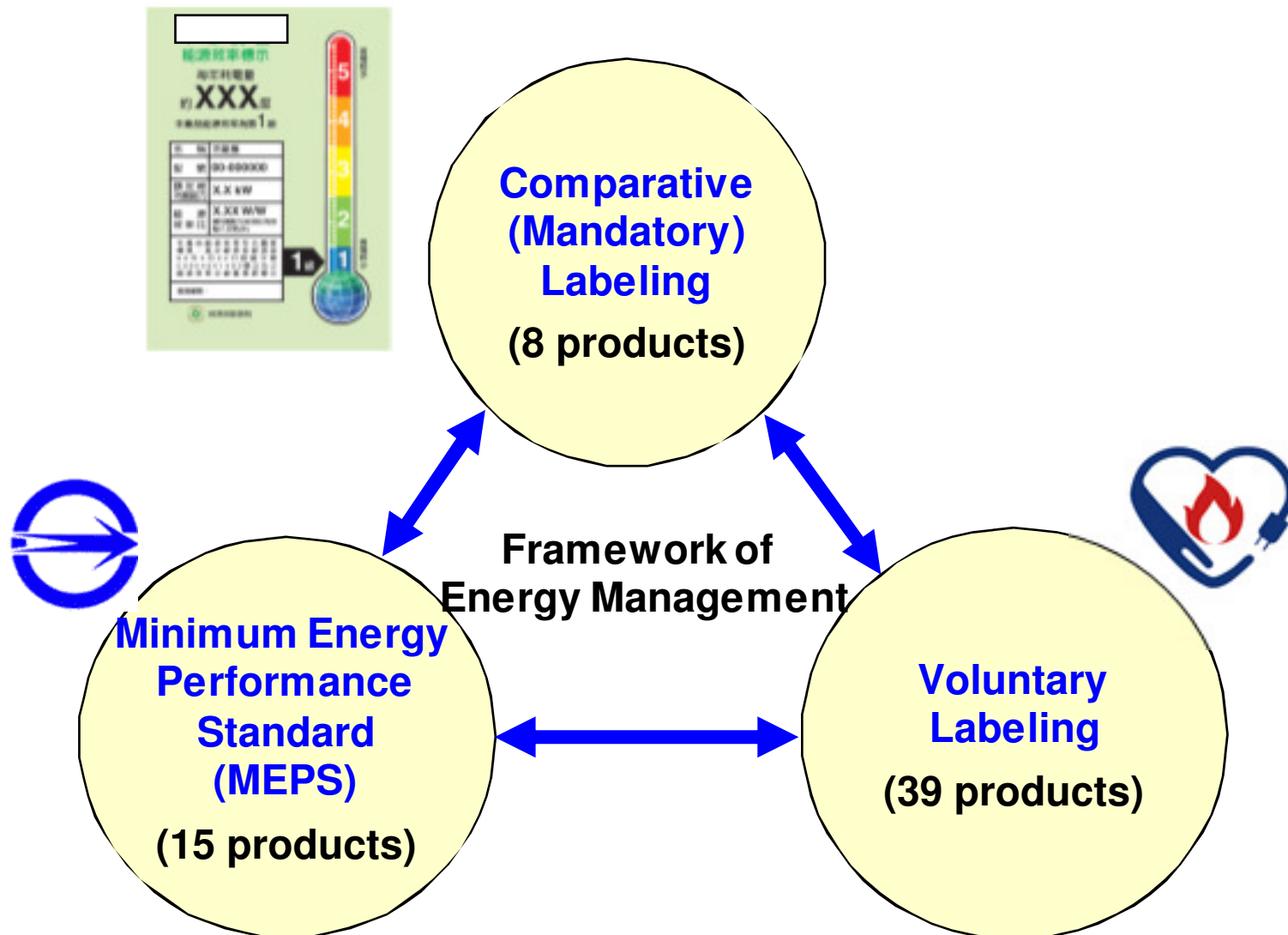
Further reduction of energy intensity by **50%** by **2025** with technological breakthroughs and policy measures.

- ◆ **Share of Low Carbon Electricity Generation:** increase to **55%** by 2025.
- ◆ **CO₂ Emission:** back to 2005 emission level in 2020, and further reduction to **2000** level in 2025.



- ◆ Establish a secure energy supply system to support economic development objectives.

2. Policy Tools of Energy Efficiency (E.E.) Management in Chinese Taipei



3. Energy-using Product E.E. Management Programs in Chinese Taipei

E.E. programs	MEPS	E.E. Ranking Label	Energy Conservation labeling
Category	Mandatory	Mandatory	Voluntary
Regulations	Energy Management Law Article 14	Energy Management Law Article 14	Guidelines for the Operation of Energy Conservation Label Program, BOE, MOEA
Regulations Promulgated and Revised Date	Promulgated Aug. 8, 1980 Revised July. 8, 2009	Promulgated July. 8, 2009	Promulgated March. 9, 2006 Revised Aug. 25, 2008
Authority in Charge	BOE/BSMI	BOE	BOE
Main Purpose and Function	To stop the import and sale of low energy efficiency products.	To provide consumers the information of products' energy consumption and efficiency	To encourage manufacturers to produce high E.E. products and to promote these products to conscientious consumers.
Execution in Progress	The criteria of MEPS set by BOE and enforced by BSMI follow the law of "The Commodity Inspection Act" by BSMI.	Products' Energy Efficiency Ranking regulations promulgated by BOE and the manufacturers are required to register regulated products with BOE.	Energy efficiency is 1.1~1.5 times higher than national standards or MEPS, or is in the top 20% to 30% marketed energy-efficient products.
Revision Guidelines	Phase out the bottom 15~30% energy efficiency products.	Re-adjust the ranking levels according to new MEPS.	Re-adjust the top 20%~30% energy efficient product groups based on new MEPS and market conditions.

4. Regulations: Energy Management Law Article 14

Article	Scope	Target
<p>The energy utilization facilities or apparatus, which are designated by the authority in charge, manufactured by local manufacturers or imported by merchants for domestic use, shall conform to the energy consumption standards set up by the authority in charge. In addition, the said facilities or apparatus should be labeled to indicate energy consumption level and energy efficiency.</p> <p>If the designated facilities or apparatus fail to conform to the effective standards of energy consumption, such facilities or apparatus shall be prohibited from selling or being commissioned domestically.</p> <p>If the designated facilities or apparatus fail to be labeled accordingly, such facilities or apparatus shall be prohibited from selling or display for sale on domestic market.</p> <p>The authority in charge should make public the appropriate MEPS and corresponding monitoring methods, and the labeling, verification and test methods of energy consumption and energy efficiency.</p>	<ul style="list-style-type: none"> ① MEPS of designated energy utilization facilities or apparatus ② Mandatory energy efficiency labeling of designated energy utilization facilities or apparatus 	<ul style="list-style-type: none"> ① Use MEPS to promote high energy efficiency products ② Use Mandatory energy efficiency labeling to assist consumers to choose high energy efficiency products, to save energy and mitigate carbon emission.

5. Minimum Energy Performance Standards (MEPS)

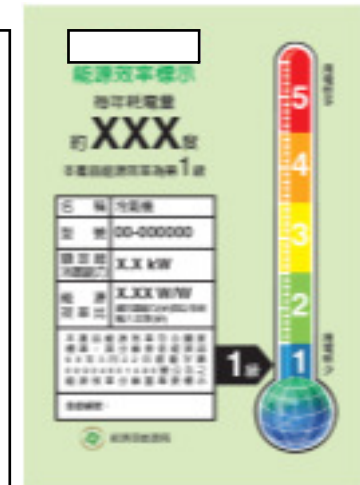
- ❖ Manufacturers and importers are **obliged** to apply in advance for **compliance certifications**.
- ❖ Compliance to Minimum Energy Performance Standards and fuel economy requirements are **mandatory** before the regulated items can be put on the market

Effective Year	Categories (MEPS)	New Criteria effective date
2002	Non-ducted Air-Conditioners	Stage 1 : Jan. 1, 2011 Stage 2 : Jan. 1, 2016
2002	1 & 3 phased Induction motors	--
2003	Refrigerators	Jan. 1, 2011
1987	Automobiles & motorcycles	Aug. 2009
2001	Fluorescent lamps	--
2007	Self-ballasted fluorescent lamps	Jan. 1, 2010
2009	Ballast	Mar.1,2009
2010	Compact fluorescent lamps	Jan. 1, 2010
2011	Dehumidifiers	Mar.1,2011
2012	Incandescent bulb	Jan. 1, 2012

6.The Mandatory EE Ranking Labeling Program

Energy Efficiency Ranking program –Mandatory Labels

- ❖ To show the consumers useful energy information as they choose among various models.
- ❖ To influence consumers' purchasing decisions to make the product importers or manufacturers to take actions to improve energy efficiency of their products.
- ❖ The mandatory labeling of **air conditioner**, **refrigerator**, automobile and motorcycle has entered into force since July 1, 2010, and that of **dehumidifier** and **compact fluorescence lamp** since **March 1, 2011** and **July 1, 2011**, respectively. The program extended to **gas stoves** and **instantaneous gas water heaters** on **Dec. 2012**.
- ❖ Currently, there are **6909** air conditioner models, **1069** refrigerator models, **4513** automobile models and **968** motorcycle models, **223** dehumidifier models and **1589** CFL models, **632** gas stove models and **742** instantaneous gas water heater models have completed mandatory energy label applications.



air conditioner



automobile

7. The Voluntary Labeling Program(1/2)

Energy Conservation Labeling Program --Endorsement Labels

- ❖ A **voluntary** program to encourage the manufacturers/importers to develop/import high energy efficiency products
- ❖ To encourage the consumers to buy high-efficiency products and to increase market penetration of high-efficiency products
- ❖ It has been implemented **since 2001**, and its targeted products are home appliances, lighting fixtures, office equipment, gas burning appliances and passenger vehicles.
- ❖ The **top 20% to 30% energy-efficient products** on the market can have this label accreditation. Chinese Taipei's Energy Conservation Labeling Program () is similar to the **Energy Star Program** of the USA.

7. The Voluntary Labeling Program(2/2)

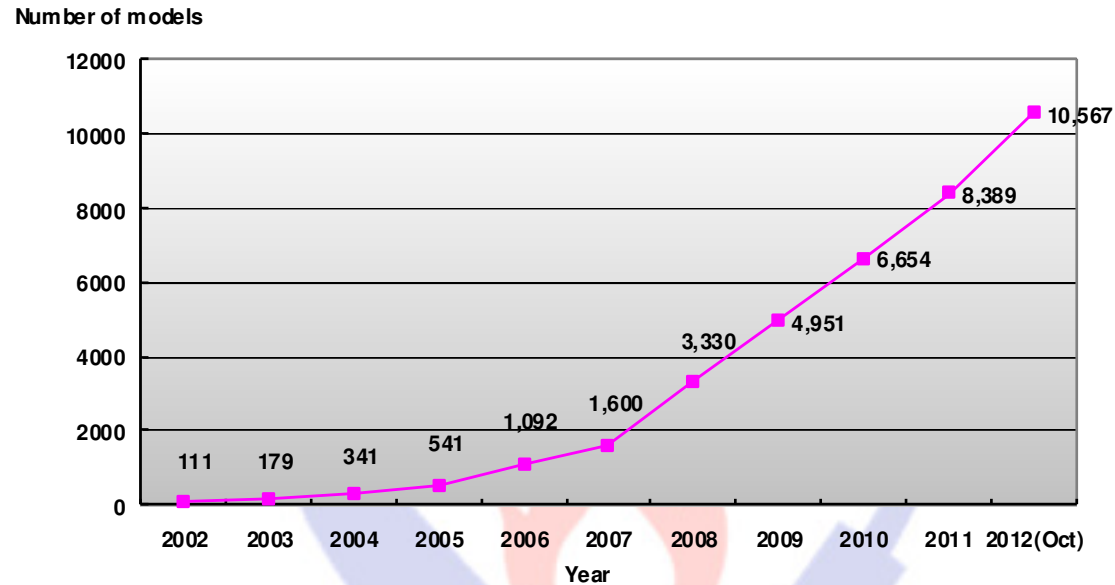
List of Energy Label Products(39 product Categories) and Effective Year

Year	Categories
2001	(1)air-conditioners (2) refrigerators (3) dehumidifiers (4) clothes dryers
2002	(5)TVs (6) clothes washers (7) electric fans (8) fluorescent lamps (≥ 32 W)
2003	(8)fluorescent lamps (< 32 W) (9)hair dryers (10) hand dryers
2004	(11)warm-hot water dispensers (12) chilled-warm-hot water dispensers
2005	(13) chilled-warm-hot drinking fountains (14) automobiles & light trucks (15) motorcycles (16) self-ballasted fluorescent lamps
2006	(17) thin film transistor-liquid crystal display (18) instant gas burning water heaters (19) gas burning cooking appliances (20) electric rice cookers
2007	(21)electric storage water heaters (effective on Jan. 1, 2008)(22) electric pots (23) exit and emergency signs (24) DVD products
2008	(25)warm-hot drinking fountains (26) luminaries (27) integrated stereos
2009	(28)compact fluorescent lamp
2010	(29)printer
2011	(30) copier (31) air cleaner (new) (32) street lighting (33)ventilating fan for bath rooms (34) window type ventilating fan
2012	(35)desk top PC (36) notebook PC (37) heat pump water heater (38) range hoods
2013	(39)microwave ovens

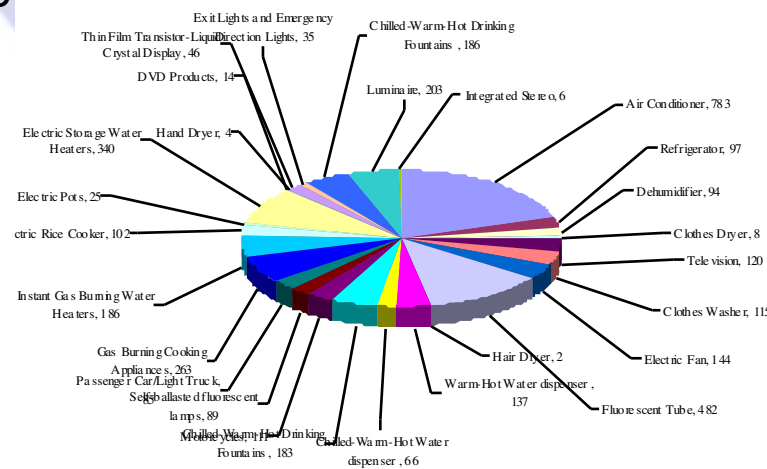
※A total of **6,699** Energy Conservation Label certified models with **383** brand names as of Apr. 9, 2013

8. Achievements of Energy Conservation Labeling

No. of Energy Conservation Label Endorsed Models



Over **154 million** Energy Conservation Label endorsed models have been purchased as of March. 2013.



39 categories are available for certificate application. Until present, the effective contracts amount to **383 manufacturers** and **6,699 products**

9. Energy Conservation Labeling Website



What is Energy Label

- Government-backed voluntary endorsement label

To promote deployment of energy efficiency technologies as well as to encourage manufacturers to invest in research and development of energy-efficient products, the Bureau of Energy (BOE), Ministry of Economic Affairs initiated the voluntary “Energy Label” program.> [see the details](#)

Information

- 39 product categories available for applying> [applying here](#)
- 6318 products with 375 brand names are available for selection> [purchasing here](#)

Feature Reports

- [Introduction to Implementation Measures of Selected Energy Labeling Programs Worldwide](#)

As a sequel to the first article describing the implementation legislation and promotional measures of important energy labeling programs worldwide, this article focused on the implementation aspects of selected energy labeling programs. Operating procedures and rules for mandatory Canadian EnerGuide program, voluntary US Energy Star program and Ch ...2005/11/10> [more](#)

<http://www.energylabel.org.tw/>

More than **35 million** visits to the Energy Conservation Labeling Website have been registered due to Apr 9, 2013.

III. Closing Remarks

- The energy efficiency management in Chinese Taipei aims for the integration of 3E (economic development, environmental protection, and energy security) and sustainable development..
- **WTO/TBT regulations/guidelines** should be consulted and alignment with the **ISO/IEC standards** is recommended in setting up an energy management program.
- The **mutual recognition of test laboratories** through the ILAC is strongly recommended for voluntary programs in APEC region.



11. Achievements of Energy Conservation Labeling



Energy Saving Car Show 2005



Vehicles Certification Ceremony



Manufacturers' Consultation Meeting



Energy Saving Promotion in Collaboration with Taipower



Annual Energy Saving Show in Collaboration with Taipower 2008



Energy Conservation Label Promotion in collaboration with the Taipei City government 2008

10. Implementation Methodologies

Media



Activities



Poster & Publication



Website

