

Economy Update for Chinese Taipei

42nd Meeting of the APEC Expert Group on Energy Efficiency & Conservation

Chinese Taipei Nov. 11, 2013

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Update of Mandatory and Voluntary Energy Efficiency management Programs in Chinese Taipei

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Minimum Energy Performance Standard (MEPS)

- Mandatory minimum energy performance standards (MEPS) is the main regulatory tool used for energy efficiency. Manufacturers and importers are obliged to apply in advance for compliance certification.
- In Chinese Taipei, MEPS was first introduced in 1980's, and have been updated over the years to cover a wide range of products, and increasing levels of stringency. The MEPS of LED bulb, Electric Pot and Electric Storage Water Heater will enter into force in 2014 and 2015 respectively.

| Effective Year | Categories New Crite Effective D | |
|----------------|-------------------------------------|--|
| 1987//2004 | Automobile & motorcycle | Aug. 2009 |
| 2001 | Fluorescent lamps | |
| 1981//2007 | Non-ductive Air-Conditioners | Stage1 : Jan. 1, 2011 Stage2 : Jan. 1, 2016 |
| 2002 | 1 & 3 phased Induction motors | |
| 1984//2003 | Refrigerators | Jan. 1, 2011 |
| 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 |
| 2014 | LED bulb | July 1, 2014 |
| 2015 | Electric Pot | Jan. 1, 2015 |
| 2015 | Electric Storage Water Heater | July 1, 2015 |

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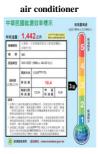
工業技術研究院 Industrial Tectnology Energy Efficiency Ranking Labeling

- To provide the consumers useful information when they choose among various models.
- To influence consumers' purchasing decisions to lead the product importers or manufacturers will likely take actions to improve energy efficiency of their products and to phase out low energy-efficient ones.
- Currently, there are 7,955air conditioner models, 1,153refrigerator models., 5,245 automobile models and 1,161 motorcycle models ,240 dehumidifier models and 1,642CFL models 3,200Gas Stoves models and 2,964Instantaneous Gas Water Heaters models have completed mandatory energy label applications.

| | Effective Y ear | Categories | |
|---|---------------------|--|--|
| | 2010 | Non-ductive Air-Conditioners | |
| | 2010 | Refrigerators | |
| | 2010 | Automobile | |
| | 2010 | Motorcycle | |
| | 2011 | Dehumidifiers | |
| | 2011 | Self-ballasted fluorescent lam ps | |
| 2012 Gas Stove and Instar Gas Water Heater | | Gas Stove and Instantaneous Gas Water Heater | |
| | 2015 | Electric Pots • Electric Storage Water Heater | |
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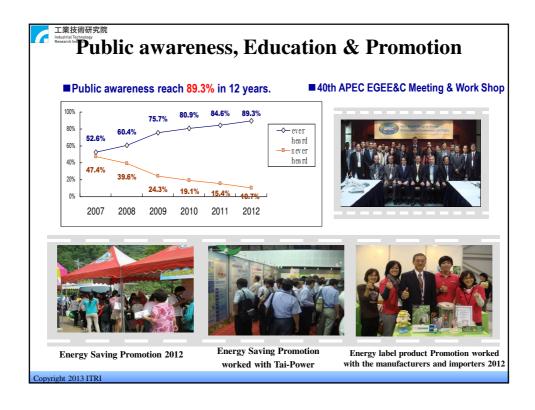
automobile

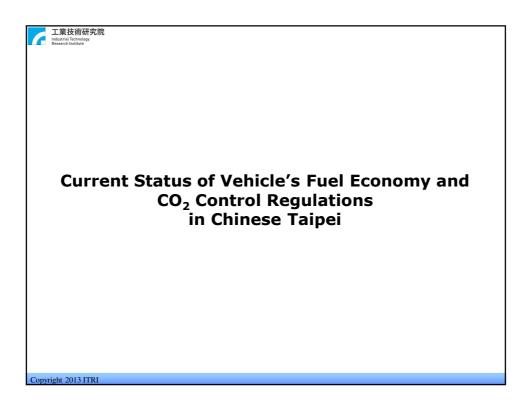
Achievements of EE Rating Labeling Program ✓ RAC: The rating 1 products are 37% more efficient than rating 5 products **Refrigerator**: The rating 1 products are 40% more efficient than rating 5 products ✓ Dehumidifier The rating 1 products are 28% more efficient than rating 5 products Self-Ballasted Fluorescent Lamp: The rating 1 products are 30%~40% more efficient than rating 5 products ✓ Gas Stove The rating 1 products are 25% more efficient than rating 5 products ✓ Instantaneous Gas Water Heater The rating 1 products are 22% more efficient than rating 5 products ■ Market Transformation of RAC and Refrigerator (2010~2012): Market Share of Each Rating Refrigerator/Freezer Market Share of Each Rating Air Conditioners 90.0% 60.0% 80.0% 50.0% Market Share 40.0% 30.0% 20.0% 60.0% 50.0% 40.0% **2011** 30.0% **2012 2012** 20.0% 10.0%

Woluntary Energy Conservation Labeling Program Benchmarks for Energy Label Products(44product Categories) Vear Categories

| 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 (<32W) (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) m otorcycles (16) self-ballasted fluorescent lamps | | |
| 2006 | (17) thin film transistor-liquid crystal display (18) instant gas burning water heat ers (19) gas burning cooking appliances (20) electric rice cookers | | |
| 2007 | (21)Electric Storage Water Heaters (effective on Jan. 1, 2008)(22) Electric Pots (2 3) Exit Lights and Emergency Direction Lights(24) DVD Products | | |
| 2008 | (25)Warm-hot drinking fountains (26) Luminaries (27) Integrated Stereo | | |
| 2009 | (28)Compact Fluorescent Lamp | | |
| 2010 | (29)Printer | | |
| 2011 | (30) Copier (31) Air Cleaner (new) (32) street lighting (33) Ventilating Fan for B ath Room (34) Window Type Ventilating Fan | | |
| 2012 | Desk top PC(35) Notebook PC(36) Heat pump water heater(37)Range Hoods(38) | | |
| 2013 | Microwave oven(39) Axial fans(40) Centrifugal fans(41) Ballast for fluorescent Tubes (42) Electric stove(43) Electric Drinking Water Heater(44) | | |

7,350Energy Conservation Labeling certified models with 365 brand names and over 160 million Energy Conservation qualified models have been used by Oct . 29, 2013







Vehicles Fuel Economy Standards

1980

Promulgated the "Energy Management Law"

Article 15 of the "Energy Management Law":

Vehicles which are designated by the central competent authority, manufactured by local manufacturers or imported by importers should compliance with the energy economy standards and fuel efficiency rating labeling requirements that governed by the central competent authorities.

Vehicles failed to comply with the fuel economy standards and labeling requirements should be prohibited from importing, demonstration or selling on domestic market.

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Vehicles Fuel Economy Standards



Since 1982, as the vehicle fuel consumption control competent authority, the Bureau of Energy has started **researches** and **capacity building** such as: survey on world fuel efficiency regulations; established related **test facilities** and technologies; set up fuel economy standards and its operational processes.

1988

The "Fuel Economy Standards and Regulations on Vehicle Inspection and Administration" has been implemented since 1988, the related measures include: requirements on vehicle certification tests and new vehicle conformity audit tests; simplification on vehicle type classifications; certification and license plate application procedures; issuance of vehicle fuel economy guide.

Currently the Chinese Taipei government is continuous working on the standards' subsequent amendments.

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Vehicles Fuel Economy Standards

In Chinese Taipei, vehicle failed to comply with the fuel economy standards is prohibited from importing, demonstration or selling on the market. The target limits of the fuel economy standards are classified by different ranges for basis parameter to achieve maximum control effectiveness and minimum impacts on vehicle manufacturers and importers.

The preliminary fuel economy classifications were based on vehicle weights, during the implement process the authority has found that in order the comply with the standards, some vehicle type approval applicants has added extra weight to get their vehicles applicable to less stringent standards. Being reviewed and discussed with vehicle manufacturers and importers, the basis for the fuel economy standards is modified to engine displacement which is harmonized with vehicle registration and fuel tax fees.

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Vehicles Fuel Economy Standards

The Executive Yuan has approved the "Framework of Chinese Taipei's Sustainable Energy Policy" in 2008, held the National Energy Conference in 2009 and proposed a 25% increase on the fuel efficiency for new personal vehicles. (In 2010 a 10 % improvement has been set; another 15% will be set forth in 2015).

| 耗能標準(km/l) 排氣量(cc) | 轎式或休放 | ξ式(km /l) | 小貨、小客貨及非轎式/非於 式客車(km/l) | |
|-----------------------|--------|-----------|----------------------------|--------|
| 195%(里(CC) | 美國行車型態 | 歐盟行車型態 | 美國行車型態 | 歐盟行車型態 |
| 1200以下 | 16.2 | 14.1 | 10.9 | 9.5 |
| 超過1200至1800 | 13.0 | 11.3 | 9.9 | 8.6 |
| 超過1800至2400 | 11.4 | 9.9 | 8.9 | 7.7 |
| 超過2400至3000 | 10.0 | 8.7 | 8.6 | 7.5 |
| 超過3000至3600 | 9.2 | 8.0 | 7.6 | 6.6 |
| 超過3600至4200 | 8.5 | 7.4 | 7.0 | 6.1 |
| 超過4200至5400 | 7.2 | 6.3 | 6.7 | 5.8 |
| 超過5400 | 6.5 | 5.7 | 6.1 | 5.3 |

| 耗能標準(km/l) 排氣量(cc) | 機器腳踏車 |
|-----------------------|-------|
| 50以下 | 48.2 |
| 超過50~100 | 40.6 |
| 超過100~150 | 38.0 |
| 超過150 ~ 250 | 28.0 |
| 超過250 ~ 500 | 21.1 |
| 超過500~750 | 16.6 |
| 超過750~1000 | 15.8 |
| 超過1000~1400 | 14.7 |
| 超過1400 | 13.1 |

The EPA of Chinese Taipei has invited domestic vehicle manufacturers and importers to discuss issues on the CO₂ control regulations for passenger cars in 2011.

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"Glöbal Comparison of Light-Duty Vehicle Fuel Economy/ **GHG Emissions Standards** (reference ICCT 2011)

| Country or Region | Target Year | Standard Type | Unadjusted Fleet Target/Measure | Structure *** | Targeted Fleet | Test Cycle |
|---|----------------|----------------------|--|---|-------------------------------------|---------------------------|
| U.S. / California (enacted) | 2016 | Fuel Economy/ GHG | 34.1 mpg or 250 g CO ₂ /mi | FP-based corporate avg. | Cars/Light trucks | U.S. combined |
| U.S. (Notice of Intent) | 2025 | Fuel Economy/ GHG | 43-56 mpg* or 190-143 g CO ₂ /mi | FP-based corporate avg. | Cars/Light trucks | U.S. combined |
| Canada (enacted) | 2016 | GHG | 153 (141)" gCO ₂ /km | FP-based corporate avg. | Cars/Light trucks | U.S. combined |
| EU (enacted) EU (proposed) | 2015 2020 | CO ₂ | 130 gCO ₂ /km 95 gCO ₂ /km | Weight-based corporate avg. | Cars/SUVs | NEDC |
| Australia (voluntary) | 2010 | CO ₂ | 222 gCO ₂ /km | Fleet average | Cars/SUVs/Light commercial vehicles | NEDC |
| Japan (enacted) | 2015 | Fuel Economy | 16.8 km/L | Weight-class based corporate avg. | Cars | JC08 |
| China (proposed) | 2015 | Fuel Consumption | 7 L/100km | Weight-class based per vehicle and corporate avg. | Cars/SUVs | NEDC |
| South Korea (proposed) | 2015 | Fuel Economy/GHG | 17 km/L or 140 gCO ₂ /km | Weight-based corporate avg. | Cars/SUVs | U.S. combined |
| Chinese Taipei (enacted) Chinese Taipei (proposed) | 2010 2015 | Fuel Economy | Limit Standards will b e expected to increas e 15% in 2015. | Engine Displacement - class average | Cars/SUVs, Light duty trucks | U.S. combined, or NEDC |

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Thank you for your attention!

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Assumes all manufacturers take advantage of A/C credit.
 In April 2010, Canada announced a target of 153 g/km for MY2016. Value in brackets is estimated target for MY2016, assuming that during 2008 and 2016 the fuel efficiency of the light-duty fleet in Canada will achieve a 5.5% annual improvement rate (the same rate as the U.S.). This estimate is used in the accompanying charts.
 FP: footprint.