CHINESE TAIPEI

1. GOALS FOR EFFICIENCY IMPROVEMENT[1]

1.1. Overall Energy Efficiency Improvement Goals

a) Goals

The goal is to improve energy efficiency by more than 2% per annum (compared to 2005 levels) in order to achieve a 20% energy intensity reduction by 2015. The target extends to 50% by 2025 with the support of further technological breakthroughs and administrative measures.

b) Base year

2005.

c) Goal year

Intermediate goal of 2015 with the final objective of 2025.

1.2. Sectoral Energy Efficiency Improvement Goals

a) Industry

Reform the industrial sector toward a high value-added, low-energy-intensive structure so that its carbon intensity could decrease by more than 30% by 2025.

b) Transport

Raise the standard fuel efficiency for private vehicles (measured in terms of passenger kilometers per liter) incrementally to 25% by 2015.

c) Residential and commercial

Raise appliance efficiency standards by 10% to 70% in 2011. Further increase the efficiency standards in 2015 to promote high-efficiency products.

d) Government

Reduce the energy use of governmental agencies and schools by 10% in 2015.

e) Base year

2008.

f) Goal year

2025 (for the industrial sector), 2015 (for the transport and government sectors), and 2015 (for the residential and commercial sectors).

1.3. Action Plans for Promoting Energy Efficiency

a) Name

Energy Conservation and Greenhouse Gas Emission Reduction Action Plan

b) Objectives

Reduce CO_2 emissions by applying cleaner energy and energy conservation measures.

c) Applicable sectors

Residential, commercial, industrial, transport, and government.

d) Outline

[1] BOE (2008A).

A number of measures have been introduced to achieve the energy efficiency goals:

- Raise power generation efficiency.
- Replace coal-fired power plants with high-efficiency generating units (efficiency raised by 7.5% by 2025) and gas-fired power plants (efficiency raised by 11%).
- Improve power dispatch and transmission facilities (reducing line loss by 0.5% by 2015).
- Raise the vehicle energy efficiency standard.[2]
- Raise private vehiclesôstandard fuel efficiency incrementally to 25% by 2015.
- Use LED electricity saving lighting.
- Completely replace traffic signal lamps with LED lamps by 2012.
- Completely replace building (exits, fire alarm signals, etc.) and landscape lighting with LED lamps by 2025.
- Promote the uptake of energy-efficient appliances.
- Establish voluntary energy-saving partnership agreements.
- Conduct energy audits of major energy consumers.
- Establish new MEPS for room air conditioners and refrigerators by 2011 (efficiency raised by 15% and 60%, respectively)
- Establish MEPSs and EE rating labels for electric pots, storage water heaters, and LED bulbs by 2014 and 2015.

More details can be found at http://www.moeaboe.gov.tw.

e) Financial resources and budget allocation

For policy development, the annual energy research budget will be increased within the next four years from NTD 5 billion to NTD 10 billion (equivalent to USD 150ï 300 million in 2015).

f) Method for monitoring and measuring the effects of action plans

- Measure the sales of energy-efficient appliances on a monthly basis.
- Monitor the progress of energy efficiency standard revisions on a quarterly basis.
- Monitor the results of voluntary energy-saving agreements on a quarterly basis.

g) Expected results

Reduced CO_2 emissions through more efficient energy use.

h) Future tasks

- Minimum energy performance standards (MEPS) and energy efficiency rating labeling for hot-water dispensers and hotï cold water dispensers by 2016.
- MEPSs and energy efficiency rating labeling for hot-water fountains and hotï cold water fountains by 2017.
- MEPSs and energy efficiency rating labeling for TVs and monitors by 2018.
- New MEPSs and energy efficiency rating labeling for refrigerators and dehumidifiers by 2019.

1.4. Institutional Structure

a) Name of organization

Bureau of Energy, Ministry of Economic Affairs

[2] BOE (2008B).

b) Status of organization

No information is available.

c) Roles and responsibilities

- Draw up drafts of policies and laws.
- Plan and predict the energy supply and demand.
- Examine and approve energy development, distribution, and sales.
- Monitor energy prices.
- Build an energy database.
- Energy savings promotion and dissemination, energy technology R&D.

d) Covered sectors

All sectors of the economy.

e) Established date

The Energy Commission was established on November 1, 1979 and renamed Bureau of Energy on July 1, 2004.

f) Number of staff

Approximately 110 employees.

1.5. Information Dissemination, Awareness-Raising, and Capacity-Building

a) Information collection and dissemination

Media dissemination programs evaluate potential audiences. Meanwhile, an economy-wide telephone survey is conducted to assess public awareness.

b) Awareness-Raising

There are two awareness-raising programs: 1) Research and Promotion of the Energy Conservation Labeling and Energy Efficiency Labels, and 2) Energy Conservation Environment Establishment, Achievements Appraised, and Technology Promotion.

c) Capacity-Building

There is a government-funded program to train energy auditors and managers for manufacturing firms and the commercial sector.

1.6. Research and Development in Energy Efficiency and Conservation

The Chinese Taipei Governmentôs Energy Conservation Technology Mid-Term Project is administered by the Bureau of Energy, Ministry of Economic Affairs. The project is applicable to the transport, residential, commercial, and government sectors (excluding agriculture).

The aim of the project is to develop and advance Chinese Taipeiôs R&D capabilities and intellectual property in various energy technologies, including LED lighting, photovoltaic, hydrogen power, air conditioning, refrigeration, electric motors, energy information, and communication technology. The government allocates an annual budget of approximately USD 33 million to this project of which 59% is used for energy-related research and design.

Since December 2001, the Chinese Taipei Government has allocated USD 12 million for the Energy Conservation Labeling and Energy Efficiency Labels system for the transport, residential, commercial, and government sectors. This system is expected to result in annual energy savings of up to 160,000 kiloliters of oil equivalent and in energy efficiency increases of 25% for air conditioners, 70% for refrigerators, 36% for hotï warm water drinking fountains, 16% for fluorescent lamps with embedded ballasts, 20% for clothes washers, 5%

for electric cookers, 15% for warmï hot water dispensers, 20% for dehumidifiers, 50% for electric fans, 10% for electric pots, and 15% for automobiles.

2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government Laws, Decrees, and Acts

a) Name

Energy Management Law (EML)

b) Purpose

The EML is designed to govern the energy efficiency of energy-consuming devices.

c) Applicable sectors

The EML applies to all large energy users across all sectors. This mainly includes the industrial, transport and commercial sectors.

d) Outline

- Energy-utilization facilities and equipment that are designated by the central competent authority, manufactured by local manufacturers, or imported by merchants for domestic use must conform to the permit standards of energy consumption established by the central competent authority.
- Vehicles that are designated by the central competent authority, manufactured by local manufacturers, or imported by merchants for domestic use must conform to the permit standards of energy consumption established by the competent central authority.

e) Financial resources and budget allocation

Governmental funds.

f) Expected results

Energy efficiency improvement of 2% every year for the next eight years; improve appliance energy efficiency 10% to 70% by 2015.

2.2. Regulatory Measures

a) Name

Minimum Energy Performance Standard (MEPS) and EE Rating Labeling for Appliances and Lighting; Fuel Efficiency Standards for Automobiles

b) Purpose

Improve the energy efficiency of appliances, lighting devices, and vehicles.

c) Applicable sectors

Industrial, transport, residential, commercial, energy, and government.

d) Outline

The Energy Efficiency Rating Labeling program covers the following 12 products:

1. Non-ducted air conditioners (by August 11, 2015)

2. Refrigerators (by December 7, 2012)

3. Dehumidifier (by December 7, 2012)

4. Self-ballasted fluorescent lamps (by December 6, 2012)

5. Gas-burning water heaters (by December 6, 2012)

6. Gas-burning cooking appliances (by December 6, 2012)

7. Electric pots (by November 22, 2013)

8. Electric storage tank water heaters (by April 28, 2014)

9. Warmï hot type water dispensers (by September 21, 2015)

10. Chilledï warmï hot type water dispensers (by September 21, 2015)

11. Passenger vehicles (including sedans and station wagons) (by August 11, 2014)

12. Motorcycles (by August 11, 2014)

The MEPS and efficiency standards for the following products will be raised:

- Private vehicles (by 2015)
- Fluorescent lamps with embedded ballasts (from 2010)
- Compact fluorescent lamps (from 2010)
- Room air conditioners and refrigerators (from 2011)
- Dehumidifiers (from 2011)
- Incandescent lamps (from 2012)

2.3. Voluntary Measures

a) Name

Energy Conservation Labeling Program

b) Purpose

To encourage manufacturers to develop highly efficient products and promote customer purchases of these products. These projects started in December 2001.

c) Applicable sectors

Industrial, transport, residential, commercial, energy, government, etc.

d) Outline

The Energy Conservation Labeling program covers the following 46 products:

- 1) air conditioners; 2) refrigerators; 3) dehumidifiers; 4) clothes dryers; 5) TVs; 6) clothes washers; 7) electric fans; 8) fluorescent lamps (> 32W); 8) fluorescent lamps (< 32W); 9) hair dryers; 10) hand dryers; 11) warmï hot water dispensers; 12) chilledï warmï hot water dispensers, 13) chilledï warmï hot drinking fountains; 14) automobiles and light trucks; 15) motorcycles; 16) self-ballasted fluorescent lamps; 17) thin film transistor-liquid crystal display; 18) instant gas-burning water heaters; 19) gas-burning cooking appliances; 20) electric rice cookers; 21) electric storage water heaters; 22) electric pots; 23) exit lights and emergency direction lights; 24) DVD products; 25) warmï hot drinking fountains; 26) luminaries; 27) integrated street lighting; 28) compact fluorescent lamps; 29) printers; 30) copiers; 31) air cleaners (new); 32) street lighting; 33) ventilating fans for bathrooms; 34) window type ventilating fans; 35) desktop PCs; 36) notebook PCs; 37) heat-pump water heaters; 38) range hoods; 39) microwave ovens; 40) axial-flow fans; 41) centrifugal fans; 42) ballasts for fluorescent tubes; 43) electric stoves; 44) electric water machines; 45) LED bulbs; and 46) LED panel luminaries.

Figure 1. Example of conservation labeling

e) Financial resources and budget allocation

Government funds.

f) Expected results

Raising energy efficiency of appliances from 10% to 70%.

2.4. Financial Measures Taken by the Government

2.4.1. Tax Scheme

The high-efficiency product rebate programs have been executed in 2008, 2011, and 2013.

2.4.2. Low-Interest Loans

No information available.

2.4.3. Subsidies and Budgetary Measures

Each purchasing unit can receive a rebate of up to NT$2000 (approximately USD 60 in 2015).

2.4.4. Other Incentives

The Free Energy Audit scheme began 15 years ago to assist business owners in improving their energy efficiency and to increase energy efficiency by 30% by 2025 in the industrial and commercial sectors.

2.5. Energy Pricing

The equation used to adjust gasoline and diesel prices, originally determined by the China Petroleum Corporation (CPC), was abolished in September 2000, after petroleum products by the Formosa Petrochemical Corporation were released to the market. Following significant fluctuation in international petroleum prices in the second half of 2005, the Ministry of Economic Affairs authorized the CPC to adopt a floating fuel pricing mechanism at the beginning of 2007. However, the petroleum price should maintain the principle of the lowest price among the neighboring economies in Asia.

The pricing mechanism for electricity is controlled by the government rather than based on generation cost. In addition, proposals for electricity price adjustments are reviewed by a governmental committee.

Higher energy prices have proved to be an effective tool for energy conservation. Chinese Taipei raised the petroleum and electricity prices in June and July 2008 after which petroleum and electricity consumption significantly declined. Higher energy prices may also provide the incentive for equipment replacement. However, the effect is difficult to assess due to higher sales prices of high-efficiency products.

2.6. Other Efforts for Energy Efficiency Improvement

2.6.1. Cooperation with Non-Government Organizations

The government cooperates with non-government organizations in order to disseminate energy efficiency and energy-saving policies.

2.6.2. Cooperation through Bilateral, Regional, and Multilateral Schemes

The Chinese Taipei Government participates in APEC Energy Working Group projects that are related to energy efficiency and conservation.

2.6.3. Other Cooperation/Efforts for Energy Efficiency Improvement

Chinese Taipei is an affiliate partner of the Collaborative Labeling and Appliance Standards Program (CLASP) based in the U.S. state of California to promote energy-efficient products by developing and updating the standards and labeling program.

REFERENCES

BOE (2008A) *Framework of Taiwan's Sustainable Energy Policy*, Bureau of Energy, Ministry of Economic Affairs, Taipei, http://www.moeaboe.gov.tw/English/english_index.aspx?Group=4.

BOE (2008B) *Regulations on Fuel Economy Standard and Inspection and Administration of Motor*, Bureau of Energy, Ministry of Economic Affairs, Taipei, http://www.moeaboe.gov.tw/English/laws/EnLMain.aspx?PageId=laws_list