

# PHILIPPINES

## 1. GOALS FOR EFFICIENCY IMPROVEMENT

### 1.1. Overall Energy Efficiency Improvement Goals

The Philippine Government launched The National Energy Efficiency and Conservation Program (NEECP) in August 2004. It plans to further strengthen the implementation of energy efficiency and conservation programs through the promotion of saving and efficient utilisation of energy in the economy in the period 2005-14. The Government's objective is to make energy conservation a way of life for every Filipino through its theme dubbed as '*EC* Way of Life'.

Since then, to effectively promote the NEECP, the DOE in cooperation with the private sector has continuously pursued the strong implementation of existing energy conservation programs to rationalise energy demand consumption. The NEECP is a comprehensive plan to institute measures for improving energy efficiency and conservation in all sectors of the economy by 2014, particularly for petroleum products and electricity in the Philippines.

The overall goals of the program are to:

- Curb the impact of oil price volatility on the economy and reduce carbon dioxide emissions to protect the environment
- Improve utilisation by all users through energy efficiency and conservation programs, which is expected to achieve an estimated potential cumulative energy savings of 9.08 million barrels of fuel oil equivalent (boe) at the end of the planning period in 2014.

These goals were further highlighted in the 2008 Philippine Energy Summit which has been considered and incorporated as part of the DOE's plans and programs for 2009 to 2030. The Summit likewise emphasized the relevance of human factor in the success and widespread implementation of energy efficiency and conservation programs.

### 1.2. Sectoral Energy Efficiency Improvement Goals

The Philippines has no sectoral quantitative goals in its NEECP. However, under the 2009-30 Philippine Energy Plan (PEP), the government's energy efficiency and conservation program was to set a sectoral energy efficiency goal from the previous program based on the planning goal. Accordingly, a target reduction of 10% of final energy demand has been set for the commercial, residential, industrial, transport and agriculture sectors.

### 1.3. Action Plans for Promoting Energy Efficiency

The Philippine National Energy Efficiency and Conservation Program is a medium-term comprehensive program of work for promoting energy efficiency in the Philippines. According to the NEECP framework, there are nine components focusing on the entire area of energy efficiency with specific actions to achieve goals.

#### a) Objectives

The specific objectives of NEECP are:

- To reduce the impact of the increase in prices of petroleum products and electricity through the implementation of energy efficiency and conservation measures
- To promote cost avoidance/savings for fuel and electricity without sacrificing productivity
- To help protect the environment

- To generate cumulative energy saving for the planning period 2007–14 by 9.08 million boe, which is to a deferred megawatt capacity of 210.56 MW and greenhouse gas (GHG) emissions of 2 917.07 giga-grams (hereafter Gg) of CO<sub>2</sub> at the end of planning year.

#### b) **Applicable sectors**

The NEECP is being implemented in the period 2007–2014. It contains a comprehensive set of measures that cover six sectors: government (government energy management, education and information), industry (including power), residential, commercial, agriculture, and transport.

#### c) **Outline**

The NEECP consists of nine components across six sectors including<sup>1</sup>:

**Component 1:** *Social Mobilization, Information, Education and Communication Campaign*

**Component 2:** *Energy Efficiency Standards and Labelling Program*

**Component 3:** *Government Energy Management Program (GEMP)*

**Component 4:** *Energy Management Services/Energy Audits*

**Component 5:** *Voluntary Agreement Program*

**Component 6:** *Recognition Award Program*

**Component 7:** *Fuel Economy Run Program* (currently part of the IEC program; however, necessary to establish/generate significant data for a vehicle labelling program in the future)

**Component 8:** *Locally Funded Projects that promote Energy Efficiency Conservation* include:

- Fuel Conservation and Efficiency in Road Transport (FCERT)
- Power Conservation and Demand Management (Power Patrol)
- Philippine Energy Efficiency Project (PEEP—a USD 31 million ADB loan by the Philippine Government to promote energy efficiency conservation)

**Component 9:** *Foreign Assisted/Technical Assistance*. This includes Philippine Industrial Energy Efficiency Project for the Philippines (a UNIDO-assisted project with the objective of showing optimisation system models in industrial manufacturing facilities and to establish Philippine Energy Management Standard in view of ISO 5001).

Major programs that have been implemented as of 2008 are as follows:

#### **Social Mobilization and IEC Campaign**

The main focus of the IEC campaign is to promote the efficient use and conservation of electricity and fuel in all energy-consuming sectors. The campaign is in compliance with E.O. 123 ‘Institutionalising the committee on power conservation and efficiency in road transport’ (Road Transport Patrol). Among the activities conducted under the IEC campaign are seminar-workshops for target participants in commercial, residential, industrial and government buildings; fuel economy runs for road transport vehicles; and the use of television, radio and print media ads to reach wider target sectors.

About 25 seminar-workshops on energy conservation were held across the economy in 2007 with an additional 28 in 2008 with participants from the sectors of government, business and transport, as well as academia, especially elementary and high school students and teachers.

<sup>1</sup>NEECP, answers of the Philippine Government from questionnaires for energy efficiency compendium, 2009.

Energy efficiency and conservation dissemination through television channels and radio stations has reached a wider consumer base in the residential and transport sectors.

### **Voluntary program**

Activities under this program include the promotion of the car-less day, carpooling and anti-idling campaigns. The aim is to promote fuel conservation and reduce pollution and traffic congestion in the economy in partnership with various transport groups, local government units, schools and shopping malls as well as with private individuals. A voluntary agreement has been arranged between the DOE and the industrial establishments under the so-called Partnership for Energy Responsive Companies/Ecozones.

### **Energy Efficiency Standards and Labelling Program**

As part of its continuing efforts to promote the welfare of consumers, the DOE has been closely cooperating with various organisations including through an active alliance with DTI, Philippine Appliances Industry Association and the Philippine Lighting Industry Association for the effective implementation of the government's energy efficiency standard and labelling for selected household appliances and lighting products. Significant benefits have been gained through this program such as the improved quality of locally-manufactured products, making them more competitive in the local market. At the same time, it discourages the manufacturing and the importation of inefficient household appliances and lighting products sold in the market. Through the program, the country was able to save 13.03 MMBFOE (1.88 MTOE) for the period 2007 to 2008 which is equivalent to US\$ 1.05 billion in savings.

The DOE aims to expand the coverage of the program within the planning period to include fluorescent lamps, luminaries, household electric fans, industrial fans and blowers, television sets and electric motors. Consumer education will also be undertaken as a complementary activity for the effective implementation of the program.

This program is also expected to generate the biggest contribution of energy savings from 0.97 MTOE in 2010 to reach 1.17 MTOE in 2014.

Apart from the above-mentioned programs, the Philippine Government is carrying out the following measures:

- Pursuing the passage of the Energy Conservation Bill into law
- Pursuing the inclusion of standardised technical specification requirements in the procurement process of energy efficiency lighting systems and other electrical equipment and devices in government offices
- Developing a benchmark in commercial and government buildings including in the manufacturing industry sector
- Filling in the gap in the implementation of utility-based demand-side management (DSM), market-based applications under the Demand Reduction Program will instead be promoted. At the same time, the existing policy framework for utility-driven DSM will be reviewed, and a new set of recommendations will be submitted to concerned stakeholders for consultation to provide new policy directions
- Evaluation of the impact of IEC programs in the household sector through contracted survey services under the auspices of the National Statistics Office (NSO)
- Strengthening of product testing and research through the enhanced testing capability of the DOE lighting and appliance testing laboratory Inventory of legitimate and accredited testing laboratories to encourage the private sector to set up independent and competent testing laboratories
- Promotion and establishment of accreditation of ESCOs
- Intensified promotion of heat rate improvement in power plants
- Establishment of energy labels for all new vehicles regarding the fuel mileage rating

- Expanding promotion of the Energy Efficiency and Conservation Program and Energy Consumption Monitoring in large seaborne vehicles, such as passenger and cargo ships, power generation plants and power distribution utilities.

The above measures will also help the government to review the NEECP, determine appropriate levels of funding for various initiatives, allow for increased competition and accountability among implementing partners, and determine appropriate roles for private sector participation.

### **Government Energy Management Program (GEMP)**

The GEMP aims to integrate energy efficiency concepts into the operation of government agencies to realise the reduction target of 10% in electricity and fuel consumption in compliance with the presidential directive under A.O.126. The major activities under this program include conducting monitoring and energy audit spot checks in all government buildings and the carrying out seminars on energy efficiency and conservation for government employees.

In 2007 and 2008, the DOE was able to conduct spot checks in about 300 government buildings across the economy.

### **System Loss Reduction Program**

Under the umbrella of the Energy Management Program, the System Loss Reduction program enables private utilities to reduce their system losses through redesigns of transmission lines and improvement of substation equipment such as installation of capacitors.

### **Recognition Program**

In recognition of the private sector's effort to promote and implement energy conservation programs, the Don Emilio Abello Energy Efficiency Awards are presented to private companies that make significant improvements in their energy consumption patterns. On the other hand, the Government Energy Management Program Award is given to government agencies that exceed the mandatory 10% reduction in energy consumption. In addition, the ASEAN Energy Management Award for Major buildings and industries was launched in 2000 under the program area on energy efficiency and conservation of the ASEAN Plan of Action (2000–09). Objectively, this is a recognition program aimed to provide international prominence and recognition to buildings and entities. For this award, San Miguel Polo Brewery and Republic Cement Corporation gained first and second runner up recognition at the award night on 24 August 2007 in Singapore.

### **Energy Auditing**

This technical service is offered by the DOE to manufacturing plants, commercial buildings and other energy-intensive facilities to evaluate the energy utilisation efficiencies of equipment, processes and operation of the companies, and appropriate energy efficiency and conservation measures are recommended.

In 2006, the DOE conducted energy audits at 16 industrial and commercial companies across the economy. This activity is continuously implemented in partnership with accredited energy service companies (ESCOs). In order to enhance the energy management advisory services in the economy, the Energy Service Company Association of the Philippines was organised in 2004. This association intends to (a) organise the firms engaged in the energy service industry to provide a forum for the effective exchange of information about industry practices and introduce new technologies for the industry; and (b) promote energy efficiency and demand reduction technologies, thereby creating tangible economic value.

### **Philippine Efficient lighting Market Transformation Project (PELMATP)**

Since the project's inception in 2005, the UNDP-GEFF-funded PELMTP has been aggressively addressing the barriers to the widespread use of energy-efficient lighting systems

(EELS) in the economy. The project aims to achieve an aggregate energy savings of 29 000 MWh and a reduction of about 4600 Gg of CO<sub>2</sub>.

There are five core components in the achievement of these objectives, namely EEL policy, Standard and Guidelines Enhancement Program, EEL Application Consumer Awareness Improvement Program, EEL Initiatives Financing Assistance Program, and EEL System Waste Management Program.

#### **d) Financial resources and budget allocation**

The energy sector continues to undertake an aggressive campaign to promote energy efficiency and conservation. The DOE has lined up several activities which will require PHP 48.69 billion in capital investments for the period 2007–14. From this amount, PHP 43.77 billion will be sourced from private investors and the remaining PHP 4.92 billion will come from the government.

Activities on energy labelling and energy efficiency standards will constitute the biggest share at PHP 19.72 billion, followed by the energy management programs of PHP 16.10 billion.

#### **e) Method for monitoring and measuring effects of action plans**

- Monitoring of activities through monthly and quarterly accomplishment reports
- Action plan measured through percentage use of annual budget fund
- Other activities monitored and measured through the submission of a Quarterly Energy Consumption Report and Annual Energy Conservation Program reports of private companies (commercial, government buildings, and industrial sector).

Surveys, statistics compilation, end-use information, reporting and trend analysis are all being undertaken, and databases are being developed to assist in program evaluation and policy formation. The Department of Energy-Energy Utilization Management Bureau (Energy Efficiency and Conservation Division) (DOE EUMB-EECD) has the duty of energy efficiency monitoring and reporting. The following are some examples of government-initiated activities aimed at energy efficiency monitoring and reporting:

- Under DOE Circular 93-03-05, companies consuming 1 million litres of oil equivalent are required to submit quarterly energy consumption reports. In addition, companies consuming 2 million litres of oil equivalent or more annually are required to submit an annual energy conservation program to the DOE
- Quarterly Energy Consumption Reports submitted by establishments (commercial, industrial and transport) are entered in a National Energy Consumption database for monitoring and data evaluation processing
- Under the Government Energy Management Program (GEMP), government buildings are required to submit a Monthly Electricity and Fuel Consumption Report as per Presidential Directives (Administrative Orders 110, 126)
- Fuel Mileage Rating Data are being generated under the 'Fuel Economy Run' for a future Vehicle Labelling Program.

#### **f) Expected results**

- Meet the set major final output for the year
- Meet the target of 400 MW deferred capacity under the Philippine Energy Efficiency Project for the CFL Distribution project component by 2010
- Post a savings of more than PHP 1.6 billion (USD 32 million), as set forth in 2008 under the recognition award program, by the end of 2008.

#### **g) Future tasks**

- Establish energy benchmarks in the manufacturing and building sectors

- Promote and establish an accreditation system for energy auditors and energy managers
- Intensify promotion of heat rate improvement in power plants
- Establish an energy label for all new vehicles (relative to fuel mileage rating only)
- Expand the promotion of energy efficiency and conservation program as well as energy
- Consumption monitoring in large seaborne vessels (passenger ships, cargo/tanker ships)
- Power generation plants, and power distribution utilities
- Expand reportorial requirements for the industrial, commercial and transport sectors to
- Include establishments consuming more than 500 000 litres of oil equivalent annually.
- Promote green building concepts and technology and the appropriate policy framework
- Formulation, development and submission to the Philippine Congress of an appropriate
- Philippine energy conservation policy
- Modernise the energy consumption database monitoring system to
- Monitor the energy consumption and annual energy conservation programs of private
- Companies (industrial, commercial, government buildings and transport sectors).

#### 1.4. Institutional Structure

##### a) Name of organisation

The Energy Efficiency & Conservation Division (EECD) under the Department of Energy-Energy Utilization Management Bureau (DOE EUMB) has the roles and responsibilities to formulate policies, plans and programs related to energy efficiency and conservation, and it ensures effective implementation thereof in the government, industrial, commercial, residential, transport and electric power sectors. As such, EECD plays the role of focal coordinator for EE&C and is authorised to administer the implementation of the Philippine Energy Efficiency and Conservation Program (NEECP). In addition, DOE has two regional offices, the DOE-Vizayas Field Office and the DOE-Mindanao Field Office. These two offices also implement energy efficiency and conservation programs based on the plans and programs of the EUMB-EECD.

##### b) Status of organisations

All agencies report implementation of energy efficiency programs to the DOE.

##### c) Roles and responsibilities

Varies across agencies

##### d) Covered sectors

All sectors of the economy

##### e) Established date

1980

##### f) Number of staff members

Currently 18

#### 1.5. Information Dissemination, Awareness-raising and Capacity-building

##### a) Information collection and dissemination

General information about NEECP is readily available to Philippine energy consumers. For example, the Standards and Labeling Program of the Department of Energy can be easily accessed at the official website of the DOE. For labels of selected appliances such as refrigerators and freezers, CFL lamps and linear fluorescent lamps, a yellow label tag and specification of the unit inscribed on the box designate that it passed government minimum energy labelling requirements.

#### **b) Awareness-raising**

The purpose of the dissemination program in Component 2 is to increase public awareness of EE&C and support for popularising energy-efficient appliances in the domestic retail market. In recent years, the EE&C promotion and dissemination program has been conducted frequently in the public media.

The conduct of energy efficiency and conservation seminars in the commercial, residential and industrial sectors contributed significantly to the dissemination of proven energy efficient technologies available in the market, including service companies and financial institutions that support energy efficiency. Awareness-raising campaign programs are centred on the following areas: (a) fuel conservation and efficiency in road transport; (b) power conservation and demand management in the commercial, residential and industrial sectors; (c) energy efficient technology promotion in all sectors; and (d) tips for saving energy in all sectors.

#### **c) Capacity-building**

A range of training courses, workshops, publishing technical documents for energy efficiency knowledge and assessment addressing all nine components have been developed and are being implemented under the NEECP. These include training courses on energy auditing, capacity-building for EE&C units, and so on. Personnel of EUMB-EECD are being activated through attendance in local as well as overseas training programs provided by foreign institutions. The areas of capacity development are Energy Auditing Techniques, Energy Management, Energy Conservation Opportunities, Co-Generation, and so on.

### **1.6. Research and Development in Energy Efficiency and Conservation**

The Philippines has no specific policy on research and development in energy efficiency and conservation yet. Under this item, the DOE's programs on energy research, development and demonstration are limited to the Philippine Energy Efficiency Project, funded under a loan agreement between the Philippine government and the Asian Development Bank. This project is an energy efficiency demonstration (efficient lighting system) including the establishment of a lamp waste management facility and promotion of Energy Service Companies (ESCOs).

## **2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS**

### **2.1. Government Laws, Decrees, Acts**

- DOE Memorandum Circular No. 93-03-05 Series of 1993 (Energy Consumption Monitoring)
- Executive Order No. 123, Series of 1993 (Power Conservation and Demand Management)
- Executive Order No. 472, Series of 1998 (Fuel Conservation in Road Transport)
- Administrative Order No. 103, Series of 2004 (Adoption of Austerity measures - Fuel and Electricity)
- Administrative Order No. 110, Series of 2004 (Institutionalization of Government Energy Management Program)
- Administrative Order No. 126, Series of 2005 (Directing the Enhanced Implementation of the Government Energy Conservation Program)

- Administrative Order No. 183, Series of 2007 (Directing the Use of Energy Efficient Lighting/Lighting Systems in Government Facilities)
- Guidelines on Energy Conserving Designs of Buildings (2007) (note: this guideline is a reference document of the National Building Code.).

**a) Applicable sectors**

All of above-mentioned legal documents issued by the government apply to government and commercial buildings, households, industrial facilities, and transport facilities.

**b) Financial resources and budget allocation**

Budget allocation for EO 123 and 472 has been deferred by the Department of Budget and Management for 2010, while for 2009 there was a budget of PHP 20 million (USD 400 000). The other policies being implemented were funded under the Regular Budget fund for Personnel Services (PS) and Maintenance and Other Operating Expenses (MOOE).

**c) Expected results**

All of the policies indicated above are meant for IEC awareness campaigns and energy consumption monitoring. Accomplishment reports and reporting compliance by the concerned sectors under these policies are expected regularly.

## 2.2. Regulatory Measures

### 2.2.1. Minimum Energy Performance Standards and Labelling

**a) Name**

- Mandatory Energy Efficiency Labelling is only applied to home appliances and devices and equipment, such as refrigerators and freezers, window-type air conditioners, compact fluorescent lamps, linear fluorescent lamps, and so on.
- Guidelines on Energy Conserving Designs of Buildings (this guideline has been a referral code of the National Building Code).

**b) Applicable sectors**

Residential, commercial, public buildings and local government units

**c) Outline**

The purpose is to establish compliance with mandatory labelling of selected home appliances, to adopt minimum design requirements in the design of buildings, and to specify minimum standard requirements for the design and construction of lighting in roadways.

**d) Financial resources and budget allocation**

No information available

**e) Expected results**

- Compliance by home appliance manufacturers and importers of CFL and linear fluorescent lighting
- Compliance by the building designers and architects
- Compliance by the local government units in rehabilitating inefficient roadway lighting especially in parks and streets.

## 2.3. Voluntary Measures

Under this program, measures include promotion of the car-less day and carpooling. The aim is to promote fuel conservation and reduce pollution and traffic congestion in the economy, and a voluntary agreement is arranged between the DOE and the industrial establishment under the so-called Partnership for Energy Responsive Companies.

## **2.4. Financial Measures Taken by the Government**

### **2.4.1. Tax Scheme**

Currently, no tax incentives are given for any energy efficiency improvements. Tax incentives are provided as in the past, for example, on co-generation technology. The Department of Trade and Industry-Board of Investment (DTI-BOI) provides incentives specified under the Investment Priority Plan (IPP). For 2010, the DOE negotiates with the BOI to include energy efficiency incentives for imported energy efficient goods and technologies.

### **2.4.2. Low-Interest Loans**

Financial loans for energy efficiency improvement programs are being provided by local commercial banks in cooperation with other foreign financial and lending institutions such as the World Bank-IFC.

### **2.4.3. Subsidies and Budgetary Measures**

The PDOE does not provide any financial subsidies or other budgetary measures to any private or other government entities for efficiency improvements or projects.

### **2.4.4. Other Incentives**

The non-incorporation of tax incentives into the BOI-IPP also does not provide any incentive scheme for import duties on energy efficiency products. Energy Audits by the PDOE for Walk-Through Audits are free of charge; however, detailed audits have applicable charges and fees. Generally, there are no incentives given by the government in terms of energy efficiency improvements and importation of energy efficiency products. Recognising the company for reducing its energy consumption (energy consumption performance improvement) through application of appropriate energy conservation measures, programs and projects implemented are recognised under the Don Emilio Abello Energy Efficiency Award as mentioned previously. Financial requirements of this program are shared by the members of the Technical Working Group, which is composed of the oil companies, other government energy agencies, private energy organisations and other stakeholders in the energy sector. The amount to implement this program ranges from PHP 300 000–350 000 (USD 6000–7000). An expected result in average energy saving of not less than PHP 1 billion (USD 20 million) is estimated.

## **2.5. Energy Pricing**

Generally, energy pricing is market-based (oil pricing is deregulated under the Philippine Oil Deregulation Law, for example). However, the pricing mechanism for electricity tariffs in the Philippines is controlled by the government (Energy Regulatory Commission—ERC).

In the transport sector, the almost daily increases in the price of transport fuel (gasoline and diesel) require vehicle owners, fleet operators and other business sectors to open up their options for the application of energy conservation measures—carpooling, stopping of long engine idling, regular maintenance, and trip-scheduling, among others. Residential, commercial and industrial sectors opted for the energy efficient lighting system, such as compact fluorescent lamps and slim-type fluorescent lamps. The introduction of the Yellow Label Tag for refrigerators and freezers and air conditioners also helps in the promotion of the government's energy efficiency and conservation program.

## **2.6. Other Efforts for Energy Efficiency Improvements**

### **2.6.1. Cooperation with Non-Government Organisations**

Cooperation with non-governmental organisations is limited to capacity-building through seminars and workshops on energy efficiency and conservation.

### 2.6.2. Cooperation through Bilateral, Regional and Multilateral Schemes

ASEAN Regional Cooperation efforts focus on the ASEAN-Promotion of Energy Efficiency and Conservation (ASEAN-PROMEEC) cooperation initiative. They include the ASEAN Award for Energy Management for major Buildings and Industries, The ASEAN Award for Best Competition in Buildings, ASEAN Energy Manager Accreditation System (AEMAS), and ASEAN Labelling Program.

### 2.6.3. Other Cooperation/Efforts for Energy Efficiency Improvements

The Philippines is a member of the Association of Southeast Asian Nations (ASEAN) and is involved in various working groups, including the Energy Efficiency and Renewable Energy Network. Apart from that, the Philippines is designated as a lead economy for the working group on biofuels for transport and other uses in the EAS-Energy Cooperation Task Force (ECTF).

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## REFERENCES

DOE (2008), Department of Energy, Republic of the Philippines, *Philippine Energy Plan 2007–2014*.

DOE (2009), *Energy Efficiency & Conservation Plans and Programs*, available at [www.doe.gov.ph/EE/EE&C%20Plans%20and%20Programs.htm](http://www.doe.gov.ph/EE/EE&C%20Plans%20and%20Programs.htm).