

# VIETNAM

## 1. GOALS FOR EFFICIENCY IMPROVEMENT

### 1.1. Overall Energy Efficiency Improvement Goals

In 2005, the Ministry of Industry and Trade (MOIT) released the National Strategic Program on Energy Savings and Effective Use (Vietnam National Energy Efficiency Program, (VNEEP)) for 2006-2015. The program was approved and adopted in April 2006 by the Prime Minister (Decision No.79/2006/QD-TTG). The overall objectives include the following:

- 1) Activities to encourage, promote, and disseminate energy efficiency and conservation (EEC) in the public sphere, science and technology research activities, and management measures required to perform synchronous activities on energy efficiency and conservation throughout society.
- 2) An energy savings goal of 3%-5% of the total energy demand (compared to business-as-usual (BAU)) during 2006-2010 and 5%-8% during 2011-2015.

The VNEEP is the first-ever long-term comprehensive plan to institute measures for improving energy efficiency and conservation in all sectors of the economy in Vietnam. Phase 1 (2006-2010) aims to actively start up all components of the program, while Phase 2 (2011-2015) aims to expand each component on the basis of the lessons learned from Phase 1.

### 1.2. Sectoral Energy Efficiency Improvement Goals

Vietnam currently has no sectoral quantitative targets.

### 1.3. Action Plans for Promoting Energy Efficiency

The VNEEP is a comprehensive program that promotes energy efficiency in Vietnam. According to the VNEEP framework, there are six components that focus on the entire field of energy efficiency with specific actions, including 11 large projects for promoting energy efficiency.

#### a) Objectives

To achieve its stated energy savings, which will help lower investment requirements for energy supply and generate socioeconomic benefits while contributing to environmental protection and rational extraction of energy resources.

#### b) Applicable sectors

Phase 1 of the VNEEP, implemented during 2006-2010, contained measures covering six sectors: 1) government (institutions, education, and information), 2) industrial (equipment and appliances for the residential and commercial sectors), 3) buildings and transport focusing on legal documents, 4) education, 5) information, and 6) capacity building.

Phase 2 began in 2012 with further action in each sector aimed at removing barriers for energy efficiency and creating breakthrough changes in end-use efficiency. The key focus was on the manufacturing sector and large energy-consuming buildings, but it also included provisions for the transport, services, and residential sectors.

#### c) Outline

The VNEEP consists of six components with 11 projects (actions). The actions and achievements to date are as follows:<sup>1</sup>

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<sup>1</sup>Decision 79 /2006/QD-TTg (2006); APEC EWG (2009).

**Component 1: State Management on Energy Efficiency and Conservation**

Project 1: Complete the legislative framework on EEC in industrial production, construction site management, domestic activities, and energy-consuming equipment.

**Achievements (2007–2011)**

- Law on Energy Conservation and Efficient Use (issued in 2010).
- Issued Decree 21/2011/ND-CP (dated March 29, 2011) on the guidelines for the implementation and enforcement of the law.
- Issued Decree 73/2011/ND-CP (dated August 24, 2011) on the sanctions and penalties for the violation of energy-efficient use.
- Issued Joint Circular No. 142/2007/TTLT/BTC-BCT (dated November 30, 2007) to guide the management and use non-business funds for the implementation of the target program on the economical and efficient use of energy.
- Directed and guided all localities to conduct energy efficiency activities.
- Established EEC centers in Hanoi, Hai Phong, and Tien Giang to coordinate program activities in the entire economy.
- Organized workshops, seminars, and trainings on energy efficiency laws, policies, institutional issues, technologies, and solutions.
- Developed the VNEEP website: [www.tietkiemnangluong.com.vn](http://www.tietkiemnangluong.com.vn).
- Published leaflets, handbooks, and technical guidelines on energy efficiency.

**Component 2: Education and Information Dissemination**

Project 2: Improve public awareness on EEC.

Project 3: Integrate EEC into the education system.

Project 4: Develop pilot models for the EEC in the Household movement

**Achievements (2007–2011)**

- Broadcast EEC news on television and radio.
- Developed documentary films on energy-efficient technologies.
- Printed EEC information in various newspapers and electronic media.
- Organized an annual contest on energy-efficient buildings.
- Provided guidelines to disseminate EEC information at all levels of the education system.

**Component 3: High Energy Efficiency Equipment**

Project 5: Develop standards and provide energy efficiency labels for selected products.

Project 6: Provide technical assistance to domestic producers on energy efficiency compliance.

**Achievements (2007–2011)**

- Completed a demonstration model for solar water heaters and industrial biogas.
- Conducted the labeling program for three appliances, i.e., FTL T8-36W, T5-32W, and electronic ballasts.
- Collaborated with the Vietnam Standard Centre to develop and issue three sets of standards on energy efficiency and testing methods for refrigerators, air conditioners, and electric fans.
- Conducted a pilot EEC information program for households through the Vietnam Women's Union in six provinces and cities.

- Implemented two programs to support lighting manufacturers in the technological transition from incandescent lamps to compact fluorescent lamps.

#### **Component 4: EEC in Industrial Enterprises**

Project 7: Develop EEC management models in enterprises.

Project 8: Support industrial enterprises in improving, upgrading, and optimizing technology aimed at energy saving and efficiency.

#### **Achievements (2007–2011)**

- Completed a survey in 2008 on the energy consumption of more than 500 large enterprises in order to identify potential energy savings and determine the energy consumption rates in the industrial sectors that consume a significant amount of energy.

#### **Component 5: EEC in Buildings**

Project 9: Improve capacity in EEC and conduct EEC in building design and management.

Project 10: Develop pilot models and disseminate EEC management activities in building operations.

#### **Achievements (2007–2011)**

- Implemented various dissemination activities led by the Ministry of Construction (MOC).

#### **Component 6: EEC in Transport**

Project 11: Make optimal use of transport facilities and equipment, minimize the amount of fuel consumed, and reduce the discharge of exhausted gases to the environment.

The major actions undertaken by 2008 are as follows:

#### **Achievements (2007–2011)**

- Conducted research activities on the enhancement of public transport in cities, and the creation of fuel-consumption measurement equipment to serve the management and exploitation of diesel-powered ships for fuel-saving purposes.

The first two years of VNEEP implementation primarily focused on education, capacity building, and research. Due to the introduction of several enabling efforts and capacity-building activities, the VNEEP is now in a good position to review its objectives and develop an overall strategy and a detailed implementation plan to achieve them. This will aid the government in determining appropriate levels of funding for various initiatives, allowing for increased competition and accountability among implementing partners, and designating appropriate roles of private sector participation and leverage.

The VNEEP Phase 2 was designed with four components and 13 projects.

#### **Component 1: Strengthening education, information dissemination, community mobilization, awareness raising, promoting the use of energy efficiency and conservation, and environmental protection.**

Project 1: Disseminate information to society and raise awareness on energy efficiency and conservation.

Project 2: Embed educational programs on energy efficiency and conservation in the education system.

Project 3: Create a pilot model of large-scale alternative energy forms and an energy-saving model family.

#### **Component 2: Development and dissemination of high-performance, energy-saving equipment with a gradual phasing out of low-performance equipment.**

Project 4: Develop energy performance standards and implement a mandatory energy labeling program.

Project 5: Provide technical assistance to manufacturers, assembly factories, importers, retailers of high-performance products, and testing laboratories throughout the economy.

Project 6: Support businesses in the application of standards and technical norms and improve their performance of energy efficiency and conservation.

Project 7: Develop energy management standards and models in energy-using facilities.

**Component 3: Energy saving and efficiency in buildings.**

Project 8: Strengthen the application of energy-saving standards in the construction/renovation of large buildings.

Project 9: Apply energy-saving solutions, technologies, equipment, and materials as well as organize competitions on green energy-saving buildings.

Project 10: Energy efficiency in public lighting.

**Component 4: To promote energy efficiency in the transport sector.**

Project 11: Energy savings in the planning and construction of transport infrastructure.

Project 12: Improve energy efficiency in organizations and exploit the transport system.

Project 13: Application of new technologies and renewable energy in transport

**d) Financial resources and budget allocation**

In 2007, VND 30 billion (approximately USD 2 million) of the state budget was allocated for 28 projects registered under the VNEEP. Roughly one-third of these funds were allocated to support two energy-efficient lighting manufacturers. In 2008, VND 36 billion (approximately USD 2.25 million) were allocated for 48 projects, many of which were initiated in 2007. From this figure, about one-third was used to set up an energy efficiency laboratory for air conditioners and refrigerators.

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

Surveys, statistic compilations, end-use information, reporting, and trend analyses are all being undertaken, and databases are being developed to assist in program evaluation and policy formation. However, these activities are limited since there has been no official agency (until now) that is responsible for energy data collection and analysis. Most of the previous and ongoing energy data monitoring and evaluations were undertaken as part of individual projects or energy audits of customers. In addition, the capability of human resources and government budget shortages are another impediment in this area.

To date, the Energy Efficiency and Conservation Office (EECO) at the MOIT is the only agency with the responsibility of energy efficiency monitoring and reporting.

**f) Expected results**

Reducing total final consumption by 5%–8% by 2015 (compared to BAU).

**g) Future tasks**

Completing related legal documents, establishing an official energy database (to be included in energy efficiency data), developing human resources, etc.

**1.4. Institutional Structure**

**a) Name of organization**

The MOIT, the focal coordinator on EEC, is authorized to administer the VNEEP. The Energy Efficiency and Conservation Office within the MOIT was established in 2006 to support this

role. The main task of this office is to develop systems in central and local governments to carry out the work of the VNEEP.

The National Steering Committee, chaired by the MOIT, was established for inter-ministerial coordination and to monitor the implementation of the VNEEP. This committee includes the Ministry of Construction, the Ministry of Transport, the Ministry of Education and Training, the Ministry of Culture, Sports and Tourism, the Ministry of Science and Technology (MOST), the Ministry of Planning and Investment, the Ministry of Justice, the Ministry of Finance, and the Union of Vietnam Associations of Science and Technology.

Since its establishment, the EECO has completed preparatory tasks, including the formulation of the action plans and detailed programs required to launch and implement the VNEEP in cooperation with other governmental organizations.

At the level of implementing agencies, the following main agencies have been carrying out energy efficiency programs or related energy efficiency programs:

- People's Committee of Provinces and Cities (under central management).
  - Develop local policies on energy conservation and effective uses.
  - Coordinate the implementation of projects in local areas.
- Energy Efficiency Centres in large cities such as Hanoi, Tien Giang, HCM City, Phu tho, Dongthap, Haiphong, and Danang.
- Institute of Energy (IE).
- Vietnam Standards and Quality Institute (VSQI) STAMEQ (MOST).
- Electricity of Vietnam (EVN).
- Other agencies under different ministries.

#### **b) Status of the organization**

All agencies report on the implementation of EE programs to the EECO and the MOIT.

#### **c) Roles and responsibilities**

The roles vary across agencies.

#### **d) Covered sectors**

All sectors of the economy.

#### **e) Established date**

Since 2002 (only for EEC centers).

#### **f) Number of staff**

The EECO has approximately 15 staff members, plus 25 staff members for other EEC centers.

### **1.5. Information Dissemination, Awareness Raising and Capacity Building**

#### **a) Information collection and dissemination**

General information on the VNEEP is readily available to Vietnamese energy consumers. For example, the EEC website, developed under the VNEEP framework, is a public source of information on energy efficiency. There are also a number of other websites containing information energy efficiency improvement from the EEC HCM Center, the EE Hanoi Center, etc.

#### **b) Awareness Raising**

The purpose of the dissemination program in Component 2 is to increase the public awareness of the definition of EEC and support the penetration of energy-efficient appliances into the

domestic retail market. In recent years, the EEC promotion and dissemination program has frequently appeared in the media.

Four projects were carried out in 2007 and six projects were implemented in 2008-2009. The projects mainly focus on communication via public media, radio, television, newspapers, and other public relations activities.

Almost all of the projects in Component 2 have completed the proposed tasks, including Vietnam television and radio, the contest for energy-efficient buildings, and the provision of EEC information to the school education system at all levels.

### **c) Capacity Building**

A wide range of training courses, workshops, the publishing of technical documents for energy efficiency knowledge, and assessments addressing all six components are being developed and implemented under the VNEEP. These include training courses on energy auditing, publishing a guidebook on energy efficiency, and capacity building for EEC centers. Most of these activities are scheduled to be completed in the first phase of the program.

Training courses in the construction and design of energy-efficient buildings, enhancing capacity for facility management on the energy efficiency of local industry department leaders, and energy managers are also being developed under the VNEEP.

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

Vietnam has no specific policy for the support of energy efficiency R&D. However, some measures of the VNEEP encourage R&D in this area. For example, according to Item D of Article 4: "The policy on encouraging energy conservation and energy efficiency needs to define concrete requirements on energy saving in intensive energy use sectors; encouraging application of energy efficient equipment and technologies."<sup>2</sup>

The importance of R&D in energy efficiency improvement is also spelled out in the Decree on Energy Conservation and Energy Efficiency (102/2003/ND-CP). The decree stipulates that R&D should be a main tool for improving energy efficiency. The decree also mandates central and local government organizations to place reasonable efforts into energy efficiency R&D.

In regard to energy efficiency R&D, the decree prioritizes the development of suitable technologies in the industrial sector and the improvement of energy efficiency in the production activities of the Vietnamese people, especially in rural and remote areas.

The decree also calls for the government to allocate a suitable budget for energy efficiency R&D from the Science-Technology Research and Development Fund. The Ministry of Science and Technology (MOST) is responsible for the fund and setting up long- and medium-term R&D programs and budget allocations.

However, to date, there are no specific actions developed in accordance with the measures stipulated in the above documents.

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

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

In 2003, the first Decree on Energy Efficiency and Conservation (Decree No.102/2003/ND-CP) was issued (see below). This decree was replaced by the Law on Energy Efficiency and Conservation, passed in June 2010, and enforced on January 1, 2011.

In 2006, the VNEEP for the 2006-2015 time period was approved and enforced by the Prime Minister's Decision (Decision No.79/2006/QĐ-TTg). In 2012, the government approved the VNEEP Phase II for the 2012-2015 time period. The VNEEP calls for coordinated efforts for

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<sup>2</sup> Decision 1855/QĐ-TTg (2007).



improving energy efficiency, reducing energy losses, and implementing extensive measures for the conservation of energy. Other decrees have been issued to support the implementation of the law such as Decree 21/2011/N -CP regarding regulations and measures to implement the law on energy conservation and efficient use on March 29, 2011, and Decree 134/2013/N -CP on regulations regarding penalties in energy efficiency and conservation.

Moreover, in November 2006, the MOIT issued its Guidelines for Energy Efficiency Standard and Labeling in order to assist the implementation of energy efficiency standards and labeling in appliances (Circular No.08/2006/TT/BCN). This circular has been replaced by Circular No.07/2012/TT-BCT (dated April 4, 2012), which defines energy labeling for energy-using equipment. Some other documents related to the implementation of labeling programs include the following: Decision 51/2011/Q -TTg and Decision 03/2013/Q -TTg regarding the list of equipment subject to labeling and the application of MEPS and roadmaps; Decision 78/2013/Q -TTg concerning the list of equipment and roadmaps for rejection; and Decision 68/2011/QD-TTg regarding state procurement regulations on energy labeling products.

Other related regulations include the Electricity Law (approved and enforced in July 2005), which consists of sections that specify electricity efficiency in the generation, transmission, distribution, and use processes. This was followed by the Electricity Saving Program for the 2006-2010 Time Period, which was approved by the Prime Minister in April 2006. Finally, the building code was updated in 2013 (Building Code No.09/2013-BXD).

**a) Name**

Law on Energy Conservation and Energy Efficiency (50/2010/QH12)

**b) Purpose**

The decree aims to promote energy conservation and energy efficiency that meets the increasing energy demand as well as environmental protection, reasonable energy resource exploitation, and sustainable socio-economic development.

**c) Applicable sectors**

The decree applies to all large energy users across all sectors. This mainly covers the industrial, construction (buildings), and transport sectors as well as energy-consuming equipment.

**d) Outline**

The law regulates that all designated energy consumers be defined by the government. It also confirms that the government carries out the state management of energy efficiency and conservation, while the Ministry of Industry and Trade (MOIT), as its duty to the government, is responsible for implementing the state management of energy efficiency and conservation. Apart from this, other related ministries, such as the Ministry of Science and Technology, the Ministry of Construction, the Ministry of Transport, the General Statistics Office, the People's Committee (at the provincial level), etc., are responsible for coordinating with the MOIT in implementing the state management of energy efficiency and conservation in the provinces and sectors.

**e) Financial resources and budget allocation**

The law also indicates that the energy efficiency projects can be considered for financial support from National Target Programs on Energy Efficiency and Conservation.

**f) Expected results**

No information is available.

## 2.2. Regulatory Measures

### 2.2.1. Minimum Energy Performance Standards and Labeling

Mandatory measures are expected to be gradually applied after The Law of Energy Conservation and Effective Use is fully enforced. Vietnam is currently creating the road map for the implementation of a standard and labeling program regarding equipment and appliances in line with Phase 2 of the VNEEP. Labeling is currently mandatory for the following products:

- Refrigerators
- Fans
- Washing machines
- Rice cookers
- TVs
- Lighting equipment: CFLs, TFLs, electronic ballasts.
- Air conditioners
- Three-phase electric motors and transformers.

### 2.2.2. Building Energy Codes

#### a) Name

Vietnam Energy Efficiency Building Codes (No. 09/2013/QD-BXD)

#### b) Purpose

This National Technical Building Energy Efficiency Building Code provides mandatory technical standards to achieve energy efficiency in the design and construction/retrofit of civil buildings (e.g., office buildings, hotels, hospitals, schools, commercial buildings, service buildings, and apartments buildings) with a gross floor area of 2,500 m<sup>2</sup> or larger.

#### c) Applicable sectors

Residential, commercial, and public buildings.

#### d) Outline

This code provides technical requirements applicable to the design and construction of buildings including operational equipment.

The requirements of this code apply to the following:

- 1) The building envelope, except envelopes of non-air-conditioned storage spaces or warehouses.
- 2) Equipment and systems in buildings, including the following:
  - a) Interior lighting
  - b) Ventilation and air conditioning
  - c) Water heating
  - d) Energy management equipment
  - e) Elevators and escalators

#### e) Financial resources and budget allocation

No information is available.

#### f) Expected results

No information is available.

### 2.3. Voluntary Measures

Labeling is currently voluntary for the following electrical products in Vietnam:

- Printers
- Monitors



- Photocopiers

## 2.4. Financial Measures Taken by the Government

In order to implement energy efficiency programs within the framework of the VNEEP, the MOIT, together with the Ministry of Finance, issued Circular No. 142/2007/TTLT/BTC-BTC, which guides the management and use of non-business funds for the implementation of a target program on the economic and efficient use of energy (unfortunately, no detailed information identified in this circular is currently available). The total VNEEP budget in 2007 and 2008 was nearly VND 70 billion (approximately USD 5 million) of which VND 10 billion was used to support two energy-efficient lighting manufacturers, and VND 4 billion was invested to set up an energy efficiency laboratory for air conditioners and refrigerators.

### 2.4.1. Tax Scheme

No information is available.

### 2.4.2. Low-Interest Loans

No information is available.

### 2.4.3. Subsidies and Budgetary Measures

Apart from the VNEEP, Vietnam includes other subsidies and budgetary measures to stimulate energy efficiency at the central government level. One example is provided below.

#### a) Name

The Pilot Commercial Energy Efficiency Program (CEEP)

#### b) Purpose

To enhance capacity building in EEC activities for agencies and provide financial support to enterprises.

#### c) Applicable sectors

Residential, commercial, and industrial sectors.

#### d) Outline

Vietnam received a grant for this project from the Global Environment Facility (GEF), through the International Bank for Reconstruction and Development (World Bank). The implementation period of the program was 2004-2009.

The pilot program included three components:

- Training project agents in energy-efficient commercial services and technical assistance in order to support the completion of energy efficiency investment projects (Annex 5 summarizes the training plan).
- Energy audit and efficiency investment grants (at decreasing levels over four years) to enable individual business to conduct efficiency investment transactions and overcome initial barriers when adopting energy-efficient business services (to be administered by a commercial bank to work as an administrative unit).
- Program marketing to promote energy efficiency (as both a good business service and a good investment for end-users) along with program administration to ensure success of the overall project strategy.

#### e) Financial resources and budget allocation

Funded by the state budget, the World Bank, and the Global Environmental Facility.

#### f) Expected results

Upon implementation, the total electricity consumption will be reduced by 1,540 GWh.

#### 2.4.4. Other Incentives

No information is available.

#### 2.5. Energy Pricing

Pricing mechanisms of coal for power generation, several types of petroleum products, and electricity in Vietnam are controlled by the government.

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

##### 2.6.1. Cooperation with Non-Government Organizations

The Vietnamese Government cooperates with non-government organizations to stimulate energy efficiency improvements.

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

The Vietnamese Government cooperates with other economies through the Promotion of Energy Efficiency in ASEAN Economies (PROMEC Programs, funded by Japan), the Promotion of Energy Efficiency in Small and Medium Enterprises (PECSME Program, in cooperation with UNDP), and other programs and initiatives, including: the Vietnam Clean Production and Energy Efficiency Project (CPEE); The Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling (BRESL); the Low Carbon Energy Efficiency (LCEE) Program; and the Climate Change Adaptation and Mitigation (CCAM) Program.

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

Since there are a wide variety of donor activities, coordination of donor support in the near future will be crucial. In October 2008, the MOIT and the World Bank co-chaired an Energy Efficiency Donor Coordination Meeting, which included a roundtable discussion on ideas for coordinating efforts and the further sharing of information. The following summarizes the activities and the major donors in the field of energy efficiency in Vietnam:

- Supporting implementation of the Energy Efficiency program (ADB).
- Load management and demand-side management (Agence Francaise de Development (AFD)).
- Technical training and certification program for energy efficiency (Danish International Development Agency (DANIDA)).
- Study on National Energy Efficiency Master Plan (Japan International Cooperation Agency (JICA)).
- Demand-Side Management and Energy Efficiency Project (The World Bank Group).

## REFERENCES

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