



Hanoi University of Science and Technology

Promoting Energy Efficiency - An Option for Development of Low Carbon Society in Vietnam

Assoc. Prof. Dr. Hoang-Luong PHAM

Vice-President, HUST

Email: hoang-luongpham@mail.hut.edu.vn

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1. Vietnam – An overview

- **Location: South East Asia**
 - Long.: from 102° 09' - 109° 30' East;
 - Lat.: from 8°10' - 23°24' North
- **Population (in 2008): 86.2 million**
- **Land area: 331,690 km²**
 - Agriculture: 28.4 %
 - Forest: 35.2 %
 - Urban areas, industries and other: 4.7 %
 - Scrub and grassland: 23 %
- **Capital : Hanoi**
- **Climate: tropical in south; monsoonal in north with hot, rainy season (mid-May to mid-September) and warm, dry season (mid-October to mid-March); average temperature: 22-27°C; annual precipitation: 1500-2000 mm with most rainfall coming from May to October.**
- **Primary occupation: Agriculture**
- **Agricultural products : paddy rice, coffee, fish and seafood, rubber, cotton, tea, pepper, soybeans, cashews, sugar cane, peanuts, bananas, poultry.**
- **Industries : food processing, garments, shoes, machine-building, mining, cement, chemical fertilizer, glass, tires, oil, coal, steel, paper**



2. Some energy indicators of Vietnam

Item	2004	2005	2006	2007	2008
Population (mil.)	82.0	83.1	84.1	85.2	86.2
GDP – 1994 price (bil. VN dong)	362,435	393,031	425,373	461,344	489,833
Total primary energy demand (MtOE)	42.2	44.2	45.9	49.7	53.4
Total final energy consumption (Mtoe)	34.8	36.8	37.4	40.3	43.2
Total electricity demand (MtOE)	3.4	4.1	4.6	5.3	5.8

Item	2000	2005	2008
Annual GDP (USD ₂₀₀₀) per capita	402	539	649
Annual energy consumption per capita (kgOE/person/year)	156	265	331
Annual electricity consumption per capita (kWh/person/year)	289	567	789
Energy intensity (kgOE/1000 USD ₂₀₀₀)	387	492	510

2. Some energy indicators...[2]

Primary energy supply during 2004-2008 (in MtOE)

Source	2004	2005	2006	2007	2008
Coal	15.3	19.1	21.7	23.8	22.3
Crude oil	20.4	18.9	17.1	16.2	15.2
Natural gas	5.7	6.4	6.5	6.4	7.0
Hydro	4.1	3.8	4.6	5.2	5.9
Non-commercial energy	14.7	14.8	14.8	14.7	14.7



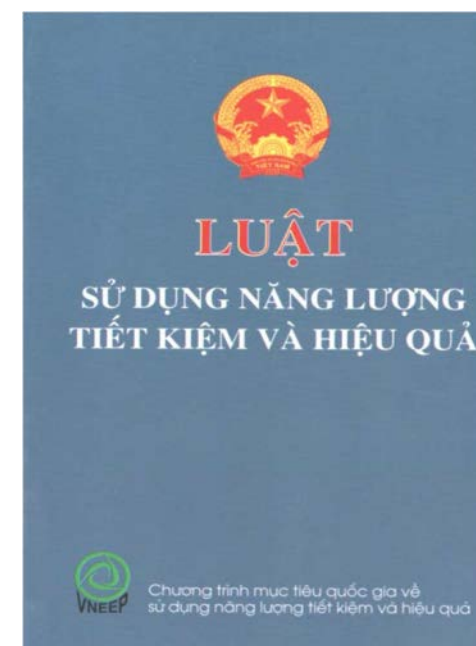
2. Some energy indicators...[3]

Sectorwide energy consumption for 2008

Sector	Volume (MtOE)	Percentage (%)
Agriculture	0.6	1.4
Industry	16.5	38.1
Transport	8.7	20.1
Residential	15.9	36.7
Commercial & Services	1.6	3.7
TOTAL	43.2	100.0

3. Major key policy framework for Energy Efficiency

- **Electricity Law**
 - Enforced on July 1, 2005
 - Specifying major electricity efficiency options/measures in generation, transmission, distribution and utilization of electricity.
- **Decree on Energy Efficiency and Conservation (No. 102/2003/ND-CP)**
 - Issued on September 3, 2003
 - Definition of energy intensive / designated factories & enterprises (>1000 toe consumption per annum).
 - Assigning MOI (now MOIT) to play a role of coordinating EE&C in Vietnam.
- **Circular on EE&C (No. 01/2004/TT/BCN)**
 - Issued on July 2, 2004
 - Providing guidelines for EE&C measures in industry.
- **Energy Commercial Building Code (No. 40/2005/QĐ-BXD)**
 - Promulgated on November 17, 2005
 - Applicable for commercial buildings to reduce energy losses and improve working/living conditions in buildings.
- **Decision on Vietnam National Energy Efficiency Program (No. 79/2006/QĐ-TTg)**
 - Issued on April 14, 2006
 - Consisting of 6 pillars, 11 projects to promote EE&C activities.
- **Law on Energy saving and Efficiency (No. 50/2010/QH12)**
 - Endorsed on June 15, 2010 and will be enacted from 1st January 2011
 - Consisting of 12 chapters and 48 Articles



4. Vietnam National Energy Efficiency Program (VNEEP)

- **Duration:** 2006-2015
- **Overall objective:** to reduce the investment on the power sector through promoting nation-wide energy efficiency technologies and management for a sustainable socio-economic development
- **Specific objectives**
 - 2006-2010: to reduce 3-5% of the total national energy consumption compared to the BAU;
 - 2011-2015: to reduce 5-8% of the total national energy consumption compared to the BAU;
- **Contents:** 6 pillars (11 projects)
 - Pillar 1 - Strengthening the national governance of energy efficiency and conservation (1 Project)
 - Pillar 2 – Education, raising awareness on EE (3 projects)
 - Pillar 3 – Development and dissemination of high energy efficiency devices and equipment (2 projects)
 - Pillar 4 – Promoting EE in industrial enterprises (2 projects)
 - Pillar 5 – Promoting EE in buildings (2 projects)
 - Pillar 6 – Promoting EE in transport sector (1 project)

5. Some selected EE activities within the VNEEP

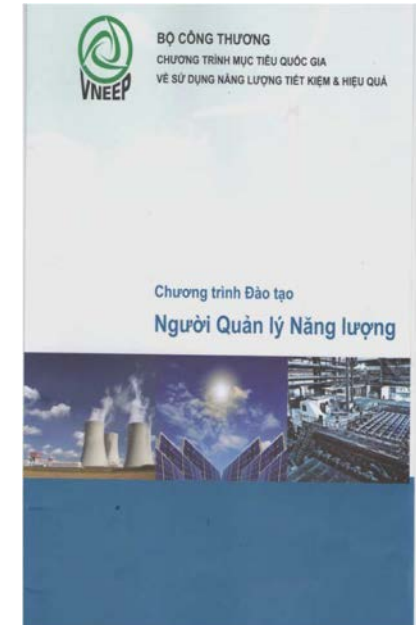
- Pillar 3 – Development and dissemination of energy saving devices and equipment
 - Development of Vietnamese energy efficiency standards and demonstrative labelling
 - o During 2006-2009:
 - 17 Vietnamese standards (TCVN) in energy efficiency and standardized testing procedures for CFL, electronic ballasts, electric fans, electric water heater, ACs, Refrigerators, 3-phase asynchronous motors were developed;
 - Energy efficiency labelling of T8 & T5 Fluorescents and ferromagnetic ballasts were completed
 - o Preparatory work for energy efficiency labelling of ACs and Refrigerators
 - Energy saving lighting program
 - o Supporting local manufacturers (Rang Dong, Dien Quang, Philip) in the quality improvement of CFL and in R&D and manufacturing high quality electronic ballasts (2009: 40 mil. T8 FL were manufactured and sold locally);
 - Promoting the use of Solar water heaters (SWH) in the residential sector
 - o 2008: 20,000 sets; 2009: 30,000 sets
 - o 2010: approx. 36,000 sets

- Results
- During 2006-2009: amount of electricity saved was 4 bill. kWh mainly from state-own offices, public lighting and commercial & residential sectors;
 - For 2010 (projection): electricity saved is 1.2 bill. kWh



5. Some selected EE activities...[2]

- **Pillar 4 – Promoting EE&C in industrial enterprises**
 - **Development of energy management models**
 - Introduction to ISO 50001;
 - Development of training materials on energy management for energy key consuming (EKC) entities (designated factories);
 - **Supporting industrial manufacturing entities in upgrading and optimizing of their existing technological processes**
 - Providing grants and guidances to help **EVN, VINACOMIN, VINASTEEL, VINACHEM** establish their respective short-term and medium-term energy saving programs;
 - Conducting pilot training on energy auditing and energy management for EKC entities
- **Results:**
- **Approx. 20 pilot training courses on EM were conducted;**
 - **Approx. 300 industrial entities were energy audited;**
 - **A standardized training curriculum for Energy managers is expected to be available by May 2011.**

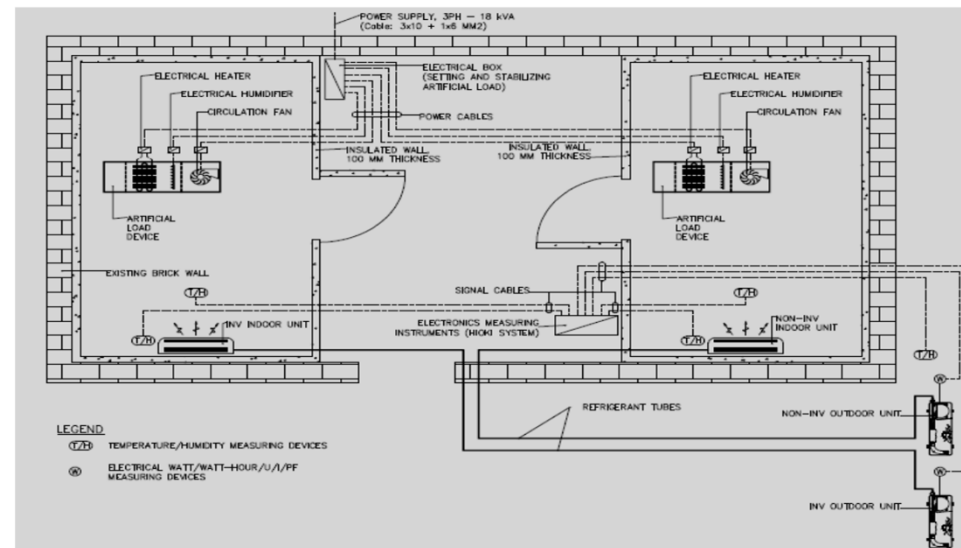


6. Some selected HUST activities within in the VNEEP

- Pillar 3 Development and dissemination of energy saving devices and equipment
 - R&D and promoting the use of high energy efficiency equipment and appliances in the industrial and residential sectors of Vietnam
 - Fluidized Bed and Circulating Fluidized Bed boiler;
 - Solar water heater;
 - Heat pump;
 - Air Conditioners with Inverter;



- Pillar 4 - Promoting EE&C in industrial enterprises
 - Development of training curriculum on Energy Management (management knowledge & energy technological skills);
 - Conducting of 8 pilot EM trainings for ECC-Hanoi, ECC HCM City, EVN, VINACHEM, VINASTEEL, VINAPACO, and HABECO;



7. Achievements of the VNEEP during 2006-2010

- 150 projects and tasks were implemented with a total budget of 169.1 bill. VND

Year	Amount of energy saved (kTOE)	Percentage of energy saved (%)
2006	881	3.7
2007	957	3.6
2008	510	1.8
2009	1,386	4.4
2010	1,167	3.4
For the entire period	4,901	3.4

The screenshot shows a news article from the website 'Báo Kinh tế Việt Nam' (Vietnam Economic News). The article is in the 'Công nghiệp' (Industry) section and is titled 'Tiết kiệm 3,4% tổng tiêu thụ năng lượng giai đoạn 2006-2010'. It features a portrait of Phung Hoang Kim, a deputy editor of the newspaper, who is being interviewed about the energy conservation program. The article mentions that after 5 years of implementation, the national target for energy conservation (TKNL) from 2006 to 2010 has been achieved, with a total of 4,901 kTOE saved, representing 3.4% of total energy consumption. It also notes that the program has been implemented across various sectors and regions, with a total budget of 169.1 billion VND.

8. HUST expectations from the 16th AIM Workshop

- A good platform for capacity building on AIM as a tool to develop LCS Scenario in Vietnam
 - How to develop LCS scenario taking into account a top-down decision as addressed in the VNEEP;
- An appropriate occasion for learning experiences from Japan and other developing countries in applying the AIM to develop their respective roadmaps towards LCS.

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Thank you for your kind attention