AGENDA ITEM 4.2. UPDATE BY ASEAN
Energy Efficiency and Conservation in the ASEAN Member States

ASEAN CENTRE FOR ENERGY
JAKARTA, INDONESIA
Outline of Presentation

- Policy and Regulatory framework
- Policy instruments and measures
- Key programs and projects: past, present and future
- Key EE&C institutions
- Energy Intensity of ASEAN Member States
- Key issues: barriers and measures; and lessons learned
BRUNEI DARUSSALAM

- No national codes, regulations or standards but EE&C is embedded in the national energy policy.

- EE&C Committee established in mid-2007 with key functions such as:
  - To formulate action plans & strategies to achieve an efficient society & community
  - To promote public awareness & deployment of EE&C practices & technologies
  - To develop local human capacity & competencies in energy management and auditing
  - To collaborate with local & international institutions in the dissemination & implementation of energy efficiency & conservation knowledge and technologies
There is no specific policy on EE&C.

Cambodia’s energy policy aims to:

- Provide an adequate supply of energy throughout Cambodia at reasonable and affordable price
- Ensure a reliable and secured electricity supply at reasonable prices, which facilitates the investments in Cambodia and developments of the national economy
- Encourage exploration and environmentally and socially acceptable development of energy resources needed for supply to all sectors of Cambodian economy
- Encourage the efficient use of energy and to minimize the detrimental environmental effects resulted from energy supply and consumption
Regulatory Framework

INDONESIA

- Presidential Instruction No. 9/1982. Compulsory reporting of energy use in Government office buildings

- Ministerial decree, 1995, provided legal framework for the development and implementation of National Master Plan for Energy Conservation

- Presidential Regulation No. 5, 2006 provided legal framework for the development and implementation of National Energy Policy

- Law No. 30, 2007. paved the way for Government Regulation No. 70 on Energy Conservation

- Government Regulation No. 70, 2009. Providing energy audit to consumers of ≥ 6000TOE and reporting it to the government.
Regulatory Framework

LAO PDR

- There is no specific policy on EE&C.

Lao PDR’s energy policy aims to:

- Maintain and expand an affordable, reliable and sustainable electricity supply in Lao PDR to promote economic and social development
- Promote power generation for export to provide revenues to meet GOL development objectives
- Develop and enhance legal and regulatory framework to effectively direct and facilitate power development
- Strengthen institutions and institutional structures to clarify responsibilities, strengthen commercial functions and streamline administration
Regulatory Framework

MALAYSIA

- Existing Laws (Electricity Supply Act 1990 & Electricity Regulations 1994) focusing on supply side & safety

- Introduced and enforced the Efficient Management of Electrical Energy Regulations 2008 (EMEER 2008) which require large energy users to appoint an energy manager which will submit regular energy reports

- EMEER 2008 applies to:
  - Consumers with total electricity consumption $\geq 3$Million kWh measured at one metering point or for a period of 6 consecutive months
  - Generators (private) with a total net electrical energy generation $\geq 3$Million kWh over a period of 6 consecutive months
There is no specific EE&C policy.

**Myanmar’s energy policy aims to:**
- Maintain the status of energy independence
- Promote wider use of new and renewable sources of energy
- Promote energy efficiency & conservation
- Promote use of alternative fuels in household
Regulatory Framework

PHILIPPINES

- Energy Conservation Bill (to be passed in the incoming 15th Congress)


- Review & recommend policy framework for Demand Side Management (DSM)

- Establishment of Energy Management Standard (EMS) based on ISO Framework

- Draft new Memorandum Circular to enhance monitoring compliance of the industry & building sectors that will include provision for the accreditation of energy manager by DOE
Regulatory Framework

SINGAPORE

Specific EE&C policy measures include:

- Support adoption of EE technologies and measures
- Raise awareness to stimulate EE
- Support EE R&D
- Develop capability to drive and sustain EE
Regulatory Framework

THAILAND

- Thailand has a law on EE&C, The Energy Conservation Promotion Act B.E. 2535

Thailand’s energy policy focuses on:
- Enhancing Energy Security
- Alternative Energy as National Agenda
- Promoting Energy Efficiency
- Fair and Stable Energy Pricing
- Environmental Protection
Regulatory Framework

VIETNAM

- Electricity Law (July 1, 2005) - specifies Electricity Efficiency in generation, transmission, distribution and utilization
- Decree No.102/2003/ND-CP on EE&C (September 3, 2003) - MOI has responsibilities to conduct the program of EE&C
- Circular No. 01/2004/TT/BCN on EE&C (July 2, 2004) - To enforce Decree No. 102/2003/ND-CP which serve as the guideline for energy conservation and its efficient use in factories
- Circular No. 08/2006/TT/BCN (November 16, 2006) - To enforce Decree No. 102/2003/ND-CP served as guideline for Energy Efficiency Standard and Labeling
- EE Commercial Building Code No. 40/2005/QD-BXD (November 17, 2005) - Applicable on commercial buildings to reduce energy loss in building and to improve the condition for people working/living in buildings
- Decision Nos. 79 & 80/2006/QD-TTg: (April 14, 2006) – National Energy Efficiency Program & Electricity saving program for the period 2006-2010
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Promotion & Public Awareness (symposia, fora, workshops, public competition, publications, recognition awards, Energy Conservation Centre)


Supply & Demand Side Management (Air-con usage in government buildings & street lighting)

Energy Labeling & Standards (to focus on Air-Con, Refs, Water heaters, motors, fuel efficiency for vehicles)

Local & regional collaboration (PROMEEC, Energy Club, University of Brunei Darussalam, ECCJ, APEC)
MAJOR EE&C PROGRAMS IN CAMBODIA

- ESMAP WB Projects, ADEME-ENERTEAM on EE&C Capacity Building, ASEAN Energy Cooperation on EE&C
- Energy Auditing: MIME, UN-ESCAP-ECCJ, UNDP-GEF, JETRO
- Participation in ASEAN EE&C Best Practices for Energy Efficient Buildings
- Participation in PROMEEC project
Awareness & Information (public awareness, education & training, develop clearing house as info center for energy conservation activities)

Energy management (partnership program on energy conservation by providing free-of-charge energy audit to buildings & industries)

Standard & labeling (develop EE standard and labeling program starting with CFL in 2010 & other electrical devices/equipment until 2014)

International cooperation on Energy Conservation (Denmark, the Netherlands, UNDP and UNIDO, ACE-PROMEEC, MTPEC)
Adoption of the Electricity Law by National Assembly on 19 December 2008 that mandates the efficient use and supply of energy

Industrial Sector (promotion of energy efficient equipment, develop energy statistics, develop voluntary action plans, develop R&D and the AEMAS Project)

Electricity Sector (promotion of new technology, energy management system, and sustainable renewable energy application in electricity generation)

Household Sector (Labeling system for appliances, develop demand side management programs)

Transportation Sector (promotion of new cars and cars using battery, raising the fuel efficiency in terms of mileage)

Promotion of ESCOs

Participation in ACE-PROMEEC and MTPEC Programs, and ASEAN Energy Awards
Capacity Development on EE for Energy Commission with DANIDA
Energy Efficiency/Management Trainings and Courses
High efficiency promotion (for refrigerator and motor), Appliance Energy Efficiency Rating Labeling, Building Energy Efficiency Benchmarking, Green Building Rating System for Non-Residential & Residential Building
Incentives for EE&C and RE projects and products until 31 December 2010
Incentives for ESCOs such as income tax exemption for 10 years, 100% investment tax allowance and import duty and sales tax exemption on energy conservation equipment
Inclusion of EE & RE in secondary school textbooks and in higher learning institutions
International Cooperation such as PROMEEC, MTPEC
Participation in ASEAN Energy Awards
MAJOR EE&C PROGRAMS IN MYANMAR

- Conduct of energy audits on Industrial Sector
- International cooperation on EE&C:
  - ACE/PROMEEC
  - DEDE-Thailand/ACMECS
- Energy Resource Centre
- Technical Digest featuring energy efficiency articles
- In-house database for buildings and industries via MES website
- Participation in ACE PROMMEC and MTPEC
- Participation in ASEAN Energy Awards
MAJOR EE&C PROGRAMS
IN PHILIPPINES

- National Energy Efficiency and Conservation Program (NEECP)
  - A. Information, Education & Communication Campaign
  - B. Standard and Labeling for Household Appliances
  - C. Fuel Economy Run
  - D. Government Energy Management Program
  - E. Energy Management Services/ Energy Audit
  - F. Recognition Award
  - G. Voluntary Agreement Program
  - H. Philippine Energy Efficiency Project

- International Energy Cooperation (PROMEEC, MTPEC)

- Participation in ASEAN Energy Awards
MAJOR EE&C PROGRAMS
IN SINGAPORE

- **Domestic Sector**
  - cut electricity consumption of households by 10% dubbed as the “10% Energy Challenge”
  - Electricity Vending System (EVS) is state-of-the-art smart metering technology to allow small electricity consumers to purchase electricity

- **Power Sector**
  - Intelligent Energy System (IES) is to further improve the smart-grid capability that will develop & test advanced metering & communications infrastructure; demand response management systems; and management systems for distributed energy sources such as solar PVs, mini cogen plants, Evs, etc.
Industry Sector

- Energy Efficiency National Partnership (EENP) is a voluntary program to assist companies set up project teams to reduce wastage and improve EE at organizational level to augment current EE-related voluntary schemes such as EASe, GREET, DfE and SCEM training grants

Annual hosting of Singapore International Energy Week
MAJOR EE&C PROGRAMS
IN SINGAPORE

- Green Mark Building Labeling System
  - Benchmarking process for buildings to incorporate green building technologies
  - Co-funding scheme for existing buildings and new buildings
  - Energy Smart Labels are awarded to recognize efficient consumption of energy in commercial buildings, hotels and retail malls
MAJOR EE&C PROGRAMS IN THAILAND

Industrial and Commercial Sector

- **Regulatory Measures**
  - Energy Management in Large Factories and Buildings
  - Building Energy Codes

- **Financial Measures**
  - Revolving Fund Program (Soft Loan)
  - ESCO Fund (co-investment)
  - Tax Incentives

- **Capacity Building**
  - Basic and Advanced Training
  - Software Simulation to Practical and On-the-job Training
  - Formal EE curriculum in vocational schools and universities

- **Awareness and Information Campaign**
  - Thailand Energy Awards
  - Thailand Energy Fair

- **Public Private Partnership**
Transportation Sector

- Changing Mode of Transportation (long term)
  - Dual Track system
  - Comprehensive Train System throughout the country

- Change from Private to Public Transportation
  - Complete Subway and Sky-train in Bangkok Metro
  - Improve Bus system
  - park-n-ride

- Change to Alternative Energy
  - Gasohol – E10, E20, E85
  - Move to B3, B5 and B10
  - NGV / Biodiesel
  - Tax privilege for E85/NGV/Hybrid / FFV

- Awareness and Information
  - TV campaign, brochures, web-site
  - Encourage Carpool
Residential Sector

- **Youth Programs**
  - Green Classroom / School
  - Energy Academy Fantasia / Energy Camp

- **Standard and Labeling for household appliances**
  - Label 5 for AC, Refrigerator, Rice cooker, Water heater, etc.
  - Energy Labels for buildings and houses
  - High Efficiency and Minimum Efficiency Performance Standards

- **Promotion of High Energy Efficient Lighting**
  - T5, CFL, Electronic Ballast
  - Demonstration at market places, temple, government hospitals and facilities, military facilities

- **Awareness and Information**
  - Energy Conservation Demonstration Houses
  - TV campaign, brochures, web-site
  - Events

Two (2) Stages

- Stage I (2006-2010) - Actively introducing and carrying out at some extent, all contents of the Program

- Stage II (2010-2015) - Developing and carrying out at large scale contents of the Program on the basic of comments and lessons on the results from the stage I

Six (6) Groups

- Group 1: Intensifying State administration on energy saving and effective use, organizing controlling system on energy saving

Six (6) Groups of EE&C Initiatives

- Group 1: Intensifying State administration on energy saving and effective use, organizing controlling system on energy saving

- Group 2: Promoting to provide, to propagandize information, to mobilize community, to raise their awareness and to promote energy saving and effective use

- Group 3: Developing, popularizing high-efficiency and energy-saving appliances, and gradually removing the low-efficiency ones

- Group 4: Energy saving and effective use in industrial manufactories

- Group 5: Using energy economically and effectively in buildings

- Group 6: Energy savings and effective use in transport
GROUP 1
Intensifying State administration on energy saving and effective use, organizing controlling system on energy saving

The first project:
Completing legal framework on EE&C in all activities

The second project:
Propagandizing to raise community’s awareness of energy saving and effective use

GROUP 2
Promoting to provide, to propagandize information, to mobilize community, to raise their awareness and to promote energy saving and effective use

The third project:
Putting education of energy saving and effective use into national education system

The fourth project:
piloting campaign on establishment of model named “Energy saving in each household”
GROUP 3
Developing, popularizing high-efficiency and energy-saving appliances, and gradually removing the low-efficiency ones

The fifth project
developing standards and putting energy-saving label on some targeted products

The sixth project
Providing technical assistant to domestic manufacturers who meet the standards on energy efficiency
GROUP 4
Energy saving and effective use in industrial manufactories

The seventh project
Establishing controlling model of energy saving and effective use in enterprises

The eight project
Assisting manufactories to upgrade, improve and rationalize line for energy saving and effective use
GROUP 5
Using energy economically and effectively in buildings

The ninth project
Improving capability and implementing activities of energy saving and effective use in designing and managing buildings

The tenth project
Building model and put the activities on energy management of energy saving and effective use in building into discipline
GROUP 6
Energy saving and effective use in transport

The eleventh project Utilizing maximally capacity of means of transportation, minimizing fuel consumption and reducing emission
## Energy Intensity of ASEAN Member States

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Source: 2\textsuperscript{nd} ASEAN Energy Outlook
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Key Issues: Barriers and Lessons Learned

- Lack of Awareness
- Non-existence or weakness of certain national regulatory frameworks
- Poor national response to EC
- Limited funding sources
- A potential lack of locally manufactured cheaper but energy efficient equipment
- A lack of benchmarking information regarding energy performance of various processes in different industrial sub-sectors
- The lack of reliable data available
- A centralized EE&C authority
- Financial incentives
- Limited private sector involvement
- Experience sharing, monitoring system and replication programs
- Supporting EE&C institutions and sharing of available resources and expertise
- Strong government support for EE&C needed; most EE&C initiatives are government-driven; EE&C target is vital
THANK YOU
FOR YOUR KIND ATTENTION