

# ACE ACTIVITIES ON ENERGY EFFICIENCY AND CONSERVATION



by

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## ABOUT ACE



- Established on January 1, 1999 as an inter-governmental organization that is guided by a Governing Council composed of the Senior Officials on Energy of the ASEAN countries.
- Core funding is provided by an Energy Endowment Fund established from equal contributions of the ten Member Countries and managed by a private fund manager.
- Took over all the commitments, responsibilities, liabilities, and assets of the 10-year long ASEAN-EC Energy Management Training and Research Centre (AEEMTRC).

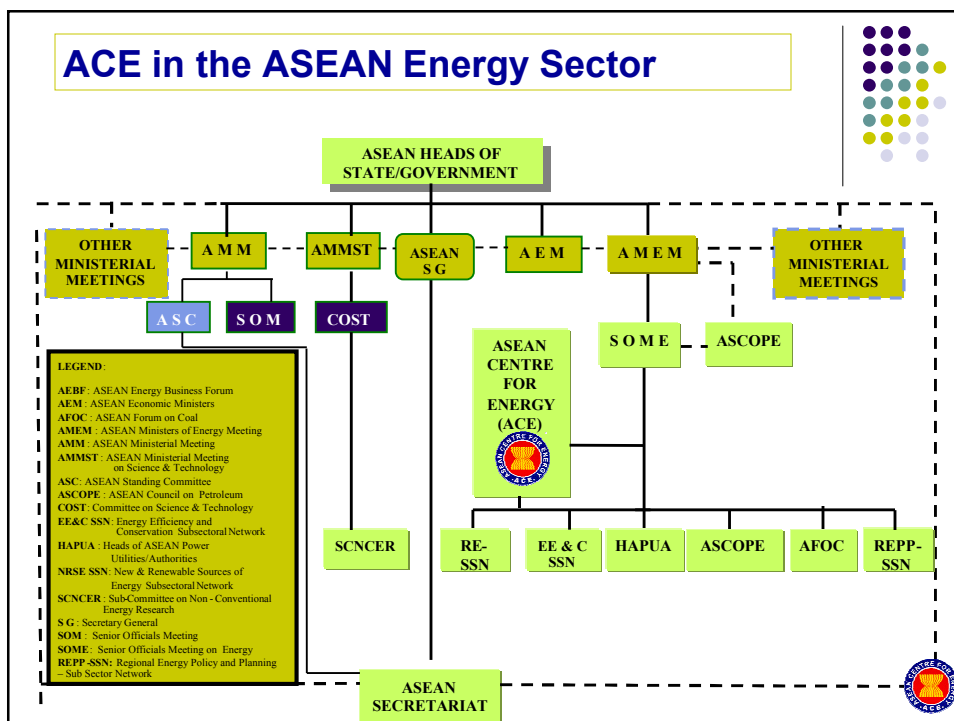
# ABOUT ACE

## Charter of ACE



- ACE is envisioned to be a catalyst for the economic growth and development of the ASEAN region by initiating, coordinating and facilitating regional as well as joint and collective activities on energy.
- To realise this vision, the Centre will accelerate the integration of energy strategies within ASEAN by providing relevant information, state-of-the-art technology, and expertise to ensure that over the long-term, necessary energy development policies and programmes are in harmony with the economic growth and the environmental sustainability of the region.

## ACE in the ASEAN Energy Sector



## ASEAN PRIMARY ENERGY MIX (In Thousands Tons of Oil Equivalent)



Fuel Type	1990	1995	2000	2005	2010
Natural Gas	25,523	41,876	62,949	108,111	166,162
Coal	12,499	18,526	26,524	43,255	75,404
Oil	89,105	113,648	128,460	170,798	230,098
Hydro	7,596	11,448	16,620	23,953	42,837
Others	1,361	1,982	2,901	3,324	4,099
<b>Total</b>	<b>136,084</b>	<b>187,481</b>	<b>237,454</b>	<b>349,440</b>	<b>518,599</b>



## ASEAN ENERGY MIX 1990-2010 (in percent %)



Fuel Type	1990	1995	2000	2005	2010
Natural Gas	18.8	22.3	26.5	30.9	32.0
Coal	9.2	9.9	11.2	12.4	14.5
Oil	65.5	60.6	54.1	48.9	44.4
Hydro	5.6	6.1	7.0	6.9	8.3
Others	1.0	1.1	1.2	1.0	0.8
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>



## ASEAN PLAN OF ACTION FOR ENERGY COOPERATION (APAEC) 2004-2009



### Six Program Areas

- ASEAN Power Grid
- Trans-ASEAN Gas Pipeline
- Coal
- Energy Efficiency and Conservation
- New & Renewable Energy Sources
- Regional Energy Policy and Planning

## APPROACHES TO APAEC 2004-2009



- Strengthen coordination/participation in all program areas to narrow development gap among ASEAN member countries;
- Encourage a conducive environment for greater private sector involvement and participation, including securing foreign direct investment;
- Enhance human resources and capacity building skills;
- Develop and expand the energy mix and supply source through utilisation of full energy potential of the region to include frontier exploration and development and extensive research on oil, natural gas, coal, hydropower, geothermal, EE&C and NRSE;
- Develop transparent legal, regulatory and technical frameworks in various energy projects, in particular on the cross border interconnection projects

## Multilateral Cooperation for APAEC 2004-2009



- ASEAN and European Union (EU) Cooperation
- ASEAN - Japan Cooperation
- ASEAN + 3 Cooperation
- ASEAN - Australia Cooperation
- Cooperation with the Energy Charter Secretariat
- Initiative for ASEAN Integration (IAI)

## Energy Efficiency and Conservation



STRATEGIES	PROGRAMS/PROJECTS
1. Continuation of Information Sharing and Networking	Develop a compendium of the following for circulation to member countries and general public: <ul style="list-style-type: none"> <li>❖ EE&amp;C Policies / Strategies / Programs</li> <li>❖ EE&amp;C Products and Technologies</li> <li>❖ EE&amp;C Pool of Experts and Institutions</li> <li>❖ EE&amp;C Best Practices / Researches</li> </ul>
2. Continuation of ASEAN Energy Standards and Labeling	<ul style="list-style-type: none"> <li>❖ Review country S&amp;L programs and testing capacity</li> <li>❖ Study international experiences through study tour and joint workshops</li> <li>❖ Formulation of common Technical Bases</li> <li>❖ Development of Control Mechanisms and Implementation process</li> <li>❖ Dialogues with stakeholders and promotion</li> </ul>
3. Expansion of Private Sector Involvement	<ul style="list-style-type: none"> <li>❖ Enhance dialogues with private sector, other countries and organizations outside ASEAN</li> <li>❖ Conduct Seminars and Workshops jointly with EE&amp;C Industry and Businesses</li> <li>❖ Include EE&amp;C Discussion and Exhibitions in AEBF</li> <li>❖ Expand Energy Awards/Competitions for Industry Sector and Individual Achievements</li> </ul>

## Energy Efficiency & Conservation



STRATEGIES	PROGRAMS/PROJECTS
4. Capacity Building	<ul style="list-style-type: none"> <li>❖ Establish energy audit procedures</li> <li>❖ Implement energy audit training</li> <li>❖ Implement / Disseminate recommended improvements</li> <li>❖ Develop system for energy database, benchmarking and guideline</li> <li>❖ Develop ASEAN Energy Management System/Network</li> <li>❖ Develop certification system for ASEAN energy manager including energy auditor</li> <li>❖ Develop ASEAN energy management training for trainers</li> <li>❖ Develop energy management guidelines</li> <li>❖ Technology Transfer and Demonstration</li> </ul>
5. Promotion of ESCO business	<ul style="list-style-type: none"> <li>❖ Development of Measurement &amp; Verification (M&amp;V) Protocol for ASEAN</li> <li>❖ Development of Energy Performance Contracting Legal Framework and Standard Form of Contract</li> <li>❖ Development of Project Management and Institutional Guideline</li> <li>❖ Development of Energy Saving Potential Indexes (Benchmarking)</li> <li>❖ E-commerce development for energy services</li> </ul>
6. Promotion of Energy Efficiency in the Transport Sector	<ul style="list-style-type: none"> <li>❖ Information Sharing on EE Policy and Measures for Transportation</li> <li>❖ Explore possible cooperation activities with ASEAN Transport sector (STOM)</li> </ul>

## ON-GOING PROGRAMS ON EE&C



- EC – ASEAN ENERGY FACILITY
- SOME – METI WORK PROGRAM
- METI MULTI-COUNTRY TRAINING PROGRAM
- ASEAN AWARDS PROGRAM
- PROMOTIONS PROGRAM

## 1. EAEF Program



- A program of cooperation between EU and ASEAN launched in March 2002 and will be completed in March 2007.
- ACE implements the EAEF program.
- It facilitates partnerships between ASEAN and EU organizations in developing specific joint projects in the energy sector
- It also targets institutional development (capacity building)
- Catalysing interaction of industry and energy sector operators
- Supports the implementation of the APAEC 1999-2004; 2004-2009
- In brief, a co-financing instrument for energy projects—supporting the APAEC projects
- Co-funded 77 projects; total project cost is about Euro 38.5 million
- 17 projects on EE&C were co-funded.

## The 17 EAEF Projects on EE&C



1. Launching of a [EC-ASEAN energy network](#), Sharing energy policy and implementation experiences among selected countries
2. ASEAN-European [study tour](#) and regional ASEAN workshops addressing best practices in [energy labeling](#)
3. Feasibility study for the establishment of an [Energy Manager Accreditation Scheme](#) for the ASEAN region
4. Setting up of [National Associations for Cogeneration and Decentralized Energy Systems](#) in ASEAN Countries
5. Development of a [Business Model for Building Energy performance Services](#) in the ASEAN region (being developed by National University of Singapore)
6. [Capacity building](#) in formulating harmonized policy instruments for the promotion of renewable energy and energy efficiency in the ASEAN Member Countries
7. Development of a Comprehensive [database for Building Energy Performance Benchmarking](#) in the ASEAN region

## The 17 EAEF Projects on EE&C



8. **Feasibility study** for the sustainable development of Samui Island
9. The **PTM Zero Energy Office Building (ZEO Building)**
10. Study of the Energy Charter Treaty for Possible Adoption by ASEAN
11. Regional Energy Policy and Planning in ASEAN for Sustainable Development (REPP-ASD)
12. Establishment of the Energy Efficiency and Conservation Office of Vietnam; Dissemination of the Experience to ASEAN
13. Development of the Energy Management Simulation Test for the Practical Training of Energy Managers in ASEAN
14. Implementation and Demonstration of a 1.5 MWe Cogeneration Plant in Cambodia
15. Increasing the market awareness of the benefits of energy efficiency improvements at Sugar Mills in Indonesia and the Philippines
16. Development of the Theoretical Training Curricula for Energy Managers and Training Providers in ASEAN
17. Increasing market awareness of **energy efficiency improvement potential in paper mills** in Vietnam

## 2. SOME – METI PROGRAM



- PROMEEC was started in 2000 with technical and funding support from METI
  - Jointly implemented by ACE, EE&C-SSN and ECCJ
  - Consists of 3 Major projects
    - PROMEEC – BUILDINGS
    - PROMEEC – MAJOR INDUSTRIES
    - PROMEEC – ENERGY MANAGEMENT
- Major Activities of PROMEEC Building & Industry are:**
- a. energy audit
  - b. development of database, technical directory and benchmarking system
  - c. On-the-job training on energy auditing
  - d. Seminar-Workshop on EE&C Best Practices



## A. PROMEEC - INDUSTRY

Country	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippine	Singapore	Thailand	Vietnam
<b>1. Country Condition</b>										
- Area (km <sup>2</sup> )	5,765	181,000	1,890,000	240,000	330,000	680,000	299,404	699	514,000	329,241
- Population (x10 <sup>3</sup> )	350/'03	13,500/'02	215,000/'00	5,609/'05	25,580/'04	52,170/'02	81,500/'03	4,240/'04	61,970/'04	82,060/'04
- GDP(US\$ per capita)	13,418/'03	291/'02	954/'03	402/'03-04	4,372/'04	180/'03	1,050/'03	25,191/'04	2,236/'03	483/'04
<b>2. Industry &amp; Time of Energy Audit</b>										
(1) Cement	2000 F. 5-9, '01 (Dec. 2005)									
(2) Textile					2000 F. 15, 19, '01					
(3) Pulp / Paper			2001 J. 22-26, '01 (Dec. 2005)							
(4) Oil Refinery						2001 D. 15, 22, '01				
(5) Ceramics / Porcelain										2001 D. 18, 22, '01
(6) Hydropower				2001 J. 28, 1, '02						
(7) Garment		2002 D. 9-13, '02 F. 17-21, '03 (Aug. 2005)								
(8) Iron & Steel							2002 F. 10-14, '03 (Sep. 2005)			
(9) Food								2003 N. 24, 28 J. 12, 15		
(10) Chemical (Caustic Soda)									2003 D. 1, 5, '03 J. 6, 9, '04	

## B. PROMEEC - Building

	Br	Ca	Ina	Laos	Mas	Mya	Phil	Sing	Thai	Vn
<b>2000</b>								2000	2000	
<b>2001</b>		2001	2001				2001			
<b>2002</b>						2002				2002
<b>2003</b>	2003			2003	2003					
Hotel	H1	H1		H1		H1				H2
Office			O1		O1	O1	O1	O1	O1	
<b>2004</b>		2004	2004				2004		2004	
Follow		H1					O1		O1	
New		H1	H2				O1			
<b>2005</b>				2005	2005	2005				2005
Follow						O1 H1				H2
New				H2	O1					H1



***C. PROMEEC – Energy Management  
With 5 Specific Activities***

**1. Award System for Best Practices in Energy Management  
for Major Industries and Buildings**

**Purpose**

**Collect and Disseminate Successful Cases of  
Energy Management in Factories and Buildings**

**Outline of Procedures**

- 1. Organize Judging Committee & Preparation**
- 2. Call for Application in Each Country**
- 3. Select 2 Local Winners (Industries & Buildings)**
- 4. Determine ASEAN 2 Winners and 2 Runner-Ups**
- 5. Publish through Media Such as Website**

**Schedule for 2006 - 2007**

- 1. Call for Application : April 2006**
- 2. Determine ASEAN Winner : March 2007**

## 2. Utilization of the Existing Implementing Organizations for Energy Audit and Training (1)

### Purpose

**Utilize Services of Existing Implementing Organization in ASEAN countries for Energy Audit in Factories and Buildings and for Training**

### Benefits for Customers

1. Most Cost-Effective and Realistic Solution to Requirement
2. Possible to Choose a Suitable Organization

### Benefits for Service Providers

1. Expand Business
2. Increase Availability of Facilities and Manpower
3. Possibility to Enhance Facilities / Capacity

## 3. Dissemination System of Technical Directories for Major Industries and Buildings

**Under Development through Projects for Major Industries & Buildings and Edition by ACE**

- (1) Available for ALL Users
- (2) Wider Coverage of Technology and Application including Practice for EE&C
- (3) Flexibility to Update and Expand
- (4) Various Possible Access to Directory



**User Friendly !**

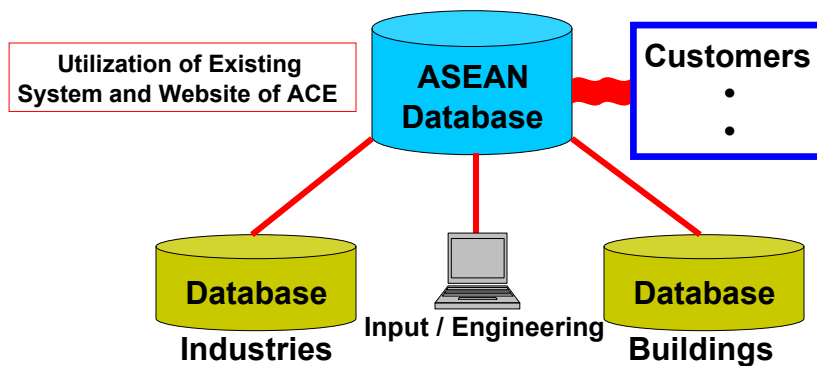


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#### 4. Development of System for Database



**Under Development through Projects for Major Industries & Buildings with Design by ACE/ECCJ**



#### 5. Development of TEM\* Handbook for ASEAN Philosophy and Concept

##### (Area / Purpose)

- (1) Industry Sector : Inter-Industry to Individual Industries
- (2) Promote Companies' EC Activities by All Participation  
Management (Owner / Managers)  
Engineers and Workers

##### **Total Energy Management (TEM\*) Handbook**

##### (Features)

- (1) Practice&Business - Oriented (than Technical)
- (2) User Friendly Guidance
- (3) Expandable Contents / Easy to Update



(Expected EC Potential) 10 – 15% (By No/low Cost)

### 3. Multi-Country Training Program on Energy Conservation in Japan



- Funded by METI, Japan
- Jointly implemented by ECCJ and ACE
- In year 1 (2005-2006), 100 ASEAN personnel were trained in Japan; consisting of 4 batches
- In year 2 (2006-2007), about 40 ASEAN participants will be trained; consisting of 2 batches
- More batches of training courses may be expected in the coming years

### 4. Awards System in EE&C



- ASEAN EE&C Best Practices Competition for Energy Efficient Buildings
- Started in 2000 by ACE and EE&C-SSN
- Categories include:
  - New and Existing Building
  - Retrofitted Building
  - Tropical Building
  - Special Submission

New Category will be launched in 2006-2007- the Energy Management for Building and Industry Competition

First Meeting of BOJ was held in Hanoi last September to formulate and agree on rules and guidelines of the competition

## Promotions Program



- Highlight recent policies, key technologies and development on EE&C in the annual [ASEAN Energy Business Forum International Conference and Exhibition](#) back to back with AMEM and its associated meetings
- Development of [EE&C Infonet](#) in the ACE website
- [Publication](#) of specific themes such as EE&C in the quarterly publication of ASEAN Energy Bulletin of ACE.
- Participation in EE&C events at regional and global level.

**THANK YOU  
FOR YOUR KIND ATTENTION**

