

# **ASEAN Energy Efficiency and Conservation Programme**

**by**  
**ASEAN CENTRE FOR ENERGY (ACE)**



**To be presented at**  
**ASIA CLEAN ENERGY FORUM 2015**  
**Manila, Philippines**

# OUTLINE



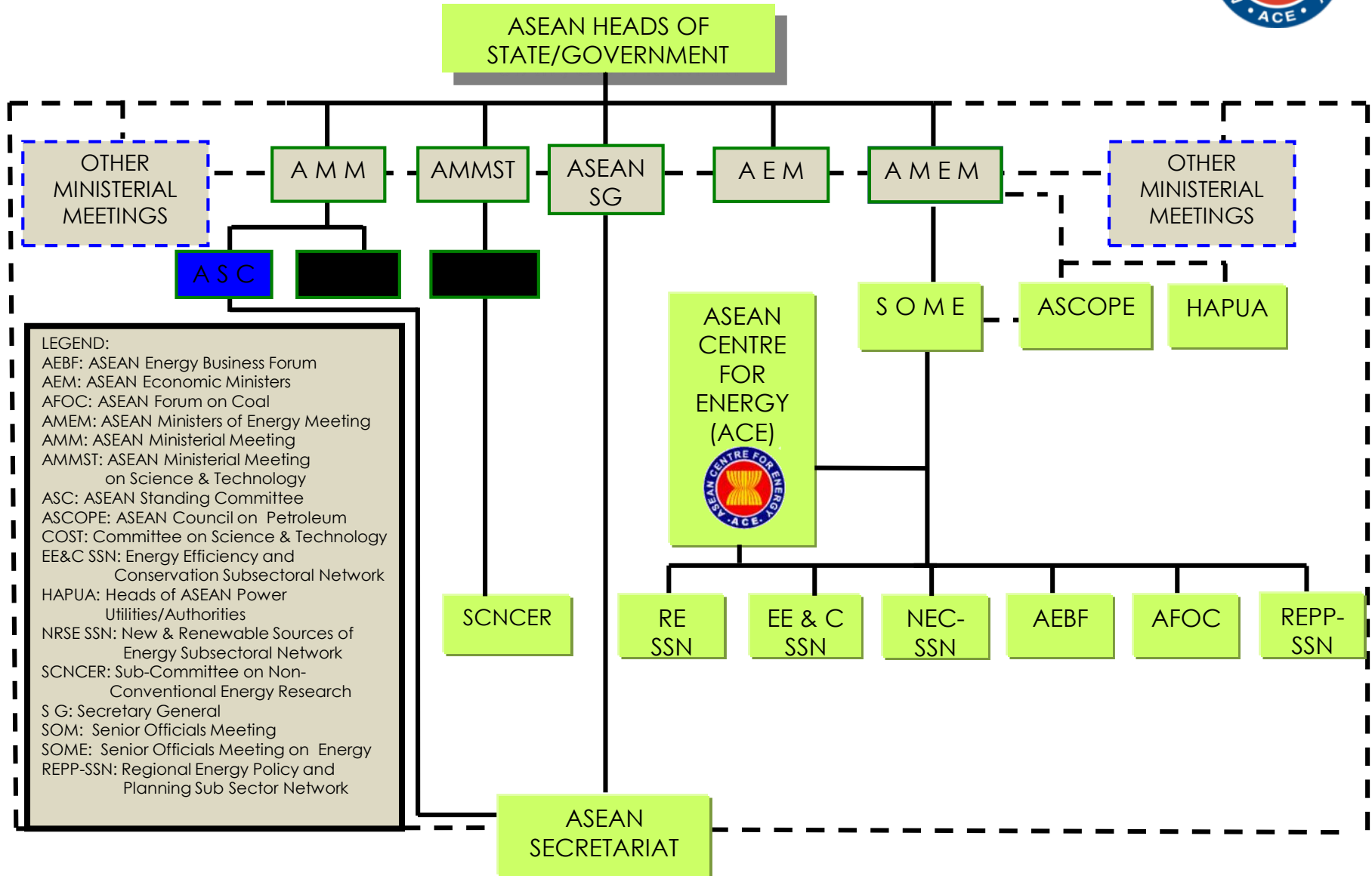
- INTRODUCTION
- ASEAN'S ENERGY SITUATION
- SUMMARY OF EE&C POLICY DEVELOPMENT
- EE&C PROGRAMME IN ASEAN
- CONCLUSION

# About ACE



- Established by the 10 Member States of ASEAN on 01 January 1999 and is hosted by the Government of the Republic of Indonesia through the Ministry of Energy and Mineral Resources (Hosting Agreement).
- 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 programs are in harmony with the economic growth and the environmental sustainability of the region.

# ACE in the ASEAN Energy Sector



# ASEAN Plan of Action for Energy Cooperation (APAEC) 2010-2015

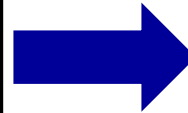


*Bringing Policies to Actions:  
Towards a Cleaner, More  
Efficient and Sustainable  
ASEAN Energy Community*



## **Objectives**

- **To support the realization of the ASEAN Community towards 2015 and beyond.**
- **To enhance energy security, accessibility and sustainability for the ASEAN region with due consideration to health, safety and environment through accelerated implementation of action plans, but not limited to:**



## **Program Area**

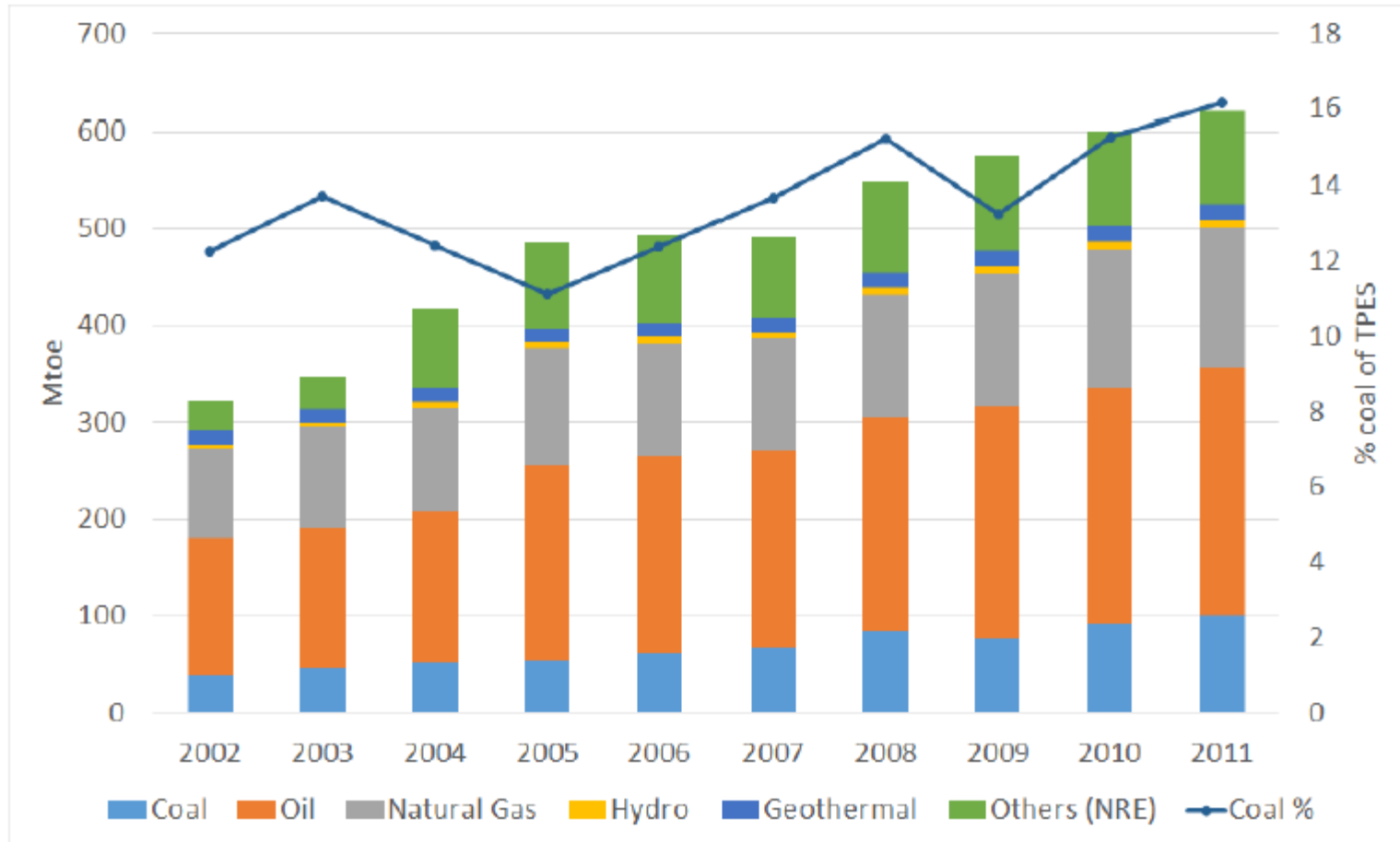
- 1. ASEAN Power Grid,**
- 2. Trans-ASEAN Gas Pipeline,**
- 3. Coal and Clean Coal Technology,**
- 4. Energy Efficiency and Conservation,**
- 5. Renewable Energy,**
- 6. Regional Energy Policy and Planning, and**
- 7. Civilian Nuclear Energy.**

# ENERGY SITUATION

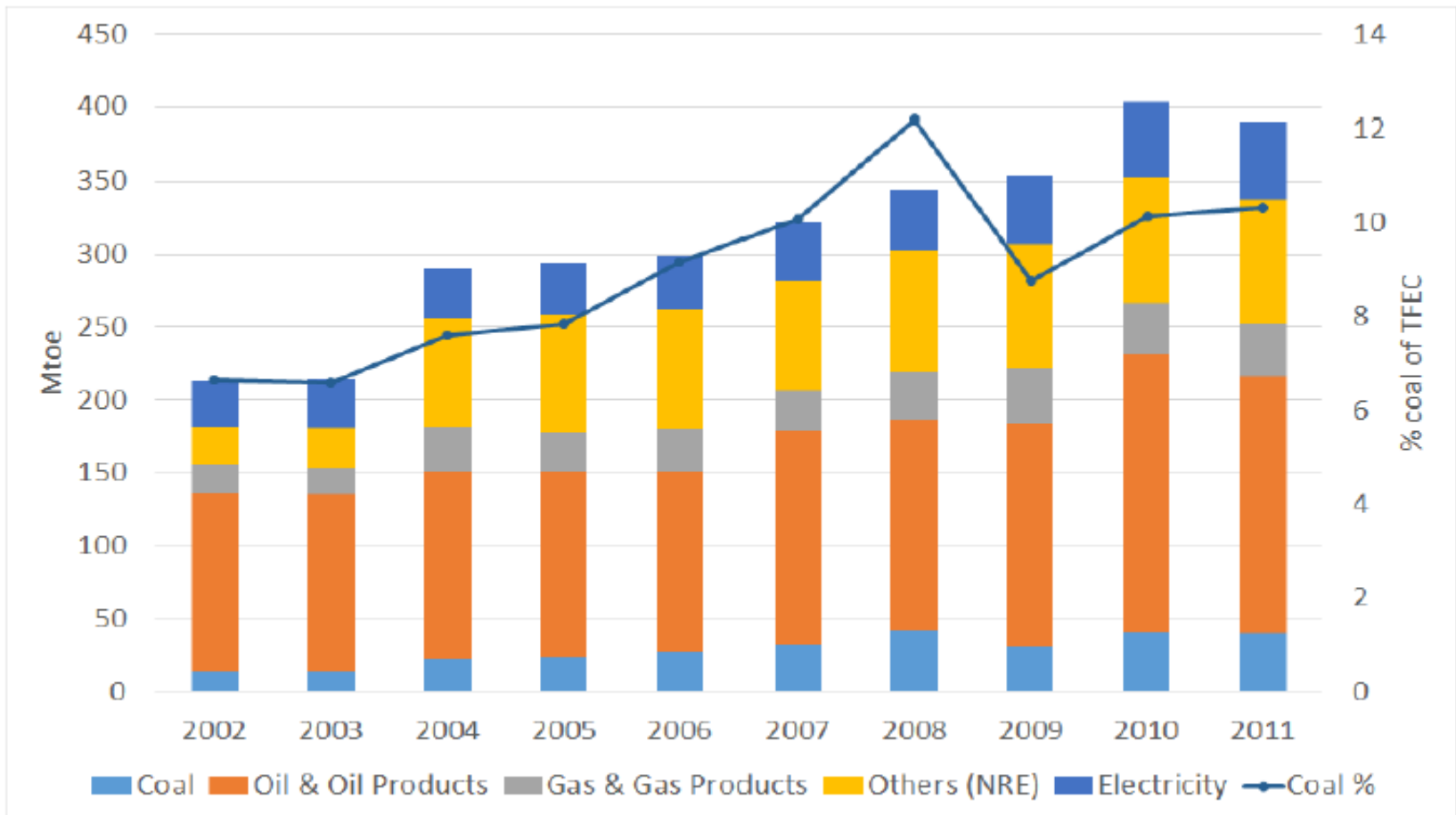


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# ENERGY SITUATION (TPES)

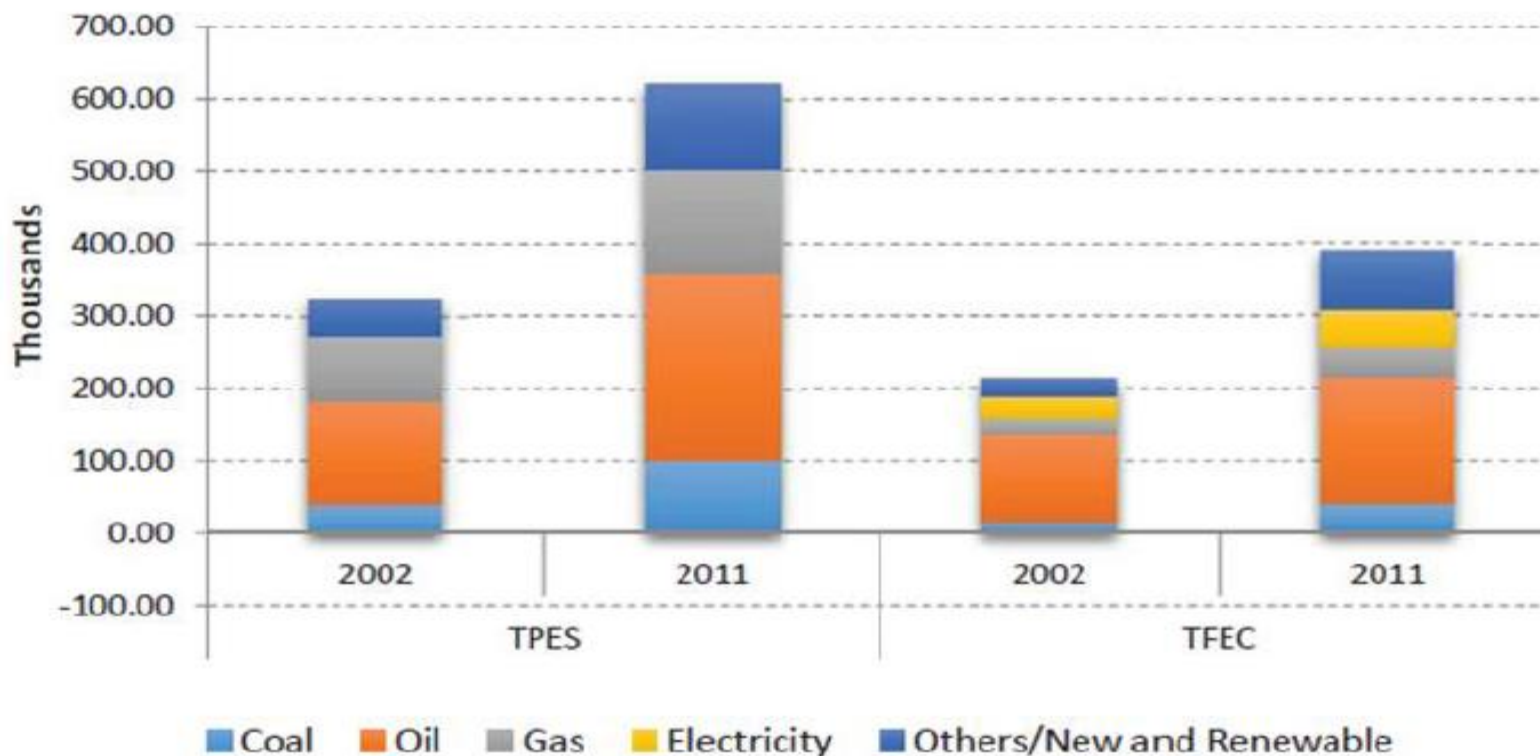


# ENERGY SITUATION (TFEC)





# ENERGY SITUATION: TPES VS TFEC

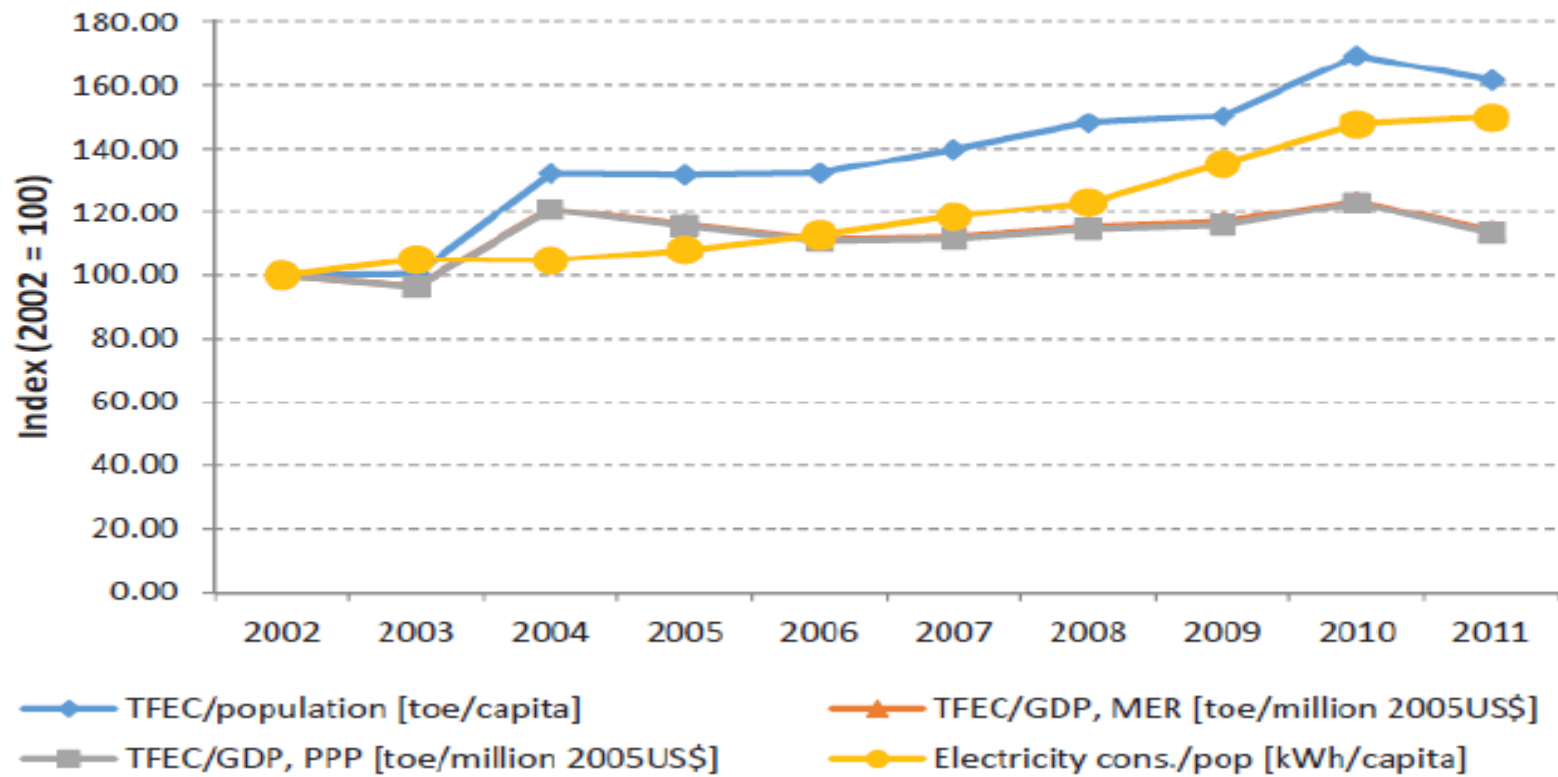


Source: ASEAN Energy Review and Statistics 2013, ACE

# ENERGY INTENSITY



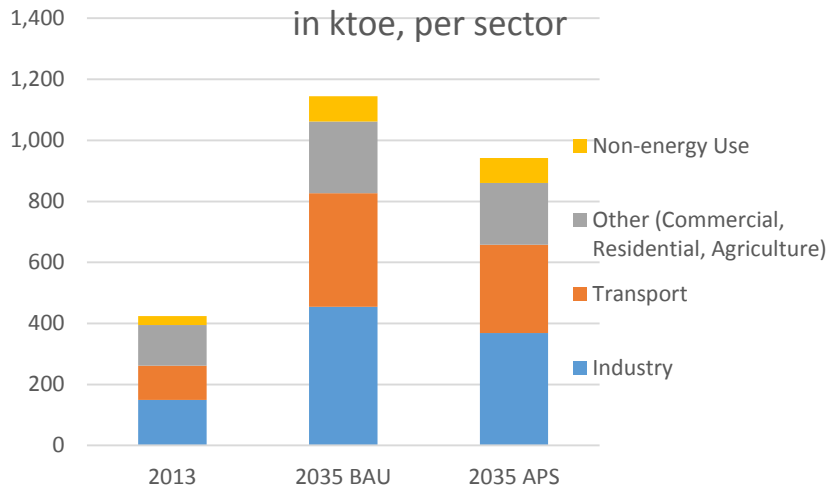
## Total Final Energy Consumption Indicators



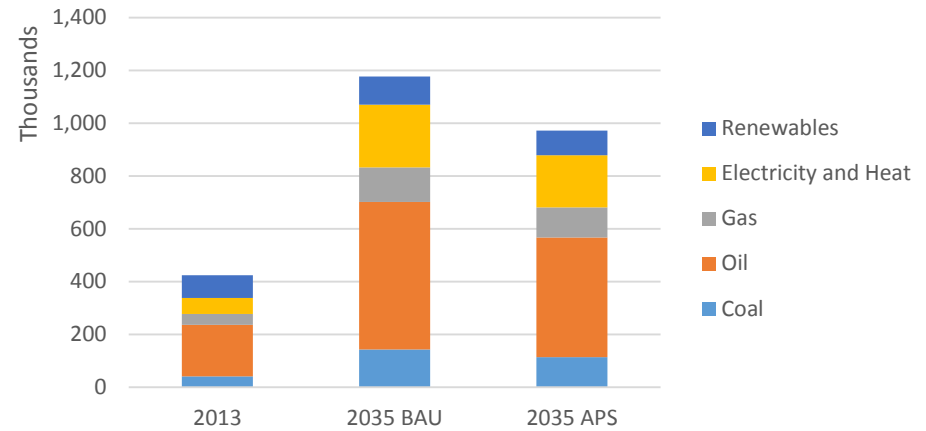
# ENERGY OUTLOOK 2035



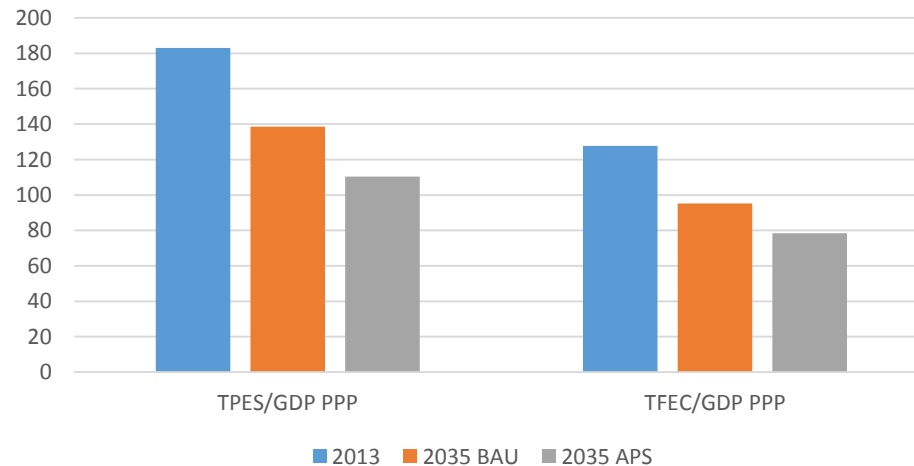
Total Final Energy Consumption (TFEC);  
in ktoe, per sector



Total Final Energy Consumption (TFEC);  
in ktoe, per fuel type



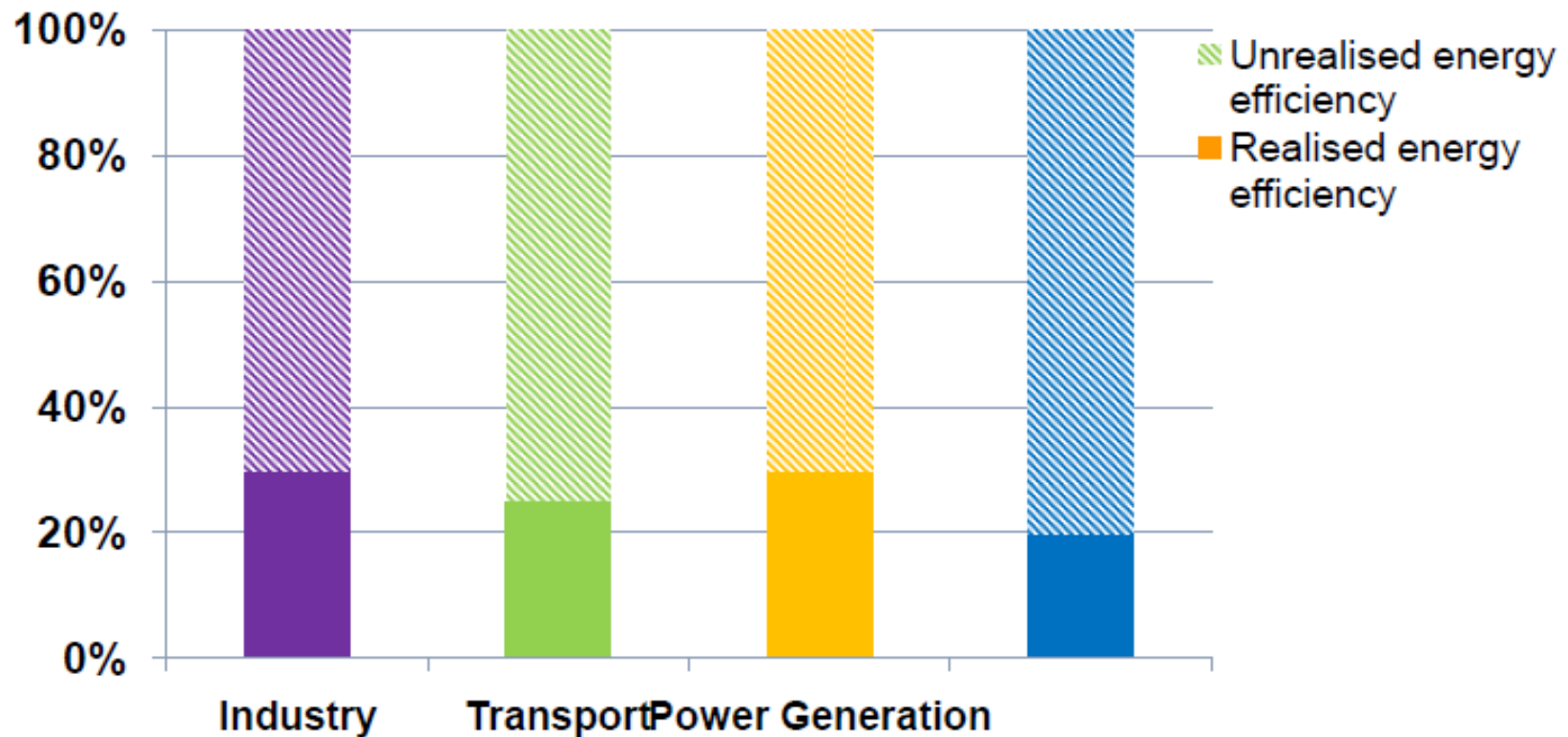
Energy Intensity



# DEMAND SIDE MANAGEMENT



# ASEAN ENERGY EFFICIENCY POTENTIALS



*Three-quarters of the economic potential to improve energy efficiency remains untapped in the period to 2035*

# POLICY IMPACT



- ❑ ASEAN Member States are at different stages of development in terms of EE&C. During the past fifteen years, AMS have implemented policies and programmes to improve energy efficiency of energy end-users. Specifically, these EE programmes have been directed toward increasing energy and electricity efficiency in residential and commercial buildings, while others are directed toward increasing energy efficiency in energy intensive industry or transport. These policies and programmes on EE&C have successfully created awareness and educated the market on the benefits of implementing energy efficiency activities.
- ❑ The ACE and Energy Efficiency and Conservation Sub-Sector Network (EE&C-SSN) being responsible to lead the effort of the region to achieve the aspirational goal to reduce energy intensity in ASEAN by 20% by 2020 and 40% by 2035 based on 2005 level through various activities under Programme Area No.4 Energy Efficiency and Conservation

# Summary of ASEAN Energy Saving Goals, Action Plans and Policies



COUNTRY	BAU SCENARIO	APS
Brunei Darussalam	<ul style="list-style-type: none"> <li>❑ EE&amp;C Strategic Plan Draft (2009)</li> <li>❑ Energy White Paper (launched in 2014) with 7 key enablers                             <ul style="list-style-type: none"> <li>- Reduce energy intensity by 25% in 2030 with 2005 as the base year</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>❑ Reduce energy intensity by 45% by 2035 in line with the country's commitment to APEC through supply and demand side measures such as :                             <ul style="list-style-type: none"> <li>• Reduce the projected energy consumption in the BAU in the residential, commercial, industrial and transport sectors, respectively</li> <li>• Increase efficiency in generation from 23% to more than 45%</li> </ul> </li> </ul>
Cambodia	<ul style="list-style-type: none"> <li>❑ National Policy, Strategy and Action Plan on EE&amp;C for 5 areas: Industry, End user product, building, rural electrification &amp; Biomass.</li> </ul>	<ul style="list-style-type: none"> <li>❑ The overall reduction of future energy demand by 20% in 2035                             <ul style="list-style-type: none"> <li>▪ Pilot Project and Promotion of EE in Siem Reap Province</li> <li>▪ Energy Auditing : MIME, UN-ESCAP-ECCJ, UNDP-GEF, JETRO</li> </ul> </li> </ul>

# Summary of ASEAN Energy Saving Goals, Action Plans and Policies



COUNTRY	BAU SCENARIO	APS
Indonesia	<ul style="list-style-type: none"> <li><input type="checkbox"/> 2005 (Blueprint of National EM 2005-25)</li> <li><input type="checkbox"/> Achievement of energy elasticity less than 1 in 2025</li> <li><input type="checkbox"/> The National Energy Conservation Master Plan (2005) - to decrease energy intensity by around 1% per year on average until 2020</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Reduce energy intensity by 1% per year until 2025</li> <li><input type="checkbox"/> Demand reduction relative to BAU by 2050                             <ul style="list-style-type: none"> <li>• Industry : 15-20%</li> <li>• Transport : 15%</li> </ul> </li> <li><input type="checkbox"/> Residential/commercial : 5-10%</li> </ul>
Lao PDR	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy Policy plan and roadmap (drafted). The proposed Policy is aiming at reducing energy consumption in Government Offices at 10% by 2030.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Reduce final energy consumption from BAU level by 10% from 2011-2015</li> <li><input type="checkbox"/> Promotion in Industrial and Transportation Sector; EE&amp;C Standard Labeling (households); ESCO</li> </ul>



# Summary of ASEAN Energy Saving Goals, Action Plans and Policies



COUNTRY	BAU SCENARIO	APS
Malaysia	<ul style="list-style-type: none"> <li>❑ Implementation of current policies by the Government to promote energy efficiency in the industry, buildings and domestic sectors;</li> <li>• Electricity Supply Act (Amended) 2001</li> <li>• Efficient Management of Electrical Energy Regulations 2008</li> <li>• Amendment of Electricity Supply Regulation 1994</li> </ul>	<ul style="list-style-type: none"> <li>❑ The proposed policy to reduce energy consumption at 8% in 3 sectors by 2025</li> <li>• Residential sector - Relamping of incandescent bulbs with CFL; Replacing of inefficient refrigerators with 5-star refrigerators</li> <li>• Commercial sector - Raise air-conditioned space temperature; Relamping of T8 with T5 fluorescent tubes in Government buildings                             <ul style="list-style-type: none"> <li>• Energy Audit of Buildings</li> </ul> </li> <li>• Industrial - Energy Audit of Factories</li> </ul>

# Summary of ASEAN Energy Saving Goals, Action Plans and Policies



COUNTRY	BAU SCENARIO	APS
Myanmar	<ul style="list-style-type: none"> <li><input type="checkbox"/> National Energy Policy published in 2015</li> <li><input type="checkbox"/> Energy Efficiency Policy strategy and roadmap (drafted) –coming July 2014</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> To attain energy savings equivalent to 15% of annual final demand relative to BAU through various energy efficiency programs in all sectors of the economy by 2020.</li> </ul>
Philippines	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy Conservation Bill</li> <li><input type="checkbox"/> Energy Conserving Design Guidelines for Buildings &amp; Utility Systems</li> <li><input type="checkbox"/> Demand Side Management (DSM)</li> <li><input type="checkbox"/> monitoring compliances of Industry and Building</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The National EE&amp;C Program (NEECP) - To achieved energy savings equivalent to 10% of the annual final energy demand outlook from 2009 to 2030</li> <li><input type="checkbox"/> To attain energy savings equivalent to 15% of annual final demand relative to BAU through various energy efficiency programs in all sectors of the economy by 2020.</li> </ul>

# Summary of ASEAN Energy Saving Goals, Action Plans and Policies



COUNTRY	BAU SCENARIO	APS
Singapore	<ul style="list-style-type: none"> <li><input type="checkbox"/> Energy Conservation Act (ECA) came into force on 22 Apr. 2013</li> <li><input type="checkbox"/> Support adoption of EE technologies and measures</li> <li><input type="checkbox"/> Raise awareness to stimulate EE</li> <li><input type="checkbox"/> Support EE R&amp;D</li> <li><input type="checkbox"/> Develop capability to drive and sustain EE</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Reduce energy intensity by 20% by 2020 and by 30% by 2030 from the 2005 level.</li> <li><input type="checkbox"/> Cap CO2 emission by 16% from BAU by 2020.</li> </ul>
Thailand	<ul style="list-style-type: none"> <li><input type="checkbox"/> Thailand's energy policy focuses on:                             <ul style="list-style-type: none"> <li>▪ Enhancing Energy Security</li> <li>▪ Alternative Energy as National Agenda</li> <li>▪ Promoting Energy Efficiency</li> <li>▪ Fair and Stable Energy Pricing</li> <li>▪ Environmental Protection</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 20 Year Roadmap on Energy Efficiency; Reduce Energy Intensity by 25% from 2010 to 2030.</li> <li><input type="checkbox"/> Reduce total final energy consumption by 20% relative to BAU by 2030</li> </ul>

# Summary of ASEAN Energy Saving Goals, Action Plans and Policies



COUNTRY	BAU SCENARIO	APS
Vietnam	<ul style="list-style-type: none"><li><input type="checkbox"/> Building Energy Code : Regulatory Measure</li><li><input type="checkbox"/> Energy Labeling Voluntary Measure</li> <li><input type="checkbox"/> Regulatory Freamework:<ul style="list-style-type: none"><li>▪ Law 50/2010/QH12</li><li>▪ Decree 21/2011/ND-CP EE&amp;C Action Plan</li><li>▪ Decree No. 102/2003/ND- CP: EE&amp;C enforcement</li></ul></li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> National Energy Efficiency Program (VNEEP) - to save energy consumption by 5% - 8% within 2012 to 2015</li></ul>

# EE&C Programme in ASEAN



## ASEAN-Japan Energy Efficiency Partnership (AJEEP)

- Implement capacity building activities through energy audit and intensive seminar-workshops to narrow the gap of the implementation of EE&C.
- Disseminate advanced energy efficient technologies and to promote business development and business-matching activities.
- AJEEP Scheme-2: capacity building and development of business opportunities on EE&C
- AJEEP Scheme-3: assistance in the development of EE&C legal policy framework

## Energy Conservation Workshop under AJEEP (ECAP)

- Improve establishment of EE&C law and regulations of each ASEAN Member States
- Develop/advance EE standards and labelling program for appliances/equipment in ASEAN region
- Enhancement of the evaluation criteria applied to the ASEAN Energy Awards systems for EE&C buildings and energy management best practices in ASEAN

# EE&C Programme in ASEAN



## Energy-Efficiency Market Transformation with Information Provision Scheme (EMTIPS)

- Funded by METI-Japan
- Jointly implemented by ACE and ECCJ
- Aims to support ASEAN Member States to overcome the barriers on the implementation of promotion measures of energy efficient home appliances by adopting Japanese approaches

## ASEAN Energy Management Accreditation Scheme (AEMAS)

- The world's first regional certification system for energy managers and energy end-users in the manufacturing and building sector
- Funded by the European Union under the Switch-Asia Programme
- As of January 2014, certified: i) 129 Local Trainers; ii) 65 Local Auditors; iii) 1686 Energy Managers; iv) 9 Energy End-users; and v) 19 Country Experts

# EE&C Programme in ASEAN



## ASEAN Standards Harmonization Initiative for Energy Efficiency (ASEAN-SHINE)

- Funded under EU SWITCH-ASIA Programme
- Promotion and deployment of energy efficient air-conditioners in ASEAN

## ASEAN+3 Mitigation Cooperation Programme

- Established in 2010, funded by MOTIE-Korea
- Jointly implemented by ACE and KEMCO
- Provide capacity building and information sharing on Clean Development Mechanism (CDM), Nationally Appropriate Mitigation Actions (NAMAs) as well as identification of potential EE as mitigation actions

# EE&C Programme in ASEAN



## ASEAN Best Practices for Energy Efficient Buildings Awards

- Launched in 2000
- Southeast Asia's highest reward for excellence in the field of energy, to promote awareness and private sector participation on EE&C in buildings
- 4 categories: new and existing, retrofitted, tropical, and special submission

## ASEAN Best Practices for Energy Management in Buildings and Industries Awards

- Launched in 2007
- Promotion of best practices, innovative and creative energy management demonstrated and applied in buildings and industries towards energy conservation

## ASEAN Green Building Awards

- Launched in 2014
- Build competency in adopting, developing and applying green building principles in the design of the built environment as well as contributing global efforts to reduce CO2 emissions



# CONCLUSION



- ❑ As a member countries continue to pursue economic goals, energy consumption and CO2 emission in ASEAN as a region will growth very fast, put pressure on energy security, social & economic impacts and environmental stability.
- ❑ ASEAN will continue to be heavily dependent on fossil fuels especially oil in the future. The region as a whole has become a net importer of oil and net imports will further increase in the future in view of stagnating or declining oil production and rapidly increasing demand and EE&C
- ❑ Appropriate energy efficiency and conservation is viewed as one of the most effective ways meeting future demand concerning to the energy supply security and global environmental stability.

# Thank You



[www.aseanenergy.org](http://www.aseanenergy.org)