

Energy Efficiency Action Planning in ASEAN



A presentation for
Energy Efficiency Policies in ASEAN Region
A workshop Sponsored by IPEEC/WEACT and MEMR
Jakarta, 18 – 20 October 2011

ACE at the Glance

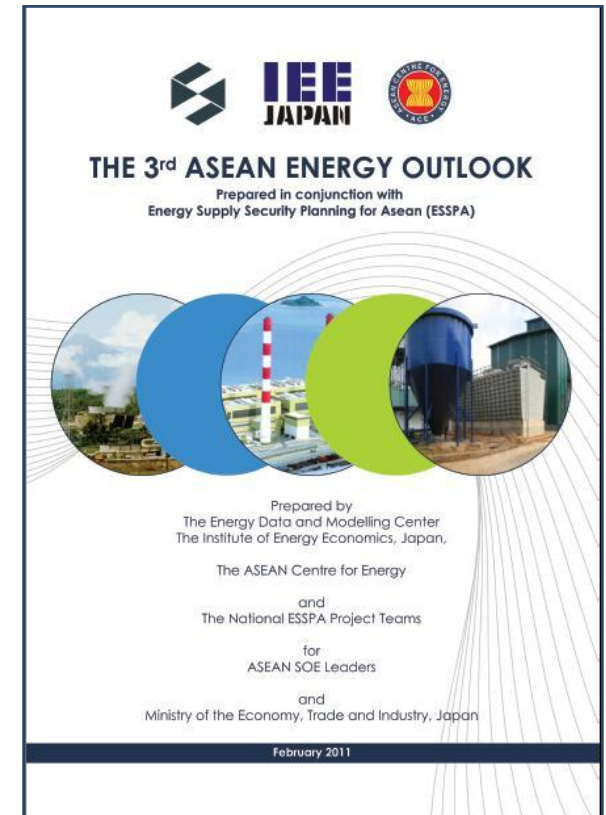


- The ASEAN Centre for Energy (ACE) was established on January 1, 1999 as an Inter-Governmental Organization, guided by a Governing Council composed of SOE Leaders of the ASEAN Member Countries.
- ACE as a technical catalyst for economic growth and development of ASEAN by initiating, coordinating, facilitating and disseminating all energy activities to the region and the rest of the world.
- Follow the blueprint for ASEAN cooperation in the field of energy: The ASEAN Plan of Action for Energy Cooperation (APAEC) 2010-2015, theme: *“Bringing Policies to Actions: Towards a Cleaner, more Efficient and Sustainable ASEAN Energy Community”*.

ASEAN Energy Situation & Outlook to 2030



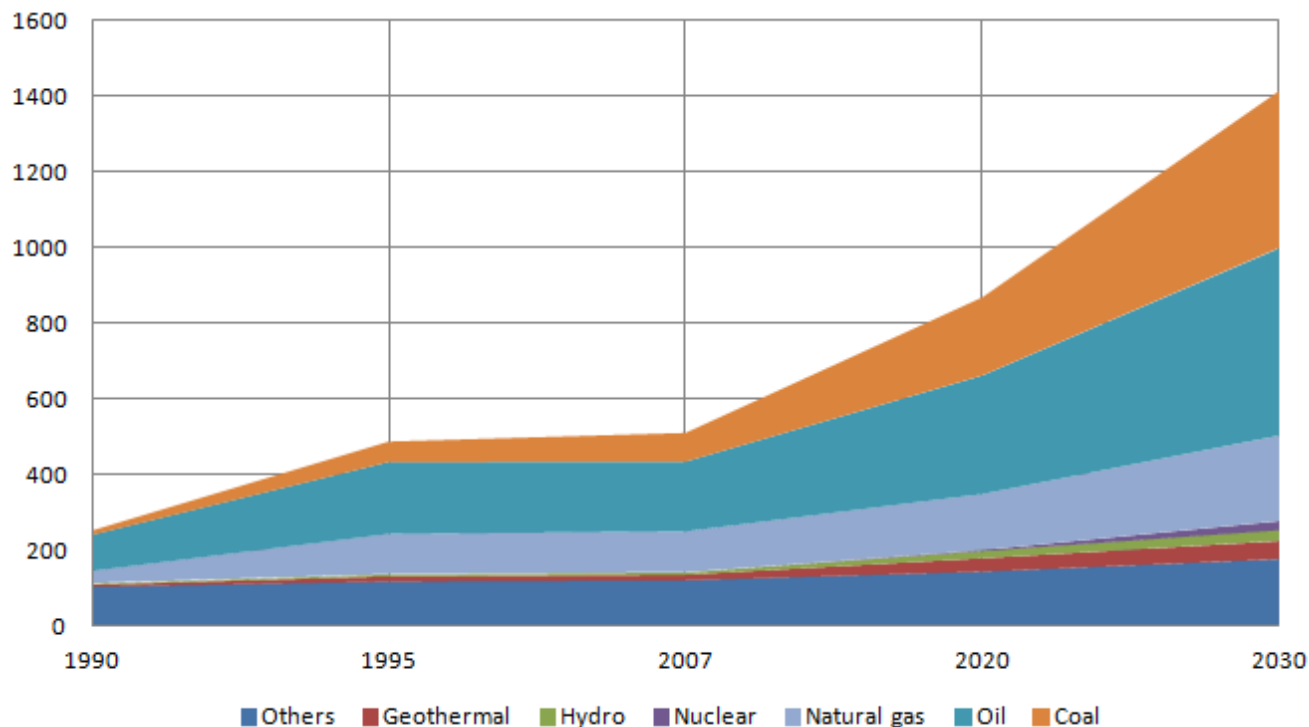
- Mid 2011, the ASEAN Centre for Energy released The 3rd ASEAN Energy Outlook
- A joint output by ASEAN Centre for Energy (ACE), the Institute of Energy Economics, Japan (IEEJ), and National ESSPA Teams.
- Develop an energy demand and supply outlook model for the ASEAN region up to 2030.
- Base on GDP Growth Targets of the 10 Member States (Business as Usual -BaU- Scenario).



ASEAN Energy Situation & Outlook to 2030



Primary Energy Consumption from 1990 to 2030



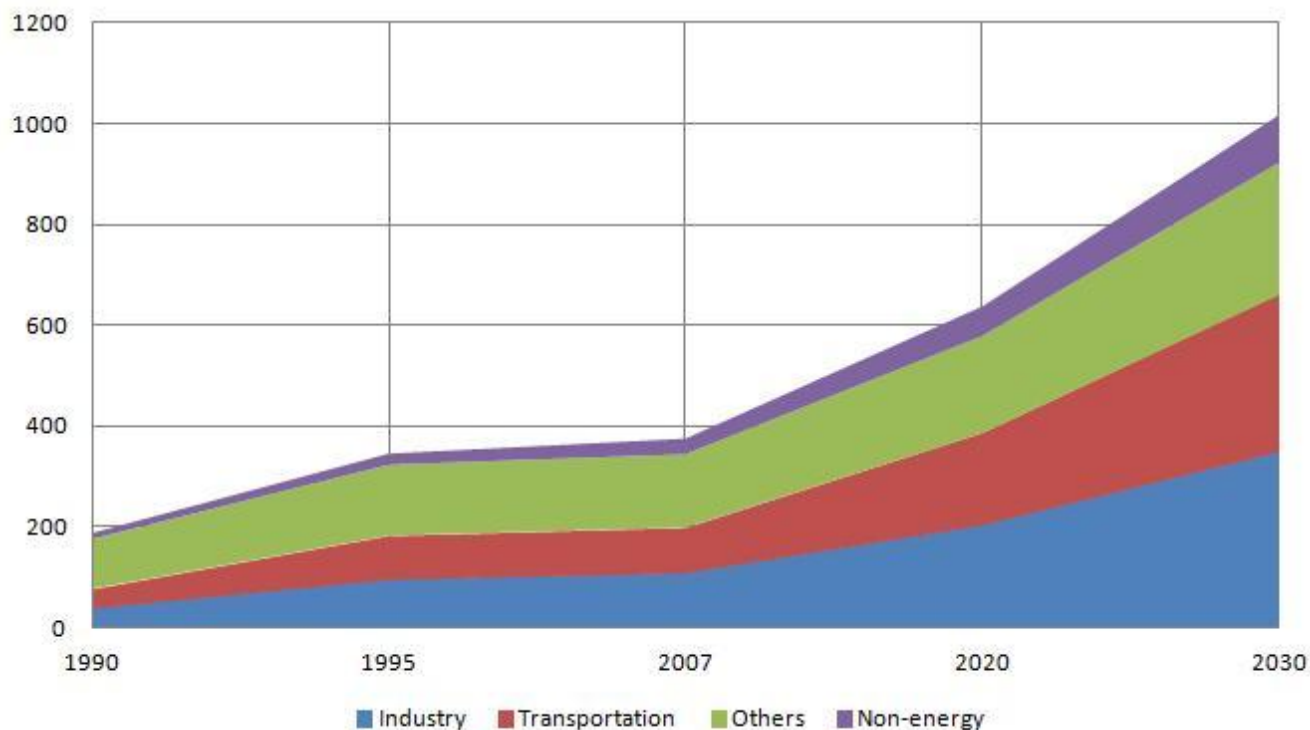
Total primary energy consumption increased from 339 MTOE in 1995 to 511 MTOE in 2007 or 3.6% per annum, and will growth 4.5% per year from 2007 to reach 1,414 MTOE in 2030.

Coal will growth highest as demand increases in Industry and Power Generation, but Oil keep its dominance.

ASEAN Energy Situation & Outlook to 2030



Final Energy Consumption from 1990 to 2030



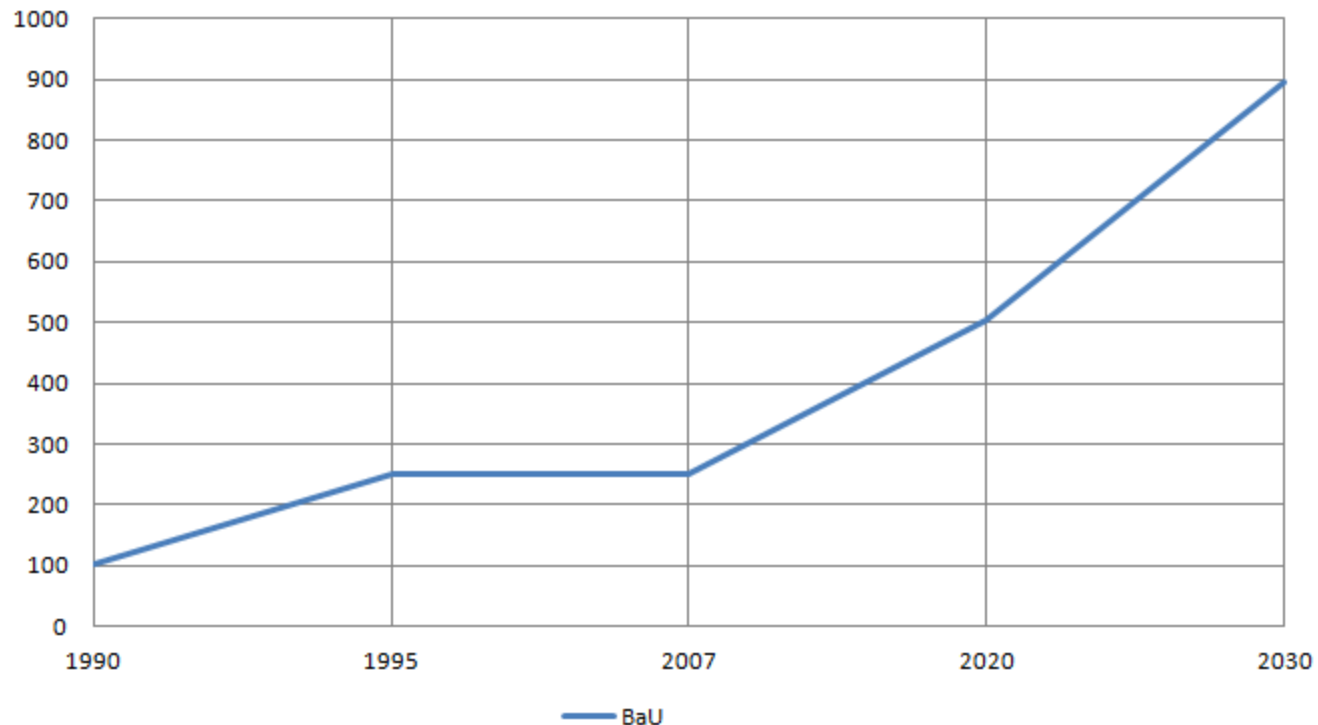
Increased at an annual rate of 3.8% from 241 MTOE in 1995 to 375 MTOE in 2007, growth 4.4% per year from 375 MTOE in 2007 to 1,018 MTOE in 2030.

Driven by fast growth of transport sector and increasing per capita income.

ASEAN Energy Situation & Outlook to 2030



CO₂ Emission from 1990 to 2030



High annual escalation of demand for Coal, the most carbon-intensive fossil fuel, will drive CO₂ emission growth at 5.7% per year.



Finding and Policy Implication

- As member countries continue to pursue their economic goals, primary energy consumption and CO₂ emission in region will increase three folds – *increasing pressure on energy security and global environmental stability.*
- If current levels of energy production do not increase – *the region will have to source out energy supply from outside.*
- Appropriate energy efficiency and conservation programs, low emission technology, and increased shares of non-fossil fuels in Power Generation - *would be needed to reduce carbon intensity and enhance energy security.*

→ Energy Efficiency is the Key!

Energy Efficiency in AMEM



- The 27th AMEM in Mandalay, Myanmar, 29 July 2009
 - Agreed to pursue the aspirational goal of reducing regional energy intensity of at least 8% by 2015 based on 2005 level.
- The 28th AMEM in Da Lat, Viet Nam, 23 July 2010
 - Agreed to undertake an assessment and review of ASEAN EE&C target and tasked the senior officials to develop a systematic plan of action and monitoring mechanism to achieve the target.
- The 29th AMEM in Jerudong, Brunei Darussalam, 20 September 2011
 - Recognised all efforts and activities to get a closer reach to the agreed aspirational goal on reducing regional energy intensity.
 - Agreed to consider a higher level of commitment in terms of energy intensity reduction beyond 2015 in reference to other international and regional commitments.

Regional EE Action Plan



- APAEC 2010-2015, Program Area No. 4: Energy Efficiency and Conservation.
- Objective: To strengthen cooperation in energy efficiency and conservation through institutional capacity building and increasing private sector involvement including enhancing public awareness as well as expanding markets for energy efficient products
- Ownership: Energy Efficiency & Conservation – Sub Sector Network (EE&C-SS), with ACE as Secretariat.
- Main Activities: the ASEAN Energy Awards, Promotion of Energy Efficiency and Conservation (PROMEEC), ASEAN Energy Management Accreditation Scheme (AEMAS), Multi-country Training Program on Energy Conservation for ASEAN Countries (MTPEC), etc.

Regional EE Action Plan



Strategic Goals

1. To pursue the aspirational goal of reducing regional energy intensity of at least 8% by 2015 based on 2005 level.
2. To achieve higher end-use energy efficiency for all sectors through regulatory and market approaches, where appropriate.
3. To enhance institutional and human capacity emphasizing the development of energy efficiency technology and service providers in the ASEAN region.
4. To encourage private sector participation, especially financial institutions to support EE&C investment and implementation.

Program Highlights

1. Development of EE&C tools, such as: database, technical directory, handbook, benchmark, and guidelines.
2. Continue capacity building activities such as Multi-Country Training Program on EE&C.
3. Promotion of ASEAN Energy Awards on energy efficiency and conservation.
4. Promotion of high-performance energy efficiency technologies and practices.

Regional EE Action Plan



Strategy	Action
1. Development of Energy Efficiency Policy and Build Capacity	1. Develop a clear policy and plan to promote energy efficiency. 2. Setting national energy efficiency target and develop a plan to monitor the results. 3. Strengthen human capacity and enhance infrastructure to facilitate the EE policy and plan.
2. Awareness raising and dissemination of information	1. Develop and run EE&C campaigns to raise awareness, emphasizing on global environmental issues 2. Disseminate information using all appropriate medias (including energy labels) to help energy consumers make a right decision 3. Demonstrate best energy practices and successful cases, e.g, public-private sector collaboration on EE&C
3. Promoting good energy management practices, especially for industrial and commercial sectors	1. Develop regulation and / or provide incentives to encourage good energy management practices in facilities 2. Build up capacity for all stakeholders to implement good energy management
4. Facilitation of Energy Efficiency Financing	1. Develop mechanism (s) to enhance financing for energy efficiency and conservation project implementation 2. Increase involvement of banking sector and financial institutes both domestic and international agencies in financing energy efficiency projects

EE Action Plan on National Level



Country	EE Action Plan and Target
Brunei Darussalam	To reduce energy intensity at 25% by 2030 with 2005 as the base year.
Cambodia	No Action Plan but set the target to reduce final energy consumption by 10% in all sectors.
Indonesia	The National Energy Conservation Master Plan (2005); To decrease energy intensity by around 1% per year on average until 2025.
Lao PDR	No Action Plan but set the target to reduce final energy consumption by 10% in all sectors.
Malaysia	National Energy Efficiency & Conservation Master Plan (under development); to reduce final energy consumption by 10% in all sectors from 2011-2030.
Myanmar	No Action Plan but set the target to reduce primary energy consumption 5% (2020) and 8% (2030) compare to BaU.
Philippines	The National Energy Efficiency & Conservation Program (NEECP): To achieved energy savings equivalent to 10% of the annual final energy demand outlook from 2009-2030
Singapore	To reduce energy intensity by 20% (2020) and 30% (2030) from 2005 level.
Thailand	20 Year Roadmap on Energy Efficiency; Reduce Energy Intensity by 25% from 2010 to 2030.
Viet Nam	National Energy Efficiency Program (VNEEP); To reduce energy consumption by 3-5% (2010) and 5-8% (2010-2015)

Example of National EE Action Plan : Malaysia



The Strategic Approach : Introduction of National EE&C Policy and Implementation of key initiatives under the EE&C master plan to reduce final energy consumption by 10% in all sectors from 2011-2030.

Voluntary	Party Regulated	Mandatory Dedicated Law
<ul style="list-style-type: none">- Energy audit & EPC- Capacity building- Awareness & Promotion- EE technologies & applications- Green Building Index- MS 1525 Standard- Rating & labeling- Demonstration projects	<ul style="list-style-type: none">- MEPS for selected appliances in safety requirements- Requirements for biggest electricity users- Energy Management System in FM contract for government buildings	<ul style="list-style-type: none">- MS 1525 in Uniform Building by Law (UBBL) in stages- Regulatory energy performance for energy using sectors & products- Energy Efficiency and Conservation Act

Malaysia



Key Focus Area

(Inclusion of Energy Efficiency on the Government's Economic Transformation Program: Entry Point Project 9, National Key Economic Area for Oil Gas & Energy)



Leading by Example



New appliances



Co-generation



Building installation



Transport efficiency

The Philippines



Policy Formulation and Development for Energy Efficiency and Conservation

- Advocate the passage of Enecon Bill into Law
- Amend DOE Cir. 03-93-05
- Accreditation of Energy Managers and Energy Auditors

Energy Efficiency and Conservation

Action Plan Targets (2009-2030)

- Goal: To achieved energy savings equivalent to 10% of the annual final energy demand outlook from 2009-2030

Philippine Energy Efficiency Project (PEEP)

- Lighting Retrofits in Gov't. Bldgs.
- 13 million CFLs Distribution to Consumers (households)
- Energy Efficient Public Lighting Program
- Expansion of Testing Laboratory expertise and Mercury Waste Management plant
- Super Esco
- Certification of Energy Efficient Buildings
- Social Mobilization

Government Energy Management Program

- Standard and Labeling for New Models of Passenger Cars and Light Duty Vehicles
- Capacity Building and Certification Program for Energy Manager and Energy Auditor

Promotion of Energy Efficiency and Conservation Programs

- Program for Aviation Fuel enhancement
- Program for Major Retrofit in the Commercial and Industrial establishments
- Program for Voluntary Agreement with the LGU's for the rationalization of Tricycle Operation
- Program in the promotion of technology involving fuel efficient vehicle and lighting system

2009

2010

2015

2030

Information, Education and Communication (IEC)

- Power Conservation and Demand Management
- Fuel Conservation and Efficiency in Road Transport

National Energy Efficiency and Conservation Program

- Energy Audits
- Don Emilio Abello Energy Efficiency Awards
- Voluntary Agreements
- Energy Consumption Monitoring

Development of Energy Efficiency Guidelines for Residential Buildings

- Development of Energy Benchmark for Commercial and Government Buildings and Industrial facilities

Policy implementation:

- Energy Management Standard
- Establishment of the Philippine Energy Efficiency and Conservation Center (PEECC)

Cumulative Target Potential Energy Savings (2009-2030)
 = 76,002 KTOE (3,485 KTOE per Year)
 = 7,455 MWe (339 MWe per year) deferred power capacity
 = 196,879,390 Million MT CO₂ avoidance (8,949,063 Mil. MT CO₂ per Year)

Country Report Philippines
 The 7th ASEAN NRE and EE&C Forum, Medan, Indonesia, 05 April 2011

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The Philippines



The National Energy Efficiency & Conservation Program (NEECP)

- Launched in August 2004 to further strengthen the implementation of the energy efficiency and conservation programs in the country.
- NEECP Sub-Program Components and Activities:
 1. Information, Education and Communication Campaign
 2. Standard and Labeling for Household Appliances
 3. Fuel Economy Run
 4. Government Energy Management Program
 5. Energy Management Services / Energy Audit
 6. Recognition Award
 7. Voluntary Agreement Program
 8. Philippine Energy Efficiency Project

The Questions?



How Individual Action Plan from each ASEAN Member Countries support to pursue the aspirational goal of reducing regional energy intensity of at least 8% by 2015 based on 2005 level?

Alternative Policy Scenario



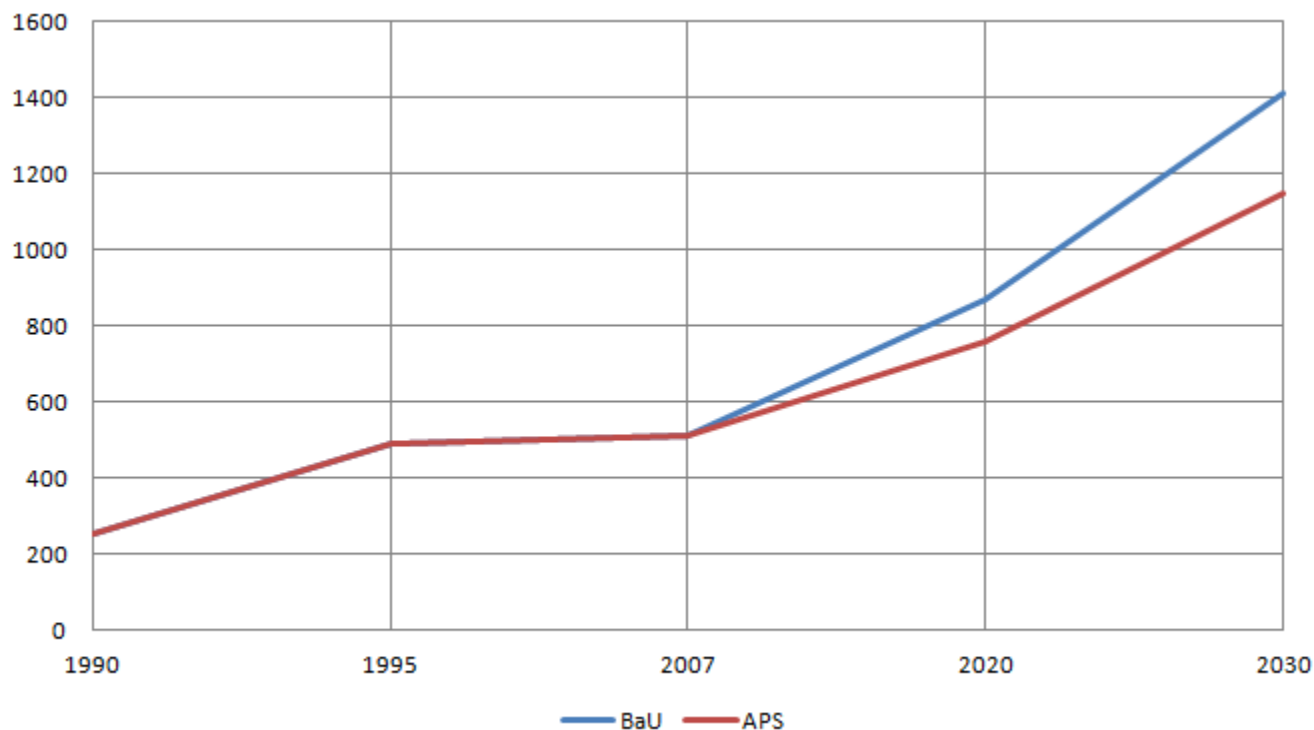
- Enriched The 3rd ASEAN Energy Outlook with an analysis of an alternative energy development path: analyzes the impact of the energy saving goals and action plans in the primary energy demand and CO₂ emissions.

Member State	Energy Efficiency Saving Goal
Brunei Darussalam	Attain 25% reduction of energy intensity from 2005 level by 2030
Cambodia	Reduce final energy consumption by 10% in all sectors
Indonesia	Reduce final energy consumption by 1% per year from the BAU scenario
Lao PDR	Reduce final energy consumption by 10% in all sectors
Malaysia	<ul style="list-style-type: none"> Reduction of final energy consumption in the industrial, commercial and residential sectors by 10% from 2011 to 2030 Reduce the final energy consumption of the transportation sector by 1.39 <u>ktoe</u> in 2030 by modal and fuel switching from gasoline to electricity rail transport and electric vehicles
Myanmar	<ul style="list-style-type: none"> Reduce primary energy consumption by 5% in 2020 and 8% by 2030 compared to BAU Improve energy efficiency in all end-use by 16% by 2030
Philippines	Reduce final energy consumption by 10% in all sectors
Singapore	<ul style="list-style-type: none"> Reduce energy intensity by 20% by 2020 and by 35% by 2030 from the 2005 level. Cap CO₂ emissions from combustion of fuel at 63 Mt-CO₂ in 2020.
Thailand	Save 22% of total energy in 2030 relative to BAU
Vietnam	Reduce energy consumption by 3%-5% by 2010 and between 5%-8% by 2010-2015

ASEAN Energy Outlook to 2030



Primary Energy Consumption to 2030

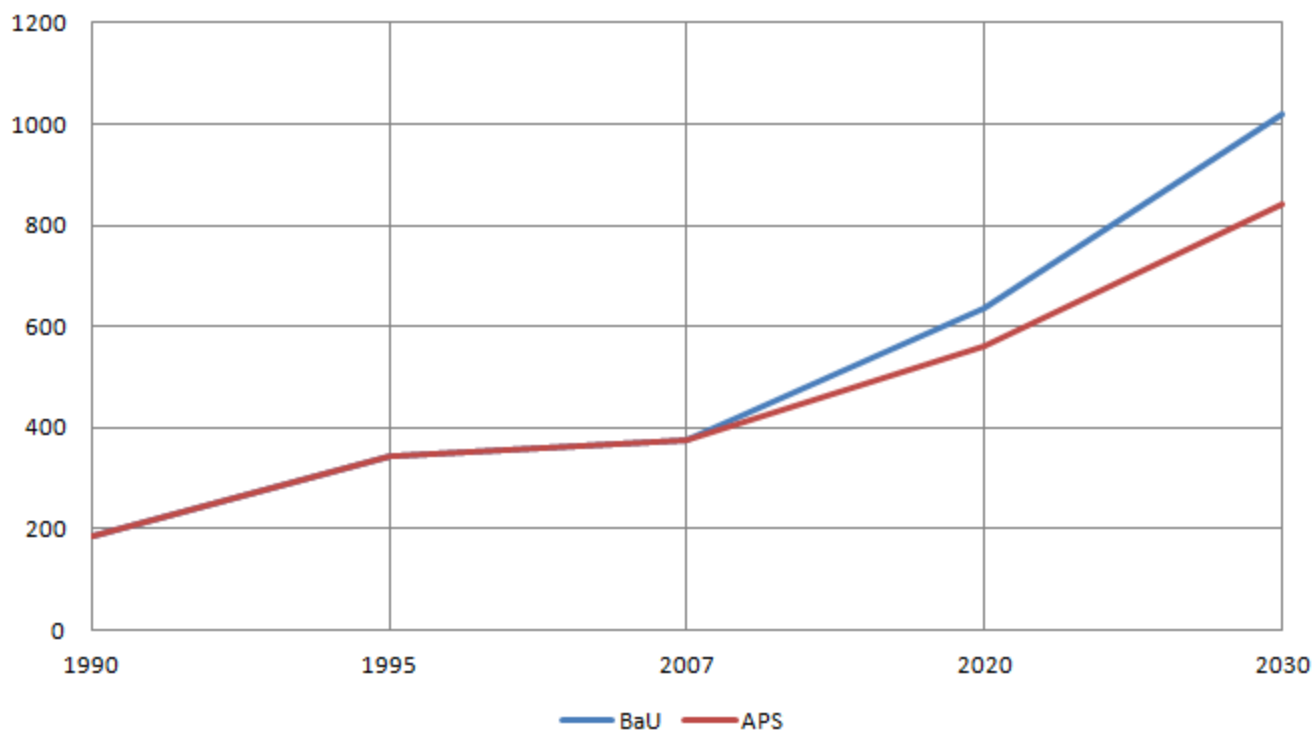


While in BaU, Primary Energy Consumption will growth at 4.5% per annum from 511 MTOE in 2007 to 1,414 MTOE in 2030, in the APS, it's only 1,152 MTOE in 2030, 18.5% lower.

ASEAN Energy Outlook to 2030



Primary Energy Consumption to 2030

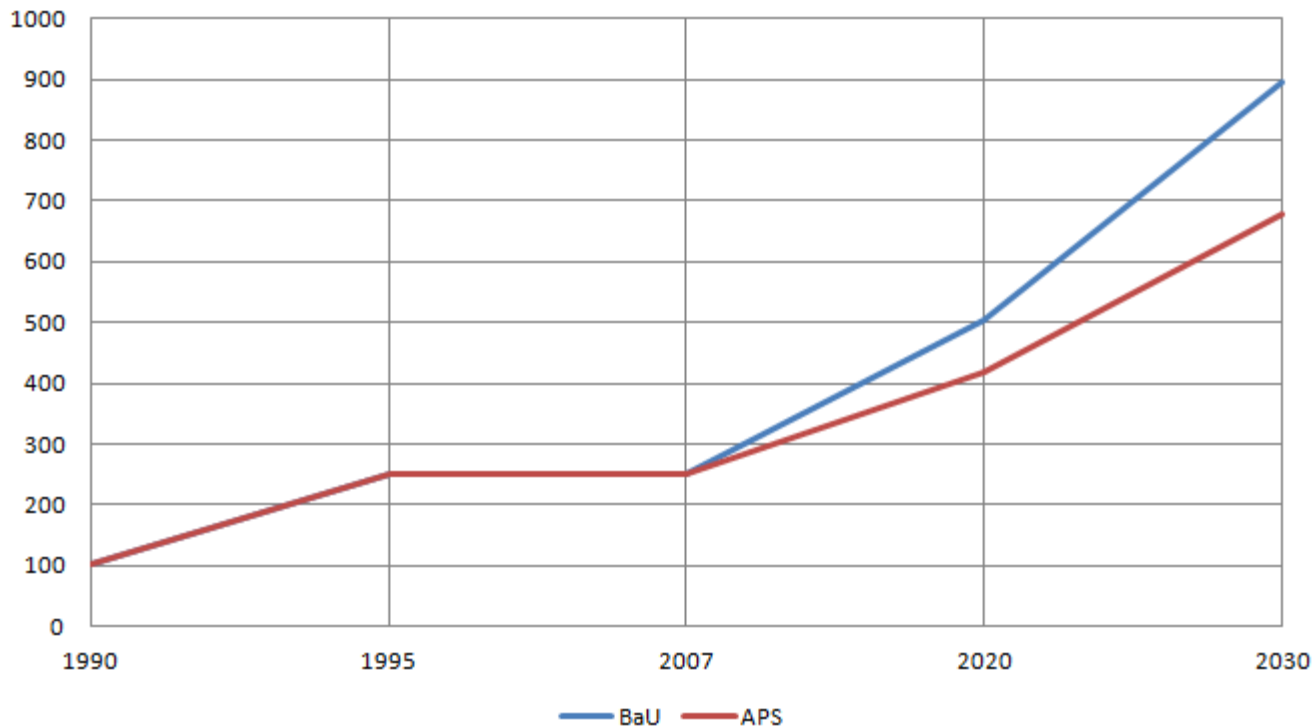


While in BaU, Final Energy Consumption in ASEAN will grow at an average annual rate of 4.4% from 375 MTOE to 1,018 MTOE in the period 2007-2030, in the APS, it will grow at a slower rate of 3.6% to 843 MTOE in 2030.

ASEAN Energy Outlook to 2030



CO₂ Emission to 2030

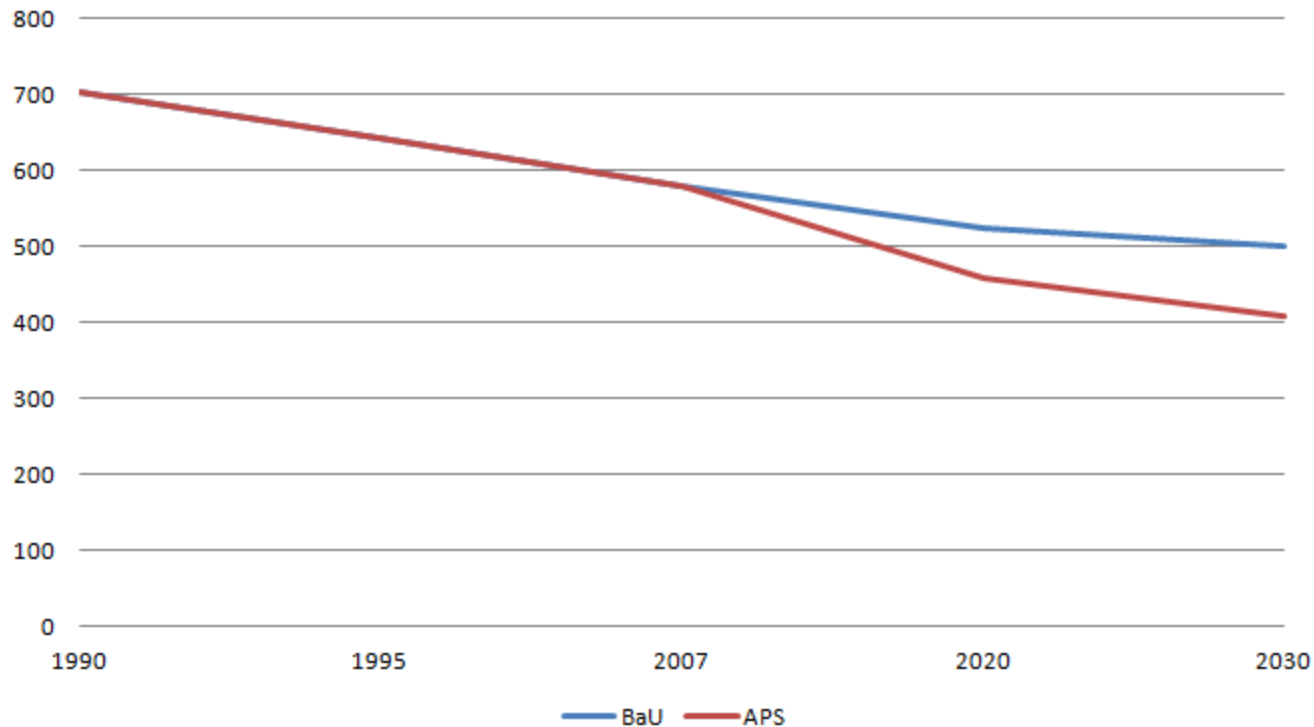


While in BaU, the emission will increase at 0.5% average annual rate, rise from 283 t-C/million USD in 2007 to 317 t-C/million USD in 2030 in the BAU. In the APS, on the other hand, CO₂ intensity will decrease by 0.7% per year to 240 t-C/million USD.

ASEAN Energy Outlook to 2030



Energy Intensity to 2030



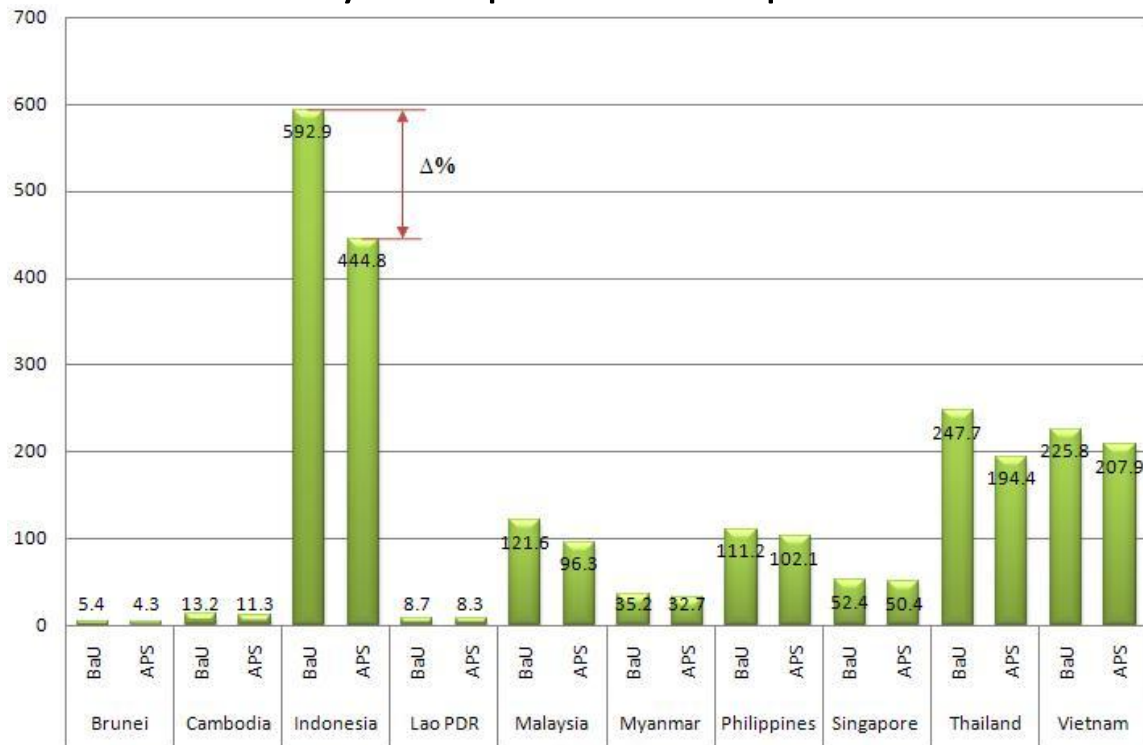
While in BaU, ASEAN can reduce the Energy Intensity around 22% in 2030 compared to 2005 level. But, applying APS it's potentially to decrease 36%.
Potential 12% reducing EI from 2005 to 2015 in BaU, and 19% in APS.

Are we ready to implement the Plans?



Recent plans would make a difference but are they enough?

Ready to implement the plans?

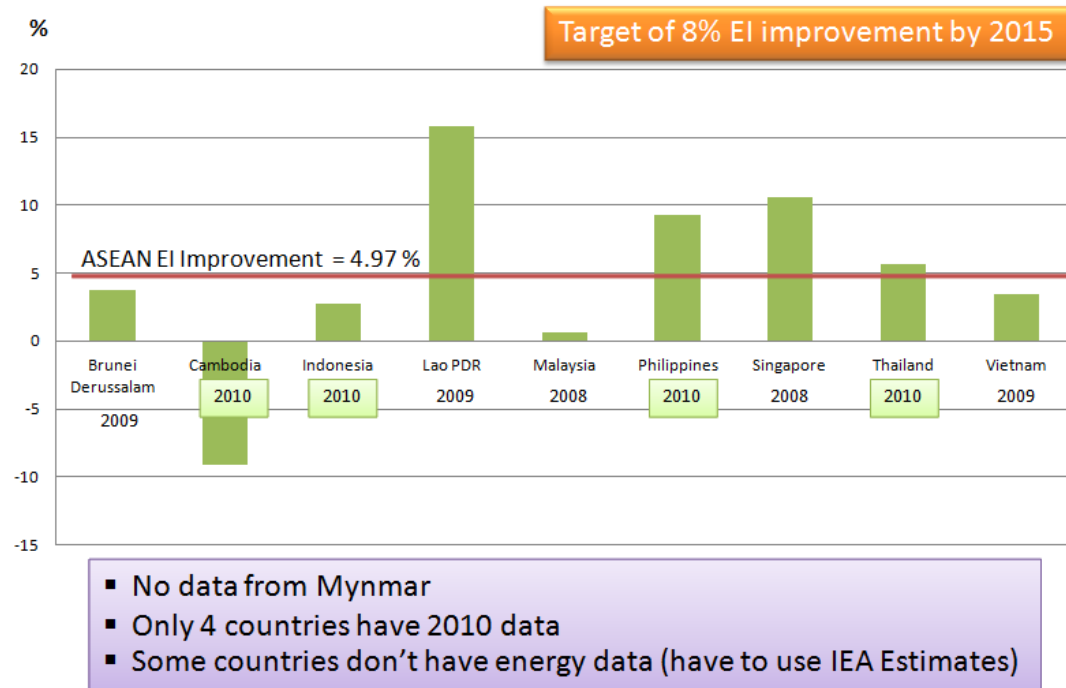


Energy saving goals set by the governments of the 10 ASEAN Member States; would be able to reduce primary energy consumption. Indonesia: reduce 25%, Thailand 22%, Malaysia 21% and Brunei 20%.

Where are we now?



Progress of EI Reduction as per September 2011



As reported by Thailand, Chair of EE&C-SSN on the SOME of the 29th AMEM; 29-30 June 2011, Bandar Seri Begawan, Brunei Darussalam.

Where should we go next?



- One of the most effective ways of meeting future demand is improving energy efficiency.
- Prioritizing EE to national level policymaking is compelling.
- In this regard, ASEAN might to revisit their energy efficiency programs to optimize the benefits that could derived.
- ASEAN should also continue to strengthen regional cooperation especially in sharing best practices in energy development and utilization including energy efficiency.
- In pursuit of effective EE policy, governments need to have effective institutions to develop appropriate EE programmes and activities, and to monitor their implementation.
- In parallel, it is also necessary to strengthen capacity of policymakers and programme implementers and provide sound assessment of its socio-economic benefits

Thank You



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