



Capacity Development: Challenges and Opportunities for ASEAN

Pattana Rakkwamsuk

School of Energy, Environment and Materials King Mongkut's University of Technology Thonbui THAILAND



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Capacity Building and Construction Transformation in Emerging Economies

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Introduction

- Final energy consumption in ASEAN will grow at an average annual rate of 3.9 percent from 343 MTOE 2005 to 901 MTOE 2030 in the Reference scenario.
- Electricity will have the highest growth rate among the energy consumed in the final consumption sector at 6.1 percent per annum. This is followed by coal at 5.9 percent, natural gas at 5.0 percent and oil at 4.5 percent. Biomass will have a slow growth rate of 0.2 percent per annum.
- The corresponding primary energy consumption will have a faster growth rate of 4.0 percent per annum.
- The above growth in primary energy consumption will result to a corresponding 5.1 percent annual growth in CO2 emission.
- As energy demand increases, Energy Efficiency is seen to be a prominent and promising pathway to ease energy and environmental crises.

*ASEAN Plan of Action For Energy Cooperation 2101-2015, ASEAN Centre For Energy





SHARE OF ENERGY CONSUMPTION IN BUILDINGS

Share of final end use in %



30.3 29.0 4.8 9.0 8.8 9.0 27.1 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 10.0 0.0

Residential and commercial consume about 36% of world's final energy consumption









Technology Roadmap

Energy efficient building envelopes

- Building envelope, AC
 systems and
 lighting/daylighting are
 areas that could enhance
 Energy Efficiency
 effectively.
- In addition to technology development, basic understanding of building science.
- More importantly, driving policies in various levels are required.







Driving Mechanisms Towards EE

Push Mechanism

- Minimum performance, Compulsory
- Eliminate systems/equipment with poor energy performance

Pull Mechanism

- ✓ Promotion via market driven mechanism
- \checkmark Higher energy performance, better than minimum criteria





- We have had educational/training programs for capacity building.
- This would be a foundation for 'Green Building Economy'.





Educational and Professional Program

- College and University
 - Diploma Undergraduate Graduate
 - EE technologies and Energy Management
 - Single-/ Multi-Disciplinary
- Intensive/Professional Trainings
 - Government-supported programs
 - Professional training business firms

Current situations

- Higher demands
- Opportunities when AEC commenced
- Career path





Challenges Under Green Building Economy

- To drive EE Economy sustainably, true market-driven business must exist instead of relying only on governmental subsidy programs.
- High investment is always required when EE buildings are built.
- Banks or financial institutions must play a role as big stakeholders. Offers of soft loan must be created.
- Life cycle cost should be employed for justifying the loan instead of a payback term.
- This would bring a bright career path for EE building professionals.





Thank you for your attention ... Q & A... pattana.rak@kmutt.ac.th





Updates on Building Materials Testing and Certification Center In Thailand





Background

- Building energy efficiency plays a vital role in reducing green house gas emission.
- Effective regulations on both mandatory and voluntary measures would drive a green economy.
- The APEC Energy Working Group (EWG) has initiated the program so called 'Materials Testing and Rating Center for Smart Building.'
- Thailand has proposed this project and committed to setting up a testing, rating and certification center. It could be said it is a pilot project and it can be replicated after successful completion.





Major activities

- APEC Policy Workshop for Energy Efficient Building Envelope
 - 22 October 2013 at Eastin Grand Hotel, Sathorn
 - Three sessions include
 - Building Envelope Energy Efficiency Policy in APEC Economies (UNDP, Thailand, US, Mexico and New Zealand)
 - Building Envelope Components Energy Efficiency Testing and Rating Systems (China, Thailand, Singapore, US, Korea, Australia and Russia)
 - Industries Initiatives Towards Green Economy of Building Construction Materials (AGC Flat Glass (Thailand) and Guardian Industries Corp Ltd.)
 - 58 participants joined the workshop











Major activities

- APEC Training Workshop for Window Thermal Performance Testing and Rating
 - Instructor: Mr.Bipin Shah (WinBuild, Inc.) and Dr. Charlie Curcija (LBNL), USA.
 - 23-25 October 2013 at SEEM, KMUTT
 - Training on Optics 6, Window 7 and THERM 7 (a software adopted by National Fenestration Rating Council for determining window thermal performance)



















What have we got?

- Knowledge and experience sharing
- Networking
- Capacity building
- Momentum that drives the establishment of BMTCC at SEEM-KMUTT







Thank you...























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