

# Opportunities and the barriers in implementing the proposed Thailand NAMAs for energy efficiency in buildings

Yumiko Asayama, National Institute for Environmental Studies (NIES), Japan



## Research objectives

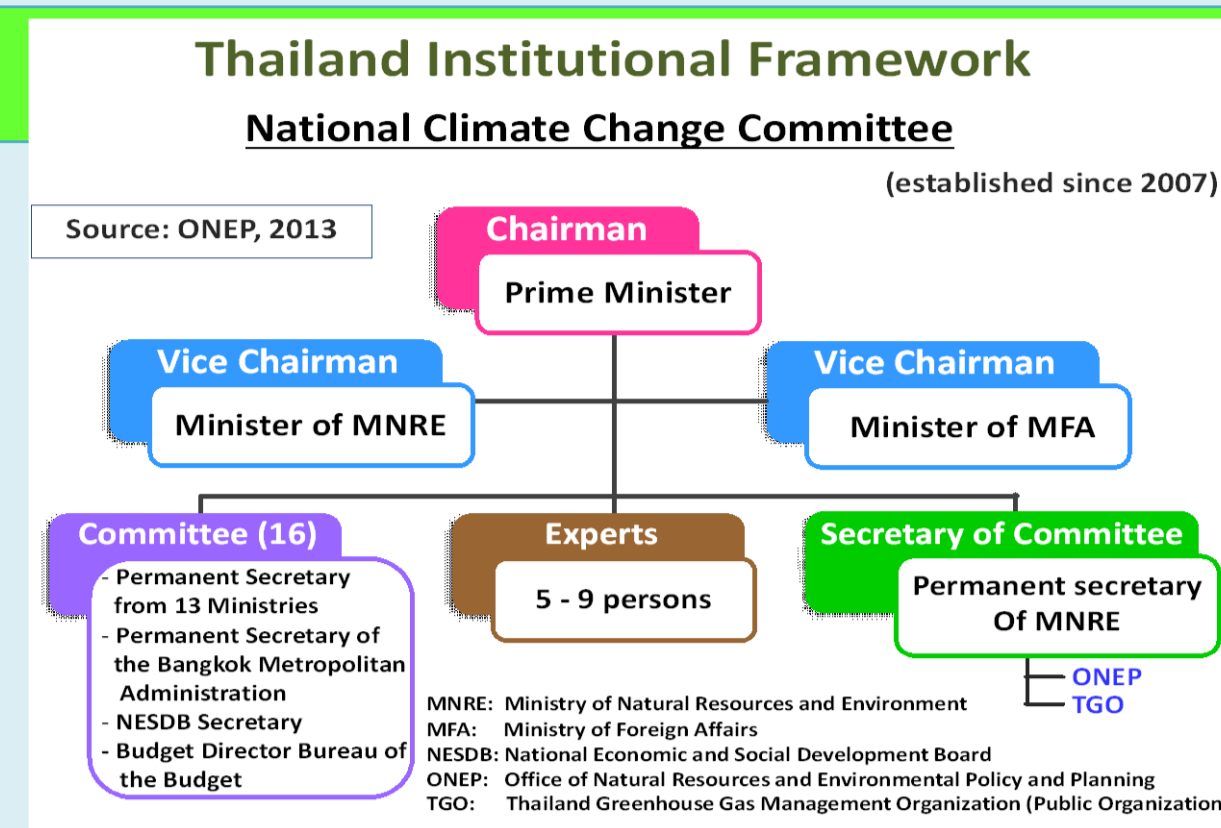
To examine the rationale, opportunities and barriers of improving energy efficiency in commercial buildings under the framework of the Thailand NAMAs.

## Research methods

- Literature reviews of relevant journal papers, international organizations' reports, and government policy documents
- Interview with the relevant national and governments' officials and academics, in order to identify the situation in Thailand and analyze the stakeholders' perceived barriers and their rationales
- Analyzes the outcomes of SWOT (Strength, Weakness, Opportunity, Threat) implemented in the Thailand NAMAs workshop

## Situation about the NAMAs in Thailand

- As of Dec, 2013, Thailand has not pledged its NAMAs, ONEP of MONRE and TGO, appointed by Prime Minister as the co-secretariat of the NCCC, have prepared its NAMAs.
- The remarkable feature of the Thailand NAMAs is the criteria of the domestic and international NAMA are determined by the abatement costs, which were generated from the AIM/Enduse (See Table 1).

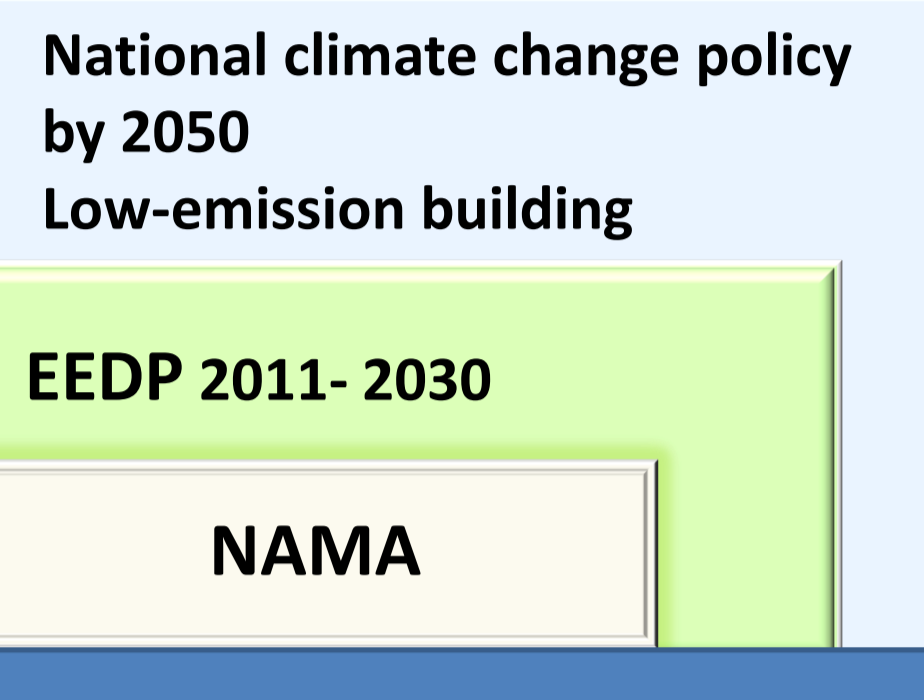


NAMAs	CO <sub>2</sub> Countermeasures	CO <sub>2</sub> Reduction in 2020 (kt-CO <sub>2</sub> )
Domestic NAMAs (MAC < 10\$/t-CO <sub>2</sub> )	Renewable Energy Power	2,568
	Energy Efficiency Large Industries (Lighting, cooling, etc)	4,762
	Building codes (lighting, cooling, etc)	5,909
	Transport/Ethanol	5,069
	Transport/Biodiesel 1 <sup>st</sup> Generation	5,022
Sub-total		23,001
International NAMA (MAC > 10\$/t-CO <sub>2</sub> )	Renewable Energy Power (Solar PV, Wind; MAC > 10\$/t-CO <sub>2</sub> + AEDP)	13,456
	Energy Efficiency Large Industries	9,743
	Transport/Biodiesel 2 <sup>nd</sup> generation	14,459
	Environmental Sustainable Transport	12,000
Sub-total		50,000
Total		73,001
Total emissions in 2005		192,724
Projected emissions in the BAU 2020		367,456

Proposed NAMA pledge: 20% reduction in total, which 7% come from domestic and 13% come from international NAMAs. Source: ONEP, 2013, Limmechokchai, 2013

## Opportunities to improve energy efficiency in the designated buildings under the framework of NAMAs

- It is the highest potential to reduce by 5,909 kt-CO<sub>2</sub> in 2020 through the domestic scheme, such as building codes (see, Table 1).
- Measurement, Reporting & Verifications (MRVs) under the framework of NAMAs facilitate collecting and managing data.
- Assist monitoring the progress of Energy Efficiency Development Plan 2011-2030 (EEDP)
- Supplement the work plans for the designated buildings under the EEDP.
- Leverage domestic and international resources with incentives



## Policy instruments to improve energy efficiency commercial buildings and their barriers

### Control & Regulation mechanism

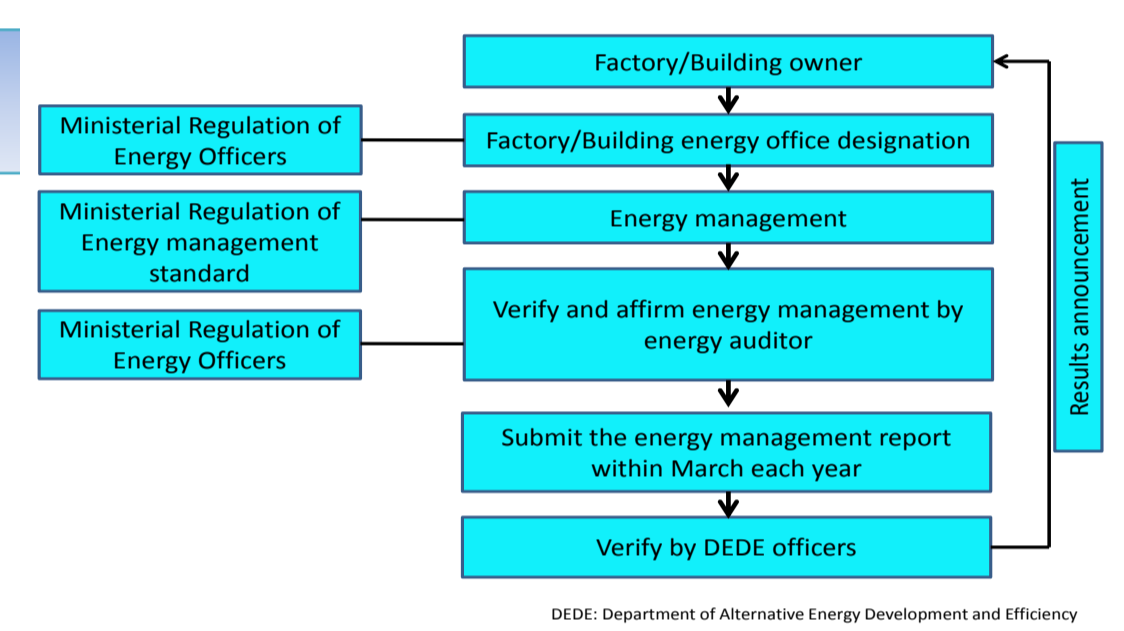
#### Building energy code for new constructed buildings under the Energy Conservation Promotion Act in 2007

revised from the 1992, applied for New or retrofitted building have space from 2000 m<sup>2</sup> or above, and ask those to have person responsibility to energy and submit the annual energy audit

#### Barriers

- Energy consumption has been increasing as it was not updated and enforced 18 years from the initial Act
- As of 2012, more than 2000 designated building submitted the report however, it is self-reported data. There is no mechanism for the monitoring, the credibility of data is not certain. Because of this, there is no official data which can be applicable for the decision making for building energy efficiency standard

#### Energy Conservation Procedure



### Regulatory informative instruments

#### Enforcement for Minimum Energy Performance Standard (MEPS)

#### Barriers about labeling for appliance

- While achievement of MEPs is mandatory, HEPs criteria is voluntary, it is not efficient than mandatory
- Criteria of lighting is MEPS criteria only MEPS

#### Barriers about labeling program for building

- Voluntary level only
- Mainly 3 different labeling programs have been implemented, but no united benchmark

### Financial instruments

#### Energy Conservation Promotion (ENCON) Fund

derived from the revenue from a tax of 0.04 baht per liter on all petroleum products sold in Thailand

#### Barriers

- The loan is limited to USD 1.4 million per project
- The fund is not only for the commercial buildings, but also for industry, and commercial facility owners, ESCOs, and project developers.
- Available funding is not enough for large commercial building sectors project.

#### ESCO Fund

government co-invest program (sub-loan)

- Though it aims to increase private revenue from selling carbon credit to support private investor, ESCO fund is co-funding, so private companies want more support from ESCO fund
- It is 500 million Baht in total. Small ESCO fund project can not investment energy efficient
- As pay back period is very long, the share holder does not want to investment

## Outcomes of SWOT analysis regarding energy efficiency promotion (date: Nov, 2013; venue: TGO; participants: 50 people)

### Strengths

- Energy sector is the highest GHG contributor. Thus, this sector has a high potential to reduce GHG emission
- It will assist energy efficiency promotion
- Energy saving and energy efficiency technologies can reduce a plenty of energy consumption

### Weakness

- The development of NAMAs project beneath energy efficient (EE) needs the historical data from factories/buildings to define the baseline. However, nowadays, data can collect only from designated buildings
- Number of energy auditors in Thailand is not enough to provide good energy auditing.
- Upfront cost of EE projects is high. Moreover, the cost of energy measuring devices is also high
- Lack of MRV readiness for institutional structure due to coordination issues

### Opportunities

- EE projects for sectoral base case can help to increase the result from government plan
- Can ask the assistance both development and EE technology transfer in case of internationally supported NAMAs

### Threats

- The operation MRV for internationally supported NAMAs must be more strict than domestic NAMAs

## Research findings from the literature review and SWOT analysis

- While focusing on the measures used the regulatory mechanism, there is no follow-up mechanism in line with the outcomes of energy audit and reporting. There is little credibility about the data in the report.
- Stakeholders see the potential to improve energy efficiency through the measures under the framework of NAMAs, but they see existing institutional and monitoring system is not sufficient to implement the NAMAs. They see this also causes the challenges of data quality management. Therefore, they have been afraid to conduct MRV systems.
- There are limited studies which explore how the interrelated barriers affect the progress and monitoring the implementation.

## Conclusion

- The proposed NAMAs target for energy efficiency in the designated buildings will not be achieved without finding the ways of enhancing the compliance of end-use energy users.
- Comprehensive package combined regulation, incentives and information measure to enhance people's awareness and activate the market for energy efficiency in buildings are needed under the framework of the NAMAs
- More precise distribution of roles between ONEP and TGO are necessary.
- MRV systems for energy efficiency building can be developed in line with DEDE's energy conservation procedure, but clear NAMAs action plans and the MRV framework should comply with the DEDE's procedure.
- Supported NAMAs facility should be developed by ONEP, and the framework should compile with the DEDE procedure.

## Next Step of this study

As the SWOT analysis did not necessarily show the possibility of comprehensive appraising the strategic decision-making situation, this study will conduct the Analytic Hierarchy Process, which facilitate decomposing the complex problem into a hierarchical tree, by scaling or weighting the importance of all criteria among stakeholders.

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