Country Report for ECAP 17
4-10 November 2018 in Tokyo, Japan

Building Energy Code (BEC)
Ministry of Energy, Thailand

Department of Alternative Energy Development and Efficiency
Ministry of Energy, Thailand
www.dede.go.th
BEC Background

Building Energy Code (BEC)
- Considering energy efficiency in every system
- Using high efficiency equipment
- Low energy expenses

Exiting Building
- No energy conservation design
- Using low efficiency equipment
- Hard for retrofitting
- High energy expenses
Thailand Energy Blueprint

BEC Background

Integration
Harmonized Time Frame
Better Balanced Focus

20 YEARS

Security
Economy
Ecology

PDP
POWER DEVELOPMENT PLAN

EEP
ENERGY EFFICIENCY PLAN

AEDP
ALTERNATIVE ENERGY DEVELOPMENT PLAN

GAS
GAS PLAN

OIL
OIL PLAN

TIEB
THAILAND INTEGRATED ENERGY BLUEPRINT
Thailand Energy Blueprint

EEP = Energy Efficiency Plan
PDP = Power Development Plan
AEDP = Alternative Energy Development Plan

EE2; Building Energy Code (BEC)

Decree on designated building
Effective from 12/12/1995

Decree on designated factory
Effective from 17/07/1997

Ministerial Regulations

Energy Management in designated buildings and factories
Effective from 20/11/2009

Persons Responsible for Energy (PRE)
Effective from 31/07/2009

Energy Management Auditors
Effective from 11/05/2012

Building Energy Code
Effective from 20/06/2009

High Energy Efficiency Standard for Equipments and Machinery
Effective from 08/04/2009
Ministerial Regulation 2009

- Enforcement of new or retrofitted buildings of 9 buildings types which have total area \( \geq 2,000 \text{ m}^2 \)
Ministerial Regulation 2009

• Using effective equipment Have a building design condition

  Minimum energy efficiency criteria

  1. Envelope system
  2. Electric lighting system
  3. Air-conditioning system
  4. Water heating appliance
  5. Renewable energy system
  6. Whole building energy
1. Enforcement of the Ministerial Regulation

- Enforcement BEC standard
- Development of BEC auditor training
- Tightening BEC standard

✓ 9 types of new buildings
✓ total area ≥ 2,000 m²
✓ In 2019, Starting enforce with new buildings area ≥ 10,000 m²
✓ Down to small size in 3 years

2. Supporting new energy conservation building

- Energy building labels
- Financial incentives, for example government funds or low interest personal loans

✓ To support the new projects receive formal green building certification as LEED, TREES.

3. Zero Energy Building

- Study green building design, economic value and the climate change of Thailand
- Zero Energy Building Plan

Target: Government and private new building total area ≥ 2,000 m²

- Envelop system
- Lighting system
- Air conditioning
- Hot water system
- Renewable energy
BEC Roadmap 2015-2036

- Reference Building
- BEC Building Energy Code
- HEPS High Performance Standards
- ECON Economic Building
- ZEB Zero Energy Building

1,166 ktoe
3,658 Buildings

546 ktoe
ECON

186 ktoe
HEPS

21 ktoe
BEC

132 ktoe
1,890 Buildings

2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579
2015 2019 2025 2031
Statistic of Building Permit (ref: National Statistic Office)

- Total 1,200 buildings/year
- Avg 1,100 blds of private sector/y
- * 100 blds of government sector/y
2E Building Center

- To provide information to any government sectors, state enterprises, or project stakeholders regarding the evaluation procedures of building plans for energy conservation as required by the Ministerial Regulation
- To create collaborative networks between the government and private sectors in order to lay the foundation of energy conservation building design

**Evaluation of energy conservation building**

(2009 – 2015 = 621 building drawing plans)

**BEC’s auditor training 2,500 persons**

(Architect, Engineer and Building Owner etc.)

**MOU municipalities and universities**

(Bangkok, Chiangmai, Pattaya etc.) (KU, TU, CMU, KMITL etc.)

**Private network and professional associations**

(Engineering institute, Siamese Architects) (SCG, SANSIRI, LPN)

Develop of prototypes for standard government conservation building drawing plans
Result of the Evaluation of BEC (2010-2018)

- **Condominium**: 30.76% (191 Buildings)
- **Hospital**: 9.82% (61 Buildings)
- **Hotel**: 2.58% (16 Buildings)
- **Department Store**: 1.45% (9 Buildings)
- **Convention Hall**: 7.73% (48 Buildings)
- **Office**: 13.69% (85 Buildings)
- **Education**: 33.98% (211 Buildings)

Total Buildings: 621

**2009-2018**
MOU municipalities and Universities

Universities

Developers

BEC Implementation
MOU municipalities and Universities

Council of Engineers

Council of Architects
MOU municipalities and Universities
BEC Implementation

In the Future

**BEC 4.0**

- Enforcement of the Ministerial Regulation
- Development BEC Web-based
- Promotion labeling

**BEC AWARDS**

Energy efficiency label of business building

โปรแกรม BEC

Web-based
THANK YOU

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