

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



กระทรวงพลังงาน
MINISTRY OF ENERGY



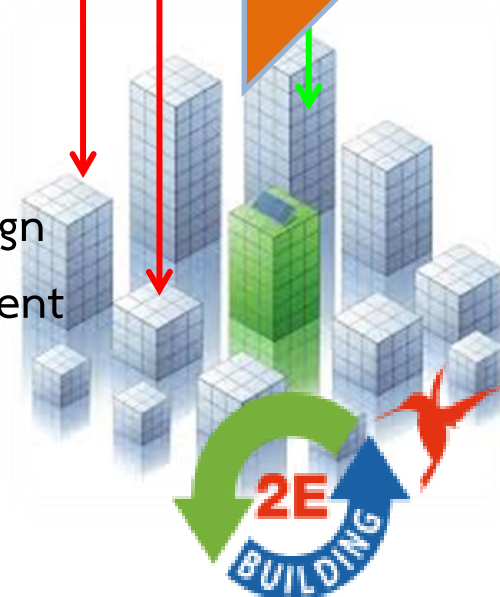
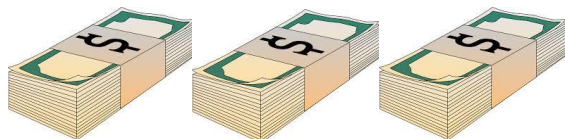
Building Energy Code



Time to
Change !!

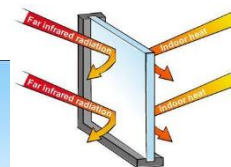
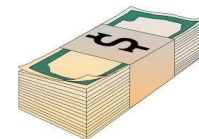
Exiting Building

- No energy conservation design
- Using low efficiency equipment
- Hard for retrofitting
- High energy expenses



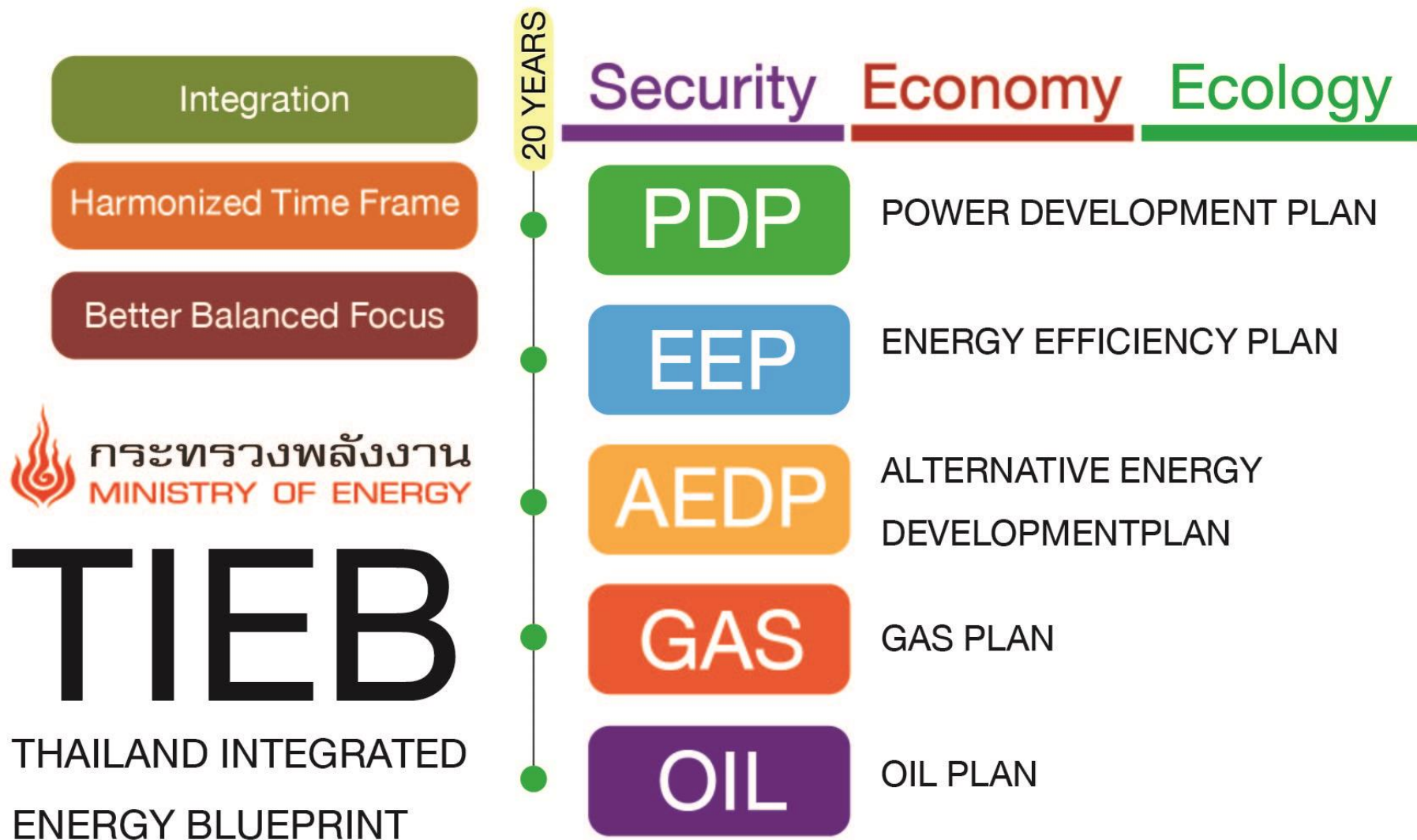
Building Energy Code (BEC)

- Considering energy efficiency in every system
- Using high efficiency equipment
- Low energy expenses



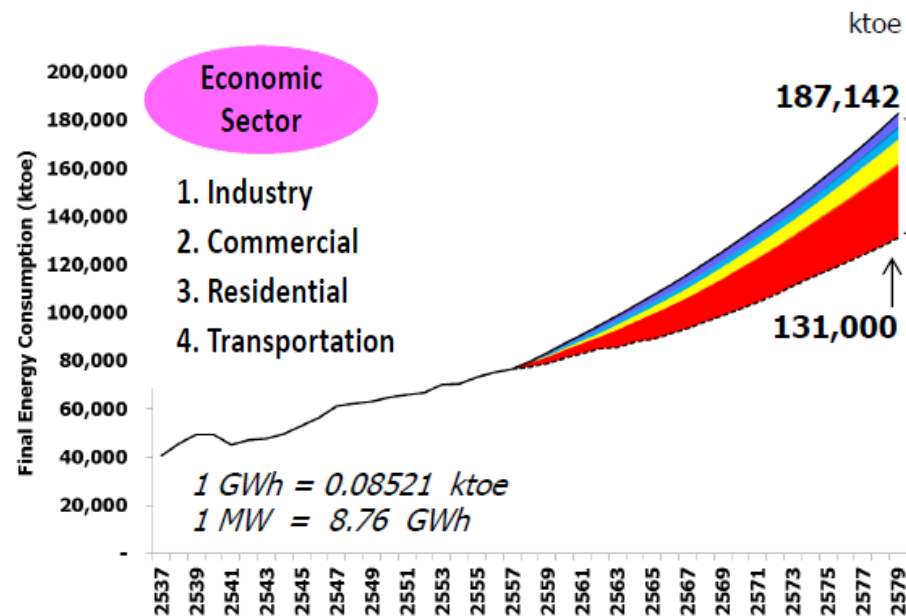
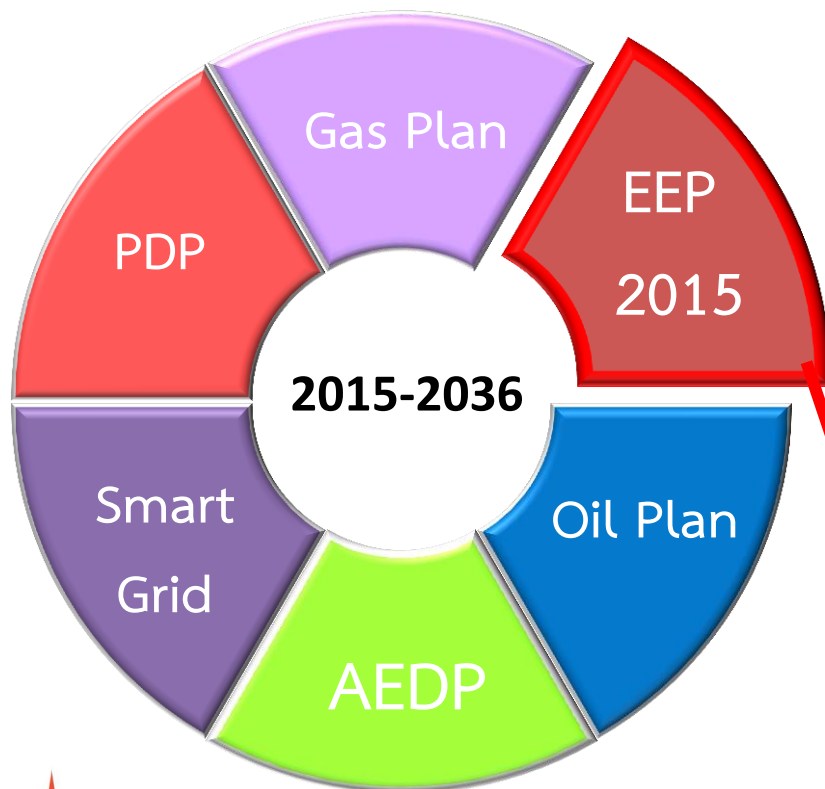


Thailand Energy Blueprint





Thailand Energy Blueprint



Expected Energy Saving by Economic sector		Total	
		(ktoe)	(%)
EE1	Enforcement of energy conservation standard in designated factory/building	5,156	10%
EE2	Building Energy Code (BEC) for the new buildings	1,166	2%

EE2; Building Energy Code (BEC)

EE5	Financial Incentives and support for energy performance achievement	991	2%
EE6	Promoting greater use of LED	500	1%
EE7	Energy saving measures in transport sector	30,213	58%
Total (ktoe)		51,700	100%



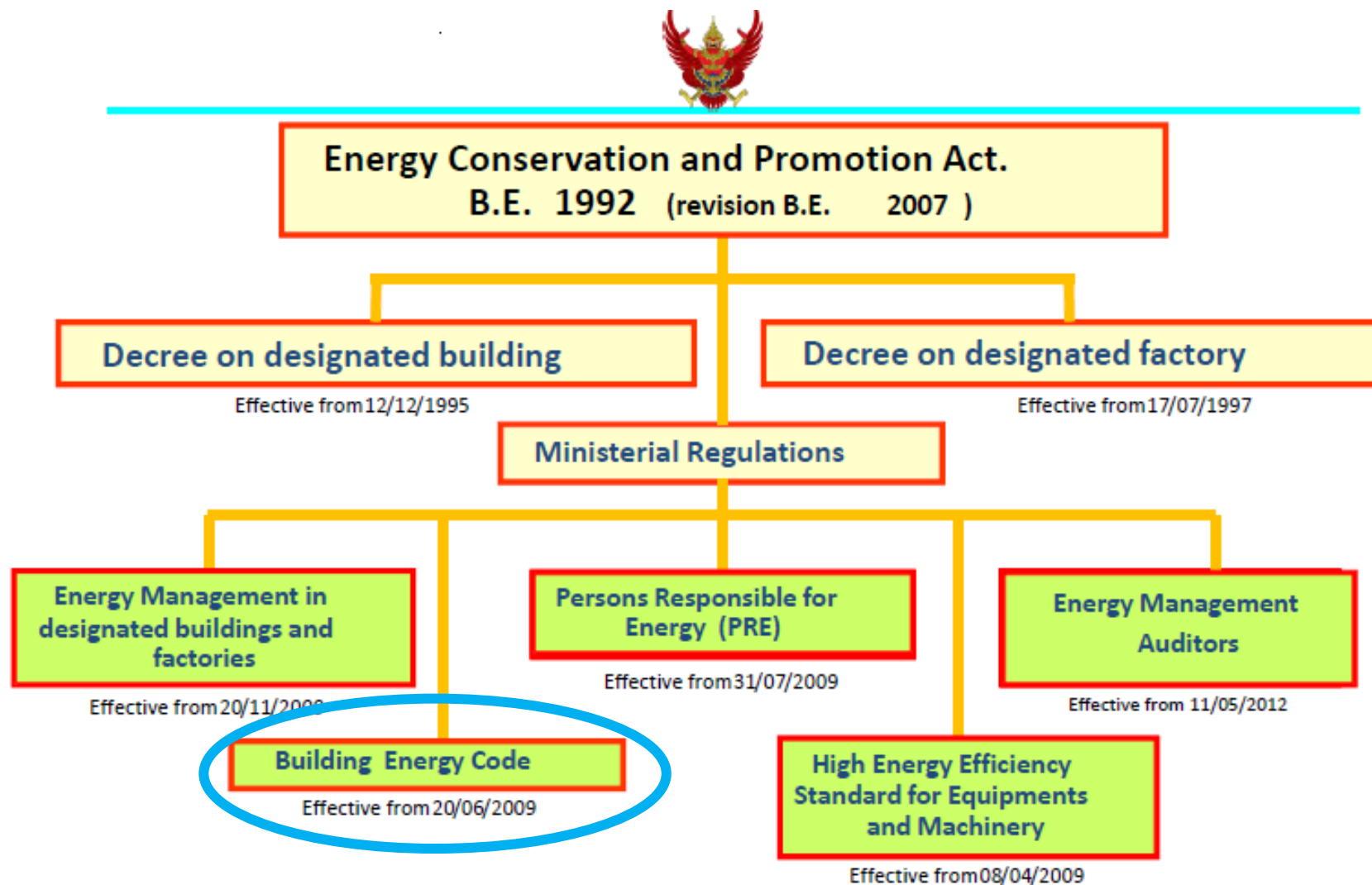
EEP = Energy Efficiency Plan

PDP = Power Development Plan

AEDP = Alternative Energy Development Plan



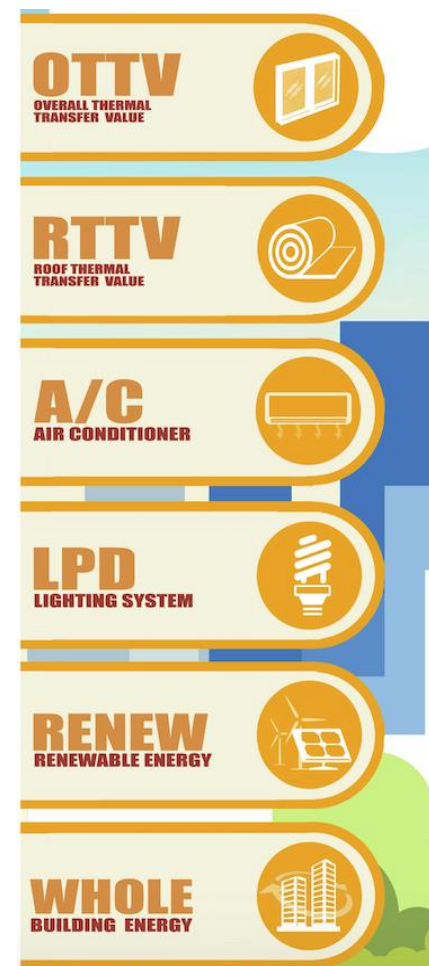
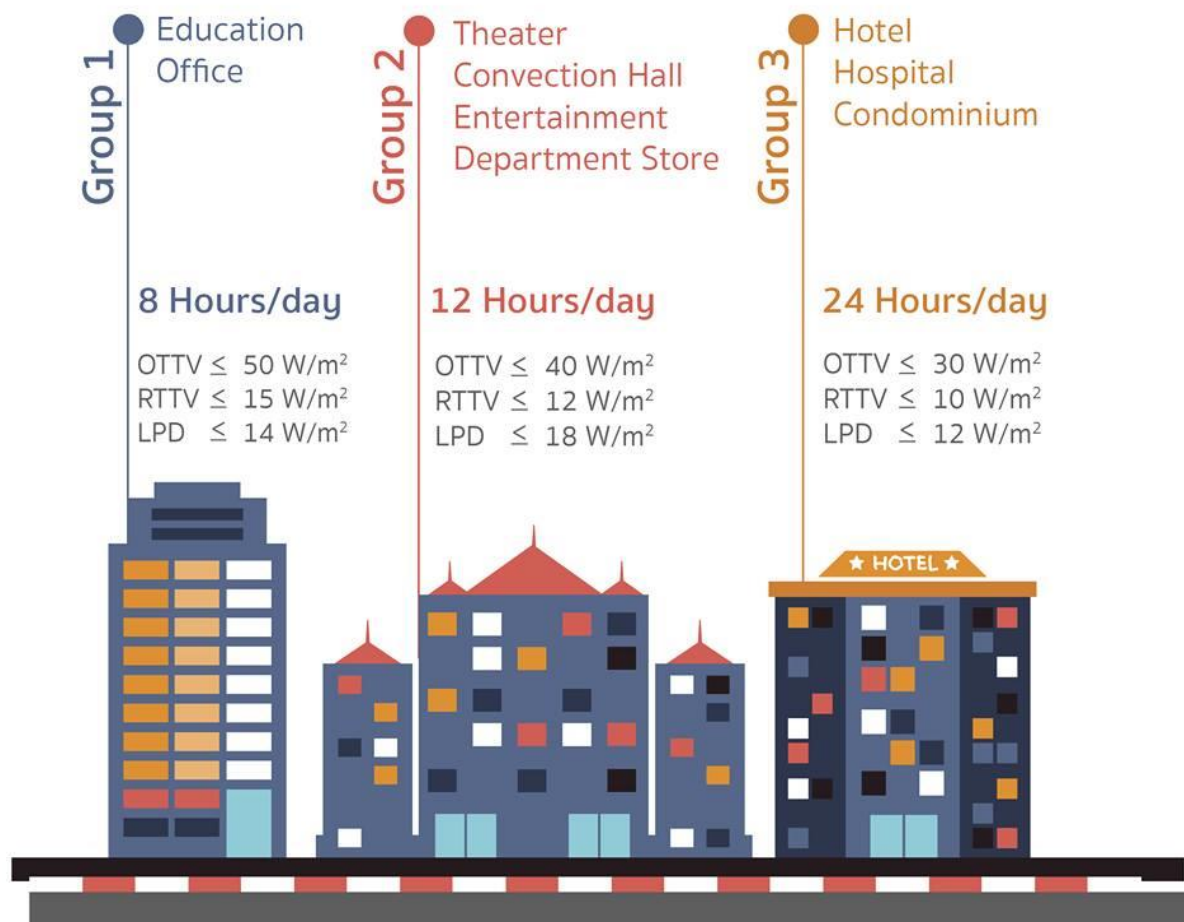
Legal Framework





Ministerial Regulation 2009

- Enforcement 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

2. Supporting new energy conservation building

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

3. Zero Energy Building

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





- ✓ 9 types of new buildings
- ✓ total area $\geq 2,000 \text{ m}^2$
- ✓ In 2019, Starting enforce with new buildings area $\geq 10,000 \text{ m}^2$
- ✓ Down to small size in 3 years

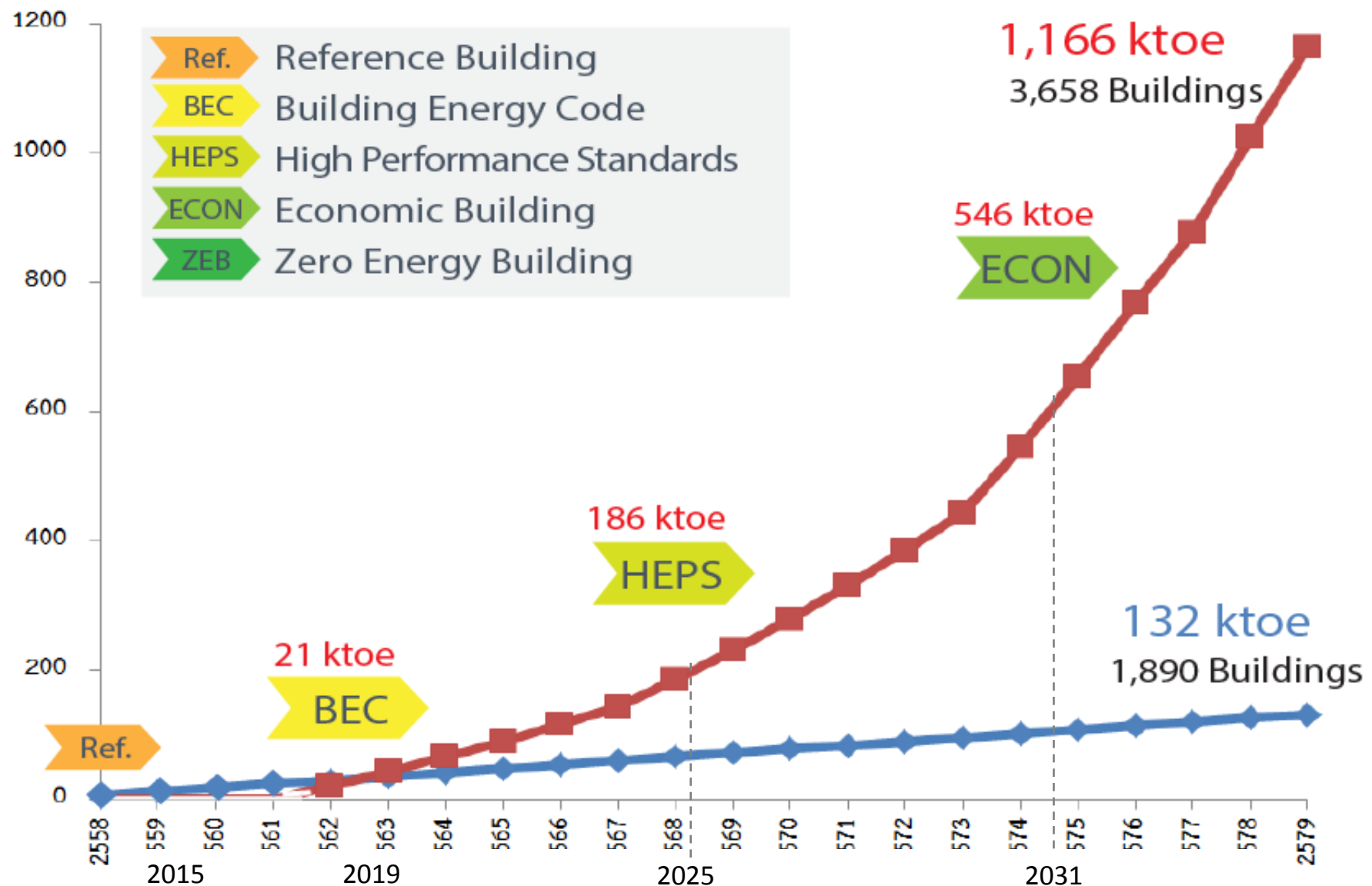


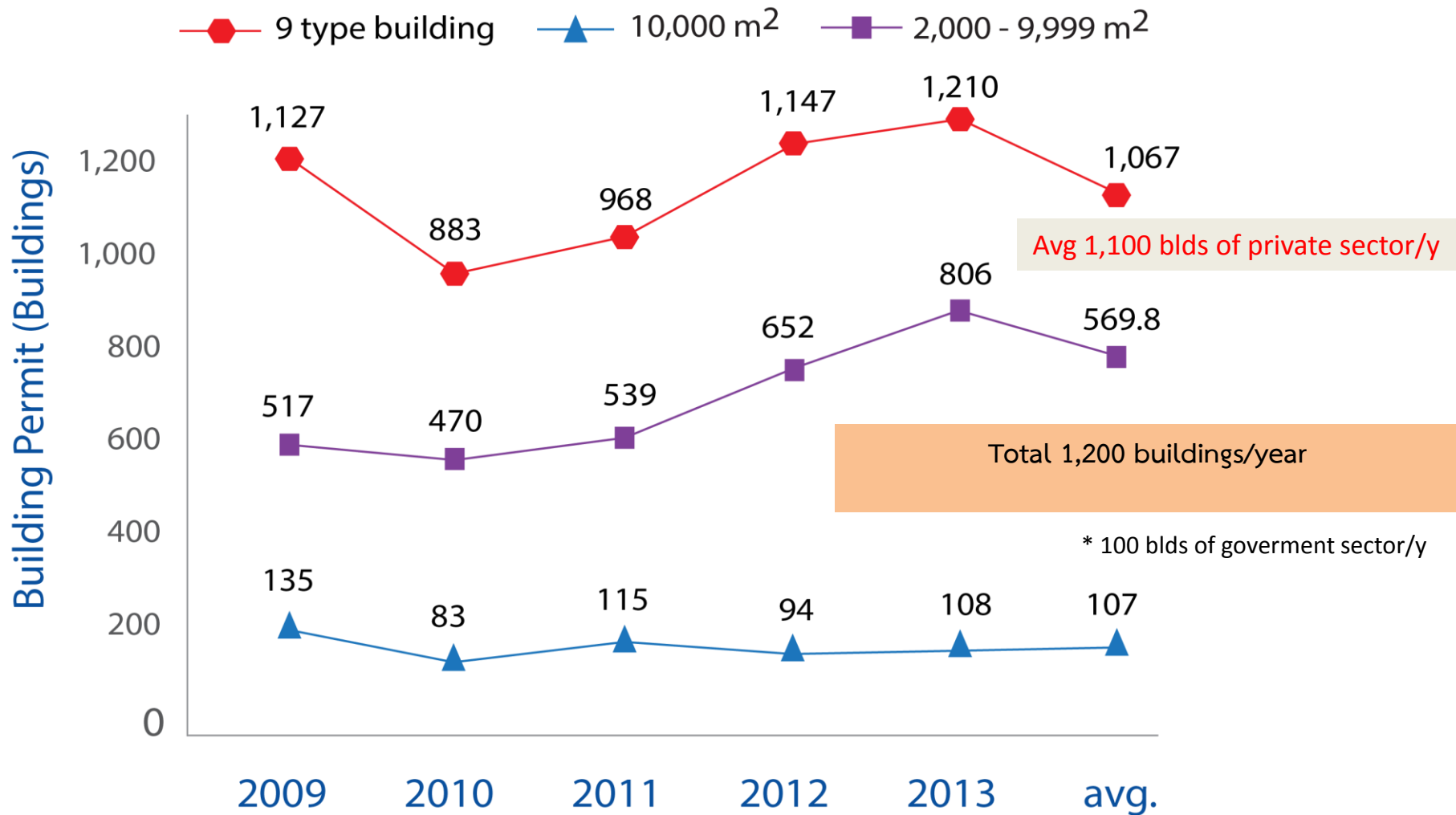
- ✓ To support the new projects receive formal green building certification as LEED, TREES.



Target: Government and private new building total area $\geq 2,000 \text{ m}^2$

-  Envelop system
-  Lighting system
-  Air conditioning
-  Hot water system
-  Renewable energy





2E Building Center



2010-2018

- 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.)

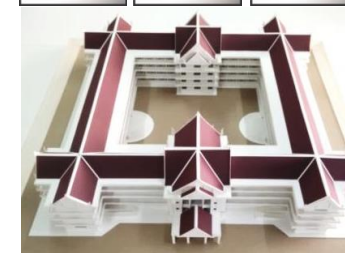
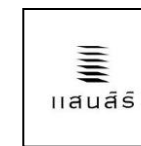


Private network and professional associations

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



Develop of prototypes for standard government conservation building drawing plans

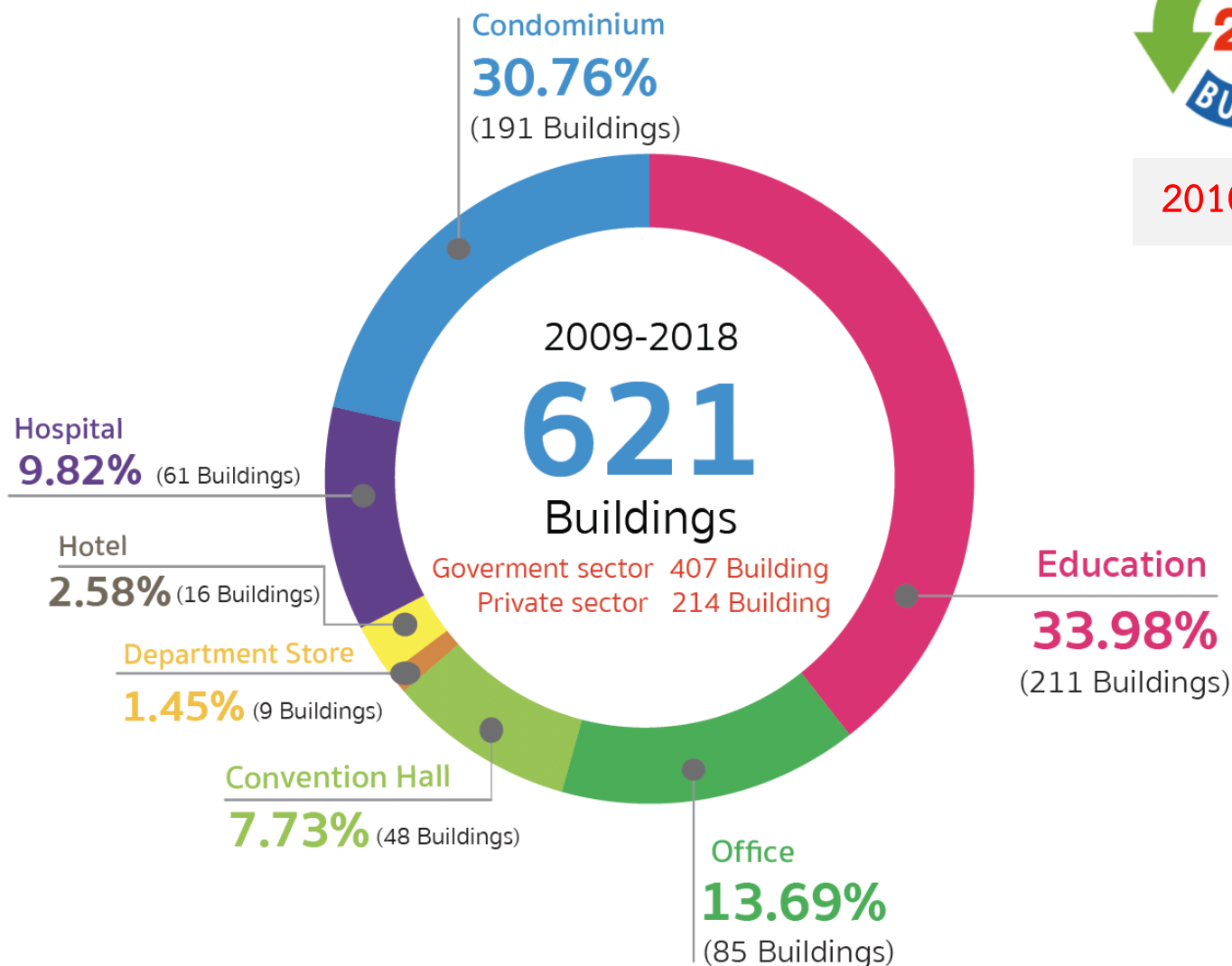




Result of the Evaluation of BEC (2010-2018)



2010-2018





MOU municipalities and Universities

Universities



Developers





MOU municipalities and Universities

Council of Engineers



Council of Architects



สภาสถาปนิก
ARCHITECT COUNCIL OF THAILAND





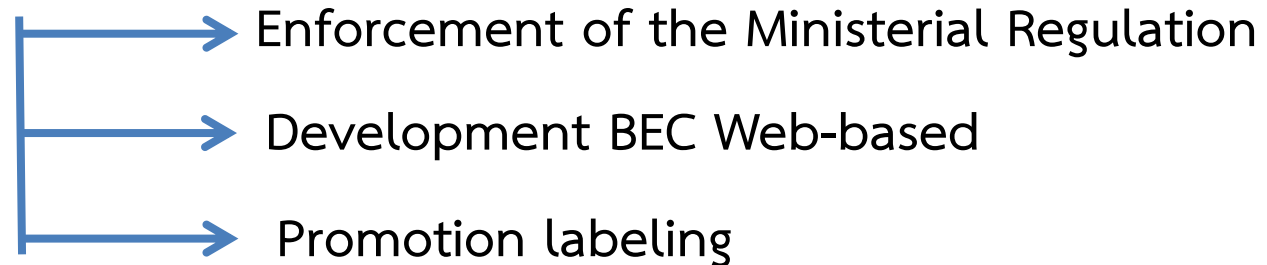
MOU municipalities and Universities



BEC Implementation

In the Future

BEC 4.0



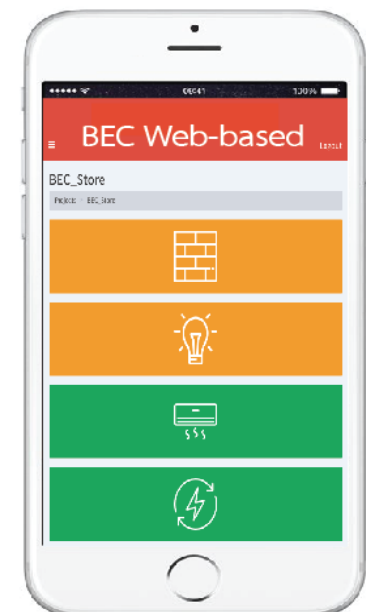
BEC AWARDS



Energy efficiency label of business building



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Publishing Document

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THANK YOU



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