



# Development & Status of Energy Efficiency in Thailand

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กระทรวงพลังงาน  
MINISTRY OF ENERGY



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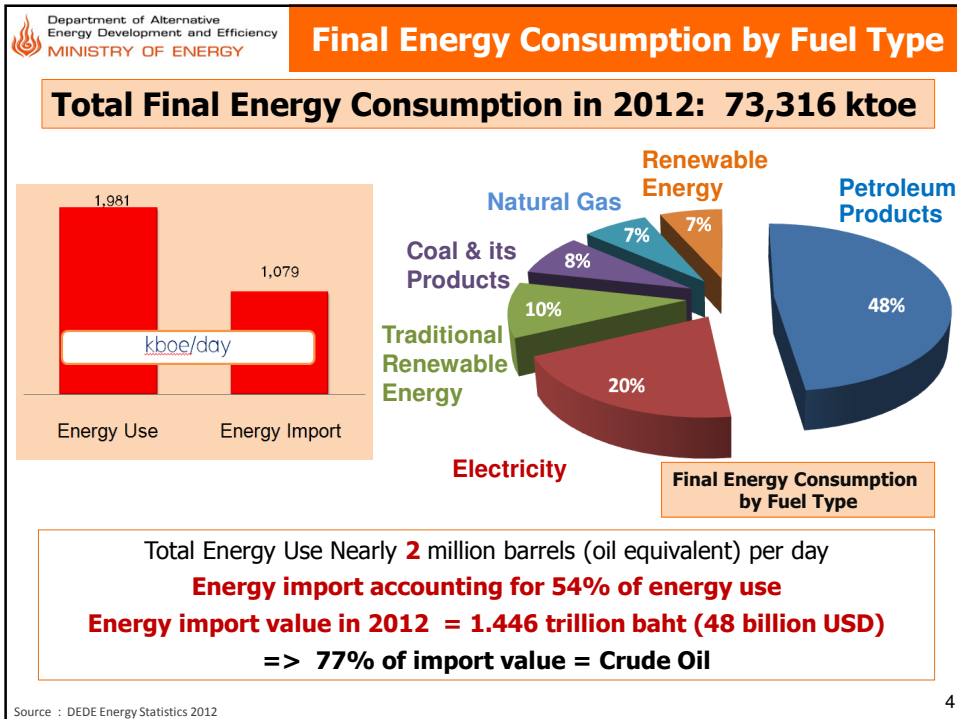
## Outline

- 1 • Thailand's Energy Situation
- 2 • 20 years Energy Efficiency Development Plan
- 3 • EE Law and Regulations
- 5 • Government supports in EE financing
- 6 • Conclusions

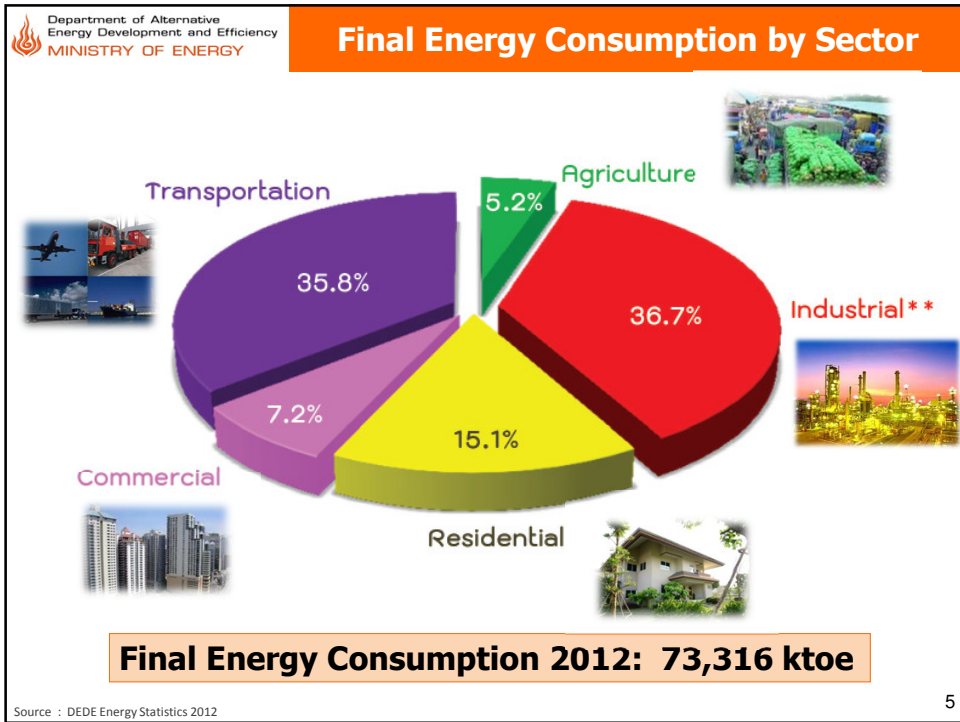
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# 1. Thailand's Energy Situation

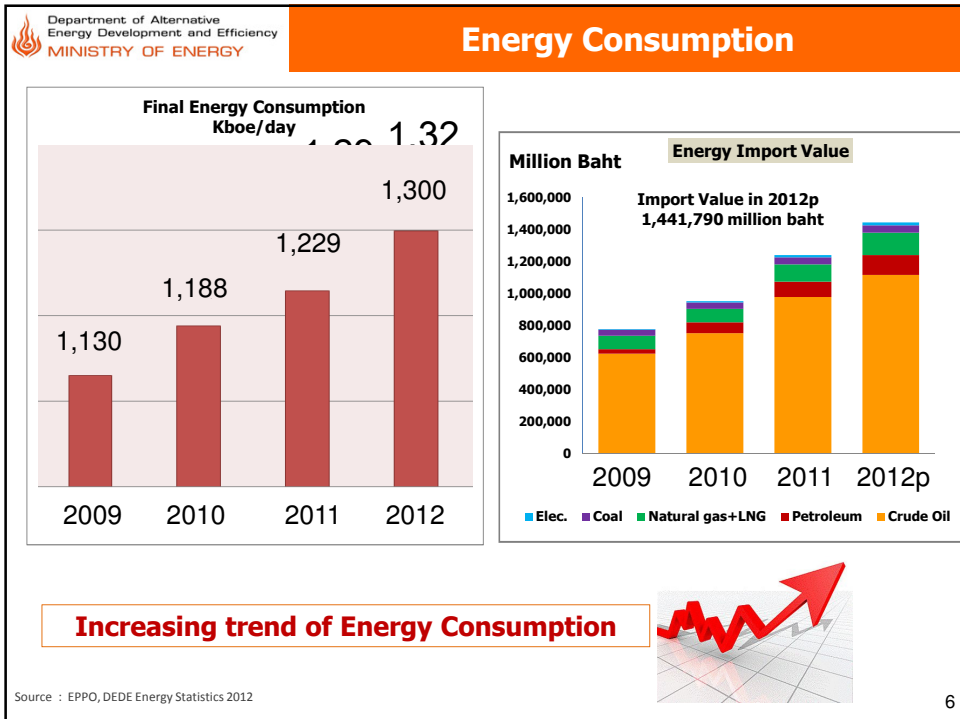
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## 2. 20 years Energy Efficiency Development Plan

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### Thailand's Energy Policies

**Policy 1**

**Securing Energy Resources**


- Oil
- Natural Gas
- Electricity
- Alternative Energy

**2**

**Set Renewable Energy as National Agenda**

- E85
- Ethanol based oil
- Bio Diesel
- NGV
- Wind /Solar / Biogas/ Biomass/ Small Hydro energy



**3**


**Encouraging Energy Conservation**

- Conservation Measure
- Efficiency Standard
- Encouraging Private Investment

**4**

**Ensure Fair Energy Price**


- Price structure reflect its genuine cost
- Develop Services Quality
- Safety in Energy Related business



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**Preserving Environment coupled with Energy Development and Consumption**

- Green house Emission Reduction
- Support CDM Projects



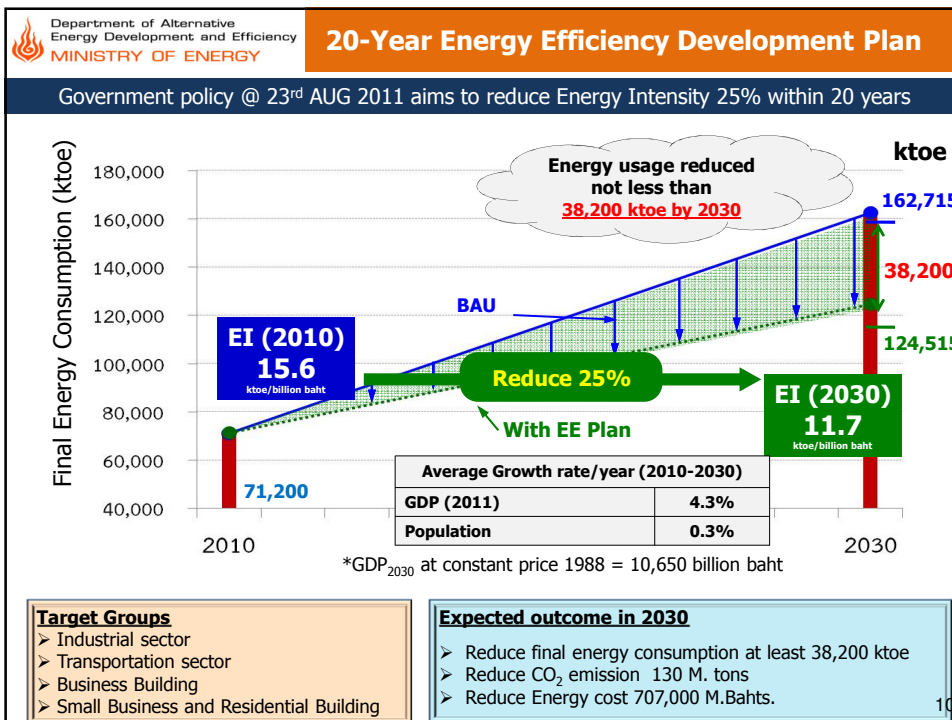
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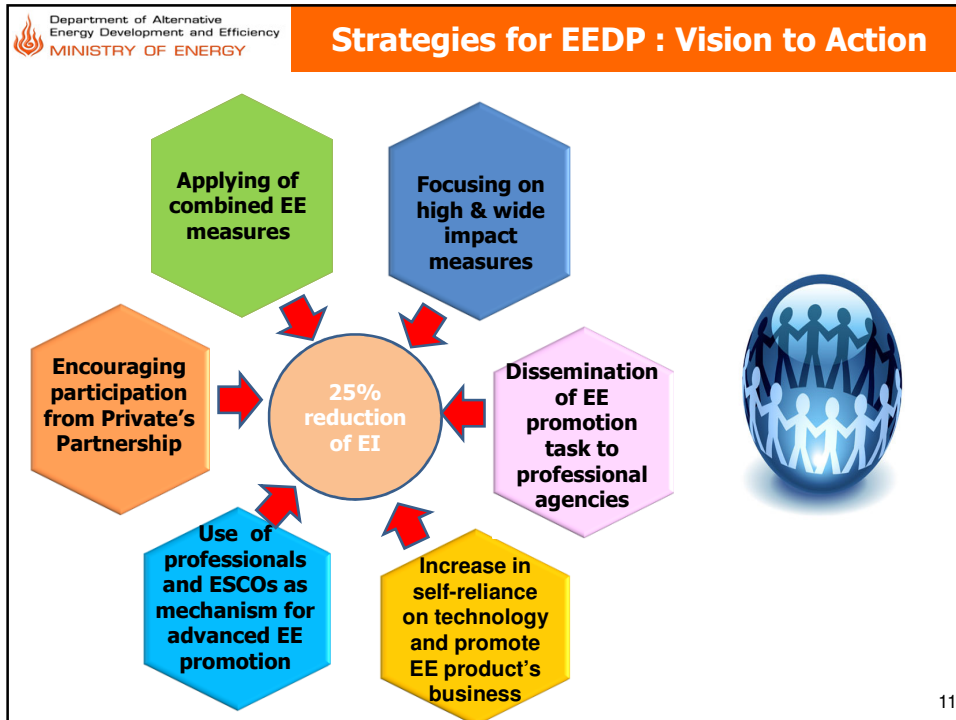
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### Highlight of EEDP Plan

- Being a long term plan to promote EE in Thailand (20 years from 2011 -2030)
- Master Plan was approved by National Energy Policy Committee in April 2011
- Target to reduce Energy Intensity by 25% in 2030 (based on 2010)
- Action Plan has been approved by the Cabinet in March 2013 for full implementation
- Result from EEDP will contribute to;
  - 38,200 ktoe energy reduction from BAU in 2030
  - Saving energy expense up to 707 billion Baht
  - Reduce CO<sub>2</sub> emission around 130 million ton

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### Actions to be taken under EEDP

**Short term**

2011 → 2016

Target : Accumulated energy saving 7,980 ktoe

Target group: existing sectors

- ✓ existing buildings & houses
- ✓ Low EE factories
- ✓ Transport (Efficiency)
- ✓ Public service (Street lights, Ads. Boards)

**Main approaches**

- Continual on successful measures i.e. ESCO, DSM bidding
- Promotion on EE proven technologies through incentive scheme (tax & subsidy)
- More Emphasis on mandatory program for designated buildings and factories
- Promotion on Voluntary Agreement Program
- Develop & Promote efficient energy management system
- Promote EE logistics
- Increase in capacity building & Awareness for energy consumers

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### Actions to be taken under EEDP

## Mid Term approach

2017 → 2022

Target : Accumulated energy saving 21,058 ktoe

Target group: High energy saving potential sectors

- ✓ New & Retrofitted buildings
- ✓ Factories
- ✓ Transport

### Main approaches

- Develop & Promote EE indicators ; Specific Energy Consumption (SEC) based on energy footprint
- Promote EE for new buildings (Green building & Zero energy Building)
- Promotion on process improvement through high EE technologies
- Increase efficiency in power transmission & energy transporting (pipeline system)
- Improve efficiency of power plants and promotion on smart grid system

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### Actions to be taken under EEDP

## Long term

2020 → 2030

Target : Accumulated energy saving 38,200 ktoe

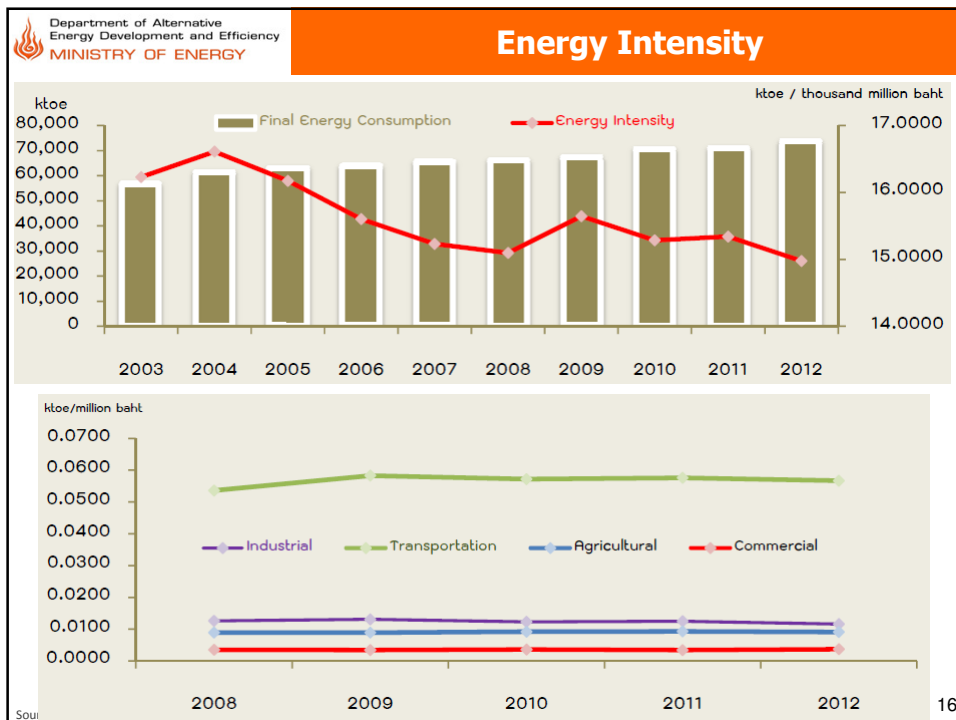
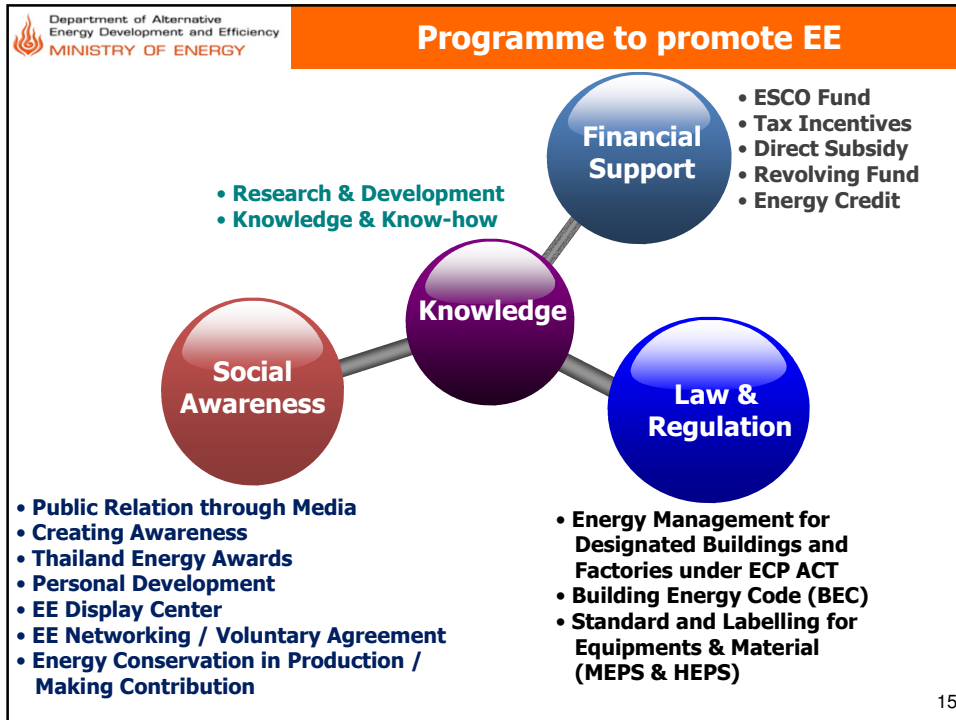
Target group: all energy - related sectors

- ✓ Energy production
- ✓ Energy transmission
- ✓ Energy consumption

### Main approaches

- Structure change of Industry with balancing between energy and economics
- Integrating & Changing of mode of transport for high EE
- Targeting for low carbon society

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# 3. EE Law and Regulations

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## ENCON Act & EE Framework

**Energy Conservation-ENCON Act**

- was first enacted in 1992.
- Using Philosophy of **Energy Managers**
- Mandated on LARGE Energy Users-“**Designated Factories & Buildings**”
- Energy Standards & Labeling
- ENCON Fund was introduced

Major modification in 2007

- Energy Management System
- 3<sup>rd</sup> Party Energy Auditor
- Building Energy Code

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## Designated Building / Factory

**Electricity Meter** > 1,000 kW  
**Transformer** > 1,175 kVA  
**Use energy** > 20 million MJ/year

Type	Designated Factory/Building	
Electrical Meter	< 3,000 kW	≥ 3,000 kW
Transformer size	< 3,530 KVA	≥ 3,530 KVA
Energy Used	< 60 million MJ/ year	≥ 60 million MJ/ year
Number of Energy Manager	1	2 At least one is senior

Sending annual energy management report to DEDE by March each year

Currently there are about 9,000 designated factories and buildings


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## Building Energy Code


“New or retrofitted building with total area in all storeys in the same building  $\geq 2,000 \text{ m}^2$  must be designed to comply with Building Energy Code”


### Type of targeted building


  
Hospital


  
Academic Institute


  
Office


  
Condominium

  
Exhibition Building






  
Theater

  
Hotel


  
Entertainment Service

  
Department Store

### Building Code components

1. Building Envelope 
2. Lighting system 
3. Air-conditioning system 
4. Hot water generating system 
5. Renewable energy utilization 
6. Whole building performance

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Building Energy Code

### Building Envelope

Maximum OTTV/RTTV value


	Wall	Roof
Office & Academic Institution	50 w/m <sup>2</sup>	15 w/m <sup>2</sup>
Super store	40 w/m <sup>2</sup>	12 w/m <sup>2</sup>
Hotel & Hospital	30 w/m <sup>2</sup>	10 w/m <sup>2</sup>

### Lighting System


Allowable rated power

Office & Academic Institution	≤ 14 w/m <sup>2</sup>
Super store	≤ 18 w/m <sup>2</sup>
Hotel & Hospital	≤ 12 w/m <sup>2</sup>


Building Design Coordination Center




Program




Handbook



www.2e-building.com



\* OTTV = Overall Thermal Transfer Value \*\* RTTV = Roof Thermal



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Standard & Labeling


## Framework of EES&L Measures

### MEPS: Minimum Energy Performance Standards


- Both voluntary and mandatory program
- Collaboration between **DEDE** and **TISI**
- Standards are set up by DEDE, but they are regulated by TISI.

### HEPS: High Energy Performance Standard


- Voluntary program
- Collaboration between **DEDE** and **EGAT**
- Standards are set up by DEDE, and labeling programs are responsible by DEDE and EGAT




voluntary certification mark



mandatory certification mark



Electric Labelling



Non-Electric Labelling

TISI: Thailand Industrial Standard Institute, EGAT: Electricity Generating

## 5. Government supports in EE financing

