
Promoting Energy Efficiency Investment in Thailand



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Current Situation

Thailand : Key data and economic profile (2011)



Table A-1: Key data and economic profile (2011)

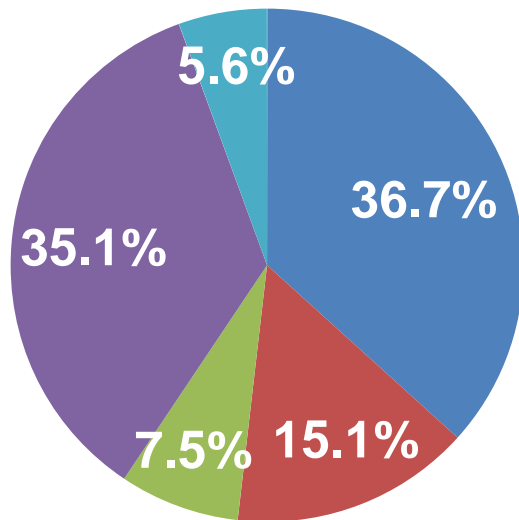
Key Data		Energy Reserves ^a	
Area (sq.km)	513,115	Oil (MBBL)	807
Population (thousand)	64,076	Condensate (MBBL)	671
GDP million (THB at 1998 Price)	4,598,441	Gas (TCF)	27,424
GDP per capita (THB at 1998 Price)	71,850	Lignite (Mt)	2,075

^a including proven reserves, probable reserves, and possible reserves

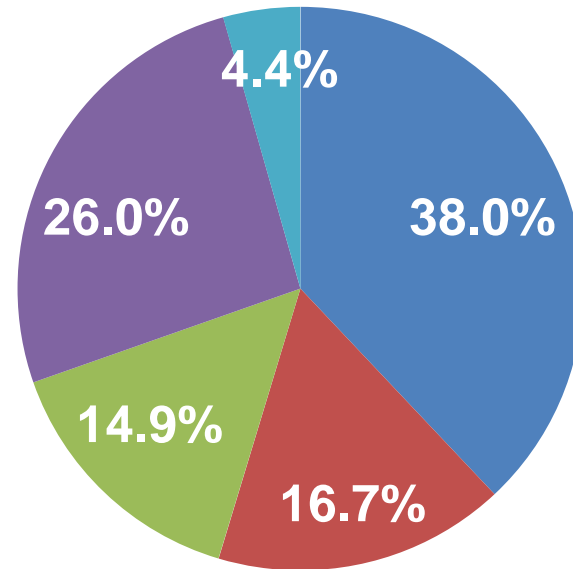
Source: Department of Alternative Energy Development and Efficiency, Ministry of Energy, *Annual Report: Thailand Energy Statistics 2011* [1]

Energy Consumption by Sectors

Final Energy Consumption in 2008
(65,890 ktoe)



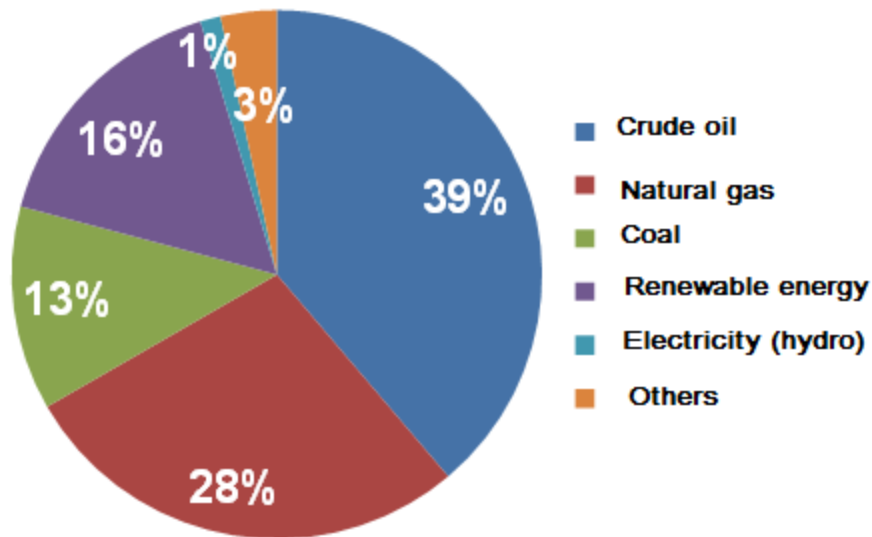
Primary Energy Consumption in 2008
(88,972 ktoe)



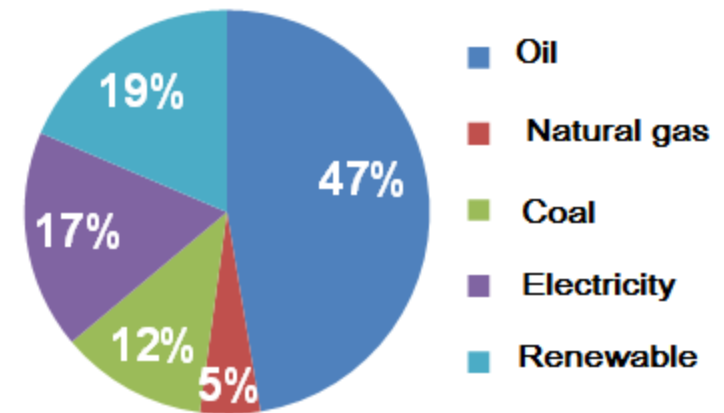
- Manufacturing
- Residential
- Commercial
- Transport
- Others

Fossil dominance > 80%

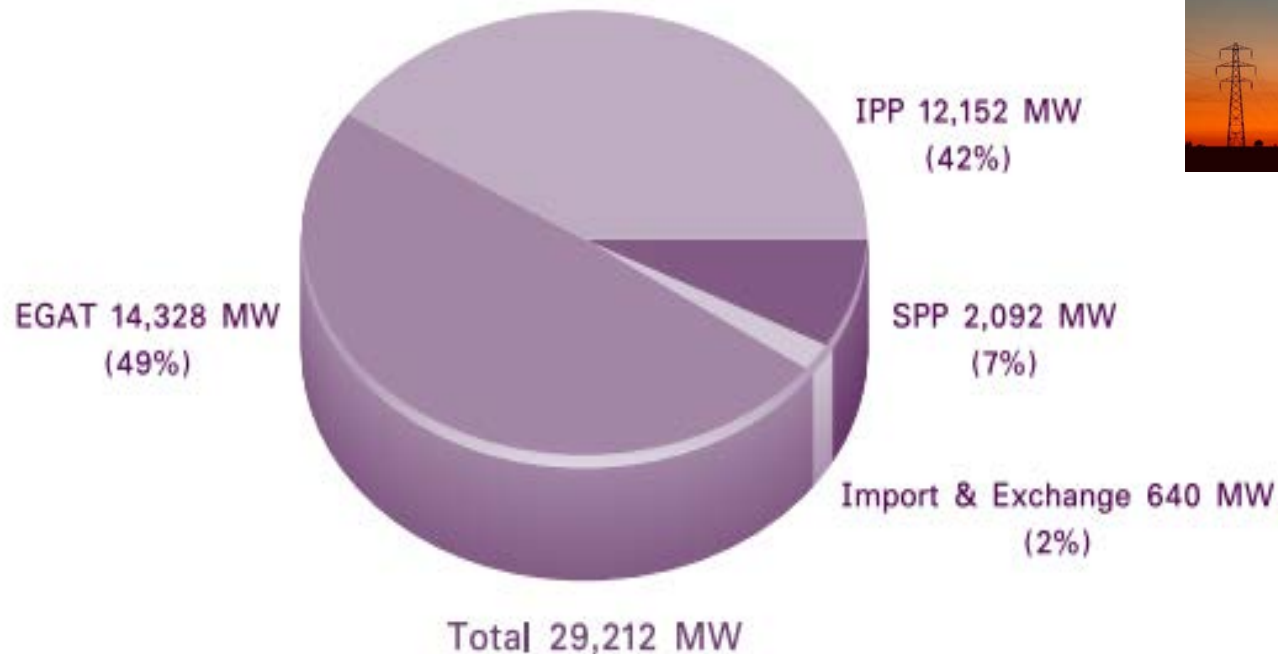
Primary Energy Supply in 2008
(119,346 ktoe)



Final Energy Consumption in 2008
(65,890 ktoe)

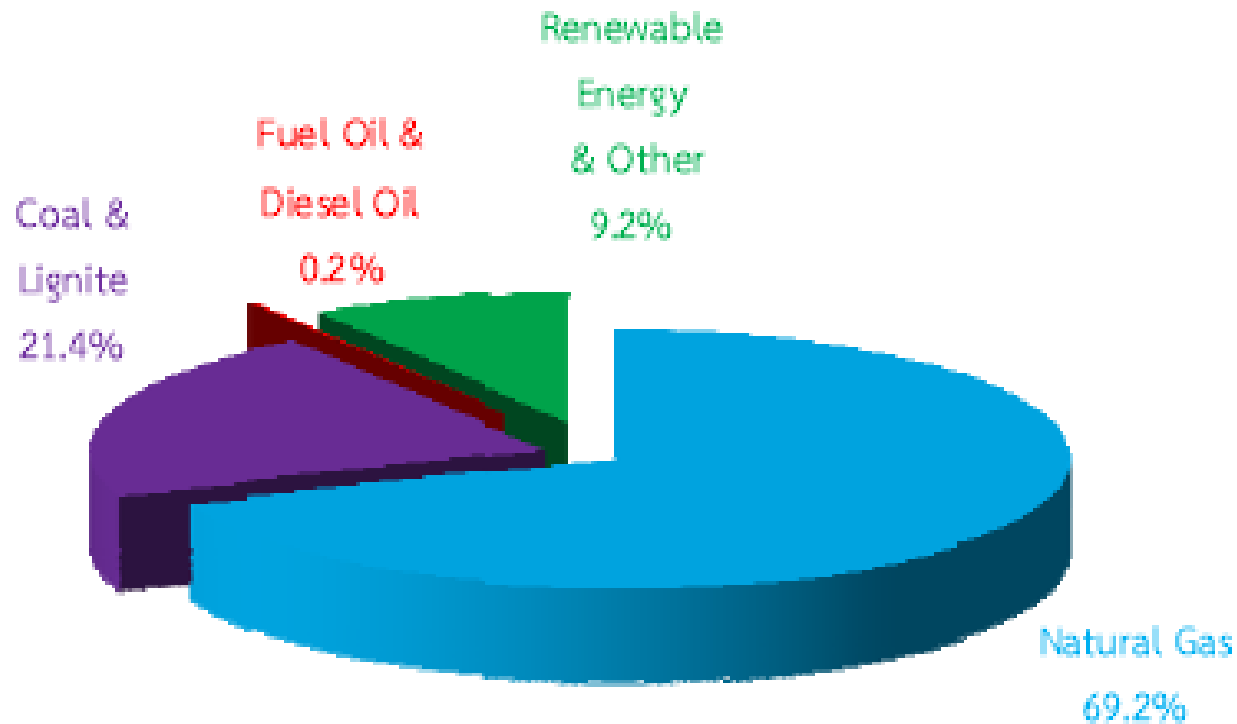


Electricity



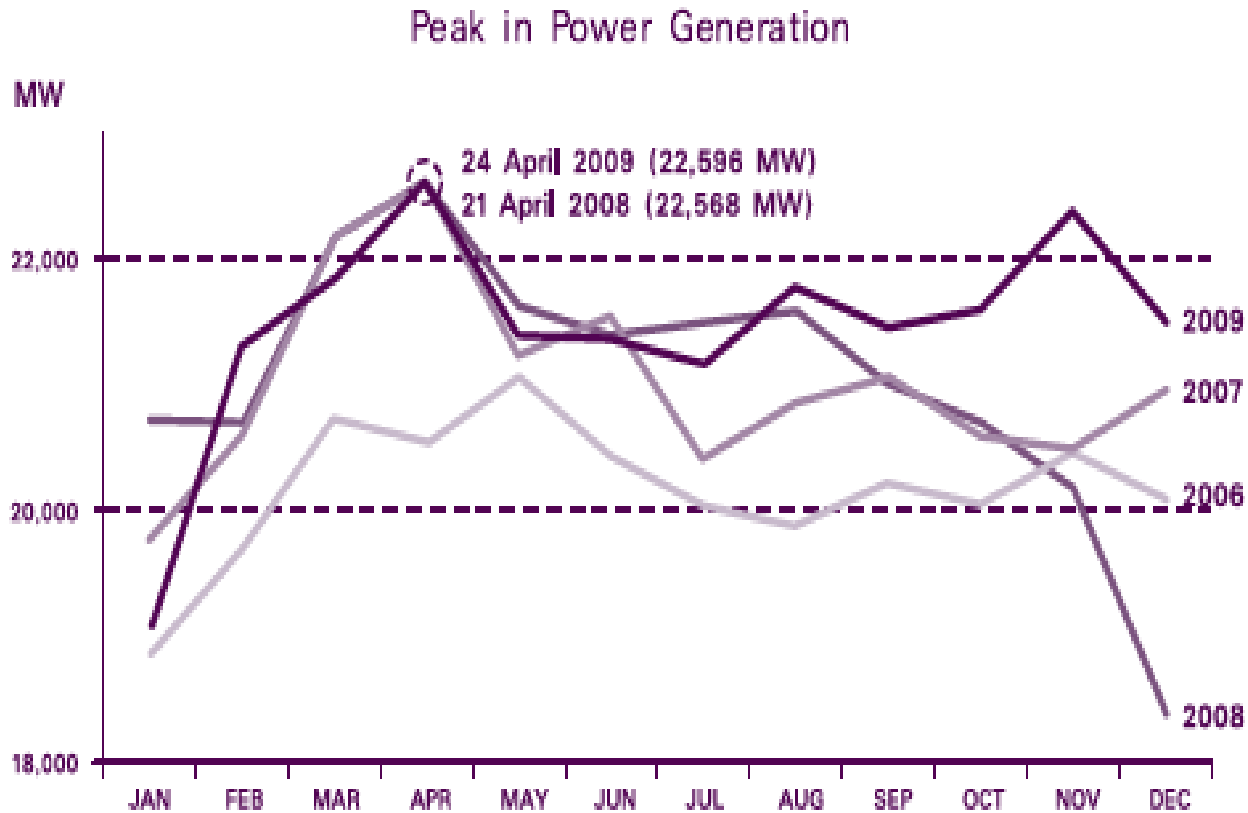
Power Generation-Installed Capacity in 2009.

Electricity



Shares of fuel in power Generation.

Source : The Energy Policy and Planning Office (EPPO)



Yearly peak load curve in 2006-2009.

Source : Bundit L., Least Cost Electricity Generation Expansion Planning with Carbon and Energy Taxes: case in Thailand.

Previous policy framework

Energy Conservation Promotion Act B.E. 2535 (A.D. 1992)

The Energy Conservation Promotion Act, B.C.2535 is the government tool to promote

- energy conservation,
- energy efficiency, and
- renewable energy development.

The act was announced and came in force in 1992 and prescribes energy conservation in divisions as follows :

- in factories,
- in buildings,
- in machinery, equipment and energy-efficient materials.

Energy Conservation Promotion Act B.E. 2535 (A.D. 1992)

Sources of the ENCON fund consist of capitals and properties as

- (1) The money transferred from the Oil Fund,
- (2) The contributions from petroleum producers, importers, and those who obtain gas from a concessionaire,
- (3) Surcharges collected from owners of the designated factories or buildings, who violate or fail to comply with Ministerial Regulations,
- (4) Subsidy from the government,
- (5) Money or property received from the private sector locally and from overseas, and from foreign governments or international organizations,
- (6) Interest and other benefits incurred from this Fund.

Energy Conservation Promotion Act B.E. 2535 (A.D. 1992)

The ENCON Fund shall be used as **working capital, grants**, or **subsidies** for government agencies and private sector for the following objectives:

- 1, Energy conservation programs
2. Study or research projects on energy development, promotion and conservation,
3. Demonstration projects or pilot projects on energy conservation,
4. Education, training and conferences with respect to energy.
5. Advertisements, information dissemination, and public relations work.
6. Administrative cost of energy conservation promotion work.

Measures for energy efficiency improvement

(1) Industrial Sector

- a) **Revolving Funds or Soft Loans** are provided to stimulate and expedite energy efficiency investment in large-scale buildings and factories.

- b) **ESCO Venture Capital** - as a source of venture capital for ESCOs (Energy Service Companies) to jointly invest with private operators in energy efficiency and renewable energy projects.

- c) **Tax incentives** through BOI privilege (Board of Investment)
 - Import duty exemption
 - Waiving of 30% business tax for 8 years, and 15% for 5 years

Measures for energy efficiency improvement

d) DSM by Bidding Mechanism

Provide financial support to encourage business operators to invest in higher energy efficiency machines/equipment based on actual energy savings achieved in a year resulting from such investment

(subsidy = annual energy saving x subsidy rate bid by each company).

The maximum subsidy rates set for each energy type are shown.

Energy Type	Maximum Subsidy Rate	
Electricity	1 Baht/kWh	0,05 GEL/kWh
Heat from liquid and gas fuels <i>e.g. fuel oil, LPG, natural gas, etc</i>	75 Baht/ <u>MMBtu</u>	3.75 GEL/MMBtu
Heat from solid fuels <i>e.g. coal, wood, rice husks, sawdust, baggases, and other agricultural waste</i>	15 Baht/ <u>MMBtu</u>	0,75 GEL/MMBtu

Source: APEC Energy Working Group, Asia-Pacific Economic Cooperation, *PEER review on energy efficiency in Thailand*, 2010 [8]

Measures for energy efficiency improvement

(2) Transport Sector

a) More “Park and Ride” areas have been established, with support from the Government’s ENCON Fund,

b) Transportation Incentive Program

- i. Feasibility Study on Oil Consumption Reduction in the Goods Transport Business
- ii. Promotion and Demonstration of Energy Efficiency Improvement in the Transport Sector
- iii. Promotion of Smart Driving for Energy Saving in the Transport Sector

Measures for energy efficiency improvement

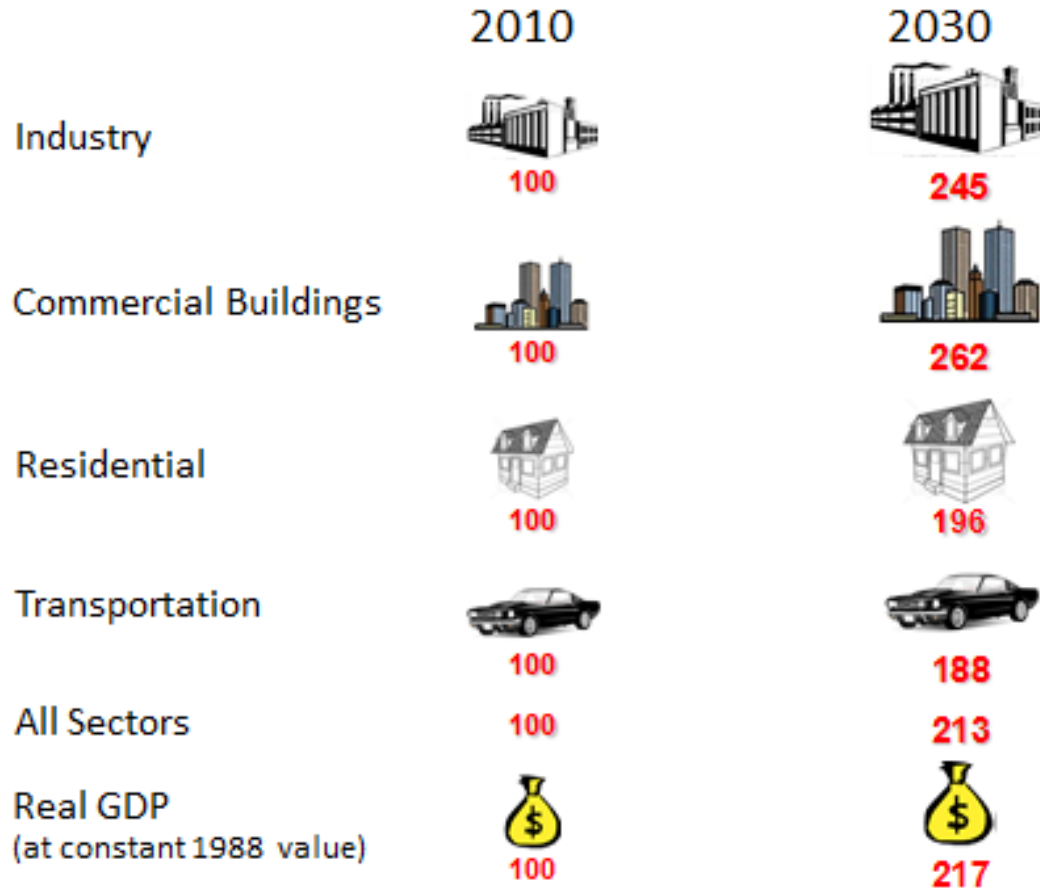
(3) Household/Business/Government Sectors

a) Promotion of high-efficiency equipment

- **Minimum Energy Performance Standards (MEPS):** air-conditioners, refrigerators, ballast, fluorescent lamps and compact fluorescent lamps;
- Energy efficiency labeling; **Energy Label No. 5** : such as refrigerators, air-conditioners, compact fluorescent lamps (CFL), ballasts, fans, rice cookers, and electric lamps.
- **Building Energy Codes and Building Material Standards** to improve energy efficiency of the design and construction of the new and existing buildings.

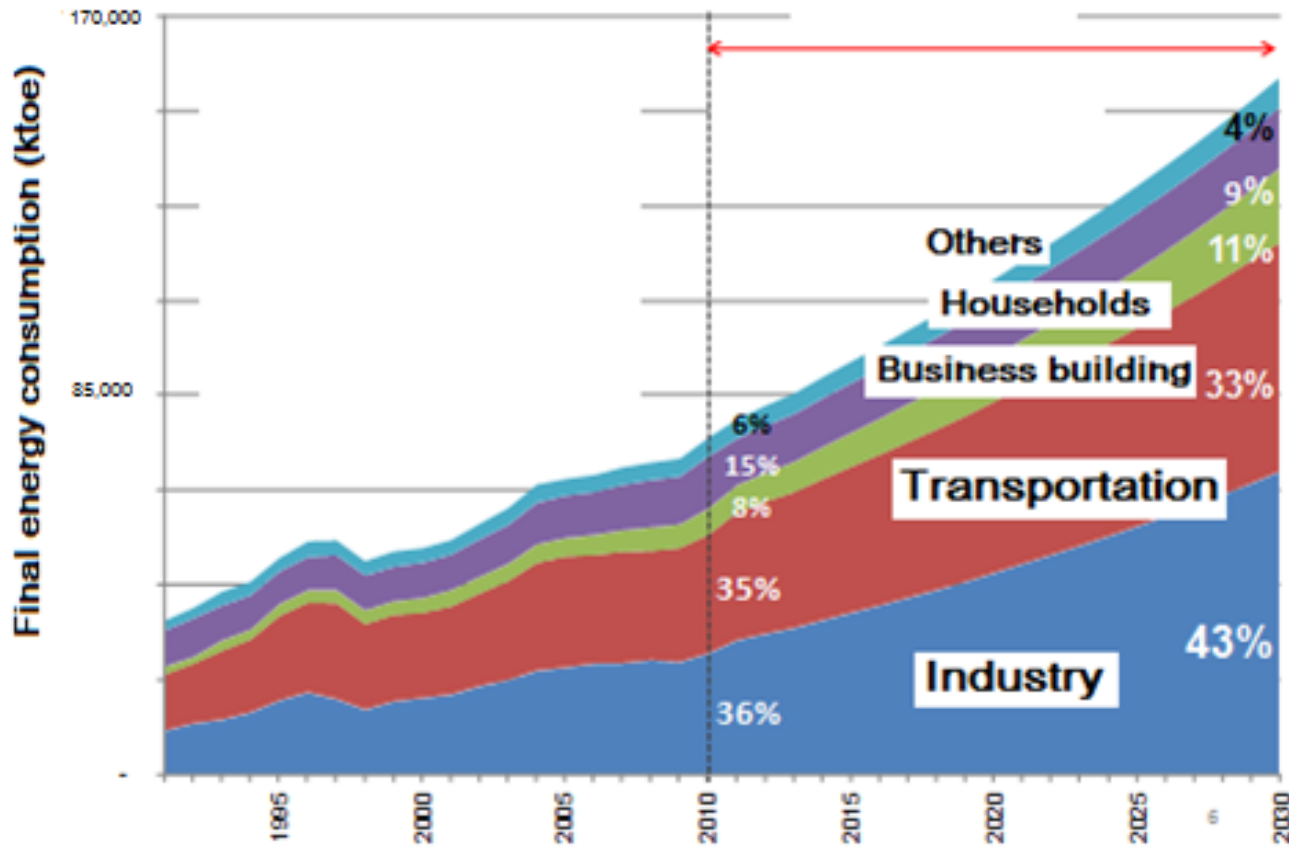
b) **Public awareness campaigns** such as TV spots, booklets, youth activities.

Energy Demand and GDP Growth from 2010 to 2030

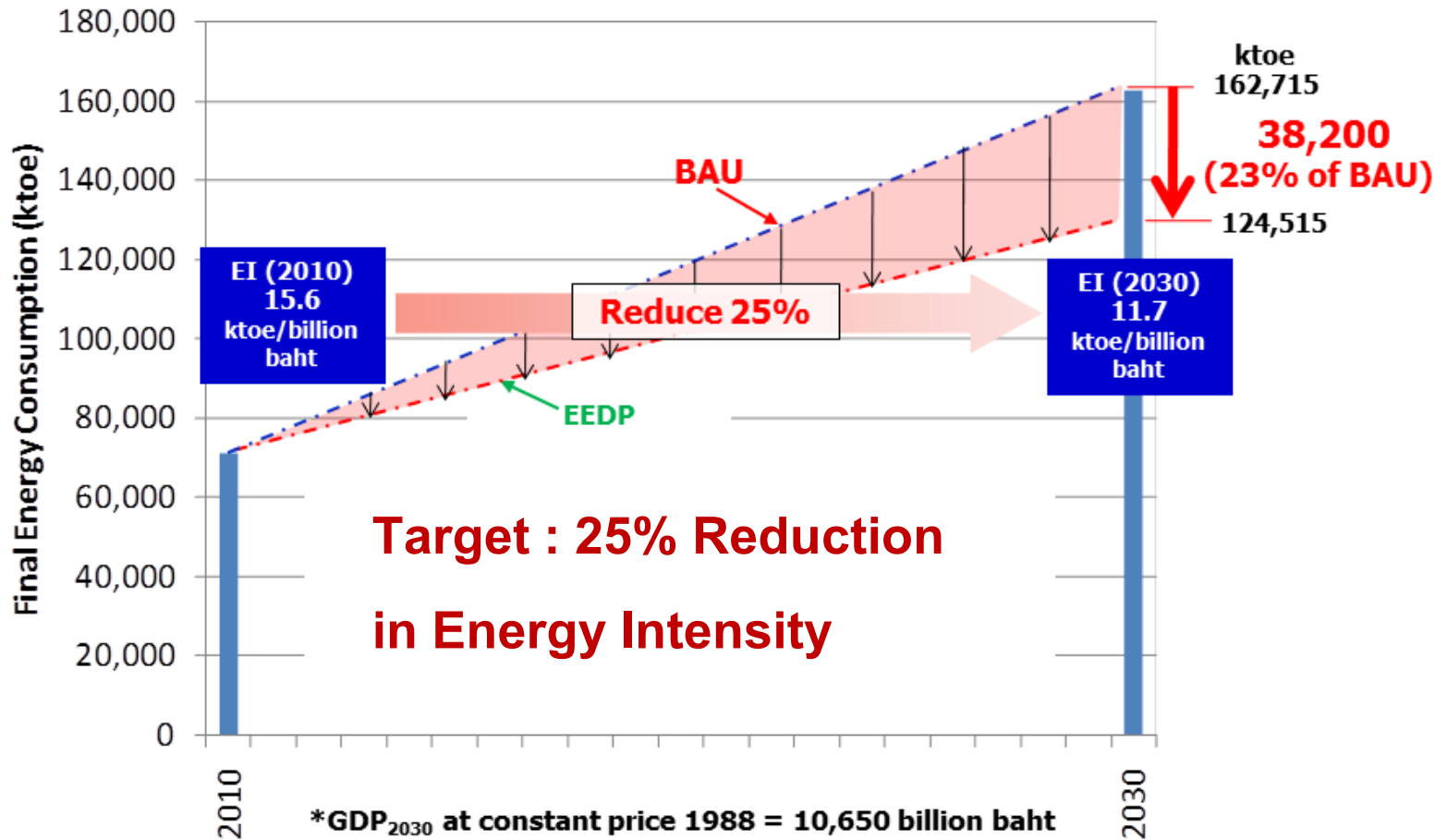


Trend of Future Energy Demand under the BAU case

Energy consumption forecast



Energy Efficiency Development Plan (EEDP)



Energy Efficiency Development Plan (EEDP)

Saving Targets by Sectors in 2030

Economic sector	Saving Target in 2030 compared to BAU (ktoe)*	% (FEC)	% (PEC)
Industry	16,100	42	41
Transport	15,100	40	28
Commercial & Residential			
- Large commercial	3,600	9	18
- Small commercial & residential	3,400	9	13
Total	38,200	100	100

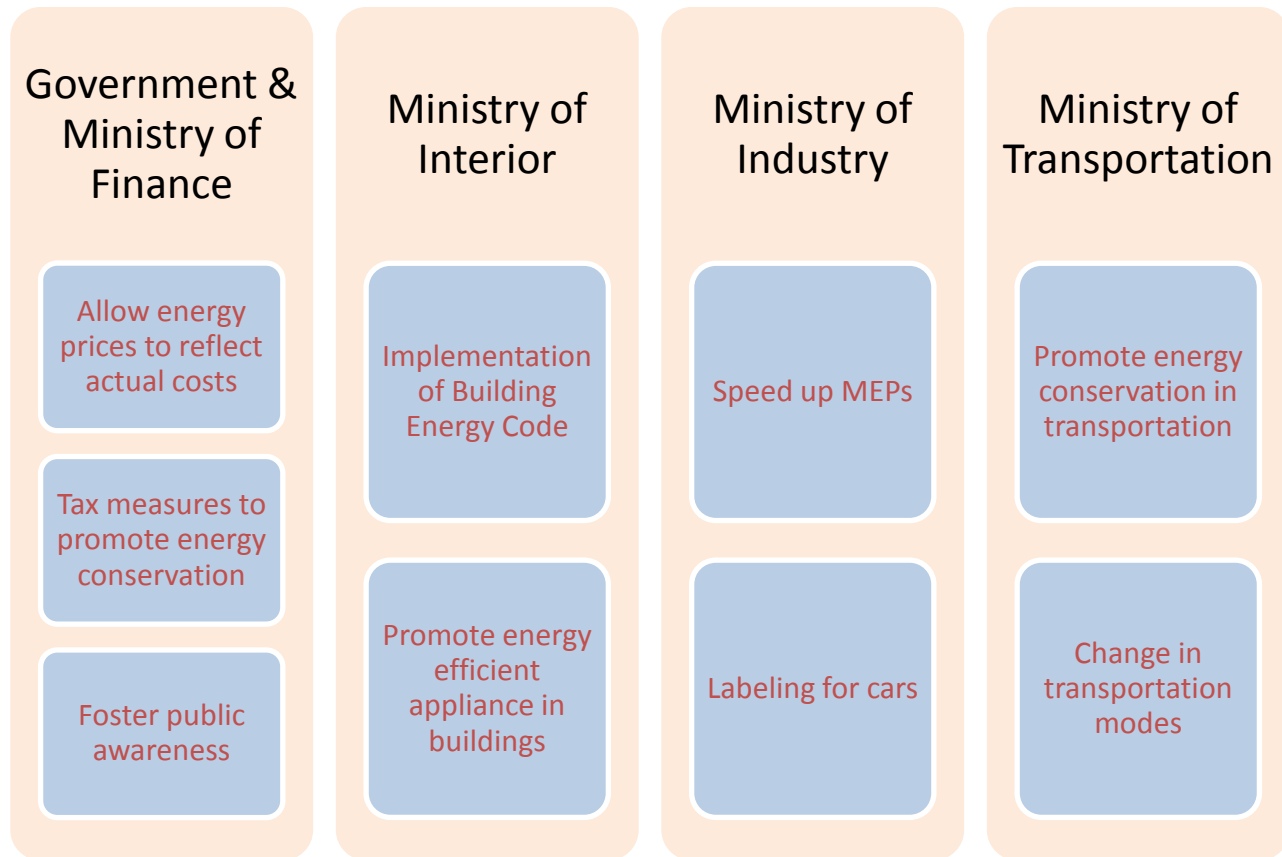
Energy Efficiency Development Plan (EEDP)

Five strategic approaches :



Energy Efficiency Development Plan (EEDP)

Ministry of Energy works with the following offices :



Bangkok THAILAND



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