

Current Situation and Challenges in EE Standard and Labeling Policy Development in Thailand

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Ministry of Energy, Thailand

Current Situations of Cooperation on Energy Efficiency Standard and Labeling (S & L) policy

in Asia and Japan

1st of February 2013

Institute of Energy Economics , Japan (IEEJ)



voluntary certification mark



mandatory certification mark



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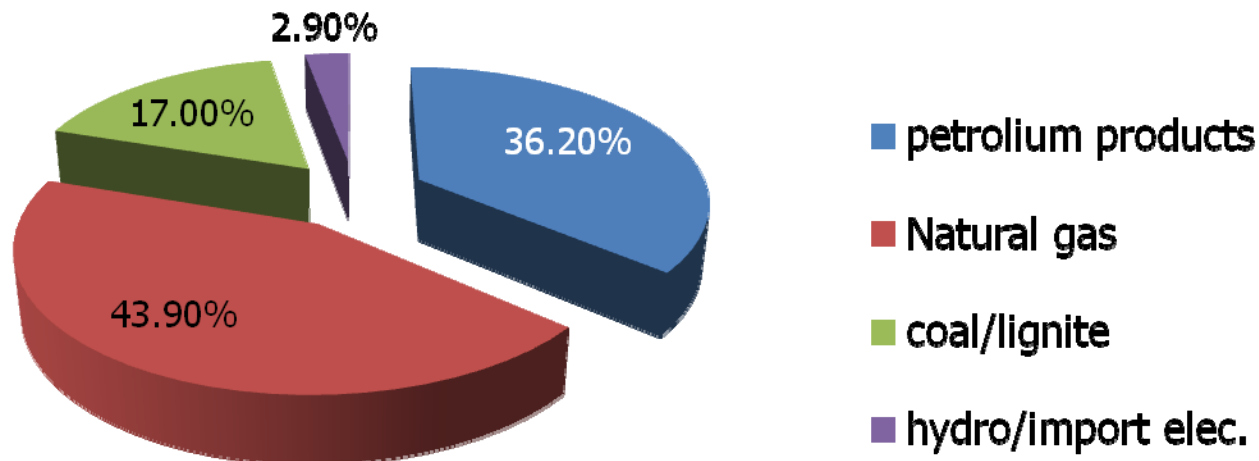
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Supporting Mechanism

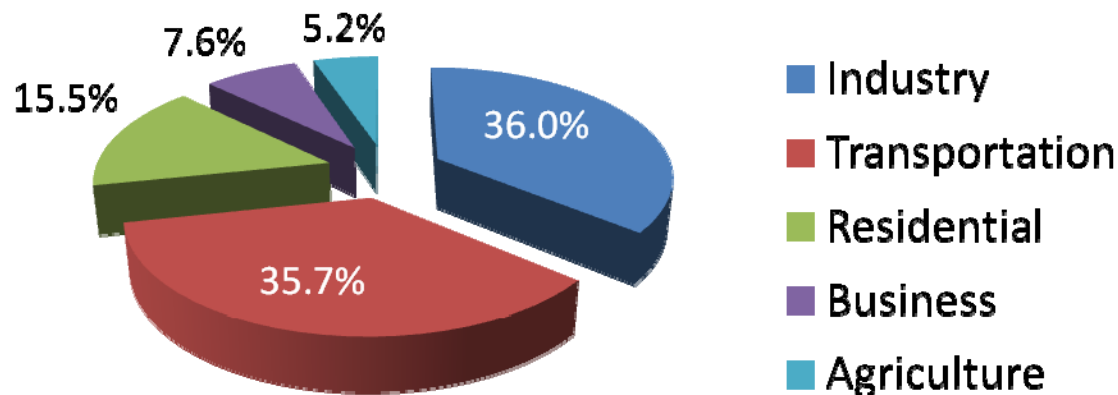
1. Thailand's Energy situation

Thailand's Energy situation in 2011

Energy consumption 2011



Final energy consumption by economic sector



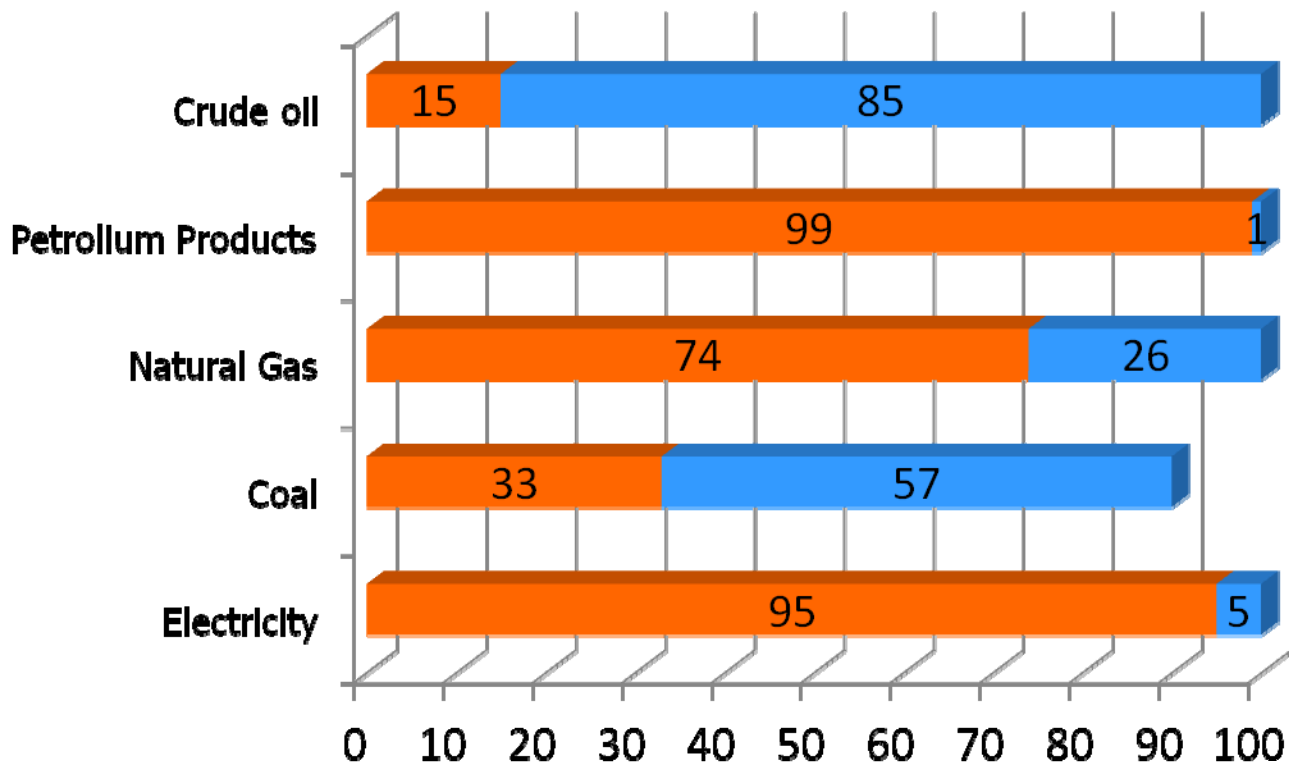
Total Energy Use
1.87 million barrels
 (oil equivalent) per day
 =
 1.93 trillion baht

Thailand's Energy situation in 2011

Proportion of Import and Domestic Production

Domestic production Import

Import Value
(10³ million baht)



927

10

136

40

12

Import 80% of oil consumption
Import 60% of overall energy
demand



Total

1,125

2. Energy Efficiency Policy and Plan



11th National Economic and Social Development Plan

Balance of Food and Energy Security

- Develop Natural Resource to Strengthen Agricultural Base
- Enhance Agricultural Productivity & Value creation
- Enhance Food & Bio-energy security & Biomass -- at Household & community Level
- Develop Bio-Energy Security
- Improve Agricultural Management to Food & Energy Balance

Sustainable Management of Natural Resources & Environment

- **Shifting Development paradigm towards Low-Carbon Society**



Thailand's Energy Policies

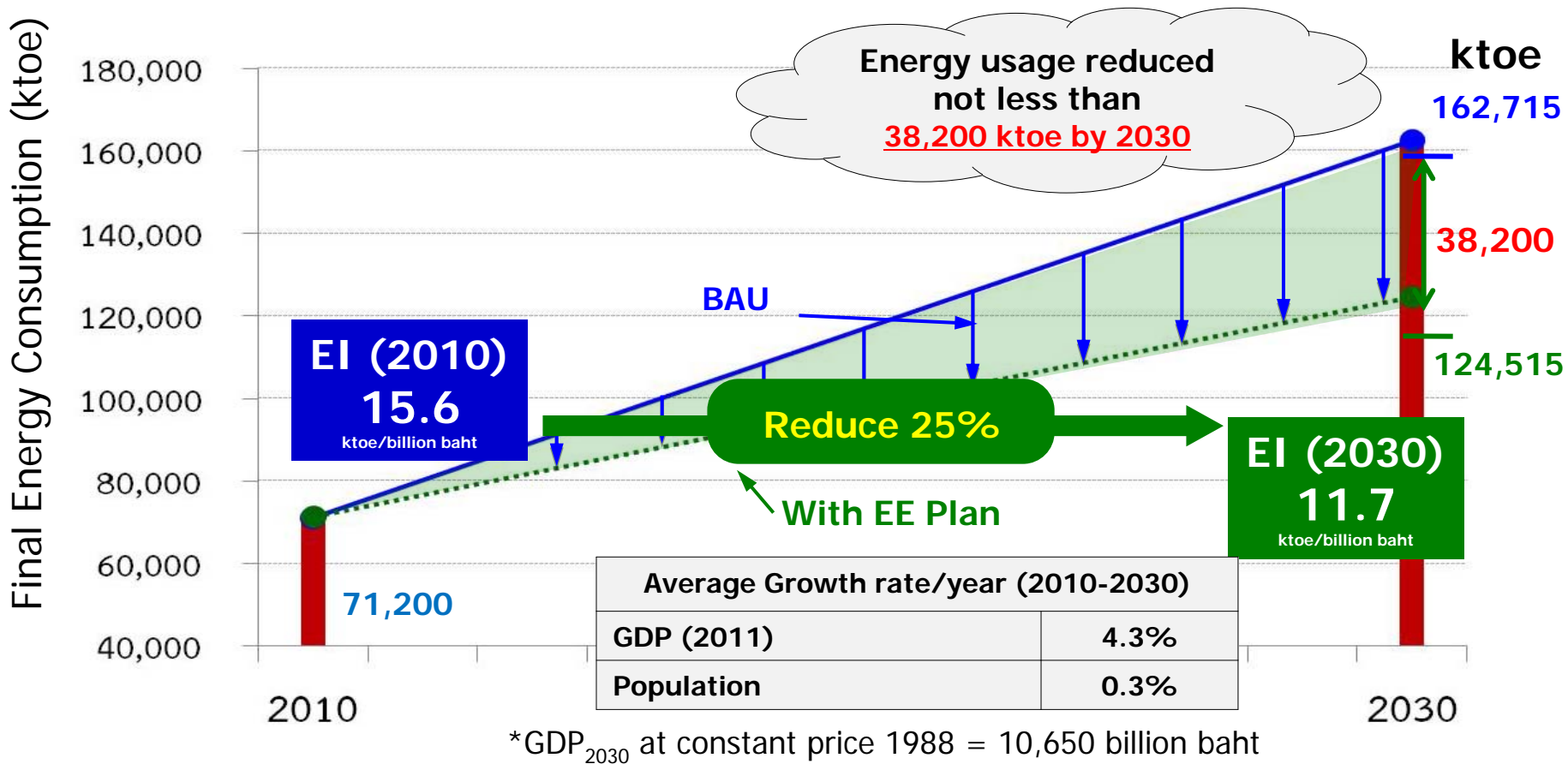


**Prime Minister
Yingluck Shinawatra**

- Enhance Energy-related Industries & Business to be next generation value creator
- Secure Thailand Energy supply
- Energy Pricing
- Target Energy Intensity reduction by 25% within 20 years (based on 2010 level)
- Up-scaling RE mix to 25% in 10 years

20-Year Energy Efficiency Development Plan

Government policy @ 23rd AUG 2011 aims to reduce Energy Intensity 25% within 20 years



Target Groups

- Industrial sector
- Transportation sector
- Business Building
- Small Business and Residential Building

Expected outcome in 2030

- Reduce final energy consumption at least 38,200 ktoe
- Reduce CO2 emission 130 M. tons
- Reduce Energy cost 707,000 M.Bahts.

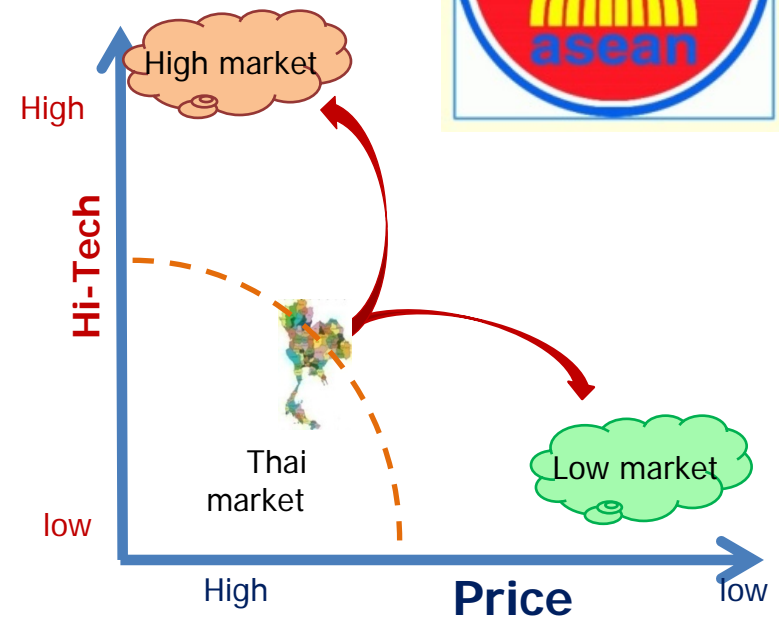
Strategic Approaches and Measures to Achieve the Targets

	Target Groups	Target	Projects/Plans
Urgent 2011 –2012	<ul style="list-style-type: none"> Flood victims 		<ul style="list-style-type: none"> Soft Loan / Subsidy/ ESCO for Flood victims High energy efficiency equipment <u>replacement</u>
Short term 2011 –2016	<ul style="list-style-type: none"> Old building/Houses Old Industry Transportation (Efficiency) Public services (Road lights/Billboards) 	<ul style="list-style-type: none"> Reduce energy : 7,980 ktoe/yr Reduce CO2 : 27 Mtons/yr 	<ul style="list-style-type: none"> Maintain <u>efficient measurements</u> (ex. ESCO/DSM Bidding) <u>Subsidization</u> for investment in the implementation of energy conservation measures <u>Mandatory energy efficiency labeling</u> to provide options for consumers to buy or use highly energy-efficient equipment/appliances, vehicles and buildings. Execution of a “<u>voluntary agreement</u>” to save energy Promotion of <u>Technology Development and Innovations, Human Resources and Institutional Capability Development</u>
Mid-term 2017 –2022	<ul style="list-style-type: none"> Transportation New commercial Buildings Industry 	<ul style="list-style-type: none"> Reduce energy : 21,058 ktoe/yr. Reduce CO2 : 72 Mtons/yr 	<ul style="list-style-type: none"> Implement <u>MEPs, HEPs, labeling standards for equipments/appliances</u> Enforce <u>the specific energy consumption (SEC) standards</u> for the production process Promote EE and low carbon emission schemes in <u>newly constructed buildings</u> Promote Energy Efficiency in manufacturing process
Long term 2023 –2030	<ul style="list-style-type: none"> Electricity generation Transportation (Technology) Industry (Structure) 	<ul style="list-style-type: none"> Reduce energy : 38,200 ktoe/yr Reduce CO2 : 130 Mtons/yr 	<ul style="list-style-type: none"> Restructuring for the <u>balance of energy and economics</u> <u>Transportation restructuring</u> ex. High efficient transport system Increase <u>efficiency of power plants and distribution system</u>

EE Products for AEC

Development direction of Thai Energy Business

➤ **Energy Saving products**
ex. light bulb CFL, TS, LED



Standard & Labeling is a **tool for AEC**

↓

Harmonization of EE standard

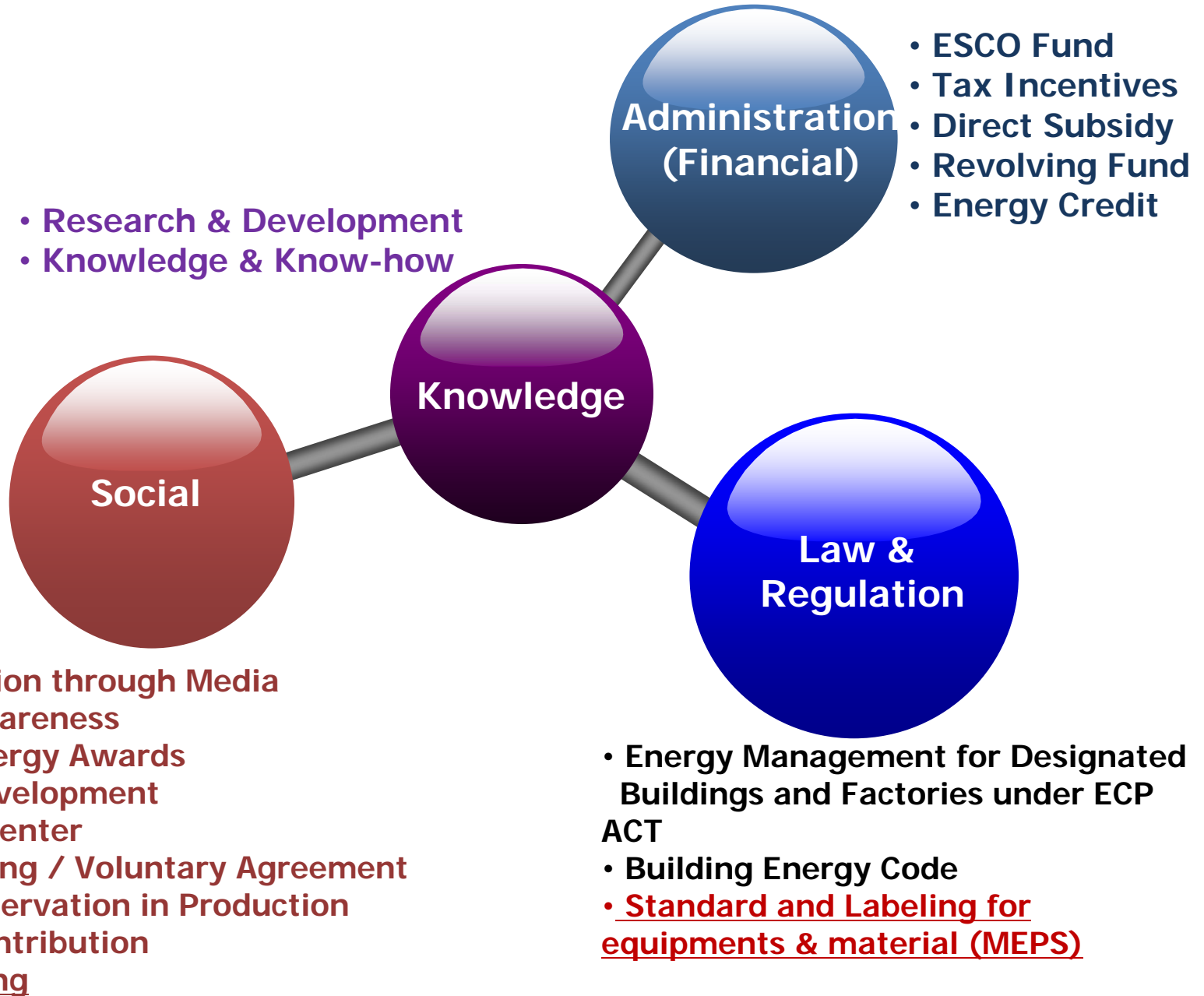
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Opportunity to transform ASEAN EE products market to "Clean Technology"



3. Standard & Labeling Policy

Scheme & Strategy to promote EE



Energy Conservation and Promotion Act. B.E. 2535 (revision B.E. 2550)

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 08/04/2009

Building Energy Code

Effective from 20/06/2009

High Energy Efficiency Standard for Equipments and Machinery

Effective from 08/04/2009

Standards and Regulations

- Energy Management for Designated Buildings and Factories under ECP ACT
- Building Energy Codes for New constructed and Retrofitted Buildings (area $\geq 2,000$ m²)
- Standard and Labeling for equipments & material
(MEPS & HEPS)



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.



voluntary certification mark



mandatory certification mark

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



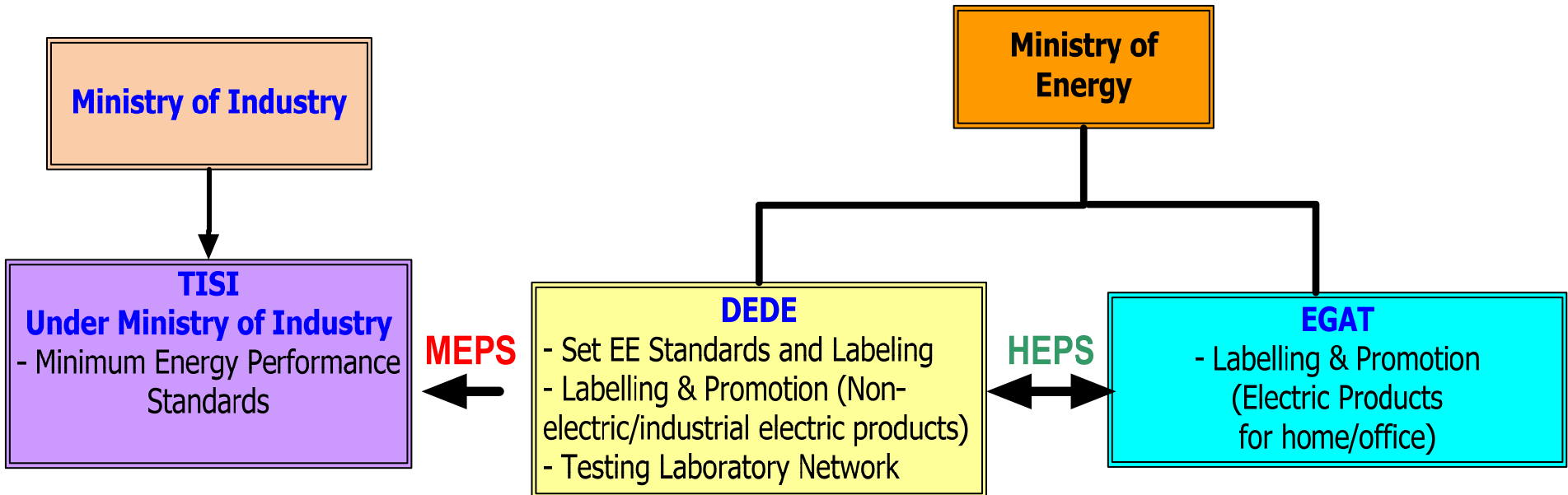
Electric products
(Home/Office)



Non-Electric and Industrial
Electric products

Standard & Labeling

Thailand Energy Efficiency S&L Structure

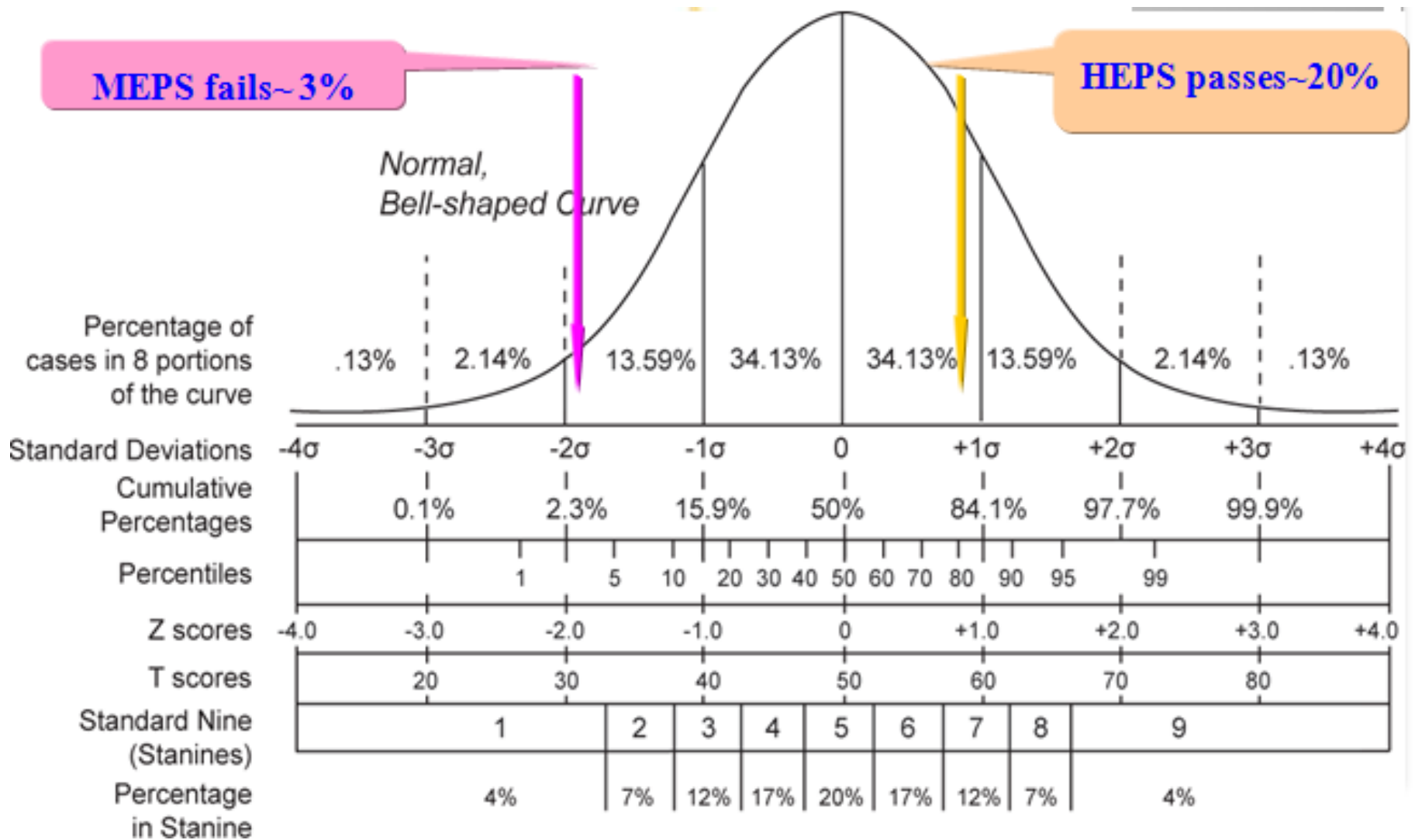


TISI: Thai Industrial Standards Institute

DEDE: Department of Alternative Energy Development and Efficiency

EGAT: Electricity Generating Authority of Thailand

The criteria of MEPS and HEPS



Standards and Labeling

Labeling for electric products (Home/Office appliances)



No.5 Labeling Products

1. Refrigerator
2. Air Conditioning
3. Ballast
4. Electric Fan
5. Compact Fluorescent
6. Rice Cooker
7. Lamp
8. T8 Fluorescent
9. Electronic Ballast for T8
10. Swing Electric Fan
11. T8 Fluorescent Lamp
12. Ventilation Fan
13. Electric Kettle
14. Standby Power 1 W on TV and Monitor
15. Electric Water heater
16. Iron

Since 1994 ,
more than 170 millions
labels have been issued



Standards and Labeling

Labeling for non-electric/industrial electric products



Number 5 is shown the highest efficiency mark

Energy Saving High Efficiency

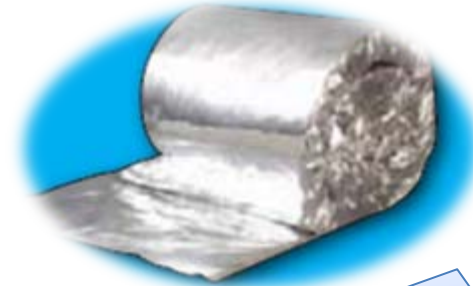
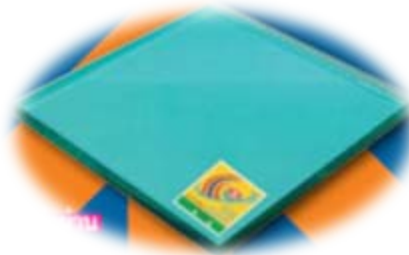
Percentage of Efficiency Value

Authority

Name of Product

No.5 Energy Labeling Products

1. VSD
2. Insulator
3. Stove
4. Glass



2 new coming products

- 1) Gasoline engines
- 2) Diesel engines

Since 2006 ,
more than 4 millions
labels have been issued

Standards and Labeling

Products	Number of Labels since Aug 2011
1. Refrigerators	26,288,572
2. Air conditioners	12,837,523
3. Compact fluorescent lamps	55,361,930
4. Low loss magnetic ballasts	7,027,422
5. Electric fans	48,183,259
6. Electric rice cookers	1,502,745
7. Lighting fixtures	52,840
8. T5 fluorescent lamps	4,616,705
9. T5 electronic ballasts	2,480,000
10. Oscillating fans	372,200
11. Standby power for televisions	1,405,436
12. Standby power for computer monitors	1,300,300
13. T5 luminaires	7,200
14. Electric pots	946,500
Total	162,382,652

Standards and Labeling

The product certification schemes of TISI consist of 2 types with different certification marks.



voluntary certification mark



mandatory certification mark

**Thai Industrial Standards Institute
(TISI) www.tisi.go.th**

4. Standard & Labeling for Air-Conditioner

Air Conditioner Standard

Air Conditioner Standard (MEPS): Compulsory Measure

1. TIS 2134-2545 :

-**MEPS** for Energy Efficiency

-Spec.: Room AC , Air-cooled , split type,
 : Cooling capacity \leq 12,000 Watt

Type	Cooling Capacity \leq 8,000 W	Cooling Capacity >8,000-12,000 W
Wall type (not less than)	2.82 W/W (9.6 Btu/hr/W)	2.53 W/W (8.6 Btu/hr/W)
Split type (not less than)	2.82 W/W (9.6 Btu/hr/W)	2.53 W/W (8.6 Btu/hr/W)

Air Conditioner Standard

Air Conditioner Standard (HEPS) : Voluntary

2. DEDE Ministerial Regulation (MR) & Announcement(MA) for HEPS

- **HEPS** for energy voluntary & promotion measures
- Spec.: same as TIS 2134-2545
- HEPS criteria (effective in 2009)

Cooling capacity	<u>MR</u> COP(W/W)	<u>MA</u> COP(W/W)
Cooling capacity \leq 8,000 W EER (Btu/hr/W) =	3.22 - 4.1 (11.0-14.0)	3.22
Cooling capacity >8000-12,000 W EER (Btu/hr/W) =	3.22 - 4.1 (11.0-14.0)	3.22

3. TIS 1155-2536

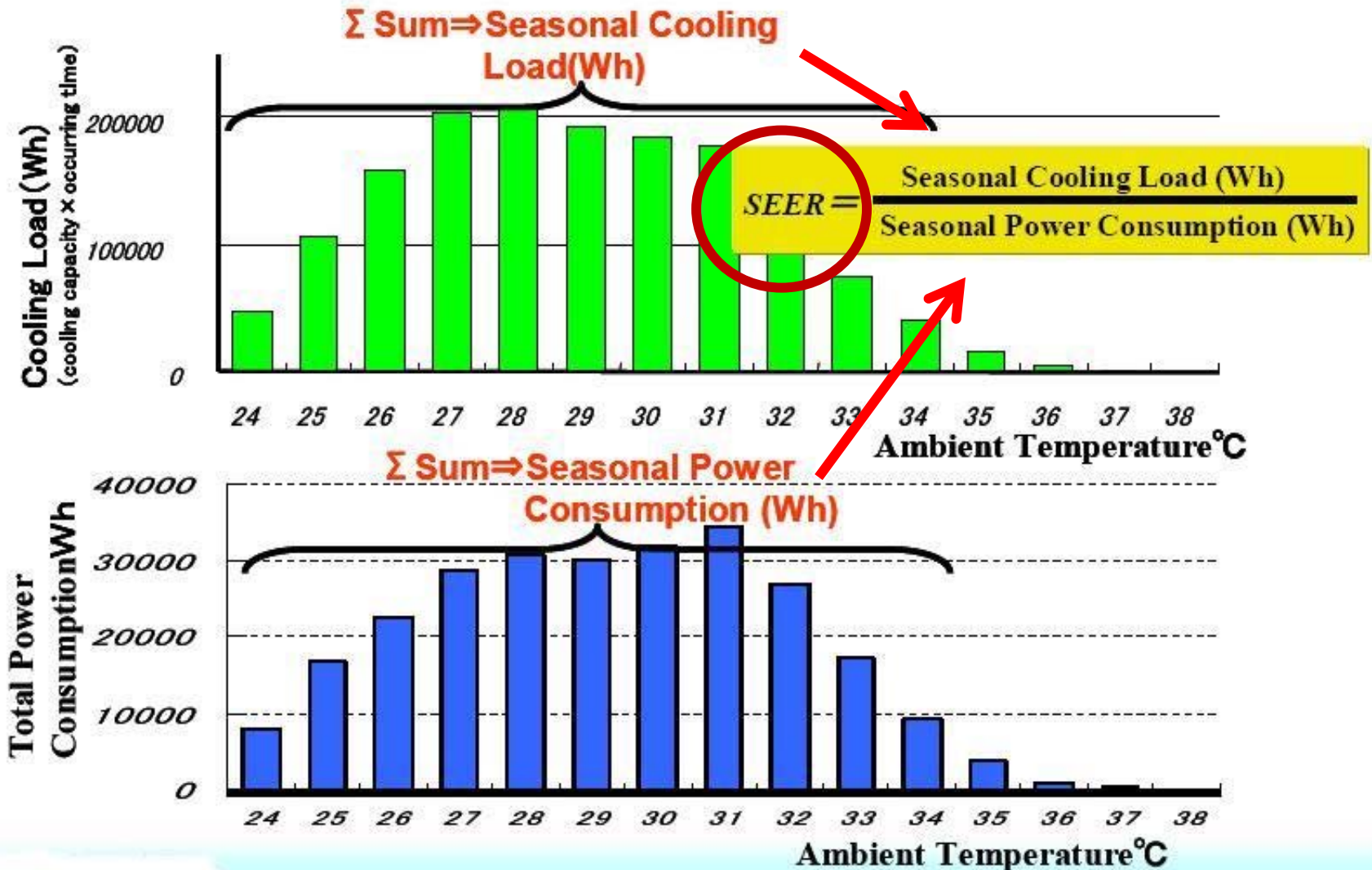
: Air-cooled split type room air conditioners

- **Reference Test Standard**
: ISO 5151 ARI 210/240-94 JIS B 8616
- **Description**
 - **test conditions always at full-load**
 - **at the rated frequency and voltage**
 - **with a single set of stable environmental conditions**
 - **the part-load performance of variable or multiple speed drive units is not reflected.**

Energy Efficiency Ratio (EER)

Cooling Capacity	Energy Efficiency Ratio (EER)		
	No.5 Y 1996	No.5 Y 2006	No.5 Y 2011
$\leq 8,000 \text{ W}$ $(\leq 27,926 \text{ Btu/hr})$	10.6	11.0	11.6
$>8000\text{-}12,000 \text{ W}$ $(>27,296 - 40,944 \text{ Btu/hr})$	10.6	11.0	11.0

Seasonal Energy Efficiency Ratio (SEER)



SEER for Air Conditioners

Market Share of Fixed-Speed and Inverter Air Conditioners

Year	Numbers of Air Conditioners			Percentage of Inverter Air Conditioners
	Total Air Conditioners	Fixed-Speed Air Conditioners	Inverter Air Conditioners	
2006	1,164,700	1,143,904	20,796	1.79
2007	1,132,729	1,103,501	26,228	2.32
2008	1,095,473	1,048,943	46,530	4.25
2009	1,283,645	1,242,265	41,380	3.22
2010	2,222,325	2,103,365	118,960	5.35
2011	1,314,477	1,227,062	87,415	6.65

Source: Electricity Generating Authority of Thailand

Seasonal Energy Efficiency Ratio (SEER)

- **SEER Standard Testing method varies in countries**
 - American Standard (USA, Canada)
 - ISO Standard (Japan, China, Australia, Taiwan, Korea etc.)

- **In Thailand**, SEER is in studying process. Primary results are
 - ISO Standard is more flexible, economy and suitable for Thailand
 - Ambient Temperature should rely on Meteorological Department data
 - Air-conditioners must be A/C inverter type => not widely used in Thailand

⇒ SEER is not ready to be implemented in Thailand right now

- **Way forward**
 - More SEER study & training for implementation
 - Human resource development
 - Financial support for Testing Laboratory
 - Marketing design for EE products
 - Technology development
 - ex. Testing lab , inverter/compressor system , innovation etc.

5. Supporting Mechanism

Tax Incentive → 2 schemes are given;



1. Tax Incentive for EE products

<http://www.energy-tax.com/>

- Cooperation program with Revenue Dept.
- **25% tax credit** from purchasing of EE products
- 19 products are announced for tax incentive; Mostly **label 5 products**
- Terminated in Dec. 2010, Extending for two more years till **31 Dec 2012**




2. Tax Incentive for EE Investment

- Cooperation program with **Board of Investment (BOI)**
- Promotion of Energy Conservation Related Activities
- **Exemption** of corporate **income tax and import duties**

http://www.boi.go.th/index.php?page=additional_investment_policies

Direct Subsidy 20:80_

- For EE measures
- **Subsidy 20% of EE measures,**
 - **maximum 3 million baht**
 - **minimum 0.05 million baht**
- To buy EE products
- Payback period ≤ 7 years



Promotional Campaigns



**Advertising &
Public Relation**

**The Green Learning
Room , Activities
in school**

Advertising Campaign



Recent Supporting Scheme

1. Supporting Research & Development

The Eleventh National Economic and Social Development Plan
(2012-2016)



Aims to increase National Research Budget
from 0.2 to 1 % of GDP within 5 years

- Supported by Energy Conservation Fund (ENCON Fund)



Thailand 20-year Energy Efficiency Development Plan

- Way forward to top up budget
 - Strategic Partnership among stakeholders (ex. EGAT , PTT)
 - Taxation

Recent Supporting Scheme

2. Financial Support for Energy Efficiency Appliances Projects (Rebate)

- DEDE Flagship project in 2012-2014 plan
- Financial support for household / Business users

Benefit :

- Promote EE products for widely use
- saving 50 ktoe / year
- Encourage EE product Investment

Rebate 20 %
for household users

Rebate 30 %
for business users





Thank you...

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

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