



Thailand EE Policy for Standard and Labeling

Mr. Watcharin Boonyarit

Senior Scientist

Department of Alternative Energy Development And Efficiency

Ministry of Energy, Thailand

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1.

Thailand's Energy situation

2.

Energy Efficiency Policy and Plan

3.

Standard & Labeling Policy

4.

Challenges and Barriers



1.

Thailand's Energy situation

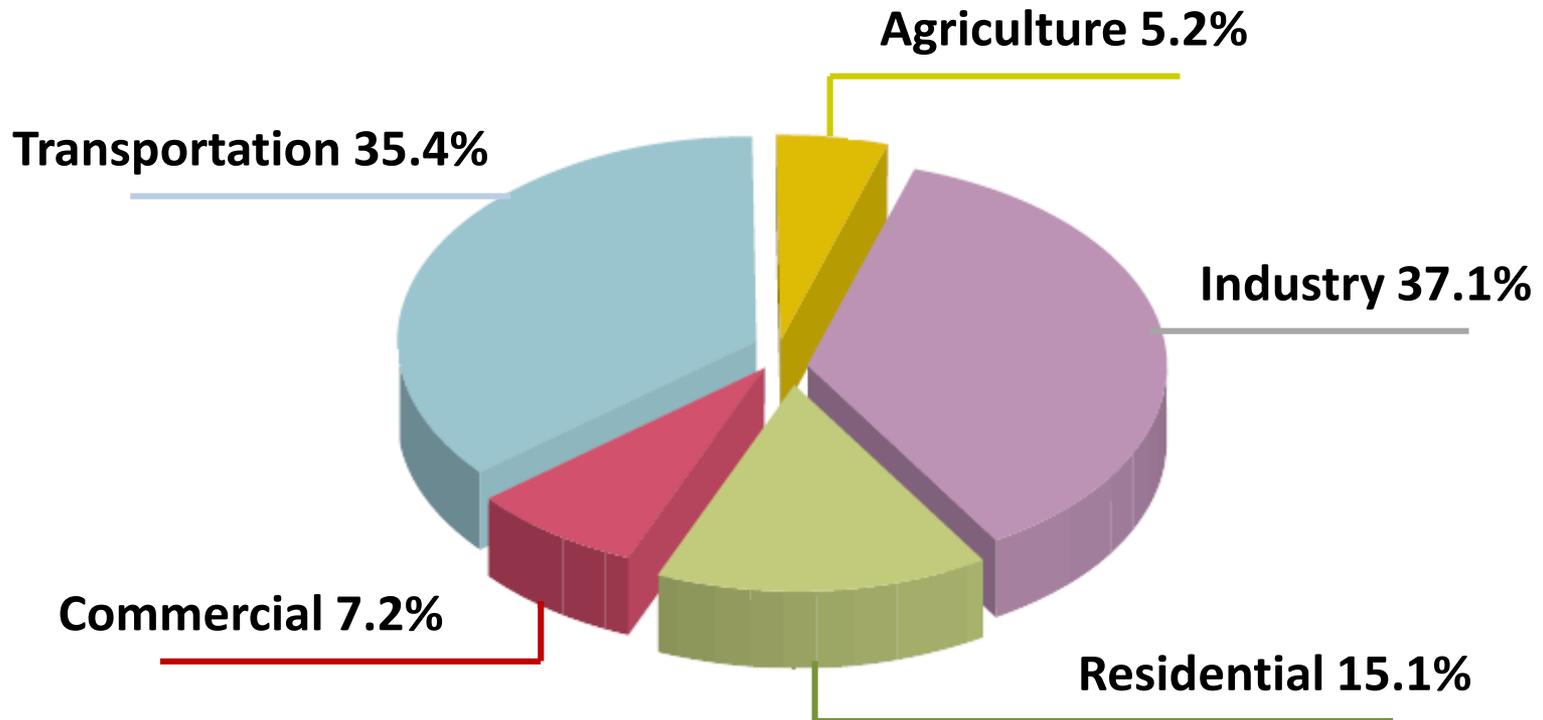
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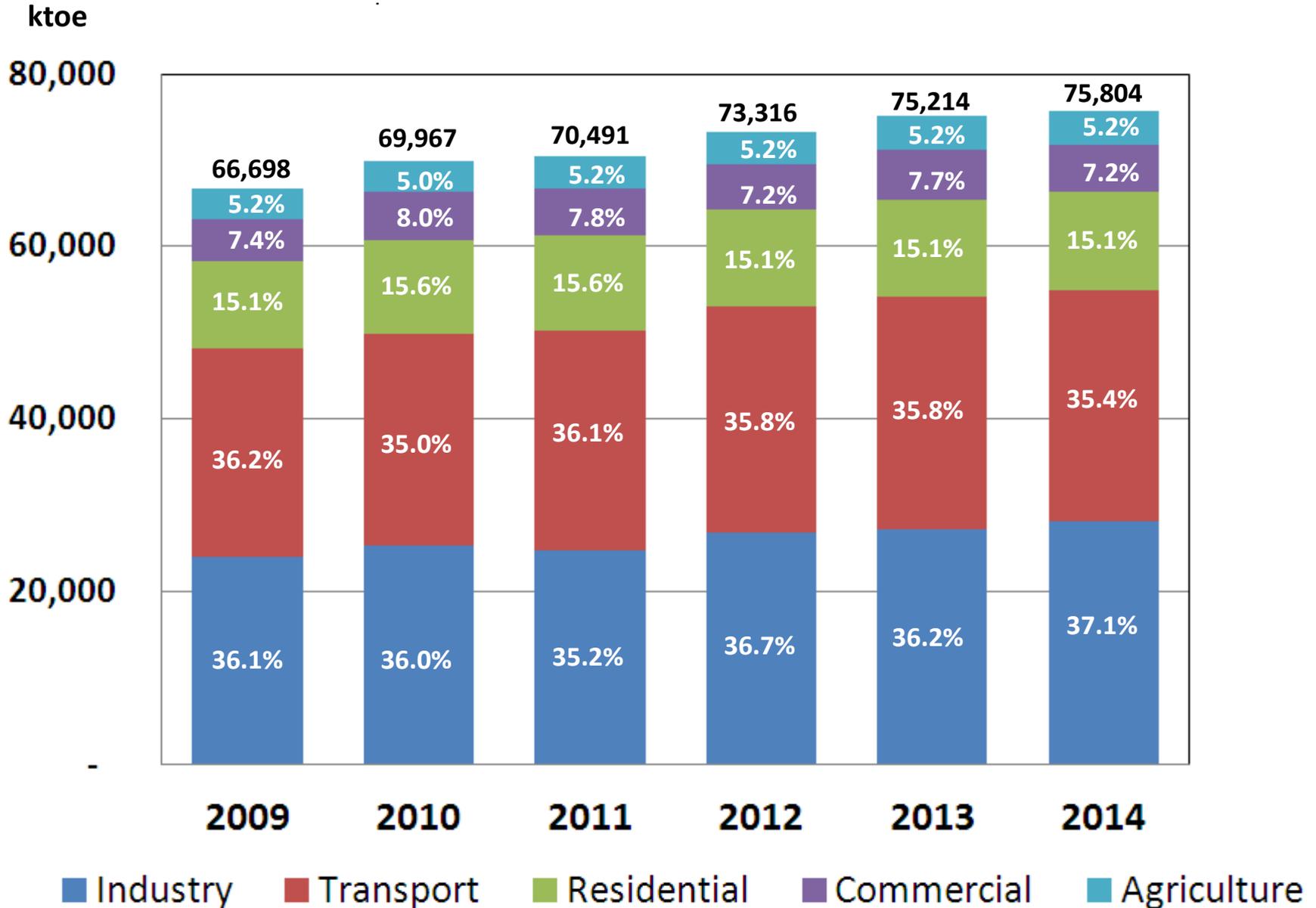
by Economic Sector



75,804 ktoe

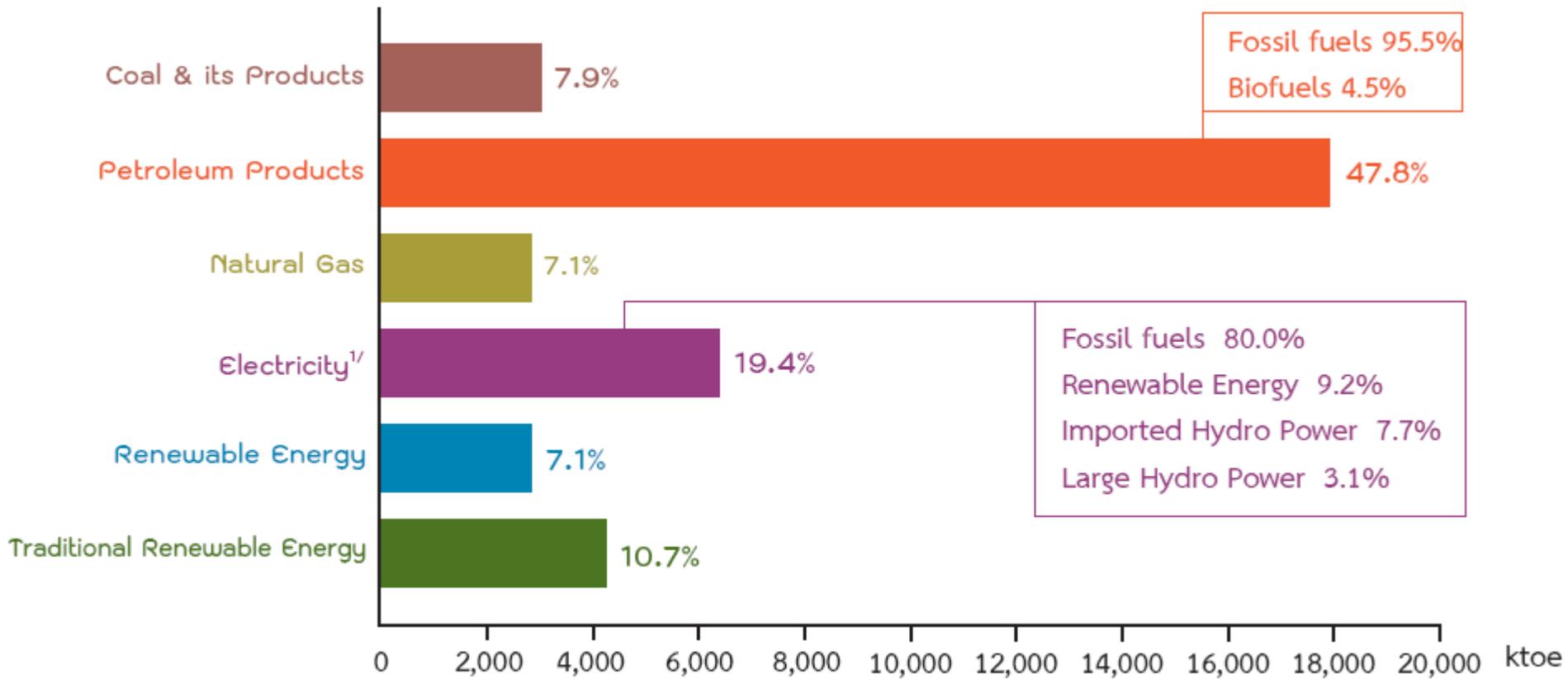


Final Energy Consumption 2009 - 2014



Final Energy Consumption 2013

by Fuel Type



^{1/}Including off grid power generation.



Thailand's Energy situation



1. Limited energy resource

- Growing demand from economic growth and development
- Limited oil and gas reserves
- Coal reserves are of low quality

2. Relying on energy imports

- Thailand imports
85% of crude oil
54% of coal/lignite
19% of natural gas

3. Fossil-fuel Subsidies

- Distortion of the market mechanism
- Unfairness to other fuel users
- Huge burden to the Oil Fund

4. Energy Consumption Behavior

- Wasteful energy consumption

5. Public Understanding & Acceptance

- Public protests against energy infrastructure projects
i.e. power plants



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Energy Efficiency Policy and Plan

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Thailand's Energy policy

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

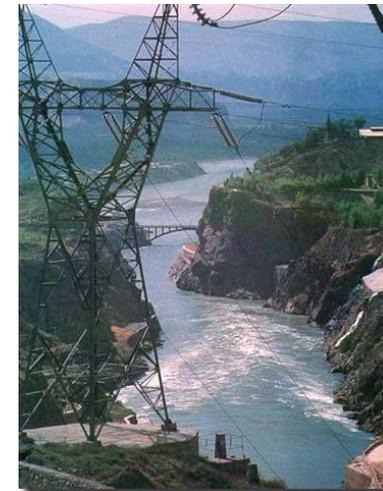
- Price structure reflect its genuine cost
- Develop Services Quality
- Safety in Energy Related business

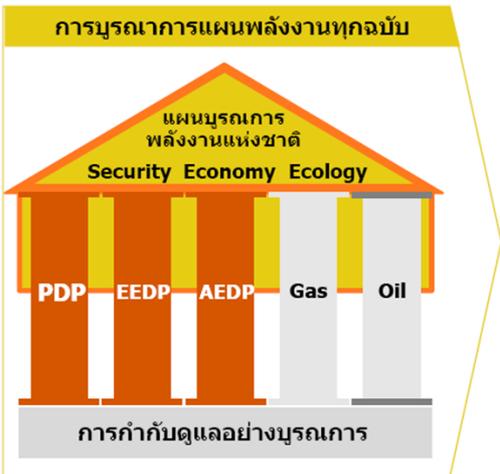


5

Preserving Environment coupled with Energy Development and Consumption

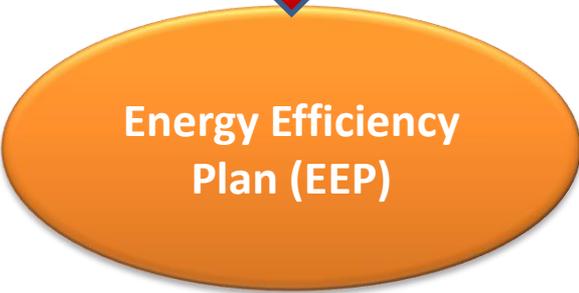
- Green house Emission Reduction
- Support CDM Projects





Integrating 3 Major National Energy Plans

- Based on the same period through long term approach planning **(2015-2036)**
- Harmonization through Maximizing Result Integration
- **Area – Based & Sectorial Based** Approach
- Main Focus on Country’s Competitiveness & Sustainability



Security / Economy / Ecology

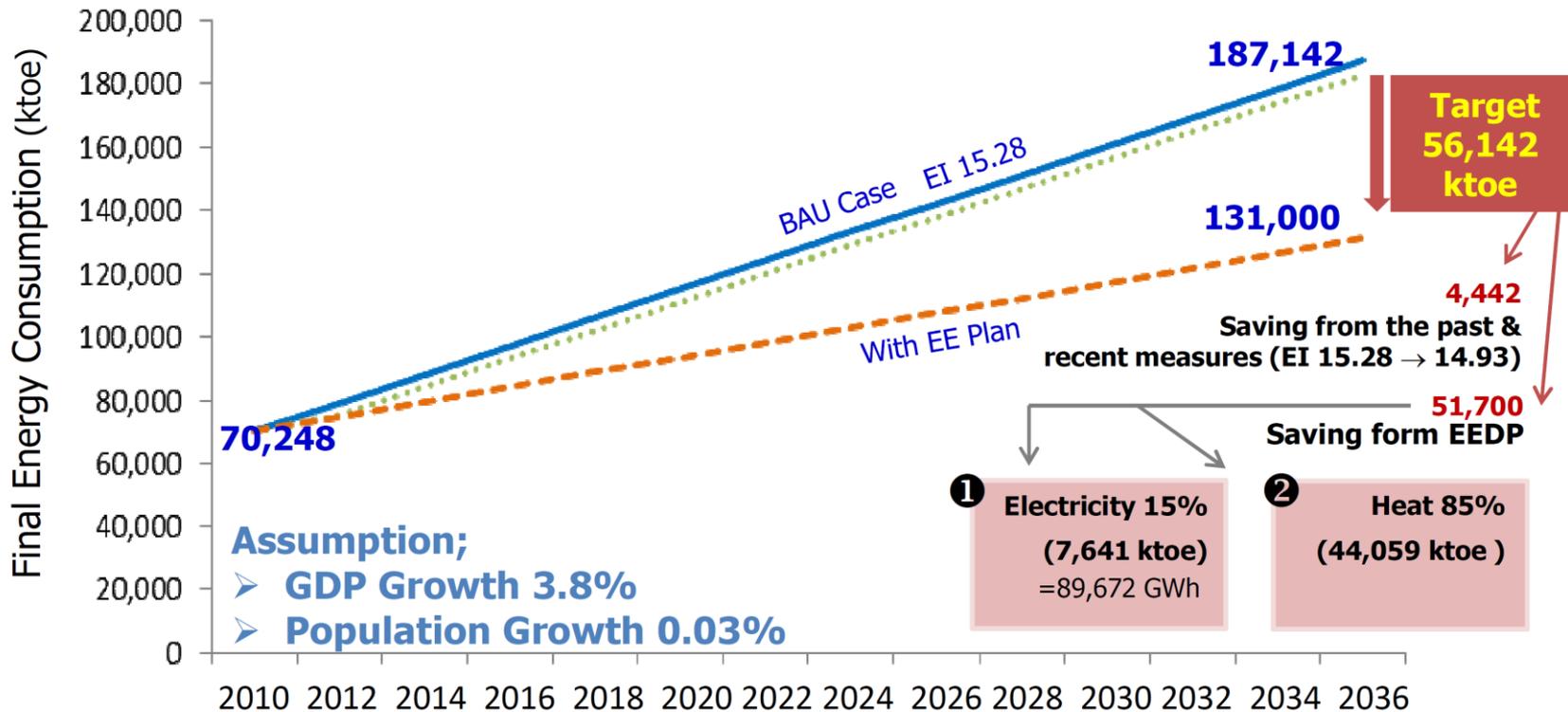
2015 - 2036



New Energy Efficiency Development Plan (2015-2036)

**A Target to reduce Energy Intensity by 30% in 2036,
compared with that in 2010**

EI (2010) actual 15.28 ktoe/billion baht	EI (2013) actual 14.93 ktoe/billion baht	EI (2030) forecast 11.0 ktoe/billion baht	EI (2036) forecast 10.7 ktoe/billion baht
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Key improvement of new EE plan

- Increase EI by **30%**
- Target Energy Saving **56,142** ktoe

Target Group	
1	Industry
2	Building
3	Residential
4	Transportation

Measure	
EE1	Energy Management in Designated factory and building
EE2	Building Energy Code (BEC)
EE3	MEPS & HEPS
EE4	Financial Support
EE5	Promote the use of LED
EE6	Energy Efficiency Resource Standard (EERS)
EE7	Transportation Measures



New Energy Efficiency Development Plan (2015-2036) Strategies to achieve the target

① **Compulsory Measures**

- 1.1 Enforcement of energy conservation standards in designated factories and buildings
- 1.2 Building Energy Code (BEC) on the new buildings
- 1.3 Energy labeling on equipment/appliances (HEPS & MEPS)
- 1.4 Enforcing of Energy Efficiency Resource Standard (EERS)

② **Voluntary Measures**

- 2.1 Supporting financial tools to hasten the equipment changing
- 2.2 Promoting greater use of LED by price mechanism
- 2.3 Energy saving measures in transport sector

③ **Complementary Measures**

- 3.1 Supporting the human resource development on energy conservation
- 3.2 Supporting the creation of public awareness and behavioral change
- 3.3 Supporting the energy efficiency technology research and development



Scheme to promote EE





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Standard & Labeling Policy



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Energy Conservation and Promotion Act. B.E. 2535 (revision B.E. 2550) 2007

1992



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

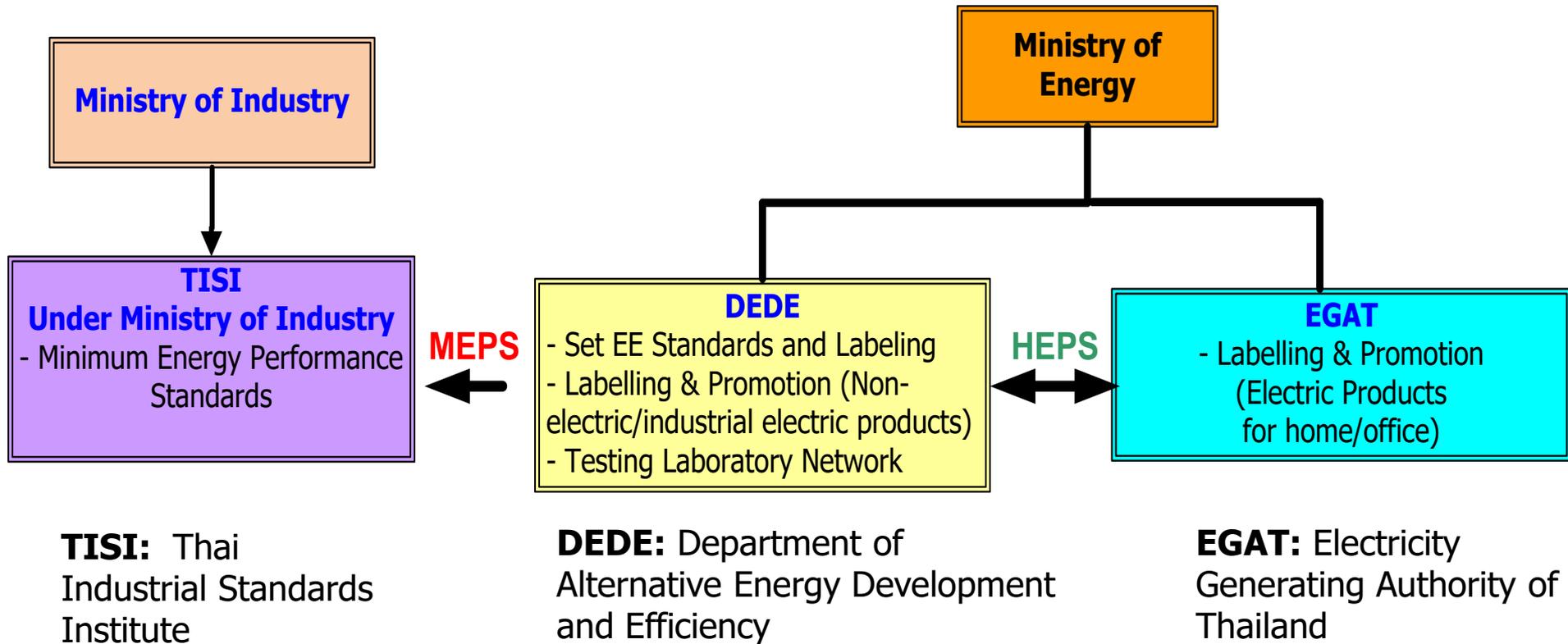


High Energy Efficiency Standard for Equipments and Machinery

Effective from 08/04/2009



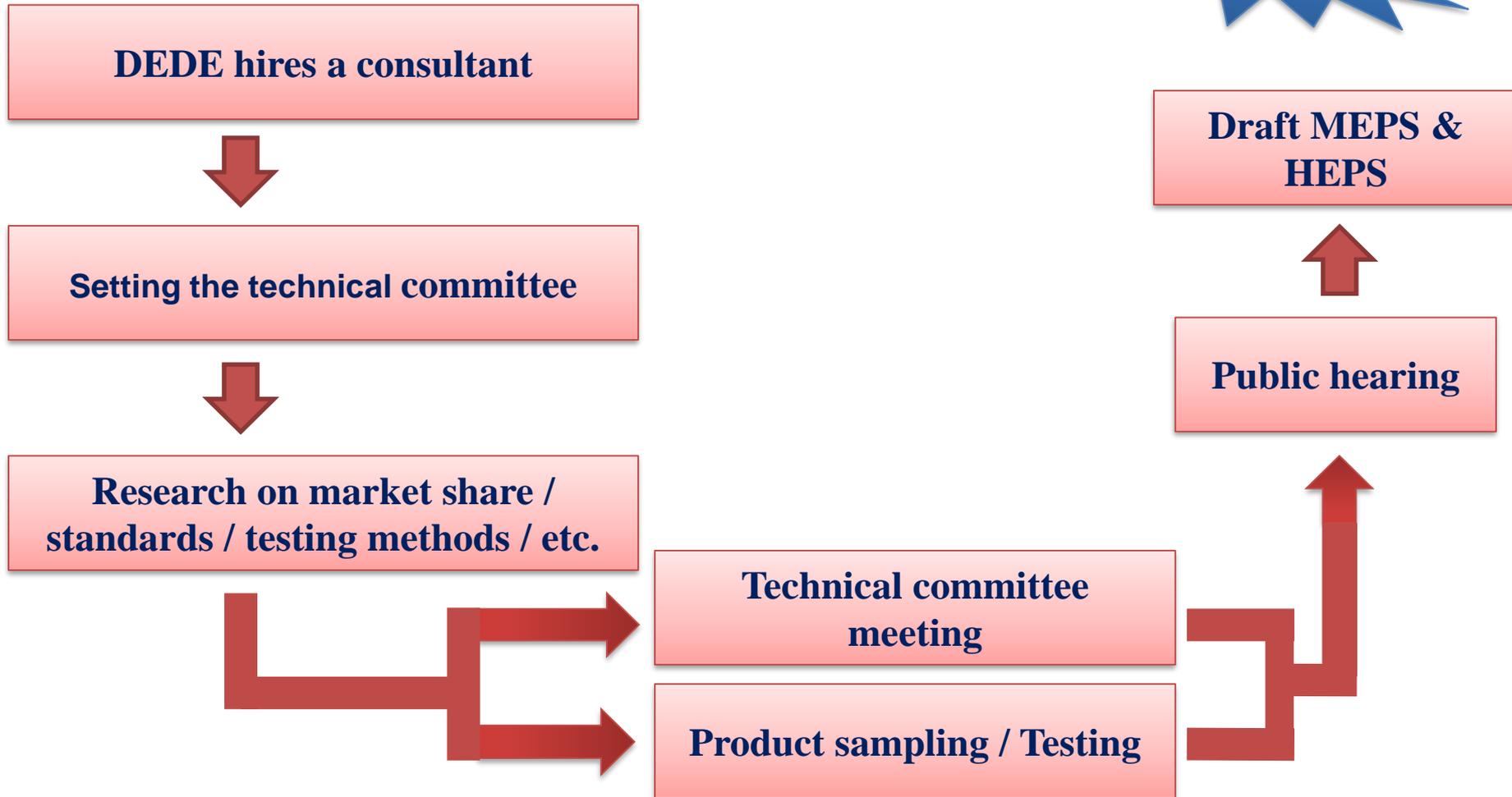
Thailand Energy Efficiency S&L Structure for home appliances, equipments & material (MEPS & HEPS)





The Process of Setting Draft MEPS & HEPS

1 Year





Draft HEPS to be legislated

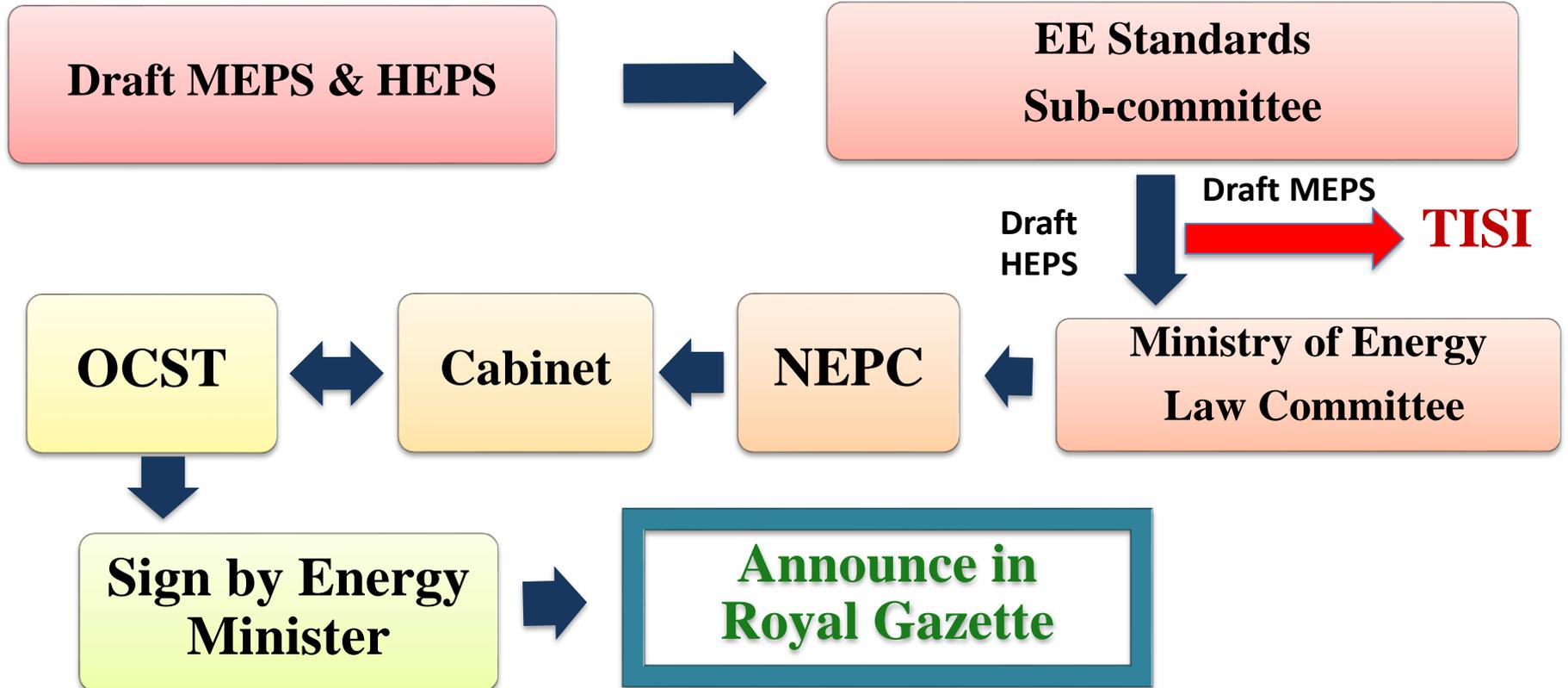
2-3 Years

Approved by:

TISI : Thai Industrial Standards Institute

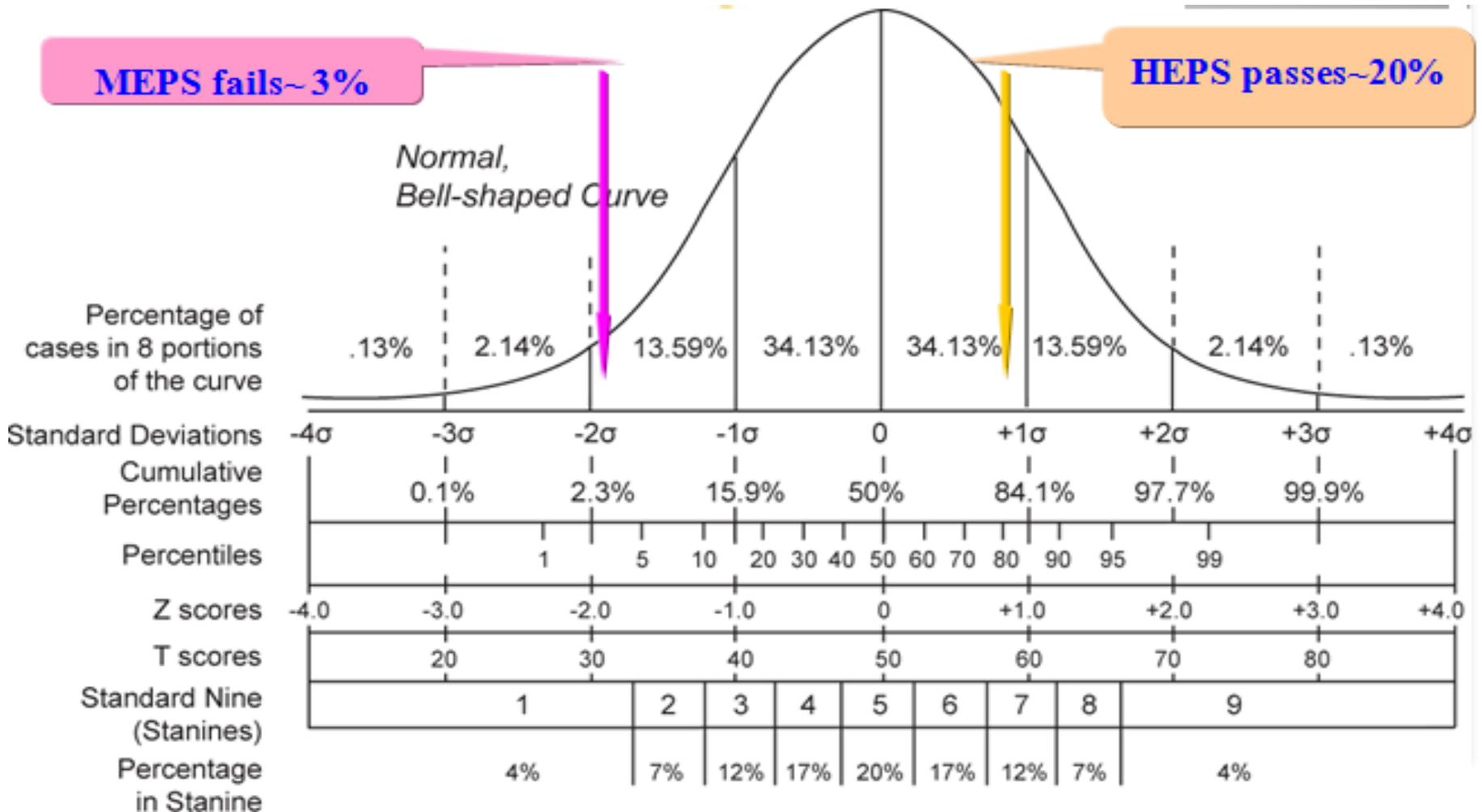
NEPC: National Energy Policy Committee

OCST: Office of the Council of State of Thailand





The criteria of MEPS and 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



Labeling for electric products (Home/Office appliances)



Energy Consumption
(kWh/year)

Efficiency
(BTU/hr/Watt)

EGAT : Electricity
Generating Authority
of Thailand

Ministry of Energy



No.5 Labeling Products

Year	Products	Label amount
1994	Refrigerators	33,214,322
1995	Air Conditioner	20,257,987
1996	Compact Fluorescent Lamp	86,602,180
1998	Electromagnetic Ballast	7,581,722
1999	Brown Rice	9,738,862
2001	Electric fans	67,099,579
2004	Rice Cooker	2,784,295
	Luminaire (T8)	52,840
2009	Oscillator Electric Fan	1,273,680
	Fluorescent T5 Lamp	11,814,555
	Electronic Ballast for T5	5,890,976
2010	Standby Power : TV	5,628,302
	Standby Power: monitor	1,545,450

Year	Products	Label amount
2010	Electric Pot	4,082,850
	Luminaries for T5	21,420
2011	Water Heater	3,395,210
	Iron	1,789,340
	Ventilator fan	1,082,200
2012	Washing Machine	733,800
	LED Lamp	3,145,870
2013	Microwave Oven	11,300
	Induction Cooker	20,000
2014	TV : on mode	319,700
	Electric Kettle	25,800
2015	Refrigerated Display Cabinets	n.a.
	Automatic Water Pumps	n.a.
Total		268,112,240

Since 1994 , more
than 268 millions
labels have been
issued

(upto 31 Dec 2014)

source : EGAT





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



Energy Saving Labeling Products

1. Household LPG Gas Stoves
2. Variable Speed Drives
3. Flat Plate Glasses
4. Fiberglass Insulators
5. Three-Phase Induction Motors
6. Small Diesel Engines (Water Cooled)
7. Small Gasoline Engines (Air Cooled)
8. High Pressure Gas Stoves



Since 2006 ,
more than 17 millions
labels have been issued





Financial Incentives

- Co-Investing Program (ESCO Fund)
- Direct subsidy (20-30%)
- ESCO scheme

Standards & Regulations

- EE Designated Facilities
- MEPS & HEPS & Labeling
- Building Energy Code



Awareness Raising

- Thailand Energy Award
- Campaign & Media

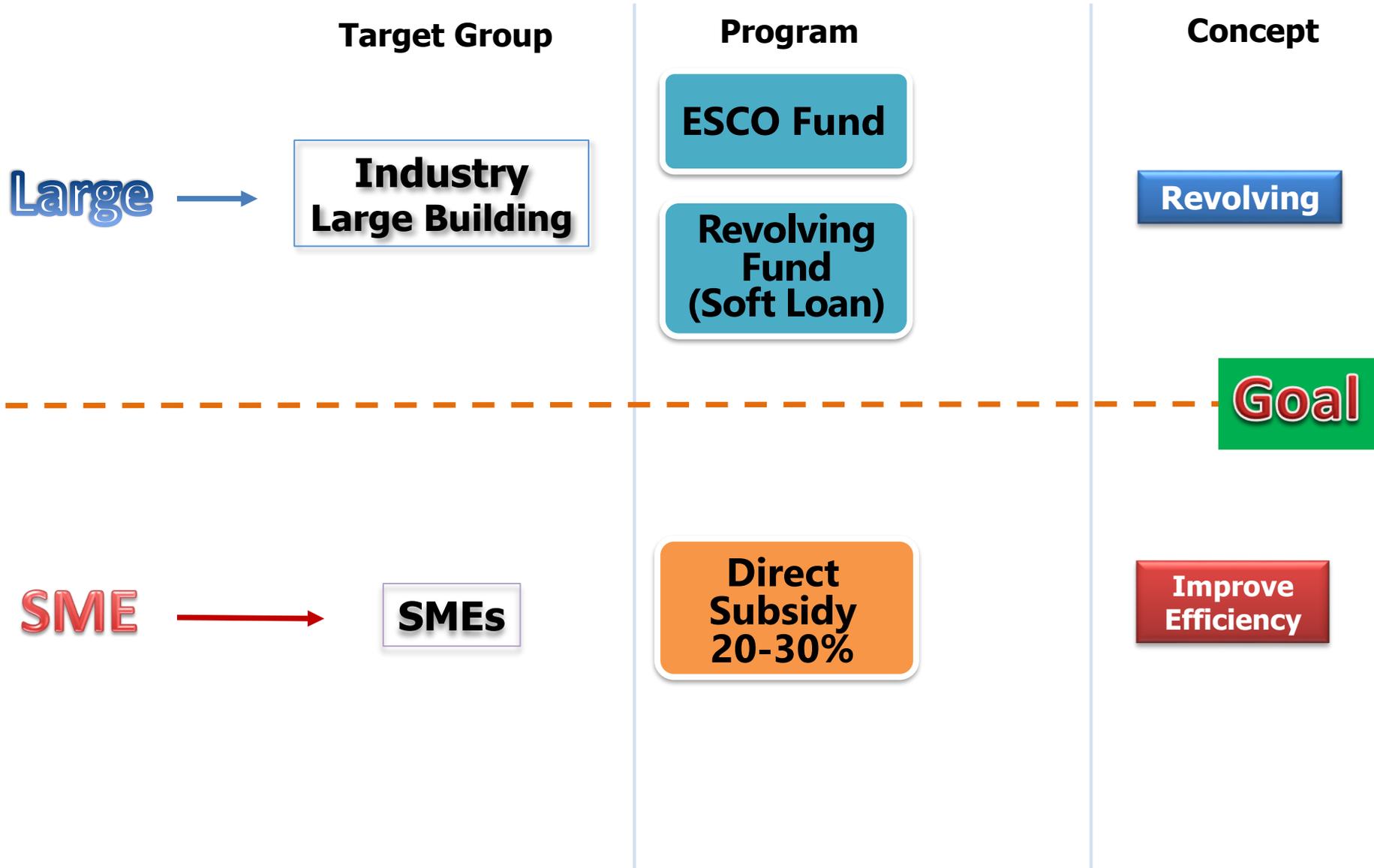
Technical Support

- Training & Seminar
- Tech. Demonstration
- Guideline & Handbook



EE Networking

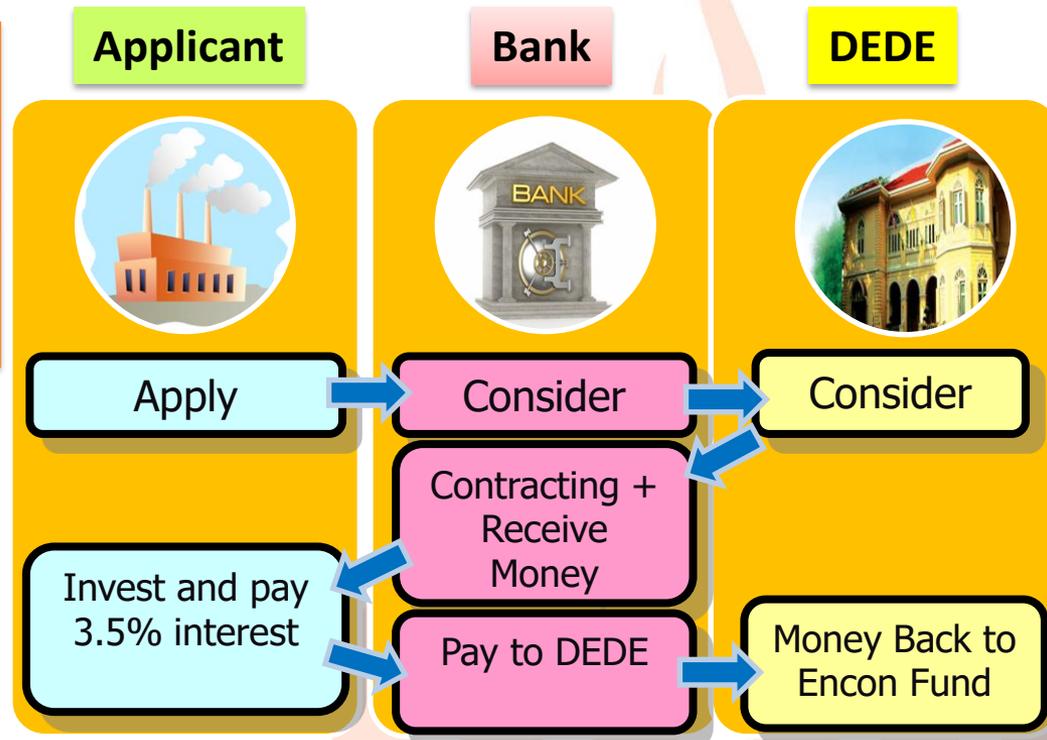
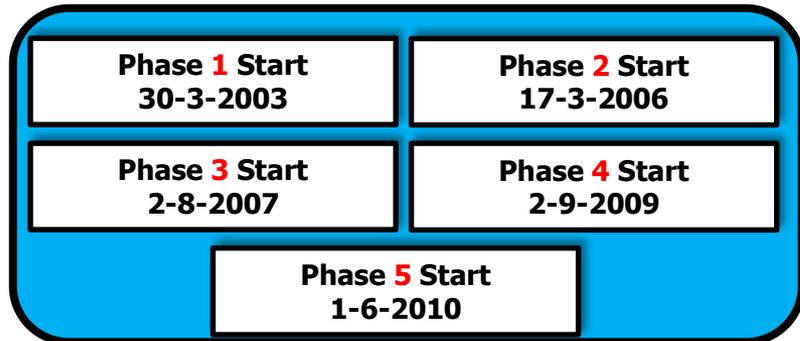
- Voluntary Agreement
- R&D with Universities
- Partnership with Professional Associations



Revolving Fund

Condition

- **3.5%** Interest rate
- Max **50 MB.**
- **7** Year Pay Back

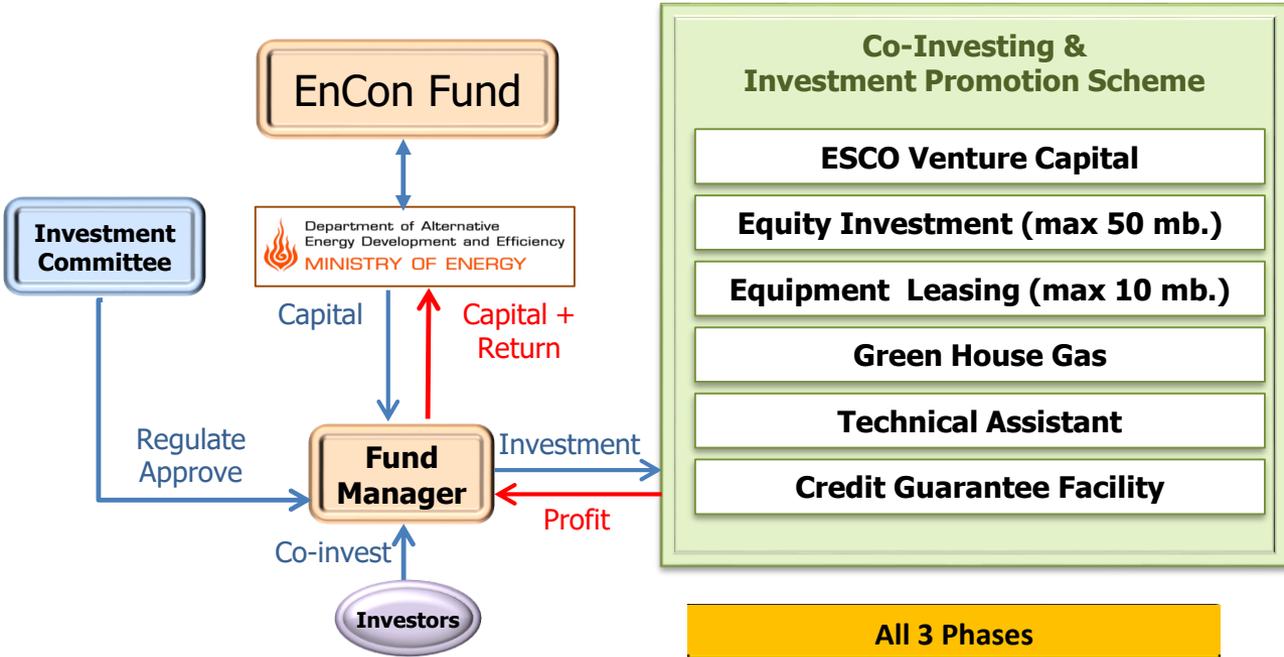


Phase	No. Project	Total Investment (MB)	From Government (MB)	From Bank(MB)	Saving (ktoe)	Saving (MB)
1	78	3,427	1,902	1,525	98	1,805
2	83	3,330	1,735	1,595	99	1,713
3	98	5,878	2,702	3,176	93	2,329
4	12	1,282	377	905	13	421
5	24	2,042	489	1,554	17	539
รวม	295	15,959	7,205	8,755	320	6,806



Project feature:

Set up to joint capital promote investment in **energy conservation** and **renewable energy** development projects



Phase 1 Oct 2008 – Sep 2010
 Phase 2 Oct 2010 – Mar 2013
 Phase 3 Mar 2013 – Jul 2014

2015 on going
500 million Baht
 Allocated from Gov's ENCON FUND

No. of project
Total Investment (MB)
Inv. from ESCO Fund (MB)
Saving (ktoe)
Energy Saving (MB)
Reduce Demand (MW)

All 3 Phases		
FM1	FM2	Total
81	45	126
3908.46	1040.23	4938.69
524.25	370.92	895.17
21.99	18.73	40.72
662.59	362.76	1025.35
39.7	13.5	53.2



มูลนิธิพลังงานเพื่อสิ่งแวดล้อม

2 Fund Managers

Direct Subsidy

Project feature:

- Subsidy **20-30%** of capital investment for high efficient equipment/ machineries
- Payback period < **7** years

**20% for Large factory/building
 30% for SMEs**

Standard Measure

- Chillers
- High-Efficiency Motors
- VSD

Advanced Technology

- Ozone
- Heat Pump
- VSD Chillers

	2010-2011	2012	2013	Total
Target	Industry, Building, Agriculture	Industry, Building, Agriculture	SMEs	
No. of project	232	247	115	594
No. of Measure	316	362	190	1,462
Supported (MB)	127.5	166.5	25.7	319.7
Saving (ktoe)	10.6	14.2	2.1	26.90
Total Investment (MB)	n/a	n/a	n/a	2,106.7
Saving (MB/Yr)	n/a	n/a	n/a	847.1

2016 on going...!!
60 million Baht
 For SMEs
 30 % max. 0.3 MB

70
 SMEs **30**



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Challenges and Barriers



Challenges to Promote EE Products

- Increase opportunities of EE products industries
- Promote EE products using more local content
- R&D New EE technology and innovation
- More cooperation among public/private organizations
- Government green procurement



Barriers to Promote EE Products

- **Information and Awareness Barriers**
 - Lack of confidence in EE products
 - Energy is not first priority
- **Investment-Related Barriers**
 - High cost of EE appliance/equipment
 - Lack of budget (cash or credit) for investment in EE appliance/equipment
 - Lack of knowledge and confidence in EE projects
- **Technical Capacity Barriers**
 - Lack of ability to analyze EE projects
 - Lack of Technical knowledge



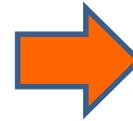
Next Step Forward

Closer coordinating
between relevant agencies



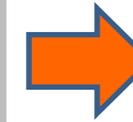
DEDE, TISI, EGAT, Producers

More R&D, local content
For EE Tech. & Innovation



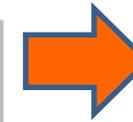
Gov, Private, Academic

More educations /
Awareness activities



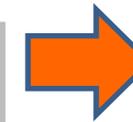
People awareness

More capacity building



Knowledge & Expertise

More Energy Cooperation



ASEAN, APEC, UNDP, NEDO



Thank you...

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