



# **Energy Efficiency Promotion Policy and Activities in Thailand**

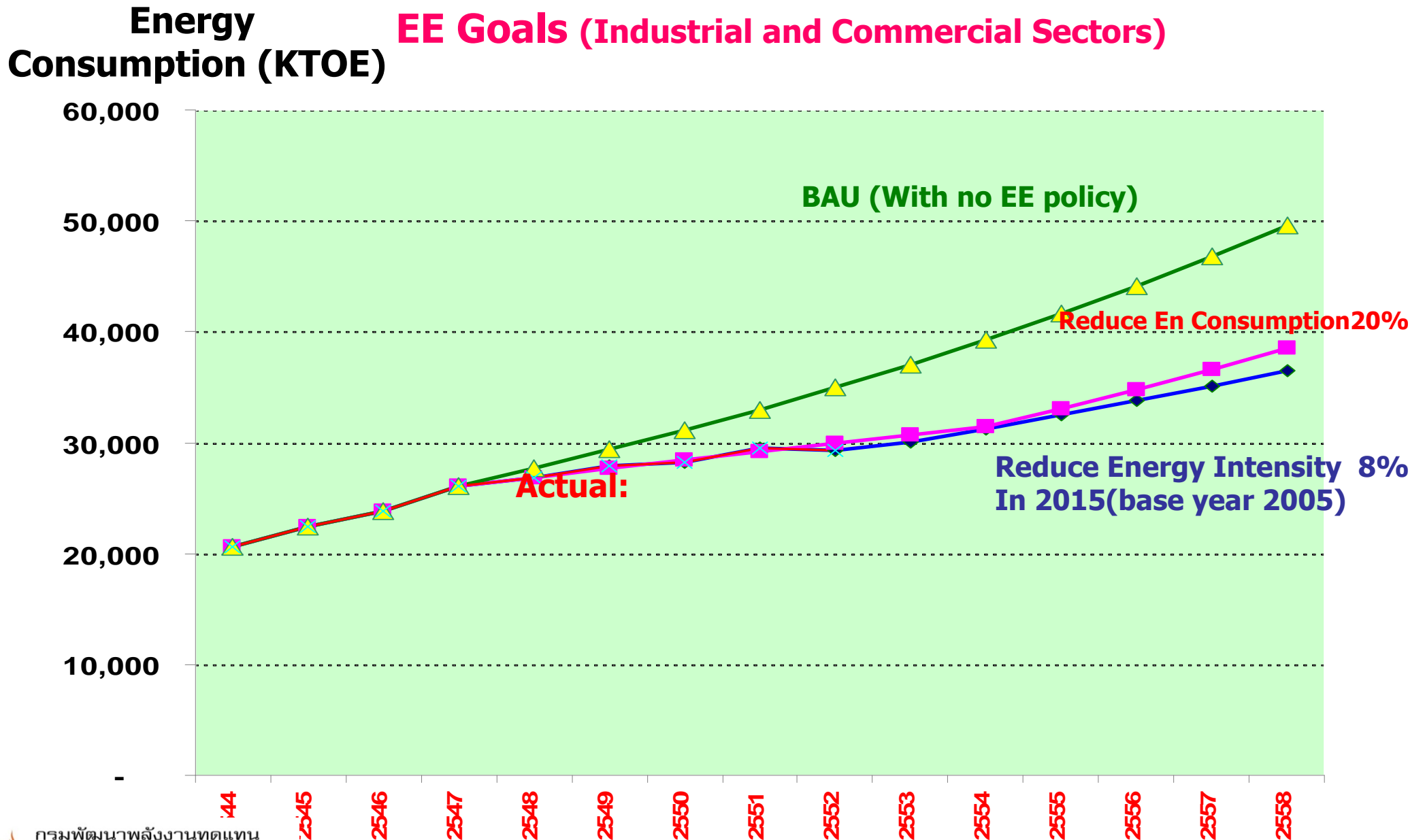
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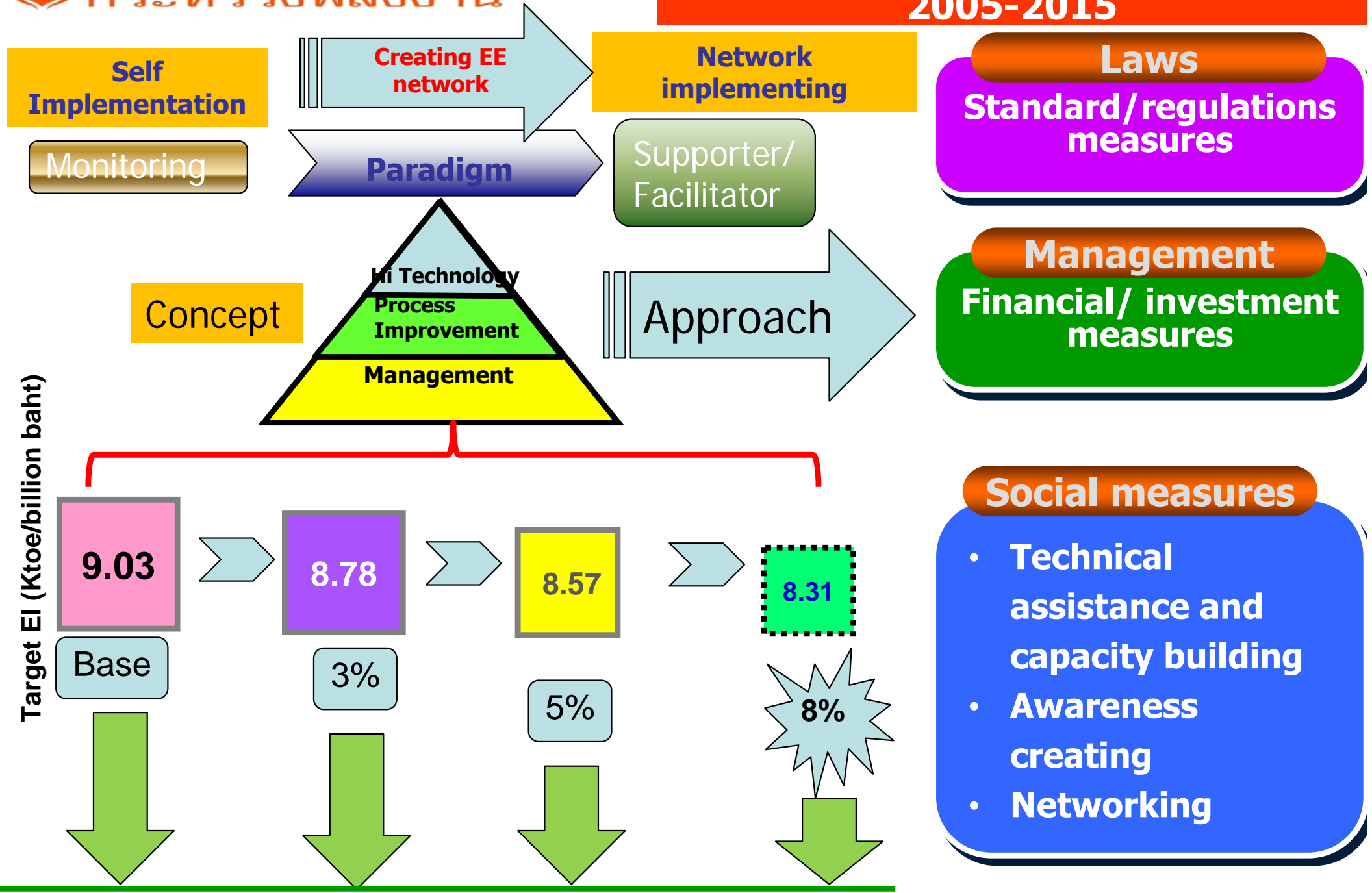
**The SETatWork Facilitation Workshop “Matchmaking between CDM  
project owners & EU stakeholders”  
BITEC, 18 Feb. 2010**

# Energy Efficiency(EE)





# Energy Conservation Plan 2005-2015



## 1. Law Enforcement Measures

### 1.1 Designated Buildings and Factories

- EE Management Standard
- Cooperative efforts on energy conservation project

### 1.2 EE Standards and Labeling

### 1.3 Building Energy Code

## Facilitation of designated factories and building under the Energy Conservation Promotion Act (Energy Management Standard)

### Description

- Regulate and facilitate building and factories with more than 1000 kW of energy consumption or more than 20 million MJ/yr.
- Regulate under energy management system under Article 9 and 21 of the Act.
- Designated factories/buildings must
  - Provide ordinary and senior PRE
  - Implement energy management
  - Annually report the energy management
  - Take the energy audit annually

### Results (2007-2009)

#### Before modifying the Act

##### • **1,966 of Designated Buildings**

- PRE appointed 92%
- Energy consumption report 92%
- Energy target and plan report 81%

##### • **3,512 Designated Factories**

- PRE appointed 85%
- Energy consumption report 83%
- Energy target and plan report 68%

##### • **Energy saving at 261 ktoe/yr**

##### • **Accounted for 6,525 m. Baht/yr**

#### After modifying the Act

- New PRE Ministerial Order (July 2009)
- Energy Management Ministerial Order (Nov. 2009)
- Energy Audit Ministerial Order

### Future plan

#### • **Short Term**

- More announcement of ministerial orders
- Regulate and follow up the implementation according to the laws not less than 90%

#### • **Long Term**

- Strengthening energy management standard to SMEs
- ISO Standard Development



# Cooperative efforts for Energy Conservation Project

## Description

- On site technical assistance to embed the project and create energy conservation awareness at all levels
- Establish EC Team set the energy management system for sustainable energy conservation

## Results

- Implemented 3,770 sites
  - 2,034 Factories/designated bldg.
  - 1,736 SMEs
- Energy saving 3,044 m. baht/yr.
- More than 5,000 trained personnel

## Future Plan

- 678 were implemented in 2009
- To be strengthened in 650 SMEs in 2010-2011
- Establish the energy conservation promotion center for SMEs





# Energy efficiency Standard and Labeling

## Description

### **MEPS** standard issuance

- Send to TISI to be made mandatory with terms of punishment

## Results

### MEPS

- 11 were sent to TISI for implementation which is in the process of being enforced.
- 6 are under the drafting process for the Energy Efficiency Standard Sub Committee's consideration.
- 14 are in the process of standard setting.

## Future Plan

### MEPS

- Monitoring the MEPS covering all products produced and distributed in the country



## Energy efficiency Standard and Labeling (cont.)

### Description

#### HEPS

Efficient Standard Issuance

- Promote Production and distribution i.e. labeling, public relations campaign

### Results

#### HEPS

- 8 were published in the Government Gazette
- 12 Ministerial Orders were drafted for energy efficiency standard committee's approval
- 18 drafted Ministerial Orders were completed in Nov. 2009
- 1 labeling was made as the pilot project (Gas stove)
- 4 pilot projects for labeling were made (gas stove/insulator/Mirror/motor speed control equipment)

### Future Plan

#### HEPS

- 4 HEPS labels will be made for 200,000 pieces (gas stove/insulator/Mirror/motor speed control equipment)
- Promote HEPS covering all equipments and machineries produced and distributed in the country through compulsory standard, incentives, labeling



## Building energy code

Description	Results in 2009	Future Plan
<ul style="list-style-type: none"><li>• Set energy Building Code standard</li><li>• Apply to 9 types of building from 2,000 square meters</li><li>• 6 standard systems<ul style="list-style-type: none"><li>- OTTV/RTTV</li><li>- lighting system</li><li>- air conditioning system</li><li>- heat water system</li><li>- RE consumption system</li><li>- Total energy consumption in building</li></ul></li><li>• 2000 newly designed buildings</li></ul>	<ul style="list-style-type: none"><li>• Ministerial Order on Building Code (June 2009)</li><li>• 2 Additional Ministerial Orders (August 2009)</li><li>• 7 Seminars (900 participants)</li><li>• Preparedness<ul style="list-style-type: none"><li>- Designer</li><li>- Auditor</li><li>- PRE</li></ul></li><li>• Coordination with agencies i.e. BMA, local authorities for standard enforcement</li></ul>	<ul style="list-style-type: none"><li>• <b>Short term 2010</b><ul style="list-style-type: none"><li>- Pilot projects in 5 provinces Bangkok, Nakhorn-Ratchasima, Phuket, Chol-buri</li><li>- Pilot project in government buildings</li></ul></li><li>• <b>Long term 2010</b><ul style="list-style-type: none"><li>- To be put in the curriculum</li></ul></li></ul>

Energy saving 10% of new building or 14 ktoe/yr. (year 2011)

## 2. Promotion/management measures

### 2.1 Revolving Fund

### 2.2 Cooperative Loan Program (Energy Credit)

### 2.3 Tax incentives (Cost + Performance Base)

### 2.4 ESCO + ESCO Fund



# Revolving Fund

## Description

- Low interest loan for RE and EE Projects via financial institutions
- Less than 4% interest
- Loan period of 7 years with one year grace period
- Minimum loan size was 50 million baht
- Technical assistance and disseminations by DEDE

## Results

### Revolving Fund

- 3 phases implemented (2003-2009)
- 273 EE/RE projects
- Total investment 1,785 m. baht
- Revolving fund at 6,790 m. baht
- Energy saving 4,689 m. baht/yr
- 11 banks participated in the projects

## Future Plan

- Fund provision of 500 m. baht for 2010
- Preparing for MOU signing with financial institutions
- Mechanism to be given to financial institutions with the technical support from DEDE

## Participating Banks



# Cooperative Loan Program

## Description

- Energy loan program by financial institutions
- Loan conditions by banks
- Technical support and dissemination by DEDE
- Implementing under MOU

## Results

- Agreement with 13 financial institutions (April 2008)
- 1,200 Loan approved projects
- Credit loan 102,968 million baht
- Energy saving over 30,000 million baht/yr.

## Future plan

- Strengthening loan program
- Capacity building to be given to bank staff
- Follow up and evaluation

## Participating banks





## Tax incentives

### Description

#### Cost-base (in cooperation with the Revenue Department)

##### **Phase I (2005 - 2006)**

1. 1.25 times of actual investment capital for tax calculation at the first 50 million baht of investment cost by phasing tax deduction for a period of 5 years
2. Equipment be replaced with ones that are energy efficient
3. Pay back period of not more than 7 years

##### **Phase II (2009 - 2010) Just started**

1. 1.25 times of actual investment capital for tax calculation in the first year with unlimited investment capital
2. Rights to change equipment or additional installation
3. Pay back period of not more than 7 years

#### Performance-base (Revolving Fund)

- Return 30% of saving value to the energy conservation project owners
- But not exceeding 2 million baht/facility
- Report of Pre และ Post Audit for energy saving

#### **BOI** : Tax exemption for 8 yrs. + import tax waiving for 3 businesses

1. EE machineries, equipment and Solar PV
2. ESCO business
3. RE production business



## Tax Incentives

### Results

#### Cost-base (1<sup>st</sup> phase)

- 94 facilities received the privileges
- Tax refunded by the government for 140 million baht
- En. Saving 375 million baht/yr.
- Investment 557 million baht/yr.

#### Performance-base

- 94 facilities received the privileges
- Tax refunded by the government for 76 million baht
- En. Saving 856 million baht/yr.
- Investment 1,322 million baht/yr.

#### BOI

- 37 approved projects
- En. Saving 2,459 million baht/yr.
- Investment 8,006 million baht/yr.

### Future Plans

- Cost-based tax incentives to be stimulated for Phase II
- Negotiate with the revenue department to strengthen projects and give more incentives
- Consideration for new forms of tax incentives
- Follow up and evaluation



## ESCO Fund

### Description

- Establish a venture capital for energy investment in
  - Equity Investment
  - Join investment with ESCOs (ESCO Venture Capital)
  - Equipment Leasing for operators
  - Carbon Credit
  - Credit Guarantee Facility
- Initial capital 500 m. Baht

### Investment conditions

- 10-50% of total equity
- Rate of return and risk are under the conditions
- For SMEs, and small developers who lack of equity capital

### Management Mechanism

- Committee: policy and monitoring issues
- Fund manager: managing the fund

### Results

- 17 approved projects
- 290 m. Baht of fund invested
- Investment initiatives 4,230 m. Baht
- Energy saving 466 m. Baht/yr.

### Future plan

- Strengthening scope of investment
- CDM standard
- Investment, Loan Guarantee
- Privatized

## 3. Campaign/social measures

3.1 Capacity Building

3.2 EE technology transfer

3.3 Thailand Energy Awards

3.4 Energy conservation network

# Thailand Energy Awards

## Description

- EE and RE awards
- Disseminate the results of Awards Winners to be the leading model to others
- Select the winners to be the country's representative in the ASEAN level

## Results

- Started in 2000 until now
- Two types of awards:
  - Energy Conservation:
- Factories, Buildings, Personnel, supporters
- RE:
- On-grid, Off-grid, Biomass Cogeneration
- More than 350 projects applied for the awards
- 150 Awards Winners (of Thailand)
- 45 are awarded at the ASEAN level

## Future plans

- Continuously implementing EE and RE Awards
- Additional Awards Competition i.e. Green Awards, new innovation
- Disseminate awards results
- Establish network of the participants of Thailand Energy Awards for knowledge exchange and project extension



# Energy conservation network

## Description

- Create network to accelerate energy conservation Implementation
- Technical and financial support by DEDE
- Cooperate with private sector, organization, association

## Results

- [Board of Trade of Thailand](#)
- Energy saving call center
- Regional network expansion through Regional Board of Trade
- Knowledge dissemination
- [FTI](#)
- ESCO Business Promotion
- Other activities i.e. ESCO Fair, ESCO Center, training, seminar, study visit
- [IEAT](#)
- Energy saving call center
- Regional network expansion through IEAT

## Future plans

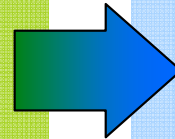
- More network expansion
- Strengthening existing networks
- Joint Committee between private and government sectors



# Energy Conservation

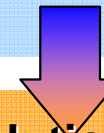
## Key success factors

- Cooperation on law enforcement among related agencies
- Clear and continuous support on financial policies
- Numerous responsibilities



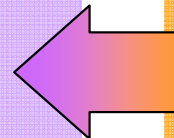
## Main barriers

- Building Codes are not approved by public works Department as expected
- MEP standard issuances by TIST are less in progress
- Various types of grants i.e. Performance Base Grant, DSM Bidding
- Work overwrapping and gaps between DEDE and EPPO,



## Policy issues for decision making

- Energy Ministers in consultation with Interior Minister as well as Minister of Industry



## Solutions

- Implement in compliance with the regulation in a voluntary basis in 5 provinces
- Establish the working group on cooperation follow up with related agencies.
- Establish joint working group between DEDE and EPPO chaired by Deputy Permanent Secretary to clarify the best approaches and responsibilities of each of them.

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Thank You for Your Attention