



# Leveraging Financial Incentives to support the implementation of the ASEAN regional roadmap MEPS for RACs in Thailand

## (Financial Incentive for Energy Efficiency in Thailand)

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**Department of Alternative Energy Development and Efficiency (DEDE),  
Ministry of Energy**

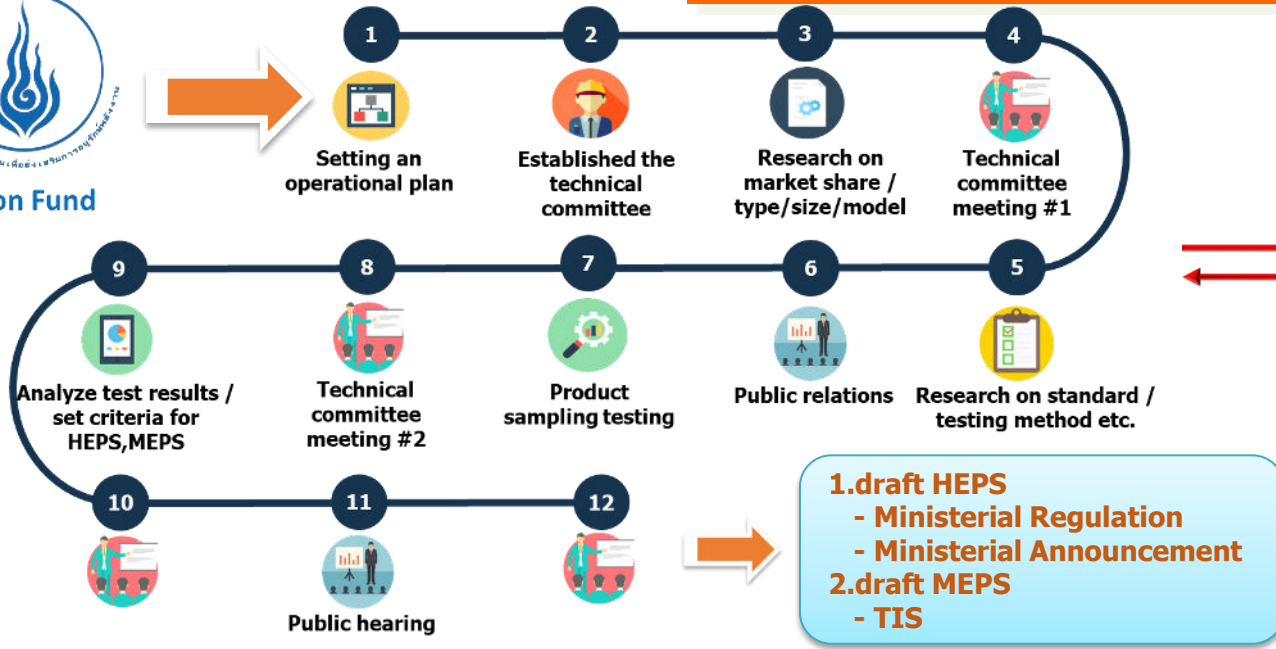


- Mandatory MEPS

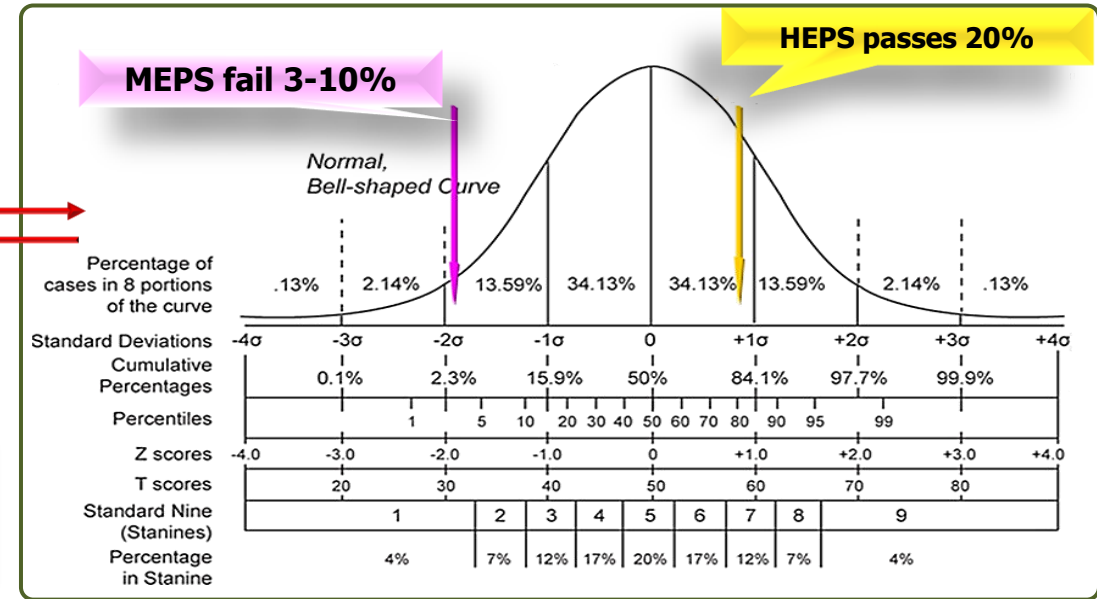


- Voluntary Labeling Program



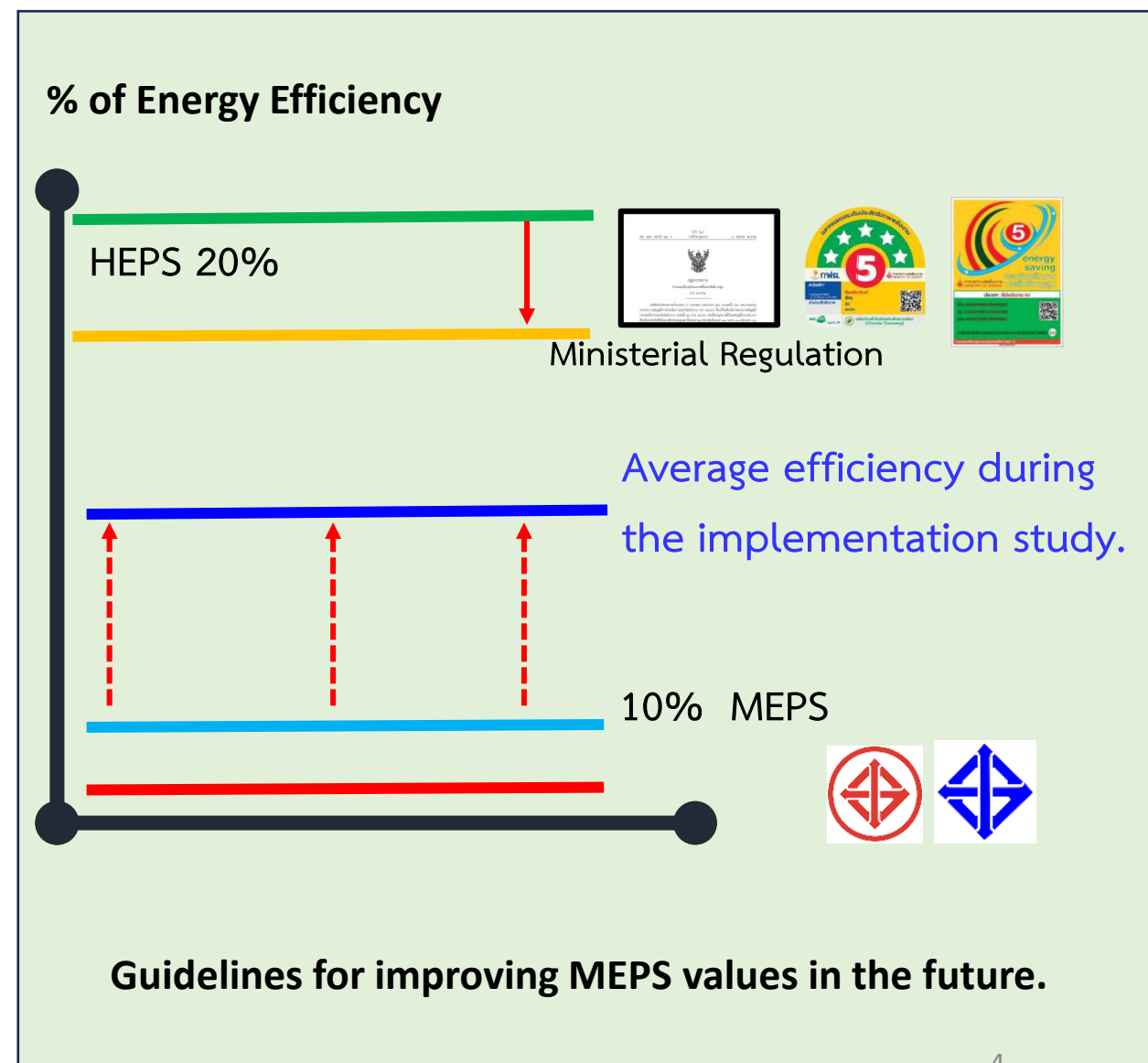
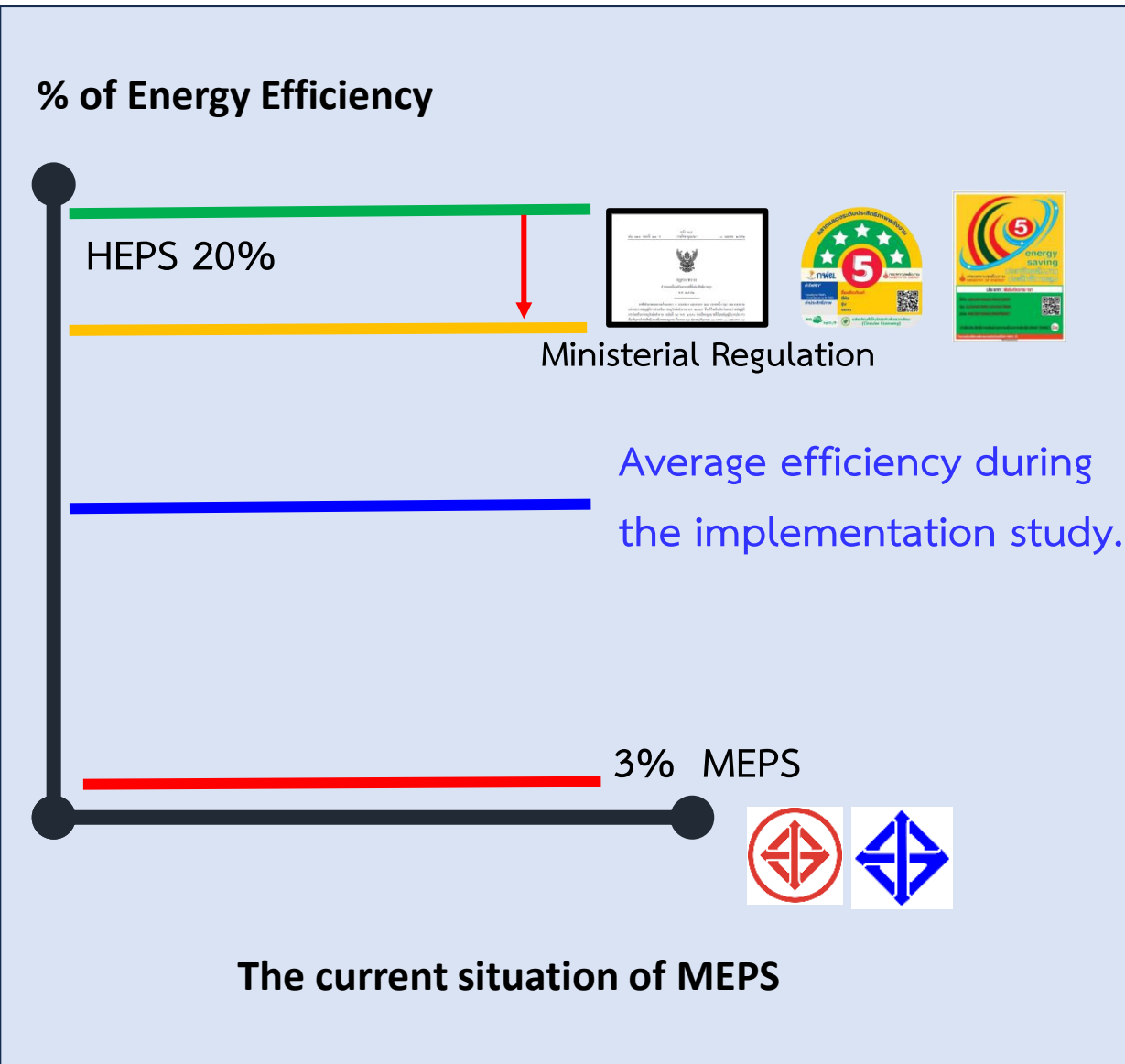


## The Criteria of MEPS and HEPS



## Legal Process



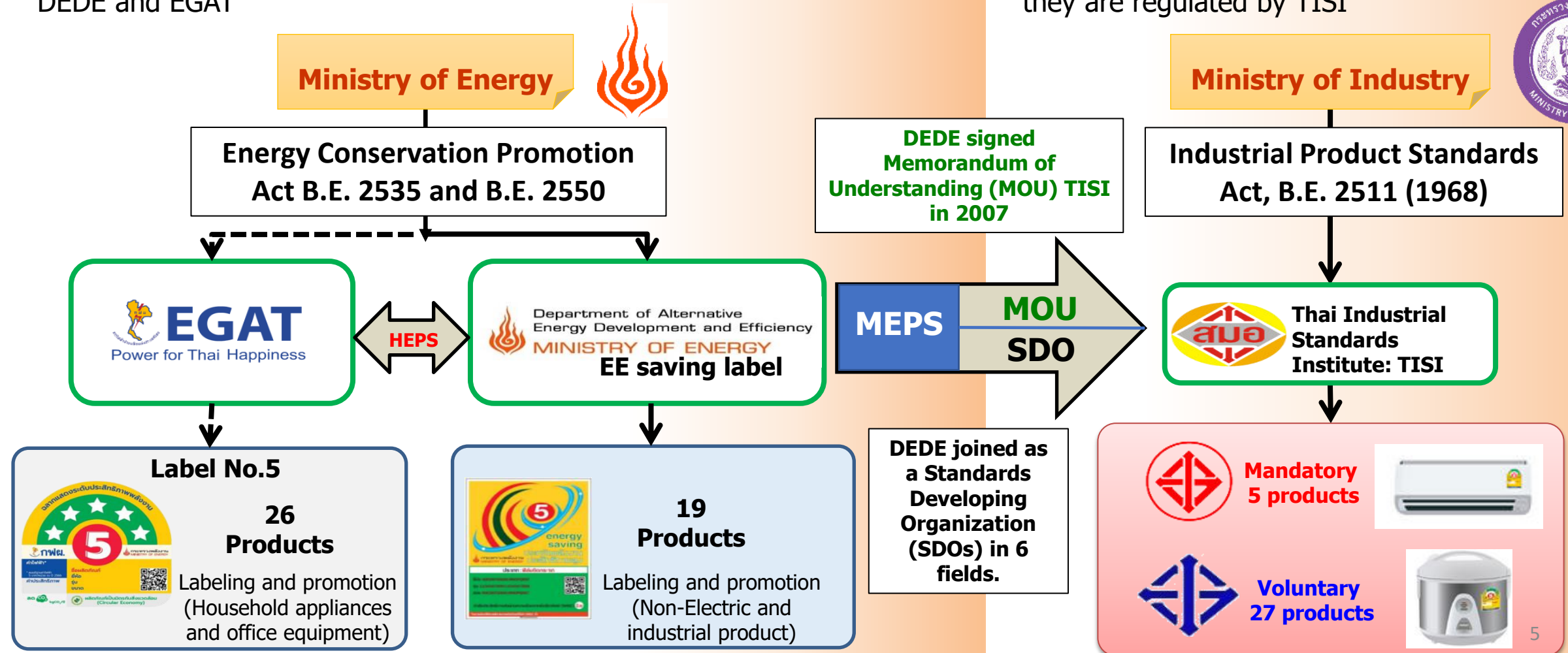


## HEPS : High Energy Performance Standards

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

## MEPS : Minimum Energy Performance Standards

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



## 5 MANDATORY STANDARDS

## 27 VOLUNTARY STANDARDS



○ **TIS 2134-2565 (2022) :**  
**Room air conditioners** : energy efficiency

- **TIS 1462-2562 (2019) :**  
**Clothes washing machines** for household use-  
 Energy efficiency requirements
- **TIS 2186-2561 (2018) :**  
 Household **refrigerators** and **refrigerator-freezer**:  
 environmental requirements : energy efficiency
- **TIS 2337-2557 (2014) :**  
**Ballasts for tubular fluorescent lamps**: energy  
 efficiency requirements
- **TIS 787-2551 (2008) :**  
**Small size water cooled diesel engines**

- TIS 3674-2567** : Sausage Warmer
- TIS 3746-2566** : Screw Air Compressors
- TIS 3625-2566** : Arc Welding
- TIS 3624-2566** : Ethylene-Propylene Diene rubber  
and Nitrile Rubber Insulator
- TIS 3647-2566** : Led Lamp and Led Luminaire
- TIS 3623-2566** : Air to water Heat Pump
- TIS 3409-2565** : Small-size reciprocating air compressors
- TIS 3406-2565** : Canister-type dry vacuum cleaners
- TIS 3315-2565** : Hair dryers
- TIS 3432-2565** : Range hoods
- TIS 2918-2562** : Adhesive films for glasses
- TIS 2674-2559** : Electric ovens
- TIS 2746-2559** : Hot and Cool water dispenser  
and Cool water dispenser
- TIS 2673-2559** : Electric fryers
- TIS 2700-2558** : Commercial refrigerator
- TIS 2590-2557** : Electric irons
- TIS 2618-2557** : Single suction  
centrifugal electric pumps
- TIS 2605-2556** : Motorcycles
- TIS 2589-2556** : Electric hobs
- TIS 2588-2556** : Electric kettles
- TIS 2310-2556** : Self-ballasted lamps
- TIS 2309-2556** : Double-capped fluorescent lamps
- TIS 2334-2556** : Single-capped fluorescent lamps
- TIS 2545-2555** : Electric rice cookers
- TIS 2578-2555** : Microwave ovens
- TIS 867-2550** : Three-Phase inductions motors
- TIS 2312-2549** : Domestic gas stoves for use  
with liquefied petroleum gas

## Primarily focus on non-electrical appliances and industrial equipment

- |  |                          |                                  |                              |
|--|--------------------------|----------------------------------|------------------------------|
| 1. Household LPG Gas Stoves            | 6. Fiberglass Insulators | 11. Building Paint               | 16. Ceramic Roof             |
| 2. High Pressure Gas Stoves            | 7. Flat Plate Glasses    | 12. Adhesive Film for Glasses    | 17. Electric Welding Machine |
| 3. Small Gasoline Engines (Air Cooled) | 8. Variable Speed Drives | 13. Lightweight Concrete         | 18. Deep Fat fryer           |
| 4. Small Diesel Engines (Water Cooled) | 9. Heat Pump             | 14. Single-Phase Induction Motor | 19. Cooker Hood              |
| 5. Three-Phase Induction Motors        | 10. Air Compressor       | 15. Infrared Gas Stoves          |                              |



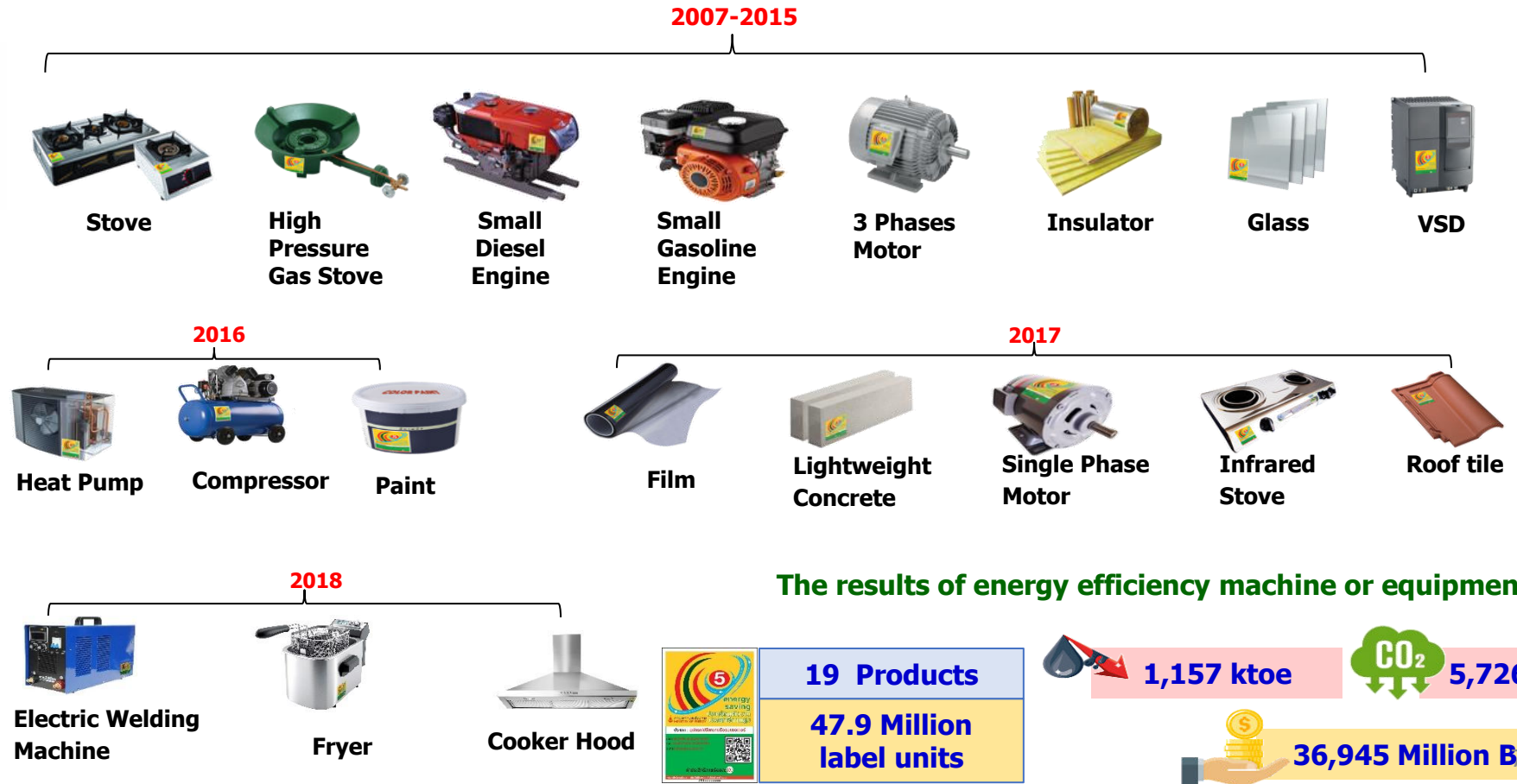
กระทรวงพลังงาน  
 DEPARTMENT OF ALTERNATIVE ENERGY DEVELOPMENT AND EFFICIENCY  
 MINISTRY OF ENERGY

ประเภท : อุปกรณ์ปรับความเร็วรอบมอเตอร์

ชื่อ : 00000000000000000000  
 รุ่น : 12345678901234567890  
 ขนาด : (กำลังสูง) 00.00 kW

ค่าประสิทธิภาพร้อยละ 00.0

\*ค่าประสิทธิภาพร้อยละ = (กำลังไฟขาออก/กำลังไฟเข้า) x 100  
 A61xxxxxxxxxx



### The results of energy efficiency machine or equipment

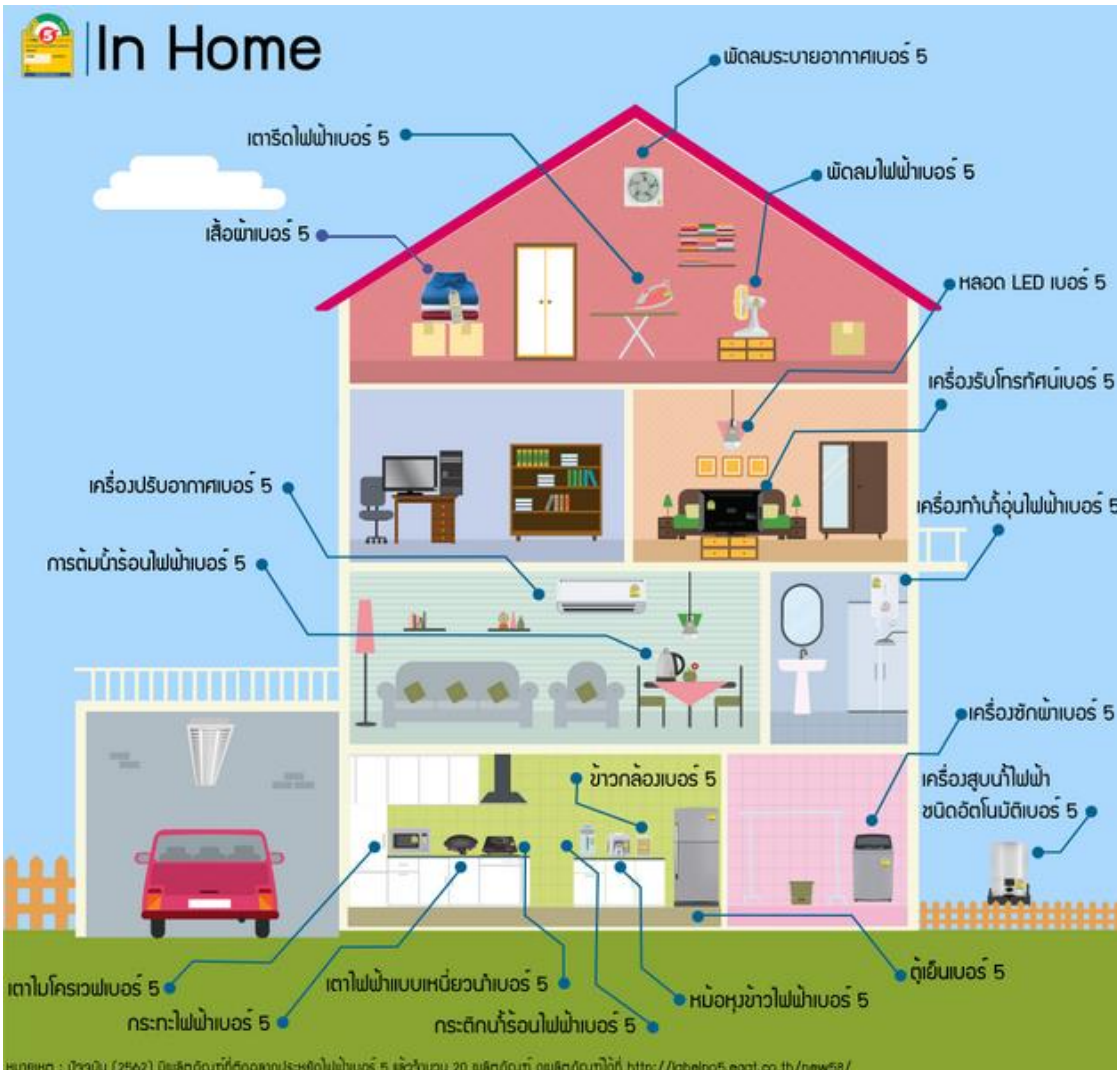
**19 Products**  
**47.9 Million label units**

1,157 ktoe

CO<sub>2</sub> 5,726,087 tCO<sub>2</sub>

36,945 Million Baht

- Responsible by Electricity Generating Authority of Thailand (EGAT)
- Primarily focus on household electrical appliances/consumables



- 1.Refrigerator
- 2.Air conditioner
- 3.Electric fan
- 4.Compact fluorescent lamp
- 5.Electric rice cooker
- 6.Electric water boiler
- 7.Electric shower water heater
- 8.Electric clothes iron
- 9.Washing machine
- 10.LED bulb
- 11.Microwave
- 12.Induction stove
- 13.Electric water kettle
- 14.Television
- 15.Commercial glass-door refrigerator

- 16.Electric skillet
- 17.Automatic water pump
- 18.Water cooler
19. Electric motorcycle
20. Air purifier



**The results of energy efficiency appliances**



**20 Products**  
**482.8 Million label units**



**34,458 GWh**



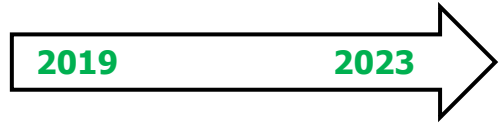
**18,598,228 tCO2**



**172,290 Million Baht**



# High Energy Efficiency Standard: HEPS by EGAT



## Former labeling



## Current labeling

**EGAT : Electricity Generating Authority of Thailand**

**Energy Consumption (Baht/year)**

**Efficiency (SEER) (BTU/hr/Watt)**

**CO2 emissions (kgCO<sub>2</sub> /year)**

**Number 5 5 stars shown the highest efficiency mark**

**Ministry of Energy**

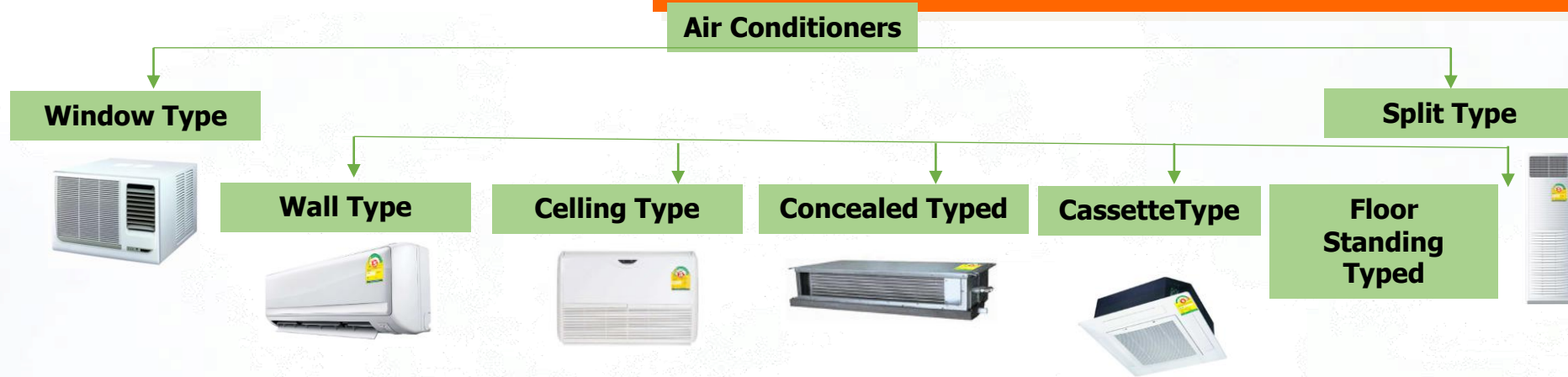
**-brand -model -capacity -QR Code**

ฉลากแสดงระดับประสิทธิภาพพลังงาน  
 ผลิตร่วมกับ  
 ค่าไฟฟ้า ค่าประสิทธิภาพ  
 ยี่ห้อ รุ่น ขนาด  
 เครื่องปรับอากาศ INVERTER  
 ยี่ห้อ รุ่น ขนาด  
 ลด CO<sub>2</sub> kgCO<sub>2</sub>/ปี  
 ผลิตกันที่เป็นมิตรกับสิ่งแวดล้อม (Circular Economy)

- EGAT launched a new Energy-saving Label No.5 with Stars raising the standard of energy efficiency coupled with taking care of the environment.
- The official usage of the new label will start on January 1, 2024
- Emission Factor according to the NDC 2015 (Nationally Determined Contributions)



# MEPS & HEPS for Room Air Conditioners (RACs)



- CSPF Testing Standard**
- TIS 2710-2015 (ISO 5151 : 2010),
  - TIS 2714 part 1-2015 (ISO 16358-1 : 2013)

AIR CONDITIONER		Capacity (W)	CSPF (Wh/Wh)		SEER (BTU/hr/W)	
			MEPS	Draft HEPS	MEPS	Draft HEPS
Type	system		TIS 2134-2565 ISO 5151	Ministerial Regulation 20XX	TIS 2134 ISO 5151	Ministerial Regulation 20XX
Split type	Fixed Speed	≤ 8,000	3.19	3.86	10.88	13.17
		>8,000 – 12,000	3.15	3.68	10.75	12.55
		>12,000 – 18,000	2.68	3.15	9.14	10.75
	Inverter	≤ 8,000	3.90	5.00	13.31	17.06
		>8,000 – 12,000	3.46	4.70	11.81	16.03
		>12,000 – 18,000	3.46	4.69	11.81	16.00

$$CSPF = \frac{(\text{Cooling Seasonal Total Load : CSTL})(\text{kWh})}{(\text{Cooling Seasonal Energy Consumption : CSEC})(\text{kWh})}$$

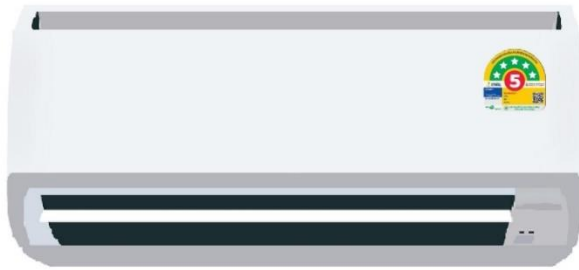
(Seasonal Energy Efficiency Ratio; SEER) = CSPF x 3.412 BTU/hr./W)

# Labeling for Room Air Conditioners (RACs)



Electricity Generating Authority of Thailand : EGAT

## Room Air Conditioners (RACs) No.5



Ref. : [labelno5.egat.co.th](http://labelno5.egat.co.th)

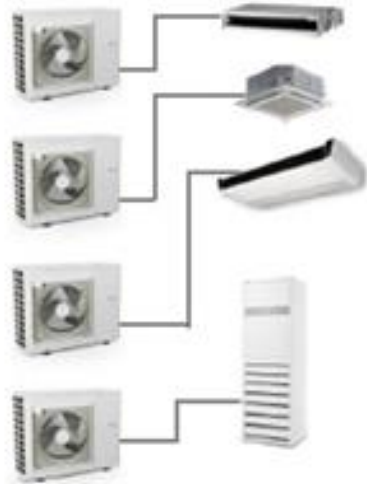
AIR CONDITION	Capacity (W)	SEER (BTU/hr/W)					
		No.5	No.5 ★	No.5 ★★	No.5 ★★★	No.5 ★★★★	No.5 ★★★★★
Fixed Speed	≤ 8,000	13.17 - 13.70	13.71 - 14.23	14.24 - 14.77	14.78 - 15.30	15.31 - 15.84	≥ 15.85
	> 8,000 - 12,000	12.56 - 13.12	13.13 - 13.69	13.70 - 14.25	14.26 - 14.82	14.83 - 15.39	≥ 15.40
	> 12,000 - 18,000	10.00 - 10.59	10.60 - 11.19	11.20 - 11.79	11.80 - 12.39	12.40 - 12.99	≥ 13.00
Inverter	≤ 8,000	17.06 - 18.55	18.56 - 20.05	20.06 - 21.55	21.56 - 23.05	23.06 - 24.55	≥ 24.56
	> 8,000 - 12,000	16.04 - 17.15	17.16 - 18.27	18.28 - 19.38	19.39 - 20.50	20.51 - 21.62	≥ 21.63
	> 12,000 - 18,000	14.00 - 15.49	15.50 - 16.99	17.00 - 18.49	18.50 - 19.99	20.00 - 21.49	≥ 21.50

6.09 CSPF

(Seasonal Energy Efficiency Ratio; SEER) = CSPF x 3.412 BTU/hr./W)

# Future plan for setting energy efficiency standards for room air conditioners.

## Single Split type



**2024**



## Variable Refrigerant Volume (VRV) or Variable Refrigerant Flow (VRF)



**Planned 2025**

Scope:

1. Not exceeding 100,000 BTU
2. Inverter type
3. All types of fan coils

- Multi-split type air conditioners are mainly used for buildings and can be used for both business and residential purposes.
- One or more outdoor unit(s) and Two or more indoor units.
- Individual indoor unit operation.

- For single-split type room air conditioners, we have already covered cooling capacities of up to 18 kW.

# Financial Incentive for Energy Efficiency in Thailand by Department of Energy Development and Promotion (DEDE)



Department of Alternative  
Energy Development and Efficiency  
**MINISTRY OF ENERGY**

Thailand has implemented various measures to promote room air conditioners

## 1. Government Sector



ระบบการจัดซื้อจัดจ้างภาครัฐ  
Thai Government Procurement

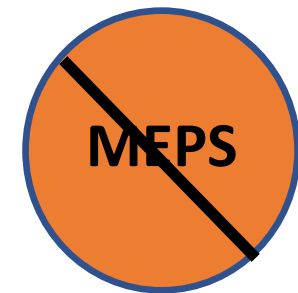
## 2. Private Sector



-Soft loan with 8 Commercial Banks

-ESCO Fund

For HEPs Only



# Project for Investment Support in Equipment Upgrades for Public Hospitals (Phases 1–3)



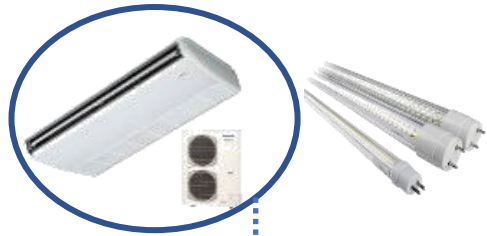
## Objectives:

**Public hospital buildings that implement energy-conserving equipment upgrades can reduce energy costs and serve as models to showcase successful outcomes to society and communities.**

## The Project for Investment Support in Equipment Upgrades for Public Hospitals. (Phase 1-3)

### Qualifications:

- Target Group : Public Hospitals nationwide
- Subsidize equipment and machinery replacement (with approved high-efficiency ones)
- Subsidize 70% for equipment and installation cost



**284 hospitals**



**87,766,169 kWh**



**370 Million Baht**



**The total investment is 998 Million baht, with a subsidy of 699 Million Baht.**



## Project to Promote Energy Management and Increase Efficiency in Government Hospitals Outside the control network



### Objectives:

To develop hospital personnel to sustainably conserve energy through a systematic, participatory energy management process. This project aims to improve energy efficiency and reduce costs for participating hospitals while promoting energy conservation campaigns to the public through **district community hospitals (with capacities of up to 120 beds)**.

## Project to Promote Energy Management and Increase Efficiency in Government Hospitals Outside the control network



### Qualifications:

1. Community hospital under the Ministry of Public Health with 30-120 beds.(150 Hospitals)
2. Building not subject to the Energy Conservation Promotion Act.
3. Investment funds for participating hospitals shall not exceed 1,200,000 baht each, with a total amount not exceeding 90,000,000 baht.



**3,162 units**



**15,268,329 kWh**



**53.4 Million Baht**



**152.37 Million Baht**

## The Subsidy Scheme for Replace or Improve Machine and Equipment for Energy Conservation

**โครงการสนับสนุนการลงทุน**  
 เพื่อปรับเปลี่ยน ปรับปรุง เครื่องจักร วัสดุอุปกรณ์  
 เพื่อการอนุรักษ์พลังงาน ปี 2564

**DEDE 80:20 70:30**

**Direct Subsidy**

**80 20 70 30**

**สนับสนุน 20%** ←

**สนับสนุน 30%** →

**โรงงานควบคุม**  
 อาคารควบคุมเอกชน  
 ตาม พ.ร.บ.การส่งเสริมการลงทุน พ.ศ.2535  
 (แก้ไขเพิ่มเติม พ.ศ.2550)

**โรงงานหรืออาคารนอกชายควบคุม**  
 วิทยาศาสตร์ ชุมชน ธุรกิจ Startup  
 ผู้ประกอบการเกษตรกรรม  
 เทคโนโลยีนวัตกรรมด้านพลังงาน

**ซื้อเครื่องจักร/อุปกรณ์ใหม่ทดแทนของเดิม\***  
**ซื้อวัสดุอุปกรณ์ เทคโนโลยี หรือ นวัตกรรมพลังงาน\***

\* ต้องเป็นมาตรการที่มีระยะเวลาคืนทุนไม่เกิน 7 ปี  
 \* ขอสงวนสิทธิ์ไม่สนับสนุนในมาตรการเปลี่ยนหลอด LED  
 \* และเครื่องปรับอากาศแบบแยกส่วน (Split type) และ Solar Cell

การพัฒนาพลังงานทดแทน และอนุรักษ์พลังงาน กระทรวงพลังงาน

### Objectives:

To promote and support investment in the modification and improvement of machinery, materials, and equipment to achieve energy savings in enterprises.

## The Subsidy Scheme for Replace or Improve Machine and Equipment for Energy Conservation

Before



After



### Measure Overview

- Subsidize equipment and machinery replacement (with approved high-efficiency ones) or innovative energy-efficient equipment
- Subsidize 20-30% for equipment and installation cost
- Supports up to 3 million baht per applicant
- Simple Payback period no longer than 7 years

Status: The project was completed in 2017, which was also the last year the subsidy for air conditioners was provided.

**No. 46 measures**

**5,634,676 kWh**

**21.7 Million Baht**

The total investment is 77 Million baht, with a subsidy of 19.5 Million Baht.

## Support project for laboratories to upgrade performance testing standards.



### Objectives:

1. To support the development and improvement of energy efficiency testing laboratories for existing machinery and equipment, enhancing their testing capabilities, or to promote the establishment of laboratories that can accommodate products planned for promotion as high-efficiency machinery, equipment, or materials for energy conservation.

2. To prepare testing laboratories to ensure they can meet international management standards in the future.  
(ISO 17025)

## Support project for laboratories to upgrade performance testing standards.



### Support Guidelines:

1. **Government** testing laboratories and state-controlled agencies will receive 100% support for operational expenses related to various activities, up to a maximum of **5,000,000 baht** per legal entity.
2. **Private company** testing laboratories will receive support of **no more than 50%** of operational expenses related to various activities, up to a **maximum of 3,000,000 baht** per legal entity.

## Promotion of High-Efficiency Machinery, Materials, and Equipment Production and Usage through Tax Incentives



### Objectives:

To study approaches for promoting high-efficiency machinery, materials, and equipment labeled with the Electricity Generating Authority of Thailand's (EGAT) **Label No. 5** (13 products **with 5 stars**) and the Department of Alternative Energy Development and Efficiency's (DEDE) high-efficiency **energy-saving label** (19 products). This is achieved by providing tax incentives to manufacturers, distributors, and users of high-efficiency machinery, materials, and equipment.

## Promotion of High-Efficiency Machinery, Materials, and Equipment Production and Usage through Tax Incentives

### The main activities

1. To study the model for providing tax incentives and establish collaboration with relevant agencies.
  2. To develop models, criteria, and guidelines for promoting the production, distribution, and use of high-efficiency machinery, materials, and equipment through tax incentives.
  3. To create a database of high-efficiency machinery, materials, and equipment eligible for tax incentives, along with a monitoring and evaluation system for promoting their production, distribution, and use through tax measures.
- Tax incentives were previously implemented from **2005 to 2012**.
  - Future plan from **2025 to 2029**: aimed at promoting high-efficiency machinery, materials, and equipment certified with Label No. 5 (EGAT; limited to **13 products with 5 stars**), the high-efficiency energy-saving label (DEDE; **19 products**), and Solar Rooftop projects.



# The promoting of HEPS by Electricity Generating Authority of Thailand (EGAT)



EGAT 5 โครงการรณรงค์ประหยัดไฟฟ้าเบอร์ 5 ข่าวประชาสัมพันธ์ เว็บไซต์ที่เกี่ยวข้อง แอปพลิเคชัน คัดต่อ C



## Public Relations for the Public

Label No. 5 aims to promote the value and efficient use of RACs. It seeks to motivate and enhance public attitudes towards energy saving by providing knowledge and fostering a correct understanding of effective and efficient electricity use. As a result, consumers will have alternative options in their decision-making when purchasing high-efficiency products, leading to the encouragement of manufacturers and importers to produce and import high-efficiency electrical appliances at reasonable prices.



# Thank you for your attention

