Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

Thailand's Energy Efficiency and Energy Management

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EGEEC 63

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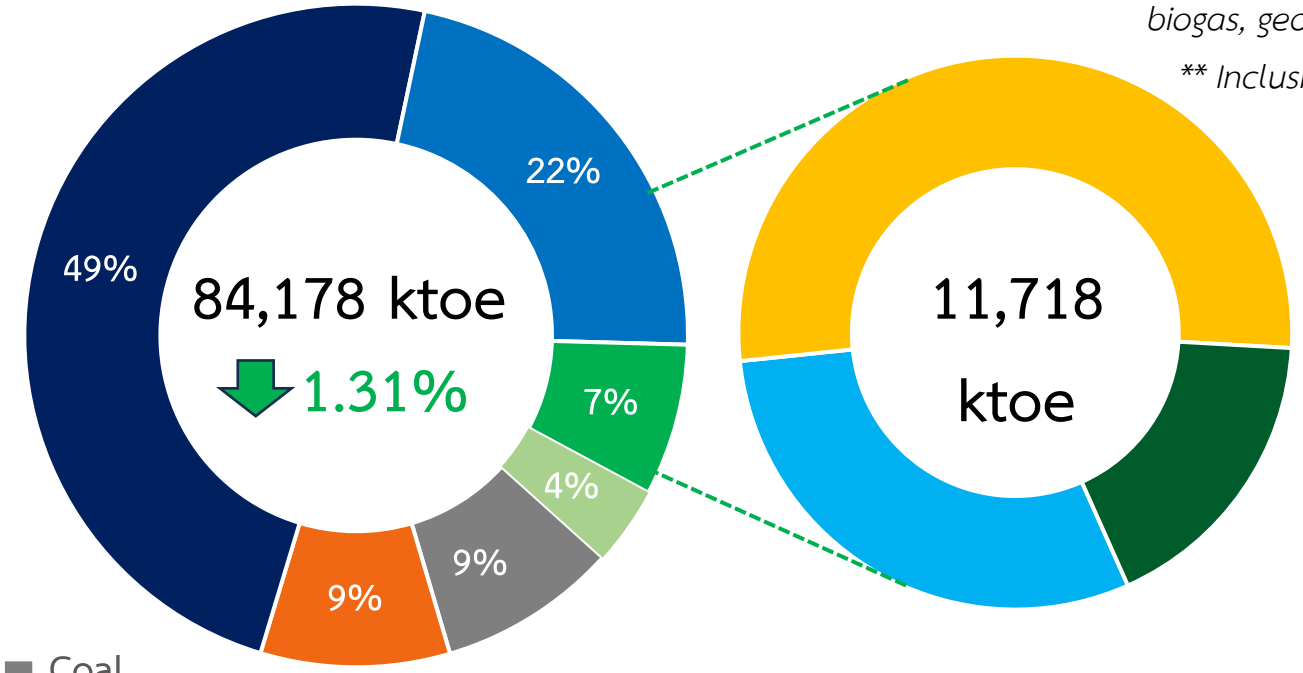
Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

Thailand's Energy Situation 2023

Final Energy Consumption 2023 by Fuel



** Inclusive of solar, wind, biomass, MSW, biogas, geothermal – with off-grid generation*

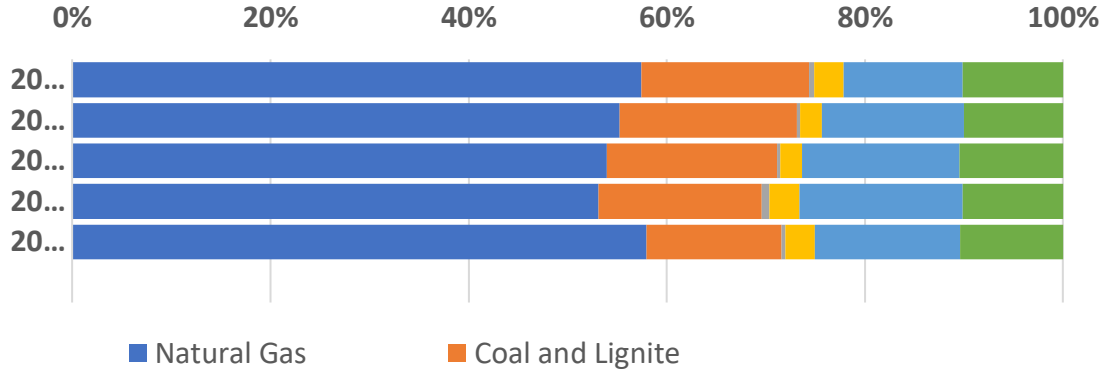
*** Inclusive of solar, biomass, biogas, MSW*

- Power Generation* 29.6%
- Heat** 63.5%
- Biofuels 16.9%

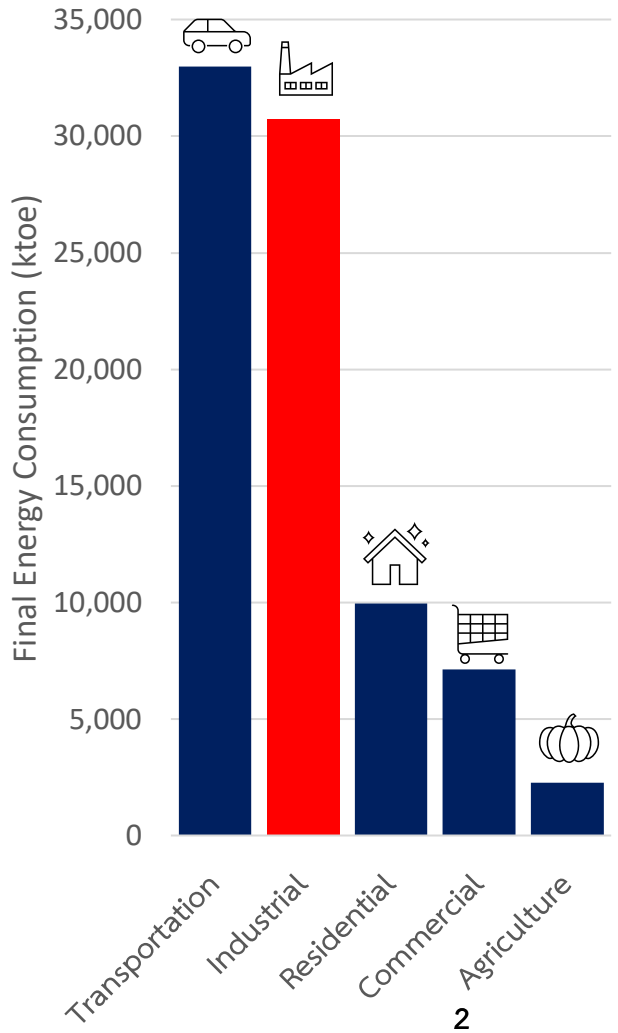
- Coal
- Natural Gas
- Petroleum Products
- Electricity (non-RE)
- Renewable Energy
- Traditional Renewable Energy

Source: Thailand's Energy Situation Report 2023, DEDE
Energy Statistics of Thailand 2024, EPPO

Electricity Energy Mix (GWh)



Final Energy Consumption 2023 by Sector



Energy Efficiency Plan 2018 (EEP 2018)

Long-term Energy Efficiency Implementation 2018 - 2037

Goal: Energy Intensity reduction by 30%

(approx. 49,064 ktoe) by 2037 – base year 2010

Compulsory

- Energy Management Standards
- Energy Codes (Industrial, Buildings, Residential)
- Energy Efficiency Resource Standard (EERS)
- Demand Response
- Excise Tax (Eco-Sticker)

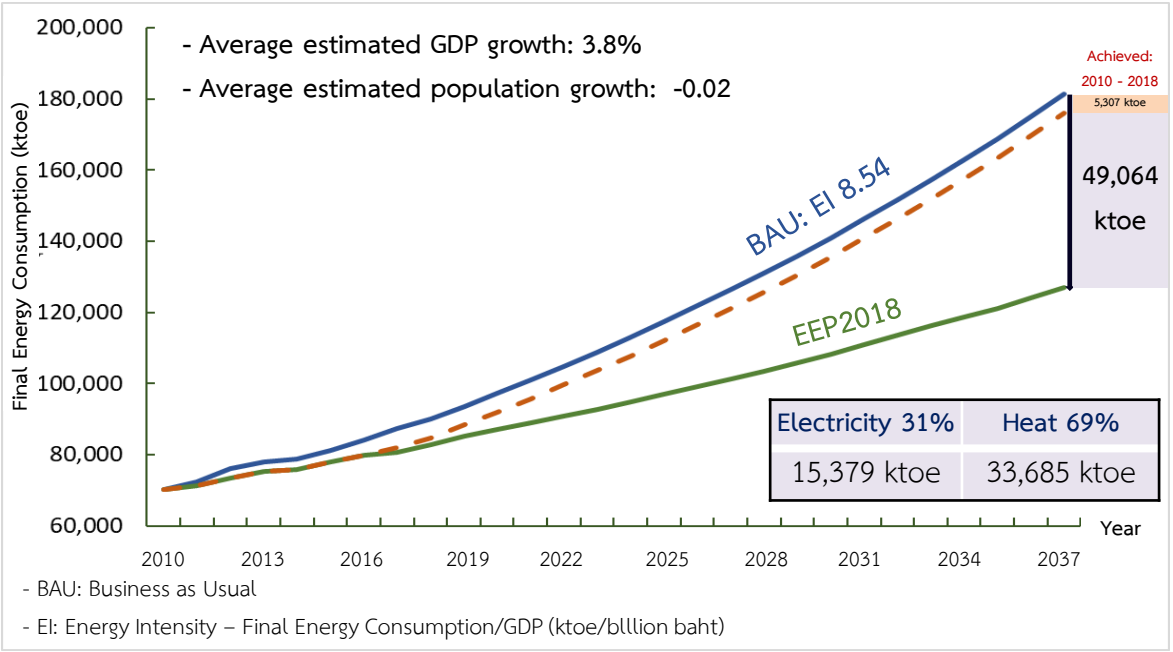
Voluntary

- Equipment Standards and Labeling
- Financial Supports
  - Grants and Subsidy
  - Soft loan
  - Tax incentive
  - Credit Guarantee
- Innovations (IOT, Smart Building, Big Data)

Complement

- Human Resources Development (HRD)
  - Energy Manager
  - Energy Auditor
  - Technologies
- Public Relation/Awareness
- Research and Development

Final Energy Consumption Projection



Energy Saving by Sector

Sector	Total	Percentage
1. Industrial	21,137	43
2. Commercial	6,418	13
3. Residential	3,300	7
4. Agricultural	527	1
5. Transportation	17,682	36
รวม	49,064	100

Source: DEDE

Regulation Framework

Act
Decree
Ministerial Regulation

https://128.pl/1Omvf

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

Ratified: 3 Apr 1992
Ratified: 1 Jun 2008 (revised)

Decree on Designated Buildings

Ratified: 12 Dec 1995
Current: 3,381 Buildings

Decree on Designated Factories

Ratified: 17 Jul 2005
Current: 6,616 Buildings

Energy Management in Designated Buildings and Factories

Ratified: 20 Nov 2005

Person Responsible for Energy (PRE)

Ratified: 31 Jul 2009

Energy Management Auditors

Ratified: 7 Nov 2012

Providing details on conducting compulsory energy management system in designated factories and buildings

Building Energy Code

Ratified: 12 Mar 2021
Enforced: 24 Jan 2023

High Energy Performance Standard for Equipment and Machinery*

Ratified: n/a
Current: 19 + 26

*Dedicated ministerial regulation for each equipment/machinery

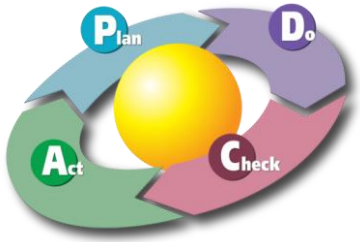
Energy Management System

Classification of designated factories/buildings

Criteria	Designated Factories/Buildings	
	Group 1	Group 2
Installed electric meter (total)	Between 1000 – 3000 kW	More than 3000 kW
Installed transformers (total)	Between 1,175 – 3,530 kVA	More than 3,530 kVA
Total annual energy consumption	Between 20 – 60 TJ/year	More than 60 TJ/year

Current status (as of October 17st 2024):

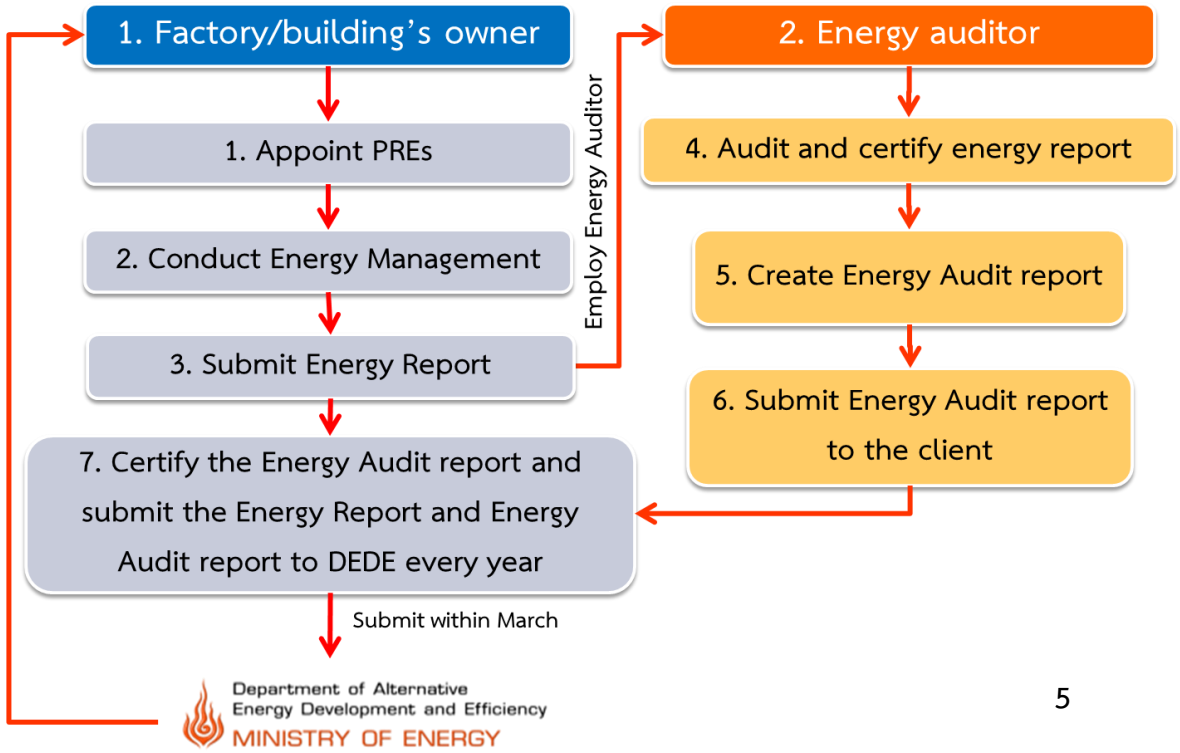
6,616 designated factories
3,381 designated buildings
9,997 in total



Legal responsibilities of designated factories/buildings

1. Appoint Person Responsible for Energy (PRE)
   - Similar to energy manager
     - At least 1 PRE for Group 1 – (C-PRE/S-PRE)
     - At least 2 PREs for group 2, in which one must be senior PREs (S-PRE).

2. Conduct energy management system as described in regulation and submit an annual report to DEDE every March.



C-PRE: Convention PRE, S-PRE: Senior PRE

Person Responsible for Energy (PRE)

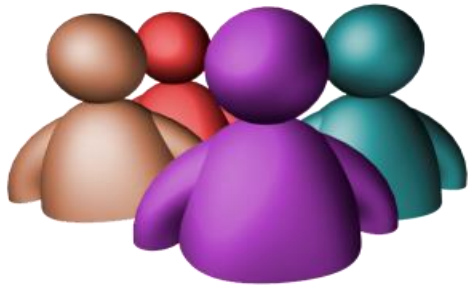
Equivalent to energy managers

Duties of Person Responsible for Energy (PRE)

1. Maintain and monitor efficiency of machines and equipment periodically
2. Improve energy use following energy conservation measures
3. Help owner to conduct energy management system
4. Help owner to follow the order of Director General of Department of Alternative Energy Development and Efficiency (DEDE)

2 Types of PRE

1. Conventional PREs (C-PRE)
2. Senior PREs (S-PRE)



5 way to Registered PREs

- Vocational Education in Diploma + 3 years work experience in factory or building + works on energy conservation measures which are certified by owner
- Bachelor Degree in Engineering/Science (Electrical, Mechanical, Industrial or Energy) + works on energy conservation measures which are certified by owner
- Pass C-PREs training
- Pass S-PREs training
- Pass Examination

Types of PREs	Factories	Buildings
C-PREs	9,066	6,271
S-PREs	4,107	1,208

PRE Certification

PRE

Qualification

C-Pre

Options	Qualification	Description
Experience	Vocational Education in Diploma Level with 3 years working experience in building or factory Or Bachelor Degree in Engineering / Science (Electrical, Mechanical and Industrial) or Energy	Work in Energy Conservation measures which are certified by owner
Training	Vocational Education with 3 years working experience Or	Building and Factory (5 Day + 1 Day Exam)
Examination	Bachelor Degree in Engineering / Science (Electrical, Mechanical and Industrial) or Energy with work related to building and factory	(120 Questions in 3 hours) 2 times/year

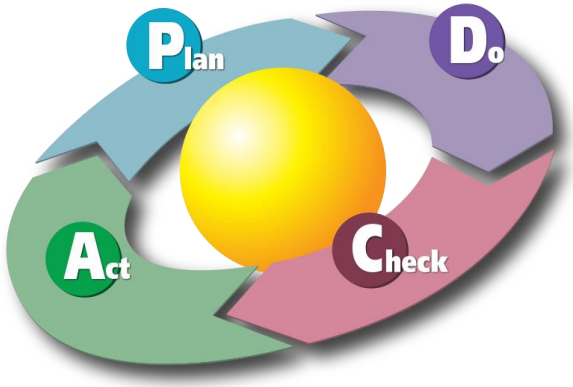
S-Pre

Options	Qualification	Theory	Practical
Electrical	Vocational education in diploma level and registered C-PRE Or Bachelor Degree in Engineer / Science (in Electrical, Mechanical, Industrial) or Energy with work related to building and Factory	Electrical (5 Days + 1 Day Exam)	Electrical Building (5 Days + 1 Day Exam)
			Electrical Factory (5 Days + 1 Day Exam)
Heat		Heat (5 Days + 1 Day Exam)	Heat (5 Days + 1 Day Exam)
Examination		Exam (120 Questions in 3 Hours)	Must take one Practical Courses

Now outsourced the training to third party certified bodies – exam still overseen by DEDE

Energy Management System

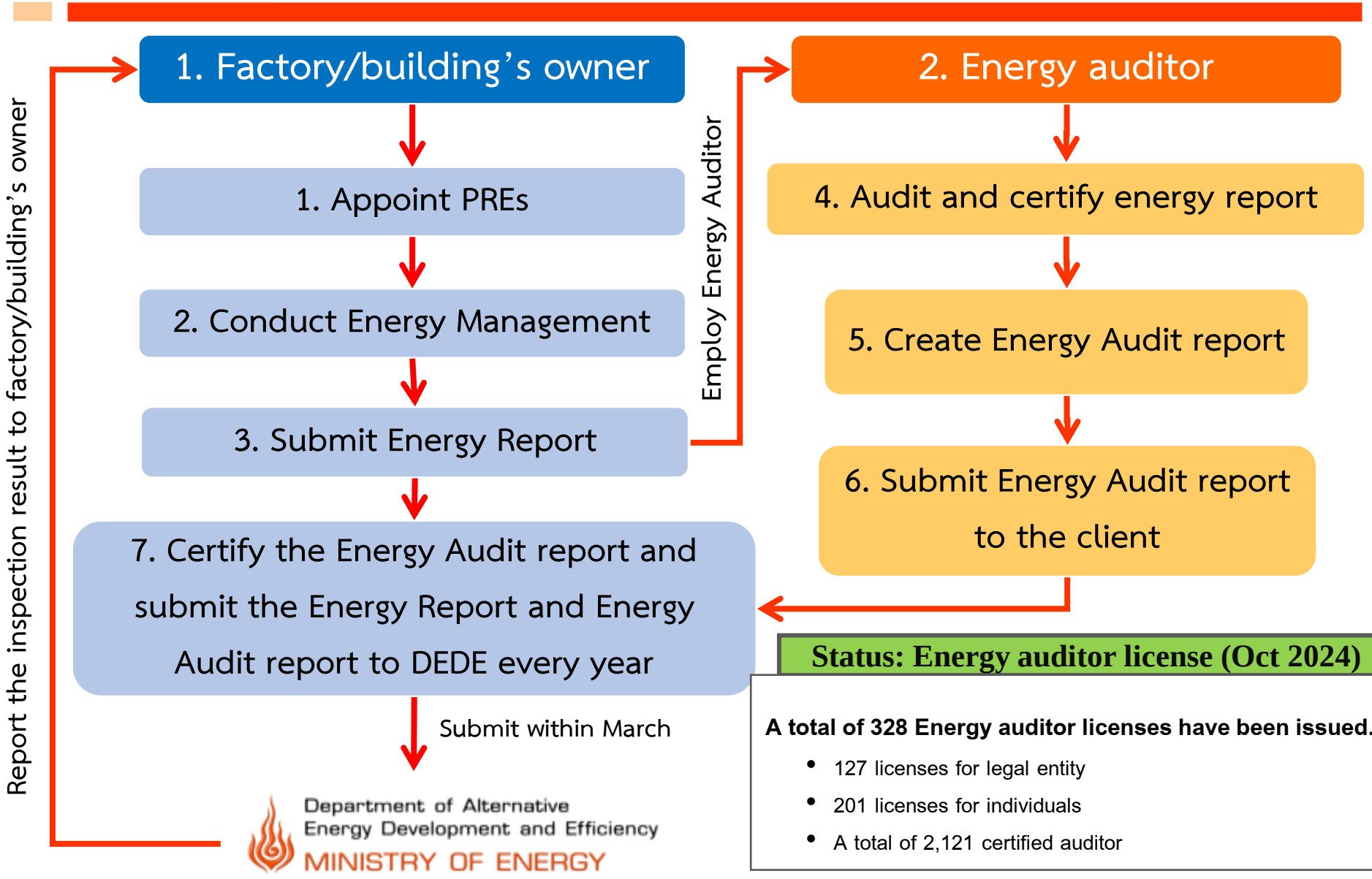
8 Steps in Energy Management System



1. ESTABLISHMENT OF EM TEAM
2. PRELIMINARY ASSESSMENT OF EM SITUATION
3. FORMULATION OF EE&C POLICY
4. EVALUATION OF ENERGY SAVING POTENTIAL
5. SETTING OF TARGET AND PLAN FOR EE&C
   MEASURES (PRIORTIZATION, TIME FRAME, REPONSIBLE PERSON, BUDGET)
6. IMPLEMENTING AND MONITORING
7. INTERNAL AUDIT
8. MANAGEMENT REVIEW FOR IMPROVEMENT

C-PRE & S-PRE are involved in all steps

Auditing Process



Status: Energy auditor license (Oct 2024)

A total of 328 Energy auditor licenses have been issued.

- 127 licenses for legal entity
- 201 licenses for individuals
- A total of 2,121 certified auditor

Energy Management System - Data

Factories/Buildings Data

- Name, location, contact information
- Type of factories/ buildings
- Products – name and amount/area
- Operating hours

Energy Data

- Monthly energy consumption by type/fuel/system
- Specific energy consumption
- Detail on machineries with significant energy consumption
- Self-produced energy

Energy Conservation Data

- Overall target
- Measures conducted (plan + result)
- Amount of power/energy saved
- Payback period
- Capacity building programs to promote energy conservation

- The report is submitted annually by March of every year
- The individual data is confidential (can include sensitive information)
- Data collected since 2015 – may be used to investigate energy consumption trend/use for tailored policy making

Thank You

For further information, please contact email: wisaruth_m@dede.go.th