

Success factors in achieving Energy Efficiency Goals and Targets

Energy Efficiency Strategy for Thailand for the next 20 years

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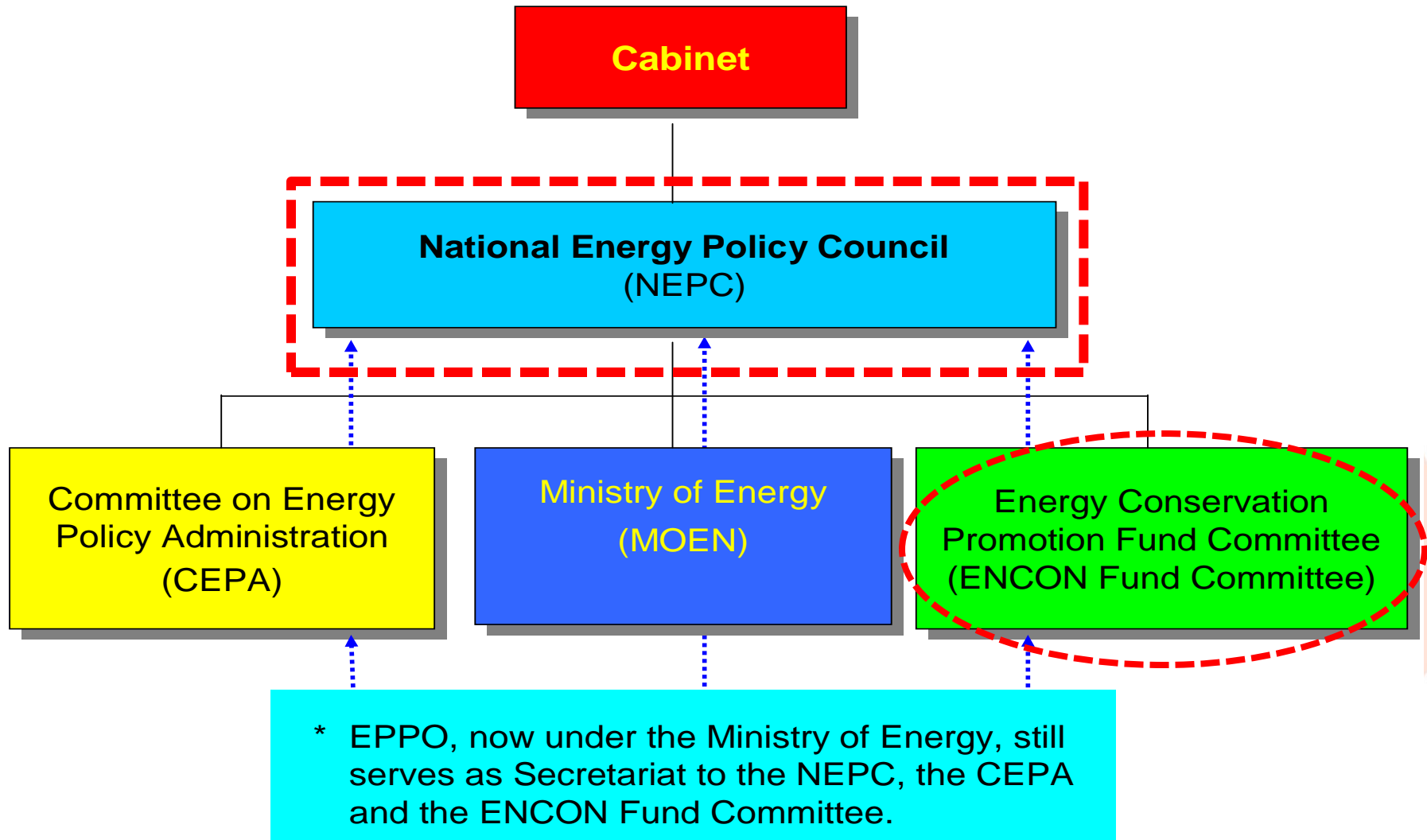
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Policy Formulation for Energy Efficiency in Thailand



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Energy Sector Management



ENCON Fund Administration

Cabinet

National Energy Policy Council Act

National Energy Policy Council (NEPC)

Prime Minister

(EPPO)

ENCON Act

ENCON Fund Committee

Deputy Prime Minister

(EPPO)

ENCON Fund Sub-Committee

Energy Minister

(EPPO)

ENCON Program Evaluation Sub-Committee

Experts

Appointed by the cabinet

(EPPO)

- To propose ENCON policies, goals, measures to the cabinet
- To issue guidelines, criteria, conditions, priorities for the disbursement from the ENCON Fund
- To determine remittance rates to be imposed on petroleum for the ENCON Fund



ENCON Fund Administration

Cabinet

National Energy Policy Council Act

National Energy Policy Council (NEPC)

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ENCON Program Evaluation Sub-Committee

Experts

Appointed by the cabinet

(EPPO)

- To propose ENCON policies, goals, measures to NEPC
- To propose to NEPC guidelines, criteria, conditions, priorities for the disbursement from the ENCON Fund
- To prescribe regulations on the criteria and procedures for applications, grant allocations or subsidies from the ENCON Fund
- To allocate appropriations from the ENCON Fund
- To propose to NEPC remittance rates to be imposed on petroleum for the ENCON Fund

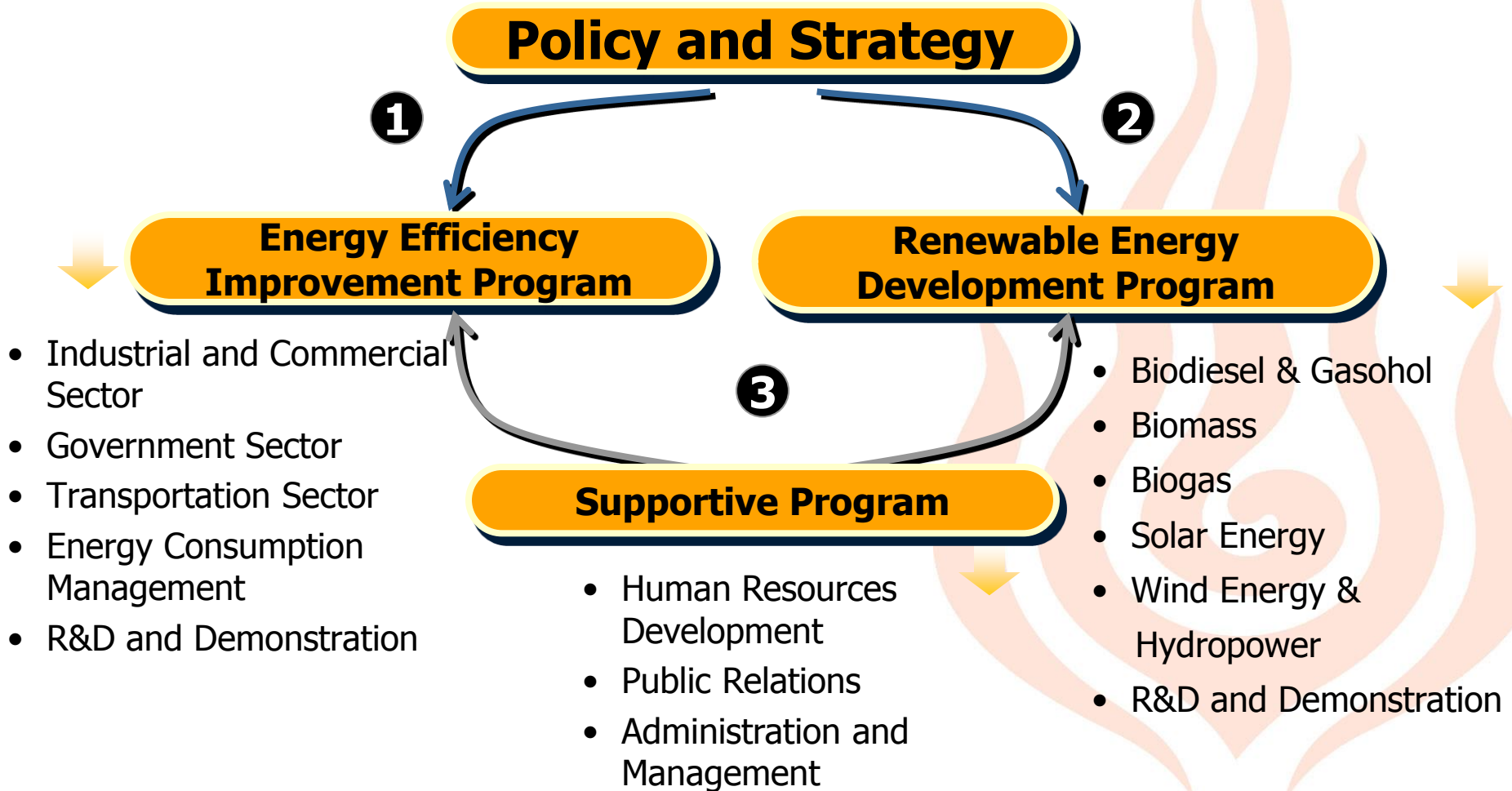


ENCON Fund

1. Working capital, grants, or subsidies for investment in and operations of energy conservation programs, or for solving environmental impacts of energy conservation programs of the government agencies, state enterprises, or private sectors.
2. Grants or subsidies to government agencies, state enterprises, educational institutions or private organizations, to be used on
 - 1) Programs
 - 2) Study or research projects
 - 3) Demonstration projects or pilot projects
 - 4) Educational, training and conferences
 - 5) Public awareness workson topics relating to energy conservation.
3. Administrative cost of energy conservation promotion work in accordance with ENCON Act.



ENCON Program



ENCON Program



Phase 4

2012 - 2016

Phase 3

2005 - 2011

Phase 2

2000 - 2004

Phase 1

1995 - 1999



ENCON Program; Phase 4 (2012 - 2016)

Energy Efficiency Improvement Program

- 1.1 EE Projects Operating
- 1.2 Research & Development
- 1.3 Demonstration & Initiation
- 1.4 Public Relations
- 1.5 Human Resources Development
- 1.6 Environmental Problems Concerns



Department of Alternative
Energy Development and Efficiency

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Renewable Energy Development Program

- 2.1 RE Projects Operating
- 2.2 Research & Development
- 2.3 Demonstration & Initiation
- 2.4 Public Relations
- 2.5 Human Resources Development
- 2.6 Environmental Problems Concerns



Strategic Management Program

- 3.1 Education Support
- 3.2 Research & Development
- 3.3 Training
- 3.4 Meeting & Conference
- 3.5 Advertising
- 3.6 Information Dissemination
- 3.7 Public Relations
- 3.8 Administration & Management



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Thailand Energy Efficiency Plan (2015 - 2036)

EEP 2015



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Thailand's Policy on Energy Efficiency

The Policy Statement delivered by PM to the National Assembly, 23 August 2011

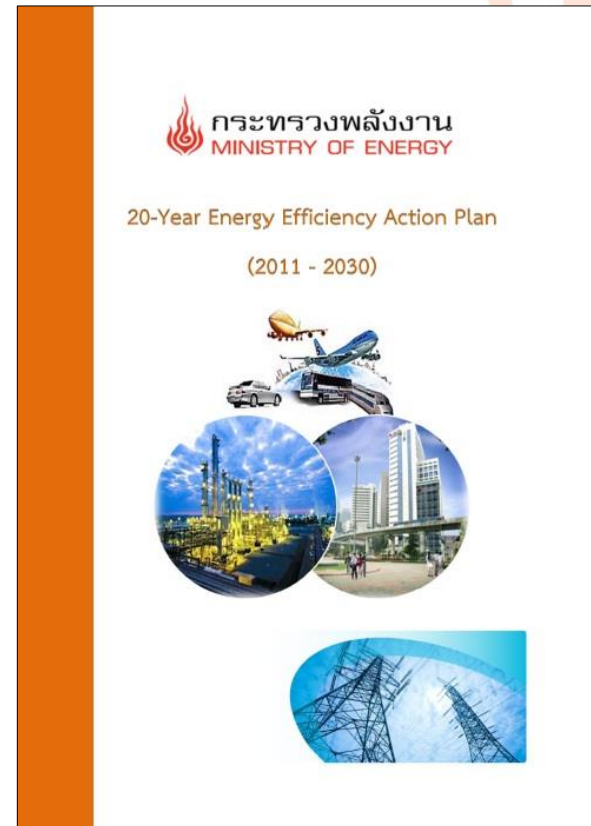
Promote and Drive Energy Conservation

☞ through reduction of energy intensity by 25% within the next 20 years as well as comprehensive development and improvement. The use of high energy-efficiency equipment and buildings will be promoted, while Clean Development Mechanism (CDM) will be used to reduce greenhouse gas emissions and to tackle global warming. Consumer awareness of economical and efficient use of energy will be raised systematically and continuously in order to save energy in the manufacturing, transport and household sectors.



Thailand 20-Year Energy Efficiency Plan (2011-2030)

EEP 2011

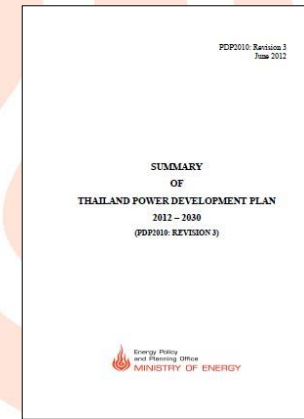


***Approved by NEPC on 8th February 2013**

Thailand Energy Efficiency Plan 2015-2036 (Revision)

EEP 2015

The EEP 2011 was revised to EEP 2015 in order to conform to the Thailand Power Development Plan (PDP 2015) and the GDP shown in the 11th National Economic and Social Development Plan (2012 - 2016).



***Approved by NEPC on 13th August 2015.**

EEP 2015 Saving Target

- **EEP 2011 (34 measures)**

A Target to reduce Energy Intensity by 25% in 2030, in comparison with 2010

- **EEP 2015 (10 measures)**

A Target to reduce Energy Intensity by 30% in 2036, in comparison with 2010



*EI target is reference from the Agreement reached by APEC Leaders in 2007.



EEP 2015 Saving Target

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

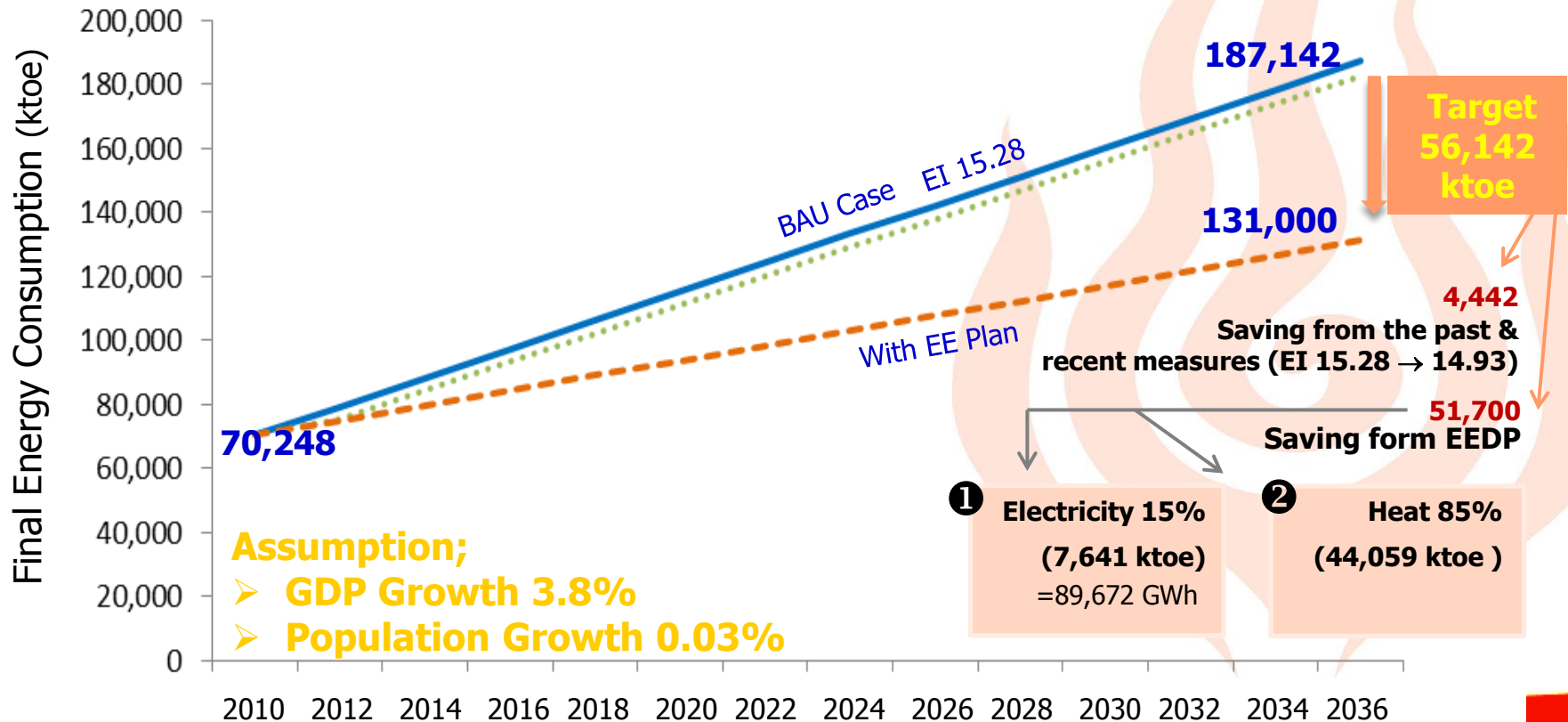
11.0

ktoe/billion baht

EI (2036) forecast

10.7

ktoe/billion baht



Strategies to achieve the target

(1) Compulsory Program

- Enforcement of ENCON Act 1992 on energy conservation standards for designated factories and buildings
- Building Energy Code (BEC) on the new buildings
- Energy labeling on equipment/appliances
- Enforcing Energy Efficiency Resource Standard (EERS) - a measure to oblige utilities to help end-users to save energy

(2) Voluntary Program

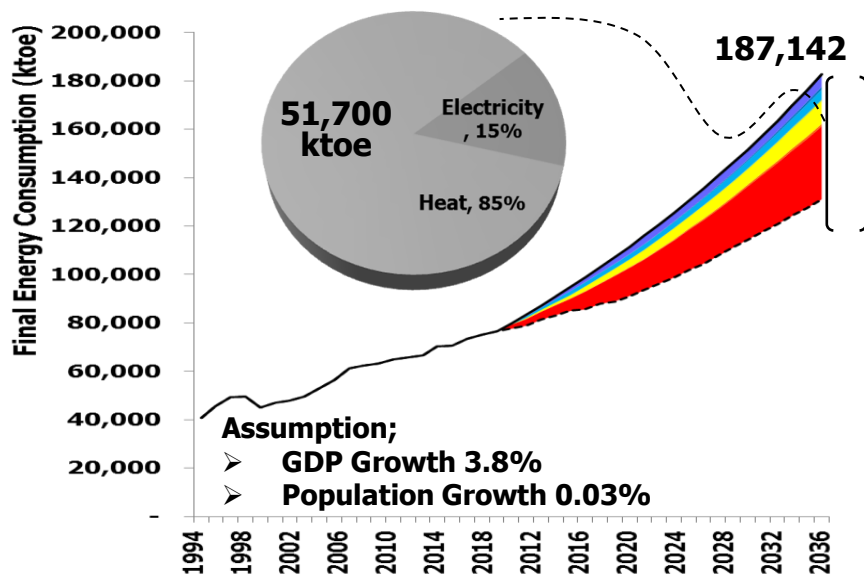
- Supporting financial tools to hasten the equipment changing
- Promoting revolving fund for low interest loans and driving LED by price mechanism
- Energy saving measures in transport sector
- Supporting the energy efficiency technology research & development

(3) Complementary Program

- Supporting the human resource development on energy conservation
- Supporting the creation of public awareness and behavioral change

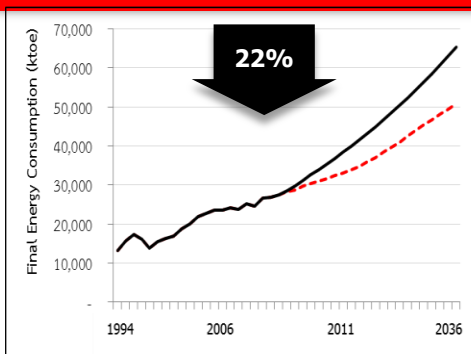


EEP 2015 Target by Measures & in Economic Sectors

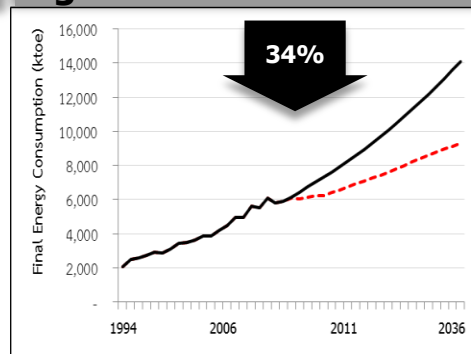


Expected Energy Saving by Measures		Total	
		(ktoe)	(%)
EE1	Enforcement of energy conservation standard in designated factory/building	5,156	10%
EE2	Building Energy Code (BEC) for the new buildings	1,166	2%
EE3	Energy Labeling (HEPs & MEPs)	4,149	8%
EE4	Energy Efficiency Resource Standard (EERS) for large energy producers and distributors	9,524	18%
EE5	Financial Incentives and support for energy performance achievement	991	2%
EE6	Promoting greater use of LED	500	1%
EE7	Energy saving measures in transport sector	30,213	58%
Total (ktoe)		51,700	100%

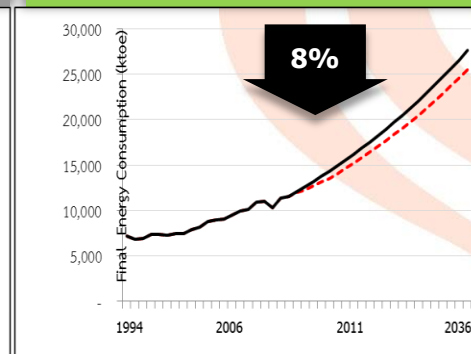
Industrial sector



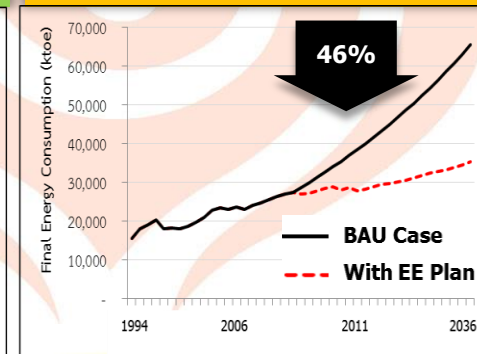
Commercial and governmental sector



Residential sector



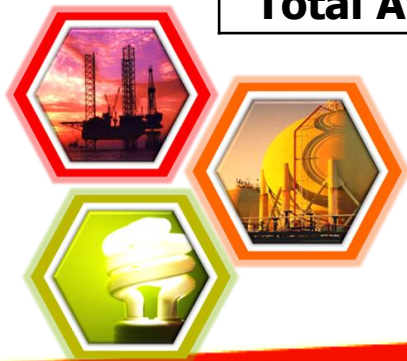
Transport sector



Expected benefit on Energy saving by Fuel types

Fuel Type	Saving	Unit
1. Electricity	89,672	GWh/year
2. Gasoline	11,302	M. Litres/year
3. Diesel	18,048	M. Litres/year
4. Fuel Oil	343	M. Litres/year
5. LPG	5,187	kTons/year
6. Coal	5,548	kTons/year
7. Natural Gas	331,892	mmscf/year
8. Renewable Energy (Biomass)	12	kTons/year
Total Energy Saving	56,142	ktoe/year
or Percentage of EI (Base 2010)	30	%
Total Energy Saving Value	1,403,550	Million Baht/year
Total Avoided GHG Emission	177	M. Tons CO₂

Remark Oil crude price 1 ktoe = 700,000 USD



EEP 2015 Action Plan; Guideline

2015

2021

2036

พ.ศ. 2558 | 2559 | 2560 | 2561 | 2562 | 2563 | 2564 | 2565 | 2566 | 2567 | 2568 | 2569 | 2570 | 2571 | 2572 | 2573 | 2574 | 2575 | 2576 | 2577 | 2578 | 2579



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1
ภาคบังคับ
(Compulsory Program)

10,972 ktoe

4 มาตรการ



2
ภาคความร่วมมือ
(Voluntary Program)

40,728 ktoe

4 มาตรการ



3
ภาคสนับสนุน
(Complementary Program)

2 มาตรการ

Energy Efficiency Resource Standards (EERS)

EGAT, PEA, MEA

พรบ อนุรักษ์พลังงาน, กฎกระทรวง



ค่าธรรมเนียมพิเศษ

โรงงานควบคุม, อาคารควบคุม,
อาคารของรัฐ อาคารใหม่



เครื่องจักร อุปกรณ์ ยานยนต์



Standard Offer Program, DSM Bidding,
Soft loan, ESCOs, Tax Incentive,

LED



R&D
New product



ทุนวิจัยอุดมศึกษา ทุนปริญญาตรี โท เอก
ผู้รับผิดชอบด้านพลังงาน อววโส, สามัญ
ผู้ตรวจสอบและรับรองการจัดการพลังงาน



PA+ PR

ติดต่อ



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Key Success Factors



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6 Success Factors

1 Management system development

- An energy consumption database
- The reporting, verification and assessment systems
- A dedicated independent body with flexibility

2 Adequate and continuous budget to support work plans and activities under the plans -> a rolling plan every 3-5 years

3 Continuous development of human resources and institutional capability of concerned organizations to become professional, especially to build up personnel with understanding the business practices of the private sector.

6 Success Factors (cont.)

- 4 Public agencies should take a lead role and set a good example**
 - ❖ setting a policy requiring procurement of EE goods/services
 - ❖ implementing energy-saving measures in government buildings
- 5 The determination of energy prices reflecting actual costs as a tool to promote energy conservation and to reduce GHG emissions via awareness raising and behavioral changes.**
- 6 Concerned agencies should explicitly formulate policies and long-term development plans, which will have impact on energy consumption, taking into consideration the impact of future industrial or the transportation restructuring.**





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**Thank you
for your kind attention**

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