



Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY



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für Internationale
Zusammenarbeit (GIZ) GmbH



Revolving Fund for Energy Efficiency Projects

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Department of Alternative Energy Development and Efficiency

SIEW 2018: ACE Roundtable
Mobilising Green Financing in the ASEAN Sustainable Energy Market
Singapore, 1 November 2018



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Outline of Presentation

1. Department of Alternative Energy Development and Efficiency (DEDE)
2. Background / Benefit Thai Energy Efficiency Revolving Fund?
3. Lessons learnt and experiences on Thai Energy Efficiency Revolving Fund
4. The Future Mechanism Applied by Thailand in promoting EE projects?



Department of Alternative **E**nergy **D**evelopment and **E**fficiency (DEDE)

DEDE Mission

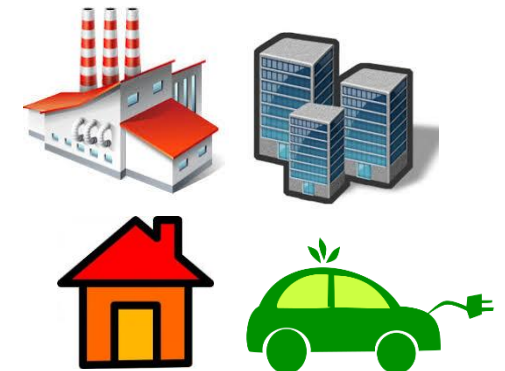
"To create sustainability of **Alternative Energy** and **Energy Efficiency** of the country, in order to boost efficiency and environmentally friendly of energy production and consumption."

Duties and Responsibility

"The duties prescribed under **The Energy Conservation Promotion Act B.E.2535** are: to be responsible for regulation, supervision, promotion and assistance provision to the designated factories and buildings to comply with laws and regulations for efficient use of energy and savings."



**Alternative /
Renewable Energy**



Energy Efficiency



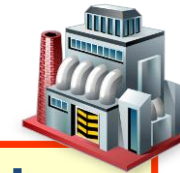
Energy Conservation Promotion Act

Energy Conservation and Promotion Act. B.E. 1992 (revision B.E. 2007)



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



1992

- Focus on Engineering Solutions
- Low attention on Value of People

2007

- Introduce EMS
- Systematic approach of energy conservation



Energy Conservation Promotion Fund

- ▶ founded under Section 24, Energy Conservation Promotion Act.
- ▶ to invest and support on **EE & RE** related activities and measures for **Public and Private Sectors** including
 - ▶ Research and Development / Demonstration / Education and Training / Awareness and Public Relation
- ▶ Budget allocation is through committees, as described in the section 27 (Deputy Prime Minister is a chair)
 - ▶ Department > Ministry > Sub-committee > Committee

Thai Oil Price Structure As of 25 Oct 2018



UNIT:BAHT/LITRE	EX-REFIN. (AVG)	TAX B./LITRE	M. TAX B./LITRE	OIL FUND	CONSV. FUND	WHOLESALE PRICE(WS)	VAT	WS&VAT	MARKETING MARGIN	VAT	RETAIL*
ULG	17.6205	6.5000	0.6500	6.6800	0.1000	31.5505	2.2085	33.7590	3.2532	0.2277	37.24
GASOHOL95 E10	18.1326	5.8500	0.5850	0.7200	0.1000	25.3876	1.7771	27.1647	2.5096	0.1757	29.85
GASOHOL91	17.7146	5.8500	0.5850	0.7200	0.1000	24.9696	1.7479	26.7175	2.6753	0.1873	29.58
GASOHOL95 E20	18.7015	5.2000	0.5200	-2.1800	0.1000	22.3415	1.5639	23.9054	2.7426	0.1920	26.84
GASOHOL95 E85	21.8876	0.9750	0.0975	-7.7800	0.1000	15.2801	1.0696	16.3497	4.4769	0.3134	21.14
H-DIESEL	19.9424	5.9800	0.5980	-0.6000	0.1000	26.0204	1.8214	27.8418	1.9142	0.1340	29.89
H-DIESEL B20	20.3084	5.1520	0.5152	-3.1000	0.1000	22.9756	1.6083	24.5839	2.1552	0.1509	26.89
FO 600 (1) 2%S	16.0663	0.6400	0.0640	0.0600	0.0700	16.9003	1.1830	18.0833			
FO 1500 (2) 2%S	15.4235	0.6400	0.0640	0.0600	0.0700	16.2575	1.1380	17.3955			
LPG (UNIT:BAHT/KILO)	21.6522	2.1700	0.2170	-6.8597	0.0000	17.1795	1.2026	18.3821	3.2566	0.2280	21.87



<http://www.eppo.go.th/index.php/th/petroleum/price/structure-oil-price>



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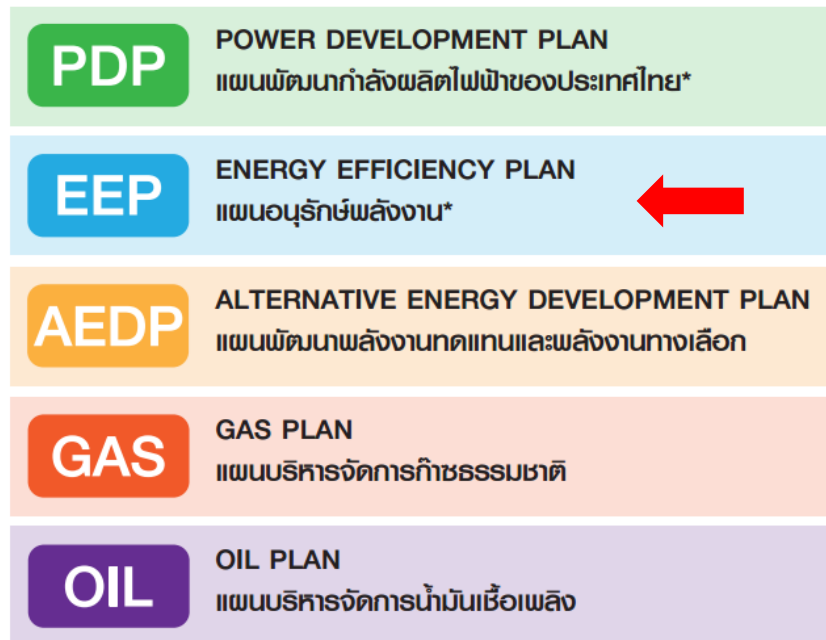


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Thailand Integrated Energy Blueprint (TIEB 2015)



3 Strategies
10 Measures
4 Economic Sectors

- | | |
|---------------|-------------------|
| 1. Industry | 3. Residential |
| 2. Commercial | 4. Transportation |

1. Compulsory

- Enforcement of energy conservation standard in **designated factory/building**
- Building Energy Code (**BEC**)
- Energy Standard and Labeling (**HEPS/MEPS**)
- Energy Efficiency Resources Standard (**EERS**)

2. Voluntary

- Financial Incentive ←
- Promotion of **LED** (Light Emitting Diode)
- Energy Saving Measures in **Transport** Sector

3. Complementary

- Research and Development (**R&D**) in Energy Efficient Technologies
- Human Resources Development (**HRD**)
- Promotion of Public Awareness on Energy Conservation (**PR**)

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



Revolving Fund



Phase 1 2003-2006

Phase 2 2006-2009

Phase 3 2007-2010

Phase 4 2009-2012

Phase 5 2010-2013

**Phase 6+6 extended
2015-2019**

Barriers

- ▶ Limited access to funds
- ▶ Higher perceived risks
- ▶ High transaction costs
- ▶ Not a priority
- ▶ Banks were not interested

Phase	Budget Allocation (Mbaht)	# of projects	Total Investment (Mbaht)	Investment via ENCON Fund (Mbaht)	Investment via bank/applicant (Mbaht)	Energy saved (ktoe)
1	2,000	78	3,427	1,902	1,525	98
2	2,000	83	3,330	1,735	1,595	99
3	2,942.5	98	5,878	2,702	3,176	93
4	400	12	1,282	377	905	13
5	500	24	2,042	489	1,554	17
6	1,500	82	1,350	1,262	68	7.6
6 (extended)	3,000	23	467	466	n.a.	1.4
Total	12,342.5	400	17,776	8,933	8,755	329

Concept and Approach

- ▶ Stimulate Investment and Stimulate Interest among Banking Community
- ▶ Provide NO cost Capital to EE Market
- ▶ Commercial Lending
- ▶ Minimize Government Intervention
- ▶ Simplified Procedures



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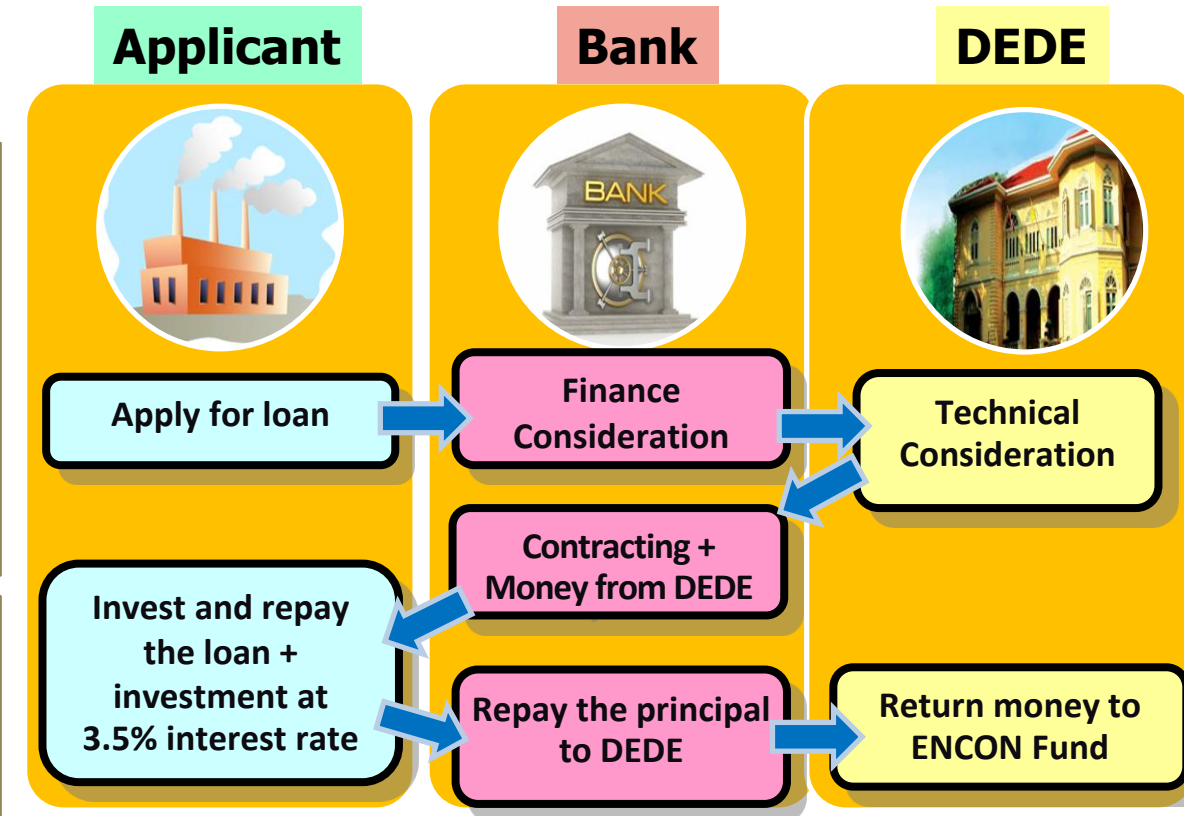
Revolving Fund

Conditions

- **5** Year Loan Periods
- Max **3.5%** Interest rate (applicant to bank)
- Max **50** MB. (~ 1.5 million USD)
- **7** Year Pay Back Period

Eligible Investment Costs

- Equipment and Installation costs
- Consulting Costs – design, control, supervision, guarantee fees
- Civil works, piping, or necessary components
- Associated Costs necessary – removal of existing equipment, transportation, taxes, VATs

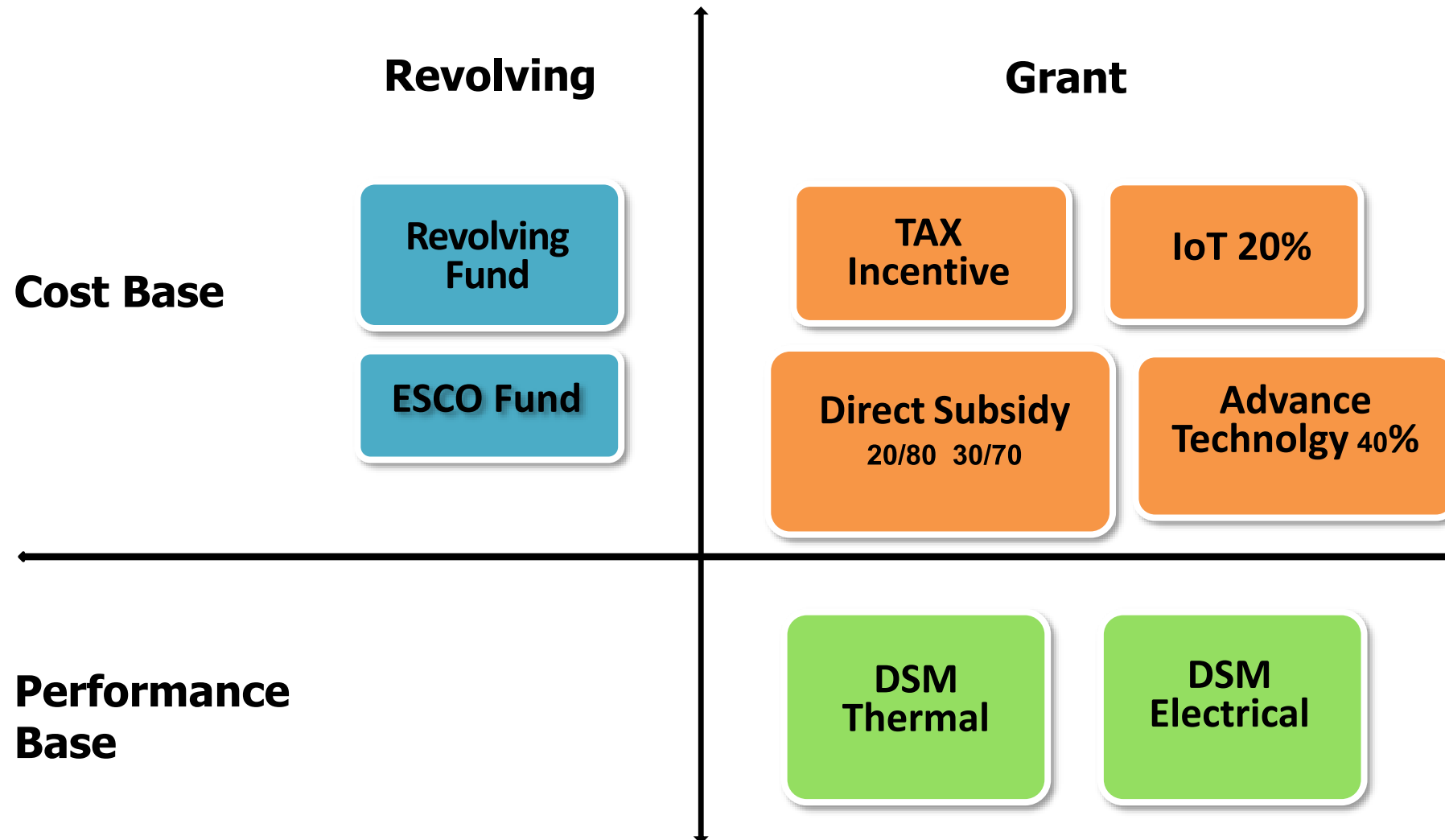


8 Banks Participating



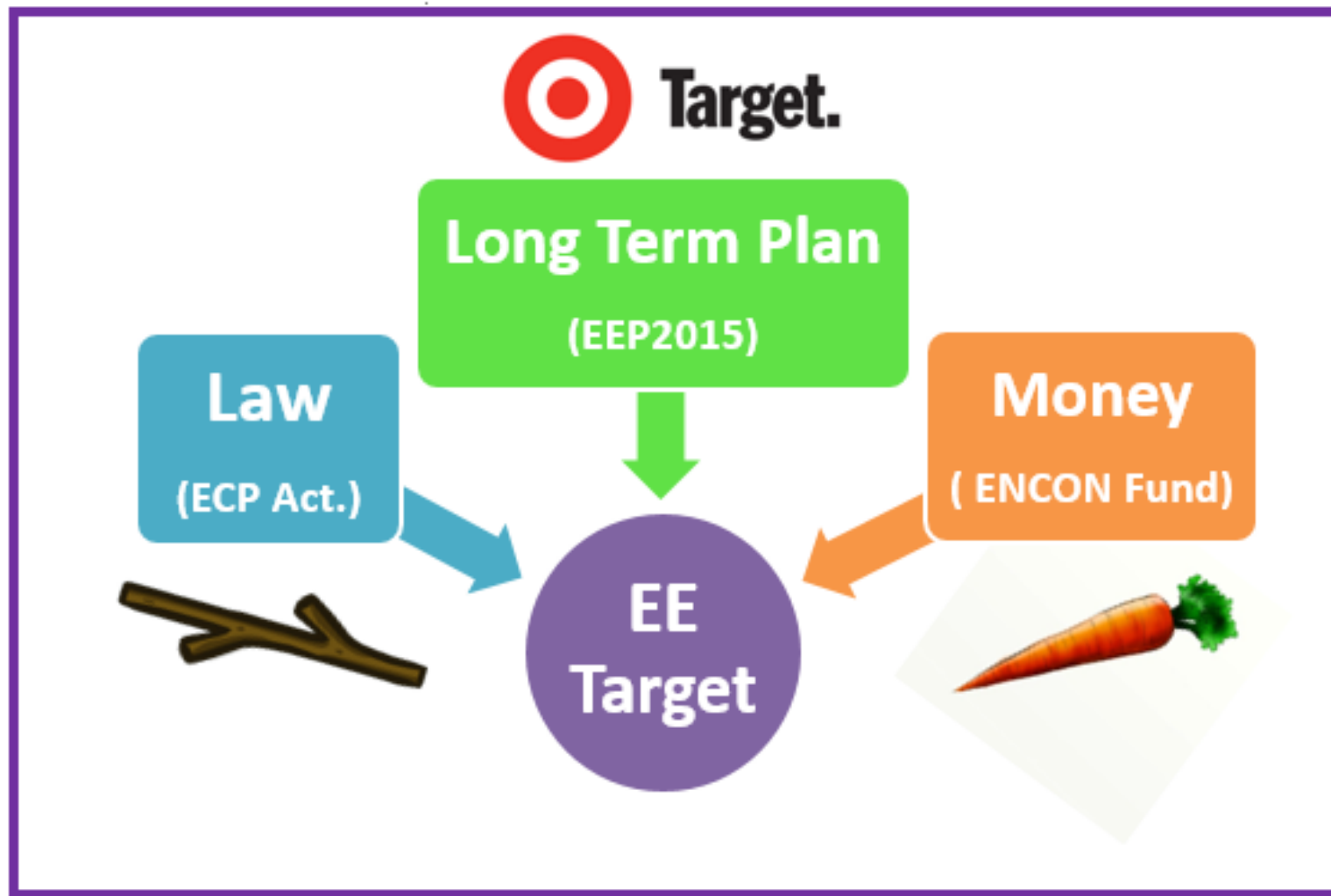


Financial Incentive in Thailand





Success in EE Promotion





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Thank you for your attention.

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