



Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY



Current low – carbon activities in Thailand

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ASIA PACIFIC ECONOMIC COOPERATION (APEC)
NEW AND RENEWABLE ENERGY TECHNOLOGIES
35th EGNRET

13 October 2010, Tokyo, Japan

1

Thailand's Energy situation

2

Energy Policy in Thailand

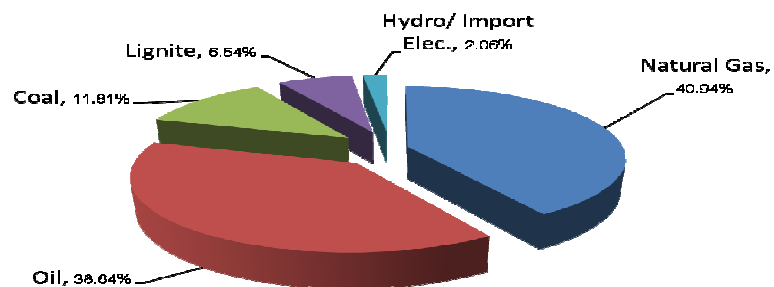
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Low-Carbon Activities

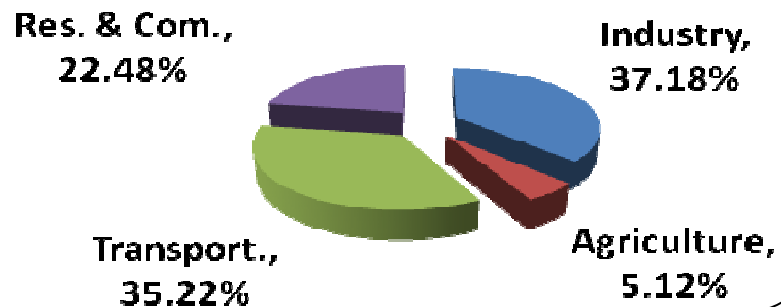
Thailand's Energy Situation

In 2009, Energy Expenses 47 billion USD (import 58%)
 Total Commercial Energy Use 1.656 million barrels (oil equivalent) of per day

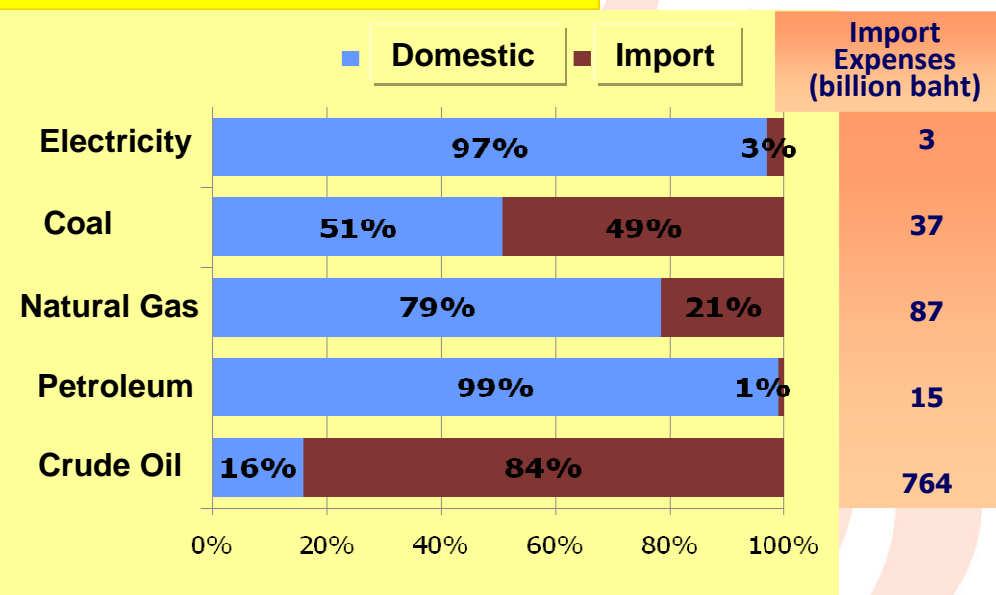
Commercial Energy Consumption by fuel



Energy Use by sector

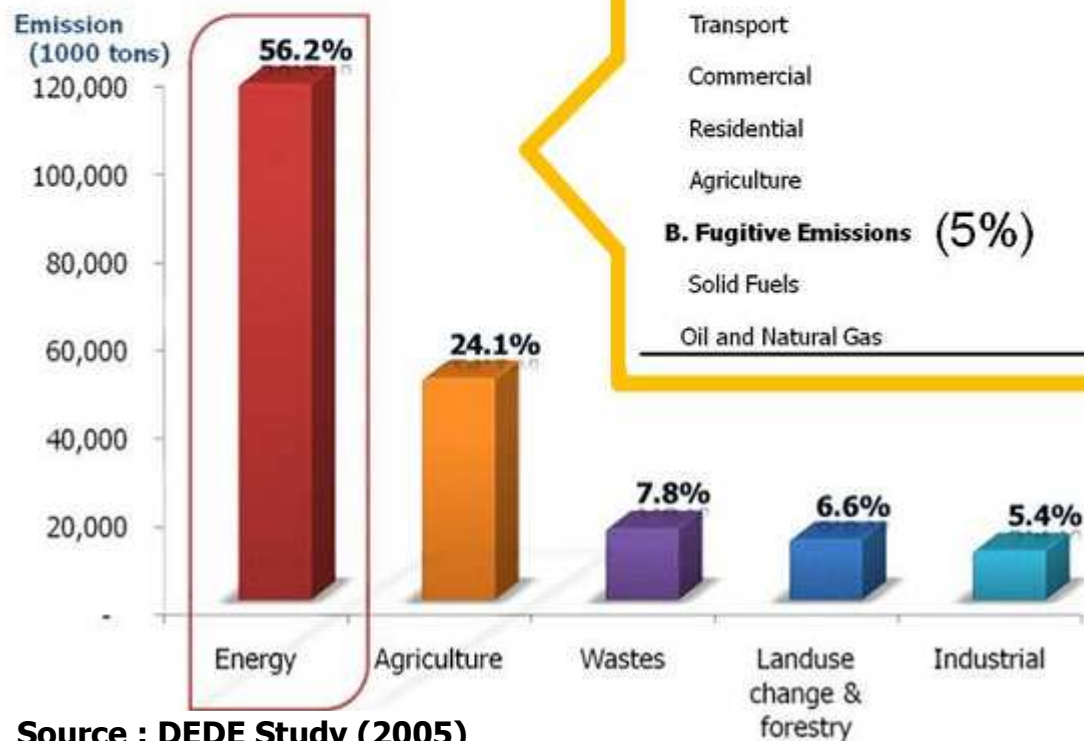


Domestic to Import Ratio



GHGs Emission

Total GHG
344.21 ล้านตัน
 คาร์บอนไดออกไซด์เทียบเท่า
 (MtCO₂e)



Source : DEDE Study (2005)

Greenhouse Gas Source and Sink Categories	Mt CO ₂ e				Total	% Total Net Emissions
	CO ₂	CH ₄	N ₂ O	HFCs		
Total Emission & Removals	218.360	95.346	29.713	791	344.210	100%
1. ENERGY	178.945	11.522	2.737	0	193.204	56.2%
A. Fuel Combustion (95%)	178.945	1.837	2.737	0	183.519	53.4%
Energy & Transformation Ind.	75.497	0.045	1.381	-	76.924	22%
Manufacturing, Mining & Construction	37.293	0.439	0.154	-	37.886	11%
Transport	51.272	0.152	0.874	-	52.298	15%
Commercial	1.892	0.006	0.138	-	2.036	1%
Residential	2.810	1.165	0.006	-	3.981	1%
Agriculture	10.181	0.029	184	-	10.394	3%
B. Fugitive Emissions (5%)	-	9.685	-	-	9.685	3%
Solid Fuels	-	0.331	-	-	0.331	0%
Oil and Natural Gas	-	9.353	-	-	9.353	3%

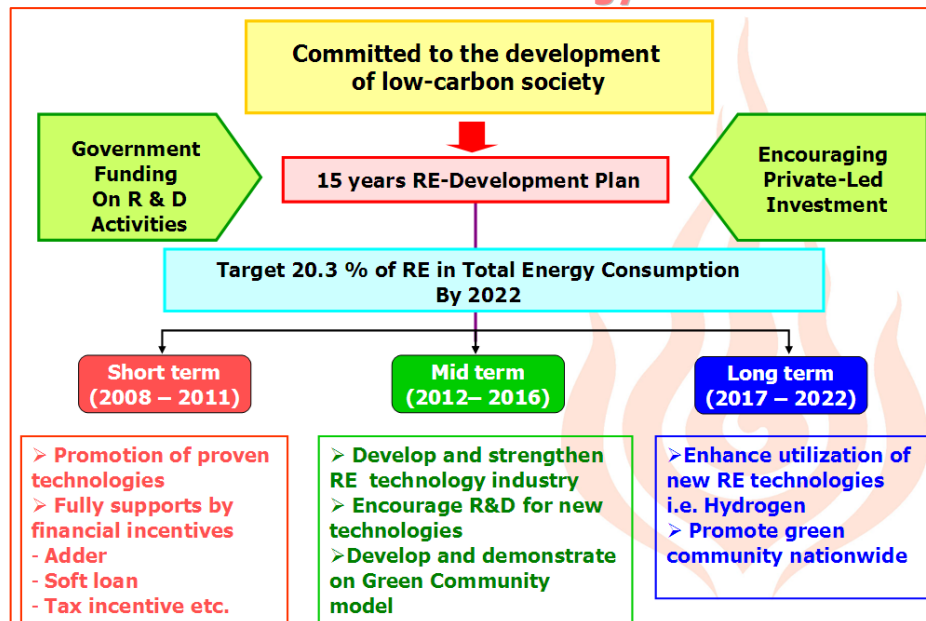
ก๊าซเรือนกระจก	Mt CO ₂ e ร้อยละ
คาร์บอนไดออกไซด์ (CO ₂)	63.4%
มีเทน (CH ₄)	27.7%
ไนตรัสออกไซด์ (N ₂ O)	8.6%
ไฮโดรฟลูออโรคาร์บอน (HFCs)	0.2%
รวม	100%



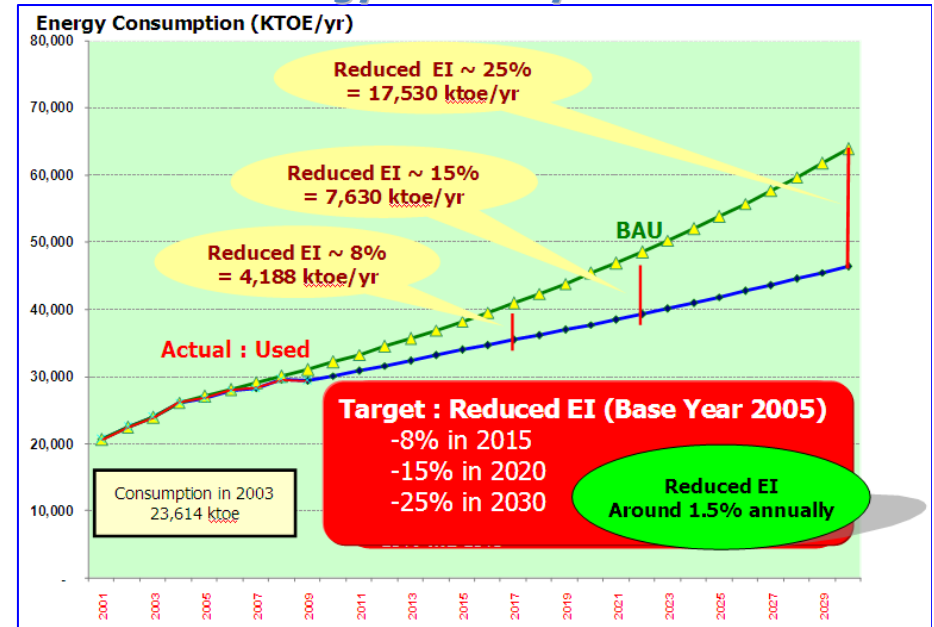
Thailand's Energy policy

1. Intensify Energy Development for Greater *Self-reliance*
2. Set the *Policy on Alternative Energy as a National Agenda*
3. Supervise & Maintain *Energy Prices at appropriate, stable & affordable levels*
4. Promote Serious and Continuous *Energy Conservation and Efficiency*
5. Promote Energy Production & Consumption concurrently with *Environmental Conservation*

Renewable Energy



Energy Efficiency

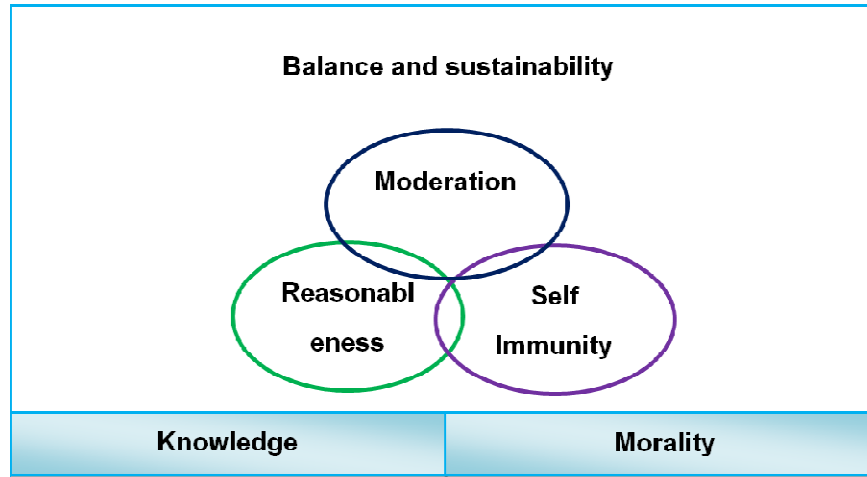




Low-carbon society concept in Thailand



Main Principal → **Sufficient Economy**



**National Economic and Social Development Plan no. 11
(2012 – 2016)**

Paradigm shift → **Low-carbon society**

**Environmental friendly development
Green production
Green consumption**

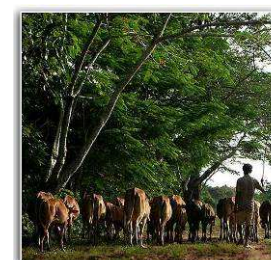


Urban area

- Commercial base
- High technology approach
- Main target sector:
Transportation, Industry, Building
- Emphasized measures:
Public transportation, Energy
Efficiency, Waste management,
Promotion on Greenery

Rural area

- Agricultural base
- Simple/local-technology approach
- Main target sector:
agricultural and household
- Emphasized measures:
Efficient use of local resources,
RE utilization, Environment
protection, Promotion bio-based
agricultural



Low Carbon for Rural Area

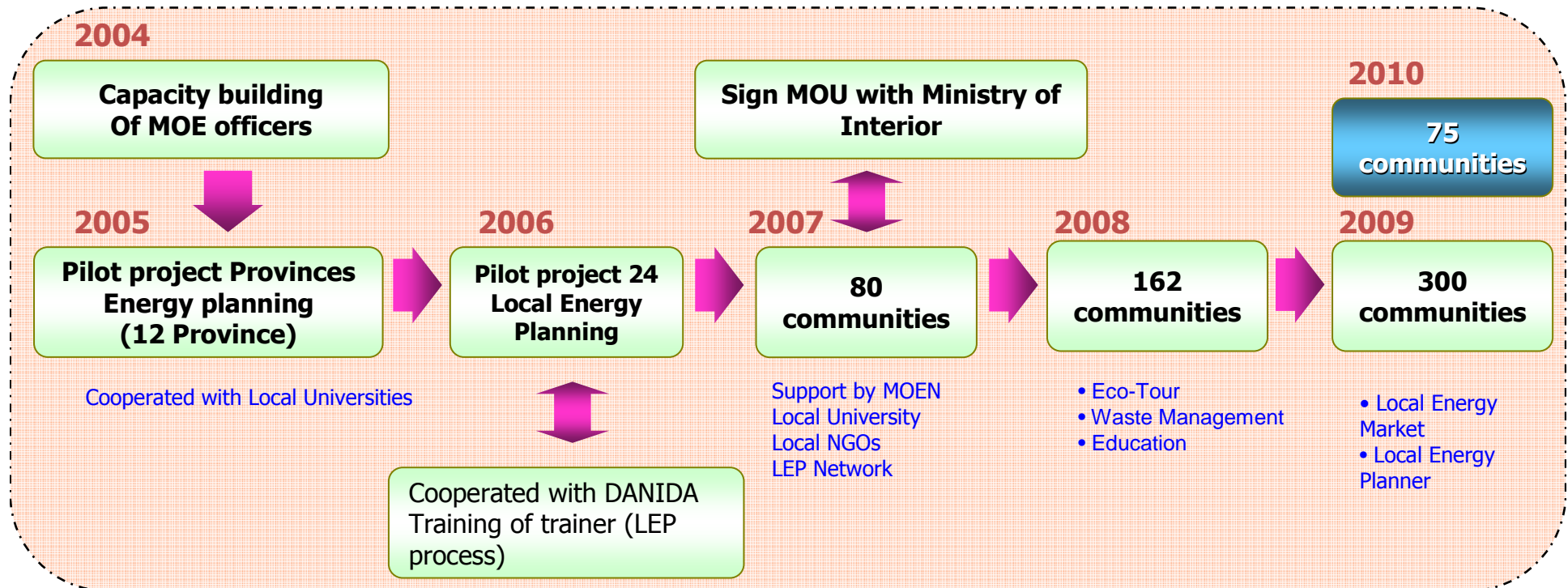
Implementation through Local Energy Plan Model



Local Energy Plan in Thailand

The Local energy plans with focus on;

- **Creating awareness of energy conservation at the community level**
- **Increasing energy efficiency in household**
- **Promoting renewable energy usage in community**



The 10 steps of LEP

1. Concept Introduction

- Energy and Behavior
- Impact & Problems

2. Set up LEP working team

- Set up working team
- Capacity building

3. Data collection

- Training of data collection
- Collect data Energy consumption
- Collect general data



6. Technology/Measure Selection

- Study from successful cases
- Select appropriate technologies



4. Data Analysis.

5. Data feedback to community



The 10 steps of LEP

7. Set up LEP.

- Analyze all information
- Brainstorming
- Set up KPI , responsible personal ,
Out put , Impact , Implementation plan



8. Public hearing

9. Implementation and follow-up.

10. Evaluation.



Typical activities under LEP

1. Awareness campaigns on the local level.
2. Innovation on renewable energy application.
 Biomass → charcoal product
 Biogas and hand – shacked Biofuels.
3. 2E's project (Energy + Environment).
 Waste – to – Energy .
4. Poverty reduction schemes.
 Job / Career creation.
5. Integration to other dimension.
 Health promotion.



Result of reduced energy from LEP 2008

Type	Unit	Baht
Electricity	2,145,902.85	5,364,757.13
Oil (Gasoline & Diesel)	853,740	25,612,200
LPG	6,885.60	123,940.80
Wood	1,138,559.33	4,339,371.01
Sum All		35,440,268.93

Average expense reduction 218,767 Baht (7,300 USD) per community

Average CO₂ reduction 20 tCO₂ per community



Case of Urban area

- Low-carbon program in Bangkok
- Low-carbon city in Muang Klang

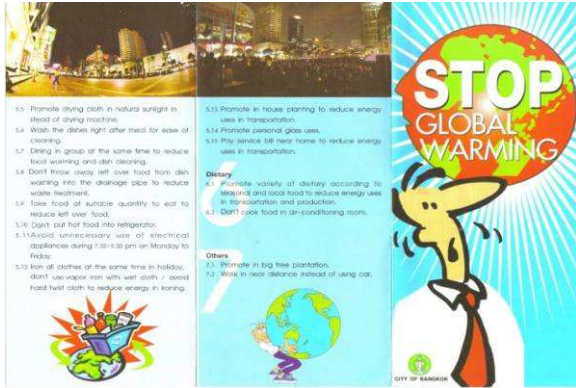
“The Bangkok Declaration on the Cooperation of Alleviating the Global Warming”



36 Organizations jointly signed the Bangkok Declaration on the Cooperation of alleviating the global warming on 9 May 2007 at the United Nations Conference Centre, Bangkok



The Bangkok Declaration



1. We will reduce energy uses and effectively use resources for production and consumption to make least impact to global warming.
2. We will together support the role of youths, communities, businesses, government units and individuals to coordinately reduce greenhouse gases emission.
3. We will together support the way of life based on the sufficient economy to prevent prepare and adapt to global warming.
4. We will together participate, support and promote carbon sequestration through tree plantation extensively and sustainably.
5. We will continuously support the global warming reduction and prevention activities by disseminating knowledge and information, to encourage practical action in everyday living.

The 5-Year Action Plan for Global Warming Alleviation (2007 – 2012)

Ultimate Goal: 15% reduction of GHGs emission by 2012

The 5 Approaches

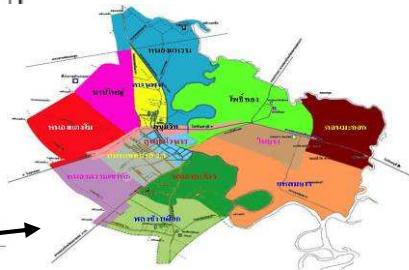
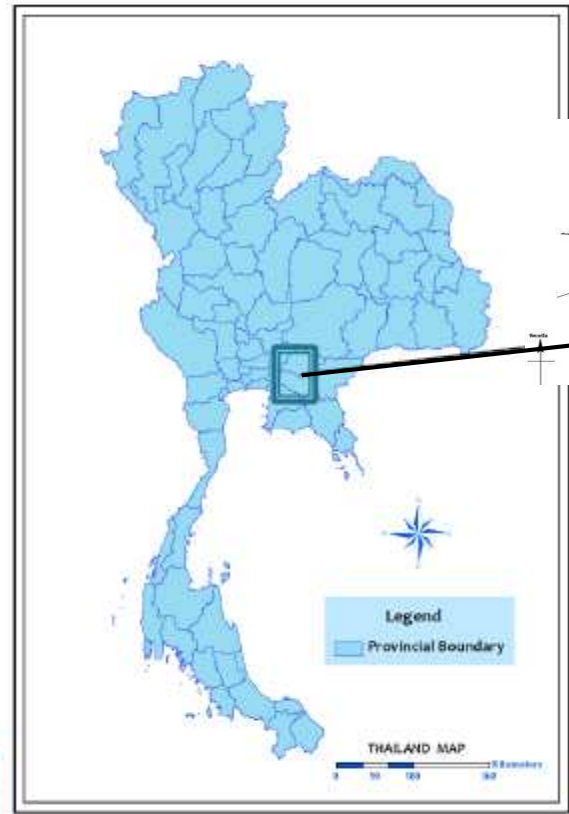
1. Improvement of Transportation System
2. Promotion of Alternative Energies
3. Energy Conservation and Building Retrofit
4. Solid Waste and Wastewater Management
5. Expansion of green areas

Current achievement
1.16 mil ton CO₂
reduction





Low-carbon city in Muang Klang

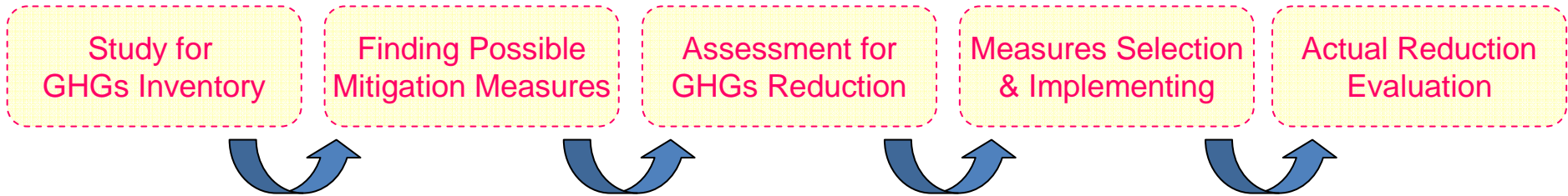


Thailand Greenhouse gas Organization (TGO)

Site area: 14.5 km
Population : 17,254

Low Carbon City model

City's GHGs Inventory
City's mitigation measures
GHGs reduction

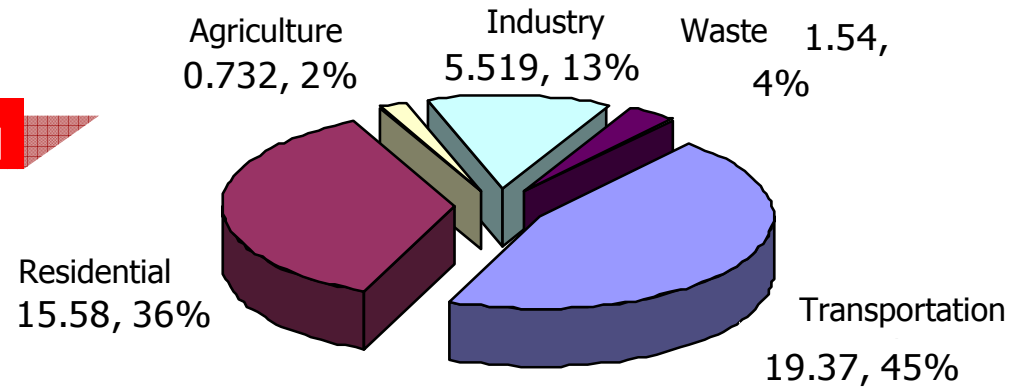




Low-carbon city in Muang Klang

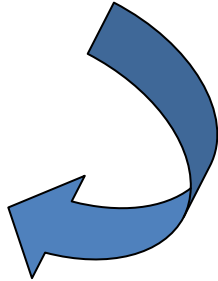
Emission* in 2009 = 41,741 tCO₂eq

*not included LUCF



Emission reduction policies

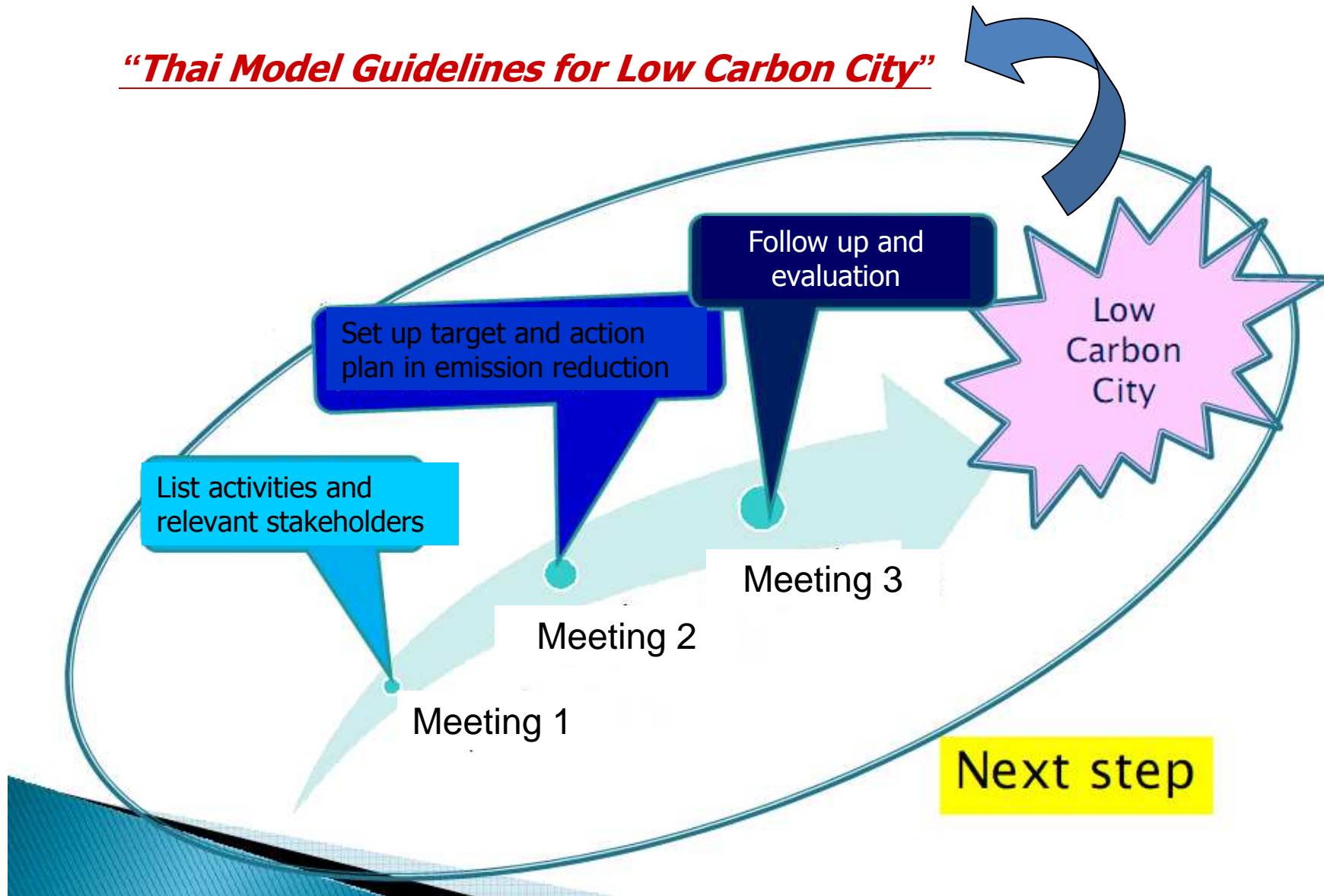
Energy efficiency	Fuel reduction	Increasing green area	Waste management





Low-carbon city in Muang Klang

“Thai Model Guidelines for Low Carbon City”





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www.energy.go.th
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...THANK YOU...

