


Alternative Energy Development as Climate Change Co-benefits

Rangsan Sarochawikasit
Executive Director of Bureau of Energy Research




Department of Alternative Energy Development and Efficiency
Ministry of Energy

17th Asia-Pacific on Climate Change
 "Good Governance for Climate & Development Co-benefits
 Innovation & Integrated Adaptation to Climate Change"
 At Imperial Queen's Park Hotel ,
 Bangkok, Thailand
 31 July – 3 August 2007



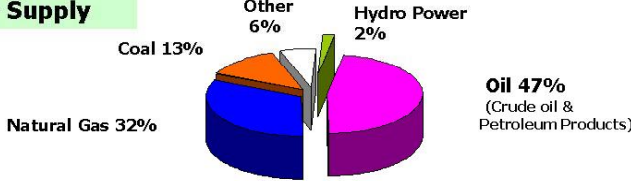
Department of Alternative Energy Development and Efficiency
Ministry of Energy

Alternative Energy Development as Climate Change Co-benefits



Energy Situation in Thailand 2006*

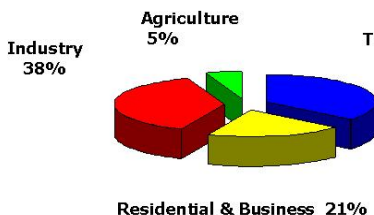
Primary Energy Supply



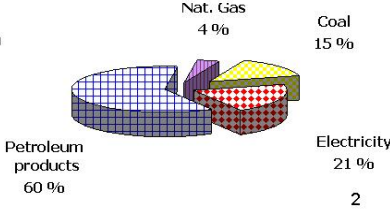
Source	Percentage
Oil (Crude oil & Petroleum Products)	47%
Natural Gas	32%
Coal	13%
Other	6%
Hydro Power	2%

Total Primary Energy Supply 106 Mtoe (value 887 Bil. Baht = \$ 25.3 Bil.)

Final Energy Demand

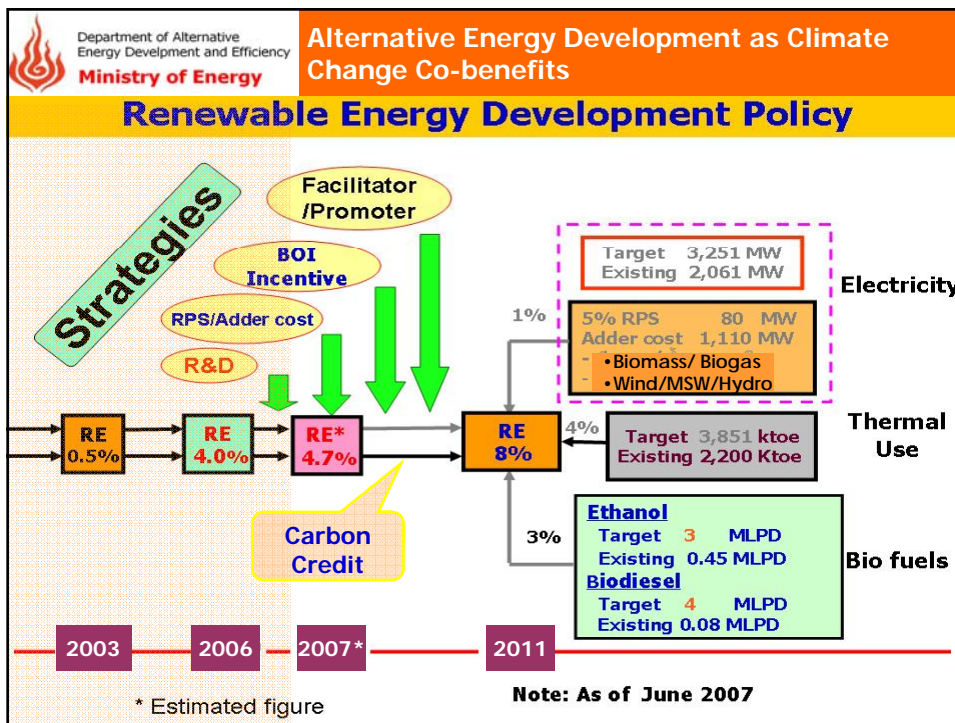
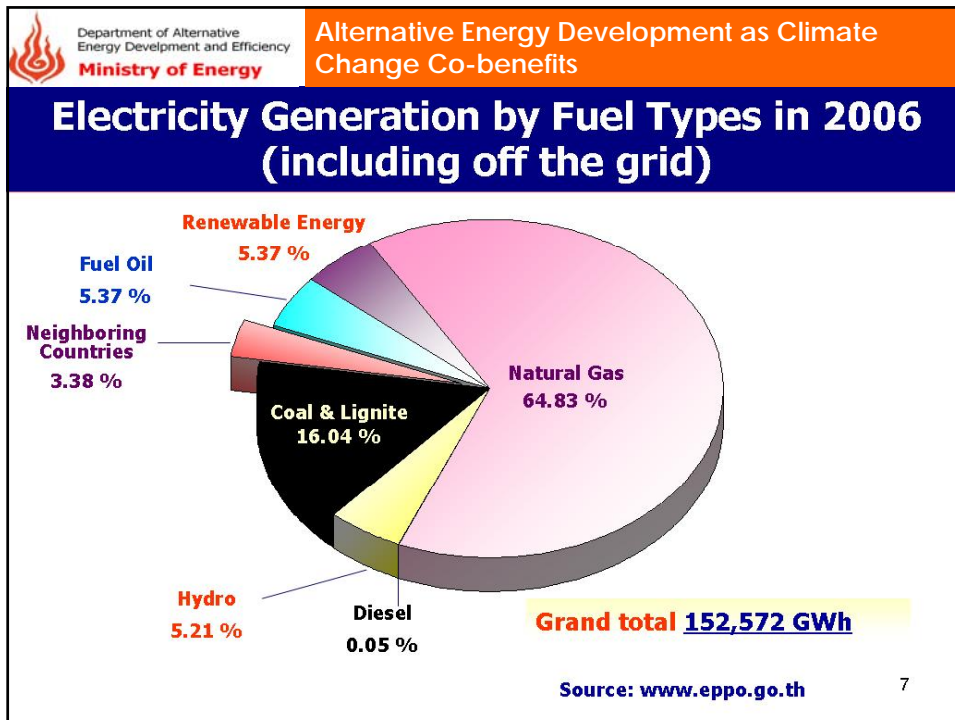


Industry 38%
Transportation 36%
Residential & Business 21%
Agriculture 5%



Petroleum products 60%
Electricity 21%
Coal 15%
Nat. Gas 4%

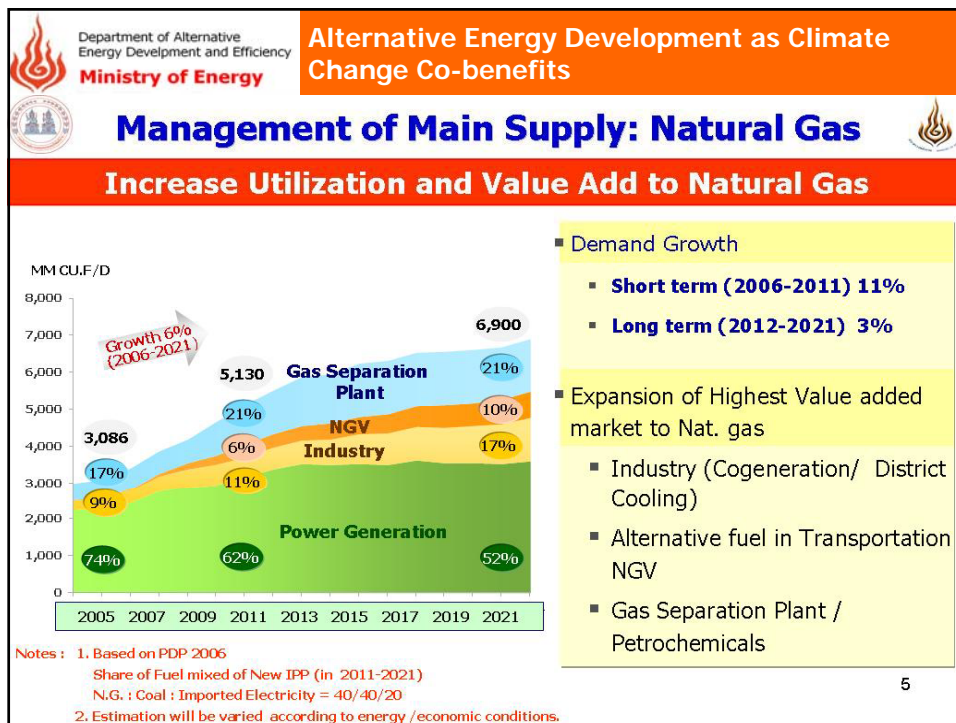
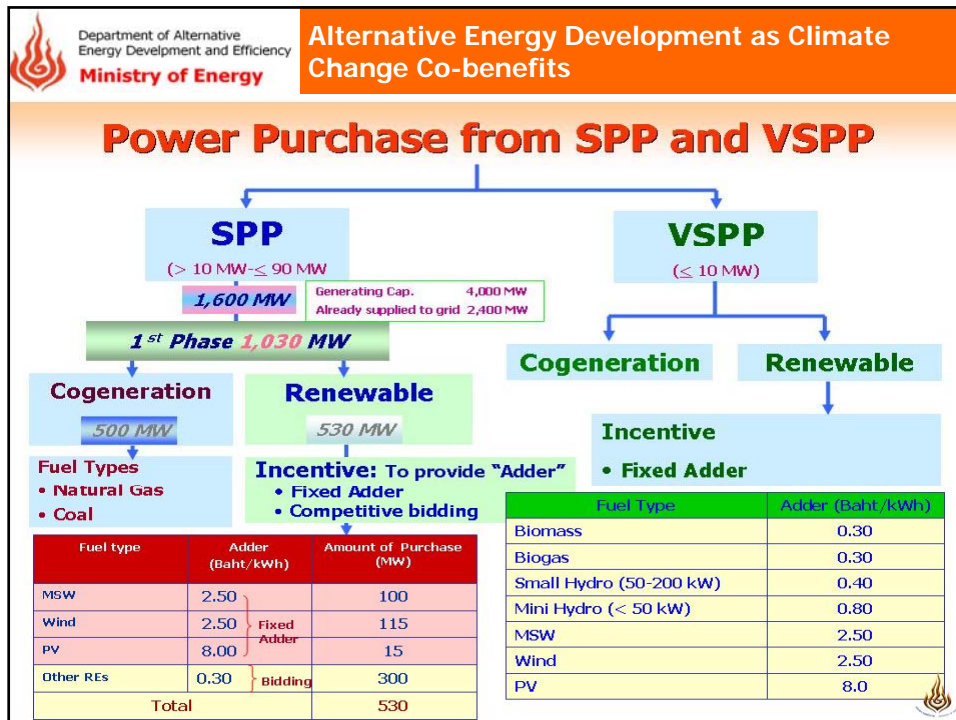
* Estimation data

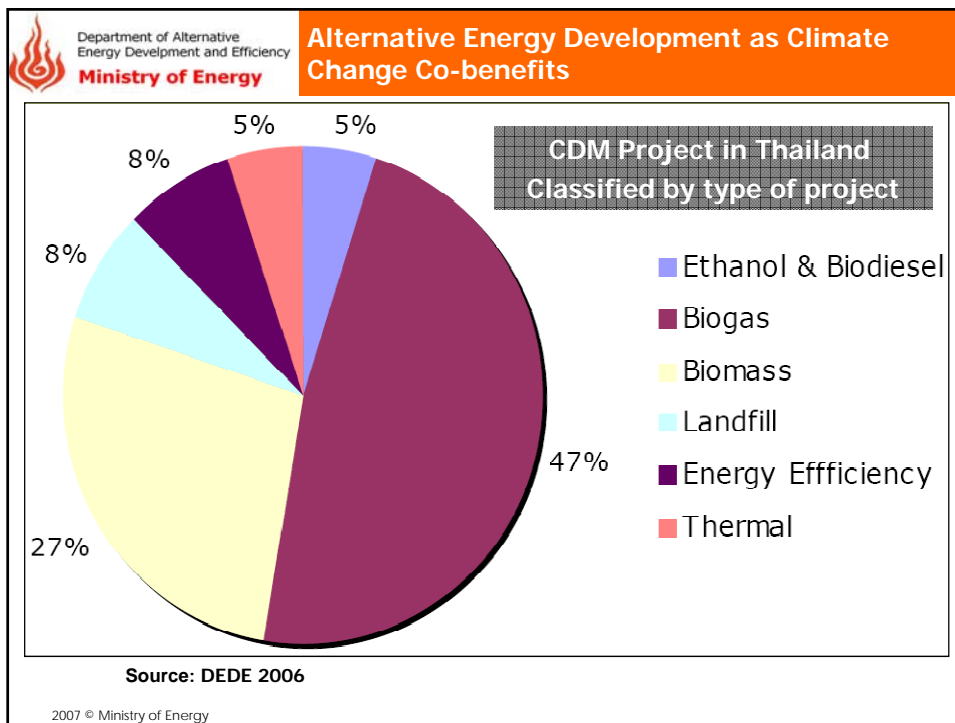
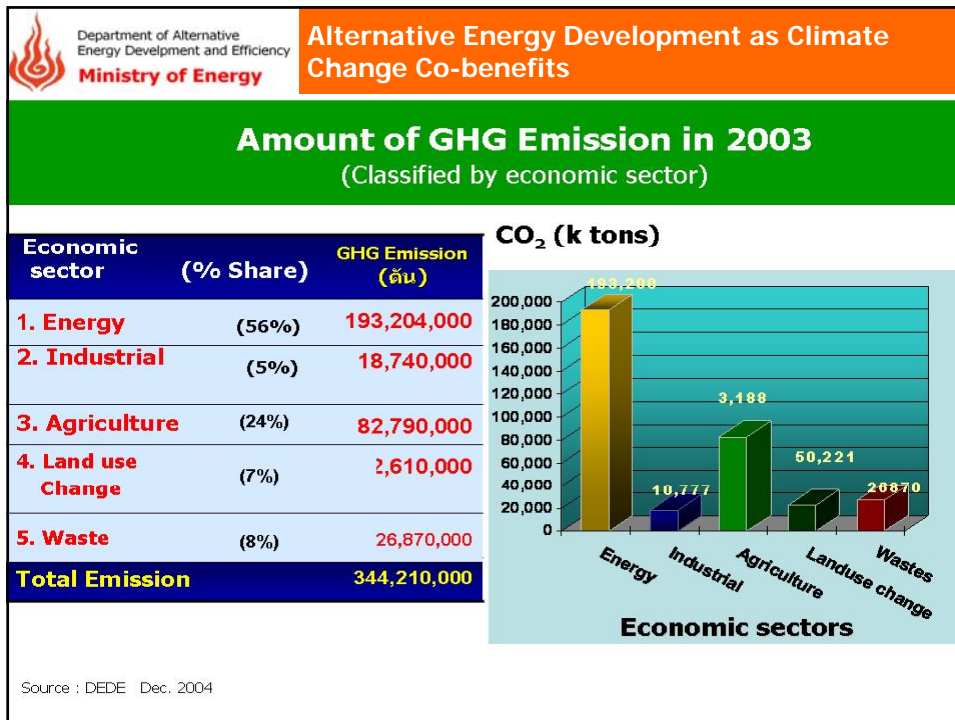



Fuel Type	Electricity		Heat	Alternative Fuel		Total
	MW	ktoe	ktoe	M Litres/day	ktoe	ktoe
Target in 2011	3,246	1,034	3,851	16.14¹	4,945¹	9,830
Solar	55	5	5	-	-	10
Wind	110	12	-	-	-	12
Hydropower	156	18	-	-	-	18
Biomass	2,800	940	3,660	-	-	4,600
Municipal Solid Waste	100	45	-	-	-	45
Biogas	30	14	186	-	-	200
Ethanol	-	-	-	3	820	820
Biodiesel	-	-	-	4	1,258	1,258
NGV				325 (MMSCFD)	2,867	2,867
Existing in 2006	2,061		1,859	0.5		
Share (%)		6.63%²		Share (%)	17.71%³	11.8%⁴

Remarks: 1. NGV equivalent to 9.14 M Litres/day of diesel.
 2. Share (%) of RE power generation replacing electricity demand in 2011 (182,832 GWh).
 3. Share (%) of ethanol, biodiesel and NGV utilization replacing diesel and gasoline consumption in 2011.
 4. Share (%) of RE and alternative energy replacing commercial energy in 2011.

Department of Alternative Energy Development and Efficiency Ministry of Energy		Alternative Energy Development as Climate Change Co-benefits
VSPPs: Cogeneration and Electricity from Renewable Energy		
<ul style="list-style-type: none"> Under the revised VSPP Regulation, power purchase from VSPPs to the grid is increased from <= 1 MW to <= 10 MW, and cogeneration facilities are included, effective since 3 January 2007. Provision of "Adder" to the normal purchasing price that VSPPs receive from MEA & PEA, based on the renewable energy technology used. 		
Adder for VSPP Programme		
• Biomass/Biogas	0.30 Baht/kWh	
• Micro Hydro (< 50 kW)	0.80 Baht/kWh	
• Mini Hydro (50-200 kW)	0.40 Baht/kWh	
• Wind	2.50 Baht/kWh	
• MSW	2.50 Baht/kWh	
• Solar	8.00 Baht/kWh	







Department of Alternative Energy Development and Efficiency
Ministry of Energy

Alternative Energy Development as Climate Change Co-benefits

'Draft' CDM Sustainable Development Criteria

Environment & Natural Resources

- Greenhouse gas emission
- Air pollution
- Noise pollution
- Odor
- Wastewater
- Waste management
- Soil contamination
- Underground water contamination
- Hazardous waste
- Water requirement and efficiency
- Soil/coastal erosion
- Green area
- Ecosystem and Biodiversity
- Species diversity
- Use/importation of alien species

Social

- Public participation
- Support for local community development activities
- Public health

Technology


- Technology development
- End of project life plan
- Training

Economic

- Stakeholders income
 - Project developer income
 - Labor income
 - Raw material supplier
- Energy
 - Renewable energy utilization
 - Energy efficiency
- Local content

Office of Natural Resources and Environmental Policy and Planning (ONEP)

2007 © Ministry of Energy




Department of Alternative Energy Development and Efficiency
Ministry of Energy

Alternative Energy Development as Climate Change Co-benefits

Conclusion

- CDM can improve financial viability of RE project.
- CDM project will be not only improved the global environment but also could provide sustainable development to the countries.
- CDM is enable to accelerate RE development to achieve the target



• Thank you

Contact..... Bureau of Energy Research
Dept. of Alternative Energy Development & Efficiency
17 Rama 1 rd. Pathumwan, Bangkok 10330
Tel 0 2223 1820 Fax 0 2223 8705