

Renewable Energy in

Thailand



By

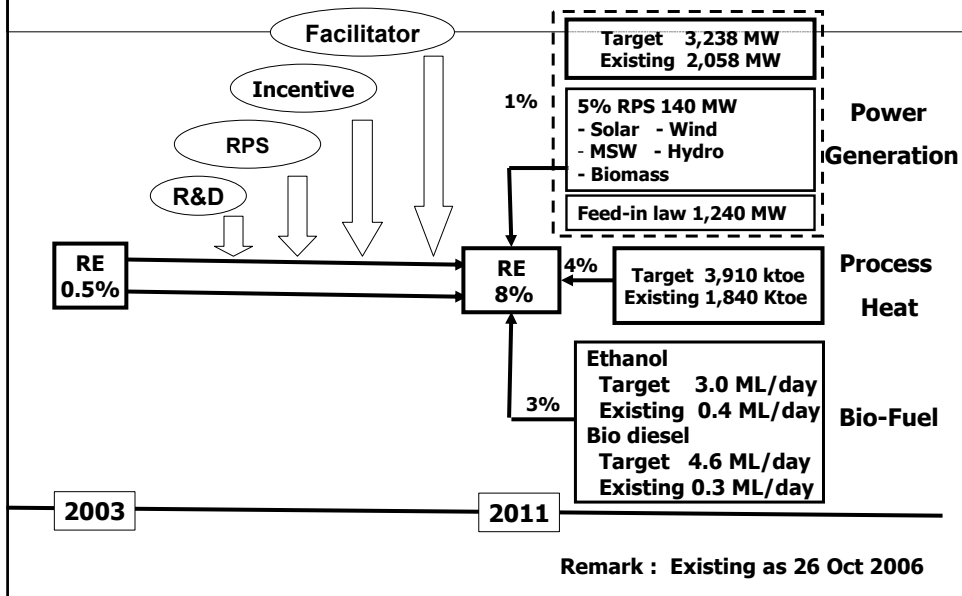
Phichai Tinsuntisook

The Chairman of the Renewable Energy Industry Club

The Federation of Thai Industries

9-10 October 2006 at Manila, Philippines

RE Development Target by 2011



Promotion of Renewable Energy

*update 12/10/06

Promotion

Renewable Portfolio Standard (RPS)

- Provide electricity generation from renewable energy 5% of capacity of new fossil-fuel power plants by 2011 or about 140 MW.

Feed-in Tariff

- Feed-in tariff
 - IRR > 11%
 - Pay back period 7 year

Other Promotion

- Tax Incentive (BOI privilege)
- Soft loan
- Carbon Credit

Electricity (MW)

	Existing	Target'2011
Biomass	1,978.5	2,800
Biogas	4.6	10
Solar	25.48	85
Hydro	44.33	200
Wind	0.55	43
MSW	4.25	100
Total	2,058	3,238 MW

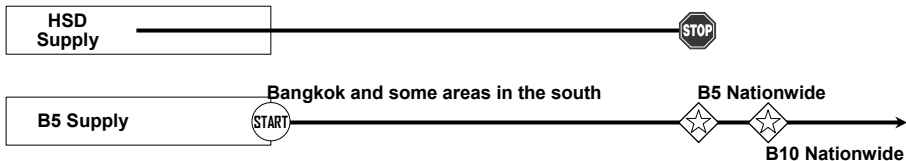
Thermal (ktoe)

	Existing	Target '2011
Biomass	1,800	3,660
Biogas	40	245
Solar	~0.1	5
Total	1,840	3,910 ktoe

Production Cost (Baht/Unit)

Biomass(average)	3.25
Biogas	1.86
Solar	14.65
Hydro	2.45
Wind	5.11
MSW	3.83

BIOFUEL: Biodiesel



B5 Current Situation*

*as of Mar 06

< Supply Side >

B5 is distributed in 35 gas stations. (as of July, 2006)

< Demand Side >

Price difference : Diesel more expensive than B5 by 0.50 Baht/liter

Sale Volume: 3.5 million liters in June, 2006



Types	Makes	Shell	PTT	Shell	Shell	Shell	Shell	Shell	Shell
Gasohol 95	•	•	•	•	•	•	•	•	•
Gasohol 91	•	•	•	•	•	•	•	•	•
ULG 95 RON	•	•	•	•	•	•	•	•	•
ULG 91 RON	•	•	•	•	•	•	•	•	•
HSD 0.05%S	•	•	•	•	•	•	•	•	•
HSD Premium	•	•	•	•	•	•	•	•	•
Biodiesel	•	•							



To be replaced by B5 / B10

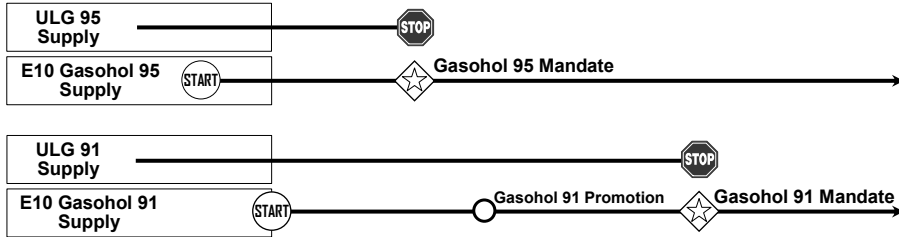


Ethanol Strategic Plan

Ethanol Roadmap

Ethanol Hub

(Year) 04 05 06 07 08 09 10 11 12 13



E10 Promotion Plan



< Supply Side >

E10 is supplied in 3,241 stations. (as of Jul 2006)

< Demand Side >

Price difference : ULG 95 more expensive than Gasohol 95 by 1.50 Baht/liter

Types	Makes	BP	PL	Shell	Esso	Star	JEL
Gasohol 95		•	•	•	•	•	•
Gasohol 91		•	•	•	•	•	•
ULG 95 RON		•	•	•	•	•	•
ULG 91 RON		•	•	•	•	•	•
HSD 0.05%S		•	•	•	•	•	•
HSD Premium		•	•	•	•	•	•
Palm Diesel		•	•	•	•	•	•

To be replaced by E10/ E10 & FFV



Note : Raw Materials will be sufficient only if the production per rai is achieved according to MAC plan Policy of E10-E100, MOEN will cooperate with Automobile Producers and oil companies in 2008

Renewable Energy for Commercial Purpose



Solar Cell



Wind



BioMass



BioGas



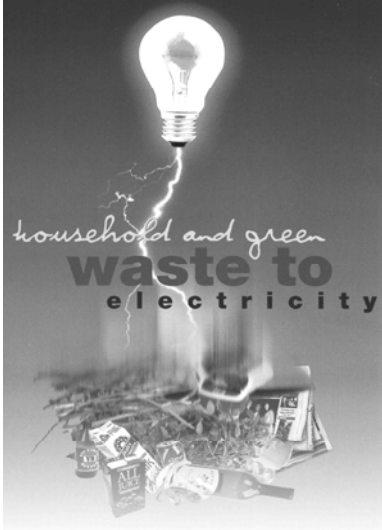
Ethanol



Biodiesel

Waste to Energy

RDF (Refuse Derived Fuel)

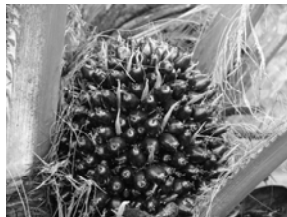


Agricultural Residue

All parts of trees will become as **Zero Residue**



Sugarcane



Palm



Cassava



Coconut



Jatropha



Used cooking oil

Biodiesel from Jatropha Cur



www.thaijatropha.com

Thank You



**Royal Flora
Ratchaphruek
2006**

Welcome to Royal Flora Expo

Ratchaphruek 2006

1 Nov 06 – 31 Jan 07

Chiang Mai, Thailand

Chiang Mai, Thailand

International Horticultural Exposition
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