

DEVELOPMENT OF BIOFUELS IN THAILAND

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I. Needs for Biofuels

IMPORTS

- Total value of energy imports **US\$25 billion or 10%** of GDP
- Total value of crude oil imports **80%** of all energy imports

COMSUMPTION

- Total value of petroleum products **64%** of total energy consumption
- Transportation sector **36%** of total energy consumption



II. National Energy Policy

1. Regulatory framework for electricity and natural gas
2. Security of energy supply
3. Promote energy saving and energy efficiency
4. Promote renewable and alternative energy
5. Market-based pricing structure
6. Mandate on clean energy
7. Promote public-private participation in policy formulation.



National Biofuel Target

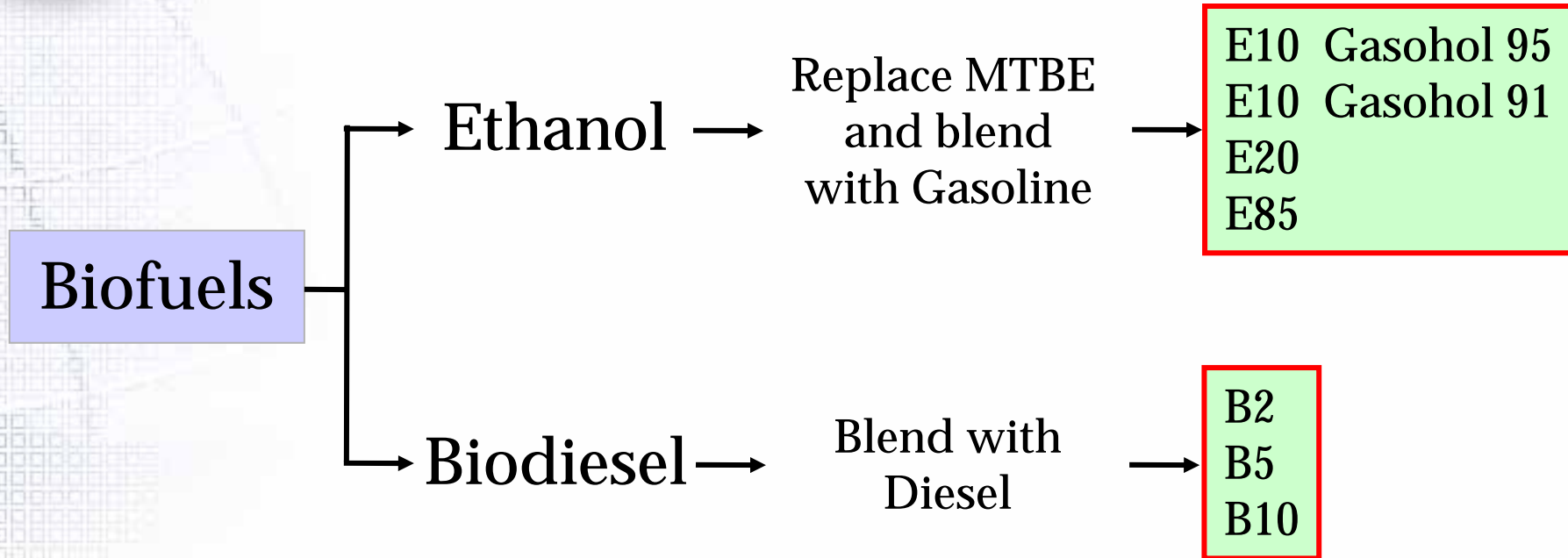
To increase renewable energy use
From 0.5% in 2002 to 8.0% in 2011

8% consists of

1% Power Generation
4% Heat Process
3% Biofuels in Transportation



Biofuels in Transportation Sector





Main Policy Instruments

(1) Mandatory Requirements

Timeline

Gasoline 91

Phase out by 2011

Diesel (100%)

Phased out in February 2008

Diesel (B2)

Compulsory since February 2008

Phase out by 2011

Diesel (B5)

Compulsory from 2011



Main Policy Instruments (cont.)

(2) Price Incentives

To consumers

Gasohol offered at lower prices through lower taxes and lower contributions to oil funds

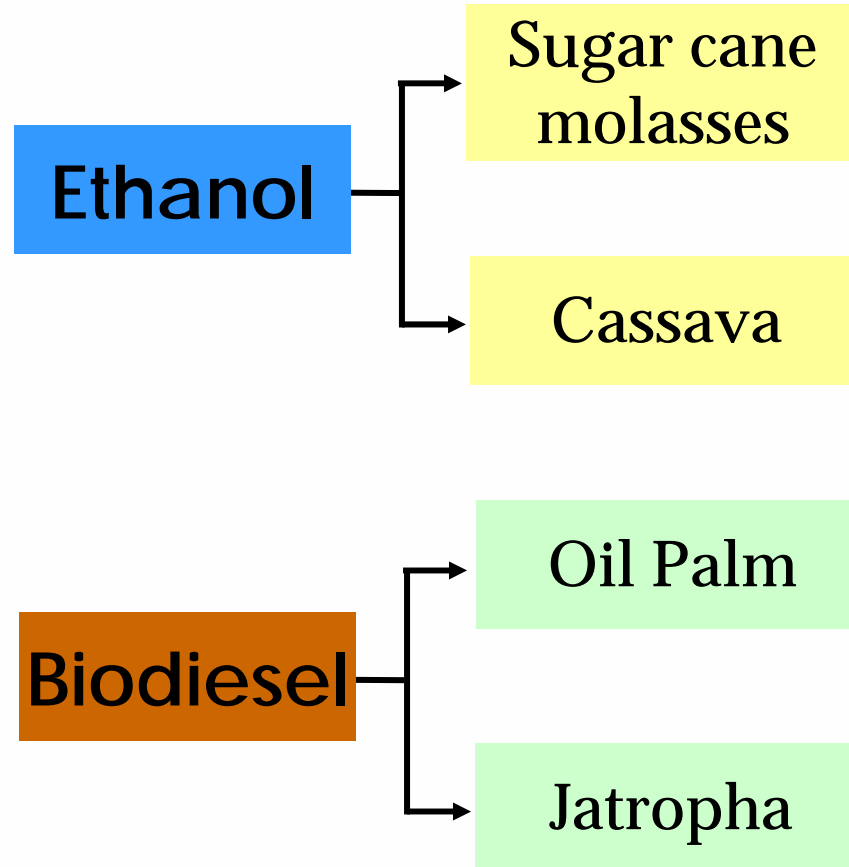
To producers

Ethanol Price = Brazilian Price + Logistics
+ Insurance + Loss + Survey

Biodiesel (B100) Price = 0.97 Malaysian CPO Price
+ 0.15 MtOH + 3.32



III. Biofuel Crops and Future Outlook





Demand for Biofuels

(million litres per day)

	2008	2009	2010	2011
Ethanol	1.27	1.59	1.93	2.40
Biodiesel	1.16	1.33	1.38	3.02



Demand for Feedstocks

(million tons per year)

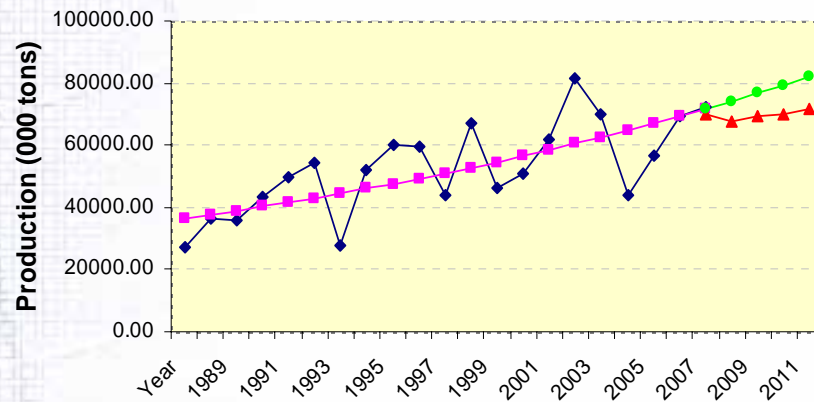
	2008	2009	2010	2011
Ethanol				
Molasses	1.48	1.62	1.69	1.75
Cassava	0.54	1.02	1.66	2.57
Biodiesel				
CPO	0.39	0.45	0.47	1.02
CJO	← Minimal →			



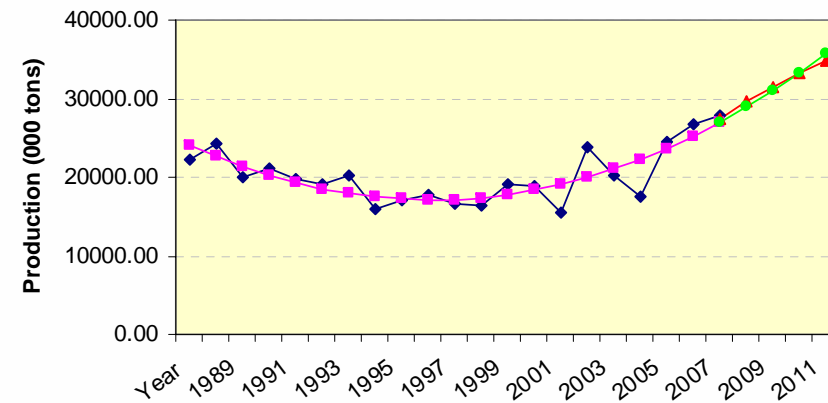
Future Outlook of Biofuel Crops

Production : Trends and Planned Targets

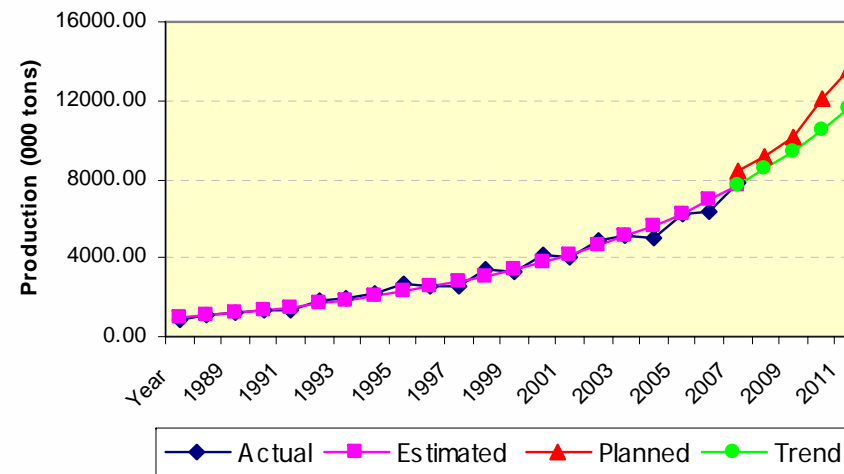
Sugarcane



Cassava



Oil Palm



—◆— Actual —■— Estimated —▲— Planned —●— Trend



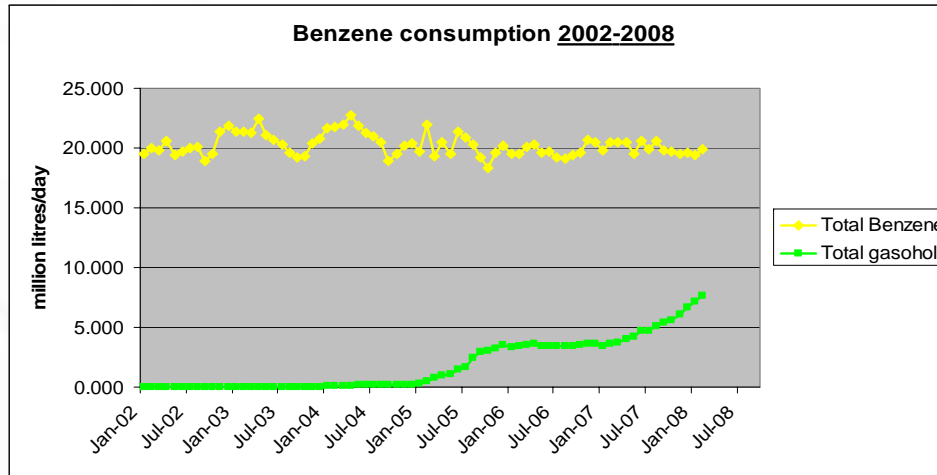
Surplus of Feedstocks Available for Biofuel Production 2006-2011

	2006	2007	2008	2009	2010	2011
Sugar cane molasses	Million tons					
Production	3.0	3.2	3.1	3.1	3.1	3.2
(Non-Biofuel) Domestic consumption	1.5	1.5	1.4	1.4	1.4	1.4
Cassava						
Production	22.58	26.92	27.40	29.60	31.50	33.30
(Non-Biofuel) Domestic consumption	3.99	7.67	7.77	8.19	8.42	8.69
Crude Palm Oil						
Production	1.17	1.12	1.47	1.59	1.71	1.91
(Non-Biofuel) Domestic consumption	0.95	0.88	0.90	0.93	0.96	0.99

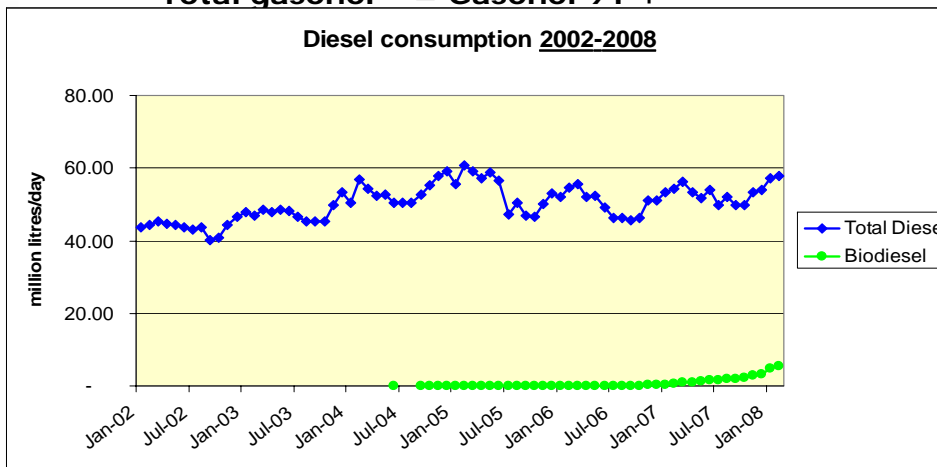
Note : Starting date of commercial production: Ethanol 2006
Biodiesel 2007



IV. Policy Issues



**Total benzene = Benzene 91 +
Benzene 95 + Gasohol 91 + Gasohol 95
Total gasohol = Gasohol 91 +**



**Total diesel = Diesel
(B2) + Diesel (B5)
Biodiesel = B100**



IV. Policy Issues (cont)

1. Food vs Feed vs Fuel
 2. R&D
 3. Contract Farming
 4. Feedstock Price Guarantee
 5. Government Biofuel Stock Management
 6. Biofuel Pricing
 7. Investment Privileges for Downstream Industries
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PTT and Siam Ethanol



PURE BIODIESEL





**Thank you
for your attention**
