



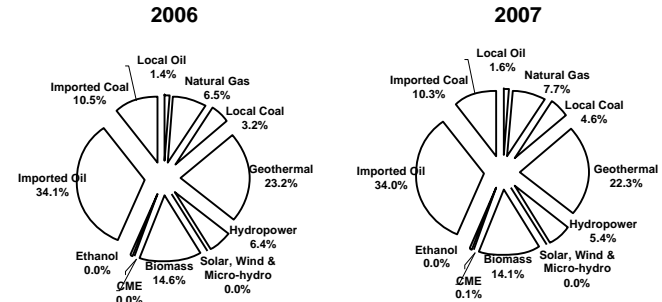
Alternative Fuels Program

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 Energy Utilization Management Bureau
 Department of Energy

WHERE WE ARE NOW!

Self Sufficiency Level = 55.4%

Self Sufficiency Level = 55.7%



PRIMARY ENERGY MIX

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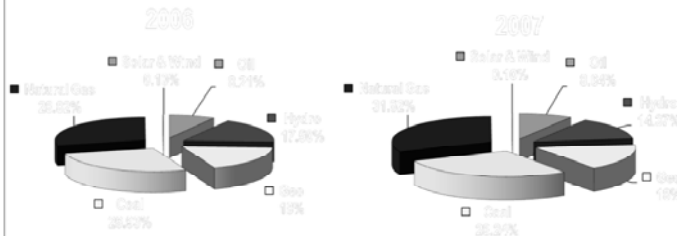
WHERE WE ARE NOW!

Total Generation = 56,784 GWh

Self Sufficiency Level = 66.32%

Total Generation = 59,612 GWh

Self Sufficiency Level = 64.49%



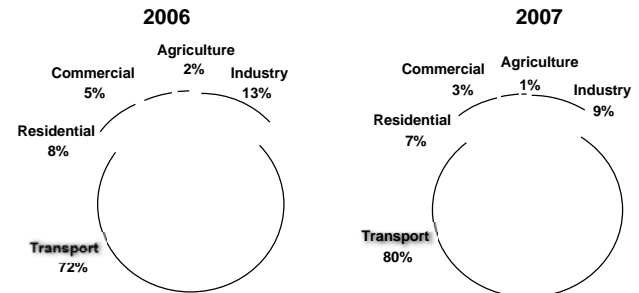
POWER GENERATION MIX

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WHERE WE ARE NOW!



Total : 11.7 MTOE

Total : 13.0 MTOE

SECTORAL CONSUMPTION OF OIL

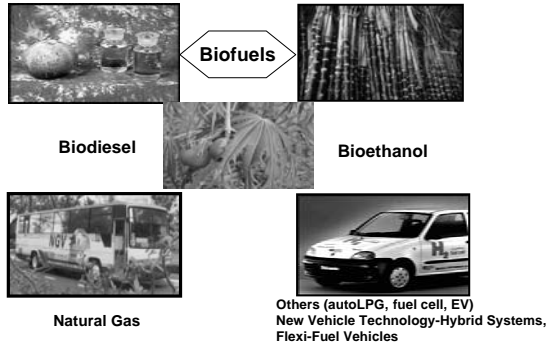
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ALTERNATIVE FUELS PROGRAM

To achieve energy independence and fuel diversification while meeting environmental challenges through the utilization of alternative fuels



Legislative Measures Republic Act No. 9367

Entitled "The Biofuels Act of 2006"
An Act to direct the use of biofuels, establishing for this purpose the National Biofuels Program, Appropriating Funds thereof, and for other purposes

RA 9367 Implementation Timelines

Signing of the Act - 12 Jan 07
Effectivity - 06 Feb 07

Start of Implementation

Biodiesel Mandate - 06 May 07
Bio-Ethanol Mandate - 06 Feb 09

SALIENT POINTS OF RA 9367

Objectives:

- To reduce the Philippine's dependence on imported oil
- To increase the economic activity in the country and boost employment
- To improve energy efficiency
- To contribute in improving air quality

Mandatory Use of Biodiesel

1. Effectivity of the Act

- a. blending a minimum of 1% biodiesel by volume into all diesel engine fuel distributed and sold in the country;
- b. biodiesel blend conforms to PNS

2. Within two (2) years from the effectivity of the Act

- a. NBB to determine the feasibility of increasing the blend to 2%, and;
- b. recommend to DOE to mandate a minimum of 2% blend of biodiesel by volume subject to domestic supply and availability of locally-sourced biodiesel component.

Mandatory Use of Bio-ethanol

1. Within two (2) years from the effectivity of the Act

- a. at least 5% bioethanol shall comprise the annual total volume gasoline fuel actually sold and distributed by each and every oil company in the country;
- b. ethanol blend conforms to PNS

2. Within four (4) years from the effectivity of the Act

- a. NBB is empowered to determine the feasibility of increasing the blend of bioethanol to minimum 10% blend by volume ;
- b. DOE to mandate a minimum of 10% blend of bio-ethanol by volume into all gasoline fuel distributed and sold by each and every oil company in the country;
- c. Oil companies shall be allowed to import bioethanol in the event of supply shortage of locally-produced bioethanol

What has been Done

- **Formulation of Omnibus Guidelines for Biofuels Feedstocks Production and Biofuels Blends Production, Distribution and Sale, in coordination with the Office of Sen. Zubiri. Joint Administrative Order composed of the National Biofuels Board**

- **Approval of the National Biofuels Program**



VISION AND MISSION

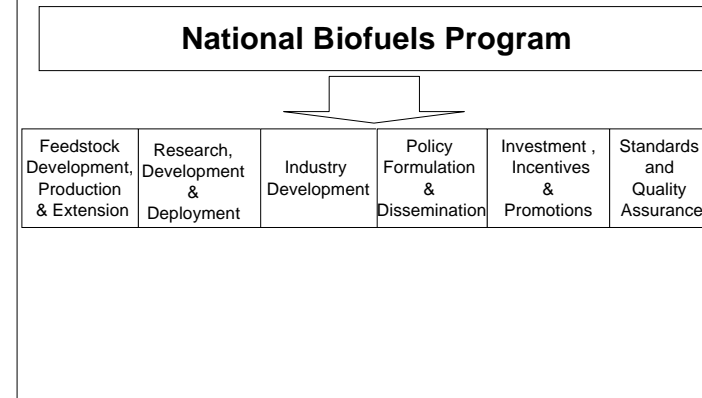
The Philippines shall be the leader in a globally competitive biofuels industry by year 2011

The country shall accelerate the commercialization of biofuels in order to achieve energy-self sufficiency, protect the environment and spur socio-economic development.

Objectives

- ⌘ Maximize the distributions of indigenous biofuels in the country's energy mix towards self-sufficiency and better environmental conditions;
- ⌘ Establish the Philippines as a leader in sustainable biofuels feedstock development, technology generation, and market development;
- ⌘ Harmonize research, development, demonstration, and commercialization efforts in the country;
- ⌘ Coordinate efforts towards the creation of new applications and markets for biofuels;
- ⌘ Update national incentives and regulatory requirements to encourage production and use of biofuels and;
- ⌘ Ensure improvement of the quality of life of the people, particularly the farmers and other workers in the related areas of endeavor, through the growth of the biofuels industry

National Biofuels Program Framework 2007-2012



Feedstock Development, Production and Extension

- ⌘ **Land Use**
 - Survey
 - Validation of existing plantations
- ⌘ **Agriculture**
 - Propagation/cultivation
 - Fertilization
 - Expansion
 - Mechanization
- ⌘ **Farmers**
 - Organization
- ⌘ **Community Development**

Research Development and Deployment

- ⌘ Varietal improvement and management
- ⌘ Process enhancement
- ⌘ By-products development
- ⌘ Protocol and standards development
- ⌘ Blend performance tests and standards development
- ⌘ Pilot plant and showcase projects

Industry Development

- ⌘ Biofuels Roadmap
- ⌘ Plant Construction, operation and expansion
- ⌘ Fuel Storage and exchange
- ⌘ Transport and handling
- ⌘ Competitive and pricing
- ⌘ Distribution and sales
- ⌘ Application development

Policy Formulation and Dissemination

Additional enabling rules and regulations for the smooth implementation of the Law

Covers all areas and strategies of the program

Investment, Incentives and Promotions

- ⌘ Government Financing
- ⌘ Credit Facilitation services
- ⌘ Tax incentives
- ⌘ Market development services
- ⌘ Social amelioration
- ⌘ Manpower development
- ⌘ Seminars, conferences and workshops
- ⌘ Tri-media info
- ⌘ Web access

Standards and Quality Assurance

⌘ **Covers technical and environmental compliance in the following areas:**

- Production facilities
- Utilities and services
- Biofuels and blends
- Utilization technologies

⌘ **Enforcement**

- Inspection and monitoring
- Penalizing

Agency Responsibility in the Biofuels Program



AGENCY	AREAS OF CONCERN
DOE	Policy formulation and dissemination/Standards and quality assurance
DA	Feedstock development, production and extension
SRA	Feedstock development, production and extension
PCA	Feedstock development, production and extension
DOST	Research and Development and deployment
DOLE	Policy formulation and dissemination
DTI	Investment, Incentives and promotion
DOF	Investment, Incentives and promotion

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Strategic Programs for challenges and gaps



- ⊖ Improving cultivation and diversification of feedstock
- ⊖ Meeting demands in terms of quantity and quality for local requirements
- ⊖ Developing cost effective technologies for extraction and refining
- ⊖ Improving support infrastructure such as farm-to-market roads, ports terminals, etc.
- ⊖ Increasing investments
- ⊖ Implementing sustainable Incentives
- ⊖ Improving condition of retail competition
- ⊖ Monitoring of quality, quantity and price
- ⊖ Improving enforcement of guidelines and industry standards
- ⊖ Strengthening DOE capability in its management role of the new industry.

BIOFUEL R & D PROGRAMS 2007-2012



R & D Priority areas	2007	2008	2009	2010	2011	2012
Biodiesel						
Coconut						
Process enhancement						
By-product value-added development	→	→				
Test Protocol for IDO and higher blends		→				
IDO blend performance testing and standards development		→	→	→	→	→
CME higher blend performance testing and standards development		→	→	→	→	→

BIOFUEL R & D PROGRAMS 2007-2012



R & D Priority areas	2007	2008	2009	2010	2011	2012
Biodiesel						
Jatropha						
Varietal improvement, crop management		→	→			
Process development		→	→			
Demo plant/pilot plant		→	→			
By-product value-added development			→			
Household application development		→				
Test protocol development		→				
Performance Testing		→				

BIOFUEL R & D PROGRAMS 2007-2012



R & D Priority areas	2007	2008	2009	2010	2011	2012
Biodiesel						
Palm Oil and used oil						
Multi-feedstock pilot plant processing			→			
Performance Testing				→		
Micro-Algae						
Varietal Study and selection			→			
Laboratory scale process				→		
Propagation assessment and techno-economic study					→	
Pilot plant processing						→

BIOFUEL R & D PROGRAMS 2007-2012



R & D Priority areas	2007	2008	2009	2010	2011	2012
Bioethanol						
Sugarcane						
Varietal improvement	The study will be continuous for the duration of the program					
Dehydration Process						
Process enhancement						
Performance Testing						
Cassava, Sweet potato						
Agro and processing techno-economic study		→				

BIOFUEL R & D PROGRAMS 2007-2012



R & D Priority areas	2007	2008	2009	2010	2011	2012
Bioethanol						
Sweet Sorghum						
Varietal selection, crop management		→				
Demonstration Pilot plant			→			
By-product value added Development				→		
Test Protocol development					→	
Performance Testing						→

POTENTIAL FUEL DISPLACEMENT



•Ethanol

Blend	Gasoline Displacement (million liters)	FOREX Savings (million US\$)
5%	268	168
10%	721	452

•Coco-Methyl Ester (CME) or "Coco-Biodiesel"

Scope	Blend	Diesel Displacement (million liters)	FOREX Savings (million US\$)
Government	1%	0.882	0.42
Nationwide	1%	78	50
	2%	209	133

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Biodiesel Program



Scope	Blend	Diesel Displacement (million liters)	FOREX Savings (million US\$)	Year
Government	1%	0.882	0.42	
Nationwide	1%	78	50	2007
	2%	209	133	2009

BIODIESEL PRODUCTION CAPACITY

(million liters/year)

Accredited Biodiesel Producers (6)

Chemrez Inc.	75.00
Senbel Fine Chemicals Inc.	72.00
Romtron Philippines	0.30
Freyvonne Milling Services	15.60
Golden Asian Oil International, Inc.	30.00
Pure Esters	60.00
Sub-Total	252.90

Biodiesel Producers for Accreditation(5)

Mt. Holly Coco
Atson Coco
Unistar
Rasza
Chemical Corp.

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Bio-Ethanol



Projected Demand and supply of bioethanol by feedstock 2008-11

Year	Domestic Demand Million liters	Supply In Million Liters				Gap/ Surplus (million liter)
		Sugarcane	Cassava	Sweet sorghum	Total	
2008	0					
2009	222.9	243	60		303	80.1
2010	232	243	60	42	345	113
2011	482	591	60	42	693	210.7