

BIOFUEL ACT OF 2006

1. What is Republic Act 9367?

Republic Act 9367, otherwise known as the Biofuels Act of 2006, mandates the use of biofuels in the country. It was signed into law in January 2007 – the first of its kind in Southeast Asia.

2. What are biofuels?



Biofuels are alternative fuels that are not composed substantially of petroleum or imported crude oil.

They are produced from feedstock and other biomass or organic sources that are renewable such as trees, crops and plant fiber. These sources can likewise be recurring, such as poultry litter, animal wastes, industrial wastes and the biodegradable component of solid waste.

This explains the “bio” in “biofuels.”

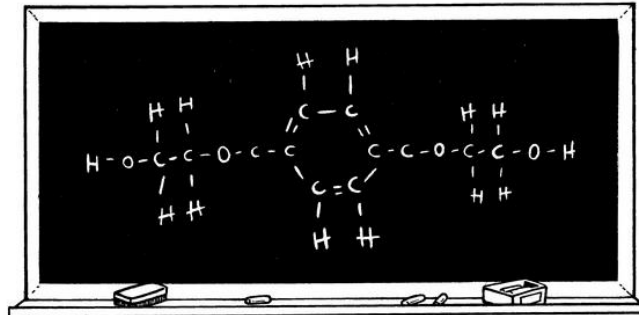
3. Are biofuels an entirely new concept?

No.

The concept of biofuels dates back to 1885 when Mr. Rudolf Diesel built the first diesel engine fueled by vegetable oil.

4. What are the different types of biofuels?

Biofuels include bioethanol, biodiesel and other fuels produced from biomass and are primarily used for motive, thermal and power generations, in accordance with the Philippine National Standards (PNS). They are produced from at least 81% live organism.



Bioethanol is a light alcohol produced by fermenting carbohydrates, such as starch or sugar in vegetable matter. Sources of bioethanol include sugarcane, corn, cassava and nipa. Bioethanol is currently being used in Brazil, the United States, China, India and Thailand.

Biodiesel is a renewable and biodegradable fuel extracted from plant oils. Its sources include palm, jatropha, soy, rapeseed and coconut.

Pure food oils are not suitable as road fuels in normal diesel vehicle engines. These have to undergo a chemical process for conversion into Fatty Acid Methyl Ester to make them suitable fuels for transport. Oil-seed crops (e.g. rapeseed, soybean, sunflower, palm and coconut) can be converted into methyl ester, a liquid fuel which can either be blended with conventional fuels or burn as pure biodiesel.

A variety of oils can be used to produce biodiesel. These include:

- Virgin oil feedstock: rapeseed and soybean oils are most commonly used, although other crops such as mustard, palm oil, hemp, jatropha and even algae have good potential
- Waste Vegetable Oil
- Animal fats including tallow, lard, and yellow grease and as a byproduct from the production of Omega-3 fatty acids from fish oil

Soybean is the most commonly grown oil-yielding plant in the United States while rapeseed and sunflower oils are the prevalent biodiesel sources in Europe. Meantime, palm is abundant in Malaysia, Indonesia and Thailand.

The Philippines is the first country to use coconut as a source of feedstock for biodiesel.

5. What are the advantages of using biofuels?

- Cheap

Given the high prices of imported crude oil, it makes sense to produce biofuels. With rising petroleum prices, biofuels can be cost competitive with petroleum fuels not only in the Philippines but also in many areas of the world. The government will be able to save about \$22 million per year with the initial use of 1% Coco-Methyl Ester (CME) in diesel and \$179 million for 5% ethanol in gasoline.

- Clean

Biofuels are considered clean fuels. They are the only alternative fuels in the United States to complete the Environmental Protection Agency Tier 1 and 2 Health Effect Testing of the United States Clean Air Act. The PNS for coco-biodiesel is scientifically proven to result in 30% to 60% lower diesel emissions. Carbon dioxide is likewise reduced at the rate of 3 kilograms for every liter of biodiesel used.

- Safe

Biodiesels are safe to handle and transport because they are biodegradable. They are ten times less toxic than table salt, and have a high flashpoint, or flammability, of above 150°C compared to petroleum diesel fuels, which have a flashpoint of about 50°C.

- Efficient

Biodiesels extend the life of diesel engines because they are more lubricating than petroleum diesel fuels. Fuel consumption, ignition, power output and engine torque are unaffected by biodiesel. According to the Chamber of Automotive Manufacturers of the Philippines, a 1% biodiesel blend will not require any engine modifications. Cars, motorcycles, pump boats and hand tractors will also be able to run on a 10% bioethanol blend without any engine modifications.

- Cost-effective

A 1% blend can result in substantial monetary savings in our foreign exchange and contribute to the government's energy conservation efforts. The mandated CME is estimated to result in savings of \$420,000 for government vehicles using 1% blend at a volume of 882,000 liters and \$41 million nationwide at a volume of 86 million liters. When the law requires the biodiesel to rise to 5%, the country stands to save \$205 million at a volume of 429.4 million liters.

- Livelihood promoter

The production of biofuels will also create new jobs and spur development in the countryside. Incomes would increase as farmers produce and sell crops for feedstock purposes.

6. What is the current supply of biodiesel worldwide?

The world biodiesel production capacity increased four-fold from 591,000 metric tons (MT) to a total of 2 million MT from 1996 up to 2002.

Europe – with Germany, France and Italy leading the pack – has the highest biodiesel production, where more biodiesel is produced than fuel ethanol.

In Asia, the active producers of biodiesel are Malaysia, Indonesia and Singapore.

Production of biodiesel continued to grow reaching 4.6 million MT (International Energy Agency, 2005).

7. What is the current demand of biodiesel worldwide?

Worldwide demand for biodiesel has grown from 30,000 tons in 1994 to 1 million MT in 2002 and is 5 times that volume within 2005. This is projected to grow to 17.7 million MT in 2010.

The global demand for biodiesel will increase significantly due to the continuing increase in the price of petroleum fuel and the commitment towards the Kyoto Protocol by many European countries.

It is therefore evident that there is a huge market for biodiesel.

8. What is the current demand of biodiesel in the country?

The current demand is estimated at 980,000 liters per annum. This represents the biodiesel requirement of government agencies as mandated by Memorandum Circular (MC) 55.

9. What is the production cost of biodiesel?

The production cost of biodiesel is highly dependent on feedstock prices.

10. Who are the major players in the local biofuel industry?

The Department of Energy (DOE) has so far accredited three CME manufacturers. These are Chemrez, Inc., Senbel, Inc. and the Department of Science and Technology (DOST)-Philippine Council for Industry and Energy Research and Development (PCIERD) Romtron.

Their combined production capacity stands at 114.1 million liters per annum.

11. What is the role of the Department of Energy (DOE) under RA 9367?

- Preparation of the Philippine Biofuels Program consistent with the Philippine Energy Plan and taking into consideration the DOE's existing biofuels program. It shall account biofuels producers/manufacturers
- Accreditation of biofuels producers/manufacturers
- Establishment of technical fuel quality standards for biofuels and biofuel-blended gasoline and diesel which comply with the PNS
- Establishment of guidelines for the transport, storage and handling of biofuels and biofuel blends
- Monitoring, inspection and laboratory testing of biofuels from biofuel production and feedstock production areas up to blending/storage/distribution facilities and fuel retail station
- Imposition of fines and penalties against persons or entities found to have committed any of the acts prohibited by RA 9367
- Stoppage of the sale of biofuels and biofuel-blended gasoline and diesel that do not conform to the specifications of RA 9367, the PNS and corresponding issuances of the DOE
- Information campaign to promote the use of biofuels



12. What office is primarily tasked for biofuels?

The PNOC Alternative Fuels Corporation (PNOC-AFC) is a wholly owned subsidiary of the state-owned Philippine National Oil Company (PNOC).

It has been officially registered with the Securities and Exchange Commission on July 13, 2006, and officially mandated by President Gloria Macapagal Arroyo, during the National Economic Development Authority-National Anti-Poverty Commission August 8, 2006 Cabinet Meeting to “have the primary responsibility over the biofuels project and to coordinate with the concerned agencies.”

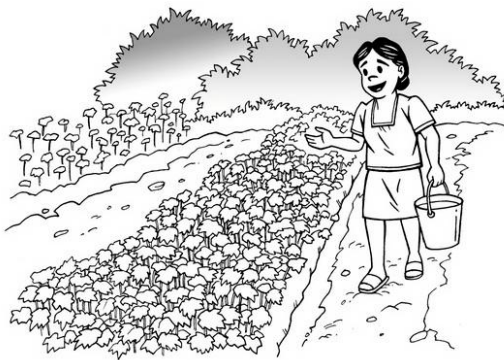
The Office of the Government Corporate Counsel, in its Opinion No. 285, dated December 29, 2006, affirms PNOC-AFDC's primordial role as a direct investor with a purpose to invest its capital and carry on the business of alternative fuels.



13. What other government agencies are involved in the implementation of the Philippine Biofuels Program?

- Department of Finance
 - Monitoring of the production and importation of biofuels through the Bureau of Internal Revenue and the Bureau of Customs
- DOST and the Department of Agriculture (DA)
 - Identification and development of viable feedstock for biofuel production
- DOST, through PCIERD
 - Development and implementation of a research and development program supporting a sustainable improvement in biofuel production and utilization technology
- DA
 - Development within three months from the law's effectively a national program for the production of crops for use as feedstock supply
 - Institution of a program that would guarantee that a sufficient and reliable supply of feedstock is allocated for biofuel production
- Department of Labor and Employment

- Promotion of gainful livelihood opportunities and productive employment through effective employment services and regulation
- Ensuring workers' access to productive resources and social protection coverage
- Recommendation of plans, policies and programs that will enhance the Philippine Biofuel Program's social impact
- Department of Trade and Industry, the Department of Transportation and Communication and the Department of Environment and Natural Resources
- Formulation and implementation of a national motor vehicle inspection and maintenance program pursuant to the Philippine Clean Air Act of 1991
- Tariff Commission
- Creation and classification of a tariff line for biofuels and biofuel blends in consideration of the ASEAN Free Trade Agreement and World Trade Organization agreements
- Local government units
- Assistance to the DOE in monitoring the distribution, sale and use of biofuels and biofuel blends



14. What are the salient provisions of Republic Act 9367?

- Phasing out of the use of Harmful Gasoline Additives and/or Oxygenates

Within six months from the law's affectivity, the DOE has to ensure the gradual phase out the use of harmful gasoline additives and/or oxygenates. Oxygenates are substances which, when added to gasoline, increase the amount of oxygen in that gasoline blend.

- Mandatory Use of Biofuels

The law also provides that all liquid fuels for motors and engines sold in the Philippines must contain locally sourced biofuels components as follows:

On Biodiesel

- Within three months from the law's affectivity, a minimum of 1% biodiesel blend in all diesel engine fuels sold in the country
- Within two years from the law's affectivity, a minimum of 2% biodiesel blend, upon the recommendation of the National Biofuels Board (NBB)

On Bioethanol

- Within two years from the law's affectivity, a minimum of 5% bioethanol blend in all gasoline fuel sold and distributed by every oil company
- Within four years from the law's affectivity, a minimum of 10% bioethanol blend in all gasoline fuel sold and distributed in the country, upon the recommendation of the NBB



15. What acts is prohibited by RA 9367?

The acts prohibited under this law include:

- Diversion of biofuels, whether locally-produced or imported, to purposes other than those envisioned in this Act
- Sale of biofuel-blended gasoline or diesel that fails to comply with the legally-mandated minimum biofuel blend by volume
- Distribution, sale and use of automotive fuel containing harmful additives

- Non-compliance with established guidelines of the PNS and DOE adopted for the implementation of RA 9367
- False labeling of gasoline, diesel, biofuels and biofuel-blended gasoline and diesel

16. What penalties does RA 9367 provide?

The DOE may impose administrative fines, suspend the operation of businesses and confiscate and dispose any amount of products prohibited under RA 9367 and its implementing issuances.

Violators of RA 9367 are likewise penalized with one year to five years of imprisonment and a fine ranging from a minimum of one million pesos (P1 million) to five million pesos (P5 million).

17. What is the implication of RA 9367 to the local biodiesel market?

Demand for biodiesel will increase with the signing of RA 9367, which mandates an immediate blending of a minimum of 1% biodiesel in all diesel fuels sold in the country.

The 1% minimum blend will entail an estimated average demand of about 78 million liters in 2007.

The estimated biodiesel demand will be about 167 million liters by 2009 for a 2% blend.

This will increase to 418 million liters for a 5% blend.

18. What is the implication of RA 9367 to investments?

RA 9367 is investor-friendly.

It provides tax incentives and financial assistance to encourage investments in biofuels.

The tax incentives include a 0% specific tax on local or imported biofuel component per liter of fuel. Another is the exemption of the sale of raw material used in the production of biofuels from the Value Added Tax.

In addition, all water effluents or those outflowing from the production of biofuels used as liquid fertilizer and for other agricultural purposes is considered “reuse” and is exempt from wastewater charges provided by RA 9275, or the Philippine Clean Water Act of 2004.

On the one hand, RA 9367 mandates that the Development Bank of the Philippines, Land Bank of the Philippines, Quedancor and other government financial institutions to extend

financing to those engaged in the production, storage, handling and transport of biofuel and biofuel feedstock, and the blending of biofuels with petroleum.

19. What is the implication of RA 9367 to the Philippine National Oil Company-Alternative Fuels Corporation (PNOC-AFC)?

The role of PNOC-AFC has become more relevant with the enactment of RA 9367. In particular, the PNOC-AFC:

- Leads in the identification and development of low-cost biofuel feedstock, i.e., jatropha for biodiesel and sweet sorghum and cellulosic biomass for bioethanol
- Embarks on an integrated biofuel production to ensure sustainable supply of feedstock and lower production cost while providing maximum benefits/returns to the company and the farmers
- Serves as catalyst in biofuel production using cheaper indigenous feedstock to reduce the country's dependence on imported oil and contribute to the economic development in the countryside



20. What is the implication of the PNOC-AFC to the local biodiesel market?

The PNOC-AFC aims to bring the Philippines to the forefront of the global alternative fuels industry. The company's twin objectives are meeting the domestic needs for biofuels and becoming a key player in biofuels in the Asia Pacific Region. The PNOC-AFC has considered jatropha as its feedstock for biodiesel production.

Production of biodiesel in the Philippines is projected to increase by 200,000 metric tons in 2009 with the entry of the PNOC-AFC in the market.

By 2012, the PNOC-AFC shall have established the following:

- 1,500 hectares of jatropha mega-nurseries cum pilot plantations
- 700,000 hectares of biofuel crop plantations

- 1 million MT biodiesel refineries

The Corporation aims to secure continuous feedstock supply of jatropha to the biodiesel refineries and at the same time control the price of feedstock to ensure price competitiveness of locally-produced biodiesel. Thus, the mega-nurseries, the plantations and the refineries must be strategically located to provide the most cost-effective scheme.