

Biofuels Act of 2006

The Future of Green Transport Is Here



Cleaner air, better health. Lesser imports of expensive fossil fuel. Greater energy independence. More jobs.

These are the socioeconomic promises of biofuels. Biofuels not only contribute to a cleaner environment or lessen the massive payments we give out for the petroleum we import from other countries. They also generate jobs, especially for our farmers

in the coconut, sugarcane and other crop subsectors.

The Biofuels Act of 2006 approved by Congress has thus been hailed by the lawmakers themselves as an “exciting” piece of legislation because of the endless possibilities it could contribute to national progress. The Department of Energy (DOE) is refining the guidelines in order to implement it as soon as possible.

As defined by the Biofuels Act, biofuels refer to fuels “made from biomass and primarily used for automotive, thermal and power generation, with quality specifications in accordance with the Philippine National Standards (PNS).” The PNS specifies the requirements that a product should meet to ensure its quality.

Simply put, it is renewable energy made from plant materials and animal wastes, which explains the “bio” in “biofuels”. The development of biofuels is part of the government’s long-term Alternative Fuels Program to: (a) reduce our dependence on imported oil; and (b) provide cheaper and more environment-friendly alternatives to fossil fuels.

The Alternative Fuels Program has four major subprograms,

namely Biodiesel Program, Bioethanol Program, Natural Gas Vehicle Program for Public Transport (NGVPPT), and Autogas Program. Other technologies advocated are hybrid, fuel cell, hydrogen and electric vehicles, which also support the use of alternative fuels.

Of these four, development and support of biodiesel and bioethanol programs are encouraged by the Biofuels Act, which also include the development of similar fuels from other sources such as the *jatropha curcas*, or tubatuba.

Economics of Biofuels

The Philippines is the first country to use coconut as a source or feedstock for biodiesel, thus the government’s Coco-Biodiesel Program. Coco-biodiesel, or Coco-Methyl Ester (CME), is produced from the transesterification of coconut oil. This process forces out the unwanted components (such as glycerine) in the oil, which could cause the gumming and clogging of fuel systems – eventually leading to engine failure in the long run.

Blending CME into diesel can reduce importation of diesel products, which means foreign exchange savings for the country. A 1 percent CME blend (as mandated by Congress) translates to about 40 million liters of displaced imported diesel or foreign exchange savings of approximately PhP1.2 billion (or US\$22 million) annually.

For the transport sector, the use of CME could yield savings in terms of mileage efficiency. Field tests by the Philippine Coconut Authority show that from a one percent blend of CME in diesel fuel, there is 18 percent more kilometers traveled per liter. This increase translates to savings of around 50 centavos per kilometer or between PhP4 to PhP5 per liter.

Aside from foreign exchange savings, CME also has the potential to improve engine performance and consequently, air quality. Based on tests conducted by the US-Department of Energy National Renewable Energy Laboratory (US-DOE NREL), CME has a higher cetane number than diesel (70 and 55, respectively).

In February 2004, President Gloria Macapagal Arroyo ordered all government offices to use 1 percent cocobiodiesel blend in their vehicles using diesel fuel. For that year, savings of PhP832,000 mainly from 30,261 liters of diesel fuel displaced were realized. Savings this year are expected to be higher.

It is estimated that full implementation of the presidential order could result in potential savings of PhP21 million, or 977,000 liters of avoided diesel.

Bioethanol, for its part, is a light alcohol produced by fermenting carbohydrates, such as starch or sugar, in vegetable matter. It is currently being used in Brazil, US, China, India and Thailand. The first three are the world's top producers of bioethanol.

The use of bioethanol has been gaining worldwide acceptance for the following reasons: (a) it is a much cleaner fuel than pure gasoline. Ethanol's high oxygen content reduces carbon monoxide levels and significantly reduces harmful exhaust emissions; (b) it boosts the octane levels to help the car run smoothly. As an octane enhancer, ethanol can cut emissions of cancer-causing benzene and butadiene by more than 50 percent; and (c) it is biodegradable and has no harmful effects to the environment.

The World Wide Fuel Charter (WWFC), which was signed by major automotive manufacturers worldwide, recognizes the use of up to 10 percent bioethanol blend in gasoline. Studies have shown that bioethanol, at 10 percent blend or less could be used without modifying vehicle engines.

Beyond 10 percent, adjustment to the vehicle is needed to prevent damage.

Status of Biofuel Use

Existing capacity for production of CME is estimated at 58 million liters per year, mainly from five major producers. Of these producers, three have been accredited by the DOE, namely: Chemrez, Inc.; Romtron (DOST-PCIERD project in Romblon); and Senbel Fine Chemicals. Senbel had a production capacity of 30 million liters of CME as of 2004, followed by Chemrez, with 15 million.

Chemrez, maker of the CME brand BioActive BD100, has opened a PhP650-million plant in Quezon City and is now making 60 million liters of CME a year. When its second phase is completed in 2008, production capacity would reach 180 million liters per year.

CME is now marketed and distributed under different brand names. Aside from Chemrez with its BioActive BD100, Senbel has Estrol Biodiesel; Seoil, BioExceed; and Flying V, Envirotek. Seoil and Flying V are among the small fuel distribution companies competing against the larger oil companies such as Shell, Caltex, and Petron.

Flying V now sells CME-blended diesel in its outlets in Baguio City, as well as in its 30 stations nationwide, including five in Metro Manila.

Bioethanol, on the other hand, is currently being sold as E10 (10% bioethanol blend) in all Seoil stations nationwide, priced at the same level as that of unleaded gasoline. Pilipinas Shell has also launched its "Shell Super Unleaded E10" gasoline in nearly 50 stations in Metro Manila, priced 50 centavos cheaper than its regular unleaded gasoline.

The San Carlos Bioenergy project, the first producer of the product, will be operational this year and will be producing 100 producing 100,000 liters of bioethanol by then.

