



USDA Foreign Agricultural Service

GAIN Report

Global Agriculture Information Network

Template Version 2.07

Required Report - public distribution

Date: 2007/5/29

GAIN Report Number: TW7026

Taiwan

Bio-Fuels

Annual

2007

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Report Highlights:

In spite of real concerns about the feasibility of substantial biofuel production, Taiwan is developing a biofuels policy based on domestic production of feedstocks in fallowed rice paddies. Taiwan has set compulsory goals to use B1 diesel starting July 2008 and B2 diesel in 2010. Taiwan is also set a goal to use E3 gasohol to replace MTBE in 2011. There is some concern that Taiwan will not be able to supply itself with enough biodiesel to meet its 2010 consumption goal, but it stated a willingness to import enough to make up any shortfall.

The current exchange rate is approximately US\$1 = NT\$33.

Includes PSD Changes: No
Includes Trade Matrix: No
Unscheduled Report
Taipei [TW1]
[TW]

Situation and Outlook

Government Biofuels Policy

Small and fragmented land holdings in Taiwan greatly increase the cost of field crop production, harvest, and transport. This will make it difficult to develop a viable bio-fuels sector without large subsidies. In spite of the obstacles, Taiwan is developing a bio-fuels policy that requires certain levels of consumption at future dates and subsidizes feedstock production on fallow rice paddies. Taiwan is also conducting extensive research on biofuels, and has the potential to produce technologies that are of global importance in tropical biofuel production. Taiwan's interest in bio-fuels is driven by a desire to diversify energy sources and to increase farmer incomes. Taiwan may evolve into a minor producer and a, possibly large, importer of bio-fuels.

According to Taiwan's current bio-fuels plan, the demand will be met by domestic production and is aimed at reducing petroleum dependency and increasing energy self-sufficiency. Approximately, 98 percent of the island's energy supplies are imported. Although Taiwan is not a signatory member to Kyoto Protocol, Taiwan has held two conferences on energy to address greenhouse emissions. Taiwan may import bio-diesel and/or ethanol in the future to reduce greenhouse emissions if there is shortfall of domestic supply. Taiwan has set a compulsory goal to use B1 diesel starting July 2008 and B2 diesel in 2010. Taiwan has also set a goal to use E3 gasohol to replace MTBE in 2011. Taiwan's annual motor vehicle demand for gasoline is 10.5 million KI and 4.5 million KI for diesel. Taiwan's demand for crude oil is met by imports and it imports 1.2 million barrels of crude oil a year.

Biodiesel

The demand for biodiesel is estimated at 45,000 kl for B1 diesel. Currently, Taiwan only produces 6,500 kl of biodiesel from recycled cooking oil. The rest demand will be able to source from biodiesel made from domestically grown energy crops. Taiwan has selected soybean and sunflower as two major energy crops to grow on fallow rice paddy fields. Taiwan's Council of Agriculture (COA) provides supports to farmers per hectare NT\$45,000 according to the current green payment to farmers who set aside their rice paddy for fallowing and oil seeds are sold to contracted biodiesel plants at NT\$12 per kilogram according to current soybean import price level. The Bureau of Energy has also set financial support program for B1 to B5 biodiesel users, but only limit to public transportation vehicles and limit to biodiesel made from domestically grown oil seeds. The financial support program to users will end when B1 mandate take into effect.

At the present time, there are four biodiesel plants manufacturing biodiesel and there are several biodiesel plants are under construction. Taiwan authorities are confident in self-sufficient supply for B1 stage but not sure about B2 supply. If there is a shortfall of biodiesel, Taiwan is going to use imported biodiesel. Taiwan has published its national standard on biodiesel, i.e. all biodiesel will trade according to the CNS1507. Its English version is not available but Chinese version can be ordered from Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs.)

Gasohol

While there is no domestic ethanol produced from feedstock, Taiwan authorities support several bio-fuels research projects. They are considering ethanol produced from sugarcane, sweet potato and other biomass from agricultural wastes. A Biomass Energy Committee convened by former Minister of Economic Affairs Ho Mei-yueh is conducting a study to form Taiwan's biomass energy policy and draft incentive programs for bio-fuels. These would

include a tax exemption on bio-fuels and an energy tax on petroleum products. Without the use of energy tariffs and taxes to encourage production and usage of bio-fuels, bio-fuels are not competitive with petroleum fuels and imported products. Domestic ethanol production cost from sugarcane and sweet potatoes are estimated to be NT\$29.70/liter or \$0.92/liter, compared to NT\$6.27/liter in Brazil, NT\$10.90/liter in the United States and NT\$18.20/liter in EU. Current retail gasoline prices in Taiwan are approximately NT\$27.80/liter. It will take three to six years of preparation to establish an ethanol distribution system, including developing infrastructure and manufacturing gasohol fuel vehicles.

Incentives to Biofuel Producers

Government supports bio-diesel production with technology transfers and NT\$100 million of environmental subsidies. Four bio-diesel factories have been built in last two years and combine to produce approximately 6,500 KI of bio-diesel on an annual basis from recycled cooking oil, sunflower, soybean and rapeseed oil. The bio-diesel is used to fuel city trash trucks in a trial program that uses bio-diesel ratios from 100 percent to B20.

Energy Crops

The Council of Agriculture (COA) initiated a program that sets aside fallowed rice land for production of bio-fuel feed stocks such as sweet potatoes, sunflowers, soybeans and rapeseeds on 2,000 hectares in 2006, 4,000 hectares in 2007. A total of 220,000 hectares of production area is available. A significant problem with this approach is that local land holdings are small and fragmented, increasing feedstock collection costs. The purposes of the trial plantation-production are to help rice farmers manage their fallowed land, reduce greenhouse emissions with bio-fuels, and to reduce dependency on imported petroleum.

(Current exchange rate is \$1 = NT\$33, quoted May 2007).

Statistics and Analysis

There are no tables attached to this report because there are insignificant production, trade and consumption of biodiesel and gasohol on Taiwan. All values approximate zero.

Production, Consumption and Trade (Biodiesel)

In 2006, Taiwan produced 100 kl of biodiesel from domestically grown soybeans and sunflower oil seeds from 2,000 hectares of fallowed land and 1,700 kl of biodiesel from recycled cooking oil. In 2007, biodiesel production estimate is 6,500 kl, of which 400 kl from domestically grown soybean and sunflower oil seeds of 4,000 hectares of fallowed land and the rest is sourced from recycled cooking oil. In 2008, the total demand for B1 is estimated at 45,000 kl and in 2010 demand for B2 is 100,000 kl.

Current consumption level is the local production level.

There is no import of biodiesel.

Production, Consumption and Trade (Biofuel ethanol)

Currently, there is no domestic production from feedstock or import of bio-fuel ethanol.

Other Bio-fuels Produced from Biomass: Ethanol produced from biomass is under development. Many research projects supported by government are focusing on developing ethanol production technology. Examples include, cellulose ethanol produced from crop

wastes like rice stalks and discussions on problems of catalyst that breakdown biomass. Bio-fuels produced from fuel cells are also one of government supported research projects. The excellent agriculture research institutions on Taiwan have the potential to make contributions to biofuels development that could be used globally.

Bio-fuels Impact on Traditional Uses such Feed, Food, Trade: At the current stage, there are no impacts on feed, food and trade resulted from bio-fuels. This is because Taiwan promotes bio-fuels produced from recycled cooking oil and vegetable oils crushed from oil seeds grown on fallowed paddy fields and there is no ethanol production from feedstock. Taiwan's import demand for bio-fuel ethanol is zero and bio-diesel is in the trail period.

Trade Policy

Taiwan has not yet adopted an import regime for bio-fuels. Imports of bio-fuels are not subject to the current import regulations on petroleum and products under the Petroleum Act. However, manufacturers and sellers of bio-fuels are required to follow the same rules as those marketing petroleum products. These require approval, registration, and manufacturing and business licenses.