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First-Generation Biofuels Weakened - Advanced Biofuels in Progress

Report Categories:
Biofuels
Agriculture in the Economy
Agriculture in the News
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Approved By:
Lashonda McLeod

Prepared By:
Marie-Cecile Henard

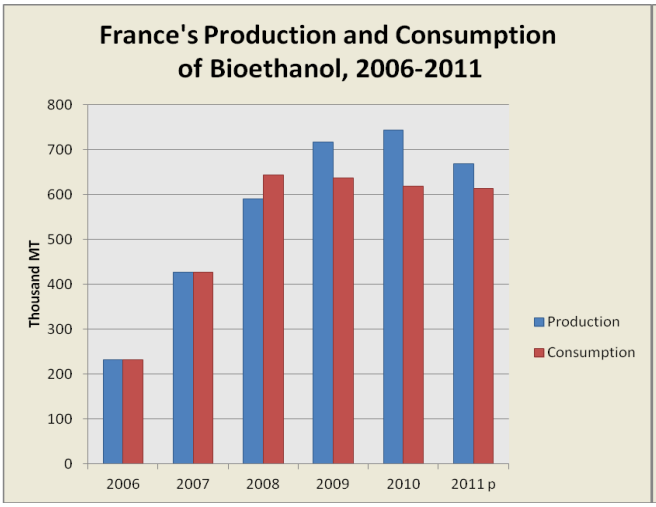
Report Highlights:
France totals 20 percent of the European Union's production and consumption of biofuels. Since the past two years, first-generation biofuel production has been pressed down by reduced national and European incentives and more competitive market prices for vegetable oils for food. In contrast, domestic consumption stagnated and 7.2 percent biofuels blending into transportation fuels in 2011. Consumption was maintained stable despite reduced production as a result of booming imports of biodiesel and has triggered investments in advanced biofuels research and development, mainly through public-private partnerships. These developments are in line with the recent move by the European Commission to limit the use of food-based biofuels blending at 5 percent.

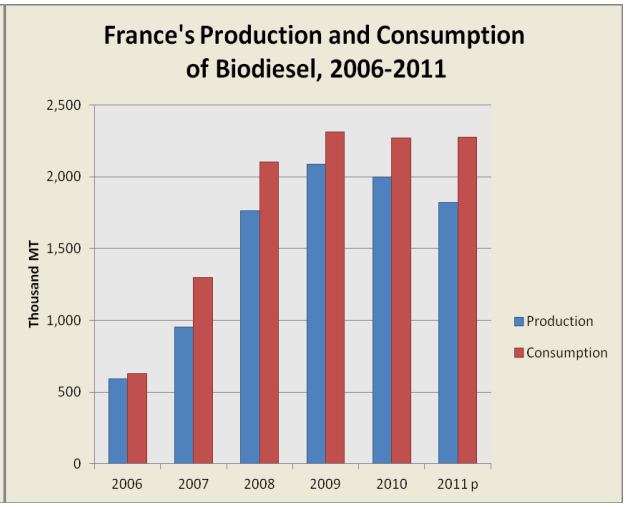
General Information:

France continues to play a major role in the biofuels industry, with approximately 20 percent of the EU's production and consumption. Nevertheless, production declined in 2010, and has continued to drop since, as indicated in the recently published annual report of the Ministry of Ecology and Sustainable Development France's Energy Balance - 2011.

Production:

In 2011, total biofuels production dropped by 16 percent to 2.5 million metric tons (MT); including 1.8 million MT biodiesel (20 percent deterioration) and 668,000 MT bioethanol (8 percent drop).





In 2011, reduced policy incentives for consumption (see section below) and lower prices for non-food uses relative to food uses hampered biofuels production. Most notably, market prices for vegetable oils have been significantly higher in MY 2011/12 than in the previous marketing year, making it more profitable for farmers to sell oilseeds to the food industry rather than to the biodiesel industry. This economic factor had a major impact on biofuels production, which mainly consists of biodiesel sourced from rapeseed oil.

On the other hand, as seen in GAIN report FR9089 Incentives and Plant Breeding Breakthroughs to Reduce Soy Imports dated February 3, 2012, the development of the biodiesel industry impacted dependence on imported animal feed. While soybean meal (all imported) consumption has remained relatively stable at 4 million MT annually over the past 25 years, use of rapeseed meal has increased from minor levels to more than 2 million MT annually, all domestically sourced as a by-product of the domestic biodiesel industry. As a result, France currently ranks above average in being protein-independent for the feed sector among EU Member States. In these conditions, one can predict that rapeseed-based biodiesel production, although on the decline, is likely to remain a major category of

biofuels produced.

Consumption:

Total domestic consumption of biofuels remained relatively stagnant. In 2011, the total blending rate was 7.2 percent, including 7.07 percent for biodiesel into diesel and 5.16 percent for bioethanol into gasoline. Vegetable oils (mainly rapeseed oil) involved remain the leading feedstock used to process biodiesel, but quantities involved declined by 17 percent. At the same time, quantities of animal fats and recycled oils used to process biodiesel were almost six-fold, increasing from 70,000 MT in 2010 to 405,000 MT in 2011. For its part, bioethanol consumption increased 16 percent more ethanol and 14 percent less Ethyl Tertio Butyl Ester (ETBE) than in 2010. E10 continued to be consumed increasingly, accounting for 17 percent of the total volumes of gasoline consumed in 2011.

The downturn of France's first-generation biofuels consumption can be explained by reduced domestic and European incentives. The most influential incentive set in favor of biofuel consumption consists of an environmental tax imposed on blenders when the annual target blending is not reached. Annual blending targets set by the Government of France increased from 1.2 percent in 2005 to 7 percent in 2010, but are now stagnant. In addition, the petroleum tax rebate that biofuels have benefitted has significantly declined and is likely to disappear. For biodiesel, the tax rebate declined from 33 Euros per hectoliter (€/hl) in 2004 to 8 €/hl in 2011, while for bioethanol it declined from 37 €/hl to 14 €/hl. Further, the French Agricultural Minister announced in September 2012 that a plan that would put a "gradual end to public support for first generation-biofuels starting from 2014 and terminating December 31, 2015," as part of his national action plan to address high feedstock prices.

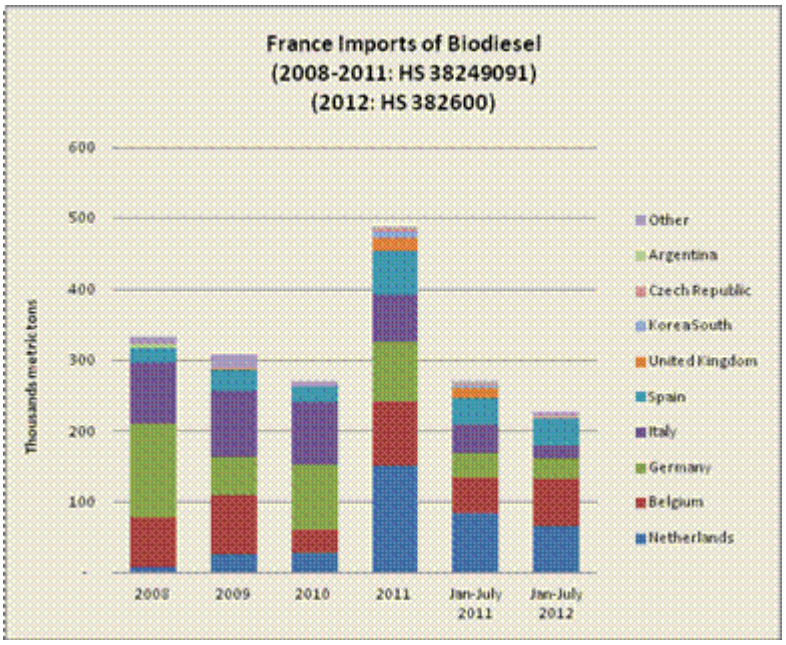
Since 2011, the implementation of the Renewable Energy Directive (RED) has favored animal fats and recycled oils at the expense of vegetable oils as feedstocks for second-generation biofuels, not competing with food production. The RED imposes biofuels to meet strict sustainability criteria in order to be taken into account as renewable energy, limiting both domestically-produced biofuels and imported biofuels and biofuel feedstocks (such as oilseeds and vegetable oil) to those documenting a green house gas emission reduction of at least 35 percent compared to fossil fuels, among others.

In France, second-generation biofuels receive double credit when calculating the quantity of renewable energy consumed for transportation, for which the RED set a compulsory objective of 10 percent by 2020. The leading producer of vegetable oil-based biodiesel, Sofiprotéol, recently shared its concerns with the press about the economic impact of European Commission's intention to reduce the share of renewables in transportation from 10 to 5 percent by 2020 (announced at the European Energy Minister Council on September 17). According to Sofiprotéol, such a decision would reduce France's biodiesel production by 30 percent and would partially endanger the 12,000 direct jobs and 10,600 indirect jobs this industry currently covers.

Trade:

With declining production, higher imports allowed stable consumption in 2011. French Customs data indicate that imports jumped by 80 percent from 270,000 MT in 2010 to 488,000 MT in 2011. During

the first seven months of 2012, imports slightly deteriorated compared to the same period of the previous year. France's largest suppliers are the Netherlands and Belgium, and a significant part of these shipments is likely to include transshipments from third countries, which may be Argentina and Indonesia, the EU's leading biodiesel suppliers.



Advanced Biofuels Research and Development:

With the slowdown of first-generation biofuels production, confirmed by a proposal of the European Commission presented on October 17, 2012, to limit the blending of food-based biofuels to 5 percent, and compulsory mandates for consumption of renewable fuels in transportation by 2020, it looks as if France has no other choice than expanding production of advanced biofuels, which is also an objective of the recent European Commission proposal. Currently, the only sources of biofuels not competing with food commercialized are animal fats and recycled oils.

In addition, a growing number of research and development pilot projects on advanced biofuels are currently present. The largest ones are the following:

Project	Stakeholders	Budget (million €)	Feedstocks	Final Product	Timeline
Futurol	French Petropleum Institute (IFP), National Institute of Research in Agriculture	74	. By-products of current ethanol production . Wood . Energy	Cellulosic ethanol (biochemical pathway)	Pilot plant started in 2011, prototype expected in 2015, industrial commercialization by 2016-2020

	(INRA), Total, Credit Agricole, Tereos, Champagne Céréales, sugarbeet growers organization (CGB)		crops (such as miscanthus and switchgrass)		
BioTfuel	IFP, Sofiproteol, Atomic and Alternative Energy Center (CEA), Total, German gaseifyer Uhder	112	Cellulosic biomass	Biodiesel and jetfuel (thermochemical pathway)	Industrial unit expected by 2020
Gaya	France's national gas producer GDF-Suez, CEA, CIRAD, Universities	47	Cellulosic biomass	Biogas	Pre-industrial unit expected in 2013
Deinol	Deinove, Tereos	21	Deinococ bacteria	Cellulosic ethanol	n/a
ProBio3	INRA, EADS, Airbus, Sofiproteol	25	Microbial strains and non food feedstocks	Lipids as jetfuels	Just announced (September 2012)
UPM	UPM (bioforestry industry)	n/a	Forestry	Biodiesel (thermochemical pathway)	n/a
Greenstras	INRA, CNRS, IRD, Ifremer, CEA, Universities, private companies	160	Micro-algae	Biofuels, bioremediation	Since March 2012
Fermentalg	Fermentalg, Sofiprotéol	n/a	Micro-algae	Biofuels, green chemistry	n/a

A number of biorefineries have developed in the past years and continue to expand in several clusters across France. For example, "Agro-Resources Industry" (in French, Industry Agro Ressources – IAR), located in the north-east of France, is a cluster developing biobased products and technology from plant production. The IAR cluster is funded by national and local authorities, as well as private funding. IAR

is actively involved in the European research and development programs Biorefinery Euroview, funded by the European Commission's Sixth Framework Program (FP6), and the Star-Colibri project (Strategic Research Targets for 2020 – Collaboration Initiative on Biorefineries) under the European Commission's FP7. A second example is the Picardie Plant Innovation, Education and Technology Research (in French Picardie Innovations Vegetales, Enseignements et Recherches Technologiques – PIVERT), located in the north of Paris. An institute of excellence for decarbonated energy, PIVERT benefits from public-private partnership and granted €218 million for 10 years by France's national research initiative Invest for the Future (in French, "Investissements d'Avenir"). PIVERT includes the BioTfuel advanced biofuel project, oilseeds biorefinery, universities.