



## Promising Ethanol Developments

Sidney Weintraub

Brazil, for some time, has been advocating a cooperative arrangement with the United States and other countries for the production of ethanol. There was no immediate substantive response from the United States, but President George W. Bush, in his State of the Union address in January this year, said that he wanted to reduce gasoline consumption in the United States by 20 percent in 10 years. (This objective may be a stretch.) While Bush was not specific on how this should be done, fuel experts said this required substantially increased production of ethanol to blend with gasoline to provide energy for transportation, and improved fuel economy standards.

The initial Brazilian partnership idea has since taken on an air of inevitability. Undersecretary of State Nicholas Burns, on a visit to Brazil, said on February 7 that biofuels (ethanol and biodiesel, the latter made from oilseeds) would become the “symbolic centerpiece” of U.S. relations with Brazil. Burns made clear that he had in mind reducing the power of hostile oil-producing countries—he cited Venezuela and Iran—by reducing U.S. dependence on oil for transportation. Brazil hopes to transform ethanol into a commodity rather than an oddity that still plays only a marginal role in powering trucks and cars around the world. The president of the Inter-American Development Bank (IDB), Luis Alberto Moreno of Colombia, chimed in by stating that the political case for the United States to import ethanol from other hemispheric countries is compelling; and he added that the IDB would provide technical assistance to governments that intend to create ethanol industries. A bilateral compact to provide technology for ethanol development in the hemisphere was formalized when President Luiz Inácio Lula da Silva and President Bush met in Brazil on March 9.

Earlier, President Bush, like some of his presidential predecessors, proclaimed the aim of oil independence for the United States. The subsidy for making ethanol from domestic corn production was one element in moving toward this goal. The new policy implicitly abandons the idea of independence in favor of increased ethanol production throughout the Western Hemisphere and elsewhere, using sugar cane as the raw material—a product on which tropical countries have an absolute production advantage. The U.S. government is touting the change as a way to cement relations with Brazil, and this is useful; and also as a way to weaken the power of anti-American leaders of oil-producing countries, especially Hugo Chávez. No

matter what the U.S. motive: a misguided nationalistic policy of oil independence is giving way to a practical policy of diversity of supply of a potentially important, less polluting, gasoline substitute.

In 2006, the United States produced 4.9 billion gallons of ethanol, and this is estimated to grow to at least 5.4 billion gallons in 2007. The total annual U.S. demand for light-vehicle fuels is about 140 billion gallons, and ethanol is now supplying about 3.5 percent of the total. The share of corn production dedicated to ethanol is now between 15 and 20 percent. Corn yields have increased substantially in the last 50 years and are now more than 160 bushels per acre, according to the U.S. Department of Agriculture. However, despite the remarkable increase in yields, corn price futures are now more than \$4.00 a bushel compared with \$2.50 a bushel in the fall of 2006. This combination of circumstances—the limits on acreage that can be devoted to corn production for ethanol rather than for food and feed consumption and exports; the large price increases for corn that the diversion for ethanol production has already occasioned; the danger this poses for U.S. world leadership in corn exports; and President Bush’s goal of reducing gasoline usage by 20 percent in 10 years—does not promote confidence that ethanol production goals can be met if domestic corn is the only feedstock. Ethanol delivers about 65 percent of the energy that the same amount of gasoline does.

The cost of making a gallon of ethanol from corn in the United States is some 30 percent higher than making a gallon of ethanol from sugar cane in Brazil. The U.S. government recognizes this and is now providing funds for research on using cellulosic material (the fibrous part of plants, wood, and similar materials) as the feedstock; but the technology is by no means there yet to overcome the cost advantage of sugar cane. In the early years of its ethanol development, Brazil provided high subsidies to ethanol producers. As the technology advanced, and especially after the large increases in oil prices, the direct subsidies were terminated, although there are still indirect subsidies for the infrastructure to transport and distribute ethanol. (The United States will have to provide the same kind of infrastructure as ethanol use increases.) Most automobiles in Brazil are flex-fuel cars that can operate on either ethanol or gasoline, or mixtures of the two; the Brazilian mixture is flexible and is 23 percent ethanol at the moment.

(The United States will also have to increase the production of flex-fuel cars to facilitate ethanol use.)

The U.S. subsidy to corn-based ethanol producers in 2006 varied between \$1.05 and \$1.38 a gallon, or between 42 percent and 55 percent of wholesale market price. If there were no subsidy, there would be no corn-based ethanol production, because it could not compete with gasoline. This was also true at the outset for sugar-based ethanol in Brazil, but the difference is that sugar cane is inherently more effective and delivers more bang for the ethanol buck than does corn. In addition to the subsidy, the United States imposes an import duty of 54 cents a gallon, plus a 2.5 percent ad valorem tariff on ethanol imports from Brazil, but not on imports from other Latin American countries, such as Peru and Colombia. Despite this, Brazil was the leading exporter of ethanol to the United States in 2006, shipping 430 million gallons.

The Brazilian government is pressing the United States to remove the high import barriers (although there are Brazilians who fear that taking this step too quickly will diminish the available supply of ethanol in the domestic market). A U.S. compact with Brazil to attract more ethanol imports from Latin America and the Caribbean, while failing to liberalize the terms of market access for Brazil, has an aura of the ridiculous; Annette Hester touches on this point in a commentary in Canada's *Globe and Mail* on March 7. It would be hard for the United States to quickly remove the U.S. duties, certainly in one fell swoop, because the combination of subsidies and import charges has long been reflected in land prices. U.S. corn and ethanol producers are surely concerned, however, that the economics of ethanol production, plus the political desire for closer official U.S. relations with Brazil, will eventually lead to lowering the protection they receive. Ethanol production in the United States is concentrated in the Corn Belt—Iowa, Nebraska, Illinois, Minnesota, and Indiana—and the top 10 producers accounted for about 50 percent of the production in 2006.

Private investors are getting on the ethanol bandwagon—based on corn, sugar cane, and cellulosic material—throughout the hemisphere, and elsewhere. According to the president of the Renewable Fuels Association, there were 81 ethanol plants in the United States in 2005, 95 in 2006, and the number is expected to increase to 113 plants this year. Range Fuels Inc. is contemplating building a 1-billion-gallon plant to produce ethanol from waste wood pine chips in the heart of Georgia pine country. The *Wall Street Journal* on March 7 contained an article by Antonio Regalado on new plants contemplated in Brazil. This article also listed the leading ethanol-producing countries as of 2005, led by the United States, then Brazil, but also including China, India, and a number of countries in Western Europe.

The economic implication of what is taking place is significant for the Western Hemisphere. The leading sugar cane producers in the hemisphere are Brazil, Mexico, the United States, and the Dominican Republic—and Cuba. Sugar has long been a

troubling commodity in international trade because of the protection given to U.S. producers. A recently negotiated U.S. free-trade agreement with Australia, a large sugar cane producer, had to be altered to remove Australian sugar exports because of pressure from U.S. producers, predominantly in Florida. The amount of sugar that Mexico could export to the United States under the North American Free Trade Agreement became a subject of fierce controversy after the U.S. trade representative altered the agreed text based on a letter he sent to, but which was not agreed to by, the Mexican trade authorities. Mexico later restricted the import of high fructose corn syrup from the United States, used largely to sweeten soft drinks, and the assumption is that this “sweetener war” was triggered by the earlier U.S. action on sugar. The sugar issue was a highly negotiated aspect of the U.S. free-trade agreements with Central America and the Dominican Republic.

Biofuel production—ethanol, which is the focus of this commentary, and perhaps biodiesel, even more important in Europe because of the great use there of diesel-fueled cars and trucks—has become a major theme during the past few years. Saudi Arabian oil experts are known to have cautioned other members of the Organization of Petroleum Exporting Countries that abrupt and extended oil price increases would lead to fuel economies in importing countries and the search for substitutes. The caution proved to be accurate—but, of course, oil-exporting countries are now enjoying the benefit of high prices and greater export income. It is this income that permits President Chávez to assume the international role he is now playing. Ethanol production will not change this in the immediate future, but could have an important effect over time. Brazil is now self-sufficient in oil in part because of ethanol usage.

The large private-sector investments now being made in biofuels are a form of gamble that oil prices will not decline too much too fast to make these investments uneconomic; and this is probably a reasonable bet. Looking at the Western Hemisphere in light of President Bush's recent trip to five Latin American countries, the shift in policy away from oil “independence” to encouragement of ethanol and other biofuel production for export to the U.S. market has the potential to be more important over the long term than the other initiatives he is taking in the region.

---

*Issues in International Political Economy* is published by the Center for Strategic and International Studies (CSIS), a private, tax-exempt institution focusing on international public policy issues. Its research is nonpartisan and nonproprietary. CSIS does not take specific policy positions. Accordingly, all views, positions, and conclusions expressed in this publication should be understood to be solely those of the author.

© 2007 by the Center for Strategic and International Studies.