



## Brazil Energy Policy Review: July 2006

*Produced by the Americas Society and Council of the Americas (AS/COA)*

### Topics in this Issue

- Ethanol
- “Flexible-fuel” cars
- Exporting success
- Innovative methods for improving production
- Off-shore oil drilling

For nearly thirty years, Brazil has been a global leader in the production and use of sugar cane-based **ethanol** or ethyl alcohol, a fuel additive that reduces petroleum use. Two years after the first global energy crisis, the Brazilian government introduced its ethanol initiative to decrease dependence on world energy supplies. At its height in the mid-1980s, more than three quarters of the 800,000 cars produced in Brazil each year ran on ethanol. However, by 1990, a decline in the supply of sugar-based fuel brought the sale of ethanol-powered cars to nearly drop to zero.

Since their launch, **“flexible-fuel” cars** have helped re-ignite ethanol production in Brazil. Today, more than half of all cars in the country are “flexible-fuel” cars. At the same time, ethanol production efficiency has tripled since 1975 with 6,000 liters of ethanol now being produced for every one hectare of sugar. An advantage of “flexible-fuel” cars is that owners can have the option of fueling cars with petroleum, ethanol or a combination of the two fuels.

**Exporting success.** Acknowledging this clean burning fuel source, countries like Japan and Sweden have begun importing Brazilian ethanol to help fulfill Kyoto Protocol environmental obligations. Inspired by Brazil’s fuel self-sufficiency, India and China have chosen to ramp up domestic production and have recently built national ethanol distilleries. While India emulates Brazil’s sugar cane-based ethanol production, China has opted to utilize a grain-based production of ethanol, mostly derived from corn. Ethanol interest abroad has also hit neighboring countries with high levels of sugar production. According to the Economic Commission for Latin America and the Caribbean (ECLAC), Colombia has increased ethanol production, and, in Central America, Guatemala, El Salvador and Costa Rica exhibit a significant capacity for the local production and use of ethanol. Venezuela recently launched a project to plant nearly 300,000 hectares of sugar cane and construct 15 ethanol distilleries.

Petrobras Brasileiro SA (PBR) exports ethanol to Venezuela and Nigeria as well as other oil producing nations. On July 7, this state-owned Brazilian firm announced that it had formed an alliance with Petroecuador, planning to invest \$500 million in Ecuador over the next five years to develop new oil projects. While Brazil and the United States account for more than 75% of global ethanol production, the U.S. effort has been stymied by its decision to produce corn-based ethanol, a more costly and less efficient product than sugar-based ethanol. The 55 million tonnes (one sixth of the country’s grain harvest) of U.S. corn used in ethanol production will only supply 3 percent of its automotive fuel.

Brazilian scientists have recently discovered **innovative methods for improving sugar-based ethanol production** efficiency. Previously discarded residue from the compression of sugar cane is now used to help generate the electricity needed to process sugar cane into ethanol. Other byproducts are then used to fertilize the fields where sugar cane is planted. With the mapping of the sugar cane genome complete, Brazilian scientists can now plant genetically modified sugar that can be more efficiently converted to ethanol. This biological breakthrough may prompt the production of cane varieties that are resistant to pests and drought.

Continuing down the path of innovation, Brazil has made headway in **off-shore oil drilling**, both locally and abroad. In April, Petrobras opened a \$634 million deep-water oil platform, a move expected to help Brazil become

### Upcoming AS/COA Brazil Event

**08/04/06, 2006 Latin  
American Cities  
Conferences, São  
Paulo: “Brazil:  
Creating New Global  
Opportunities”** Caesar  
Park Hotel, 8:00 a.m. -  
2:45 p.m.

oil self-sufficient through the production of 1.9 million barrels per day. Petrobras' rapid production of oil has allowed it to develop new deep-sea drilling techniques and expand deepwater fields through investments in 18 countries across three continents. Petrobras plans to invest in offshore drilling in Angola, Tanzania, Turkey and India. With the goal of oil self sufficiency, Petrobras has detailed an \$87 billion investment plan to produce 4.5 million barrels of oil and gas per day by 2015. Most of these funds will be spent on exploration and production in Brazil, West Africa and the Gulf of Mexico. Beyond doubling the capacity of its existing refineries, Brazil is looking for new refineries in Asia, Europe and North America.

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