

House of Representatives Committee on
Oversight and Government Reform
Subcommittee on National Security and Foreign Affairs
The Honorable John F. Tierney, Chairman

**Public hearing on National Security and Latin America:
Challenges and Opportunities on Energy Cooperation**

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Mr. Chairman, I am grateful for your invitation to appear before the House of Representatives Subcommittee on National Security and Foreign Affairs to share my views on the important topic of this hearing. I bring greetings to you and to the members of the subcommittee from the president of the Wilson Center, former Congressman Lee H. Hamilton, from Indiana. We are grateful for the support the US Congress provides for the work we do at the Wilson Center. The Brazil Institute, which I direct, is supported by private funds and foundation grants. The Institute receives no direct federal funding. The Institute is part of the Woodrow Wilson Center, which receives today roughly a third of its funding through a federal appropriation. I would like to clarify, however, that I appear here today on my own behalf, as an observer and analyst of Brazil-US relations. I ask your permission to summarize my written testimony, which I would like to have included on the record of this session.

Relations between the United States and Brazil reached a new level of maturity in the last two decades thanks to two historic developments: on the one hand, the consolidation of democracy and economic stability in Brazil; on the other, the end of the Cold War, which freed Washington to rethink its policies towards its neighbors in the Americas.

That is the important context in which Brazil should be viewed by U.S. policymakers interested in the challenges and opportunities for energy cooperation in the Americas. Over the last three decades, Brazil has established itself as a leader in the sustainable production of ethanol. This renewable fuel has replaced close to half of the national consumption of gasoline for light vehicles in the country and is a key component of the national energy matrix—which is not only the cleanest in the world, but also has put Brazil on the verge of attaining energy self-sufficiency.

Recent, huge offshore oil and gas reserve discoveries along the southern coast of Brazil will ensure self-sufficiency in approximately five years. When fully developed, which should happen in approximately 10 years, the new reserves will make Brazil both a major global oil exporter and Latin America's leading producer—supplanting both Venezuela and Mexico. Brazil's Petrobrás explores and produces oil in 25 countries, including in the United States. The potential geopolitical implications of Brazil's success in the energy

field should not be lost by those who believe that the Americas should be and can be a space of peace, democracy, justice, stability and economic and social progress.

Allow me, Mr. Chairman, to focus first on renewable energy. This is the topic that led presidents Luiz Inácio Lula da Silva and George W. Bush to make clear their understanding that Brazil and United States stand at a moment of promise and can work together to advance their own national and international interests. One year ago, during a visit by President Bush to São Paulo, the two governments launched a joint initiative to promote research and development of biofuels in the Americas. Last week, officials and representatives of the industry on both countries had a meeting in Washington to take stock of the progress made so far and map out the next steps.

The U.S.-Brazil biofuels initiative has three main objectives: to create an international standard for biofuels, working bilaterally and multilaterally; bringing the economic and the energy security-related benefits of biofuel production to the hemisphere; and coordinating and advancing technical cooperation and promoting R&D.

Last week in Washington, the International Biofuels Forum (U.S., Brazil, EU, China, India, South Africa) held its third meeting. The bilateral initiative made most of its progress in this area. The issues remaining for creating an ethanol standard (water content) are not between the US and Brazil, but rather between Brazil and Europe. The second part of the initiative—to bring the benefits of biofuels to our hemispheric neighbors—centers on the joint Brazil-U.S. biofuel programs aimed at promoting biofuel production in Dominican Republic, El Salvador, Haiti, and St. Kitts & Nevis. Feasibility studies are under way, and we should work to expand the number of countries included in these programs. The third area is technical cooperation and R&D. A Brazilian delegation visited the largest U.S. labs in mid-September. Brazilian government will host a U.S. delegation soon. Following these visits, a joint work plan will be developed and implemented. The Brazilian sugar and Ethanol trade association, Unica, proposed last week that governments and private sector of both countries should work together in a joint managing committee to organize the possibilities of cooperation.

In the last three decades, the Brazilian sugarcane industry experienced massive investments in science and technology, both from the private and public sectors. Today, sugarcane is the basic input not only for sugar but also for an incredibly diverse range of value-added products, particularly ethanol to power our cars and break our society's dependence on fossil fuels. Much of the following information I reference in my testimony comes from industry leaders in the private sector, which is the dominant actor in Brazil's biofuels production.

According to Marcos S. Jank, the president and CEO of Unica, "sugarcane is set for another quantum leap, this time to offer the world a dual source of clean, renewable energy. Beyond sugar and ethanol, sugarcane is now providing electricity, at a time when it is urgently needed to power Brazil's economic growth."

Just last month, ethanol consumption in Brazil exceeded the use of gasoline. Ethanol production and use make a significant contribution to reduce greenhouse gas emissions and fight global warming.

Without question, sugarcane is by far the most successful and efficient feedstock for the production of biofuels. Several international studies conducted by respected institutions - including many in the United States government - have independently corroborated the environmental and economic benefits of Brazilian sugarcane ethanol. These benefits remain unmatched by any other type of biofuels produced on a commercial scale.

The energy balance of Brazilian ethanol is 4-and-a-half times better than that of ethanol produced from wheat or sugar beet, and almost seven times better than corn ethanol. As a result, Brazilian ethanol achieves a reduction in greenhouse gas emissions of up to 90% compared to gasoline today.

Ethanol from sugarcane also offers higher productivity than other alternatives. Brazil already produces 7,000 liters of ethanol per hectare (or, about 750 gallons per acre) on average. New varieties of sugarcane developed for Brazil and improved processing techniques will double yields. The result is that without any increases in land use, these technological improvements can double the production of sugarcane in Brazil.

Sugarcane currently occupies only 2.3% of Brazil's total arable land. Half of that is dedicated to the production of ethanol. This means that with about just above 1% of the country's arable land, Brazil has replaced nearly half of our gasoline consumption.

As you know, the Brazilian territory is larger than continental United States. Nearly 85% of all the sugarcane grown is harvested in the south-central region; the remaining production comes from the northeastern coast. Both production areas are well over 1,000 miles from the Amazon rainforest. Future expansion of sugarcane production will occur in south-central Brazil, particularly on degraded pastures, further improving our efforts to reduce greenhouse gas emissions.

In a world faced with the challenge of climate change, sugarcane ethanol is a particularly attractive renewable source of energy. It is not only economically profitable, but it is also environmentally sound. Because of efficiency gains, the current price of ethanol in Brazil is just 30% of what it was three decades ago, when the country decided on its large-scale use. Today, Brazilian ethanol is competitive with gasoline when the price of oil is at \$40 dollars a barrel or higher, making it viable without any government subsidies.

The process of ethanol production has the added advantage, compared with other biofuels, of being a net source of electric power. Bioelectricity is produced by burning sugarcane's byproduct: bagasse and straw, in steam boilers. The power generated from this process not only makes our processing mills 100% self-sufficient but they also sell surplus electricity into the national electricity grid.

Until recently, about two-thirds of the sugarcane's energy potential, contained in the bagasse and straw, went un-harnessed. But this is changing dramatically. Sugar and ethanol plants in Brazil already have the potential to generate an average of 1,800 megawatts in surplus electricity, which is equivalent to 3% of Brazil's overall needs today. With increased use of biomass from sugarcane and the use of high efficiency boilers, it is estimated that generation capacity could rise to an average of as much as 15,000 megawatts by 2020. That is enough electricity to supply 15% of the country's electricity needs, or the equivalent of electricity consumption in Sweden or the Netherlands.

It is for the reasons listed above that Brazilians have become promoters of ethanol- for themselves and the rest of the world. Sugarcane ethanol is far superior than ethanol made from other feedstock in terms of energy balance, environmental efficiency, productivity and cost-effectiveness. Its production should be expanded, and its international trade encouraged. There is ample room for such expansion and trade beyond Brazil.

More than one hundred countries - including the United States - grow sugarcane around the world, most of them emerging nations in tropical and sub-tropical regions. Switching from gasoline to sugarcane ethanol would increase their energy independence and provide energy security for countries that import ethanol because the number of suppliers would not only substantially increase in quantity, but also diversity.

In this scenario, one hundred developing countries could supply biofuels to the world, instead of the twenty oil producing countries that do so now, most of them located in volatile regions. Sugarcane can make a significant contribution to development by turning many of these countries into producers and exporters of ethanol. The potential positive geopolitical implications of such effort should be obvious. In a recent visit to Nicaragua, the Brazilian president heard from his Nicaraguan counterpart, Daniel Ortega, that he would like to see his country more reliant on sugarcane ethanol and less dependent on oil, which today comes mostly from Venezuela.

Sugarcane ethanol has all the prerequisites to become a global commodity. This will not happen, however, until developed countries, starting with the United States, abandon the perverse logic now in place, which raises barriers to the free trade of biofuels and allows fossil fuels-based products to move freely around the globe, unimpeded by trade or any other barriers. If we are serious about climate change and energy security, we should end this distortion.

Brazil's successful experience shows that sugarcane ethanol can be produced efficiently and sustainably in developing countries, without causing market disruptions or affecting the supply of food or prices. In fact, sugar prices decreased by almost 20% last year while Brazil substantially increased its ethanol production. Brazil's successful experience shows ethanol is a part of an integrated agri-food system which generates competitive food, feed, fibers and bioenergy.

The development of a cost-effective bioenergy sector in emerging countries can make a very positive contribution to development by reducing the oil import bill in these countries, while supplying electricity to rural areas not yet connected to national grids, providing new jobs and export opportunities and fostering the efficient use of ecosystems.

In spite of its very positive environmental, energy and economic records, sugarcane ethanol still faces varying degrees of criticism, particularly regarding the potential loss of carbon stocks that could result from land use changes. The industry recognizes that this is a legitimate concern. As Marcos S. Jank, the president of Unica, said last week in a conference in Washington “biofuels would be of no interest if their production released more carbon in the atmosphere than the CO₂ emissions they avoid by replacing fossil fuels.”

Mr Jank added that “if reducing greenhouse gas emissions is to be our goal, then no production of any feedstock, for biofuels or any other use, should take place in areas where carbon stocks are substantial. However, before banning the use in specific areas, sound scientific studies should measure the quantity of carbon that is stocked in each of the current and potential production areas.”

It is on the basis of such studies that we will be able to establish the carbon balance that would result if these areas were used for the production of feedstock. Comprehensive calculations do not currently exist, so it cannot be taken for granted that land conversion will in fact create a “carbon debt” or that agricultural expansion will necessarily take place in sensitive areas.

One issue raised about the potential negative impact of sugarcane ethanol production is its indirect impact on the Amazon in particular, and on land use in Brazil in general. Outside of the Amazon region, Brazil has 200 million hectares (or, 500 million acres) of under-utilized pasture land, much of it degraded. Recent scientific, independent research showed that the use of degraded pastures for sugarcane production in Brazil generates a “carbon credit,” because sugarcane captures larger amounts of carbon than the quantities of carbon that are stocked in these degraded pastures. On the other hand, none of the available models today provide a sound assessment of changes in agricultural production that might be taking place in the world as a result of expanded feedstock production in major biofuels producing countries.

I will conclude by briefly commenting on the recent discoveries of substantial oil and gas reserves in Brazil. Conservative estimates announced last November by Petrobrás, the Brazilian oil company, indicate that the new fields potentially have recoverable reserves of 5 to 7 billion barrels. This is roughly equivalent to between 35% and 55% of Brazil’s current existing reserves of around 14 billion barrels. According to Márcio Rocha Mello, president of the Brazilian Association of Petroleum Geologists, there may be at least 50 billion barrels of recoverable reserves in the main area of production called Campos field. These calculations do not include the potential of onshore oil production, which has

received less attention (only 7% of the country's huge territory has been selected for prospection/exploration) but may bring more news in coming years.

Brazil's higher profile in energy is and should be seen by Washington as positive news. Asked recently about the possibility of Brazil joining OPEC once it becomes a petroleum exporting country, foreign Minister Celso Amorim signaled the country's interest with an important caveat. "It is not part of our vision to participate in a cartel that has price increase as an objective", he said. "Brazil wants to participate in a group of countries that has influence on oil policy" in order, to, among other things, "supply the needs of poorer countries".