

# ENERGY AND CLIMATE CHANGE IN BRAZIL





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## FOREWORD

Americas Society/Council of the Americas (AS/COA) are particularly proud to have launched this project on energy in the Americas. Bringing together some of the best minds from both the public and the private sectors—a true public/private partnership—our aim is to contribute decisively to ongoing global discussions on energy and global climate change, squarely inserting the voice of the Americas into an arena where it has traditionally not played a significant role. In fact, but for politics the region would be, and indeed should be, a model of efficient and effective production and consumption of energy, jointly working to ensure that the benefits of secure energy supply and efficient energy use are widely distributed, even as the region works diligently together to build a mutually beneficial contribution to discussions on global climate change.

This first in a series of papers concentrates specifically on Brazil, the largest Latin American economy, which is already a critically important player on these issues and will only become more so in the months and years ahead. It is the result of working group discussions held in São Paulo and Rio de Janeiro in June 2009, and numerous subsequent conversations. It seeks to strike an appropriate balance between producers and consumers, and on the global climate change side, to advocate for policies that are meaningful yet realistic, if nonetheless ambitious. Brazil is well situated to play a leadership role in these issues. To do so, it will need to find a way to limit deforestation in the Amazon, as well as to ensure an ongoing investment climate for energy that provides market-based signals for exploration and production of oil and gas. If this government and future Brazilian governments are able to do so, while working to create a more permissive global environment for alternative fuels including ethanol, the nation's future will be exceedingly bright.

Special thanks on behalf of Americas Society/Council of the Americas go to Nicole Spencer, the Director for Energy at the Council, who is the author of this report as well as the Energy Action Group (EAG) program manager. Special thanks, as well, to our program sponsors and underwriters, without whom this program would not be possible.

*Eric Farnsworth*

*Vice President*

Americas Society/Council of the Americas

Washington DC





## INTRODUCTION

As part of our two-year strategy on hemispheric energy issues, the Americas Society/Council of the Americas Energy Action Group hosted a roundtable on energy and climate change at the AS/COA Latin American Cities Conference in São Paulo, Brazil on June 9, 2009. The following day, June 10, the EAG, along with the Brazilian Foundation for Sustainable Development, brought together leading public and private sector representatives for a conversation entitled “Energy and Global Climate Change: The Brazilian Perspective” in Rio de Janeiro.

### WHILE THE TWO DISCUSSIONS TOUCHED ON MANY TOPICS, THERE WERE THREE KEY CONCLUSIONS:

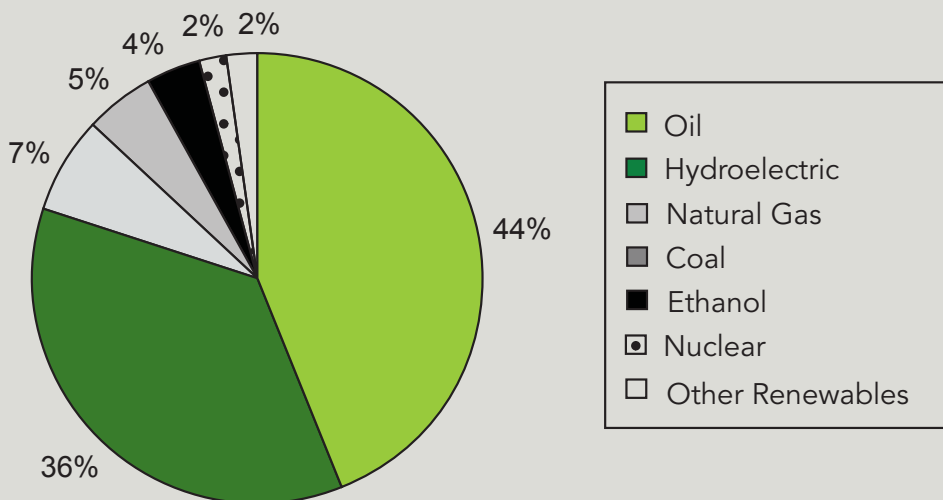
1. Biofuels must be part of a cleaner energy matrix, but integrating them more fully into the world’s energy mix will require the creation of a truly global market.
2. Brazil and the United States are essential to helping the world meet growing energy demand as well as transition to cleaner energy sources, and the two countries should increase collaboration on energy and climate issues.
3. Brazil has an important profile in energy and climate matters and should play a bigger role in these issues internationally. Maintaining an open investment climate for energy will be essential.

This working paper explores energy and climate issues in Brazil and elaborates on the recommendations that resulted from the meetings in São Paulo and Rio de Janeiro. It begins with an overview of Brazil’s energy matrix, including the major oil and gas discoveries and the growing ethanol industry. It also looks at ethanol use in the United States and the collaboration between Brazil and the United States on biofuels research and development, including assistance to third countries. Moving to climate change, the paper then focuses on Brazil’s climate profile, with a specific focus on deforestation. A review of Brazil’s engagement in global climate change negotiations points to a shift in Brazil’s position. Finally, the three recommendations from the meetings in São Paulo and Rio de Janeiro are discussed in more detail.

## BRAZIL'S ENERGY MATRIX

According to the US Energy Information Administration, global energy consumption is projected to grow 44 percent by 2030, fueled largely by economic growth in developing countries.<sup>1</sup> In Brazil, energy demand is expected to increase at a rate of about 2.6 percent per year through 2030, more than four times the average for Organization for Economic Cooperation and Development countries.<sup>2</sup> Currently, Brazil relies on oil and hydropower for most of its energy needs. Natural gas demand in Brazil is small but growing. Biofuels, particularly ethanol, are important for the transportation sector, but are not a big portion of overall energy use. Nuclear power and other renewables together account for less than 5 percent of Brazil's energy mix.

### TOTAL PRIMARY ENERGY CONSUMPTION IN BRAZIL (2006)



Source: US Energy Information Administration.<sup>3</sup>

1 *International Energy Outlook 2009*, DOE/EIA-0484, May 2009, 7. Projection period is 2006-2030.

2 *Ibid.*, 121.

3 *Brazil Country Analysis Brief*, <http://www.eia.doe.gov/emeu/cabs/Brazil/Full.html> and Analyst Estimates.

## *Oil and Natural Gas*

Brazil intensified its oil exploration and production efforts after the 1970s energy crises, focusing particularly on the waters off its coast. Over the years, Petrobras, Brazil's state petroleum company, has built its technical capacity to drill in deep water. As a result, Brazil has been able to raise its reserves and production levels substantially, achieving self-sufficiency in oil in 2006.<sup>4</sup> Now Brazil is poised to become a major oil exporter, having recently discovered oil fields that could put the country in the ranks of the world's biggest producers. However, the location of these reserves in deep water and beneath several layers of rock and salt make extraction both difficult and costly. Production from the first wells is expected to begin next year, but large-scale output is not anticipated for another eight to ten years. The potential new oil is important for export revenues as well as for domestic supply. Oil is a significant portion of energy use in Brazil, and this is unlikely to change anytime soon.

Petrobras is one of the world's largest oil companies and, until the 1990s, controlled all oil and natural gas activities in Brazil. An amendment to Brazil's constitution in 1995 opened the sector to private investment. Legislation in 1997 made Petrobras a hybrid public-private company by reducing the government's stake. Government ownership is now limited to a bare majority of shares, and the remainder are traded in the international market.

*Among the recent finds in the deep water off the coast was a large natural gas field, which could significantly boost Brazil's domestic supply.*

With the new discoveries, Brazil is seeking again to change the rules that govern private participation in the oil industry. At the end of August 2009, President Luiz Inácio Lula da Silva submitted legislation to the National Congress to create a government-run company called Petrosal. Petrosal would manage the portions of the new oil fields that have not yet been bid out, which make up more than half. If passed, the state would claim ownership of all the oil in these fields and take 50 percent of any crude produced. Companies could enter into production-sharing agreements (as opposed to purchasing concessions) for the remaining half. The proposal also includes the creation of a fund for Petrosal's profits. If authorized, the proceeds would be used for social and economic development projects in Brazil. The earliest Brazil's Congress could approve the reforms would be December 2009. One of the downside risks legislators must consider is that granting full operational control to Petrosal would eliminate the efficiencies that come from commercial competition among outside investors. Companies are watching this process closely, as the result could impact their ability to invest in Brazil's oil and gas sector as well as their interest in doing so.

<sup>4</sup> Because Brazil cannot refine all the heavy oil it produces, it must also import light crude.

Brazil's demand for natural gas has been growing steadily over the last decade. Since the late 1990s, when the Gasbol pipeline connecting Brazil with Bolivia was built, Brazil has been importing large quantities of natural gas from Bolivia. In 2004, 43 percent of Brazil's natural gas was imported from Bolivia.<sup>5</sup> When Bolivia's President Evo Morales nationalized Bolivia's natural gas industry in 2006, prices increased significantly. Since then Brazil has focused on reducing its dependence on Bolivian energy by upping its own production as well as constructing liquefied natural gas terminals. Among the recent finds in the deep water off the coast was a large natural gas field, which could significantly boost Brazil's domestic supply.

### *Hydropower, Nuclear, and Other Alternatives*

Hydropower accounts for nearly 80 percent of electricity generation in Brazil, which has one of the largest hydropower sectors in the world.<sup>6</sup> Brazil continues to increase capacity, which it expanded more than twofold from 1980 to 1999. Current projects will boost generation capacity by about 45 percent.<sup>7</sup>

While hydropower fuels most of Brazil's electricity, nuclear makes up less than 5 percent of power generation, but Brazil plans to increase this. In addition to its two existing nuclear power reactors, a third is under construction and six more are being considered.<sup>8</sup> Other alternative energy sources contribute a small portion of electricity generation. Wind power is currently negligible but growing. The Program of Incentives for Alternative Sources of Electric Energy (PROINFA), a government program started in 2004, aims to raise the percentage of electricity generated from alternative energy sources to 10 percent by 2020 and is focusing particularly on wind, biomass, and small hydropower plants. The first wind power auction is expected to take place in late 2009.

### *Biofuels*

Ethanol accounts for about 4 percent of overall energy use and nearly 40 percent of light vehicle fuel in Brazil, which may be the only country to have achieved an economically competitive ethanol industry.<sup>9</sup> Brazil is the world's second largest producer of ethanol

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5 International Energy Agency, "Focus on Brazil," in *World Energy Outlook 2006* (Paris, 2006), 449.

6 Ministry of Mines and Energy of Brazil, Energy Research Company, *Executive Summary: 2008 Brazilian Energy Balance, Year 2007* (Rio de Janeiro, 2008), 9.

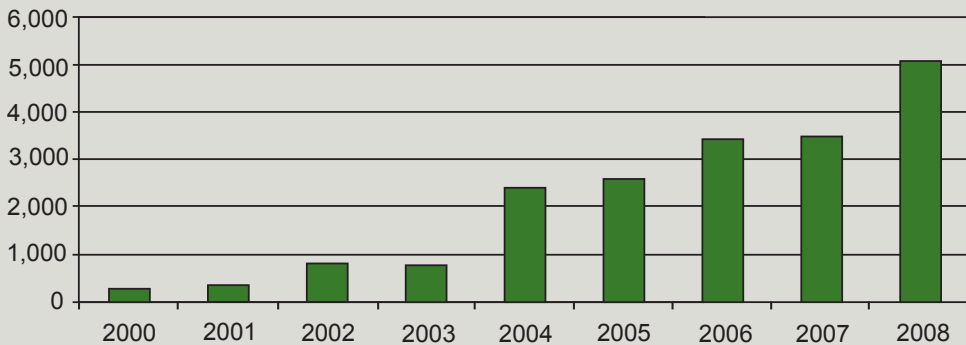
7 World Energy Council, *Survey of Energy Resources Interim Update 2009* (London, 2009), 41, 47-49 and idem, *Survey of Energy Resources 2007* (London, 2007), 279-283, 293.

8 World Energy Council, *Survey of Energy Resources 2007*, 250 and idem, *Interim Update 2009*, 35.

9 Ministry of Mines and Energy of Brazil, *Executive Summary: 2008 Brazilian Energy Balance, Year 2007*, 10, 22 and Augusto de la Torre, Pablo Fajnzylber, and John Nash, *Low Carbon, High Growth: Latin America Responds to Climate*

(after the United States) and the largest producer of sugarcane ethanol (US ethanol is made primarily from corn). Brazil is the world's largest exporter of the fuel, although most of the ethanol produced in Brazil is consumed domestically. Brazilian ethanol exports have been growing fairly steadily over the last ten or so years, and producers seek to continue this upward trend.

### BRAZIL'S ETHANOL EXPORTS (million liters)



Source: Brazilian Sugarcane Industry Association.<sup>10</sup>

Brazil's ethanol industry was jump-started in 1975, when the combination of a sharp uptick in oil prices and a severe drop in the value of sugar led the government to establish the National Ethanol Program. The purpose of this initiative was to decrease Brazil's dependence on costly oil imports by integrating ethanol into the country's liquid fuel supply. The National Ethanol Program catalyzed the creation of a domestic industry and market by incentivizing both the supply and demand sides of the equation.

The government required that all gasoline be mixed with ethanol, and the minimum blend was set at 20 percent ethanol by volume. In addition, the state favored ethanol in the marketplace by purchasing the fuel from producers at generous prices and fixing the cost

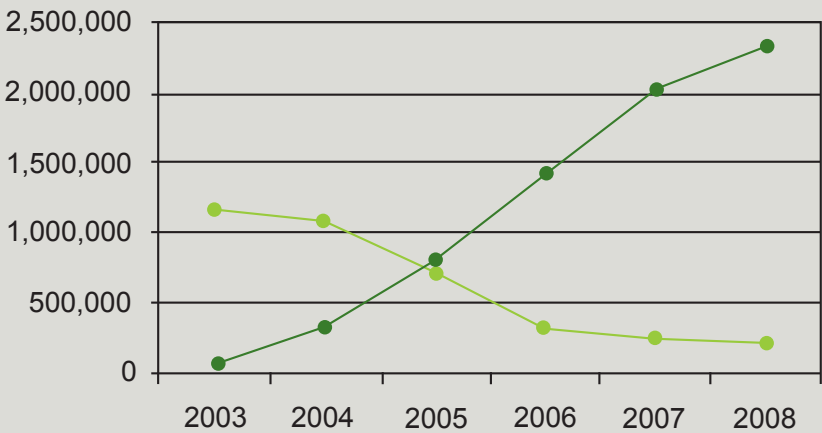
*Change* (Washington DC: The International Bank for Development/The World Bank, 2009), 36. However, Brazil's ethanol industry has been viable without government support only in 2004-2005 and 2007-2008. Ethanol's competitiveness is dependent on oil and sugar prices.

<sup>10</sup> "Annual Brazilian Ethanol Exports," Quotes & Stats, <http://english.unica.com.br/dadosCotacao/estatistica/>.

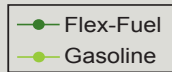
of gasoline for consumers so ethanol was competitive. The ethanol program also spurred the creation of the infrastructure necessary to sustain an ethanol industry by providing credit guarantees and preferential loans for the construction of ethanol refineries. Petrobras assisted the effort by building up the distribution infrastructure for ethanol. In 1979, during the second global energy shock, the Brazilian government promoted the production and use of ethanol-only cars through tax breaks and other incentives to further reduce the country’s dependence on oil.

The National Ethanol Program was initially very successful and use of the alternative fuel in Brazil skyrocketed. By the mid-1980s, however, low oil prices returned and economic troubles led to the phasing out of price supports and other ethanol-promotion initiatives, although the minimum blend requirement was maintained. In 2003, taking advantage of tax breaks in Brazil, auto manufacturers introduced flex-fuel vehicles, which can run on any combination of gasoline and ethanol, including 100 percent of either. The launch of flex-fuel models coincided with yet another round of rising oil prices, and they have been extremely popular. Flex-fuel automobiles now make up more than 20 percent of light vehicles on the road in Brazil, and some 90 percent of new cars sold have flex-fuel engines.

### VEHICLE SALES IN BRAZIL



Source: Brazilian Sugarcane Industry Association.<sup>11</sup>



<sup>11</sup> “Brazilian Light Vehicle Sales by Fuel Type,” Quotes & Stats, <http://english.unica.com.br/dadosCotacao/statistica/>.

As Brazil seeks to increase its production of ethanol for domestic consumption and export, it raises fears that more of the Amazon will be cleared for sugarcane. In fact, much of the Amazon is not ideal for growing sugarcane. Instead, sugarcane farmers have been expanding into cattle grazing areas outside the Amazon, which experts say can sustainably absorb the new crops.<sup>12</sup>

## BRAZIL-US COOPERATION ON BIOFUELS

Brazil and the United States are the world's largest producers of ethanol, and together make up nearly 90 percent of global production.<sup>13</sup> While the United States produces and consumes more ethanol than Brazil, use of the fuel in Brazil is more widespread. Ethanol is currently about 7 percent of gasoline in the United States, compared to around 40 percent in Brazil, as noted previously.<sup>14</sup> Even though their industries differ in important ways, the two countries share an interest in advancing ethanol production and use.

### *Biofuels in the United States*

Like Brazil, the US government began promoting ethanol in the 1970s. The Energy Tax Act of 1978 provided a subsidy for ethanol in the form of a tax exemption for "gasohol," or gasoline blended with at least 10 percent ethanol by volume. Since then, the US Congress has consistently renewed the subsidy and created other support mechanisms, including a \$0.54/gallon tariff on imported ethanol. States have also added their own incentives to encourage ethanol use. As a result, production in the United States has increased fairly steadily over the past several decades, but it wasn't until recently that it really took off. Over the past five to ten years, the United States has been experiencing an ethanol boom. Production in 2008 was more than double output in 2005 and five-and-a-half times as much as in 2000. So far, 2009 is on track to exceed 2008.<sup>15</sup> A number of factors have contributed to this rapid rise. Since the early 2000s, demand for ethanol has grown as a result of many states banning

*Collaborating with the United States and other countries on biofuels shines a spotlight on Brazil's achievements in this area and further enhances its profile as an international leader.*

12 Jose Goldemberg, Suani Teixeira Coelho, and Patricia Guardabassip, "The Sustainability of Ethanol Production from Sugarcane," *Energy Policy* 36 (2008): 2093 and Roberto Rodrigues (remarks at the AS/COA Latin American Cities Conference, Sao Paulo, Brazil, June 9, 2009).

13 Renewable Fuels Association, "2008 World Fuel Ethanol Production," Statistics, <http://www.ethanolrfa.org/industry/statistics/#E>.

14 US Energy Information Administration, "Fuel Ethanol Overview, 1981-2008," in *Annual Energy Review 2008* (Washington DC, 2009), 291 and idem, "US Product Supplied of Finished Motor Gasoline," June 30, 2009, <http://tonto.eia.doe.gov/dnav/pet/hist/mgfupus1a.htm>.

15 Renewable Fuels Association, "Historic US Fuel Ethanol Production," Statistics, <http://www.ethanolrfa.org/industry/statistics/#A>.

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methyl tertiary butyl ether (MTBE), which was commonly used to raise the oxygen content of gasoline in order to reduce emissions and boost the octane rating. After they began finding MTBE in drinking water in the late 1990s, half of the states moved to limit or prohibit it. Ethanol is also an oxygenate and is now increasingly being used as a substitute for MTBE.

When oil prices began rising sharply in 2004 and until their peak in mid-2008, the cost of ethanol became more competitive and demand spiked. In addition, growing public concern about global warming, combined with a desire to reduce dependence on oil imports, has led Congress to promote greater use of renewable fuels. In 2005, the Energy Policy Act included a Renewable Fuel Standard (RFS), requiring the use of increasing amounts of renewable fuels in the United States. The Energy Independence and Security Act of 2007 increased the RFS commitments so that by 2022, the United States will be required to use 36 billion gallons of renewable liquid fuels, nearly four times consumption in 2008.<sup>16</sup>

In the United States, almost all ethanol is made from corn, but the RFS seeks to change this by capping corn ethanol and gradually integrating advanced biofuels into the fuel supply.<sup>17</sup> More than half of the renewable fuel in 2022 will have to come from three categories of advanced biofuels: cellulosic, biomass-based biodiesel, and any non-corn biofuel. Of these, cellulosic will be required to make up the majority. The RFS also mandates that all renewable fuels meet minimum greenhouse gas (GHG) reduction standards as compared to gasoline. According to the US Environmental Protection Agency, ethanol made from sugarcane results in greater GHG emissions reductions than corn-based ethanol, but cellulosic ethanol has the most potential to cut harmful emissions.<sup>18</sup>

### *Brazil-US Memorandum of Understanding on Biofuels*

In 2007, Brazil and the United States decided to work together more closely on biofuels as an area of strategic cooperation. The two countries signed a memorandum of understanding (MOU) in which they agreed to collaborate on research on new technologies, the development of biofuels standards to facilitate market expansion, and assistance to four countries (Dominican Republic, El Salvador, Haiti, and Saint Kitts and Nevis) in the creation of domestic biofuels industries. A second MOU in 2008 broadened the research agenda to include next generation biofuels and increased the number of beneficiary countries to nine (adding Guatemala, Guinea-Bissau, Honduras, Jamaica, and Senegal).

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<sup>16</sup> US Energy Information Administration, "Fuel Ethanol Overview, 1981-2008."

<sup>17</sup> The EISA defines advanced biofuels as a "renewable fuel, other than ethanol derived from corn starch, that has lifecycle greenhouse gas emissions...that are at least 50 percent less than baseline lifecycle greenhouse gas emissions." *Energy Independence and Security Act of 2007*, Public Law 110-140, 110th Cong., 1st sess. (December 19, 2007), Sec. 201 Definitions.

<sup>18</sup> *Greenhouse Gas Impacts of Expanded Renewable and Alternative Fuels Use*, EPA420-F-07-035, April 2007.



The MOUs could bring a number of geopolitical and economic benefits to the two countries. For the United States, biofuels serve as a bridge to a closer relationship with Brazil, a leader in Latin America and a growing world power. Likewise, collaborating with the United States and other countries on biofuels shines a spotlight on Brazil's achievements in this area and further enhances its profile as an international leader. Through assistance to third countries, particularly those in Latin America and the Caribbean, the biofuels initiative also subtly counters the influence of petro-politics in the region.

Many of the third countries receiving assistance are part of the Caribbean Basin Initiative (CBI) or the Dominican Republic-Central America-United States Free Trade Agreement (DR-CAFTA) and are therefore not subject to the US ethanol tariff. This exemption could be very useful to the United States in the coming years as it seeks to fulfill the non-corn biofuel requirements of the RFS. Complying with the RFS will also oblige the United States to mainstream biofuels into its fuel supply, which could necessitate a substantial investment in technology and infrastructure. The MOUs provide a vehicle through which the United States could learn from Brazil's expertise in these areas. In addition, the joint research and development activities under the MOU could help the United States meet the cellulosic biofuels thresholds set by the RFS. Cellulosic biofuels are expensive to produce, and significant technological developments would be necessary to bring them to market on a large scale. Finally, the activities under the MOUs open up investment opportunities for US companies as Brazil and other countries expand their biofuels industries.

In order for Brazil to expand its ethanol exports, it will have to significantly increase production, which will require considerable investments, something that US companies could provide. Brazil will also need new markets to sell to. Currently, the largest single importer of Brazilian ethanol is the United States, which purchases the fuel either directly from Brazil or through CBI or DR-CAFTA countries. This makes Brazil's ethanol exports highly dependent on the United States. To protect themselves from the ups and downs of the US market, Brazilian ethanol exporters will have to diversify their customer base. In addition to North America, the Brazilian ethanol industry has identified Europe and Asia as regions for potential growth.

The percentage of biofuels in the world's fuel supply remains small, as does demand. More countries will begin to mainstream biofuels only when they are confident they have access to secure and affordable supplies. Expanding the number of nations that export ethanol, as the MOUs could help to do, could spur countries to increase their use of biofuels and,

*More countries will begin to mainstream biofuels only when they are confident they have access to secure and affordable supplies.*

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as a result, expand the market for Brazilian ethanol. Through the MOUs, the United States and Brazil are advancing the creation of global standards for biofuels, another important element for the international market.

Though still in early stages, activities are underway in each of the three areas outlined by the MOUs. After reciprocal visits, scientists from the United States and Brazil have been identifying areas for collaborative research. Brazil and the United States have also been working together on biofuels standards in the International Biofuels Forum (IBF). Other members of the IBF include China, the European Union, India, and South Africa. Standards organizations from the United States, Brazil, and the EU have made recommendations that must now be reviewed by all IBF parties. Brazil and the United States participate in the Global Bioenergy Partnership (GBEP) as well. Created by the G8+5 in 2006 to support biofuels development and use, the GBEP is currently formulating a common framework to measure GHG emissions reductions from biofuels use.<sup>19</sup>

Funds have been allocated for eight projects related to the development of local biofuels industries in third countries. Preliminary assessments and feasibility studies are being carried out in the Dominican Republic, El Salvador, Haiti, and Saint Kitts and Nevis. The Organization of American States (OAS) has been assisting the Dominican Republic and El Salvador with legislation on biofuels, and the Inter-American Development Bank (IDB) has also made financing available for activities that are part of the MOUs.<sup>20</sup>

## CLIMATE CHANGE

Brazil is one of the cleanest countries in the world in terms of energy use. Still, it is the biggest emitter of greenhouse gases in Latin America and the Caribbean and ranks fourth in emissions globally. The bulk of GHGs released in Brazil does not come from energy use but rather from deforestation, which accounts for about 60 percent of Brazil's total GHG emissions.<sup>21</sup>

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19 Daniel S. Sullivan, testimony before the House Committee on Foreign Affairs, Subcommittee on the Western Hemisphere, *Energy Issues in the Western Hemisphere*, July 31, 2008.

20 Ibid.

21 World Resources Institute Climate Analysis Indicators Tool Version 6.0, <http://cait.wri.org/> (Yearly Emissions; accessed September 17, 2009).

## *Deforestation*

Brazil is home to 60 percent of the Amazon, the world's largest tropical rain forest. Tropical forests are thought of as "carbon sinks" because they suck up carbon dioxide from the atmosphere. When these forests are cut, carbon dioxide is released. Causes of deforestation in Brazil include logging, clearing fields for farming and cattle grazing, the creation of hydropower plants, and general development.

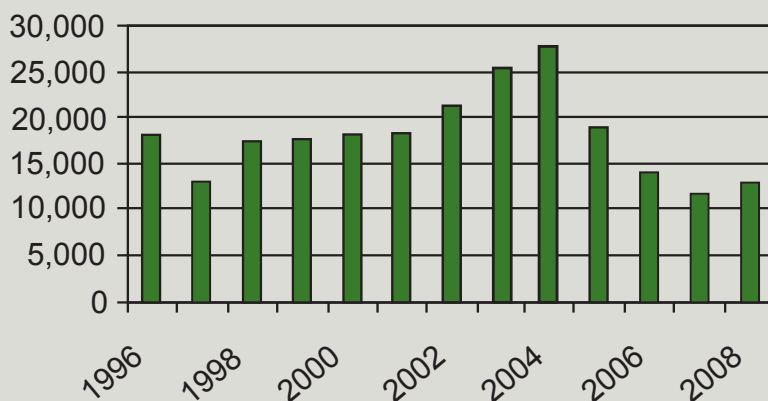
Over the years, Brazil has attempted to control deforestation in the Amazon. The challenges range from economic to political to logistical. Roughly 20 million, or 10 percent, of Brazilians live in the Amazon, and many of them earn their living from activities related to deforestation. Clamping down on the clearing of rain forest has direct economic implications. On a political level, the government doesn't want to be seen as responsible for denying income to such a significant percentage of the population. What's more, the interests of this economic group are well-represented in Congress, making it hard to get legislation on deforestation passed. In practice, once policies to curb forest clearing are in place, enforcing them is difficult. The sheer size of the Amazon, combined with limited transportation and communications infrastructure, makes monitoring a big and expensive undertaking. Often multiple federal agencies and state governments share oversight authority but have little incentive to work together.

Despite these complications, Brazil is now making renewed efforts to curb deforestation in the Amazon. The reasons for this are unclear but could be due to a number of factors. Public support in Brazil for greater environmental protection is growing, perhaps because of the increased

media coverage of the causes and impact of climate change. Some speculate that recent extreme weather patterns, including a severe drought in 2005, have made Brazilians realize that the effects of climate change could imperil their country's growth prospects. As a big exporter of agricultural goods, increasing international pressure to address deforestation may also be having an economic impact as consumers turn away from producers that have contributed to the destruction of the rain forest. And as Brazil continues to advance itself as a global leader, particularly in green energy, it may want to burnish its record in the Amazon.

*"We want to be an example to the world in taking care of our own things."—President Lula*

## AMAZON DEFORESTATION RATE (KM<sup>2</sup>)



Source: Government of Brazil.<sup>22</sup>

In December 2008, Brazil released a National Plan on Climate Change in which it pledges to reduce deforestation by more than half the 2008 level over the next ten years.<sup>23</sup> This is the first time Brazil has committed to targets for stemming deforestation. To achieve this goal, Brazil set up the Amazon Fund and is seeking to raise \$21 billion from public and private sources that agree to allow Brazil to control how the money is used. Norway has already committed \$1 billion to the fund, although yearly disbursements will be contingent on progress.

Property rights and land titling, or lack thereof, are a significant obstacle to conservation. It is estimated that only 11 percent of private land in Brazil's Amazon is backed by a valid title.<sup>24</sup> To address this, in June 2009, President Lula signed legislation that seeks to regularize land holdings in the region. The lack of enforcement of proof of ownership has made it easier for people to occupy land illegally as well as to skirt the requirement that all private land remain at least 80 percent forested. Under the new law, holders of smaller plots will be granted titles, and larger parcels will be sold or turned into public property. Critics of the measure claim that it will reward squatters, and may lead people to settle even more land in hopes of receiving a title. Resolution of these basic rule of law issues would have a profound impact on Brazil's ability to contribute constructively to the global and inter-American dialogue on climate change.

<sup>22</sup> Interministerial Committee on Climate Change, *Executive Summary: National Plan on Climate Change*, Decree No. 6263, 2008, 14.

<sup>23</sup> *Ibid.*

<sup>24</sup> Brenda Brito and Paulo Barreto, *The Risks and the Principles for Landholding Regularization in the Amazon* (Belém, Brazil: Imazon, 2009), 1.

### *Brazil's Position in Global Climate Change Negotiations*

In global climate change negotiations, Brazil has—until recently—consistently argued several key points. First, Brazil has maintained that developed countries should be accountable for the bulk of emissions reductions because, from a historical perspective, these countries are responsible for the majority of GHGs in the atmosphere. Related to this, Brazil has also contended that developing countries should be able to continue to grow without having to take on climate obligations until they reach developed country status. Second, Brazil has pushed for developed countries to provide funding for environmental protection in developing countries. Third, Brazil has opposed efforts to include “avoided deforestation” in international carbon markets.<sup>25</sup> While wanting the carbon stored in the Amazon to count as an offset against its emissions in the future—when Brazil reaches developed country status and takes on GHG reduction targets—it has refused to allow other nations or private interests to benefit from its natural resources. Brazil has felt that having to answer to the purchasers of carbon credits would infringe on its sovereignty. Brazil’s reluctance to open up the Amazon to international carbon markets has also stemmed from a defensiveness about deforestation. Brazilians have been keen to avoid the outside monitoring such initiatives usually require.

Recently, however, Brazil has begun to shift some of its positions on global climate cooperation. With the National Plan on Climate Change, Brazil voluntarily set goals for decreasing deforestation in the Amazon, something that it had previously opposed. Soon after, Brazil’s Minister of the Environment, Carlos Minc, called on large developing nations, such as China and India, to also adopt GHG reduction targets. Of course, he maintained that such pledges should come only after developed countries comply with their GHG emissions cuts as well as provide funding and technology. Soon after Minc’s statement, President Lula echoed his sentiment, saying “We want to be an example to the world in taking care of our own things.” Lula also emphasized that developed countries still share the bigger burden and must do their part. But he said that Brazil was open to committing to targets.<sup>26</sup>

## RECOMMENDATIONS

With this background in mind, the following recommendations were developed from conversations on energy and global climate issues among leading public and private sector representatives in São Paulo and Rio de Janeiro on June 9 and 10, 2009. These meetings were part of the AS/COA Energy Action Group’s two-year strategy on hemispheric energy issues.

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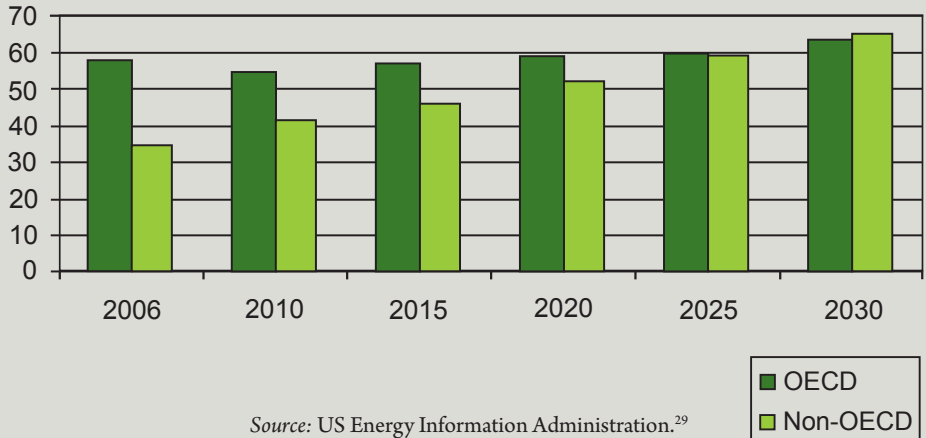
25 The term “avoided deforestation” refers to trees that are not cut down.

26 Raymond Colitt and Todd Benson, “Brazil Could Adopt Greenhouse Targets: Lula,” *Reuters*, June 10, 2009, <http://www.reuters.com/article/GCA-CreditCrisis/idUSTRE55A0BS20090611>.

*Biofuels Are Key to a Cleaner Energy Mix but Will Require the Creation of a Truly Global Market*

To address climate change and satisfy the increasing demand for energy, more and cleaner sources will have to be employed. Liquid fuel consumption is expected to grow about 25 percent by 2030, largely because of expanded vehicle ownership.<sup>27</sup> Currently, the transportation sector is responsible for 20 to 25 percent of carbon dioxide emissions.<sup>28</sup> Transitioning to greater use of biofuels will not only help meet demand, but will also significantly reduce pollution. While greater use of biofuels is key, it should be noted that traditional energy sources, particularly oil, will continue to make up the majority of liquid fuels for the foreseeable future.

**PROJECTED GLOBAL TRANSPORTATION ENERGY CONSUMPTION GROWTH**  
(Quadrillion BTU)



<sup>27</sup> US Energy Information Administration, *International Energy Outlook 2009*, 21. Projection period is 2006-2030.

<sup>28</sup> Jan Fuglestedt et al., "Climate Forcing from the Transport Sectors," *Proceedings of the National Academy of Sciences* 105, no. 2 (2008): 454-458.

<sup>29</sup> *International Energy Outlook 2009*, 97.

In order for biofuels to be more fully integrated into the world's energy matrix, a truly global market must be created. At present, overall world demand is low, and there are few exporters. More countries will start to use biofuels once they have access to a larger market. Brazil's successful experience can be a model for other countries seeking to develop biofuels industries. Brazil is working with the United States to transfer skills and technology to select countries in Africa, the Caribbean, and Central America. As these and other nations begin to produce and export biofuels, the market will become more competitive and use will likely increase. As the market for biofuels expands, so will the potential market for cellulosic biofuels. The commercialization of cellulosic biofuels should remain a priority for Brazil and the United States.

Still more can and should be done to speed the transition to a global biofuels market. All barriers to trade in biofuels, including equipment/infrastructure and services, should be removed. To facilitate trade, governments should agree on standards for biofuels, factoring in the entire life cycle. Internationally recognized criteria will allow biofuels to become a global commodity, easily valued and traded. Brazil and the United States are already addressing standards in the International Biofuels Forum. Both countries are also active in the Global Bioenergy Partnership, which is developing a framework for measuring GHG emissions reductions from biofuels use. The work of these bodies must continue to be prioritized.

### *Brazil and the United States Should Increase Collaboration on Energy and Climate Issues*

The actions of Brazil and the United States on energy and climate change will be key to helping the world meet growing energy demand and transition to cleaner energy sources. Not only a leader in biofuels, Brazil is also poised to become one of the largest exporters of oil following discoveries of substantial oil and natural gas reserves off its coast. The United States is the biggest producer and consumer of energy, and both Brazil and the United States are among the top emitters of GHGs.

Since 2007, Brazil and the United States have been working together to advance research on the production of next generation biofuels and promote a global market by helping select third countries establish biofuels industries. These are worthwhile initiatives, and Brazil and the United States should expand and deepen their cooperation on energy and climate issues. There is political interest on both sides in doing so. After a March 2009 bilateral meeting, both President Lula and US President Barack Obama expressed a desire to broaden collaboration on biofuels.

One of the stated goals of the Brazil-US program is to create international standards for biofuels. As two of the most important producers and consumers, Brazil and the United States should take advantage of the UN Conference on Climate Change in Copenhagen to press forward on global criteria for biofuels. A mandate for biofuels standards coming out of Copenhagen would increase the urgency of the work being done in the International Biofuels Forum and the Global Bioenergy Partnership.

In addition, as the United States seeks to put in place a domestic cap and trade regime aimed at reducing carbon dioxide emissions, Brazil and the United States should also begin setting the stage for a larger climate mitigation system that factors in tradable carbon credits for avoiding deforestation. Mexico and Canada would be natural collaborators and could join together with Brazil, the United States, and other willing partners as recommended in an earlier AS/COA report.<sup>30</sup> Similar to the Brazil-US MOUs on biofuels, these four countries, and other interested nations, should consider working with the IDB and the OAS to provide technology transfer, capacity building, and infrastructure development assistance on clean energy and GHG emissions reduction efforts in the region.

### *Brazil Should Play a Greater Role in Global Energy and Climate Policy*

Brazil is well positioned to be an influential actor in international energy and climate issues. The combination of its low-carbon-intensity energy use, technological know-how, and natural assets make it both an example and a resource. Brazil should take advantage of its strengths, both to serve as a force for global change as well as to begin to lower its own emissions.

In order to boost its efforts to protect the Amazon and turn it into an even more productive environmental asset, Brazil should advocate for the inclusion of deforestation credits in the agreement that emerges from Copenhagen. Known as global reduction of emissions from deforestation and degradation, or REDD, such a scheme would allow Brazil to sell in the global market the emissions it saves from avoiding deforestation. As Brazil undertakes domestic action to regularize landholdings in the Amazon and curb deforestation, it should also seek international recognition for the benefits the Amazon brings to the world as a carbon sink.

A key source of disagreement in global climate change negotiations is the role of large developing countries in limiting emissions. Developed countries generally support mandatory emissions cuts for all countries, while developing countries have so far refused to agree to this. Brazil has recently set its own goals for decreasing deforestation and has

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<sup>30</sup> *Building the Hemispheric Growth Agenda: A New Framework for Policy*, Report of the AS/COA Trade Advisory Group (Washington DC, January 2009), 10-11.



indicated a willingness to assume emissions reduction targets as part of a climate change agreement, a major shift in its position. Brazil has also publicly encouraged other large developing nations, such as China and India, to adopt targets for emissions reductions. Brazil's possible acceptance of targets is important, and its leadership in this matter could perhaps provide a breakthrough necessary for progress in Copenhagen.

Whatever the outcome in Copenhagen, countries will likely continue to strive to decrease their emissions with cleaner energy technologies. From hydropower to biofuels to flex-fuel engines, Brazil has developed expertise that others are only just beginning to explore. And while Brazil has started to do this, a more robust effort to share its experience with the world would benefit climate change mitigation and Brazilian companies.

### CONCLUSION

Brazil has a promising future as a leader in energy and climate issues. Tackling deforestation, as it has begun to do, and maintaining a legal and regulatory climate that attracts investment in oil and gas and other areas of the energy economy will be paramount. Smart domestic management of these issues combined with effective international advocacy for alternative fuels such as ethanol will continue to build Brazil's profile in addressing the world's energy and climate challenges. Americas Society/Council of the Americas will continue to follow these issues carefully and work to advance the agenda in the months to come.

*Americas Society* is the premier forum dedicated to education, debate, and dialogue in the Americas. Its mission is to foster an understanding of the contemporary political, social, and economic issues confronting Latin America, the Caribbean, and Canada, and to increase public awareness and appreciation of the diverse cultural heritage of the Americas and the importance of the inter-American relationship.

*Council of the Americas* is the premier international business organization whose members share a common commitment to economic and social development, open markets, the rule of law, and democracy throughout the Western Hemisphere.

**Energy Action Group (EAG)** In 2004, the Americas Society/Council of Americas established the EAG to facilitate the interaction of private and public sector representatives in the development of strategic energy policies for the Americas. Since that time, the EAG has hosted forums in cities across the Americas on key energy and climate topics.

To provide input to the countries of the hemisphere as they seek to increase cooperation on energy and climate issues, consistent with the Summit of the Americas mandates, the Energy Action Group is convening meetings of high-level energy and climate leaders and experts across the hemisphere. Throughout 2009 and 2010, the EAG will work to develop recommendations for hemispheric leaders on improving energy and climate cooperation in the Americas.

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*The opinions expressed herein do not necessarily reflect the views of sponsoring companies and organizations.*



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